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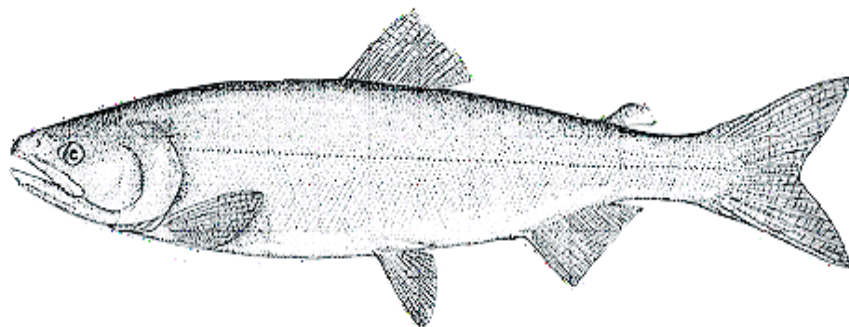
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# INTEGRATED FISHERIES MANAGEMENT PLAN

## JUNE 1, 2017 - MAY 31, 2018

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SALMON  
SOUTHERN BC



Genus *Oncorhynchus*



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

Canada

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

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[http://www.pac.dfo-mpo.gc.ca/ops/fm/toppages/contacts\\_e.htm](http://www.pac.dfo-mpo.gc.ca/ops/fm/toppages/contacts_e.htm)

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Vancouver ..... (604) 666-2828

Toll Free ..... 1-888-431-3474

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

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

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

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## FISHERIES AND OCEANS CANADA GENERAL INFORMATION

### MAIN PAGE

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

Our Vision, Latest News, Current Topics

Twitter:

DFO Pacific: [@DFO Pacific](#)

En Français: [@MPO Pacifique](#)

### ACTS, ORDERS, AND REGULATIONS

<http://www.dfo-mpo.gc.ca/acts-loi-eng.htm>

Canada Shipping Act, Coastal Fisheries Protection Act, Department of Fisheries and Oceans Act, Financial Administration Act, Fish Inspection Act, Fisheries Act, Fisheries Development Act, Fishing and Recreational Harbours Act, Freshwater Fish Marketing Act, Navigation Protection Act, Oceans 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.

### WAVES

<http://waves-vagues.dfo-mpo.gc.ca/waves-vagues/>

Fisheries and Oceans Canada online library catalogue

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## **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 PROGRAMS**

<http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especies/salmon-saumon/pol/index-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; Marine Environmental Quality; Oceans Outreach; Oceans Act

## **PACIFIC REGION FISHERIES MANAGEMENT**

### **MAIN PAGE**

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

Commercial Fisheries, New and Emerging Fisheries, Recreational Fisheries, Maps, Notices and Plans

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## **ABORIGINAL FISHERIES STRATEGY**

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

or <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.htm>

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.

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## **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**

<http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/salmon/testfish/default.htm>

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](mailto:fishing-peche@dfo-mpo.gc.ca)

(Please include your name and the DFO Region in which you are located.)

Telephone: 1-877-535-7307

Fax: 613-990-1866

TTY: 1-800-465-7735

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## **SALMON**

<http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especies/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 RIVER/BC 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 MAIN PAGE**

<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).



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## **PACIFIC REGION POLICY AND COMMUNICATIONS**

### **MAIN PAGE**

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

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)**

<http://www.dfo-mpo.gc.ca/species-especies/index-eng.htm>

SARA species; SARA permits; public registry; enforcement; Stewardship projects; Consultation; Past Consultation; First Nations; Related Sites; For Kids; 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

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A comprehensive glossary is available online at:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/gloss-eng.html>

## LIST OF ACRONYMS USED IN THIS PLAN:

<b>ACRONYM</b>	<b>PHRASE</b>
AABM	Aggregate Abundance-Based Management
AAROM	Aboriginal Aquatic Resource and Oceans Management
AHC	Area Harvest Committee
AFS	Aboriginal Fisheries Strategy
ATP	Allocation Transfer Program
CCTAC	Canadian Commercial Total Allowable Catch
CEDP	Community Economic Development Program
COHO ABM	Coho Abundance-Based Management
COSEWIC	Committee for the Status of Endangered Wildlife in Canada
CPUE	Catch Per Unit Effort
CSAP	The Centre for Scientific Advice Pacific
CSAS	The Canadian Science Advisory Secretariat
CSAF	Commercial Salmon Allocation Framework
CSAB	Commercial Salmon Advisory Board
CWT	Coded Wire Tag
DIDSON	Dual Frequency Identification Sonar
ER	Exploitation Rate

# GLOSSARY AND LIST OF ACRONYMS

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<b>ESSR</b>	Excess Salmon to Spawning Requirements
<b>FNFC</b>	First Nations Fishery Council
<b>FRP</b>	Fraser River Panel
<b>FSC</b>	Food, Social and Ceremonial
<b>HG</b>	Haida Gwaii
<b>ITQ</b>	Individual Transfer Quota
<b>IHPC</b>	Integrated Harvest Planning Committee
<b>ISBM</b>	Individual Stock-Based Management
<b>ISC</b>	Inside Southern Chum
<b>LAER</b>	Low Abundance Exploitation Rates
<b>LGS</b>	Lower Strait of Georgia
<b>LRP</b>	Lower Reference Points
<b>MCC</b>	Marine Conservation Caucus
<b>MPA</b>	Marine Protected Area
<b>MSY</b>	Maximum Sustainable Yield
<b>MVI</b>	Mid Vancouver Island
<b>NOLS</b>	National On-line Licensing System
<b>PICFI</b>	Pacific Integrated Commercial Fisheries Initiative
<b>PFMA</b>	Pacific Fisheries Management Areas
<b>PSC</b>	Pacific Salmon Commission
<b>PST</b>	Pacific Salmon Treaty

# GLOSSARY AND LIST OF ACRONYMS

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<b>RCA</b>	Rockfish Conservation Area
<b>SARA</b>	Species at Risk Act
<b>SEG</b>	Sustainable Escapement Goal
<b>SEP</b>	Salmonid Enhancement Program
<b>SFAB</b>	Sport Fishing Advisory Board
<b>SHMF</b>	Selective Hatchery Mark Fishery
<b>TAC</b>	Total Allowable Catch
<b>TAM</b>	Total Allowable Mortality
<b>WCVI</b>	West Coast Vancouver Island
<b>WSP</b>	Wild Salmon Policy (Canada's Policy for Conservation of Wild Pacific Salmon)

# FOREWORD

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

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

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

## **NEW FOR 2017/2018**

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### **KEY CHANGES FOR THE 2017/18 SOUTHERN BC SALMON IFMP**

#### **STATE OF THE PACIFIC OCEAN AND FRESHWATER ENVIRONMENTAL CONDITIONS:**

Returns of most Pacific salmon stocks have been increasingly variable due to a combination of factors such as: numbers of parental spawners and the changing freshwater and marine environment affecting subsequent production from these spawners at various life history stages. The 2017 outlook for salmon returns shows this variation but also suggests a period of continued reduced productivity. Reasons include the extremely warm water temperatures in the central NE Pacific ocean (the “warm blob”) starting in late 2013, the 2016 El Nino conditions, and the resulting changes in the marine food web – zooplankton composition, density, and distribution. For Pacific salmon, the full implications of these conditions are uncertain; however, these conditions have been linked to reduced survival and / or growth for salmon in the past. These conditions could also affect returning adults in 2017 through changes in age-at-return, fish condition, migration routes, and run timing.

DFO utilizes a range of information to manage fisheries in-season and decision making often incorporates science advice on the impact of environmental factors on in-season indicators of salmon returns, migration and fish condition. For 2017, environmental conditions and associated uncertainties may require additional adjustments to the fisheries management approaches outlined in this IFMP. For example, these adjustments could include changes to planned openings, harvest levels and timing of fisheries; management adjustments to account for adverse environmental conditions; time or area closures in specific locations to protect spawners that may be aggregating due to poor migratory conditions; additional selective fishing requirements; or other measures necessary to achieve sufficient spawner requirements. Further information on specific management actions will be communicated in-season by Fisheries Notice.

#### **SOUTHERN BRITISH COLUMBIA CHINOOK - IN-SEASON MANAGEMENT CHANGES**

This IFMP identifies conservation objectives for southern BC salmon and outlines planned management measures for First Nations, recreational and commercial fisheries for the period from June 1, 2017 to May 31, 2018. The Department may make in-season changes to the management measures outlined in this IFMP to address implementation of *An Action Plan for Northern and Southern Resident Killer Whales in Canada*, as well as, new information and analysis.

Work is also planned to conduct a technical review of the Fraser River management approach and in-season changes may be considered as a result of this work. The Department will make all reasonable effort to include First Nations and stakeholders in discussions on proposed changes and to consult First Nations and stakeholders of any in-season changes in advance of changes being announced.

## **SOUTHERN ISBM CHINOOK – RECREATIONAL FISHERIES**

Management measures in place in the Southern Strait of Georgia to protect Spring 4<sub>2</sub> and Spring/ Summer 5<sub>2</sub> chinook have been updated to include a portion of Area 29-3 as part of existing measures in Subareas 18-1 to 18-6, 18-9, 18-11, 19-5, and portions of 29-4 and 29-5. See Section Allocation and Fishing Plans [13.1.4.5](#) for more information.

## **INTERIOR FRASER COHO**

The Canadian Interior Fraser coho exploitation rate objective and approach for 2017 fisheries; please refer to Section [6.5](#) for more information.

## **FRASER RIVER SOCKEYE**

For the 2017 Escapement Plan, Harvest Rate Calculations and window closure dates to start the season; please refer to the Fraser River Sockeye Section ([13.5.6](#)) of the Southern Sockeye Salmon Fishing Plan in Section [13](#) for more information.

## **FISHERY MONITORING AND CATCH MONITORING**

The Department finalized the “Strategic Framework for Fisheries Monitoring and Catch Reporting in the Pacific Fisheries” (the Framework) in the spring of 2012. The Framework directs that an ecological risk assessment be undertaken for all fisheries to determine the level of monitoring required to provide information necessary to manage for the ecosystem risks posed by a fishery, while allowing for final monitoring and reporting programs to reflect the fishery's unique characteristics.

Risk assessments are performed using an excel-based tool that provides for a consistent approach to a structured conversation regarding ecological risk and other resource management considerations. For salmon, the draft risk assessments are planned to be initially completed by DFO, then presented to harvesters for review, comment, and revision through existing advisory processes established for fisheries management purposes.

Should the risk assessment indicate a gap between the current level and target level of monitoring identified through the risk assessment, options to address the monitoring gap are to

be identified through discussion between DFO and harvesters. The feasibility of these options (e.g. cost, technical considerations etc.) is also to be considered through these discussions. The Strategic Framework directs that monitoring and reporting programs must be both cost-effective and tailor-made for a fishery; as such, a collaborative approach is required.

More info is available at:

[http://www.pac.dfo-mpo.gc.ca/fm-gp/docs/framework\\_monitoring-cadre\\_surveillance/page-1-eng.html](http://www.pac.dfo-mpo.gc.ca/fm-gp/docs/framework_monitoring-cadre_surveillance/page-1-eng.html)

## **USE OF FISH FOR FINANCING SALMON SCIENCE ACTIVITIES**

The list of Southern BC salmon projects planned for 2017 is similar to those projects in 2016. These include: 9 Fraser Panel projects for Fraser River sockeye and pink; Albion chinook/chum gill net; Johnstone Strait chum seine; Barkley Sound sockeye seine; and M̓aḡuq<sup>W</sup>in / Brooks Peninsula chinook. Details of Southern BC salmon test fisheries are listed in Section [12.5](#).

## **COMMERCIAL SALMON ALLOCATION FRAMEWORK**

In the 2015/16 salmon IFMP's, the Department outlined changes to the CSAF based on recommendations received from the First Nations Fisheries Council's Salmon Coordinating Committee (SCC) and the Commercial Salmon Advisory Board (CSAB). The background on this work and the details of the approved updates are outlined in Appendix 6 of the draft 2017/2018 Salmon IFMP. Included for 2017/2018 are additional guidelines and principles for review which were suggested by the SCC and CSAB to provide further clarity on sharing arrangements approved in the 2015/2016 IFMP as well as suggested changes and outstanding topics for discussion related to the Transfer Guidelines.

As part of implementing changes to the CSAF, the Department indicated that it would adopt an incremental approach to providing increased flexibility to harvest salmon shares starting in 2016. CSAF proposals are assessed through a common Evaluation Framework which outline Department objectives and were developed with support from the SCC and CSAB. CSAF proposals received and included within the final 2016/2017 IFMP and new proposals received for consideration in 2017/2018 are included in Appendix 6 to allow for further feedback while evaluations and discussion with proponents are completed.

Fishery proposals reviewed through the Evaluation Framework which do not result in substantial concerns based on an initial assessment will be included in the final IFMP. Those proposals which are included in the final IFMP may proceed in the coming year, subject to addressing any outstanding operational considerations.



## NEW FOR 2017/2018

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\*Please see Appendix 6 for details of CSAF demonstration fisheries proposed for 2017 as well as the revised transfer guidelines.

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

# **I OVERVIEW**

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## **I.1 INTRODUCTION**

The Southern BC Salmon Integrated Fisheries Management Plan (IFMP) covers the period June 1, 2017 to May 31, 2018.

This IFMP provides a broad context to the management of the Pacific salmon fishery and the interrelationships of all fishing sectors involved in this fishery. Section [2](#) considers stock assessment, while Sections [3](#) and [4](#) consider the shared stewardship arrangements and the social, cultural, and economic performance of the fishery. Section [5](#) describes the broader management issues, and the objectives to address these issues are identified in Section [6](#). Sections [7](#) and [8](#) describe allocation, general decision guidelines and compliance plans. 2015 Post season review information is outlined in Section [9](#). Sections [10](#), [11](#), and [12](#) are sections that describe the different fisheries and Section [13](#) of the IFMP covers off the fishing plans for each salmon species.

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

## **I.2 HISTORY**

For thousands of years, the history, economy and culture of Canada's west coast have been inextricably linked to Pacific salmon. These magnificent fish have been an important part of the diet, culture and economy of First Nations people. Since the late 1800s, salmon have supported a vibrant commercial fishing industry, vital to the establishment and well-being of many coastal communities. Salmon, particularly chinook and coho, also play a key role in the west coast recreational fishery.

## **I.3 TYPE OF FISHERY AND PARTICIPANTS**

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

## I.4 LOCATION OF FISHERY

This IFMP covers fisheries in tidal and non-tidal waters from Cape Caution south to the BC/Washington border, including the Fraser River watershed (Appendix 6).

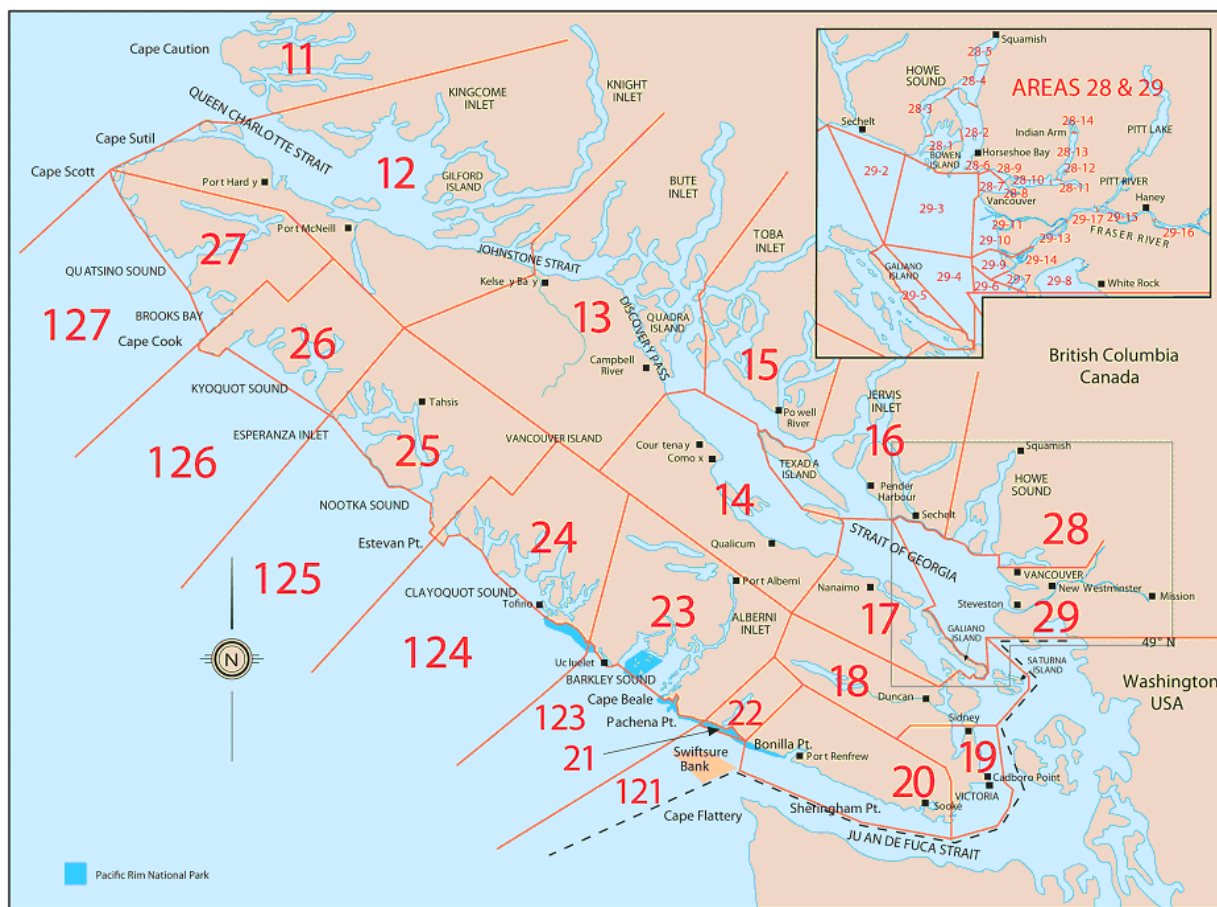


Figure I.4-I: Management Areas for Southern BC

## 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 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, or at 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 groupings, and describe the details of authorized fisheries including dates, times, methods and locations of fishing. Licences 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:

- Treaty arrangements.
- Commercial fisheries access through communal commercial licences acquired through DFO relinquishment 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.
- 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.
- The Department is actively working with the five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island – Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht for opportunities for the 2017-2018 seasons.

Fisheries and Oceans Canada regulates recreational fishing for Pacific salmon in both tidal and non-tidal waters. All recreational fishers must possess a valid sport fishing licence. Tidal licences are issued by DFO and non-tidal licences are issued by the Province. Anglers wishing to retain salmon taken from either tidal or non-tidal waters must have a valid salmon

conservation stamp affixed to their licence. The proceeds from the sale of stamps are used to fund salmon restoration projects supported by the non-profit Pacific Salmon Foundation.

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

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

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

## **1.6 GOVERNANCE**

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

### **1.6.1 POLICY FRAMEWORK FOR THE MANAGEMENT OF PACIFIC SALMON FISHERIES**

Salmon management programs continue to be guided by the following policies: *Canada’s Policy for Conservation of Wild Pacific Salmon (WSP)*, *An Allocation Policy for Pacific Salmon*, *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:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/pol/index-eng.html>

*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: <http://www.pac.dfo-mpo.gc.ca/publications/pdfs/wsp-eng.pdf>. DFO is working collaboratively with key partners to develop a 5-year WSP implementation plan. This implementation plan will include guidance and activities, deliverables, timelines, and accountabilities, and will be updated as new projects and programs are implemented by DFO or by others. More information on this can be found at: <http://www.pac.dfo-mpo.gc.ca/consultation/wsp-pss/index-eng.html>

*An Allocation Policy for Pacific Salmon*, announced in 1999, contains principles to guide the management and allocation of the Pacific salmon resource between First Nations, commercial and recreational harvesters, and forms the basis for general decision guidelines outlined in Section 7 of this plan.

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.

The *'Vision for Recreational Fisheries in BC'* was approved in January 2010 by DFO, the Sport Fishing Advisory Board (SFAB), and the Province of BC. Guided by this Vision, an action and implementation plan is being developed to build upon the collaborative process established by the Federal and Provincial Governments and the SFAB. The document can be found on the DFO Pacific Region website at: <http://www.pac.dfo-mpo.gc.ca/consultation/smon/sfab-ccps/docs/rec-vision-eng.pdf>

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.

The Sustainable Fisheries Framework (SFF) is a toolbox of existing and new policies for DFO to sustainably manage Canadian fisheries by conserving fish stocks while supporting the industries that rely on healthy fish populations. The SFF provides planning and operational tools that allow these goals to be achieved in a clear, predictable, transparent, inclusive manner,

and provides the foundation for new conservation policies to implement the ecosystem and precautionary approaches to fisheries management.

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

## **I.6.2 FIRST NATIONS AND CANADA'S FISHERIES**

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. 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:

- 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
- Increased participation in commercial fisheries (Allocation Transfer Program (ATP))

The AFS continues to be the principal mechanism 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.

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 T'aaq-wiihak First Nations) - have aboriginal rights to fish for any species of fish, with the exception of geoduck, within their Fishing Territories (their Fishing Territories are located within portions of Pacific Fishery Management Areas (PFMA) 25/125, 124, 26/126 and all of PFMA 24) and to sell that fish. DFO is working with the First Nations to find the manner in which the rights of the five First Nations can be accommodated and exercised without jeopardizing Canada's legislative objectives and societal interests in regulating the fishery.

As part of the reform of Pacific fisheries, DFO is looking for opportunities to increase First Nations participation in commercial fisheries through an interest-driven business planning process. New planning approaches and fishing techniques will be required to ensure an economically viable fishery. In recent years some First Nations inland demonstration fisheries have occurred in order to explore the potential for inland fisheries targeting terminal runs of salmon. The Department is also working with First Nations and others with an interest in the

salmon fishery to improve collaboration in the planning of fisheries and to improve fisheries monitoring, catch reporting and other accountability measures for all fish harvesters.

### **I.6.3 PACIFIC INTEGRATED COMMERCIAL FISHERIES INITIATIVE (PICFI)**

The Pacific Integrated Commercial Fisheries Initiative (PICFI) was announced in 2007 and is aimed at achieving environmentally sustainable and economically viable commercial fisheries, where conservation is the first priority, First Nations' aspirations to be more involved are supported and the overall management of fisheries is improved.

PICFI has supported fisheries reforms by targeting on the following outcomes:

- 1) greater stability of access for commercial harvesters through increasing FN participation in commercial fisheries;
- 2) increased compliance with fishing rules, greater confidence in catch data through strengthened fisheries monitoring, catch reporting and enforcement, and improved collection and storage of catch information; and
- 3) collaborative management mechanisms for all harvest sectors, including the growing aboriginal commercial participants.

In its first 5 years, the Government of Canada committed \$175 million to implement the initiative. To continue to build on the progress achieved to date and to continue promoting the integration of commercial fisheries, Economic Action Plan 2014 announced a two year renewal, with resources of \$22.05M per year, of the Pacific Integrated Commercial Fisheries Initiative. The 2016/17 federal budget supported a one year renewal of the PIFCI program at the same funding level (\$22.05M) until March 31, 2017. Budget 2017 proposes to provide \$250 million over five years, and \$62.2 million ongoing, to Fisheries and Oceans Canada to renew and expand the successful Pacific and Atlantic integrated commercial fisheries initiatives and to augment Indigenous collaborative management programming.

### **I.6.4 FISHERY MONITORING AND CATCH REPORTING**

A complete, accurate and verifiable fishery monitoring and catch reporting program is required to successfully balance conservation, ecosystem and socio-economic and other management objectives. Across all fisheries, work is being undertaken to improve catch monitoring programs by clearly identifying information requirements based on ecosystem risk and their supporting rationale for each specific fishery and evaluating the current monitoring programs to identify gaps. Managers and harvesters will annually work together to address those gaps.



The Department finalized the “Strategic Framework for Fisheries Monitoring and Catch Reporting in the Pacific Fisheries” (the Framework) in the spring of 2012. The Framework outlines how consistent risk assessment criteria can be applied to each fishery to determine the level of monitoring required, while allowing for final monitoring and reporting programs to reflect the fishery's unique characteristics. More info is available at:

[http://www.pac.dfo-mpo.gc.ca/fm-gp/docs/framework\\_monitoring-cadre\\_surveillance/page-1-eng.html](http://www.pac.dfo-mpo.gc.ca/fm-gp/docs/framework_monitoring-cadre_surveillance/page-1-eng.html)

## **1.7 CONSULTATION**

This plan incorporates the results of consultations and input from the Integrated Harvest Planning Committee (IHPC). The IHPC was developed to allow First Nations, recreational and commercial advisors, and the Marine Conservation Caucus (MCC), which represents a coalition of “conservation” organizations, to come together to discuss issues and concerns related to the management of salmon. Where possible; potential significant changes to provisions in the IFMP will be identified to the Integrated Harvest Planning Committee (IHPC) prior to implementation. However there may be times when changes will be made without prior notification.

Fisheries and Oceans Canada will continue to consult with First Nations (through regional and bilateral processes), with recreational and commercial harvesters, and with the MCC to also seek IFMP input and to further co-ordinate fishing activities as the season unfolds.

Consultative elements of an Improved Decision Making discussion paper have been implemented through establishment of the Consultation Secretariat, which works to improve the flow of information between stakeholders and the Department. Up-to-date information pertaining to on-going consultations can be found on the Secretariat's website at:

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

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

## **1.8 APPROVAL PROCESS**

This plan is approved by the Minister of Fisheries and Oceans Canada.

## 2 STOCK ASSESSMENT, SCIENCE AND TRADITIONAL ECOLOGICAL KNOWLEDGE

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### 2.1 BIOLOGICAL SYNOPSIS

Pacific salmon include five species belonging to the genus *Oncorhynchus* family Salmonidae: 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 that collectively account for about 75% of the total salmon production.

Pacific salmon are anadromous; salmon breed and spend varying portions of their life in fresh water, then travel to the ocean to feed until maturity. Physical characteristics, life histories and spawning habits vary from species to species. Total life spans range from two years (for pink) up to six or seven years (for some sockeye and chinook). Pacific salmon migrate into rivers and streams to spawn from spring to fall; after courtship, eggs are released, fertilized and then buried in gravel. Both adults die after spawning. In mid-winter the eggs hatch into alevins. In spring, the young emerge and stay in freshwater streams and lakes from one week to two years. Most then go to sea for one to five years, undertaking a large ocean-feeding migration, although sockeye have also developed a land-locked form (kokanee). 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, the 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).

Pacific salmon complete their life cycle by returning to their natal stream to spawn, in many cases to the particular gravel bed where they were hatched. Homing of Pacific salmon to their natal stream is an important biological characteristic of salmon stocks. Each stock is genetically adapted to the environment in which it resides, and exhibits unique characteristics such as life history, migration route, migration timing, and productivity. Sockeye and chinook travel the farthest upstream to spawn, as far as 1,500 kilometers. Chum, coho and pink usually spawn closer to the sea. However, some chum salmon travel more than 3,200 km up the Yukon River.

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, pink salmon are usually dominant on either odd-year or even-year cycles, and many 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.

Chinook are the largest of the species and typically live the longest. Chinook fry may go to sea soon after hatching or, after one to two years in fresh water. Chinook mature at age three to seven years. Jacks, defined as two-year-old sexually mature adult males that return to spawn are common among chinook, coho and sockeye.

Adult coho generally return from late summer and early fall. Most choose streams close to the ocean, although some journey as far as 1,500 kilometers inland. In contrast to other salmon, young coho fry remain in their spawning stream for a full year after emerging from the gravel. Their age at maturity is normally three years.

Sockeye spawn in streams with lakes in their watershed. Young sockeye typically spend between one and three years in a lake before migrating to sea, though there are also populations which do not require nursery lakes as part of their life history. They move rapidly out of the estuaries and thousands of miles into the Gulf of Alaska and the North Pacific where they feed. They return to their natal spawning stream at ages three to six years.

Chum salmon generally spawn in early winter usually in the 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 almost entirely in ocean feeding areas. Adults leave the ocean in the late summer and early fall and usually spawn in streams not fed by lakes, a short distance from the sea. Fry migrate to the sea as soon as they emerge from the gravel.

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 by First Nations and commercial net fishermen, but also in recreational fisheries.

## **SALMON LIFE CYCLE**

Salmon deposit and bury their eggs in nests called redds, which are normally constructed in gravel. Generally the size of gravel chosen will depend on the size of the female parent. The embryos incubate and hatch within the redd and usually remain in the gravel until they have depleted their yolk supply and have become "buttoned-up". Embryo development rates and timing of fry emergence from the gravel is determined primarily by the water temperatures

during incubation. Fry normally emerge in the spring and, depending on the species and the stock, can remain in freshwater streams or lakes from just a few hours up to two years prior to migrating to the ocean. Once at sea, the species undertake migrations of varying distance lasting up to several years ([Figure 2.1-1](#)). Within a species, different stocks can display markedly different migration patterns.

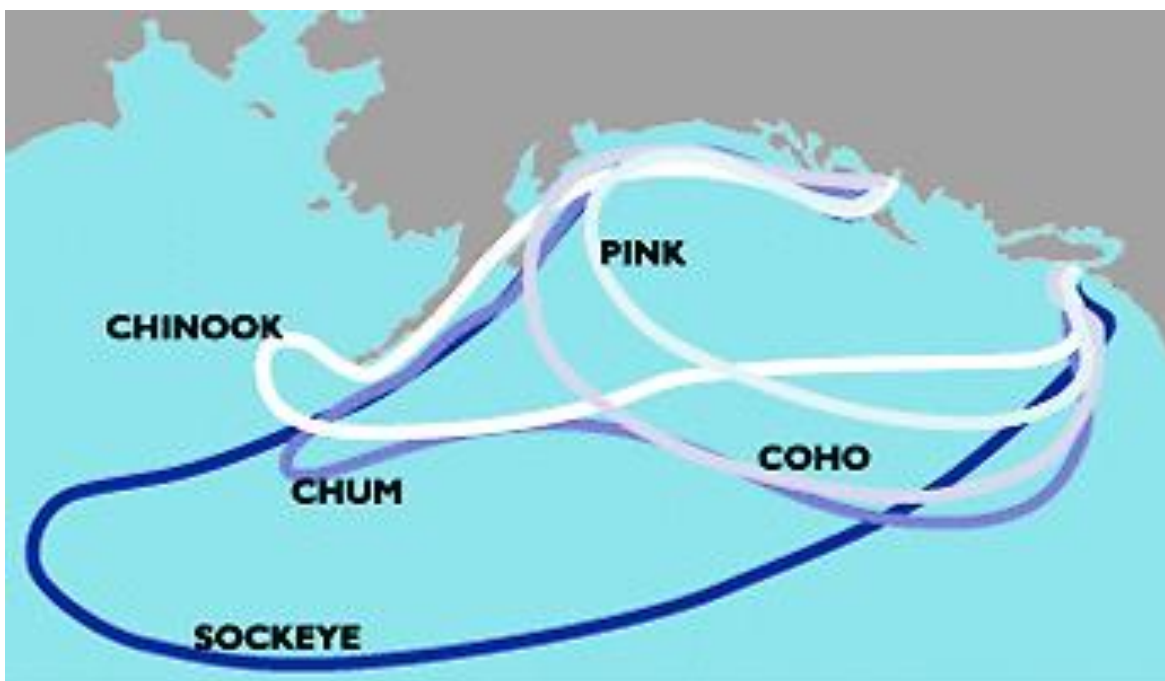


Figure 2.1-1: Typical ocean habitat of BC salmon in the Pacific Ocean

From Agriculture & Agri-Food Canada, see: <http://www.ats.agr.gc.ca/sea-mer/4810-eng.htm>

An example of the contrasts in some life history characteristics of salmon appears in [Table 2.1-1](#) (from Haig-Brown Kingfisher Creek Restoration Project, 1998-99). Once the salmon have reached maturity in the ocean, they migrate back to their natal rivers. Only a fraction of eggs will survive to adulthood to deposit their eggs to continue the cycle.

Table 2.1-1: Summary of life history characteristics for five Pacific salmon

<b>Life History Characteristic</b>	<b>Coho O. kisutch</b>	<b>Sockeye O. nerka</b>	<b>Pink O. gorbuscha</b>	<b>Chum O. keta</b>	<b>Chinook O. tsawytscha</b>
<b>Season when eggs hatch</b>	Spring	Spring	Spring	Spring	Spring
<b>Length of stay in freshwater</b>	1–2 years; 1 year is common.	1 month to 2 years.	Virtually none; often straight to ocean.	Virtually none; often straight to ocean.	1 to 2 years
<b>Primary rearing habitat</b>	Stream	Lake/stream	Estuary	Estuary	Stream
<b>Size at ocean migration</b>	10cm or more	Variable, 6.5 to 12cm	About 3.3cm	2.8 to 5.5cm	5 to 15cm
<b>Ocean voyage</b>	4–18 months	16–52 months	18 months	2 to 5 years	4 mths to 5 years
<b>Age at return to freshwater</b>	During 2nd to 4th year.	During 3rd to 5th years	During 2nd year	During 3rd to 5th years.	During 2nd to 6th years.
<b>Season/month of return</b>	Late summer to January.	Midsummer to late autumn.	July to September	July to October	Spring to fall; some rivers support >one run.
<b>#eggs/female</b>	2,000–3,000	2,000–4,500	1,200–2,000	2,000–3,000	2k-17k (generally 5k-6k)
<b>Preferred spawning area</b>	Small streams	Near and in lake systems.	Close to ocean	Above turbulent areas or upwellings.	Very broad tolerances

## 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. Strategy 3 further identifies the actions required to incorporate ecosystem values as:

- Identify indicators (biological, physical and chemical characteristics) to use in monitoring the status of freshwater ecosystems, and
- Monitor annual variation in climate and ocean conditions, integrate the monitoring with assessments of marine survival of Pacific salmon, and incorporate this knowledge into the annual forecasts of salmon abundance and management processes.

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 Conservation Units and, where appropriate, anticipated timeframes for rebuilding, as well as management plans for fisheries and watersheds, which 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/oceans-eng.html>. These programs include:

- The Strait of Georgia Ecosystem Research Initiative
- Fraser River Watershed Watch
- Monitoring of physical, biological, and chemical freshwater and marine conditions
- Chlorophyll and phytoplankton timing and abundance

The annual State of the Pacific Ocean Report describes changes and trends in atmospheric and oceanic conditions which 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.pac.dfo-mpo.gc.ca/science/oceans-eng.html>

## **2.3 ABORIGINAL TRADITIONAL KNOWLEDGE (ATK)/TRADITIONAL ECOLOGICAL KNOWLEDGE (TEK)**

As defined herein, both Aboriginal Traditional Knowledge (ATK) and Traditional Ecological Knowledge (TEK) are cumulative knowledge gathered over generations and encompass regional, local and spiritual connections to ecosystems and all forms of plant and animal life. ATK is knowledge held by Aboriginal peoples and communities, while TEK is local knowledge held by Non-Aboriginal communities, including industry, academia, and public sectors. While qualitatively different both are cumulative knowledge gathered over time and are regionally and locally specific and can often be utilized to improve the management process. The growing awareness of the value of ATK and TEK is reflected in the increasing requirements for both to be included in environmental assessments, co-management arrangements, species at risk recovery plans, and all coastal management decision-making processes. ATK and TEK are needed to inform and fill knowledge gaps related to the health of salmon stocks and to aid decision making related to development and resource use. Government and the scientific community acknowledge the need to access and consider ATK and TEK in meaningful and respectful ways. However, the challenge for resource managers is how to engage knowledge holders and how to ensure that the information can be accessed 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.

The Wild Salmon Policy acknowledges the importance of integrating Aboriginal Traditional Knowledge and Traditional Ecological Knowledge into the strategic planning process. The Department is exploring best practices to develop an approach for incorporating ATK and TEK into WSP integrated planning. The Department may identify potential partnerships with First Nations organizations to develop an approach for integrating ATK into 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). Aboriginal groups have participated in the development and implementation of Interior Fraser River coho and Cultus Lake sockeye salmon species recovery strategies. The Department utilized Aboriginal knowledge about traditional fisheries, and the historical distribution and relative abundance of salmon in local watersheds in the selection of index streams for escapement monitoring of Interior Fraser Coho (Decker and Irvine, 2013), and also for determining historical abundance ranges of Kitwanga and Morice Lake sockeye.

## **2.4 STOCK ASSESSMENT**

Salmon stock assessment is primarily concerned with providing scientific information for conservation and management of salmon resources. Stock assessment describes the past and present status of salmon stocks and may provide forecasts of future status of stocks. 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, the 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 of the Aquatic Resources Research and Assessment Division. External partners and clients play an increasing role in delivery of the 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 the analytical



and peer review elements. Stock assessment staff collaborates 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:

- 1) 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.
- 2) The DFO (Holt et al 2009) 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. 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).
- 3) A key requirement of the WSP is ongoing monitoring and assessment of the status of wild salmon 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, the 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 a continual 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 (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, including TEK, on wild 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 meeting schedule, reports on the status of salmon, environmental and ecosystem overviews, and research documents are available from CSAS web site:

<http://www.dfo-mpo.gc.ca/csas-sccs/index-eng.htm>

Existing reports on the status of salmon and the environmental and ecosystem overviews are available from CSAS web site:

<http://www.isdm-gdsi.gc.ca/csas-sccs/applications/Publications/index-eng.asp>

Annually, DFO provides a preliminary qualitative outlook of status for salmon management units, the Salmon Outlook, for planning purposes prior to formal forecasts of abundance. The Outlook is available on the DFO website:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/index-eng.html>.

Formal salmon abundance forecasts are generally completed by April.

DFO is continuing to implement WSP Strategy 1.2, determination of biological benchmarks and assess status. Benchmarks for Fraser Sockeye Conservation Units were developed in 2010 ([http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2011/2011\\_087-eng.html](http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2011/2011_087-eng.html)) and status reviewed in 2011 ([http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2012/2012\\_106-eng.html](http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ResDocs-DocRech/2012/2012_106-eng.html)), both through CSAS Regional Peer Review (RPR) processes. DFO completed a CSAS RPR process of WSP benchmarks and status for Southern BC chinook

in February 2014 (<http://www.isdm-gdsi.gc.ca/csas-sccs/applications/events-evenements/result-eng.asp?DateMatch=between&StartDate=2014-02-04&ToDate=2014-02-06&mode=0&desc=&region=6&mode1=0&location=&B1=Search>), and an assessment of WSP benchmarks and status for Interior Fraser Coho in November 2014 ([http://www.dfo-mpo.gc.ca/csas-sccs/publications/sar-as/2015/2015\\_022-eng.html](http://www.dfo-mpo.gc.ca/csas-sccs/publications/sar-as/2015/2015_022-eng.html)). Results from a habitat based approach to determine benchmarks for Strait of Georgia and Lower Fraser River Coho Conservation Units are also reported ([http://www.dfo-mpo.gc.ca/csas-sccs/publications/sar-as/2015/2015\\_045-eng.html](http://www.dfo-mpo.gc.ca/csas-sccs/publications/sar-as/2015/2015_045-eng.html)).

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>

## **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, 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 RESEARCH**

An overview of the science & 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: university, other organizations and agencies. 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.

<http://www.pac.dfo-mpo.gc.ca/science/oceans-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.asp>
- 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.
- On-going research related to improving forecasting ability for salmon stocks and CUs is being conducted by DFO Stock Assessment and the Fisheries & Oceanography Working Group. The annual State of the Pacific Ocean Reports was published by the Canadian Science Advisory Secretariat (CSAS) until 2013. 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 in collaboration with other organizations including the North Pacific Anadromous Fisheries Commission (NPAFC), the Pacific Salmon Commission (PSC), and the Pacific Salmon Foundation (PSF) are studying salmon production, distribution and survival in the North Pacific Ocean including the Salish Sea, and developing leading indicators of salmon returns.
- Annual juvenile salmon surveys monitor the distribution, migration, and survival of salmon in their freshwater and early marine life history.
- On-going 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)

- Research carried out in the freshwater and marine environments is being considered to provide a biological context as Supplementary Information for the forecast of Fraser River sockeye.

[http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2016/2016\\_047-eng.html](http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2016/2016_047-eng.html)

### 3 SHARED STEWARDSHIP ARRANGEMENTS

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Stewardship refers to the care, supervision or management of something, especially the careful and responsible management of something entrusted to one's care.<sup>1</sup> 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.

In Pacific Region, DFO consults with and engages First Nations and other interests 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. 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 [Appendix 5](#).

DFO consults with Aboriginal groups when fisheries management decisions may potentially affect them in accordance with S. 35 of the *Constitution Act, 1982*, relevant case law, and consistent with Departmental policies and considerations. In addition to supporting good governance, sound policy and effective decision-making, Canada has statutory, contractual and common law obligations to consult with Aboriginal groups. For example, the Crown has a legal

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<sup>1</sup> As defined in the Atlantic Fisheries Policy Review (AFPR):  
<http://www.dfo-mpo.gc.ca/fm-gp/policies-politiques/afpr-rppa/framework-cadre-eng.htm>

duty to consult and if appropriate, accommodate, when the Crown contemplates conduct that might adversely impact section 35 rights (established or potential) (Source: Aboriginal Consultation and Accommodation: Interim Guidelines for Federal Officials to Fulfill the Legal Duty to Consult, February 2008).

Consultation and engagement with First Nations takes place at a number of levels and through a variety of processes. For example, 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 during the pre-season, in-season or post-season. In addition to consultations at the local level, DFO works with First Nations at the aggregate or watershed level. For example, the Aboriginal Aquatic Resource and Oceans Management (AAROM) program supports Aboriginal groups in coming together to participate effectively in advisory and decision-making processes used for aquatic resource and oceans management.

Other processes, such as the First Nations Salmon Coordinating Committee (SCC) and the Forum on Conservation and Harvest Planning, are being developed in order to facilitate dialogue between First Nations and DFO. In the case of the Forum, representatives of First Nations from the Fraser Watershed and marine approach areas (e.g. Vancouver Island) and DFO meet to discuss stock and fisheries information, identify issues and develop management approaches to help meet FSC needs of First Nations as they relate to Fraser salmon species. This type of engagement is critical with respect to migratory species such as Fraser salmon where management approaches in one area can have significant implications for management or fisheries in other areas. In the case of the First Nations SCC, First Nations representatives from 13 geographical areas within BC meet with DFO resource management to discuss priority issues among BC First Nations as they relate to salmon. SCC priorities include advancing First Nations concerns related to salmon, access to salmon for FSC needs across the province and working to improve First Nations commercial opportunities in salmon fisheries.

Engagement between DFO and First Nations also takes place through a number of bilateral and “integrated” (multi-interest) advisory processes, management boards, technical groups and roundtable forums.

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/>).

## 4 ECONOMIC, SOCIAL AND CULTURAL IMPORTANCE

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The intent of this section is to provide a socio-economic overview of the salmon fisheries in British Columbia using available information. In future years, information on the social and cultural context of the various fisheries can be added, where available. This summary addresses salmon in the context of the 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. Where possible this summary highlights information specific to the South Coast.

### 4.1 ABORIGINAL FISHERIES

Section 35(1) of the Constitution Act, recognizes and affirms the existing Aboriginal and treaty rights of the Aboriginal 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 Aboriginal right to fish for FSC purposes. The Supreme Court found that where an Aboriginal group has a right to fish for FSC purposes, it takes priority, after conservation, over other uses of the resource. The Supreme Court also indicated the importance of consulting with Aboriginal groups when their fishing rights might be affected.

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

- To provide a framework for the management of fishing by Aboriginal groups for food, social and ceremonial purposes.
- To provide Aboriginal groups with an opportunity to participate in the management of fisheries, thereby improving conservation, management and enhancement of the resource.
- To contribute to the economic self-sufficiency of Aboriginal communities.
- To provide a foundation for the development of self-government agreements and treaties.



- To improve the fisheries management skills and capacity of Aboriginal groups.

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. Additional information on AFS implementation for FSC, including harvest target amounts for South Coast are provided in Section [10.2](#). In the region in 2016-2017, there were 82 AFS agreements, representing 159 First Nations conducting FSC harvests that contain provisions relating to salmon management including, but not limited to, FSC fishery arrangements. Among the areas, BC Interior had 17 agreements, Lower Fraser had 11, North Coast had 18, South Coast had 32, and the Yukon had 4. An additional 17 First Nations are provided communal licences for FSC fishing, but do not have AFS agreements.

Fisheries chapters in modern First Nation treaties may articulate a treaty fishing right for FSC 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. While this commercial access may be referenced in the treaty, it is not protected under the Constitution Act.

Four modern treaties (Nisga'a Final Agreement, Tsawwassen First Nation Final Agreement (TFA), Maa-nulth First Nations Final Agreement (MNA), and Tla'amin Nation Final Agreement) have been ratified in British Columbia.<sup>2</sup> For information on Tsawwassen First Nation, Maa-nulth First Nations and Tla'amin Nation fisheries please see Section [10.5](#).

## 4.2 RECREATIONAL FISHERY

Recreational fishing for salmon may occur to provide food for personal use, as a leisure activity, or as a combination of the two. These activities provide non-quantified benefits to the individual participants as well as 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.

Based on the most recent Survey of Recreational Fishing in Canada (2010), tidal water recreational fishing led to over \$689 million dollars in expenditures and major purchases in British Columbia. Respondents reported that salmon accounted for roughly 63% of the fish

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<sup>2</sup> Details of concluded final agreements can be found at:  
<https://www.aadnc-aandc.gc.ca/eng/1402584983606/1402585060047>

caught and 65% of the fish kept. Recreational fishing effort in the South Coast that was directed toward salmon accounted for an estimated 42% of all angler expenditures, or \$289 million.<sup>3</sup>

In order to fish for salmon an angler needs either a tidal or a freshwater licence; in addition, in order to keep salmon the licence must have a Pacific Salmon Conservation (PSF) Stamp. The number of licences and stamps that can be sold is not restricted. Licence data show that the total number of licences and salmon stamps sold was relatively stable from 2001 to 2008 (Figure 4.2-1, below). Starting in 2008 there were several large year over year drops in sales of licences to non-residents (i.e. anglers that did not reside in BC). Some of the drop was made up by increased sales to residents and the number of licences sold was relatively steady at the lower level until 2014. As a result of sharp increases in the sale of licences to both residents and non-residents in 2014 and 2015 mean total sales are at the highest level in the data series. In 2015/16, sales included over 340,000 licences and over 260,000 salmon stamps.

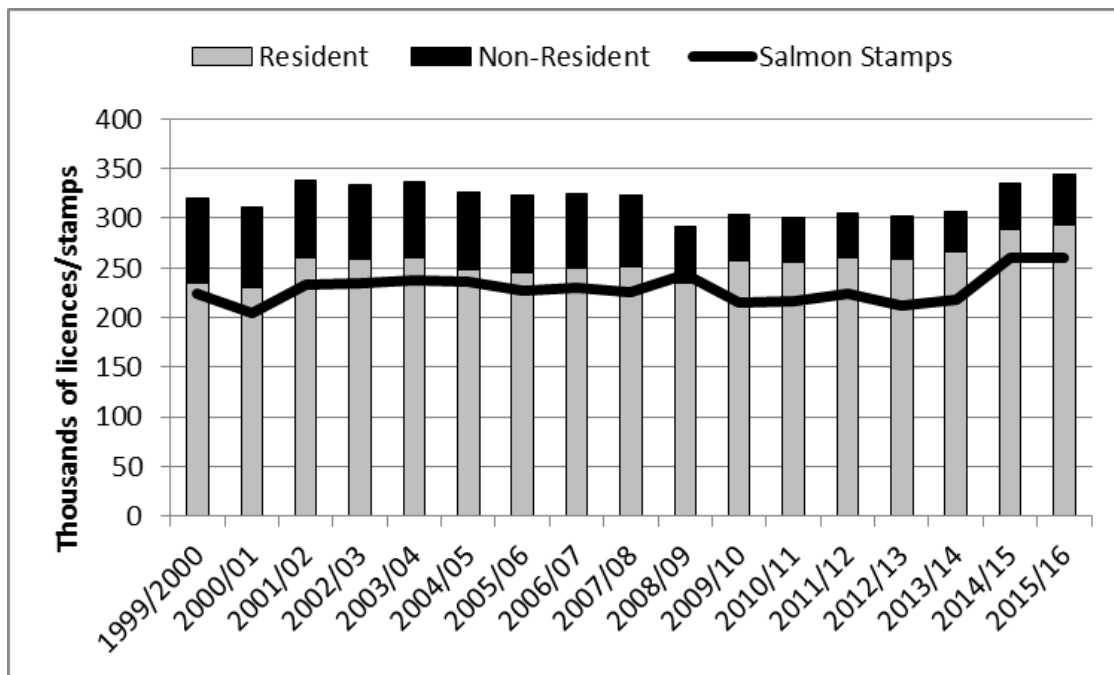


Figure 4.2-1: Tidal Water Recreational Fishing Licences and Pacific Salmon Conservation Stamps Sold, 2006/07 to 2015/16

Source: DFO. <http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/licence-permis/index-eng.htm>

<sup>3</sup> DFO Internal Analysis; Note that values paid for final goods (such as angler expenditures on fishing trips) should not be considered measures of economic impact of a sector.

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).

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 2012). While resident anglers have the largest expenditures, recreational fishing by non-residents adds money to the provincial economy. In 2010, non-resident direct expenditures (including fishing packages) and investments totaled \$139,772,544 (2010 dollars). This number understates the contribution of non-resident tidal water anglers to the overall economy, however, as it only includes expenditures directly attributable to their fishing experience.<sup>4</sup> Fishing opportunities in BC's tidal waters draw Canadian and international tourists to the province: of 47,269 non-resident anglers surveyed in 2010, 40% reported that they would not have come to British Columbia at all if there had been no opportunities for tidal water angling.<sup>5</sup> A further 19% would have shortened their stay in the province.

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<sup>4</sup> 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.

<sup>5</sup> 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.

	2000			
	Direct Expenses*	Packages	Investments	Total
Resident	\$ 132,541,159.85	\$ 21,316,825	\$ 238,863,192	\$ 392,721,177
Canadian nonresident	\$ 28,954,992	\$ 24,803,927	\$ 29,504,129	\$ 83,263,048
Other nonresident	\$ 62,584,071	\$ 51,397,057	\$ 14,775,795	\$ 128,756,923
<b>Total</b>	<b>\$ 224,080,223</b>	<b>\$ 97,517,809</b>	<b>\$ 283,143,116</b>	<b>\$ 604,741,147</b>
	2005			
	Direct Expenses	Packages	Investments	Total
Resident	\$ 157,375,516.04	\$ 44,316,442	\$ 274,110,155	\$ 475,802,113
Canadian nonresident	\$ 35,432,857	\$ 41,459,989	\$ 13,025,827	\$ 89,918,674
Other nonresident	\$ 50,783,457	\$ 68,195,312	\$ 8,509,694	\$ 127,488,463
<b>Total</b>	<b>\$ 243,591,830</b>	<b>\$ 153,971,744</b>	<b>\$ 295,645,676</b>	<b>\$ 693,209,250</b>
	2010			
	Direct Expenses	Packages	Investments	Total
Resident	\$ 197,927,777	\$ 50,135,233	\$ 314,717,439	\$ 562,780,448
Canadian nonresident	\$ 32,843,079	\$ 24,942,920	\$ 18,536,662	\$ 76,322,661
Other nonresident	\$ 33,003,549	\$ 28,721,219	\$ 4,992,473	\$ 66,717,241
<b>Total</b>	<b>\$ 263,774,405</b>	<b>\$ 103,799,372</b>	<b>\$ 338,246,574</b>	<b>\$ 705,820,350</b>

Figure 4.2-2: Recreational Fishing Direct and Package Expenditures and Investments, in constant (2010) dollars

Source: Survey of Recreational Fishing in Canada (DFO, multiple years)

Figure 4.2-2 (above) shows the expenditures by resident and non-resident anglers from 2000 to 2010, adjusted to reflect constant 2010 dollars. Though recreational fishing continues to be important to the BC economy, the rate of growth is slowing: total expenditures and investments grew by nearly 15% from 2000 to 2005, but by only 2% from 2005 to 2010. 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 47% between 2005 and 2010. Expenditure on fishing packages by resident anglers has increased considerably over the past decade; in real terms, it increased by over 135% between 2000 and 2010 and BC residents are now the primary consumers of fishing trip packages in the province. South Coast salmon accounted for roughly 18% of expenditures on fishing trip packages in British Columbia in 2010. 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>

## 4.3 COMMERCIAL FISHERY

### 4.3.1 HARVEST SECTOR

In BC, the salmon fishery is a limited access fishery, mostly managed as a competitive fishery; 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 2006 and 2015, salmon contributed an average of 15% of the landed value and 13% of the volume of BC wild caught seafood (BCMOE, Various years). In 2015 dollars, the value ranged from a high of \$117 million in 2014 to a low of \$24.4 million in 2008 ([Figure 4.3-1](#), below). On average, sockeye was the most important species in terms of landed value, followed by chinook and chum. But every other year, pink is also quite valuable and in fact in 2013 it was the most valuable salmon species bringing in an estimated \$13.9 million.

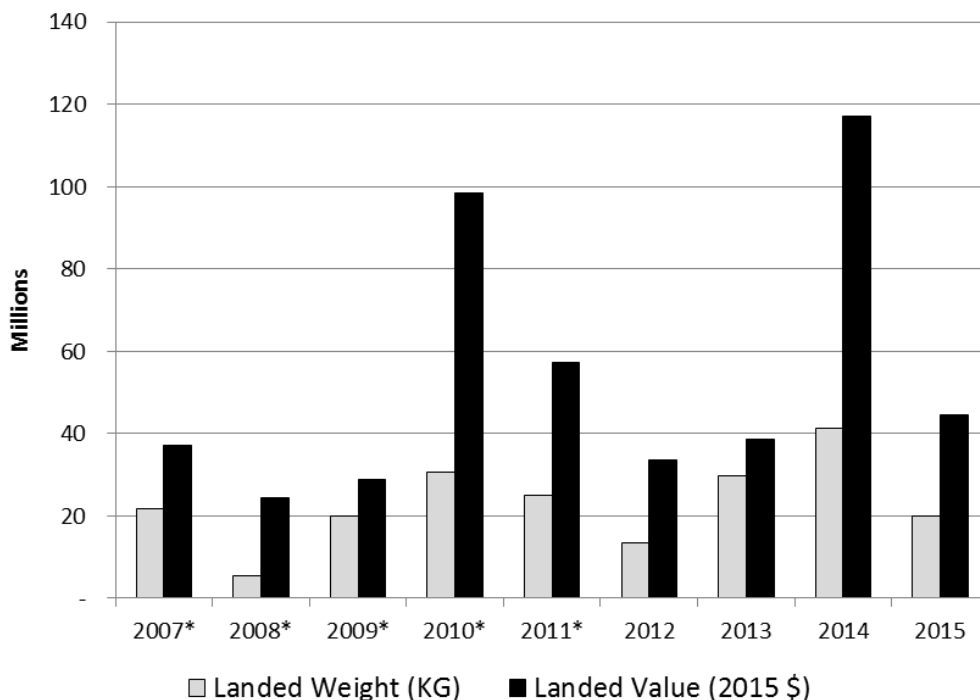


Figure 4.3-1: Pacific Region salmon harvest and landed value (2015 dollars)

Source: DFO logbooks matched to the best available price from sales slips. \* From 2012 to 2014 the data also includes treaty, test, demo and inland fisheries.

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. This may result in a difference landed value compared to the use of a simple province-wide average price. “Salmon” here refers to salmon harvested by commercial fisheries and does not include aquaculture production.

In the decade preceding 2010, the South Coast fishery was responsible for an average of 35% of the volume of salmon landings and 40% of the landed value. Over the period 2011-2015, the South Coast fishery accounted for 57% of salmon landings and 61% of landed value. The record Fraser River sockeye runs in 2010 and 2014 meant that the South Coast accounted for 89% and 79% of the landed value in those years respectively. In average 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 2010 and 2014. Landings and landed value of the South Coast salmon harvest have been variable and do not have an overall trend up or down (Figure 4.3-2, below). The most significant impact is due to the collapse of the Fraser sockeye harvest in 2007 to 2009, and the strong rebound in the 2010 cycle.

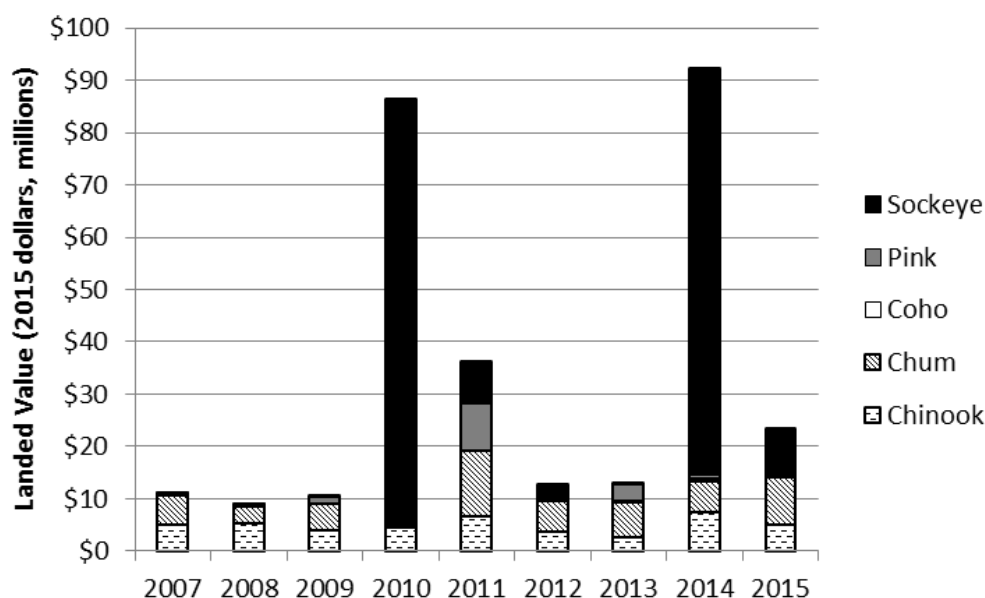


Figure 4.3-2: South Coast salmon value by species, 2007-2015 (2015 dollars)

Source: DFO logbooks matched to best available price from sales slips

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. A 2007 snap shot of the financial performance of the fleet indicated negative overall returns for gill net and seine

fleets in the absence of diversification into other fisheries (Nelson, 2009); this was reiterated in the 2009 financial snapshot (Nelson, 2011). The results also suggested a positive financial performance for the troll fleet, which was enhanced further by participation in other fisheries. It should be noted that these analyses of the Pacific's commercial fisheries occurred in years of particularly low harvest of high-value species for the salmon fisheries and are not representative of the salmon fleet's performance over the past decade. The salmon fleet's financial performance is best reviewed over several years, given the fisheries significant annual swing in harvest. Detailed tables for each fleet (gill net, seine and troll) are available within both documents (Nelson, 2009 & 2011), and are available by licence area (Gislason, 2011).

The Department's general approach is that Aboriginal commercial harvest opportunities are managed using the same harvest decision guidelines as the commercial fishery. Aboriginal 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 Aboriginal 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 Aboriginal communities and individuals from fishery revenues and employment-generated income.

Five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the T'aaq-wiihak First Nations) - have aboriginal rights to fish for any species of fish, with the exception of geoduck, within their Fishing Territories (their Fishing Territories are located within portions of Pacific Fishery Management Areas (PFMA) 25/125, 124, 26/126 and all of PFMA 24) and to sell that fish.

Aboriginal participation within the commercial salmon fishery occurs under four licence categories (A, A-I, N, and F). An Aboriginal vessel owner may elect to pay a reduced fee for a category A licence; thereafter only an Aboriginal may own the vessel. Since 2005, an average of 14% of commercial licences in the North Coast have been reduced fee licences, while the coast-wide average is 11%. Licence categories N and F provide similar fishing privileges as A licence eligibilities, but are non-transferable and are intended to be held permanently for the benefit of the recipient First Nations communities. Both licence categories allow Aboriginal communities to designate vessels and individual fish harvesters to carry out the fishing. The Northern Native Fishing Corporation holds 254 gillnet licences (Category N), of which 61 are in the South Coast.

Since 1994, DFO has acquired a total of 482 commercial salmon fishing licence eligibilities through a voluntary relinquishment process. Once acquired by DFO, licence eligibilities are converted to communal commercial (category F) licence eligibilities and used to support various Aboriginal programs and initiatives including the Aboriginal Fisheries Strategy (AFS, see Section [10.3](#)), the Allocation Transfer Program (ATP), the Pacific Integrated Commercial



Fisheries Initiative (PICFI), First Nations Inland Demonstration Fisheries projects, Economic Opportunity Fishery arrangements and treaties. As of January 2017, 159 communal commercial salmon licence eligibilities were issued to First Nations under the AFS and ATP, 46 were issued under PICFI, 255 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 22 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 First Nations Treaty came into effect on April 5, 2016. For additional information please see Section [10.5](#).

### **4.3.2 PROCESSING SECTOR**

Since 2000, wild salmon accounted for an average of 26% of the total wholesale value from the processing of wild caught seafood in BC (BCMOE, Various years). The latest BC Fish Processing Employment Survey estimates that processing wild caught salmon provided about 1,473 positions or a little over 30% of the BC total fish processing employment (BCMOA, 2011). A 2008 report estimates that approximately 80% of employment is to process domestic landings, although the actual percentage of employment supported by domestic landings varies greatly year-to-year (Fraser and Associates, 2008). The study indicated salmon processing occurred primarily in the Greater Vancouver (47%) and the Skeena-Queen Charlotte (38%) regional districts. Most salmon harvested in the South Coast areas went to processing facilities in the Greater Vancouver Regional District; however, substantial amounts of chum, coho, pink and sockeye caught along the central coast were processed in the Skeena-Queen Charlotte Regional District. Nanaimo and Comox-Strathcona regional districts were important processing locations for some parts of south coast harvest.

## **4.4 EXPORT MARKET**

British Columbia benefits from a strong seafood exports sector, valued at \$1.1 billion in 2015, which is supplied by the domestic wild harvest, aquaculture and raw imports (BCMOA, 2015). Chum and sockeye salmon were among the most widely exported seafood products in 2016, being shipped to 31 and 21 countries, respectively. Over the five-year period from 2012 to 2016, BC exported wild salmon to 59 countries. On average over this period, the United States accounted for 38% of the export value (\$40.5 Million in 2015 dollars), followed by Japan (15% and \$15.7M) and the United Kingdom (9% and \$9.6M).

Japanese imports of BC salmon closely follow trends in sockeye production; Japan absorbed much of the windfall arising from the large harvest of Fraser sockeye in 2010 and 2014 (\$69.7M and \$32.0M, respectively). China's market role increased in the years to 2013 when export value



reached \$14.1M, but returned to its role as a minor market as its export value fell to \$4.7M in 2015 before rebounding to \$9.8M in 2016.

The value of wild caught salmon exports averaged \$108M (2015 dollars) from 2012 to 2016. On average, sockeye accounted for 36% of this value; pink and chum for 19% each and 10% originated from the sale of salmon roe, which is often produced from pink salmon.

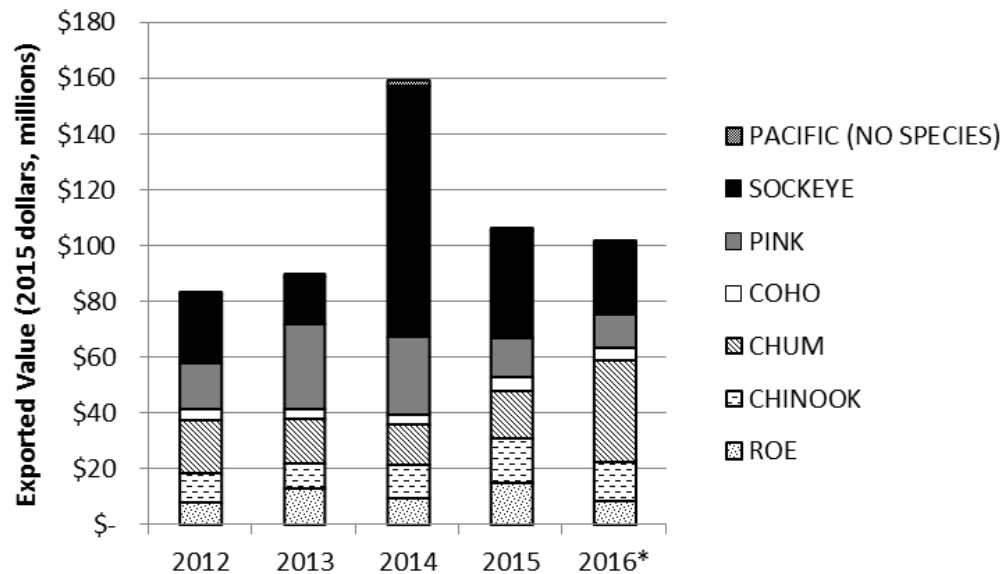


Figure 4.4-1: Salmon Export Value by Species, 2012-16 (2015 dollars)

Source: Statistics Canada. 2016\* is preliminary as of January 2017

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## 5 MANAGEMENT ISSUES

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### 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

The goal of *Canada's Policy for Conservation of Wild Pacific Salmon (WSP)*, which was released in 2005, is to restore and maintain healthy and diverse salmon populations and their habitats for the benefit and enjoyment of the people of Canada in perpetuity. Consistent with the Policy, the Department has taken an incremental approach to WSP implementation, with the focus in the first years principally on the development of technical methods and tools to support the assessment of salmon conservation units, supplemented by some work to assess habitat and ecosystems as part of integrated strategic planning pilots in key areas.

Since 2005, there have been changes to legislation, policies, and programs relevant to conservation and protection of wild Pacific salmon. Furthermore, the Department has received recommendations on WSP implementation through an independent review of the policy in 2011 by Gardner Pinfold and the 2012 final report of the *Commission of Inquiry into the Decline of Sockeye Salmon in the Fraser River*. Over the last decade, there has also been an increase in knowledge about wild Pacific salmon, their habitats and ecosystems. Consequently, a detailed WSP implementation plan is being developed with clear activities, deliverables, timelines, and accountabilities, and a commitment to public reporting on progress.

Between fall 2016 and March 2017, DFO met broadly with First Nations, partners, and stakeholders across BC and Yukon and in fall 2017, DFO staff will be consulting broadly with First Nations, stakeholders and other interested parties across BC and Yukon on the draft implementation plan. At the same time, staff will continue to collect more information about additional WSP-related work being undertaken by First Nations, partners, and stakeholders across BC and Yukon to include in the plan.

A final first draft of the implementation plan will be prepared for approvals in early 2018 and, once approved, circulated broadly.

Additional details regarding the WSP can be found at:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especies/salmon-saumon/wsp-pss/index-eng.html>

## **5.2 INTERNATIONAL COMMITMENTS**

### **5.2.1 PACIFIC SALMON TREATY**

In March 1985, the United States and Canada agreed to co-operate in the management, research and enhancement of Pacific salmon stocks of mutual concern by ratifying the Pacific Salmon Treaty (PST). Various chapters in Annex IV of the Treaty have been renegotiated and ratified since 1985. The Pacific Salmon Commission (PSC), established under the Pacific Salmon Treaty, provides regulatory and policy advice as well as recommendations to 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 United States 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 addition, alternatives to CWT data have been explored by the PSC, including through the feasibility of parentage-based genetic tagging.

The chapters in Annex IV outline the joint conservation and harvest sharing arrangements between Canada and the U.S. for key stocks and fisheries subject to the Treaty. On December 23, 2008, Canada and the US ratified new provisions for five chapters under Annex IV of the Pacific Salmon Treaty. The new provisions in these chapters came into effect on January 1, 2009 and are in effect through December 31, 2018. Chapter 4, which covers Fraser River sockeye and pink salmon, was renegotiated in 2013, with formal ratification by both Parties occurring on May 16, 2014. The provisions contained within Chapter 4 are in effect through December 31, 2019.

The Parties are currently renegotiating five fishing chapters in Annex IV that expire on December 31, 2018. The chapters currently under renegotiation are:

- Chapter 1: Transboundary Rivers
- Chapter 2: Northern British Columbia and South Eastern Alaska
- Chapter 3: Chinook Salmon
- Chapter 5: Coho Salmon
- Chapter 6: Southern British Columbia and Washington State Chum Salmon

Canadian Consultations regarding the renewal of these chapters has, and continues to occur through the Pacific Salmon Commission structure and includes the Commissioners, the Panel members and technical committees for each relevant chapter, as well as meetings outside the Commission with First Nations and stakeholders.

Fisheries and Oceans Canada and U.S. agencies continue to implement the management regimes under Annex IV for the 2017 season. Key details from the chapters under Annex IV relevant to the North Coast are identified, below:

**Chapter 3 (Chinook Salmon):** Building on improvements made in 1999, the current chapter maintains an abundance-based management regime for chinook, including the existing aggregate abundance based management fisheries and individual stock based management fisheries.

To address conservation concerns in both countries, harvest reductions of 15% below the 1999 catch ceiling in the Southeast Alaskan aggregate abundance based management (AABM) fishery and 30% below the 1999 catch ceiling in the Canadian West Coast Vancouver Island AABM fishery were agreed to by the parties and are detailed in [Table 13.1-1](#) of the chinook chapter. The chapter also includes provisions to protect weak stocks, including the potential for further harvest reductions in the Southeast Alaska and Northern British Columbia AABM fisheries, as well as the individual stock-based management (ISBM) fisheries in both countries, should certain stocks fail to meet escapement objectives outlined in the agreement.

The agreement also included provisions for a bilateral funding framework to support implementation of the chinook chapter but have now expired. They included (i) \$15M (\$7.5M from each country) over five years to support the coast-wide coded-wire tag program; (ii) \$10M from the Northern and Southern Endowment Funds for a "Sentinel Stocks Program"; and (iii) \$1M from the U.S. to improve the analytical models to implement the chinook agreement. Canada continues to implement a \$30M program to help mitigate the impacts of commercial harvest reductions in Canada.

**Chapter 4 (Fraser River Sockeye and Pink Salmon):** The 2014 amendments adopted by the Parties were largely operational in nature 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 as well as updates to how the Aboriginal Fisheries Exemption is distributed across the sockeye management groups.

**Chapter 5 (Coho Salmon, Southern BC and Washington State):** The current chapter, relevant to coho originating in rivers south of Cape Caution, incorporates the joint Southern Coho Management Plan developed in 2002 with the abundance-based management (ABM) framework established in 1999. Under this regime, annual exploitation rate caps for each country are established based on annual categorical status assessment of Coho Management units (9 units in the U.S. and 4 in Canada). Parties to the Treaty have raised some concern about the countries' respective capacities to support the relatively data-intensive requirements of the ABM regime as it is currently described in Chapter 5. The Southern Endowment fund has provided funds to conduct a workshop to explore potential alternative management strategies for southern coho and a project to support establishment of status-specific fishery reference points and associated exploitation rate caps for Canadian southern coho management units.

**Chapter 6 (Chum Salmon, Southern BC and Washington State):** The current chum management regime is based on a 20% fixed harvest rate in Johnstone Strait, linking the initiation of U.S. chum fisheries to in-season abundance assessment from Inside Southern chum mixed stock area and from the Fraser River. At an Inside Southern chum abundance estimate (as measured by the Johnstone Strait chum test fishery) of less than 1 million, or a Fraser River abundance estimate (as measured by the Albion test fishery) of less than 900,000 chum, the U.S. would restrict its fisheries in Area 7 and 7A to 20,000 chum subsequent to being informed that required abundance thresholds would not to be achieved. At abundance levels above these thresholds, the U.S. harvest cap on chum in 7 and 7A is 130,000 pieces. There is also a defined annual start date of October 10, for U.S. fisheries in Areas 7 and 7A.

## 5.3 OCEANS AND HABITAT CONSIDERATIONS

### 5.3.1 OCEANS ACT

In 1997, the Government of Canada enacted the *Oceans Act*. This legislation provides a foundation for an integrated and balanced national oceans policy framework supported by regional management and implementation strategies. In 2002, Canada's Oceans Strategy was released to provide the policy framework and strategic approach for modern oceans management in estuarine, coastal, and marine ecosystems. As set out in the *Oceans Act*, the strategy is based on the three principles of sustainable development, integrated management, and the precautionary approach.

The *Oceans Act*, the *Canada Wildlife Act*, and the *National Marine Conservation Areas Act* have given rise to several initiatives on the BC coast, which are listed below. As goals, objectives, and management plans are finalized for these initiatives, the Department's management of fisheries will be adapted as appropriate, in consultation with interested parties through Integrated Fisheries Management processes.

For more information on the *Oceans Act*, please visit:

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

### CANADA'S MARINE AND COASTAL AREAS CONSERVATION MANDATE

On June 8, 2016, the Minister of Fisheries, Oceans and the Canadian Coast Guard, unveiled Canada's strategy for reaching its domestic and international marine conservation targets of protecting 5% of Canada's marine and coastal areas by 2017 and 10% by 2020 (commonly referred to as Aichi Target 11).

Canada's approach to achieving these marine conservation targets is guided by three foundational principles: science-based decision making; transparency; and, advancing reconciliation with Indigenous groups.

On the Pacific Coast, between now and 2020, Canada will be:

- Advancing the work already underway in areas progressing towards establishment including the proposed Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Oceans Act Marine Protected Area (MPA) and the Scott Islands marine National Wildlife Area;
- Exploring opportunities for establishing new, large Oceans Act MPAs in pristine offshore areas;

- Exploring opportunities to establish additional Oceans Act MPAs in areas under pressure from human activities through advancing MPA network development in the Northern Shelf Bioregion;
- Identifying existing and establishing new “effective area-based conservation measures” based on advice provided by the Canadian Science Advisory Secretariat (such as fisheries closures), particularly to protect sensitive sponge and coral concentrations; and,
- Examining how to facilitate the designation process for Oceans Act MPAs, without sacrificing science or the public’s opportunity to provide input.

More information about Canada’s Plan to reach Marine Conservation Targets is available on the internet at: [www.dfo-mpo.gc.ca/oceans/conservation/index-eng.html](http://www.dfo-mpo.gc.ca/oceans/conservation/index-eng.html)

The Cold-water Coral and Sponge Conservation Strategy is available on the internet at: [www.pac.dfo-mpo.gc.ca/oceans/protection/oth-aut-eng.html](http://www.pac.dfo-mpo.gc.ca/oceans/protection/oth-aut-eng.html)

Pacific Canada’s State of the Ocean Annual Reports are available on the internet at: <http://dfo-mpo.gc.ca/oceans/publications/index-eng.html#state-ocean>

### **5.3.2 PACIFIC NORTH COAST INTEGRATED MANAGEMENT AREA**

Endorsed in February 2017, the Pacific North Coast Integrated Management Area (PNCIMA) Plan was developed, in collaboration with the Province of British Columbia, First Nations and stakeholders to help coordinate various ocean management processes and to complement existing processes and tools including IFMPs. High level and strategic, the plan provides direction on integrated, ecosystem-based and adaptive management of marine activities and resources in the planning area as opposed to detailed operational direction for management. The plan outlines an ecosystem-based management (EBM) framework for PNCIMA that has been developed to be broadly applicable to decision-makers, regulators, community members and resource users alike, as federal, provincial and First Nations governments, along with stakeholders, move together towards a more holistic and integrated approach to ocean use in the planning area.

The endorsement of the PNCIMA plan supports the Government of Canada’s commitment to collaborative oceans management for the Pacific North Coast and provides a joint federal-provincial-First Nations planning framework for conservation and the management of human activities in the Pacific North Coast. The plan includes marine protected area network development as a planning priority. It is anticipated that the network development will support



the Government of Canada's commitment to protecting 10% of Canada's marine and coastal areas by 2020.

An electronic copy of the plan is available online at: <http://www.pncima.org>

### 5.3.3 MARINE PROTECTED AREA NETWORK PLANNING

The Oceans Act mandates DFO with leading and coordinating the development and implementation of a national system or network of marine protected areas. The National Framework for Canada's Network of Marine Protected Areas provides strategic direction for national network design that will be composed of a number of bioregional networks. Consistent with this direction, a Canada-British Columbia Marine Protected Area Network Strategy has been developed jointly by federal and provincial agencies. This Strategy reflects the need for governments to work together to achieve common marine protection and conservation goals. The Strategy can be found at:

<http://www.dfo-mpo.gc.ca/oceans/publications/bc-mpa/index-eng.html>

The Province of British Columbia, the Government of Canada and 17 First Nations are working together, to implement the Strategy in the Northern Shelf Bioregion (NSB), which extends from the top of Vancouver Island (Quadra Island/ Bute Inlet) and reaches north to the Canada - Alaska border. This bioregion has the same footprint as PNCIMA.

Bioregional marine protected area network planning may identify new areas of interest for protection by DFO, Parks Canada Agency, Environment Canada, the Province of BC, and any other agencies with a mandate for protecting marine spaces. Sites identified for marine conservation through the network planning process will contribute to Government of Canada's commitment of protecting 10% of marine and coastal areas by 2020. Future MPAs in this network may overlap or include red sea urchin fishing areas depending on the type and nature of the MPA. General information on MPA Network Planning can be found at:

<http://www.pac.dfo-mpo.gc.ca/oceans/protection/mpa-zpm-dev-eng.html> and information on MPA Network planning in the NSB, please visit: <http://mpanetwork.ca/bcnorthernshelf>

### 5.3.4 MARINE PROTECTED AREAS

DFO is also responsible for designating Marine Protected Areas (MPAs) under Canada's *Oceans Act*. Under this authority, DFO designated two MPAs in the Pacific Region, prior to 2017. The Endeavour Hydrothermal Vents, designated in 2003, lie in waters 2,250m deep 250 km southeast of Vancouver Island. The SGaan Kinghlas-Bowie Seamount Marine Protected Area (SK-B MPA), designated in 2008, is 180 km west of Haida Gwaii (formerly known as the Queen Charlotte Islands). MPA regulations and management plans articulate any restrictions on activities taking place within the MPA, where applicable. At this time, all fisheries are restricted

within the Endeavour and SK-B MPAs, except for a limited Sablefish trap fishery within the SK-B MPA.

The SK-B MPA has been established to conserve and protect the unique biodiversity and biological productivity of the area's marine ecosystem. The Government of Canada and the Council of the Haida Nation signed a MOU in April 2007 which established the SK-B Management Board to facilitate the cooperative management and planning of the proposed MPA. As a result, DFO and the Council of the Haida Nation are collaboratively developing a management plan for the SK-B MPA which will consider advice from an advisory committee, stakeholders through existing processes, and the public. This management plan will elaborate on the regulations to implement the conservation and management objectives for the MPA and will address matters such as monitoring, enforcement and compliance.

Commercial fishing activities within the MPA are managed through the Integrated Fisheries Management process. Three zones are identified in the IFMP, some of which are fisheries closures which are used to manage the Sablefish fishery. The Sablefish seamount fishery within the MPA is restricted to Zone 2 of the MPA, with the use of trap gear only. For more information on the SGaan Kinghlas-Bowie Seamount Marine Protected Area (SK-B MPA), refer to Section 8.2 of the Groundfish IFMP.

As part of the Government of Canada's commitment to create a national network of Marine Protected Areas (MPA) under the Oceans Act, Fisheries and Oceans Canada announced the designation of the Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs as an MPA on February 16, 2017. The designation of this new MPA marks an important step in Canada's commitment to reach its domestic and international marine conservation target of protecting 5% of Canada's marine and coastal areas by 2017 and 10% by 2020.

Located in the Pacific North Coast, between Haida Gwaii and the mainland of British Columbia, the MPA is 2,410 km<sup>2</sup> and supports a globally unique and vibrant feature once thought to be extinct worldwide. The reefs are made up of large colonies of glass sponges estimated to be 9,000 years old and provide refuge, habitat and nursery grounds for many aquatic species, including rockfish, finfish, and shellfish. The area is nationally and internationally recognized as an important marine habitat that is biologically diverse.

The MPA was selected as an area of interest in 2010 following a lengthy public consultation period. The designation process was further informed by the participation of Indigenous peoples, federal and provincial government agencies, industry, and conservation organizations. Upon designation, Fisheries and Oceans Canada will be implementing fisheries management measures to effectively conserve and protect the ecological features of the reef, while allowing

limited human activity consistent with conservation objectives to occur. New management measures under the Fisheries Act in the MPA were introduced on February 21, 2017.

The Core Protection Zone will be closed to all fishing activity. The Adaptive Management Zone will be closed to all bottom contact gear and midwater trawl. The Vertical Adaptive Management Zone allows for specified gear types only (midwater hook and line, seine and gillnet).

Any further details will be communicated to fishers through Fisheries Notices. The designation of the Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs as a new Marine Protected Area in British Columbia is a positive step towards the Government of Canada's marine conservation priority and provides protection to this globally unique ecosystem.

Work is ongoing to consider MPA designation for the Race Rocks area off Rocky Point south of Victoria (currently designated as a Provincial Ecological Reserve).

For more information, please contact Alice Cheung, Regional Manager, Oceans Program by email: [alice.cheung@dfo-mpo.gc.ca](mailto:alice.cheung@dfo-mpo.gc.ca) or phone: (604) 666 0209.

The protection of coral and sponge reefs is a key component to a number of international commitments made by Canada through the United Nations Convention on Biological Diversity and the United Nations Food and Agriculture Organization (FAO) Code of Conduct for Responsible Fisheries.

More information on integrated management planning, Pacific Region MPAs and Pacific MPA planning under Canada's *Oceans Act* can be found at the following link:

<http://ww.pac.dfo-mpo.gc.ca/oceans/index-eng.htm>

### **5.3.5 NATIONAL MARINE CONSERVATION AREAS**

#### **GWAII HAANAS**

Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site is a 5000 km<sup>2</sup> land-and-sea protected area in the southern portion of Haida Gwaii (formerly the Queen Charlotte Islands), approximately 100 kilometres off the north coast of BC. The Haida Nation declared the area a Haida Heritage Site in 1985. The terrestrial part of Gwaii Haanas was designated a National Park Reserve by the Government of Canada soon after, and the two parties have been managing the area cooperatively since 1993. In 2010, following an extensive public consultation process, the marine area of Gwaii Haanas was given the designation of National Marine Conservation Area Reserve.

Gwaii Haanas is managed by the Archipelago Management Board, a cooperative body made up of equal representation from the Government of Canada (represented by DFO and Parks Canada) and the Council of the Haida Nation. The Gwaii Haanas marine area is currently managed under the Interim Management Plan and Zoning Plan, which includes “balancing protection and ecologically sustainable use” in its guiding principles. The Zoning Plan identifies six areas that are closed to commercial and recreational fishing.

Users of the Gwaii Haanas marine area should be aware that adjacent land is managed under the authority of the Canada National Parks Act and its regulations and, as specified in the Gwaii Haanas Agreement (1993), 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). There are specific requirements for visiting the terrestrial portion of Gwaii Haanas, and advanced planning is necessary. Please contact the Gwaii Haanas administration office at 1-877-559-8818 for further information.

Development of a Land-Sea-People Management Plan for the Gwaii Haanas National Marine Conservation Area is underway. The Management Plan and zoning process be developed in consultation with key stakeholders. Annual fishing plans will be developed in consultation through DFO’s established integrated fisheries planning and advisory processes.

## **SOUTHERN STRAIT OF GEORGIA**

Parks Canada, in partnership with the Government of British Columbia, launched a feasibility assessment for an NMCA reserve in the southern Strait of Georgia in 2004. Since then, consultations with First Nations, key stakeholders, communities and the public have occurred. Informed by those discussions, a proposed boundary for consultation was announced by the provincial and federal Ministers of Environment in 2011.

Since 2011, the two governments have been consulting with First Nations, local governments and industry. A preliminary concept is currently being developed to help advance consultations on the feasibility assessment. If the results of the feasibility assessment indicate that establishment of an NMCAR is practical and feasible, an establishment agreement between the Governments of Canada and British Columbia will be negotiated and an interim management plan developed. If the NMCAR is determined to be feasible, further consultations related to establishment agreements and Aboriginal rights will also take place with First Nations. Commercial and recreational fishing sectors, communities, landowners, recreation and environmental organizations and other stakeholders will also have opportunities to provide input to the development of the interim management plan.

More information on the proposed National Marine Conservation Area Reserve in the Southern Strait of Georgia is available on the internet at:

[www.pc.gc.ca/eng/progs/amnc-nmca/dgs-ssg/index.aspx](http://www.pc.gc.ca/eng/progs/amnc-nmca/dgs-ssg/index.aspx)

DFO is also working with other federal and provincial agencies to coordinate efforts towards establishing a national system of Marine Protected Areas to fulfil Canada's commitments to the UN Convention on Biological Diversity.

More information on integrated management planning and Pacific MPAs under Canada's *Oceans Act* can be found at:

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

### **5.3.6 MARINE NATIONAL WILDLIFE AREAS**

Under the *Canada Wildlife Act*, Environment Canada may establish marine National Wildlife Areas (NWAs). The Scott Islands marine National Wildlife Area, located off the northern tip of Vancouver Island, has been proposed for designation through amendment to the *Wildlife Area Regulations*. Fisheries and Oceans Canada would continue to regulate and administer fisheries within the proposed area. Environment Canada and Fisheries and Oceans will develop a collaborative approach and agreement regarding management of fisheries in the area.

More information on NWAs can be found at:

<http://www.ec.gc.ca/ap-pa/default.asp?lang=En&n=2BD71B33-1>

### **5.3.7 COMMITTEE ON THE STATUS OF ENDANGERED WILDLIFE SPECIES ASSESSMENTS**

The Committee on the Status of Endangered Wildlife in Canada (COSEWIC) was formed in 1977 to provide Canadians with a single, scientifically sound classification of wildlife species at risk of extinction. COSEWIC began its assessments in 1978 and has met each year since then to assess wildlife species.

With the implementation of SARA, COSEWIC has been established as an independent body of experts responsible for identifying and assessing wildlife species considered being at risk. This is the first step towards protecting wildlife species at risk. Subsequent steps include COSEWIC reporting its results to the Canadian government and the public, and the Minister of the Environment's official response to the assessment results. Wildlife species that have been designated by COSEWIC may then qualify for legal protection and recovery under SARA.

For a full list of species identified and assessed by COSEWIC, please visit:

[http://www.cosewic.gc.ca/eng/sct1/searchform\\_e.cfm](http://www.cosewic.gc.ca/eng/sct1/searchform_e.cfm)

### 5.3.8 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”. More information on SARA can be found at:

<http://www.sararegistry.gc.ca/default.asp?lang=En&n=24F7211B-1>

In addition to the existing prohibitions under the *Fisheries Act*, if a species is listed under SARA it is illegal to kill, harm, harass, capture, take, possess, collect, buy, sell or trade any listed endangered or threatened animal or any part or derivative of an individual. 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. These prohibitions do not apply to species listed as special concern.

Endangered, threatened, and special concern marine species in Pacific region currently listed under SARA can be found at:

<http://www.dfo-mpo.gc.ca/species-especes/listing-eng.htm>

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

#### BIRDS

- 1) [Ancient Murrelet](#) – Special Concern
- 2) [Marbled Murrelet](#) – Threatened
- 3) Black-footed Albatross – Special Concern
- 4) Short-tailed Albatross – Threatened
- 5) Pink-footed Shearwater – Threatened

#### FISH

- 1) [Basking Shark](#) – Endangered
- 2) [Bluntnose Sixgill Shark](#) – Special Concern
- 3) [Green Sturgeon](#) – Special Concern
- 4) [Longspine Thornyhead Rockfish](#) – Special Concern

- 5) [Rougheye Rockfish Types I & II](#) – Special Concern
- 6) [Tope \(Soupfin\) Shark](#) – Special Concern
- 7) [White Sturgeon](#) – Upper Fraser Designatable Unit – Endangered
- 8) [White Sturgeon](#) – Upper Columbia Designatable Unit – Endangered
- 9) [White Sturgeon](#) – Nechako Designatable Unit – Endangered
- 10) [White Sturgeon](#) – Kootenay River Designatable Unit – Endangered
- 11) Yelloweye Rockfish [Inside](#) and [Outside](#) populations – Special Concern

## MAMMALS

- 1) [Blue Whale](#) – Endangered
- 2) [Fin Whale](#) – Threatened
- 3) [Grey Whale](#) – Special Concern
- 4) [Harbour Porpoise](#) – Special Concern
- 5) [Humpback Whale](#) – Threatened
- 6) Killer Whale – [Northern Resident Population](#) – Threatened
- 7) Killer Whale – [Southern Resident Population](#) – Endangered
- 8) Killer Whale – [Offshore Population](#) – Threatened
- 9) Killer Whale – [Transient Population](#) – Threatened
- 10) [North Pacific Right Whale](#) – Endangered
- 11) [Sea Otter](#) – Special Concern
- 12) [Sei Whale](#) – Endangered
- 13) [Steller Sea Lion](#) – Special Concern

## REPTILES

- 1) [Leatherback Sea Turtle](#) – Endangered

## SHELLFISH

- 1) [Northern Abalone](#) – Endangered

- 2) [Olympia Oyster](#) – Special Concern

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

## FISH

- 1) Bocaccio Rockfish – assessed as Threatened
- 2) Canary Rockfish – assessed as Threatened
- 3) Darkblotched Rockfish – assessed as Special Concern
- 4) Eulachon – Fraser River Designatable Unit – assessed as Endangered
- 5) Eulachon – Central Pacific Coast Designatable Unit – assessed as Endangered
- 6) Eulachon – Nass/Skeena Rivers Designatable Unit – assessed as Special Concern
- 7) North Pacific Spiny Dogfish – assessed as Special Concern
- 8) Salmon, Chinook (Okanagan population) – assessed as Threatened
- 9) Salmon, Coho (Interior Fraser population) – assessed as Threatened
- 10) Salmon, Sockeye (Sakinaw population) – assessed as Endangered
- 11) Salmon, Sockeye (Cultus population) – assessed as Endangered
- 12) Quillback Rockfish – assessed as Threatened
- 13) Yellowmouth Rockfish – assessed as Threatened

## MAMMALS

- 1) Northern Fur Seal – assessed as Threatened

## SALMON AND SARA

Four populations of salmon have been assessed by COSEWIC including: Cultus Lake sockeye (assessed as Endangered in 2003), Sakinaw Lake sockeye (assessed as Endangered in 2003, 2016), Interior Fraser River coho (assessed as Endangered in 2002; re-assessed as Threatened in 2016), and Okanagan chinook (assessed as Threatened in 2006).

Following extensive public and stakeholder consultation processes, the Government of Canada did *not* list these populations on Schedule I of SARA (Cultus Lake sockeye (decision in 2005), Sakinaw Lake sockeye (2005), Interior Fraser River coho (2006) and Okanagan chinook (2010)).



However, recovery efforts are continuing for each population. In 2016, COSEWIC reassessed the Interior Fraser coho as *Threatened* and the Sakinaw sockeye as *Endangered*. As a result, the Government of Canada will follow a process for considering listing these populations under SARA.

DFO, in cooperation with the Interior Fraser Coho Recovery Team, have developed the *Conservation Strategy for Coho Salmon, Interior Fraser River Populations*. This strategy is an integral tool in effecting recovery of these unique coho populations. It is a science-based document that describes the species' biology, habitats and threats. The strategy also identifies a recovery goal, with accompanying principles and objectives designed to guide activities to achieve recovery. To view the conservation strategy, please visit:

<http://www.dfo-mpo.gc.ca/Library/329140.pdf>

Conservation Strategies for Cultus and Sakinaw Lake sockeye have also been finalized, and can be viewed at:

<http://www.dfo-mpo.gc.ca/Library/337479.pdf>

[http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/conservation/docs/Sakinaw\\_conservation\\_jan08-eng.pdf](http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/conservation/docs/Sakinaw_conservation_jan08-eng.pdf)

Specific conservation objectives for these and other stocks are found in Section 6, Fishery Management Objectives for Stocks of Concern.

It should also be noted that the following salmon populations are slated for assessment or re-assessment by COSEWIC in the coming few years: Fraser River sockeye and Okanagan chinook. Assessment dates for these populations will be included on COSEWIC's schedule of species assessments, found here:

[http://www.cosewic.gc.ca/eng/sct2/sct2\\_4\\_e.cfm](http://www.cosewic.gc.ca/eng/sct2/sct2_4_e.cfm)

## SHARK CODES OF CONDUCT

Out of the fourteen shark species in Canadian Pacific waters, three species are listed under SARA. The Basking Shark (*Cetorinus maximus*) is listed as Endangered, and the Bluntnose Sixgill Shark (*Hexanchus griseus*) and Tope Shark (*Galeorhinus galeus*) are listed as species of Special Concern. The primary threats to shark species have been identified as by-catch 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, two 'Code of Conduct for Shark Encounters' documents have been developed to reduce the mortality of Basking Shark, as well as other Canadian Pacific shark

species such as Bluntnose Sixgill and Tope Shark resulting from entanglement and by-catch in commercial, aquaculture and recreational fisheries. These guidelines include boat handling procedures during visual encounters with Basking Sharks as well as 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:

[http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/shark-requin/conduct\\_shark-conduite\\_requin-eng.html](http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/shark-requin/conduct_shark-conduite_requin-eng.html)

Code of conduct for Basking Sharks:

[http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/shark-requin/conduct\\_basking-conduite\\_pelerin-eng.html](http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/shark-requin/conduct_basking-conduite_pelerin-eng.html)

### **5.3.9 WHALE, TURTLE AND BASKING SHARK SIGHTINGS**

The Department welcomes assistance in the reporting of any whale, turtle, or Basking Shark sightings or entanglement. Sightings for Basking Shark, Leatherback and other turtle species, as well as, many whale species are infrequent in Pacific Canadian waters, and the collection of sightings data is very useful to scientists in determining population size and distribution. Establishing this information can in turn help in the recovery planning under SARA.

To report a whale sighting, contact the B.C. Cetacean Sighting Network:

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

Fax: (604) 659-3599

Email: [sightings@vanaqua.org](mailto:sightings@vanaqua.org)

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

To report a turtle sighting, contact the Sea turtle Sighting Network:

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

Fax: (604) 659-3599

Email: <mailto:turtles@vanaqua.org>

Website: <http://www.bcreptiles.ca/reportsightings.htm#1>

To report sick, injured, distressed or dead marine mammals and sea turtles contact the Marine Mammal Incident Reporting Hotline:

Toll free: 1-800-465-4336

To report a Basking Shark contact the Basking Shark Sightings Network:

Toll free: 1-877-50-SHARK

Email: [BaskingShark@dfo-mpo.gc.ca](mailto:BaskingShark@dfo-mpo.gc.ca)

Website: <http://www.pac.dfo-mpo.gc.ca/science/species-especes/elasmobranch/baskingshark-lepelerin-eng.html>

### **5.3.10 NORTHERN AND SOUTHERN RESIDENT KILLER WHALES**

Two distinct populations of killer whales, known as the northern and southern residents, occupy the waters off the west coast of British Columbia. Northern resident killer whales are listed as Threatened and southern resident killer whales are listed as Endangered in Schedule 1 of the Species at Risk Act. An Action Plan for Northern and Southern Resident Killer Whales in Canada has been developed, which identifies measures to reduce anthropogenic threats and address research needs for resident killer whales. It can be viewed at: [http://registrelep-sararegistry.gc.ca/document/default\\_e.cfm?documentID=2944](http://registrelep-sararegistry.gc.ca/document/default_e.cfm?documentID=2944). A Recovery Strategy for Northern and Southern Resident Killer Whales in Canada was finalized in March 2008, and amended in 2011. It can be viewed at:

[http://www.sararegistry.gc.ca/document/default\\_e.cfm?documentID=1341](http://www.sararegistry.gc.ca/document/default_e.cfm?documentID=1341).

Critical habitat and its associated features have been identified for both populations in the recovery strategy, and are protected from destruction under SARA Section 58(4) through the issuance of an Order. The recovery strategy also identifies current threats as environmental contaminants, reduced prey availability, disturbance, noise pollution and mortality in fishing gear.

#### **PREY:**

Northern and southern resident killer whales are dietary specialists and feed primarily on chinook salmon. DFO and other researchers continue to advance new scientific information and analyses regarding the ecology of resident killer whales. Much of this new information focuses on their feeding habits and preference for chinook salmon. Fisheries that occur within the range of the resident killer whales as well as fisheries outside their range that affect chinook abundance within their range are both potentially implicated.

Because Southern Residents also are listed as endangered pursuant to the United States Endangered Species Act, DFO has joined with the National Oceanic and Atmospheric Administration (NOAA) to collaboratively evaluate the status of the relevant science and analyses. The two agencies conducted three scientific workshops to undertake a transparent,

collaborative and scientifically rigorous review of the available information about resident killer whales, their feeding habits, and the potential effects of salmon fisheries on the whales through prey reduction. A panel of independent scientists was selected to oversee and participate in the process and produced a report documenting its findings.

The final report of the Independent Science Panel of the Bilateral Scientific Workshop Process to evaluate the effects of salmon fisheries on Southern Resident Killer Whales is available at:

<http://www.nwr.noaa.gov/Marine-Mammals/Whales-Dolphins-Porpoise/Killer-Whales/ESA-Status/upload/KW-Chnk-final-rpt.pdf>

The Action Plan contains measures to implement the recommendations from the Independent Science Panel's final report. In addition to continued research on the threat of reduced prey availability, the Action Plan identifies measures to explore potential management actions to address this threat, including:

- a) Take into account both the seasonal (acute) as well as the cumulative (chronic) effects of poor returns for chinook and other important prey species on Resident Killer Whales when managing fisheries.
- b) Investigate the benefits of strategic salmon fishery planning approaches and management actions to reduce Resident Killer Whale prey competition in specific feeding areas (e.g. modeling, retention limits, fishery area boundary adjustments or closures), and implement where appropriate.
- c) Evaluate the potential impacts of disturbance and prey competition from fisheries on foraging success in key Resident Killer Whale foraging areas.

#### **CONTAMINANTS:**

There are numerous chemical and biological pollutants that may directly or indirectly impact resident killer whale, ranging from persistent organic pollutants to antibiotic resistant bacteria and exotic species. Recent studies indicate resident killer whales have high levels of some contaminants with males having the highest levels. PCBs and certain fire-retardant persistent organic pollutants have been banned in Canada. Canada and U.S. researchers continue to monitor resident killer whale populations.

#### **DISTURBANCE:**

All cetaceans, including resident killer whales, are being subjected to increasing amounts of disturbance from vessels, aircraft and anthropogenic noise. Industrial activities such as: dredging, pile driving, construction, seismic testing, military sonar and other vessel use of low

and mid-frequency sonars impact the acoustic environment. The means by which physical and/or acoustic disturbance can affect resident killer whales at both the individual and population level is not well understood, but may depend on whether the disturbance is chronic or acute.

The Marine Mammals Regulations under the *Fisheries Act* and prohibitions under *SARA* specifically prohibit the disturbance and harm of killer whales. Guidelines for marine mammal viewing have also been developed. To avoid disturbing killer whales and other marine mammals, fish harvesters are advised to follow the *Be Whale Wise (BWW): Marine Wildlife Guidelines for Boaters, Paddlers and Viewers*, which are available from local Fishery Offices or on-line at:

<http://www.dfo-mpo.gc.ca/fm-gp/mammals-mammiferes/viewing-observation-eng.html>.

Non-compliance with the *Be Whale Wise* Guidelines may lead to charges under the *Marine Mammal Regulations* and/or *SARA*.

### **CRITICAL HABITAT:**

Critical habitat was identified in the Recovery Strategy for the Northern and Southern Resident Killer Whales in Canada (2011) and is protected from destruction by a Species at Risk Act Section 58(4) Order. The Recovery Strategy and Action Plan identify specific actions intended to protect killer whale critical habitat and its attributes. These actions include enforcement, protection, management, research, stewardship and public education. These actions are undertaken by multiple DFO sectors and the outcomes will inform further actions. The Department has received science advice regarding other areas of habitat that are important to the survival and recovery of northern and southern resident killer whales. This advice will be considered for the possible identification of additional critical habitat in the Recovery Strategy; consultation on such an addition would occur before a change is made to the Recovery Strategy.

### **MARINE MAMMAL MANAGEMENT PLANS:**

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

Depredation is a learned behaviour that can spread throughout whale social groups and once established is impossible to eliminate. It is critical that B.C. 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.

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 and sperm whales. 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. DFO link:

<http://www.pac.dfo-mpo.gc.ca/publications/marinemammals/depredation-4-2010-eng.pdf>

If you experience depredation by whales, please report the incident by email at [MarineMammals@pac.dfo-mpo.gc.ca](mailto:MarineMammals@pac.dfo-mpo.gc.ca) or by calling (604) 666-9965. Reporting all incidents will assist DFO and fish harvesters in understanding this problem and help in developing strategies to avoid it.

### **MARINE MAMMAL INCIDENT RESPONSE PROGRAM AND MARINE MAMMAL SIGHTINGS NETWORK:**

Marine mammals incidents comprise a range of occurrences which may include; live strandings, dead, sick or injured animals, entanglements or potential violations (disturbance, harm or harassment).

To report a marine mammal incident, including violations, call DFO's Observe Record, Report (ORR) line at 1-800-465-4336. All entanglement or by-catch of marine mammals must be reported by current harvest log /reporting requirements.

Observations of orphaned seal pups may be reported to the Vancouver Aquarium Marine Mammal Rescue and Rehabilitation (604) 258-SEAL (7325). In many cases seal pups are not truly orphaned, and staff at these facilities will assess the circumstances.

To report a sightings of a cetacean (whale, dolphin, or porpoise) or sea turtles contact the B.C. Cetacean Sightings Network as soon as possible by phone at 1-866-I SAW ONE (472-9663) or <http://www.vanaqua.org>.

You may also participate in a formalized logbook program by calling or contacting the Network. Contacts for marine mammal inquiries:

Email: [MarineMammals@dfo-mpo.gc.ca](mailto:MarineMammals@dfo-mpo.gc.ca)

Telephone: Paul Cottrell, (604) 666-9965

### **5.3.11 ENVIRONMENT CANADA ASSESSING THE IMPACT OF SALMON GILL NET FISHING ON LOCAL SEABIRD POPULATIONS**

Environment Canada is looking for your help to measure salmon gill net fishing's impact on local seabird populations.

A number of seabird species around the world have declined in recent years; seabird by-catch is a part of the reason.

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

Environment Canada wants to know how, when and where gill net fishing may impact local seabirds and to find ways to reduce impacts. Environment Canada, with Fisheries and Oceans Canada, fishermen, First Nations, non-government organizations, and other coastal communities, has started 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 Toxicologist, Environment Canada  
Canadian Wildlife Service, Delta, B.C.  
Telephone: (604) 940-4679  
Email: [laurie.wilson@canada.ca](mailto:laurie.wilson@canada.ca)

### **5.3.12 AQUACULTURE MANAGEMENT**

#### **REGULATORY REGIME:**

In December 2010 the Pacific Aquaculture Regulations 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.

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 Front Counter BC. More information is available on the BC government's



website:

<http://www.frontcounterbc.gov.bc.ca>

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 on the environmental performance of the aquaculture sector in BC is undertaken to ensure the transparency and accountability of the industry. Associated reporting can be found on the DFO web pages:

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

Within the BC Aquaculture Regulatory Program there is a Compliance and Enforcement Unit, dedicated to aquaculture compliance, as well as an Aquaculture Environmental Operations Unit, which monitors the activities of industry on an on-going 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, as well as 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 Consultations web pages:

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

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

### **AQUACULTURE MANAGEMENT ADVISORY COMMITTEES:**

Aquaculture Management Committee Meetings (AMACs) engage the aquaculture industry, First Nations, and other stakeholders in development of IMAPs and on-going feedback relevant to the management of Aquaculture.

More information on IMAPs and AMACs is available through: [IMAPS@dfo-mpo.gc.ca](mailto:IMAPS@dfo-mpo.gc.ca)

### **5.3.13 SALMONID ENHANCEMENT PROGRAM**

The Salmonid Enhancement Program (SEP) produces Pacific salmon at enhancement facilities, restores habitat, 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 support school education and public awareness projects.

With respect to projects that undertake fish culture, about 150 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 and rearing channels, habitat improvements, flow control works, lake fertilization, and small classroom incubators. Projects are operated by SEP staff or contracted with some SEP support to First Nations and community and volunteer groups.

The program is delivered through three components:

- Major Operations (OPS) SEP facilities that rebuild stocks and provide harvest opportunities through hatcheries and spawning channels;
- The Community Involvement Program (CIP), which includes:
  - The Community Economic Development Program (CEDP) that operates contracted SEP facility operations with local community groups;
  - First Nations, and Public Involvement Program projects that are divided into designated (DPI – Designated Public Involvement) and non-designated (PIP – Public Involvement Program) categories. The latter are smaller projects that focus on outreach, stewardship and educational activities, and do not produce large numbers of fish;
  - The Resource Restoration Unit, which supports habitat improvements, stock assessment, effectiveness monitoring, watershed planning, and partnerships related to habitat initiatives.
- SEP Planning and Assessment (SPA) that reviews data, analysis returns and incorporates these details into a draft production plan along with major operation facility information.

SEP facilities are subject to the Pacific Aquaculture Regulations (PAR) under the Fisheries Act. PAR licences for all SEP facilities include a production plan, which is developed within a formal

integrated planning process. Production planning meetings involve SEP, Science, and Fisheries Management, and external consultation and involvement is achieved through the IFMP process. The production planning cycle establishes 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 conservation unit (CU) objectives. SEP priorities are established annually based on the national and regional priorities using a consistent approach across the program.

The information available at the link below addresses production from major DFO Operations (OPS) facilities, contracted Community Economic Development Program hatcheries (CEDP), larger or more complex Public Involvement Projects (Designated Public Involvement or DPI) operated by volunteers, and Aboriginal Fisheries Strategy (AFS). Not included are smaller Public Involvement Projects (PIPs) that are focused toward stewardship, stock rebuilding or educational activities and do not release large numbers of fish that would affect fisheries. There are two datasets available at the link below:

- 1) Post-Season Production from the 2015 brood year (i.e. 2016 releases, and #'s on hand for 2017 release)
- 2) Production Plan, which include proposed targets for the 2017 brood year. The Production Plan dataset is preliminary, and the final version will be available by June 1.

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

Significant production changes for 2017 are incorporated into the *Enhancement Information* in each Species Overview of the Section [13](#) Fishing Plans.

### **5.3.14 FISHING VESSEL SAFETY**

Commercial fishing is recognized as a very dangerous activity. Concerns over fishing related injuries and deaths have prompted DFO to proactively work with Transport Canada and WorkSafe B.C. to ensure coordinated approaches to improving fishermen's safety. See [Appendix 2](#) for more information.

## **6 FISHERY MANAGEMENT OBJECTIVES FOR STOCKS OF CONCERN**

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### **6.1 LOWER STRAIT OF GEORGIA CHINOOK**

**The objective for Lower Strait of Georgia (LGS) chinook is to continue rebuilding through a comprehensive set of fishery, hatchery, and habitat related actions.**

In the 2017 Salmon Outlook, LGS chinook are classified as low to near target given recent returns that suggest continued rebuilding, and an above average return of age 2 jacks and jills to the Cowichan River in 2016. However, more recent information on the 2016 Cowichan chinook suggests that the proportion of age 2 chinook was not as high as initially estimated and that the age 3-5 component has surpassed  $S_{msy}$  for the first time since 1997. The Cowichan River is the primary indicator of marine survival and exploitation for the LGS fall chinook.

LGS chinook are harvested in terminal area fisheries by First Nations, mixed stock commercial troll fisheries off the west coast of Vancouver Island and recreational fisheries off the west coast of Vancouver Island, in the Strait of Juan de Fuca, in the Strait of Georgia and in Johnstone Strait. Fishery restrictions introduced in recent years include PST reductions to the WCVI troll total allowable catch, restrictions in Victoria sport, spot closures in the Strait of Georgia, and terminal area sport closures from Nanaimo to Saanich. The terminal area sport restrictions may be increased to provide additional protection as required by in-season concerns such as low river flow levels. A management framework that considers abundance levels, triggers and associated fishery management measures is being developed consistent with the Southern BC Chinook strategic planning and the Wild Salmon Policy. Other measures underway are alternative release strategies for hatchery chinook, based on recent work that showed large in-river, post-release mortalities, and a comprehensive watershed based recovery initiative involving partners such as First Nations, NGOs and local governments.

### **6.2 WEST COAST OF VANCOUVER ISLAND (WCVI) CHINOOK**

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

For the past two decades, WCVI wild chinook have experienced poor marine survival rates and low spawner levels; as a result WCVI wild chinook continue to be stocks of concern.

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

The objective for Area G is to avoid encounters with WCVI chinook by restricting the troll fishery to offshore areas during the summer period. Specifically, there will be a 5 nautical mile inside boundary in South West Vancouver Island and a 2 nautical mile boundary in North West Vancouver Island (Areas 126-4 and 127) during the period when WCVI chinook return to the West Coast of the island.

As a result of concerns for WCVI chinook that emerged in the mid-late 1990's a suite of management measures was implemented on the WCVI intended to protect wild WCVI chinook from recreational fishing pressure. These management measures fluctuated yearly with levels and areas of restriction. In 2000, a recreational fishery "chinook management corridor", extending one nautical mile offshore from the surfline was put in place along the West Coast of Vancouver Island in order to reduce the exploitation rate on adult female chinook that migrate along the coastline back to their natal WCVI streams. The surfline is defined in Schedule 1 of the Pacific Fishery Management Area Regulations, 2007. From 2006 to 2015 the suite of management measures remained relatively stable with very few local changes.

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

Chinook will be managed as per Annex IV provisions of the 2008 PST agreement. Total allowable catches include a 15% reduction for the South East Alaska (SEAK), 0% reduction for Northern BC, and a 30% reduction for WCVI AABM fisheries from the allowable catches under the 1999 PST agreement.

### **6.3 FRASER SPRING 4<sub>2</sub> CHINOOK**

**The objective for Fraser Spring 4<sub>2</sub> chinook is to conserve these populations by continuing to minimize incidental harvests in Canadian ocean fisheries and to continue fisheries management measures in the Fraser River to limit overall impacts and support rebuilding.**

The general management approach implemented in recent years to restrict fisheries impacts on these populations is intended to continue and fisheries management actions are now outlined in

Section [13](#) Southern Chinook Salmon Fishing Plan - Southern ISBM Chinook. In the 2017 Salmon Outlook, Spring 4<sub>2</sub> chinook has been classified as at low abundance given low parental escapements in 2013 and ongoing unfavorable and highly variable marine survival conditions. Returns of Spring 4<sub>2</sub> chinook in 2017 will come primarily from a parent generation of approximately 7,347 spawners (this is the run reconstruction estimate which includes spawners to the following systems: Louis, Deadman, Coldwater, Nicola, Spius, Bessette and the Bonaparte system) in 2013.

Fraser Spring 4<sub>2</sub> chinook Chinook have historically been encountered in Fraser River First Nations gill net fisheries, Fraser River and tributary recreational fisheries, marine troll fisheries (e.g. WCVI and North Coast), and recreational fisheries in the Strait of Juan de Fuca and Strait of Georgia, with lower rates in other marine recreational fisheries.

For further information on the management of Fraser Spring 4<sub>2</sub> chinook refer to the Southern chinook ISBM fishery Section [13.1.4](#) in Section [13](#) Southern Chinook Salmon Fishing Plan.

## **6.4 FRASER SPRING 5<sub>2</sub> AND SUMMER 5<sub>2</sub> CHINOOK**

**The objective for Fraser Spring and Summer (age 5<sub>2</sub>) chinook is to conserve these populations consistent with the management zones outlined in Section [13](#) Southern Chinook Salmon Fishing Plan under the Southern ISBM Chinook Section [13.1.4](#).**

In the 2017 Salmon Outlook, Spring 5<sub>2</sub> and Summer 5<sub>2</sub> chinook stocks have been classified as low abundance given on-going depressed parental abundance and unfavourable and highly variable marine survival conditions. For the return in 2017, the reconstructed parental brood year (2012) escapement was approximately 27,023 spawners. This value represents the escapement from a run-reconstruction analysis that is conducted annually. That analysis uses the indicator stock escapement estimates and other data to generate an estimate of the total escapement of the Spring 5<sub>2</sub> and Summer 5<sub>2</sub> chinook stocks (including those streams that are not monitored regularly).

Work is also underway to conduct a technical review of the Fraser River chinook management approach and in-season changes may be considered as a result of this work. The Department will make all reasonable effort to include First Nations and stakeholders in discussions on proposed changes and to advise First Nations and stakeholders of any in-season changes in advance of changes being announced.

## 6.5 INTERIOR FRASER RIVER COHO

**The objective for Interior Fraser River coho (including Thompson River coho) is to manage Canadian fisheries in a highly precautionary manner with fisheries management measures similar to those in place prior to 2014. This approach is expected to achieve an overall exploitation rate in Canadian waters within the 3 – 5 % range.**

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

Currently, there is no evidence that IFR coho has departed from the 'low' productivity regime that has persisted since the 1994 return year. Current productivity is still well below that in the relatively high productivity period of 1978-1993.

Despite generally low fisheries impacts, achievement of recovery objectives, as laid out in the Conservation Strategy for Coho Salmon, *Oncorhynchus kisutch*, *Interior Fraser River Populations*, October 2006 (<http://www.dfo-mpo.gc.ca/Library/329140.pdf>), has not been consistent, suggesting little rationale to move out of the current cautious fisheries management regime.

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

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

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

- West Coast Vancouver Island (WCVI) troll (commercial and First Nations) and recreational fisheries in offshore areas from late May until early September,

- Commercial net and recreational fisheries in the Juan de Fuca Strait from June until early October,
- Commercial, recreational and First Nations fisheries in Johnstone and Queen Charlotte Straits from early June until mid-September,
- Commercial, recreational and First Nations fisheries in the Strait of Georgia from June until early October,
- Commercial, recreational and First Nations fisheries both off the mouth of, and in, the Fraser River from early September until mid-October, and
- Commercial, recreational and First Nations fisheries in the Fraser River upstream of Sawmill Creek from mid- to late September until late October.

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

## 6.6 CULTUS LAKE SOCKEYE

**Cultus Lake Sockeye will be managed within the constraints of the exploitation rate identified for the Late Run aggregate. The maximum allowable exploitation rate for Cultus Lake Sockeye will be the greater of a) the low abundance exploitation rate identified for Late Run Sockeye, or b) the exploitation rate that is consistent with continued rebuilding of the population based on in-season information on returns and potential numbers of effective spawners. The exploitation rate on Cultus Lake Sockeye is intended to allow for fisheries on more abundant co-migrating stocks while allowing for the Cultus population to increase in abundance. For Late Run sockeye, management will be based on an abundance-based Total Allowable Mortality as outlined in the Fraser sockeye escapement plan; see Section 13 – Southern Sockeye Salmon Fishing Plan (13.5) under the Fraser Sockeye section (13.5.6).**

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

- **Objective 1**  
Ensure the genetic integrity of the population by exceeding a four year arithmetic

mean of 1,000 successful adult spawners with no fewer than 500 successful adult spawners on any one cycle.

- **Objective 2**

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

- **Objective 3**

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

- **Objective 4**

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

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

The full conservation strategy is online at:

<http://www.dfo-mpo.gc.ca/Library/337479.pdf>.

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

The returns of sockeye salmon to Cultus Lake have been particularly low relative to historic averages. To work toward rebuilding this population, Late Run sockeye fishery management actions were implemented to reduce fishery exploitation levels on this stock. Enhancement measures have included fry and smolt releases as well as a captive brood program. The captive brood program reared fish from brood years 2000 to 2009, at which time the program was phased out – the last progeny of captive brood fish were released in October, 2014. A hatchery supplementation program continues. Total juvenile releases have been reduced to approximately 30% of levels achieved during the captive breeding program years. Freshwater measures in the past have included: predator control (removal of adult northern pikeminnow in Cultus Lake), removal of Eurasian watermilfoil and various research that includes spawning habitat quality assessments, limnology and fry surveys, contaminant assessment, etc. An overview on the recovery activities and the status of Cultus Lake sockeye to 2009 can be found



in the Status of Cultus Lake Sockeye Salmon (Bradford et al., 2010), available on-line at: [http://www.dfo-mpo.gc.ca/CSAS/Csas/publications/resdocs-docrech/2010/2010\\_123\\_e.pdf](http://www.dfo-mpo.gc.ca/CSAS/Csas/publications/resdocs-docrech/2010/2010_123_e.pdf)

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

- Closures in all fisheries with the possibility of impacting Cultus or Late Run fish when harvest limits for this stock group have been reached.
- Restrictions to First Nations fisheries in Queen Charlotte and Johnstone Straits, Strait of Georgia, Strait of Juan de Fuca, West Coast of Vancouver Island and the lower Fraser River, downstream of the Vedder River. However, where surpluses are identified, first priority will be accorded to First Nations for opportunities to harvest fish for FSC purposes.
- Restrictions to recreational salmon fisheries in southern BC will include sockeye non-retention in specific locations when Cultus Lake sockeye are present and allowable harvest limits have been reached.
- Closures to commercial salmon fisheries in southern BC when Late Run sockeye are present, or expected to be present, in the area as it will not likely be possible to identify the run size of Cultus Lake sockeye in-season due to relative low abundances of Cultus Lake sockeye compared to other co-migrating sockeye stocks. These closures will come into effect when allowable harvest limits for this stock group have been reached. Fisheries directed at other stocks or species of salmon will be subject to Late Run/Cultus constraints.

Several lines of research have been undertaken to increase our understanding of the impacts of human activities on the Cultus Lake ecosystem and to monitor the status of Cultus Lake sockeye salmon. Beginning with the 2013 brood year (i.e., 2014 fry release); enhancement activities to supplement juvenile production have been implemented at lower levels compared to the captive brood program years. Release targets for the enhancement program are approximately 150,000 fed fry (summer) into the Lake, 50,000 fed fry (fall) into the Lake, and 25,000 smolts (spring) into Sweltzer Creek near the outlet of Cultus Lake. Annual genetic analysis on Cultus Lake sockeye has demonstrated that genetic diversity in the population has been retained throughout the period of critically low abundance by the combined contributions of natural and hatchery spawning adults, especially due to the captive brood component of hatchery production. This diversity will be maintained in the absence of captive breeding only if abundance is increased to lower abundance benchmark levels at greater than current rates; continued low escapements into the future could lead to extirpation of the population.

Within the Fraser River upstream of the Fraser/Vedder confluence, recreational and First Nations fisheries for Fraser Sockeye during Cultus migration timing will be managed based on Late Run constraints as Cultus Lake sockeye have exited the Fraser River.

For harvest constraints on the Late Run sockeye stock group aggregate refer to Fraser sockeye section ([13.5.6](#)) of Section [13](#) – Southern Sockeye Salmon Fishing Plan ([13.5](#)).

## **6.7 SAKINAW LAKE SOCKEYE**

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

In the 2017 Salmon Outlook, Sakinaw Lake sockeye has been classified as a stock of concern given continued very low survival (both in fresh and marine waters) and low escapements in recent years.

This objective will not be achieved until spawner abundance relative to previous brood years increases for at least 3 out of 4 consecutive years and there are no fewer than 500 natural spawners annually.

To maximize our chances in achieving this objective, a captive brood stock program designed to maintain genetic integrity and minimize inbreeding was initiated in 2001. Achieving this objective also meant that mortality, including fishing mortality, needed to be minimized, as much as practicable.

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

Most fisheries that have potential to intercept Sakinaw Lake sockeye will continue to be delayed prior to the last week of July to ensure a significant portion of the return has passed through major fisheries in Johnstone Strait. The plan will provide for:

- Restrictions in First Nations FSC fisheries in Johnstone Strait will be restricted to gill net and troll only until July 25 and until August 15 in the northern Strait of Georgia.
- Recreational fisheries in Queen Charlotte Strait, Johnstone Strait, and northern Strait of Georgia will be closed to sockeye retention until July 25. The waters near the mouth of Sakinaw Creek in Area 16 will be closed to fishing all season. In addition,

there will be sockeye non-retention restrictions in Area 16 until August 15 at which time sockeye retention opportunities are expected to be available in Sabine Channel.

- Commercial fisheries in Queen Charlotte Strait and Johnstone Strait will be closed until July 25 and in the northern Strait of Georgia (including Sabine Channel) until August 15.

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

In 2016, 171 (144 captive brood origin and 27 natural spawner origin) adults and 1 jack (captive brood origin) sockeye returned to Sakinaw Lake, coming from a smolt count of 126,045 (121.6K captive brood origin and 4.4K natural spawner origin) in 2014. The combined marine survival estimate of 0.14% is a continued concern (Marine survival estimate of the captive brood origin fish was a very low 0.12%, but marine survival of natural spawner origin was 0.61%) The expectation for 2017 is for a very low number of adults due to a much lower number of smolts (17K) contributing to the return.

## 6.8 NIMPKISH SOCKEYE

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

The Nimpkish River has generally experienced low sockeye escapements since the early 1990s. In recent years, the river has shown some improvements in sockeye returns, with escapements of 139,000 and 154,000 sockeye in 2010 and 2011 respectively. Since 2010, returns continued to show improvement over the prior years with consistently above average returns. The preliminary sockeye escapement estimate in 2016 was similar to the brood return in 2012 at around 74,000 sockeye. The escapement target for Nimpkish sockeye is currently under review, but the optimum based on lake capacity and fertilization ranges from 260,000-290,000.

Nimpkish sockeye are encountered in Queen Charlotte Strait and Queen Charlotte Sound typically during June and July. In order to protect this stock, time and area closures may be implemented for First Nations, commercial, and recreational fisheries in the approach waters to the Nimpkish River (including the river). Other than test fisheries, marine waters north of Lewis Point on Vancouver Island (Subareas 11-1, 11-2 & 12-5 to 12-19) are scheduled to be closed to sockeye retention in all fisheries until late July. However, marine waters north of Lewis Point

may open to sockeye retention in marine FSC fisheries prior to late July if in-season abundance of Nimpkish sockeye is higher than expected and no other weak stock constraints exist. If in-season abundance permits, some First Nations FSC harvest may also occur within the Nimpkish River.

The Department is currently working with the Namgis First Nation on the development of an in-season assessment program in the lower river and some FSC harvest may occur in years of higher abundance.

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

## 6.9 INTERIOR FRASER RIVER STEELHEAD

**The objective for Interior Fraser River steelhead is to minimize the impact of Canadian fisheries managed by DFO, taking into account conservation concerns for these populations.**

Interior Fraser River steelhead have been in a state of low abundance since 2006. The in-season estimate of spawners returning to the Thompson/Chilcotin stock aggregate was 520 individuals in 2016, with near-record low abundances for returns of 380 and 140 individuals for the Thompson and Chilcotin stocks respectively. The Province of B.C. provides the in-season estimate of spawning escapement based on the number of steelhead encountered in the Albion test fishery; the estimate is highly uncertain due to the inherent variability in how steelhead are encountered by the Albion test fishery.

The province employs a dual threshold policy within an abundance based reference point framework to manage the recreational Interior Fraser Steelhead fisheries, most notably fisheries in the Thompson and Chilcotin Rivers. The Provincial freshwater fishery target reference point for the Thompson/Chilcotin stock aggregate is 4,682 individuals, however, the stock is considered to be in a routine management zone above 1,950 individuals. The stock is defined to be in a state of Conservation Concern when the stock is between 727 and 1,950 individuals which may result in limiting access to fishing. The stock is considered to be in a state of extreme conservation concern below 727 individuals at which time recreational fisheries are closed.

Based on their migration timing, Interior Fraser River steelhead may be encountered in fisheries targeting late-run Fraser sockeye, Fraser pink and Southern Chum.

For Fraser River commercial gill net fisheries, the strategy will be to protect 80% of the Interior Fraser River steelhead run with a high degree of certainty. In addition, other commercial south coast fisheries are to release to the water with the least possible harm all steelhead caught

incidentally in fisheries targeting other species, with mandatory selective fishing measures applied in many fisheries (e.g. brailing, revival boxes, net length and mesh size restriction).

There are ongoing discussions between DFO and the Province about potential fisheries for harvesting Fraser River chum consistent with the Interior Fraser River steelhead management objective. DFO is developing a model to evaluate the exposure of IFR steelhead to all fisheries in both in marine areas and the Fraser River to assist in fishery planning. The Department will continue to communicate with the Province, First Nations and stakeholders on objectives and strategies for addressing steelhead impacts in fisheries administered by the Department.

Additionally, a tri-partite First Nations / Canada, / BC Thompson Steelhead Committee has been in operation in recent years, serving as a forum for discussions and analysis related to stock recovery and management.

## **6.10 INSHORE ROCKFISH**

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.

There are 164 Rockfish Conservation Areas (RCAs) in place within BC waters. The most recent additions were implemented February 1, 2007 in the Strait of Georgia area. Fish harvesters are reminded prior to fishing to check the DFO website to verify RCA and other closures currently in effect. A description of all RCAs can be found at:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/rca-acis/index-eng.htm>.

Consultations with First Nations will continue so that management of their fisheries will be consistent with conservation objectives and Departmental obligations with respect to priority access for food, social, and ceremonial purposes.

## 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 ALLOCATION GUIDELINES

Allocation decisions are made in accordance with *An Allocation Policy for Pacific Salmon*: <http://www.dfo-mpo.gc.ca/Library/240366.pdf>

Appendix 6 describes a generalized framework by which fishing opportunities are allocated to different fishing groups at different abundance levels.

Table 7.1-1: Allocation guidelines

	Low Abundance		High Abundance		
<b>First Nations FSC</b>	Non-retention / closed	By-catch Retention	Directed	Directed	Directed
<b>Recreational</b>	Non-retention / closed	Non-retention	By-catch Retention	Directed	Directed
<b>Commercial</b>	Non-retention / closed	Non-retention	By-catch Retention	By-catch 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 by-catch. 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 *by-catch* 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.

All harvest groups have recommended that the Department consult on by-catch/incidental harvest allocations. However, the Department does not allocate by-catch 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 by-catch and incidental catch.

### **7.1.1 FIRST NATIONS – FOOD, SOCIAL AND CEREMONIAL (FSC)**

*An Allocation Policy for Pacific Salmon* provides that after requirements for conservation, the first priority in salmon allocation is to FSC for harvest opportunities under communal FSC licences issued to First Nations, and to treaty rights for harvest opportunities for domestic purposes (consistent with Treaty Final Agreements).

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 areas or approach areas. The general guideline is that fishing plans must adequately provide for the First Nations' FSC and/or domestic Treaty harvests that will occur further along the migration route over a reasonable range of potential run sizes.

### **7.1.2 FIRST NATIONS ECONOMIC OPPORTUNITY AND INLAND DEMONSTRATION FISHERIES**

For a more detailed description of Aboriginal commercial fishing opportunities please refer to Section [13](#) – Species Specific Salmon Fishing Plans.

### **7.1.3 RECREATIONAL FISHERIES**

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 averaged over a rolling 5 year period.

If stock abundance information suggests that conservation objectives cannot be attained, closures or non-retention regulations will generally be applied. In some cases, recreational fisheries with a non-retention restriction in place may remain open provided the recreational

fishery is not directed on any stocks of concern, nor is the impact on any stocks of concern significant in accordance with the *Selective Fishing Policy*.

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

#### **7.1.4 COMMERCIAL FISHERIES**

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

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

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

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

#### **7.1.5 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.

## **7.2 ACCESS AND ALLOCATION OBJECTIVES**

### **7.2.1 INTERNATIONAL OBJECTIVES**

**The objective is to manage Canadian treaty fisheries to ensure that obligations within the Pacific Salmon Treaty (PST) are achieved.**

Details can be found at the Pacific Salmon Commission (PSC) website at:

<http://www.psc.org/Index.htm>.

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

### **7.2.2 DOMESTIC ALLOCATION OBJECTIVES**

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

*An Allocation Policy for Pacific Salmon* can be found on-line at:

<http://www.dfo-mpo.gc.ca/Library/240366.pdf>

*An Allocation Policy for Pacific Salmon* sets out principals for allocation between the recreational and commercial sectors and also identifies sharing arrangements for commercial fisheries. An explanation of some of the features of Allocation planning is set out in Section [7.1](#).

### **7.2.3 FIRST NATIONS OBJECTIVES**

**The objective is 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 allocation in accordance with the Allocation Policy for Pacific Salmon.**

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 T'aaq-wiihak First Nations) - have aboriginal rights to fish for any species of fish, with the exception of geoduck, within their Fishing Territories (their Fishing Territories are located within portions of Pacific Fishery Management Areas (PFMA) 25/125, 124, 26/126 and all of PFMA 24) and to sell that fish.

DFO consults with Aboriginal groups when allocation decisions may potentially affect them in accordance with S. 35 of the *Constitution Act, 1982*, relevant case law, and consistent with Departmental policies and considerations.

Feedback from consultation sessions is relied on to measure the performance of First Nations objectives.

## **7.2.4 RECREATIONAL AND COMMERCIAL OBJECTIVES**

**The objective is to manage fisheries for sustainable benefits consistent with established policies.**

A primary objective in the recreational fishery is maintaining the opportunity and expectation to catch fish in a predictable manner. In the commercial fishery, the objective is to improve the economic performance of fisheries, to provide certainty to participants, and to optimize harvest opportunities. However, stocks of concern will continue to constrain opportunities in many fisheries resulting in less than optimal opportunities. Both fisheries will be managed to achieve maximum benefits where possible in accordance with conservation and allocation objectives.

## **7.3 GENERAL DECISION GUIDELINES**

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

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

Specific fishing plans are described in Section [13](#) – Species Specific Salmon Fishing Plans.

### **7.3.1 PRE-SEASON PLANNING**

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

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

### **7.3.2 IN-SEASON DECISIONS**

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

Where possible, in-season decisions will be consistent with guidelines established pre-season; however, the implementation and applicability of decision guidelines and pre-season plans can be influenced in-season by a number of factors. These include unanticipated differences between pre-season forecasts and in-season run size estimates, unexpected differences in the strength and timing of co-migrating stocks, unusual migratory conditions and the availability and timeliness of in-season information.

### **7.3.3 SELECTIVE FISHERIES**

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

All sectors have responded positively to the growing conservation consciousness. First Nations have embraced the principles of selective fishing by adopting more selective fishing gear, as often these types of gear reflect a traditional way of fishing. The commercial fishing sector has developed its own Canadian Code of Conduct for Responsible Fishing Operations. Over 80% of Canada's fishing organizations have signed on and ratified the Code that is overseen by a Responsible Fishing Board. Similarly, the recreational fishery in the Pacific Region developed a Code of Conduct. In addition, DFO has worked with the Sport Fishing Institute (SFI) on a Tidal Angling Guide certification program. The Sport Fishing Institute of BC (SFI) and go2, the resource for people in tourism, have developed an Industry Training Authority approved Tidal Angling Guide (TAG) certification program. First of its kind in North America, this program encompasses Transport Canada requirements including the Small Vessel Operator Proficiency certification (SVOP). The SVOP and other certificates are federal requirements for non-pleasure, passenger carrying vessels operating on the BC coast.

### 7.3.4 POST-RELEASE MORTALITY RATES

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. Post-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 post-release mortality rates that had been used by DFO in previous years. The mortality rates applied by DFO to each gear type and fishery prior to 2001, and the revised rates announced by DFO in 2001 with some more recent revisions are summarized in [Table 7.3-1](#). 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 [Table 7.3-1](#) as new information becomes available. Since 2001 additional research has been conducted on post-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 post-release mortality rates are included for historical comparison indicating which fisheries rates have changed. The 2001 post-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 post-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 employ the mortality rates reported by the PSC (2007).

Table 7.3-1: Post-Release Mortality Rates

Fishery	Pre 2001 Post-Release Rates (for historical comparison)	Post 2001-Release Rates
<b>First Nations Fisheries</b>	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
<b>Recreational troll gear – sockeye, coho, pink and chum</b>	10%	10% except 3% for sockeye in-river Fraser
<b>Recreational Troll gear – chinook</b>	15%	15%
<b>Recreational mooching gear – coho and chinook</b>	10% for coho; 15% for chinook	10% for coho in South Coast areas; 15% for chinook in all areas
<b>Commercial gill net (South Coast)</b>	60% to 70%	60% with provision for rates as low as 40% where selective techniques warrant
<b>Commercial seine – South Coast (Areas 11 to 29)</b>	15% to 25%	25% Johnstone Strait; 50%* Area 20 – coho; 25% all areas for sockeye
<b>Commercial troll – All Areas</b>	26%	10% sockeye, 15% coho and chinook

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

\*Recent work by researchers from Carleton University and 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 indicate that short-term release mortality rates are less than the current 70% estimate. For the 2017 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

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### 8.1 COMPLIANCE AND ENFORCEMENT OBJECTIVES

#### CONSERVATION AND PROTECTION PROGRAM DESCRIPTION

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

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

- I. Voluntary **compliance promotion** through education, shared stewardship and user engagement;
- II. Intelligence-led **monitoring, control and surveillance** activities;
- III. Management of **major cases /special investigations** in relation to complex compliance issues.

### 8.2 REGIONAL COMPLIANCE PROGRAM DELIVERY

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

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

- Monitoring and supporting at-sea observers and dockside monitors to ensure accurate catch monitoring and reporting;
- Inspecting fish processors, cold storage facilities, restaurants and retail outlets to verify compliant product;
- 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 Fisheries 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.

C&P works closely with the Fisheries and Aquaculture Management sector to ensure that fishery management measures are enforceable and implemented in a controlled and fair



manner. Fishery officers participate in local fishery management roundtables, sport fishery recreational advisory committees and participate at Sport Fishery Advisory Board meetings.

On a day-to-day basis, fishery officers are often the most visible faces of the Department. When the fishing community and general public provide comments, they are shared with C&P managers, fisheries managers and fisheries protection staff. Public feedback is critical in identifying issues of concern and providing accurate feedback on emerging issues. C&P encourages the timely reporting of suspicious behaviour and violations to a local office or the Observe, Record, Report hotline.

## **8.4 COMPLIANCE STRATEGY**

Specific objectives for the salmon fishery will focus compliance management efforts on:

- Supporting the development and implementation of the Strategic Framework for Fishery Monitoring and Catch Reporting in the Pacific Fisheries;
- Monitoring in-river and in-marine approach waters utilizing intelligence to target priority fisheries and compliance issues;
- Working with resource users to improve voluntary compliance.

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, 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

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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, as well as, other indicators of interest.

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

The results of the previous year's annual review (e.g. 2015 season) follow below:

### 9.1 2016/2017 POST SEASON REVIEW FOR STOCKS OF CONCERN

NOTE: The objectives shown in **bold** below is the wording from the 2015/16 Integrated Fisheries Management Plan.

#### 9.1.1 LOWER STRAIT OF GEORGIA CHINOOK

**2016/2017: The objective for Lower Strait of Georgia (LGS) chinook was to reduce fishery exploitation in known areas of significant impact.**

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

In 2016, chinook return to the Cowichan River was higher than recent years, continuing the upwards trend since the low point in 2009. The preliminary estimated return was 9,782 (all ages) plus 428 taken for brood for the Cowichan River Hatchery. Approximately 84% of the natural spawners (8212) are age 3+ ('adults') and the other 16% (1570) are age 2 ('jacks' and 'jills'). This level of return is in the WSP Green zone. The upper WSP abundance benchmark ( $S_{msy}$ : spawners at maximum sustained yield) is 6,500 adults and the lower benchmark ( $S_{gen}$ : spawners required to get to  $S_{msy}$  within 1 cycle) is approximately 1,300 chinook. This is the first time since 1997 that the adult natural spawner total was above the  $S_{msy}$ .

For the Cowichan indicator stock, the most recent 5 year (2010-2014) average total fishery mortality is 63% (range 52%-68%) including an average of 43% (range 31%-57%) in Canadian ocean fisheries, 13% (range 7-16%) in U.S. fisheries, and an average 7% (range 4-18%) in all terminal river fisheries. Cowichan chinook are regularly caught in rivers other than the Cowichan River.

The preliminary estimate for Nanaimo River fall run chinook return in 2016 is 1,500 adults and 2,500 jacks, although a high number of these fish were pre-spawn mortalities due to disease.

### **9.1.2 WEST COAST OF VANCOUVER ISLAND (WCVI) CHINOOK**

**2016/2017: The objective for West Coast of Vancouver Island (WCVI) chinook was to manage Canadian ocean fisheries (specified below) to an exploitation rate of 10%. The objective for North Coast chinook was to manage in accordance with the allocation policy, and to manage the northern troll fishery to a WCVI chinook exploitation rate of 3.2%.**

Management actions continued in 2016 for WCVI chinook. Exploitation rates are determined post-season from Coded Wire Tag (CWT) data gathered from these fisheries. The exploitation rate limit includes chinook kept, as well as an estimate of fishing related mortalities of released fish.

The time and area management actions for the WCVI troll fishery are designed to maintain negligible impact on returning natural WCVI chinook stocks. The WCVI troll fishery was limited to well off shore of the surf line (5 miles in southern Areas and 2 miles in Area 127) during the time when WCVI stocks are returning to their natal streams. Size limit and harvest restrictions were in place for the WCVI recreational fishery from July 15 to September 1 (NWVI) and August 1 to September 15 (SWVI) to protect returning WCVI origin chinook stocks. Changes to the management of the recreational fishery within the management corridor were implemented in 2016, changing from size limit management to a network or open or closed areas. In more terminal in-shore areas, conservation measures included a combination of maximum size limits, chinook non-retention areas and finfish closures depending on the level of concern for local stocks.

For the northern troll fishery the post-season CWT estimated exploitation rate on WCVI chinook is 2.0% (1.8% calculated from DNA) which is less than the 3.2% objective. The exploitation rates estimated by CWT's on WCVI chinook from the northern recreational fishery, WCVI troll fishery and WCVI sport fishery in 2016 were 3.2%, 0.9%, and 2.8% respectively for a total of 8.9% which is less than the 10% objective.

9.1.3 FRASER RIVER SPRING 4<sub>2</sub> CHINOOK

2016/2017: The objective for Fraser Spring 4<sub>2</sub> chinook is to conserve these populations by continuing to minimize incidental harvests in Canadian ocean fisheries and to continue fisheries management measures in the Fraser River to limit overall impacts and support rebuilding.

Specific fishery management actions are implemented annually to protect the Spring 4<sub>2</sub> chinook management unit. The evaluation of these actions is based, in part, on the exploitation rate analysis provided by fishery for CTC indicator stocks. This annual analysis uses coded-wire tag (CWT) recoveries from indicator stocks to represent the impacts on all stocks within the management unit. The CWT indicator stock for the Spring 4<sub>2</sub> management unit is Nicola River.

Table 9.1-1: Total chinook mortality distribution analysis for Nicola chinook based on CWT recoveries.

Catch Year	Estimated Number of CWTs	AABM Fisheries						Cdn. Ocean Sport										ISBM Fisheries					US ISBM Fisheries			Escapement		
		SEAK		NBC		WCVI		Juan de Fuca <sup>1</sup>	Johnstone Strait	Strait of Georgia	WCVI	NBC	Cdn. Ocean Net <sup>1</sup>	Cdn. Ocean Troll <sup>1</sup>	Fraser Mainstem Sport	Shuswap Sport	Chilwack Sport	Nicola/Thompson Sport <sup>2</sup>	Comm. Net <sup>3</sup>	FN FSC <sup>4,5</sup>	Troll <sup>5</sup>	Net	Sport <sup>5</sup>	Esc.	Can. Stray	US Stray		
1989	1,270	0.0%	0.0%	0.3%	1.3%	0.9%	0.0%	7.6%	0.0%	4.2%	0.0%	0.0%	0.5%	0.0%	1.0%	0.0%	0.0%	1.5%	8.0%	4.2%	0.9%	1.1%	2.4%	66.0%	0.0%	0.0%		
1990	261	0.0%	0.0%	0.0%	0.0%	2.3%	0.0%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	2.7%	0.0%	0.0%	12.2%	2.1%	13.2%	1.5%	0.0%	3.4%	60.2%	0.0%	0.0%		
1991	1,344	0.1%	0.4%	0.0%	0.2%	4.0%	0.0%	4.6%	0.3%	0.3%	0.0%	0.0%	0.7%	0.4%	3.2%	0.0%	0.0%	5.0%	4.2%	9.1%	0.8%	0.1%	1.7%	64.7%	0.0%	0.0%		
1992	532	0.0%	0.0%	5.5%	0.0%	5.3%	0.0%	4.7%	1.7%	1.5%	0.0%	0.0%	0.9%	2.6%	0.7%	0.0%	0.0%	7.0%	0.7%	5.9%	5.8%	0.0%	6.2%	51.5%	0.0%	0.0%		
1993	1,201	0.0%	0.0%	3.2%	0.0%	5.7%	1.2%	2.0%	1.2%	2.7%	0.0%	0.0%	1.4%	0.0%	2.8%	0.0%	0.0%	2.6%	1.4%	8.3%	1.9%	0.0%	2.2%	63.4%	0.0%	0.0%		
1994	2,050	0.0%	0.0%	0.2%	0.0%	3.6%	0.4%	2.7%	0.0%	0.7%	0.0%	0.0%	0.2%	0.0%	0.7%	0.0%	0.0%	7.4%	0.1%	1.2%	0.3%	0.0%	0.0%	82.6%	0.0%	0.0%		
1995	1,867	0.0%	0.0%	0.2%	0.6%	1.3%	0.5%	1.6%	0.2%	1.2%	0.0%	0.0%	1.5%	0.0%	1.0%	0.0%	0.2%	1.8%	0.5%	2.9%	1.0%	0.0%	0.4%	85.5%	0.0%	0.0%		
1996	72	0.0%	0.0%	2.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.4%	0.0%	0.0%	0.7%	0.0%	0.0%	0.0%	2.0%	16.0%	0.1%	0.0%	0.0%	77.8%	0.0%	0.0%		
1997	258	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	4.3%	0.0%	0.0%	0.0%	0.0%	12.0%	0.0%	0.0%	0.0%	0.0%	5.4%	0.3%	1.2%	0.0%	0.0%	14.3%	62.4%	0.0%	0.0%		
1998	399	0.0%	0.0%	0.0%	4.0%	0.0%	0.0%	1.3%	0.0%	1.3%	0.0%	0.0%	2.0%	0.0%	2.7%	0.0%	0.0%	15.1%	1.0%	9.5%	0.0%	0.0%	0.0%	63.2%	0.0%	0.0%		
1999	2,422	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.5%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	2.1%	0.0%	0.1%	0.0%	0.2%	6.6%	0.7%	0.0%	0.0%	89.4%	0.0%	0.0%		
2000	1,708	0.0%	0.0%	0.0%	2.1%	0.0%	0.0%	3.7%	0.0%	0.7%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.0%	4.4%	0.5%	7.6%	0.0%	0.0%	0.0%	80.0%	0.0%	0.0%		
2001	2,140	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%	3.6%	0.4%	0.2%	0.0%	0.0%	0.0%	0.0%	2.0%	0.0%	0.0%	2.6%	1.1%	6.0%	0.8%	0.0%	0.0%	83.1%	0.0%	0.0%		
2002	2,148	0.0%	0.0%	1.3%	0.3%	0.7%	0.0%	0.9%	0.0%	0.2%	0.0%	0.0%	0.2%	0.0%	0.0%	0.0%	0.3%	2.4%	0.4%	3.9%	0.8%	0.0%	0.2%	88.5%	0.0%	0.0%		
2003	1,778	0.1%	0.0%	2.4%	0.0%	0.9%	0.6%	1.7%	0.0%	0.8%	0.0%	0.0%	0.0%	0.0%	3.3%	0.0%	0.3%	3.3%	0.1%	0.5%	0.4%	0.0%	0.0%	85.5%	0.0%	0.0%		
2004	439	0.0%	0.0%	2.3%	0.0%	1.8%	0.0%	1.4%	0.0%	2.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.9%	21.8%	0.9%	0.0%	0.0%	67.7%	0.0%	0.0%		
2005	396	0.0%	0.0%	1.0%	0.0%	3.8%	0.0%	3.8%	0.0%	2.8%	0.0%	0.0%	0.0%	0.0%	3.1%	0.0%	0.0%	12.3%	0.3%	11.9%	0.5%	0.0%	0.0%	60.6%	0.0%	0.0%		
2006	418	0.0%	0.0%	1.7%	0.0%	1.9%	0.0%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	9.1%	0.4%	10.4%	0.5%	0.0%	0.7%	71.8%	0.0%	0.0%		
2007	142	0.0%	0.0%	0.0%	0.0%	6.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	5.1%	18.8%	0.3%	24.3%	1.4%	0.0%	0.0%	43.7%	0.0%	0.0%		
2008	607	0.0%	0.0%	1.2%	0.8%	0.0%	0.0%	1.5%	0.0%	2.1%	0.0%	0.0%	0.0%	0.0%	0.2%	0.0%	1.0%	2.5%	0.4%	9.3%	2.1%	0.5%	0.3%	78.1%	0.0%	0.0%		
2009	270	0.0%	0.0%	0.4%	0.0%	0.0%	0.0%	8.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.2%	0.0%	0.0%	3.6%	0.6%	14.6%	3.3%	0.0%	1.1%	49.3%	0.0%	0.0%		
2010	2,309	0.3%	0.0%	1.3%	0.2%	0.0%	0.1%	0.6%	0.6%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.4%	4.3%	0.6%	0.0%	0.4%	90.9%	0.0%	0.0%		
2011	677	0.0%	0.0%	0.6%	0.0%	0.0%	0.4%	2.5%	0.6%	0.9%	0.0%	0.0%	0.0%	0.0%	2.5%	0.0%	0.0%	0.0%	0.3%	4.0%	2.1%	0.0%	1.6%	84.5%	0.0%	0.0%		
2012	714	0.0%	0.0%	0.6%	0.7%	0.0%	0.0%	1.8%	1.1%	0.8%	0.0%	0.0%	0.0%	0.0%	0.7%	0.0%	0.0%	0.1%	0.6%	17.4%	8.1%	0.0%	0.0%	68.1%	0.0%	0.0%		
2013	1,454	0.0%	0.0%	1.0%	0.0%	0.2%	0.0%	3.5%	0.0%	0.9%	0.0%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	1.8%	3.1%	0.0%	1.3%	87.8%	0.0%	0.0%		
2014	435	0.0%	0.0%	0.0%	0.0%	1.8%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	0.0%	1.0%	9.8%	1.6%	0.0%	0.0%	83.9%	0.0%	0.0%		
2015	1,509	0.0%	0.0%	0.2%	0.2%	0.3%	0.0%	2.2%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.9%	10.2%	0.8%	0.0%	0.6%	84.1%	0.0%	0.0%			

Footnotes:  
 1. Canadian Ocean Net includes Juan de Fuca net, Johnstone Strait net, Northern net, Central net and WCVI net.  
 2. Canadian ocean troll includes Central and any other Canadian troll fisheries not listed.  
 3. Imputed CWT recoveries from Fraser Run Reconstructed catch, escapement CWT density, and 2012 relationship between recoveries based on CWT sampling and run reconstruction for 2000, 2005-2009.  
 4. The CWT data were combined for all Fraser net fisheries for the CTC CWT cohort analysis. The Run Reconstruction model was used to prorate the CTC analysis into FN FSC and commercial categories for 1989-2010, and CWT sampling was used for 2011-2015.  
 5. No adjustments were made for any mark selective fisheries.

Information on the total chinook mortality distribution for the previous season is typically updated in April of the following year.

The 2016 CTC spawner abundance for the aggregate (including Bonaparte) was approximately 8,665 chinook compared with 11,359 in the brood year. The escapement estimate for the Nicola indicator stock was 2,121 based on an intensive mark-recapture study.

#### 9.1.4 FRASER SPRING 5<sub>2</sub> AND SUMMER 5<sub>2</sub> CHINOOK

**2016/2017: The objective for Fraser Spring and Summer (age 5<sub>2</sub>) chinook is to conserve these populations consistent with the management zones outlined in Section 13 Southern Chinook Salmon Fishing Plan (13.1) under the Southern ISBM Chinook section (13.1.4).**

The abundance of Spring and Summer 5<sub>2</sub> chinook returning to the Fraser River is estimated in-season based on chinook catch observed in the Albion test fishery. In 2016, the combined Spring and Summer 5<sub>2</sub> aggregate terminal run size was estimated at 43,000 chinook (95% PI: 27,000 to 70,000). This estimate, provided on June 14th, resulted in a Zone 1 management approach.

The post-season terminal run size estimate (based on outputs from the Fraser River Run Reconstruction model) for 2016 is not yet available.

The preliminary 2016 CTC index of spawning escapement, as enumerated using various stock assessment techniques, was approximately 22,780 chinook; a decrease from the 2011 brood year spawning escapement index of 27,001. This value represents the escapement to a subset of the total number of populations, which are surveyed annually to provide a reliable index of the escapement for use by the Chinook Technical Committee of the Pacific Salmon Commission.

Estimates of exploitation rates are not available for these populations as there is not a current CWT indicator for these management units.

#### 9.1.5 INTERIOR FRASER RIVER COHO

**2016/2017: The objective for Interior Fraser River coho (including Thompson River coho) was to manage Canadian fisheries in a highly precautionary manner with fisheries management measures similar to those in place prior to 2014. This approach was expected to achieve an overall exploitation rate within the 3–5 % range.**

The final in-season estimate of total returns and the total Canadian exploitation in southern BC fisheries on Interior Fraser coho for 2016 is not yet available. The expectation is that the Canadian exploitation rate will be quite low given the absence of any fisheries targeting Fraser pink salmon (off-cycle year) and the extremely low levels of fishing pressure exerted on Late Run Fraser sockeye, stocks whose migration timing overlaps with IFR coho. The preliminary spawning escapement estimate of Interior Fraser River coho salmon for 2016 was approximately 60,000, better than pre-season expectations, and similar to the brood escapement of 58,361 in 2013. The 3 year geometric mean spawner abundance for 2016-2014 was 30,212; roughly mid-way between the 20,000 short term conservation objective and 40,000 long-term conservation objective.

### 9.1.6 CULTUS LAKE SOCKEYE

**2016/2017: Cultus Lake Sockeye were to be managed within the constraints of the exploitation rate identified for the Late Run aggregate. The maximum allowable exploitation rate for Cultus Lake Sockeye was the greater of a) the low abundance exploitation rate identified for Late Run Sockeye, or b) the exploitation rate that is consistent with continued rebuilding of the population based on in-season information on returns and potential numbers of effective spawners. The exploitation rate on Cultus Lake Sockeye was intended to allow for fisheries on more abundant co-migrating stocks and species. For Late Run sockeye, management was based on an abundance-based Total Allowable Mortality as outlined in the Fraser sockeye escapement plan.**

The preliminary 2016 post-season exploitation rate estimate for Cultus Lake sockeye is approximately 10%. This estimate may change dependent on post season run size assessment evaluations. The preliminary escapement estimate to the Sweltzer fence of 2,806 Cultus Lake sockeye (2,599 through the fence plus 207 kept for broodstock) is more than double the brood year escapement of 1,155 (including broodstock).

### 9.1.7 SAKINAW LAKE SOCKEYE

**2016/2017: The objective for Sakinaw Lake sockeye was to stop their decline and re-establish a self-sustaining, naturally spawning population.**

Less than two adult sockeye returned to Sakinaw Lake, each year, over a four year period (2006-2009). Captive brood-based fry have been released to enhance Sakinaw Lake sockeye since 2007. These second generation captive brood fish from Rosewall Hatchery were able to find the historic spawning beaches which had been cleaned and cleared of small debris in preparation for their arrival. Recent year escapements, hatchery fry releases, and the number of smolts counted out of the lake are highlighted in [Table 9.1-1](#). The use of captive brood-based enhancement has prevented the extirpation of this stock in the wild; although, if current marine survival conditions continue, we will not reach the recovery objective in the near term.

Table 9.1-2: Recent year escapements, hatchery fry releases and smolts counted leaving Sakinaw Lake, by brood year.

Brood year	Adult escapement	Hatchery fry releases (brood year +1, X1000)	Smolts leaving the lake (brood year +2)		Predominant return year (brood year +4)
			Hatchery origin	Natural origin	
2011	550	963	224,600	28,000	2015
2012	243	856	121,500	4,400	2016
2013	114	320	16,500	600	2017
2014	452	645			2018
2015	695				2019

### 9.1.8 NIMPKISH SOCKEYE

**2016/2017: The objective was to minimize the impact of Canadian fisheries during periods of low abundance.**

Since 2015, DFO has worked with the 'Namgis First Nation on the development of a lower river assessment program for Nimpkish sockeye. The objective of the program was to develop high quality estimates of sockeye abundance entering the Nimpkish River to support in-season management of this stock. The program involved the installation of two deflection weirs in the lower river to concentrate the migration of sockeye to areas that could be monitored and recorded using a DIDSON acoustic system. There are plans to continue the development of this assessment program into the future based on the successes encountered over the last 2 years of the program. As an educational tool for members, the 'Namgis First Nation conducted a drag seine fishery in the lower river. They harvested just over 1,500 sockeye for FSC requirements in 2016.

In 2016, there were no directed commercial and recreational Fraser River sockeye fisheries in Johnstone Strait and Queen Charlotte Strait. Limited First Nations FSC sockeye harvest occurred due to poor sockeye returns to the Fraser River. The marine FSC fishery opened for sockeye retention in Johnstone Strait and Queen Charlotte Strait on July 23, 2016 and closed to sockeye retention on August 9, 2016. In order to protect Nimpkish River sockeye, First Nations fisheries targeting Fraser River sockeye were restricted to the waters south of Lewis Point on Vancouver Island until the end of July. Typically, by the end of July most of the returning Nimpkish Sockeye have migrated through the marine approach waters and have entered the Nimpkish River system. Additionally, it is likely that further protection of Nimpkish sockeye occurred as the majority of the FSC sockeye harvest occurred just prior to the closure of sockeye retention in FSC fisheries.

Final evaluation of the Nimpkish return in 2016 are not finalized, but preliminary results show escapements were above average and likely similar to the 2012 brood year.

### **9.1.9 INTERIOR FRASER RIVER STEELHEAD**

**2016/2017: The objective for Interior Fraser River steelhead is to minimize the impact of Canadian fisheries managed by DFO, taking into account conservation concerns for these populations.**

Returns of Interior Fraser River Steelhead continued to be poor in 2016. The latest in-season estimate of spawner returns in 2016 (provided by the province of B.C. based on Albion test fishing encounters) was 520 individuals, with near-record low abundances for returns to both the Thompson (380 spawners) and the Chilcotin (140 spawners) systems.

Based on their migration timing, Interior Fraser River Steelhead are assumed to be encountered in fisheries targeting late-run Fraser sockeye, Fraser pink and Southern Chum. For 2016, incidental mortalities of Interior Fraser River Steelhead in fisheries were believed to be negligible prior to the initiation of chum fisheries given the wide-spread fisheries closures for all sectors applied due to very weak late run sockeye returns, and the off-cycle year for Fraser pink. Because of the fixed effort-based fishing approach applied in Johnstone Strait, though chum catches were high, incidental impacts on steelhead are expected to be similar to recent years. Selective fishing measures were a requirement in all Johnstone Strait fisheries. Strong returns of chum were observed within the Fraser River, triggering First Nations FSC, recreational and commercial chum fisheries with similar protection measures as have been applied in recent years (window closure for commercial gillnets and selective fishing requirements for all fisheries).

DFO is working towards the development of a comprehensive modelling approach for southern BC salmon fisheries that can provide a relative measure of fisheries impacts on Interior Fraser steelhead across all fisheries. Currently, DFO uses an assessment model that evaluates the degree to which Interior Fraser River Steelhead are exposed to commercial gillnet fisheries within the Fraser River. In 2016, the fishing plan that was implemented protected 80% of the run with a certainty level ranging from 73.7 to 86.9% (range depends on assumptions regarding migration timing through the Lower Fraser area in which the gill net fleet operates).

The time series of spawning escapement for Interior Fraser steelhead from 1971 to 2016 is shown in [Figure 9.1-1](#).



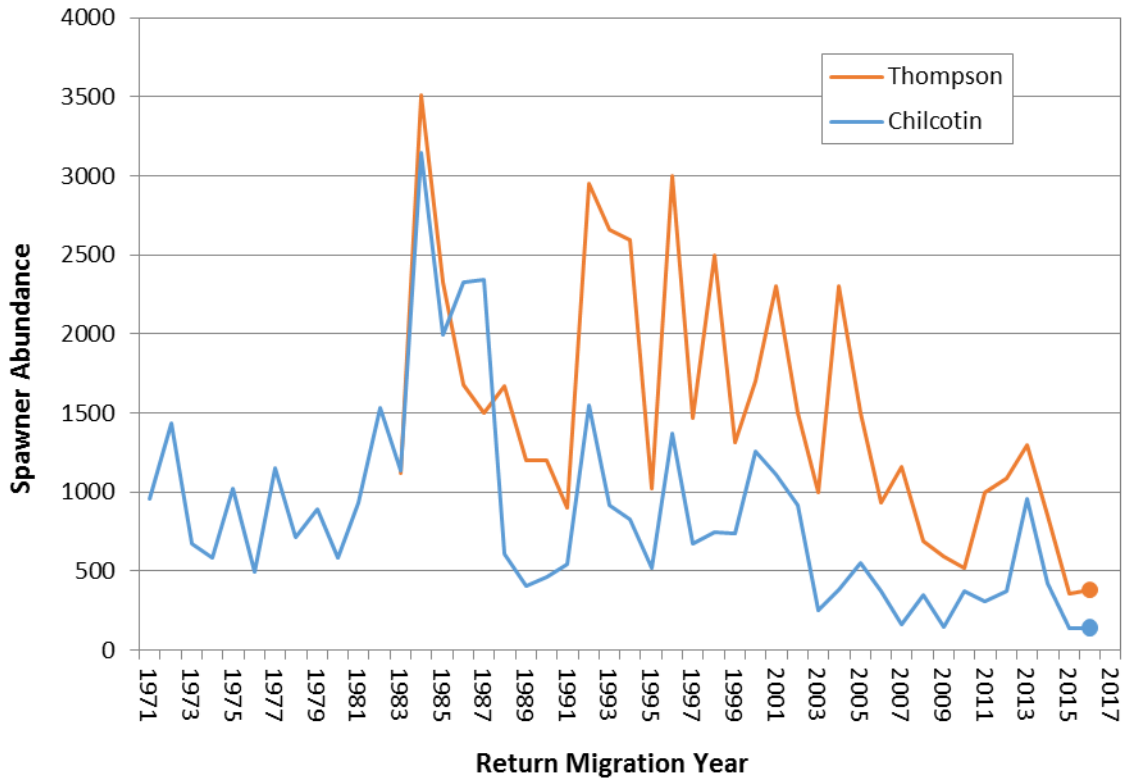


Figure 9.1-1: Historic trend of Interior Fraser steelhead spawner abundance\*

\*The 2016 data point represents an in-season estimate based on the number of steelhead encountered in the Albion test fishery. Field programs that estimate the number of spawners from the 2016 return are completed in late spring of 2017.

### 9.1.10 INSHORE ROCKFISH

**2017/2018: 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.**

To ensure stock rebuilding over time, Rockfish Conservation Areas have been implemented within the Strait of Georgia and in all outside waters including the Queen Charlotte Islands. The conservation strategy for rockfish along the coast of British Columbia is long term. Rockfish are a long-lived species with a low level of productivity and therefore rebuilding will take several decades.

First Nations are encouraged to employ fishing methods or fish in locations to avoid the harvest of inshore rockfish. First Nations fishing for food, social and ceremonial purposes is permitted in RCAs.

## **9.2 2016/2017 POST SEASON REVIEW FOR ACCESS AND ALLOCATION OBJECTIVES**

### **9.2.1 INTERNATIONAL OBJECTIVES**

**2016/2017: The objective was to manage Canadian treaty fisheries to ensure that obligations within the Pacific Salmon Treaty (PST) are achieved.**

Review and performance of the PST provisions for sockeye, coho, chum and chinook salmon occur annually at bilateral meetings. Results of the meetings are published in the annual post-season reports available from the Pacific Salmon Commission (PSC). More information is available on the PSC website at:

<http://www.psc.org/index.htm>

### **9.2.2 DOMESTIC ALLOCATION OBJECTIVES**

**2016/2017: The objective is to manage fisheries in a manner that is consistent with the Allocation Policy for Pacific Salmon and the 2012 Pacific Salmon Commercial Allocation Implementation Plan.**

While fisheries were managed to address conservation objectives, they were generally conducted in a manner consistent with the Allocation Policy for Pacific Salmon. Post-season reviews were conducted to provide information on stock status, catches and other fishery information.

### **9.2.3 FIRST NATIONS OBJECTIVES**

**2016/2017: 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.**

DFO continued to consult and negotiate with the Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht First Nations pursuant to the rights found by the courts, to find "the manner in which their rights can be accommodated and exercised without jeopardizing Canada's legislative objectives and societal interests in regulating the fishery." In 2016, salmon demonstration fisheries were conducted in the T'aaq-wiihak fishing area on the West Coast of Vancouver Island for AABM chinook and ISBM chinook (e.g. Conuma and Burman in Area 25) chinook and with some incidental retention of other species.

Harvest opportunities for First Nations FSC fisheries in the South Coast and Fraser River in 2016 in many cases did not meet expectations and were affected by conservation measures that restricted opportunities. As in recent years, restrictions were implemented to protect 90% of the Early Stuart component through a rolling window closure as well as 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 and to minimize impacts upon 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, success in other WCVI FSC fisheries were variable.

#### **9.2.4 RECREATIONAL AND COMMERCIAL OBJECTIVES**

**2016/2017: The objective was to manage fisheries for sustainable benefits consistent with established policies.**

The primary objective in the recreational fishery to maintain the expectation and opportunity to catch fish in a stable manner was achieved. In the commercial fishery, harvest opportunities were planned based on the identification of commercial surpluses and based on the commercial allocation plan. The performance of the commercial allocation plan will be reviewed following the 2018 season.

### **9.3 2016/2017 POST SEASON REVIEW OF COMPLIANCE MANAGEMENT OBJECTIVES**

Fishery officers carry out inspections on vessels, buying stations, processors, transporters, cold storage facilities, brokers, restaurants and retailers. In-season and future compliance and enforcement activities are adjusted, in consideration of the outcomes of the inspections program. The annual post-season review of the inspection program further informs C&P about the successes of the program and where to align resources to provide the greatest value to Canadians.

# 10 SOUTHERN BC/FRASER RIVER FIRST NATIONS FISHERIES

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## 10.1 CATCH MONITORING AND REPORTING INITIATIVES

The *Strategic Framework for Fisheries Monitoring and Catch Reporting in Pacific Fisheries* (see Section 0) is being applied to all fisheries across the region including First Nations FSC fisheries. Work includes assessing the ecological risk of fisheries as they are currently managed and ensuring monitoring and reporting programs provide sufficient information to appropriately manage for those risks. The First Nations Fishery Council (FNFC) and other area aggregate groups have assisted in engagement to communicate the requirements of the Framework and importance of improving catch information. In addition, a significant focus has been on the development of integrated and coordinated data management and data entry systems within DFO and First Nations Band offices.

### 10.1.1 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 licencing system, allowing First Nations to track FSC catch and 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. Work on this new system is ongoing and the expected completion date of a production release is 2017. Currently several First Nations are using the new AHMS system as a pilot program. FSC data is now being collected by DFO in the FSC Managers Database as an interim measure until the Regional FSC database is completed.

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

### 10.1.2 CHINOOK AND COHO CODED WIRE TAG (CWT SAMPLING)

CWT target sample rates are established by the Department to meet bilateral Pacific Salmon Treaty standards. The minimum required sample rates are 20% of the estimated catch of the fishery to recover a minimum quantity of CWTs from indicator stocks. CWT sampling programs in First Nations fisheries are comparable in overall design to CWT sampling in commercial and recreational fisheries but may be different in some aspects to recognize the differences in First Nations economic or demonstration fisheries and FSC fisheries, to recognize regional differences in priorities for CWT sampling, and to integrate sampling into First Nations catch monitoring programs.

In economic and demonstration fisheries, sampling for CWTs is a mandatory catch monitoring requirement in chinook and coho retention fisheries that intercept CWT indicator stocks. Where needed, the Department will:

- 1) Sample and collect all heads that contain CWTs from the entire catch of randomly selected landings or at fish processing plants using designated observers, or
- 2) Work with First Nations catch monitoring programs to establish comparable requirements.

In FSC fisheries, the success in achieving the 20% target sample rate relies on CWT sampling that is integrated into the catch monitoring program or on individual submissions of chinook or coho heads to catch monitors or to First Nations Salmon Head Depots. Sample rates may also be known as submission rates in these fisheries. Essential requirements for the “submission-style” sampling for CWTs are:

- 1) 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.
- 2) Completed head label(s) attached to each head with required catch information including location caught and date caught. For salmon caught together (same date and location), one label may be placed in a sealed bag with multiple heads.
- 3) Provision of catch information (number of hatchery marked kept chinook and coho) to monitoring programs.

First Nations Salmon Head Depots with head labels exist in communities where submission-style programs are established. Servicing and maintenance of First Nations Salmon Head

Depots will be delivered by Department employees. Information about the origin of their fish will be provided to individuals and First Nations when CWT dissection results are available.

For additional information or locations of First Nations Salmon Head Depots:

Salmon Head Recovery Program

Telephone: 1-866-483-9994 (toll-free)

## **10.2 COMMUNAL LICENCE HARVEST TARGET AMOUNTS**

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 Southern Coastal First Nations are typically multi-species and are issued on an annual basis. Shorter duration amendments to licences are also issued on occasion. For Fraser River First Nations, licences are typically of shorter duration, and are issued to provide for specific First Nations' salmon fisheries openings. In several "terminal" or "near terminal" areas of the upper Fraser and Thompson Rivers, licences are generally longer-term and based on in-season assessment information.

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 Aboriginal fishery.

Target harvest amounts for communal licences in the Fraser River and Southern BC are outlined in [Table 10.2-1](#) below. 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>

Table 10.2-1: Communal Licence Harvest Target Amounts

	South Coast First Nations *	Lower Fraser Area First Nations * #	Mid/Upper Fraser First Nations	Total
<b>Sockeye Fraser River</b>	266,850	434,000	350,000	1,050,850
<b>Sockeye Non-Fraser River</b>	15,600**	0	20,000	35,600
<b>Coho</b>	Directed harvest may be permitted in specific areas or terminal systems where abundance permits based on in-season assessment. Restrictions on retention of coho caught incidentally during fisheries on more abundant species or stocks where IFR coho are present.			
<b>Pink</b>	48,850	124,800	2,000	174,150
<b>Chum</b>	139,000	91,300	500	230,800
<b>Chinook</b>	26,760	25,300	18,000	70,060
<b>Total Salmon</b>	<b>497,060</b>	<b>675,400</b>	<b>389,000</b>	<b>1,561,460</b>

\* Note: Tsawwassen and Tla'amin Treaty domestic fishery allocations are not included here.

# Note: these harvest targets are initial amounts prior to a negotiated comprehensive fisheries agreement between some Lower Fraser First Nations and DFO for economic opportunities.

\*\* Note: The 15,600 total non-Fraser Sockeye amount does not include MNA treaty allocation or the FSC quantum in the Tsu-ma-uss agreement.

### 10.3 ABORIGINAL COMMERCIAL FISHING OPPORTUNITIES

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 Aboriginal communities. An integral component of the AFS is the Allocation Transfer Program (ATP). This Program facilitates the voluntary retirement of commercial licences and the issuance of licences to eligible Aboriginal groups in a manner that does not add to the existing fishing effort on the resource, thereby providing Aboriginal groups with much needed

employment and 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, 482 commercial licences have been relinquished for Aboriginal groups.

Negotiations to provide economic opportunities to First Nations in Barkley Sound and the lower Fraser River will be undertaken as in recent years. Economic opportunity fisheries will be conducted under agreements that specify provisions for planning fisheries, allocations, catch reporting requirements as well as roles and responsibilities regarding the management of the fishery. The Department's general approach is that Aboriginal commercial harvest opportunities are managed using the same harvest decision guidelines as the commercial fishery. Aboriginal commercial harvest opportunities may be implemented with different times, areas, gears and regulations consistent with the overall management approach for the commercial fishery.

In the lower Fraser, DFO will work with First Nations and commercial harvesters to develop an approach to an integrated commercial fishery based on the principles of transparency, accountability and collaboration. Specific elements of this approach will include defined harvest shares, enhanced catch monitoring and compliance programs, some initial work on a traceability program and improved collaboration amongst harvesters.

Discussions regarding demonstration fisheries that will provide commercial opportunities for First Nations and allow for experimentation and testing of inland fisheries are on-going with First Nations and stakeholders. For 2017, as in previous years, the focus with First Nations will be on experimenting mainly in terminal areas on abundant stocks. These fisheries will be conducted separately from FSC fisheries, under the same harvest decision guidelines as the commercial fishery and fish harvested will be off-set with licences voluntarily relinquished from the commercial fishery. The demonstration fisheries proposed are described in Section [13](#) – Species Specific Salmon Fishing Plans.

## **10.4 SPECIAL PROJECTS OR INITIATIVES**

### **10.4.1 FORUM ON FRASER SALMON CONSERVATION AND HARVEST PLANNING ARRANGEMENTS**

In January 2008, Fisheries and Oceans staff initiated a series of meetings with First Nations throughout the South Coast and the Fraser River watershed to discuss possible management approaches for the upcoming season in the case that there are insufficient salmon returns to meet FSC requirements. A similar process has occurred in subsequent years with the aim of furthering discussions on management principles and approaches for Fraser salmon, with meetings generally occurring in January, March and April of each year. A Forum planning



committee, with Terms of Reference, consists of the following members (including alternates): one DFO Aboriginal Affairs Advisor, one DFO Resource Manager; the chair of the Fraser River Aboriginal Fisheries Secretariat, two Fraser River First Nations members; and two Island and Marine Aquatics Working Group members as well as the DFO and FN co-chairs of the Joint Technical Working Group.

## 10.5 TREATY FISHERIES

Tsawwassen and Maa-nulth First Nations Treaties came into effect on April 3, 2009 and April 1, 2011, respectively. Most recently, the Tla'amin First Nations Treaty came into effect on April 5, 2016. Under the Treaties, Fisheries Operation Guidelines (FOG) set out the operational principles, procedures and guidelines needed to assist Canada, BC, Tsawwassen, Maa-nulth, and Tla'amin First Nations in implementing Fisheries Chapters of their respective treaties and managing Treaty salmon fisheries on an annual basis. The FOG's provide guidance on how management decisions, with respect to treaty fisheries, will be made via the Joint Fisheries Committee (JFC), how abundance is estimated, biological and harvesting considerations, fisheries monitoring and catch reporting requirements, etc. Each year the JFC, established under each treaty, makes recommendations to the Minister on the issuance of specific 'Harvest Documents' to licence the salmon fishery for Domestic (food, social and ceremonial) harvests.

More information on the Treaties can be found at:

Tsawwassen First Nations Final Agreement:

<http://www.aadnc-aandc.gc.ca/eng/1100100022706/1100100022717>

Maa-nulth First Nations Final Agreement:

<http://www.aadnc-aandc.gc.ca/eng/1100100022581/1100100022591>

Tla'amin Final Agreement:

<http://www.aadnc-aandc.gc.ca/eng/1397152724601/1402079284345>

The Tla'amin Fishing Area for all species of Fish and Aquatic Plants is within portions of Pacific Fisheries Management Areas 14, 15, and 16.

For more information, the legal description of the Tla'amin Fishing Area can be accessed through the Appendix N-1 at:

<http://www2.gov.bc.ca/gov/content/environment/natural-resource-stewardship/consulting-with-first-nations/first-nations-negotiations/first-nations-a-z-listing/tla-amin-nation-sliammon-first-nation>

More information on the Treaty process can be found at:

<http://www.BCtreaty.net/>

Refer to Section [13](#) – Species Specific Salmon Fishing Plans for the specific domestic and commercial allocations.

## **II SOUTHERN BC/FRASER RIVER RECREATIONAL FISHERIES**

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Recreational fishing opportunities for salmon are regulated by the *British Columbia Sport Fishing Regulations, 1996* made under the *Fisheries Act*. The regulations are generally summarized in the *British Columbia Sport Fishing Guide*.

In addition, detailed information on tidal and freshwater salmon sport fishing regulations is found online at:

<http://www.bcsportfishingguide.ca>

To sign up to have recreational fishery notices sent directly to your email, please visit our website, there is a link to subscribe to fishery notices on the right hand side of the page.

*A Vision for Recreational Fisheries in British Columbia* was developed cooperatively by DFO, the Province of BC and the SFAB. 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 is available at:

<http://www.pac.dfo-mpo.gc.ca/consultation/smon/sfab-ccps/docs/vision-comment-eng.pdf>

### **II.1 FISHERY MONITORING AND CATCH REPORTING INITIATIVES**

The SFAB has been working with DFO on initiatives to strengthen fishery monitoring and catch reporting in the 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 (see sec. 1.6.4). Creel surveys for boat based angling in marine waters are the main source of recreational catch and effort information in the highest risk fisheries.

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. This requirement also includes responding to email requests through the iREC survey.

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 catch and effort information or biological samples either on the water or at the dock.

Internet-based surveys are also used to collect catch and effort information. The Department is continuing to conduct the monthly Internet Recreational Effort and Catch (iREC) survey, which began in July 2012. This survey provides monthly estimates of effort and catch for areas, months, and fishing methods not covered by the marine creel surveys, which cover only boat based angling. The methods covered by the iREC survey include angling, trapping, beach collecting, and diving for all sport caught species. The iREC survey methodology was peer reviewed and approved by the Canadian Science Advisory Secretariat (CSAS). Efforts are now underway to implement use of iREC results in months and areas not covered by creel surveys, starting with critical species such as halibut and chinook salmon. Information on the iREC survey is available at:

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

A separate online survey conducted annually requests catch records of 20,000 licence holders. In this survey, referred to as the Internet Annual Recreational Catch (iARC) survey, licence holders are asked to provide the catch records as written on their licences for chinook, lingcod, and halibut. Information on this survey is available at:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/irec/iarc-eng.html>

Finally, the Department is continuing to work with sport fishing guides, associations, and the Sport Fishing Institute of BC to implement logbooks in areas of highest risk or areas conducive to reporting through logbooks. The latter includes areas such as the central coast, Kyuquot Sound, Port Hardy, and parts of PFMA 13 where there are concentrations of lodges and guided effort. In addition to paper log ‘books’, the Department has developed a Recreational Electronic Logbook (Rec E-Log) as a tool to capture catch and other fishing information and to report this information to the Department. Data captured and sent is retained by the client for reference and is sent to DFO for further analysis.

The development of an improved catch monitoring regime will continue to be a priority in the management of recreational fisheries. Fisheries and Oceans Canada is working with the Sport Fishing Institute of BC and Sport Fishing Advisory Boards to develop catch monitoring and reporting standards for the recreational fishery.

In 2015, in southern BC tidal waters the number of fisher records of catch, whether creel survey interviews, iREC respondents, logbook/E-log submissions are detailed below.

Table 11.1-1: BC Tidal water number of fisher records of catch

Item	Number obtained in 2015
Creel survey interviews	16,721

Item	Number obtained in 2015
iREC & iARC survey responses (Region wide)	35,398 & 5,077
Guide logs	4,839

### 11.1.1 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 (number of hatchery marked kept chinook and coho) to DFO catch monitoring programs.

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 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

### 11.1.2 RECREATIONAL ELECTRONIC LOGBOOKS

The development of an improved catch monitoring regime will continue to be a priority in the management of recreational fisheries. Fisheries and Oceans Canada is working with the Sport Fishing Institute of BC and Sport Fishing Advisory Boards to develop catch monitoring and reporting standards for the recreational fishery.

Since 2007 the Department has been working with Sport Fishing Institute of BC, a number of Resorts and a number of Recreational fishers, to develop a Recreational Electronic Logbook (Rec E-Log) as a tool to capture catch and other fishing information and a tool to report this information to the Department. Data captured and sent is retained by the client for reference and is sent to DFO for further analysis. Depending on your location and business needs, there are up to three components to the Rec E-Log.

- 1) On Water or Mobile Component – This component can be installed on any smartphone device (Blackberry/Android and iPhone). Catch and other fishing information, is captured by GPS location at sea, by individual fishers. Data can be sent from the device or exported to the Lodge Component.
- 2) Dockside Component – Captures catch and other fishing information at the dock as fishers and guides return from fishing.
- 3) Lodge Component – Data from the On Water and Dockside components are exported to this application. Uploaded data can be reviewed for correctness and a number of printed reports can be generated. The application has a mapping component, which allows catches to be displayed for those with a GPS location. Data from this component can be easily sent to the Department.

Development of all components is now complete. In 2017/18, the Department will continue to collaborate with the Sport Fishing Institute and the local Sport Fishing Advisory Boards to develop a deployment strategy for the application(s).



## **12 SOUTHERN BC/FRASER RIVER COMMERCIAL FISHERIES**

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### **12.1 CATCH MONITORING AND REPORTING INITIATIVES**

Effective fishery monitoring and catch reporting programs are important to support fishery planning by First Nations, stakeholders, all levels of government and to meet Canada's international and other reporting obligations on fisheries. Further, timely and accurate information on harvest and harvesting practices is essential to properly assess the status of fish stocks and to support resource management for the conservation and the long term sustainability of fish resources.

The Department finalized the "Strategic Framework for Fisheries Monitoring and Catch Reporting in the Pacific Fisheries" in 2012. The paper outlines a consistent approach to determining the level of monitoring required for all fisheries. Key components of the framework include the development of standardized criteria to be used to determine the required level of monitoring for all Pacific fisheries. The application of the criteria is based on the level of risk the fishery presents to the resource and management regime.

The proposed criteria will be used in discussions with commercial, aboriginal and recreational fisheries harvesters to determine specific monitoring objectives.

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." 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

In 2013, a number of catch monitoring programs were developed to address deficiencies that have been identified with the minimum requirements. These programs will continue in 2017



with revisions to update approaches and potentially include additional areas and objectives. While all fisheries will be required to meet catch monitoring requirements over time, the key fisheries identified for the programs at this time are listed below. Competitive (full-fleet) fisheries will be expected to implement catch monitoring programs in the following areas:

Area D Gill net: sockeye (Johnstone Strait), Area E Gill net: sockeye (Fraser River), Area G Troll: chinook (WCVI). Details on the catch monitoring programs are being discussed with Area Harvest Committee representatives and will be communicated via Fisheries Notices and the 2017 Conditions of Licence.

## **12.2 CHINOOK AND COHO CODED WIRE TAG (CWT) SAMPLING**

In 2017, Fisheries and Oceans Canada will use designated 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 significant 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. 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:

- i) Making the fish readily accessible to the CWT samplers;
- ii) Providing samplers with a suitable work area; and
- iii) 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.

For more information, please contact Kathryn Fraser at 250-756-7371 or Doug Herriott at 250-756-7383.

### 12.2.1 RETENTION OF FREEZER TROLL CHINOOK AND COHO HEADS

These requirements apply to all troll licences, unless the license is listed in a fisheries notice that identifies the troll licenses that are exempted from retaining salmon heads during the fishing season.

**Head Retention:** Troll vessel masters that are freezing their catch at sea must retain all heads from chinook and coho. Recognizing that vessels may have space limitations for retaining heads, the Department allows the alternative of retaining only the portion of the head likely to contain the CWT, referred to as the 'snout'. At a minimum, the portion of each head retained must include the

upper portion of the head extending from the tip of the snout to a cut travelling from the top of the head, passing 1 centimeter behind the eye, and ending at the back corner of the mouth.

**Head Storage:** Heads must be stored in Salmon Head Recovery Program bags with labels. Bags and labels are available free of charge from the Department. Heads must be kept frozen until delivery and each bag must contain only the heads from a single week of fishing (where weeks run from Sunday to Saturday). All bags must be labelled completely and securely closed. Bags and labels can be obtained in three ways:

- i) Pick them up at DFO offices announced via fishery notice,
- ii) Contact DFO toll-free at 1-866-483-9994 to make arrangements for shipping, or
- iii) Obtain them from CWT samplers at fish landing stations.

**Head Delivery:** The vessel master shall ensure that all bags containing heads are offloaded at the first designated fish landing station at which chinook or coho catch is offloaded.

In accordance with the conditions of the Area G troll license, all vessels are required to bring all chinook and coho heads (or snouts) to the dock for submission, unless the license is listed in a fisheries notice listing the Area G troll licenses that are exempted from retaining salmon heads during the 2017 fishing season. This fisheries notice is expected to be released prior to the opening of the fishery.

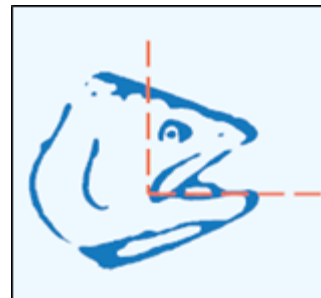


Figure 12.2-1: Fish Head CWT Portion

The small number of vessels in Area G that freeze their catch at sea has led to the requirement that 100% of the Area G troll fleet retain salmon heads. In 2017, the Department may adjust this requirement by introducing exemptions for a reduction in the number of vessels that retain salmon heads.

For complete head retention requirements, vessel masters freezing their catch at sea should refer to their conditions of license.

## **12.3 IMPLEMENTATION**

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, 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 by-catch of a range of stocks of concern (see Section [6](#) – Management Objectives for Stocks of Concern). Fisheries that occur on the South Coast may be required to release all non-target species to the water with the least harm, depending on local stock concerns.

Under circumstances where there appears to be an abundance of fish that could support a commercial fishery and that fishery is not specifically addressed in the IFMP, DFO will address requests to fish as identified below:

- 1) Attempt to verify the abundance using available observations and information of the salmon species and to determine whether or not it could provide a fishing opportunity consistent with conservation objectives and Allocation priorities for First Nations food, social and ceremonial 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 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.

Reports on previous demonstration fisheries can be found on-line at:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especies/salmon-saumon/pol/index-eng.html>.

In addition to existing demonstration fisheries reviewed and approved prior to 2016; the collaborative work of the Department, FNFC SCC and CSAB through the initiative to update the CSAF has resulted in a common assessment process to review and develop flexible harvest arrangements (CSAF Demonstration fisheries). Additional detail on CSAF demonstration fisheries proposed for this season and information on other related work is outlined in Appendix 6.

Catch monitoring improvements continue to be a priority in the management of all salmon fisheries. DFO in consultation with harvest sectors and First Nations will focus efforts on improvements to current catch monitoring and reporting requirements and standards.

## **12.4 COMMERCIAL SALMON ALLOCATION IMPLEMENTATION PLAN**

This section describes the commercial salmon allocation implementation plan. An overview of the process to update the CSAF initiated in 2013, principles and guidelines approved in 2015 as well as additional principles suggested for 2017 and items for future discussion are described in more detail in Appendix 6 of this plan.

### **COMMERCIAL ALLOCATION IMPLEMENTATION PLAN FOR THE 2015 – 2019 PERIOD**

Shares will apply for a 5 year period (2015 through 2019 seasons) with provision for a review after year 4 (2018 season) to determine if adjustments should be made to any sharing arrangements in subsequent years. An earlier review could be considered if circumstances warrant by majority agreement of the commercial salmon advisory board.

The sharing arrangements described in this plan are intended to guide fishing arrangements at the local level and are not fixed entitlements. Application of these sharing arrangements is subject to meeting all conservation objectives, First Nations obligations, international

commitments, deliverability and manageability constraints and other management considerations.

Although best efforts will be made to achieve these allocation targets/shares, no guarantees are offered that allocations will actually be achieved in any given year. The achievement of these shares will depend upon the ability to fish selectively and the conservation needs of the resource. In the event that allocations are not achieved, no compensatory adjustments will be made to future allocations.

As in previous years, there will be no directed commercial fisheries for Fraser River sockeye or Fraser River pink salmon in the north (i.e. area licence categories A, C and F and First Nations economic fisheries).

**The tables below provide a complete list of allocation shares by gear type, species and production area for fisheries starting in 2015 for a period of 5 years with a review planned following the 4th year. Three new production were approved in 2015 to clarify sharing arrangements associated with the Pacific Salmon Treaty for troll harvests of AABM chinook and AB line pink fisheries.**

## SOCKEYE

Description	Areas	Seine A	Gill Net C	Troll F
Skeena/Nass	1, 3 to 5, 101 to 105	25%	75%	*
Central Coast	6 to 8	80% <sup>a</sup>	20% <sup>b</sup>	*
Rivers/Smiths Inlets	9 to 10	5%	95%	<sup>c</sup>

Notes on sockeye allocation (north):

\* by-catch provisions

<sup>a</sup> share reflects current sockeye by-catch during pink directed fisheries

<sup>b</sup> potential for re-negotiation of sharing arrangements in event of a future directed sockeye fishery

<sup>c</sup> potential for future re-negotiation

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Local	23	60.0%	40.0%	0.0%	0.0% <sup>c</sup>	0.0%
South -Fraser	11 to 20, 29, 121, 123 to 127	48.5%	21.6%	25.1%	0.0% <sup>d</sup>	4.8%

Notes on sockeye allocation (south):

<sup>c</sup> potential for future re-negotiation

<sup>d</sup> a 1% share to occur in large Fraser River return years only. A 1% reduction will be proportionately applied across other fleets in those years.

## PINK

Description	Areas	Seine A	Gill Net C	Troll F
North	1, 2E, 2W (even), 3 to 5, 101 to 105	75.5%	22.5% <sup>a</sup>	2.0%
Central	6 to 10	95.0%	5.0% <sup>b</sup>	*

Notes on pink allocations (north):

\* by-catch provision

<sup>a</sup> Skeena sharing 75% seine: 25% gill net

<sup>b</sup> potential for future re-negotiation

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
Fraser	11 to 20, 29, 121, 123 to 127	82.5%	4.0%*	3.0%*	0.5% <sup>c</sup>	10.0%
Mainland	12 to 13 (mainland inlets only)	73.0%	9.0%	0.0%	0.0%	18.0%

Notes on pink allocations (south):

\* pink by-catch provision required for fisheries on more abundant species

<sup>c</sup> potential for future re-negotiation. Pink by-catch required for fisheries on more abundant species

## <<NEW PRODUCTION AREA STARTING IN 2015>>

Description	Area	Troll F
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Description	Area	Troll F
A-B line pink troll fishery	101	100%

## CHUM

Description	Areas	Seine A	Gill Net C	Troll F
North	1, 2E, 2W, 101 to 111, 130, 142	54.0%	43.0%	3.0%
North	3 to 5	55.0% <sup>b</sup>	45.0% <sup>b</sup>	*
Central	6 to 10	45.0% <sup>c</sup>	55.0%	*

Notes on chum allocations (north):

<sup>b</sup> recent chum non-retention; fishery allows by-catch of chum only

<sup>c</sup> currently chum non-retention

\* by-catch provision

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Inside	11 to 19, 28 to 29	63.0%	19.2%	12.0%	0.0%	5.8%
Nitinat	21 to 22	65.5%	0.0%	34.5%	*	0.0%
South Outside	23 to 27	0.0% <sup>d</sup>	98.0%	0.0%	2.0%	0.0%

Notes on chum allocations (south):

\* by-catch provision

<sup>d</sup> potential for future re-negotiation if chum populations re-build

Commercial allocation sharing arrangements in Johnstone Strait are; seine Area B – 77 percent; gill net Area D – 17 percent; and troll Area H – 6 percent.

## COHO

Description	Areas	Seine A	Gill Net C	Troll F
North	1 to 10, 101 to 111, 130, 142	12.5%	6.5%	81.0%

Notes on coho allocations (north):

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Inside	11 to 20, 29	TBD	TBD	TBD	TBD	TBD
South Outside	21 to 27, 121 to 127	9.5%	9.5%	1.0%	80.0% <sup>b</sup>	0.0%

Notes on coho allocations (south):

<sup>TBD</sup> currently no directed fisheries in this area. Will be reviewed should future directed opportunity develop.

Principles to be drafted regarding how to distribute impacts.

<sup>b</sup> coho taken primarily in offshore fisheries

## CHINOOK

Description	Areas	Seine A	Gill Net C	Troll F
Northern BC AABM chinook	1, 2E, 2W, 101-105, 130, 142	*	*	100.0% <sup>a</sup>
Central	6 to 10	*	100.0% <sup>b</sup>	* <sup>c</sup>

## << NEW PRODUCTION AREA STARTING IN 2015 >>

Description	Areas	Seine A	Gill Net C	Troll F
North-Inside	3 to 5	*	100.0% <sup>d</sup>	*

Notes on chinook allocations (north):

\* by-catch provisions

<sup>a</sup> Northern BC AABM chinook harvest

<sup>b</sup> near-terminal fisheries (primarily hatchery origin)

<sup>c</sup> review potential re-entry of troll into Production Areas 6 + 7. By-catch provisions

<sup>d</sup> by-catch provision and near-terminal directed fisheries (e.g. Skeena)

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South- Inside	11 to 20, 29	1.0% <sup>e</sup>	3.0%	90.0% <sup>f</sup>	0.0%	6.0%
South - WCVI AABM Chinook	21, 23 to 27, 121 to 127	*	*	0.0%	100.0% <sup>g</sup>	0.0%



## &lt;&lt; NEW PRODUCTION AREA STARTING IN 2015 &gt;&gt;

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South- WCVI Inside	21 to 27	5.0% <sup>h</sup>	75.0% <sup>i</sup>	5.0% <sup>i</sup>	15.0% <sup>i</sup>	0.0%

Notes on chinook allocations (south):

<sup>e</sup> subject review pending completion of southern BC chinook initiative

<sup>f</sup> directed Fraser chinook fishery

<sup>g</sup> this is WCVI AABM chinook fishery

<sup>h</sup> Area 23 sharing arrangement currently 33.3% seine: 66.7% gill net. May need to review

<sup>l</sup> Area 25 fishery (potential for future review. 75% fishery to Area D (e.g. Conuma Bay fishery); potential 5% to Area E if future surplus at Nitinat; otherwise default to Area D)

<sup>j</sup> winter troll fishery

## 12.5 TEST FISHING

DFO uses a range of methodologies to determine in-season stock abundance and composition. Test fisheries play an essential role in providing information in support in-season abundance estimation, driving determination of TACs and ensuring that conservation objectives are met in fisheries management. Since the 1980's, the Minister of Fisheries and Oceans regularly assisted industry to finance their part of collaborative science and management activities through use-of-fish arrangements. This ended in June 2006 when the Federal Court of Appeal ruled that the Minister of Fisheries and Oceans did not have this authority under the existing Fisheries Act. To avoid significant disruption of the most critical collaborative science activities (where allocation of fish for financing purposes had been a key component), \$58 Million of relief funding over 5 years (2007-2012) was provided pending establishment of the required legislative authority. 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 2.

Track two includes the development of a national policy framework to provide a standardized, rigorous and transparent process for all existing and new project evaluations and approvals. While this policy has not been finalized, DFO operates under the direction of a draft policy.

The list below ([Table 12.5-1](#)) outlines the Southern BC salmon projects for 2017. These include: 9 Fraser Panel projects for Fraser River sockeye and pink; Albion chinook/chum gill net; Skeena gill net all salmon species, Johnstone Strait chum seine and Barkley Sound sockeye seine. Note that due to weak anticipated returns for Fraser sockeye in 2017, the Fraser Panel is likely to initiate test fisheries under a reduced program (relative to previous years for this Fraser sockeye cycle), which is depicted in [Table 12.5-1](#) below.

The Department is also planning to continue Use of Fish arrangements for a chinook assessment fishery on the M<sup>quq</sup>win / Brooks Peninsula – please refer to WCVI AABM chinook section ([13.1.2](#)) in the Section [13](#) – Southern Chinook Salmon Fishing Plan ([13.1](#)).

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

Table 12.5-1: 2017 Test Fisheries

Test Fisheries, Southern B.C. Salmon	Proposed Proponent	Test Fishery Purpose	Proposed dates (with reduced program for Fraser) <sup>a</sup>		Advisory process <sup>b</sup>
			Start	End	
Area 20 GN	PSC Secr.	Fraser Sockeye/ Pink	7-Jul	15-Aug	Fraser Panel (primary) FN Fr. Forum <sup>c</sup> /IHPC
Area 20 SN	PSC Secr.	Fraser Sockeye/ Pink	23-Jul	07 Sep	Fraser Panel (primary) FN Fr. Forum <sup>c</sup> /IHPC
Cottonwood GN	PSC Secr.	Fraser Sockeye/ Pink	12-Jul	10-Sep	Fraser Panel (primary) FN Fr. Forum <sup>c</sup> /IHPC
Whonnock GN	PSC Secr.	Fraser Sockeye/ Pink	28-Jun	30-Sep	Fraser Panel (primary) FN Fr. Forum <sup>c</sup> /IHPC
Gulf TR	PSC Secr.	Fraser Sockeye/ Pink	No dates scheduled		Fraser Panel (primary) FN Fr. Forum <sup>c</sup> /IHPC
Area 12 SN	TBD	Fraser Sockeye/ Pink	26-Jul	31-Aug	Fraser Panel (primary) FN Fr. Forum <sup>c</sup> /IHPC

Test Fisheries, Southern B.C. Salmon	Proposed Proponent	Test Fishery Purpose	Proposed dates (with reduced program for Fraser) <sup>a</sup>		Advisory process <sup>b</sup>
Area 13 SN	TBD	Fraser Sockeye/ Pink	28-Aug	11-Aug	Fraser Panel (primary) FN Fr. Forum <sup>c</sup> /IHPC
Round Island GN	TBD	Fraser Sockeye/ Pink	11-Jul	13-Aug	Fraser Panel (primary) FN Fr. Forum <sup>c</sup> /IHPC
Naka Ck GN	TBD	Fraser Sockeye/ Pink	No dates schedule		
Mission GN <sup>d</sup>	PSC Secr.	Fraser Sockeye/ Pink	No dates scheduled		
Qualark	PSC Secr.	Fraser Sockeye/ Pink	01-Jul	02 Oct <sup>f</sup>	Fraser Panel (primary) FN Fr. Forum <sup>c</sup> /IHPC
Albion GN	3-way transitional <sup>e</sup>	Fraser Chinook/ Chum	23-Apr	23-Nov	FN Fr. Forum <sup>c</sup> /IHPC
Area 12 SN	Namgis/ Atlegay	Mixed Stock Chum	22- Jul	06- Sep	FN Fr. Forum <sup>c</sup> /IHPC
Barkley Sound SN	Hupacasath/ Tseshaht	Somass Sockeye	TBD	TBD	A23 Round Table (primary)/IHPC
Mquq <sup>w</sup> in/ Brooks Peninsula	Kyuquot Checkleset	WCVI Chinook	TBD	TBD	WCVI FNs/Area G/ IHPC

<sup>a</sup> All dates subject to change based on in-season factors. In-season information from initial TFs important to determining timing of subsequent TFs.

<sup>b</sup> Advisory process(es) where detailed discussion of test fisheries occurs. This does not preclude discussion and input happening through other process.

<sup>c</sup> FN Fr. Forum = First Nations Forum on Conservation and Harvest Planning

<sup>d</sup> Not anticipated to operate in 2016

<sup>e</sup> 3-way arrangement between proponent, DFO and test fisherman

<sup>f</sup> Exact dates still under discussion

Salmon Test Fishery - Pacific Region Webpage:

<http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/salmon/testfish/default.htm>

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

## **12.6 LICENSING**

### **12.6.1 NATIONAL ONLINE LICENSING SYSTEM (NOLS) CLIENT SUPPORT - LICENSING SERVICES**

All fish harvesters/licence holders/vessel owners are required to use the National Online Licensing System (NOLS) to view, pay for and print their commercial fishing licences, licence conditions and/or receipts. NOLS website:

<http://www.dfo-mpo.gc.ca/fm-gp/sdc-cps/licence-permis-eng.htm>

To ensure that that you receive email notifications, be sure to include the contact email address for all of the 'organization' profiles (including 'vessel and company organizations') where you are a Contact party. Instructions on updating organisation email addresses may be found at:

<http://www.dfo-mpo.gc.ca/fm-gp/sdc-cps/products-produits/management-org-gestion-eng.htm>

Please refer to section B: Modifying an Organization.

#### **CLIENT SUPPORT**

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 email at [fishing-peche@dfo-mpo.gc.ca](mailto:fishing-peche@dfo-mpo.gc.ca) or by calling toll-free at 1-877-535-7307 (7:00AM to 8:00PM Eastern, Monday to Friday).

Information on the National Online system may be found on the DFO internet site at:

<http://www.dfo-mpo.gc.ca/fm-gp/sdc-cps/licence-permis-eng.htm>

Please visit the Pacific Region Licensing website and subscribe to fishery notices for updates on the National Online Licensing System and licensing services:

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

#### **LICENCE RENEWAL**

In order to retain the privilege to be issued a commercial licence in the future, it is critical that you renew your licence and pay the applicable licence renewal fees through the online system on an annual basis, whether fishing takes place or not. Should the licence not be renewed by

March 31st of the next calendar year, the licence eligibility will cease to exist and DFO will be unable to consider any licence issuance requests in the future.

### 12.6.2 LICENCE CATEGORY

A salmon licence, category A, N or FA, is required to commercially harvest salmon. Salmon, category A, licence eligibilities are limited entry and vessel-based. Category FA and N licence eligibilities are party based and must be designated to a commercially registered fishing vessel that meets established length restrictions. Category N licence eligibilities are held by the Northern Native Fishing Corporation (NNFC). Category FA is communal commercial licence eligibilities where an aboriginal group is the licence eligibility holder.

Vessels authorised to fish under the authority of a salmon licence are also permitted to fish for schedule II species according to the conditions of each licence, transport fish caught by other vessels and be designated to fish under the authority of a category Z licence.

### 12.6.3 LICENCE CATEGORY BACKGROUND

Salmon has been a limited entry vessel based fishery since 1969. In 1996 under the Pacific Salmon Revitalisation 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 for the past 10 years with area selections processes in 1996, 2000, 2006 and 2007. Initial area selection was for a four year 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.

### 12.6.4 LICENCE RENEWAL FEES

Salmon licence renewal fees are available at full fee and reduced rates. Annual licence renewal fees are based on the length of the vessel. Reduced fee eligibilities must be held on vessels owned by aboriginal individuals.

	Vessels under 9.14m	Vessels 9.14m and over	Seine Vessels
<b>Aboriginal Individual</b>	\$ 380.00	\$ 650.00	\$ 2670.00

	Vessels under 9.14m	Vessels 9.14m and over	Seine Vessels
Non-Aboriginal	\$ 430.00	\$ 710.00	\$ 3880.00

There is no licence renewal fee associated with communal commercial licences.

## 12.6.5 LICENCE APPLICATION AND ISSUANCE

Renewal of a commercial salmon licence and payment of the fees 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 commercial salmon licenses not renewed by March 31, 2017 will cease and licence issuance requests will be unable to be considered in future.

Prior to licence issuance, vessel owners and/or licence eligibility holders must ensure that:

- 1) Any Ministerial conditions placed on the licence eligibility have been met
- 2) Any conditions of the previous year's licence have been 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](mailto:cscmu-usccs@dfo-mpo.gc.ca); and
  - Submission of all fish slips (for further information contact the Regional Data Unit at (604) 666-2716).

Copies of the Nil Reports and Statutory Declarations may be found under 'Additional Licensing Services Forms' on the licensing webpage located at:

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

## LICENCE DOCUMENTS

2017/2018 Salmon licence documents are valid from the date of issue to March 31, 2017.

Replacements for lost or destroyed licence documents may be obtained by reprinting the licence documents through the National Online Licensing System.

For further licencing information see:

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

## **DESIGNATION OF HARVESTERS TO FISH A COMMUNAL COMMERCIAL LICENCE**

Under the *Aboriginal Communal Fishing Licence Regulations*, every person working on a vessel that is fishing under authority of a Communal Commercial Licence must be designated by the First Nation that holds the licence. The designation must be made in writing and include the person's name and reference the Communal Commercial Licence.

First Nations licence holders interested in obtaining an example template to use to designate their fish harvesters may contact a DFO Resource Manager or Pacific Fishery Licensing Unit office.

## **VESSEL REPLACEMENT (CATEGORY A ONLY)**

The owner(s) of a commercial Salmon vessel may make an application to replace the commercial fishing vessel. Both the replacement vessel and the vessel being replaced must have a survey on file with the Pacific Fishery Licence Unit (PFLU) or submitted with the vessel replacement application. Vessels must be surveyed according to the Department 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 exact overall length or smaller of the existing vessel.

Temporary vessel replacement (e.g. total loss of vessel) requests are not eligible for any of the salmon stacking allowances.

## **STACKING**

Processing of salmon licence eligibility stacking applications ends May 31. Stacking applications are not accepted from June 01 to November 30, annually.

A salmon licence may not be split from other licence eligibilities.

Different gear and area licence eligibilities may be combined on one vessel. That is, one vessel may have a salmon gill net licence eligibility and a salmon troll licence eligibility. Multiple licence eligibilities of the same gear may be stacked on one vessel, as each licence eligibility will have a different area. A vessel may not hold more than one licence eligibility for the same area.

An area change request may only be made at the time of submission of an application for licence 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.

Reduced fee category A licence eligibilities may be stacked with either another reduced fee licence eligibility or a full fee licence eligibility, but the receiving vessel must be owned by an aboriginal person.

Category N licence eligibilities may be stacked with any category A licence eligibility, full fee or reduced fee, or another category N licence eligibility, in compliance with all stacking rules except that they will not be tied to the other salmon licence eligibility. Stacking a category N licence eligibility does not result in a change of licence area for the category N licence eligibility.

Category F licence eligibilities may be stacked with any category A or category N licence eligibility or another category F licence eligibility, in compliance with all stacking rules except that they will not be tied to the other salmon licence eligibility. Stacking deadline dates may vary for category F licence eligibilities due to the sign off dates of communal or contribution agreements. Stacking a category F licence eligibility does not result in a change of licence area for the category F licence eligibility.

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.

Please visit Salmon page for further information at:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/fisheries-peches/licence-permis-eng.html>

## **TRANSPORTING**

New requirements for commercial vessels transporting salmon have been implemented for the 2017/2018 fishing season. Please see Part III of the commercial conditions of licence for transporting of salmon for additional details and information.

The new 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 now a federal requirement for transport (packer) vessels to submit fish slips as a condition of licence.

The phone-in hail is a new requirement for 2017 that 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 will also be a requirement to phone the DFO Fishery Manager with information on where the transport (packer) vessel received fish, approximate amount of fish, total number of landings, and the time and location of the final offload. No service provider will be needed to deliver on this requirement in 2017.

The salmon transfer log is a new requirement for 2017; the transport 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 will be needed to deliver on this requirement in 2017. This new 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:

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

### **12.6.6 FISHER IDENTIFICATION NUMBER**

Unique Fish Harvester Identification Numbers (FINs) are assigned to all Pacific commercial harvesters. Once the FIN is issued to a fish harvester, it does not change from year to year.

## **12.7 MANDATORY HARVEST LOG AND IN-SEASON CATCH REPORTING PROGRAM**

### **12.7.1 COMMERCIAL HARVEST LOGS**

A mandatory harvest log and in-season reporting program for catch information is required in all 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 2017:

**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](mailto: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 2017 is:

**E-log Program:**

M.C. Wright and Associates Ltd.

Telephone: (250) 753-1055

Website: <http://www.mcwrightonline.com>

Email: [support@mcwrightonline.com](mailto:support@mcwrightonline.com)

To make arrangements for their 2017 harvest log requirement, harvesters are required to enlist the services of one of these identified service providers. Sample logbook pages are provided in [Appendix 1](#).

The key change to the logbook templates for all salmon licence areas in 2017 is a line in the daily catch record to provide the vessel master name, F.I.N. and signature in compliance with the licence conditions. The logbook example page will be updated in [Appendix 1](#) with this change in the final IFMP.

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, 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 provider.

## **12.8 NON-RETENTION SPECIES**

There will be non-retention of chinook and coho in most southern BC commercial fisheries with the exception of some Area E (Fraser River) and Area G (WCVI) fisheries where retention of chinook and possibly hatchery marked coho may be permitted. In addition, some terminal opportunities may be provided in areas such as the WCVI (Area D) where surpluses of coho and chinook may be identified. If the forecast for Fraser Late chinook is below the escapement goal range, non-retention in any Area E chum directed fisheries may be considered. Non-retention of steelhead will be in effect in all commercial fisheries.

There are also local and, at times, seasonal restrictions on various other 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.

## **12.9 RETENTION OF LINGCOD BY SALMON TROLL**

To help meet the conservation and sustainability objectives under groundfish integration, an individual transferable quota (ITQ) management system has been established for the lingcod fishery.

Implementation of an integrated commercial groundfish fishery has monitoring and reporting requirements for those wishing to retain Lingcod while salmon trolling. As in previous years, all vessels wishing to retain any amount of lingcod must have their fish validated through the established Dockside Monitoring Program. In addition to this, any vessel wishing to land lingcod must hold or acquire sufficient quota to cover catch.

Requirements include the following (less than 500 lbs. of lingcod per trip):

- Vessel must have or acquire sufficient lingcod to cover catch.
- Transportation requirement – All lingcod must be transported by the licenced vessel either directly to land or to a fish pen.
- Hail in and Hail out requirements through the designated service provider Specific locations and times at which landing of fish is permitted.

- Landing requirements – The landing of any fish of any species is not permitted unless a designated observer is present to authorize the commencement of weight verification.

Vessels wishing to retain and land **more than 500 lbs.** per trip of lingcod must, in addition to all of the above, meet the electronic monitoring requirements described in the Groundfish Integrated Fisheries Management Plan.

## **12.10 SELECTIVE FISHING/CONSERVATION MEASURES**

In 2017, the Department will work with Area Harvest Committee representatives to continue 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, brailing for seine vessels, and revival tanks.

### **12.10.1 OTHER CONSERVATION MEASURES**

In 2017, Fisheries and Oceans Canada will once again be seeking the co-operation of harvesters in minimizing fishing activities in Robson Bight. This is part of a long-term management plan to afford protection to the killer whale populations that frequent this area during periods from mid-May to early October. Fish harvesters are requested not to moor in the Robson Bight area. See Section [5.3.10](#) – Northern and Southern Resident Killer Whales for more information. Information on this management initiative can also be obtained from Department charter patrol vessels on the grounds and from Fisheries and Oceans Canada offices.

### **12.10.2 ROCKFISH CONSERVATION MEASURES IN SALMON TROLL**

#### **BOCACCIO**

Based on updated science information and DFO's policy document "Guidance for the Development of Rebuilding Plans under the Precautionary Approach Framework", the Department set out a rebuilding plan in 2013 for stepped reductions of total Bocaccio harvest to a target level of 75 tonnes over 3 years (2013-14 to 2015-16). The rebuilding plan accounts for First Nations' priority access for food, social, and ceremonial purposes. The Department has worked with fishing interests to develop measures that will reduce Bocaccio catch and enable stock rebuilding over the long term.

The bocaccio mortality cap for the salmon troll fishery is 3.6 tonnes and beginning in 2013/2014, the salmon troll fishery has been subject to daily limits specifically for Bocaccio (please refer to Conditions of Licence for details).

More information on the Bocaccio Rebuilding Plan is available in Appendix 9 of the Groundfish IFMP located at:

<http://www.dfo-mpo.gc.ca/Library/361424.pdf>

Subsequent to the introduction of the rebuilding plan, in November 2013, COSEWIC reassessed Bocaccio as “Endangered”. As such, the federal government is required to consider listing Bocaccio under SARA. This work will include engagement with stakeholders and First Nations.

## **YELLOWEYE**

Based on updated science information, the Department has set out a near term plan for stepped reductions of total Yelloweye outside population harvest from the estimated total catch mortality of 287 MT in 2014 to a mortality cap of 100 MT over 3 years (2016-17 to 2018-19).

Taking into consideration advice provided by fishing interests, the Department has introduced management measures to make steps towards the mortality cap described above and is continuing to have discussions to define more comprehensive plans for achieving the 100 MT mortality cap. As retention of Yelloweye is already prohibited in the salmon troll fishery the Department is focusing on improved reporting and avoidance of Yelloweye in this fishery.

Additional information is available in Appendix 9 of the Groundfish IFMP located at:

<http://www.dfo-mpo.gc.ca/Library/361424.pdf>

## **12.11 COMMERCIAL FISHERIES**

Details regarding specific commercial fisheries are contained in the Section [13](#) - Species Specific Salmon Fishing Plans.

## **12.12 COMMERCIAL DEMONSTRATION FISHERIES**

The Department has conducted extensive consultations with the commercial salmon industry and First Nations concerning fisheries reform and renewal. Changes in the fishery will be designed to improve biological and economic performance of the fishery.

In an ever-changing environment such as resource conservation, a group may want to explore special harvesting initiatives or new management approaches to develop flexible fisheries with greater harvester control that improve product quality, increase value to the fleet and have better catch monitoring and compliance with catch limits.

The Department is interested in continuing to explore innovative ways to access TAC more efficiently, to increase market value of the product, or to access TAC that may be unavailable due to conservation concerns or that a full fleet fishery is unable to access.

To contribute to the Pacific Fisheries Reform vision, the Department will consider demonstration projects that support alternative management strategies that:

- Maintains or improves management control and conservation performance in the fishery;
- Promotes the use of clearly defined shares to improve manageability and industry viability; and
- Increases the ability of harvesters to work cooperatively to harvest available surpluses and to take on greater responsibility for control and monitoring of their fishery.

Details regarding demonstration fisheries that the department is considering are contained in Section [13](#) - Species Specific Salmon Fishing Plans.

In addition to existing demonstration fisheries within Section [13](#), additional opportunities to demonstrate flexible harvest arrangements were initiated in 2016 in support of updates to the Commercial Salmon Allocation Framework (CSAF). Guidelines and principles associated with work to update the CSAF as well as CSAF demonstration fishery proposals received for consideration in 2017 are included in Appendix 6.

### **12.12.1 REVIEW OF TRANSITION OF FIRST NATION INLAND DEMONSTRATION FISHERIES TO REGULAR COMMERCIAL FISHERIES**

In 2014, an independent review and evaluation of the Pacific Integrated Commercial Fishing initiative (PICFI) was completed by Malatest and Associates and a number of recommendations were made. A full copy of the report is available at:

<http://www.dfo-mpo.gc.ca/ae-ve/evaluations/15-16/6B172-eng.html>

Recommendation four was related to move from demonstration fisheries to regularized fisheries. In response to the review, the Department will initiate discussions to explore the recommendation of developing a transition strategy for the in-river First Nation demonstration component of PICFI. The Department intends to develop evaluation criteria which may provide for an opportunity to transition Inland First Nations Demonstration fisheries to regular commercial fisheries in the future.

The Rationale for this recommendation was that the “continued testing of transferable salmon shares in marine and freshwater environments” was planned to be conducted on a "demonstration" basis with the intent to incorporate into a regularized commercial fishery upon the sunset of PICFI.

The Department intends to outline next steps to support this work in 2017-2018. This work is intended to improve consistency and transparency in how the Department assesses, implements, and reviews demonstration fisheries while supporting integrated commercial fisheries consistent with the vision and principles of Pacific Fishery Reform. Any recommendations for next steps will be included in the 2018-2019 IFMP to allow for wider feedback and consultation with First Nations and stakeholders.

### **12.13 TRANSFER GUIDELINES FOR THE TEMPORARY TRANSFER OF COMMERCIAL SALMON SHARES**

In consideration of discussion with the First Nations Salmon Coordinating Committee and the Commercial Salmon Advisory Board updates are being proposed to the transfer guidelines. Based on feedback received through the draft IFMP, these guidelines may be updated and implemented starting in the 2017 season. To ensure the fulsome and accurate information are included in the transfer guidelines; they will be included for review annually within future IFMPs.

These guidelines address the transfer of commercial salmon shares between the following groups:

- a) Area A-H Fishery participants with a defined percentage share of the commercial TAC
- b) Area A-H fleets or portions of fleets or individual licences
- c) Marine Demonstration Fishery participants
- d) In-river Demonstration Fishery participants
- e) First Nations with one or more Area A-H licences
- f) First Nations entities who are signatories to current arrangements or area provided communal licences allowing sale that provides a defined commercial share of salmon for the given year including;
  - Economic Opportunity agreements
  - Harvest Agreements

- Demonstration Fisheries

Transfers of harvest shares may occur when there is a formal arrangement outlining possibilities as defined by the Guiding Principles and Operational Considerations below, (approved by DFO) between the original share-holders and the recipient. Requests can include transfer from downstream to upstream locations, and vice versa. These arrangements should identify mechanisms pre-season that will be used for transfers to ensure proper management and accounting of shares (Actual transfers may occur in-season; e.g. between ITQ fishery participants using established transfer request processes). For transfers of commercial licences, arrangements will need to be made in advance of the fishery opening for which the transfer is intended to apply to ensure appropriate allocations associated with the licence can be set aside.

In-season proposals to transfer uncaught commercial Total Allowable Catch (TAC) allocations between the above groups will reviewed and DFO will determine whether to allow the transfer of some or all of the uncaught TAC.

Requests for temporary transfers of commercial salmon shares will be reviewed with consideration to the following general principles and the operational considerations identified below.

A) Guiding Principles for Temporary Transfer of Salmon Shares:

- 1) Result in similar or better management control and/or conservation performance in the fishery (both for target and bycatch species/stocks)
- 2) Consistent with conservation measures and allocation approaches (if any) for stocks of concern, including by-catch species/stocks;
- 3) Respect existing aboriginal and treaty rights and the priority of Food, Social and Ceremonial access.
- 4) Consistent with international obligations;
- 5) Consistent with objectives and management measures outlined in Salmon Integrated Fishery Management Plans;
- 6) Respect the Common property nature of the fisheries resource: subject to Principle 3, access to the resource does not imply ownership of the resource or any portion of the resource, and is not conferred irrevocably to individuals.
- 7) Support opportunities to utilize Canadian commercial total allowable catch while respecting conservation requirements.



- 8) First Nations commercial fisheries and Area A-H commercial fisheries conducted in tidal waters will be managed under common and transparent rules for each gear type. For example, First Nations commercial troll fisheries conducted in tidal waters where Area F licences are permitted to operate will be managed in accordance with the same rules as the Area F commercial fishery for those tidal waters.
  - 9) First Nations commercial fisheries conducted in non-tidal waters will be managed under transparent rules that are consistent with the rules used to manage marine commercial fisheries that target similar stocks associated with that production area.
  - 10) Affordable to implement i.e. would not result in any substantive incremental costs to DFO in areas such as monitoring stock assessment and enforcement.
- B) Operational Considerations Regarding Requests for Temporary Transfers:
- 1) Transfers of commercial salmon allocation shares will only occur when there is a Canadian commercial Total Allowable Catch (TAC) (i.e. commercial harvestable surplus) identified for the target stock or species which is available for harvest.
  - 2) Transfers of commercial salmon shares between parties will only be considered for commercial fisheries and commercial participants with a clearly defined percentage share of the Canadian commercial total allowable catch.
  - 3) In most cases, transfers will be based on a percentage share of the available commercial TAC. Alternate approaches for calculating transfer shares may be considered.
  - 4) In-season transfers may occur if pre-season plans outline possibilities. For share transfers between Area A-H commercial fisheries, individual salmon shareholders or groups of salmon shareholders; the mechanism (e.g. tracking, management and accounting of shares) for facilitating transfers needs to be described and agreed upon by all parties to the arrangement and DFO pre-season. Individual commercial licence holders or groups of commercial licence holders will not be permitted to make their own allocation transfer arrangements unless these are part of a pre-season plan approved by the Department.
  - 5) DFO will not be responsible for leading or facilitating the negotiation of transfer arrangements between parties.

- 6) For commercial salmon licences held by the Department, individual licence allocations will be based on an equal percentage allocation of the commercial TAC for all licences in that commercial licence area (i.e. Areas A to H).
- 7) If, despite the best efforts of any commercial harvest group, it becomes apparent that it will be unable to harvest its share, and no mechanisms are in place that would permit the transfer of the share to another commercial harvest group, the Department may consider transfers of uncaught commercial harvest shares to any other commercial harvest group already holding a clearly defined percentage share of the Canadian commercial total allowable catch, on a case by case basis, assuming that harvest can occur using fishing methods, times and locations permitted for that commercial harvest group.
- 8) Transfers of commercial salmon allocations must consider shares of all stocks that will be harvested in the recipient area.
  - a) Allocations transferred inland will be reduced proportionately to reflect the reduced stock composition in the more terminal harvest location (e.g. Area F troll licence shares allocated to the Kamloops Lake inland demo fishery will be only for the proportion of Thompson chinook encountered in the marine commercial troll fishery). Alternative approaches may be considered in specific circumstances (e.g. allocation may not be proportionally reduced if harvest of an allocation in a terminal area reduces impact on stocks of conservation concern). DFO will document the rationale for its decision and make it publicly available.
  - b) For co-migrating stocks or management units of concern or where little or no Commercial TAC has been identified, transfers will need to consider and/or mitigate potential impacts. For example: access to a harvest share of Fraser pink salmon might require the fishing group or individuals to have some sockeye remaining in their harvest share of co-migrating Fraser sockeye.
  - c) For co-migrating stocks/species or management units of concern where exploitation rate caps or some other limit on mortalities have been defined (e.g. Interior Fraser River coho), the parties to the transfer arrangements are responsible for demonstrating that the transfer arrangement will be neutral or of benefit to the stock or management unit of concern (i.e. same or lower impact in the new fishing area). Limiting stocks/species will only be transferred to the extent needed to harvest the target stock transfer

amount with residual amounts being available for the use by all other commercial harvest groups with a share of the targeted stocks.

- d) Transfers into areas that require management adjustments need to be accounted for in determining TAC (e.g. a similar accounting process to current Fraser sockeye).
  - e) Priority will be given to those proposals that allow shares to be harvested using fishing techniques that are more selective than the original technique, and / or allow harvesting in fishing areas that avoid stocks or management units of concern.
- 9) Harvest of commercial salmon allocations is not guaranteed and actual harvest opportunities may be limited by constraints to protect species or stocks of concern. Commercial fishery participants that demonstrate an ability to fish selectively may be able to access a greater amount of their harvest share.
  - 10) Enhanced fisheries monitoring and catch reporting programs must be in place for participants to ensure that there is reliable accounting for both retained and released fish and that harvests do not exceed defined shares. Incremental monitoring costs will not be assumed by DFO, and will need to be covered by parties to the transfer arrangement.
  - 11) Proposals for transfer arrangement must include contingencies for situations where shares are exceeded. Parties not complying with agreed-to arrangements could face enforcement actions.
  - 12) Transfers of commercial salmon shares will not be permitted when this may adversely affect First Nations Food, Social and Ceremonial harvest opportunities in the area.
  - 13) Surpluses of salmon in terminal areas (i.e. ESSR fisheries) will continue to be managed using existing ESSR guidelines.

All decisions regarding temporary salmon share transfers are one-time only. Unless otherwise communicated by DFO at the time of the decision, all future transfer requests must undergo new process of application, review and approval from DFO.

**There remain aspects of these transfer guidelines which require further discussion. It is the intent of the Department to continue to build areas of agreement and address outstanding concerns through discussions with the First Nations Salmon Coordinating Committee and the Commercial Salmon Advisory Board. Should any additional changes be contemplated,**

**the Department will review proposed changes with the CSAB and SCC and document these in the IFMP. Areas requiring further discussion are outlined below:**

- 1) Where fisheries are not operated under individual vessel quota, the CSAB has proposed that the Area Harvest Committee for a specific fleet can determine whether an individual licence holder can make a pre-season transfer of the harvest share associated with their licence to another Area A-H licence or a First Nations commercial fishery.
- 2) Where an individual, portion of a fleet or fleet has attempted to arrange a transfer of their share as outlined in these Transfer Guidelines, the CSAB has proposed that consideration may be given for that individual, portion of fleet or fleet to access their uncaught share in a more terminal location.

# 13 SPECIES SPECIFIC SALMON FISHING PLANS

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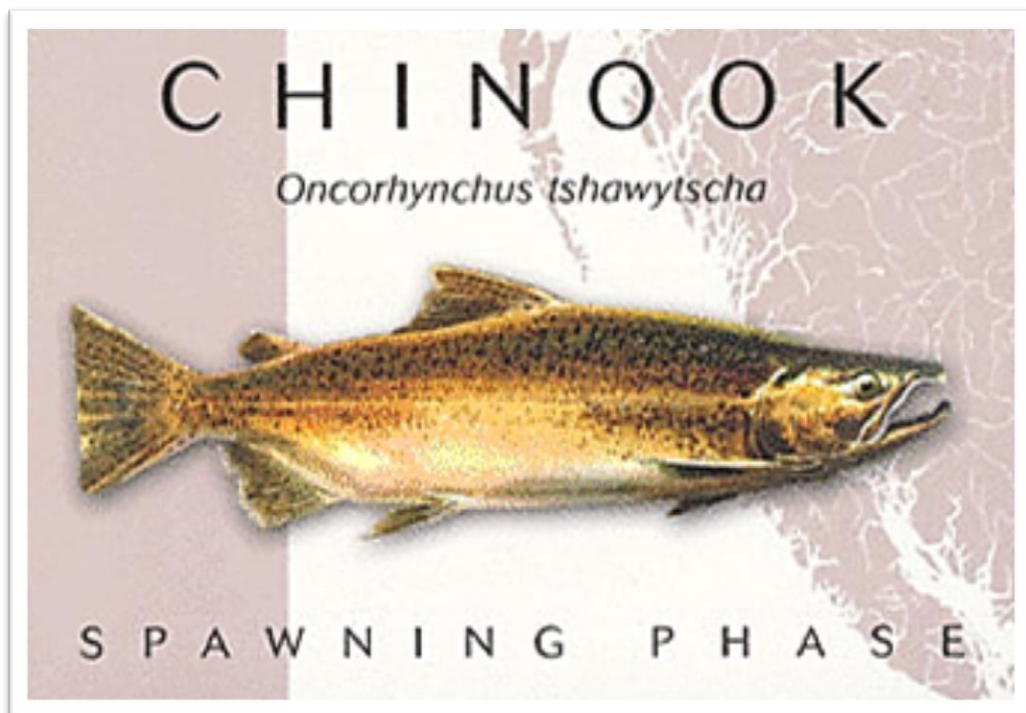
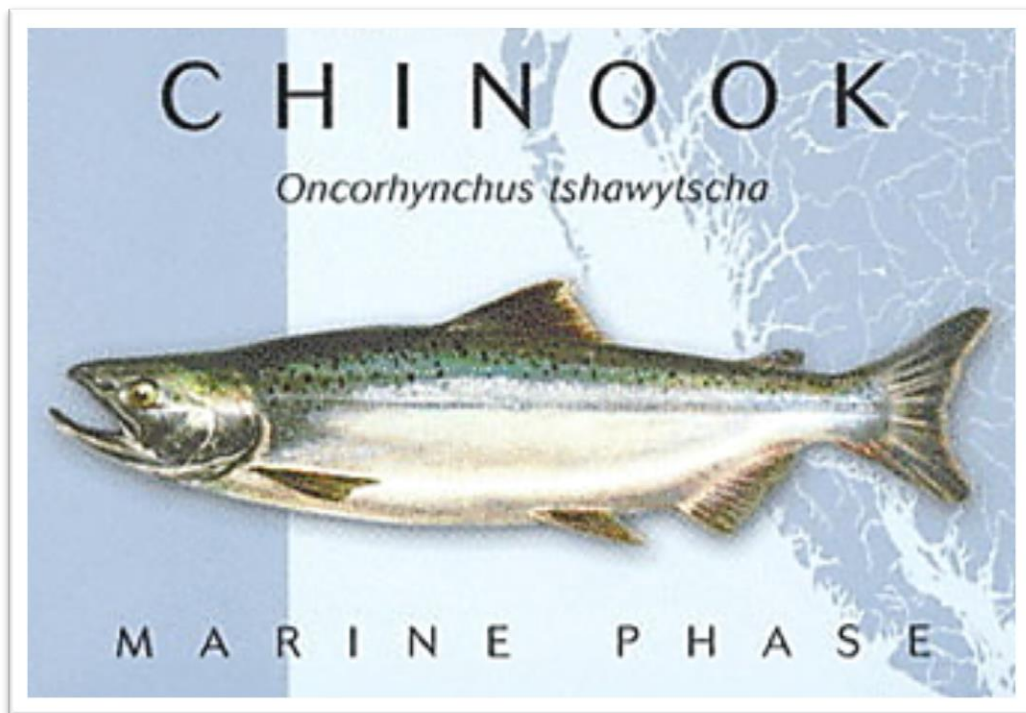
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### 13.1 SOUTHERN CHINOOK SALMON FISHING PLAN



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### 13.1.1 SOUTHERN CHINOOK OVERVIEW

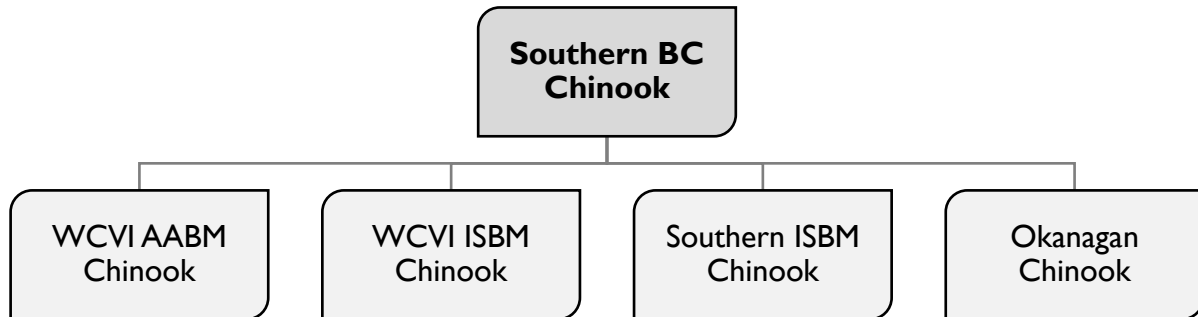


Figure 13.1-1: Overview of Southern BC Chinook

Chinook salmon fisheries in BC are managed under the umbrella of the Pacific Salmon Treaty (PST). Domestic considerations are also in place for stocks of concern, allocation between sectors of the fishery, and application of selective fishing practices.

With the exception of the Transboundary Rivers, the basis for managing fisheries impacting chinook salmon from Alaska to Oregon is the chinook abundance-based management system in Chapter 3 of the PST. This management system was adopted in 1999 and defined harvests of chinook through 2008. Chapter 3 of the PST, revised for implementation in 2009, maintains the abundance-based management framework established under the 1999 Agreement. This chapter expires in 2018.

Further explanation and the text of the chinook salmon agreements can be found on the PSC website at:

<http://www.psc.org/publications/pacific-salmon-treaty/>

Chinook salmon fisheries under the PSC are accounted for during the chinook year which begins on October 1 in one calendar year, to September 30 in the next calendar year.

Two types of fisheries are identified in the PST under Chapter 3:

- Aggregate Abundance Based Management (AABM) fisheries; and
- Individual Stock Based Management (ISBM) fisheries.

Within the PST chinook management framework, Canadian domestic policy further defines fishing opportunities. The domestic objectives or policies which will most affect fishing



opportunities include: conservation, Canada's constitutional obligations to First Nations, the WSP, and *An Allocation Policy for Pacific Salmon*, and the *Policy for Selective Fishing in Canada's Pacific Fisheries*.

## OVERVIEW: AABM FISHERIES

AABM fisheries are mixed stock fisheries that intercept and catch migratory chinook from many Canada and US origin populations.

In southern BC, AABM applies to the following waters on the WCVI:

- The West Coast of Vancouver Island (WCVI) troll fishery in Areas 21, 23 to 27, and Areas 121, 123 to 127
- The outside recreational fishery in the following areas and times:  
Areas 21, 23 and 24 and Areas 121, 123, 124 during the period October 16 through July 31, plus that portion of Areas 21, 121, 123, 124 outside of a line one nautical mile seaward of the surfline, during the period August 1 through October 15

Areas 25, 26, 27 and Areas 125, 126, 127 during the period October 16 through June 30, plus that portion of Areas 125, 126, 127 outside of a line one nautical mile seaward from the surfline, for the period July 1 through October 15.

These fisheries are managed to an annual total allowable catch based on a forecast abundance index (AI) of the aggregate of stocks that contribute to the fishery.

All other areas and times are managed as ISBM fisheries.

## OVERVIEW ISBM FISHERIES

Under the PST, an ISBM fishery is domestically managed according to an abundance-based regime that constrains to a numerical limit the total catch or the total adult equivalent mortality rate within the fisheries of a jurisdiction for a naturally spawning chinook salmon stock or stock group. For Canadian ISBM fisheries, the agreement identifies a general obligation that limits the total adult equivalent mortality rate for individual stock groups to 63.5% of that which occurred in the 1979 to 1982 base period.

ISBM management regimes apply to all chinook salmon fisheries subject to the PST that are not AABM fisheries and include marine and freshwater salmon fisheries from northern British Columbia to northern Oregon coast. ISBM fisheries in Southern BC include First Nations fisheries in both marine and fresh waters, recreational fisheries, WCVI seine and gill net and Fraser River gill net.

## SOUTHERN CHINOOK ENHANCEMENT INFORMATION

The major DFO operation enhancement facilities that produce chinook are:

- **Marine Waters:**
  - Big Qualicum River hatchery
  - Capilano River hatchery
  - Conuma River hatchery
  - Little Qualicum River hatchery
  - Nitinat River hatchery
  - Puntledge River hatchery
  - Quinsam River hatchery
  - Robertson Creek hatchery
  - Tenderfoot Creek hatchery
- **Fraser River Watershed:**
  - Chehalis River hatchery
  - Chilliwack River hatchery
  - Shuswap River hatchery
  - Spius Creek hatchery

The information available at the link below addresses production from major DFO Operations (OPS) facilities, contracted Community Economic Development Program hatcheries (CEDP), larger or more complex Public Involvement Projects (Designated Public Involvement or DPI) operated by volunteers, and Aboriginal Fisheries Strategy (AFS). Not included are smaller Public Involvement Projects (PIPs) that are focused toward stewardship, stock rebuilding or educational activities and do not release large numbers of fish that would affect fisheries.

There are two datasets available: **Post-Season Production** from the 2015 brood year (i.e. 2016 releases, and numbers on hand for 2017 release), and the **Production Plan**, which includes proposed targets for the upcoming 2017 brood year. These are available on the DFO website at: <http://www.pac.dfo-mpo.gc.ca/sep-pmvs/ifmp-pgip-eng.html>.

## SOUTHERN BC CHINOOK – SEP PROPOSALS FOR 2017/2018

- Portage Creek Chinook (BCI): Portage Creek is a unique and isolated chinook conservation unit that has been in decline for eight years with recent environmental impacts to habitat due to rockslides in 2014 and 2015.
- DFO Science and SEP are currently assessing feasibility of enhancement that will be part of broader planning steps including assessment of habitat restoration opportunities.

## 13.1.2 WCVI AABM CHINOOK

### 13.1.2.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

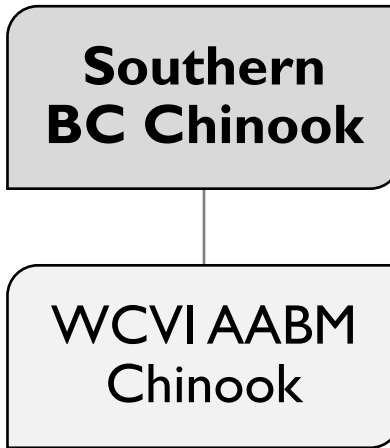


Figure 13.1-2: Overview of WCVI AABM Chinook

The AABM fishery includes commercial and First Nations troll caught chinook salmon in Pacific Fishery Management Areas 21, 23 to 27, 121, and 123 to 127. AABM recreational chinook fisheries take place annually in offshore WCVI Areas 121 to 127 and seasonally (prior to June and after September) in inshore Areas 21 and 23 to 27. Catch and effort peaks in Areas 121 to 127 during the months of June –August, and effort is largely abundance driven and weather-dependent.

The WCVI AABM chinook fishery targets Canadian and U.S. origin wild and enhanced chinook populations that migrate past the WCVI. The main components of the harvest are U.S. origin chinook, however, most southern BC chinook conservation units can also be encountered in this area. While some chinook harvested in the WCVI AABM fishery are returning to spawn in WCVI watersheds, most of these chinook are migrating to Washington, Oregon, or other parts of southern British Columbia to spawn.

### 13.1.2.2 STOCK ASSESSMENT INFORMATION

#### 13.1.2.2.1 Pre-season

The PST Chinook Technical Committee (CTC) provides a final calibration of the Chinook Model annually. That calibration is provided in April each year, and provides Abundance Indices (AI) for the three AABM fishing areas: WCVI, South East Alaska (SEAK), and Northern BC (NBC). Table 1 in PST Chapter 3 converts the AI to the Total Allowable Catch (TAC) for each AABM

fishing area for the fishing year from the previous October 1 until September 30 in the year of the calibration. Calibration work for the 2016-2017 season is complete and it is outlined below.

Effective January 1, 2009 the renegotiated PST terms were put into effect including the implementation of a 30% reduction in the Total Allowable Catch (TAC) for the WCVI AABM. The allowable catch below reflects this change.

Table 13.1-1: Pre-season Abundance indices and associated allowable catches for the October 1, 2016 to September 30, 2017 AABM fisheries

	<b>SEAK</b>	<b>NBC</b>	<b>WCVI</b>
<b>Abundance Index</b>	1.27	1.15	0.77
<b>Allowable Catch</b>	209,700	149,500	115,300

#### 13.1.2.2.2 In-season

There is currently no in-season assessment of abundance completed for AABM fisheries. All fisheries are managed based on the pre-season AI and associated pre-season TACs.

#### 13.1.2.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

An AABM fishery is an abundance-based regime that constrains catch or total mortality to a numerical limit computed from either a pre-season forecast or an in-season estimate of abundance, from which a harvest rate index can be calculated, expressed as a proportion of the 1979 to 1982 base period.

AABM fisheries are managed annually so as not to exceed the specified TAC. In addition, domestic conservation concerns may reduce overall harvests below the PST allowable TAC.

When there is a TAC identified for the AABM management area, targeted chinook fisheries are planned for First Nations, recreational, and commercial sectors. The TAC is allocated between the three sectors in accordance with the *Allocation Policy for Salmon, 1999*.

The commercial TAC is calculated by subtracting the expected Food, Social and Ceremonial (FSC) catch of 5,000, the Maa-nulth treaty entitlement (calculated annually based on the TAC) and the expected recreational catch. The Maa-nulth Treaty entitlement for the current year is 3,927. This year, the expected AABM recreational catch will be reduced from 60,000 to 50,000 based on the last three year's average catch. The average catch from 2014 to 2016 is approximately 48,000.

Adjustments to the commercial harvest level may be made in-season in response to differences between expected and observed recreational catches.

#### 13.1.2.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO AABM CHINOOK FISHERIES

In addition to the actions listed below, the 30% WCVI AABM TAC reduction that Canada agreed to in the 2009 PST and will continue for the 2017/18 fisheries provides benefits through harvest reductions to all Canadian and US stocks of concern that would otherwise be harvested or be exposed to incidental mortality in the various AABM fisheries.

AABM fisheries may be managed to avoid domestic stocks of concern outlined in [Table 13.1-2](#).

Table 13.1-2: Risk of Impact on Stocks of Concern

Fishery Period	Risk of impact on stocks of concern
<b>Oct – Feb</b>	Low risk. Fisheries in October are outside the migration period and area for several stocks of concern, including Interior Fraser River coho, WCVI chinook, Fraser River Spring 4 <sub>2</sub> , Fraser River Spring and Summer 5 <sub>2</sub> chinook. Catch will be comprised of fish returning in subsequent calendar year or later. The majority of the chinook catch will be of stocks of U.S. and lower Fraser River origin.
<b>Mar – May</b>	Moderate - High risk. Specific concerns for Fraser River Spring 4 <sub>2</sub> , Fraser River Spring and Summer 5 <sub>2</sub> chinook. Increased incidence of Lower Strait of Georgia (LGS) chinook especially in May.
<b>Jun - mid-Sep</b>	Moderate - High risk. Potential concern for impacts on Fraser River Spring 4 <sub>2</sub> , Fraser River Spring and Summer 5 <sub>2</sub> chinook in June and July. Monitoring of coho encounters beginning in early to mid-June is required. Stocks of concern, including Interior Fraser River coho are present. Risk increases as coho recruit to fishery. Concerns for impacts on returning local WCVI chinook stocks. Concerns for impacts on LGS chinook.
<b>Mid-Sep</b>	Low risk. WCVI chinook may be avoided by area restrictions. Concerns for impacts on LGS chinook and Interior Fraser coho impacts are reduced because they are at the end of their migration out of WCVI area.

Table 13.1-3: Summary of management actions anticipated in AABM chinook fisheries to limit impacts on stocks of concern.

<b>Stock of Concern</b>	<b>First Nations FSC and Treaty Fishery</b>	<b>Recreational Fishery</b>	<b>Commercial Fishery</b>
<b>WCVI Chinook</b>	Harvest levels outlined in harvest documents and communal licences	On-going terminal area restrictions for wild stocks of concern  Management measures may include a combination of daily limits, annual limits, size limits, fin fish closures and salmon non-retention areas.	WCVI - Time and area closures on WCVI (i.e. avoid inshore fisheries during the time period July to September)  Northern BC - measures in the North Coast troll fishery to limit ER to 3.2%
<b>Fraser River Spring 4<sub>2</sub> Chinook</b>	No impacts on WCVI First Nations fisheries anticipated	No impacts on WCVI recreational fisheries anticipated	Time and area closures and effort limits
<b>Fraser River Spring and Summer 5<sub>2</sub> Chinook</b>	No impacts on WCVI First Nations fisheries anticipated	No impacts on WCVI recreational fisheries anticipated	Time and area closures and effort limits.  Area G: Possible June and July closures dependent on management zone  Area F: In zone 1, delayed first troll opening.
<b>Lower Strait of Georgia Chinook</b>	Harvest levels outlined in Harvest documents and communal licences	Catch limits and minimum size limits  Measures will vary by area	2009 AABM harvest rate reduction should reduce impact on LGS chinook  Time and area closures (Areas south of Estevan Pt. closed in March and April)  Reduced harvest levels in period March to June

Stock of Concern	First Nations FSC and Treaty Fishery	Recreational Fishery	Commercial Fishery
<b>South Coast Coho (Interior Fraser River coho management objective)</b>	Harvest levels outlined in Harvest documents and communal licences. By-catch retention may be considered during fisheries for other species.	Coho retention limited to selective hatchery mark fishery (SHMF) in most areas. Retention of wild coho in inside waters on the WCVI may be considered subject to presence of IFR coho and local abundance of WCVI coho.	Consideration for coho retention after mid-September in WCVI troll fisheries when stocks of concern have migrated out of the area.

### 13.1.2.5 ALLOCATION AND FISHING PLANS

#### 13.1.2.5.1 First Nations Fisheries

##### *Food Social and Ceremonial*

An amount of 5,000 chinook are set aside annually from the WCVI AABM TAC as an expected catch for WCVI First Nations.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount [Table 10.2-1](#) in Southern BC/Fraser River First Nations Fisheries. Note that AABM and ISBM chinook amounts are combined.

##### *Treaty Fisheries*

###### *Maa-nulth Fisheries (Domestic)*

The Domestic allocations for salmon under the Maa-nulth First Nations Final Agreement are “an amount of Ocean chinook Salmon equal to 1,875 pieces plus 1.78% of the Ocean chinook Salmon Canadian Total Allowable Catch.”

For the 2017/2018 chinook year the Maa-nulth allocation of Ocean chinook is 3,927.

###### *T'aaq -wiihak First Nations (Ahousaht, Ehattesaht, Hesquiaht, Mowachaht / Muchalaht, and Tla-o-qui-aht First Nations) Salmon Fishery*

Five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the T'aaq-wiihak First Nations) - have aboriginal rights to fish for any species of fish, with the exception of geoduck, within their Fishing Territories and to sell that fish. The First Nations and the Department are



currently continuing to discuss demonstration fishery opportunities for the 2017 season. The scope of these deliberations does not preclude the potential to include any or all salmon species available with the T'aaq-wiihak First Nations' Fishing Territories (located within portions of Pacific Fishery Management Areas (PFMA) 25/125, 124, 26/126 and all of PFMA 24). Current components of the 2017 demonstration fishery are similar to last year and are as follows: a defined share of the commercial TAC, individual chinook vessel caps per opening, time, area and gear restrictions, designated landing sites, and 100% independent dockside monitoring. Bycatch species authorized for sale are chum, pink, hatchery-marked coho (after Sept. 15), halibut, lingcod and rockfish. Where the Department and the T'aaq-wiihak reach agreement on additional aspects of the approach, this IFMP may be updated to reflect the agreed to approach for the T'aaq-wiihak fishery.

The components of the 2016 demonstration fishery were as follows: a defined share of the commercial TAC, individual chinook vessel caps per opening, time, area and gear restrictions, designated landing sites, and 100% independent dockside monitoring. Bycatch species authorized for sale were chum, pink, hatchery-marked coho (after Sept. 15), halibut, lingcod and rockfish.

### *Fishery Monitoring and Catch Reporting*

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

#### **13.1.2.5.2 Recreational Fisheries**

The AABM recreational fishery includes all catch in northwest WCVI (Areas 25 to 27, 125 to 127) from October 16 to June 30, and the catch outside of the surfline (about one nautical mile offshore) from July 1 to October 15, plus all the catch in southwest WCVI (Areas 21, 23, 24, 121, 123, and 124) from October 16 through July 31, and the catch outside one nautical mile offshore from August 1 to October 15.

The minimum size limit for chinook in recreational AABM fisheries is 45 cm and the annual limit for chinook is 30. The daily limit for chinook is two. As in all areas, recreational harvesters must purchase a fishing licence from DFO.

Updates to recreational fisheries are provided via Fishery Notice and published on the recreational fisheries website at:

<http://www.bcsportfishingguide.ca>

### *Allocation*

For planning purposes an expected catch of 50,000 pieces is set aside for the recreational AABM fishery. If the recreational harvest is forecast in-season to be less than or greater than 50,000, the commercial TAC will be adjusted to account for the expected difference.

### *Recreational Conservation Measures*

As a result of concerns for WCVI chinook that emerged in the mid-late late 1990's a suite of management measures was implemented on the WCVI intended to protect wild WCVI chinook from recreational fishing pressure. These management measures fluctuated yearly with levels and areas of restriction. In 2000, a recreational fishery "chinook management corridor", extending one nautical mile offshore from the surfline was put in place along the West Coast of Vancouver Island in order to reduce the exploitation rate on adult female chinook that migrate along the coastline back to their natal WCVI streams. The surfline is defined in Schedule 1 of the Pacific Fishery Management Area Regulations, 2007. From 2006 to 2015 the current suite of management measures has remained relatively stable with very few local changes.

Management measures were modified in 2016 to focus fisheries on zones of high hatchery production, ensure small systems are provided protection through terminal finfish closures, and simplify regulations for improved compliance, enforceability, assessment, and angler education.

The chinook management measures introduced in 2016 will continue in 2017.

### *Fishery Monitoring and Catch Reporting*

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch survey (iREC) are the main tools used to capture recreational catch and effort information in this fishery. South Coast stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

#### **13.1.2.5.3 Commercial Fisheries**

AABM commercial chinook fisheries take place annually and may be permitted in Areas 23 to 27, and Areas 123 to 127.

*Specific Conservation Measures*

For the 2016/2017 season, which ends September 30, 2017, pre-season fishing plans could be subject to change pending the results of consultations focusing on the conservation and protection of Fraser River, LGS and WCVI chinook stocks. The consultation process begins in the early spring period as part of the IFMP planning process.

Within the bounds of the PST provisions, commercial troll chinook fisheries will be managed to limit impacts on domestic stocks of concern, including Fraser River Spring 4<sub>2</sub> chinook, Fraser River Spring and Summer 5<sub>2</sub> chinook, WCVI wild chinook, LGS chinook, and Interior Fraser River coho.

Fraser River Spring 4<sub>2</sub> chinook, Fraser River Spring and Summer 5<sub>2</sub> chinook stocks are present off the WCVI during the spring and summer period, most prevalently when they landfall on their migration back to the Fraser River.

For Fraser River Spring and Summer 5<sub>2</sub> chinook, management actions are based on 3 zones of abundance (i.e. zone 1-3 correspond with low, moderate, abundant). Each year management is based on a cautious zone 1 approach until an in-season update is available (mid-June). Zone 1 and Zone 2 management measures are presented in the figure below.

ZONE 1 MANAGEMENT MEASURES		March			April			May			June			July			August		
Fishery	Area	1	15	31	1	15	30	1	15	31	1	15	30	1	15	31	1	15	31
Area G Troll	NWVI (Areas 125 to 127)	Open	Closed March 16 - April 18			April 19 to May 30 managed to boat day effort/catch target limit			Closed June 01 - July 23			Open July 24 until target catch achieved							
	SWVI Area 124	Closed March 1 - April 30						May 01-30 Managed to boat day effort/ catch target limits			Closed June 01 - July 31			Open August 01 until target catch achieved					
	SWVI Area 123	Closed March 1 - May 06						May 7-30 managed to boat day effort /catch			Closed June 01 - July 31			Open August 01 until target catch achieved					

ZONE 2 MANAGEMENT MEASURES		March			April			May			June			July			August		
Fishery	Area	1	15	31	1	15	30	1	15	31	1	15	30	1	15	31	1	15	31
Area G Troll	NWVI (Area 125 to 127)	Open	Closed March 16 - April 18			April 19 to June 15 open. Managed to monthly boat day effort/catch target limits			Closed June 16 - July 23			Open July 24 until target catch achieved							
	SWVI Area 124	Closed March 1 - April 30						May 01-June 15 open. Managed to monthly boat day effort/ catch target limits			Closed June 16 - July 31			Open August 01 until target catch achieved					
	SWVI Area 123	Closed March 1 - May 06						May 7-June 15 open. Managed to monthly boat day effort /catch target limits			Closed June 16 - July 31			Open August 01 until target catch achieved					

Figure 13.1-3: Fraser River Spring and Summer 5<sub>2</sub> chinook Zone 1 and Zone 2 management measures

The management zone may be updated in mid-June based on in-season abundance of chinook at the Albion test fishery in the Fraser River. In the event that the in-season abundance indicates

a different management zone than what was identified pre-season, the Department will implement management actions consistent with the in-season management zone. These actions will be in addition to management actions for Spring 4<sub>2</sub> chinook.

LGS chinook identified by coded-wire tagged Cowichan River chinook are broadly distributed in time and area along the WCVI. A number of management approaches have been utilized in previous troll fisheries to limit impacts on LGS chinook. It is anticipated that the substantial reduction in commercial harvests under the 2009 PST agreement should continue to provide sufficient protection for LGS chinook. In addition, the fishery will be managed to disperse harvests throughout the fishing year to afford further protection to this stock of concern.

WCVI wild chinook continues to be a stock of concern. As a result, management measures consistent with the previous year will be implemented to protect this stock. The objective for commercial troll fisheries will be to avoid encounters with WCVI chinook by restricting the troll fishery to offshore areas during the summer period. Specifically, there will be a 5 nautical mile inside boundary in South West Vancouver Island and a 2 nautical mile boundary in North West Vancouver Island (Area 127 and Subarea 126-4 during the period when WCVI chinook return to the West Coast of the island. If further restrictions are required for conservation purposes, zone/area and time closures may be implemented.

**Allocation**

Table 13.1-4: Commercial Allocation Implementation Plan for the 2015–2019 period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South - WCVI AABM Chinook	23 to 27, 123 to 127	*	*	0.0%	100.0% <sup>§</sup>	0.0%

Notes on chinook allocations:

\* by-catch provisions

<sup>§</sup> this is WCVI AABM chinook fishery

The commercial TAC is calculated by deducting the Maa-nulth treaty allocation (see above for formula), 5,000 expected catch for FSC and 50,000 expected recreational catch from the overall chinook WCVI AABM TAC. The TAC for the commercial AABM fisheries is 56,373 chinook.

Negotiations are ongoing with five Nuu-chah-nulth Nations for a “demonstration” fishery for AABM chinook involving sale of fish. Canada (DFO) determines the allocation for this fishery as a percentage of the commercial TAC.

## *WCVI AABM Commercial Chinook Fishing Plan*

### *Area G Troll Fishing Plan*

The following fishing plan is subject to change to account for domestic stocks of concern passing the WCVI. Fishery openings are planned to distribute harvests proportionately over all fishery periods subject to constraints to protect stocks of concern.

**October to March 15:** Stock composition data indicate the majority of fish harvested during this period are U.S. origin stocks rearing off the WCVI. With the exception of LGS chinook, which may also rear off the WCVI, other Canadian chinook stocks of concern are not vulnerable to the fishery during this period.

During the period from October 1 to March 15, a precautionary harvest level will be set to reflect the preliminary nature of the TAC and the low catch per unit effort that typically occurs at this time of year.

**March 16 to April 18:** Stock composition data indicate the relative abundance of Fraser bound chinook in the fishery begins to increase in March and April. Fraser River Spring 4<sub>2</sub> chinook is stock of concern. Fraser River Spring 4<sub>2</sub> chinook appear to migrate off the continental shelf seaward of the WCVI troll harvest area, rather than along the vicinity of the shoreline. However, a portion of the stock is vulnerable to the offshore troll fishery on their return migration.

A time-area closure will be maintained from March 16 to April 18 to avoid interception of Fraser River Spring 4<sub>2</sub> chinook.

**April 19 to June 15:** Stock composition data indicate the relative abundance of Fraser and Columbia chinook in the fishery increases during this period. Many of the Fraser and Columbia origin stocks vulnerable to the fishery during this period are relatively abundant. With the exception of LGS chinook and Fraser River Spring 4<sub>2</sub> chinook in SWVI though early May, other Canadian chinook stocks of concern are not generally vulnerable to the fishery at this time. However, from mid-to-late June, there is increasing potential for interception of stocks of concern including Fraser River Spring and Summer 5<sub>2</sub> chinook and Interior Fraser River coho.

During the period from April 19 to June 15, the harvest is managed by an effort based model. From April 19 through April 30 the boat day cap is 250 boat days. In addition, Area 124 does not open for fishing until May 1 and Area 123 does not open until May 7. These management actions are implemented to avoid interception of Fraser River Spring 4<sub>2</sub> chinook and reduce release rates for sub-legal chinook. For May 1 through May 30 the boat day cap is 1,000 boat days.

Dependent on the status of Fraser River Spring 4<sub>2</sub> chinook, Fraser River Spring and Summer 5<sub>2</sub> chinook stocks further management measures may be implemented during this fishing period including area closures. For Zone 1 management, the boat day cap of 650 boat days from the June period will be moved to April/May fishing period and the Area G fishery will be limited to a maximum of 1,900 vessel days for the period between April 19 and May 30.

**June 16 to late July:** Through July, stock composition data indicate the relative abundance of Fraser and U.S. bound chinook (Puget Sound, Columbia, Oregon stocks) in the fishery remains high during this period. Many of these stocks are relatively abundant. However, opportunities for harvest in July are limited due to increasing interception of Interior Fraser River coho. As well, starting in 2007/08, a time–area closure for the WCVI troll was implemented from June 16 to July 31 to provide protection for Fraser River Spring and Fraser River Summer 5<sub>2</sub> chinook. In 2011 an impact assessment on Fraser River Spring and Fraser River Summer 5<sub>2</sub> chinook was undertaken to determine if troll fisheries could be scheduled in the last week of July in WCVI areas. The assessment supported troll opportunities in Areas 125 to 127, commencing July 24.

**Late July to early August:** Through August, stock composition data indicate the relative abundance of Fraser and U.S. bound chinook (Puget Sound, Columbia, Oregon) in the fishery remains high during this period.

Fraser River Spring and Fraser River Summer 5<sub>2</sub> chinook are less vulnerable to the fishery at this time. However, opportunities for harvest in August may be limited due to increasing interception of Interior Fraser River coho.

During this period, the fishery will be managed to minimize mortality on Interior Fraser River coho through: i) a maximum interception of coho and ii) the mandatory use of plugs. As well, the fishery will be managed to minimize mortality of WCVI origin chinook through the use of closures during time and areas where WCVI chinook stocks are prevalent.

**September:** Stock composition data indicate the majority of chinook stocks vulnerable to the fishery during this period are bound for the Fraser River, Puget Sound and the Columbia River. Vulnerable stocks of concern include Interior Fraser River coho and WCVI chinook, which are present until about mid-September. After mid-September, Interior Fraser River coho are not vulnerable to the fishery and options for the retention of coho by-catch during the chinook fishery may be considered. The September fishing period permits the harvest of remaining WCVI AABM TAC as the chinook year ends on September 30.

Any harvest opportunities prior to mid-September may be managed to avoid interception of Interior Fraser River coho and WCVI chinook.

### *Fishery Monitoring and Catch Reporting*

There is a mandatory harvest log and in-season reporting program for catch information for all commercial fisheries.

- Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest or electronic transmission with an electronic harvest log (E-log).

Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type. Additional requirements are in place for providing biological samples as required.

### *Harvest Agreements*

There are no Harvest Agreements for AABM chinook.

### *Economic Opportunities*

There are no EO fisheries for AABM chinook.

#### **13.1.2.5.4 ESSR Fisheries**

There are no ESSR fisheries for AABM chinook.

### 13.1.3 WCVI ISBM CHINOOK

#### 13.1.3.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT.

This section of the plan covers First Nations, recreational and commercial fisheries for chinook salmon in all waters along the WCVI and terminal areas that are not defined as AABM fisheries under the Pacific Salmon Treaty.

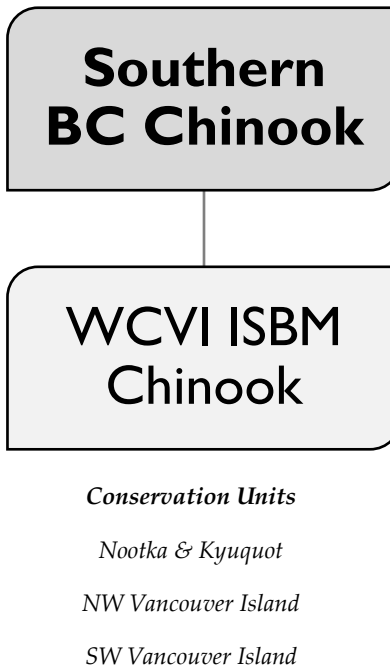


Figure 13.1-4: Overview of WCVI ISBM Chinook

#### 13.1.3.2 STOCK ASSESSMENT INFORMATION

The integrated biological status of WCVI chinook CUs was assessed CSAS as part of a review of Southern BC chinook CUs. The integrated biological status of the Nootka and Kyuquot CU was assessed as RED, SW Vancouver Island CU was RED, and NW Vancouver Island CU was “to be determined” pending development of methods for sites where enhanced sites are predominant.

The Science Advisory Report is available at:

[http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2016/2016\\_042-eng.html](http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2016/2016_042-eng.html)

##### 13.1.3.2.1 Pre-season

The 2017 pre-season forecast of terminal chinook returns to Stamp River/Robertson Creek Hatchery chinook ranges from 58,000 to 100,000. The working forecast used to plan fisheries is



79,000 chinook. The Conuma Hatchery terminal chinook forecast ranges from 22,000 to 50,000. The working forecast used to plan fisheries is 36,000 chinook. The Nitinat Hatchery terminal chinook forecast range is 13,000 to 25,000. The working forecast used to plan fisheries is 19,000 .

Table 13.1-5: Stock outlook anticipated in WCVI ISBM chinook fisheries

Conservation Unit	Preliminary Stock Outlook for 2017
<b>WCVI Chinook (Hatchery)</b> <b>Outlook Category 3 (near target)</b>	Overall returns in 2017 will likely decline relative to levels observed in 2016. Observed returns of earlier age classes and ocean and leading species indicators of marine survival rate for the 2013 and 2014 brood years are low. In contrast, the survival rate 2012 brood year was high. Therefore a relatively abundant return of the 5-year old age class is expected. (2016 Outlook Category was 3.)
<b>WCVI Chinook (Wild)</b> <b>Outlook Category 1 (stock of concern)</b>	Wild populations have been well below target for several generations showing limited or no signs of rebuilding. While in recent years stocks in the NWVI CU showed moderate improvement, this trend is not generally observed in SWVI populations; particularly those from Clayoquot Sound. Expectations are for continued low abundance in 2017. (2016 Outlook Category was 1)

### 13.1.3.2.2 In-season

Where available, in-season abundance estimates will be reviewed in a timely manner to permit consideration of additional terminal fishing opportunities that may arise in-season for WCVI chinook.

#### *Brooks Peninsula*

A small test fishery near the M<sup>9</sup>uq<sup>W</sup>in / Brooks Peninsula occurred in 2016 as one component of a Pacific Salmon Commission (PSC) high priority chinook project to improve the precision and accuracy of annual WCVI chinook return estimates. This test fishery is planned again for 2017. The test fishery is part of the WCVI chinook Run Reconstruction project which has been approved by the PSC Northern Fund Committee. for review.

**13.1.3.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS**

The PST imposes a limit on the adult equivalent mortality rate for individual stock groups. In Canada, the adult equivalent mortality rate in all ISBM fisheries was limited to 63.5% of the historic base period (1979-1982) adult equivalent mortality rate on each stock group.

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

The Area 25 Harvest Committee is a forum that includes representatives from the Ehattesaht, Mowachaht/Muchalaht, and Nuchatlaht First Nations, the Area D Harvest Committee, the local Sport Fishery Advisory Committee, the Nootka Sound Watershed Society, local municipal governments and DFO. The Area 25 Roundtable is developing a detailed local management plan for chinook in Nootka Sound and Esperanza Inlet. The Decision Guidelines in this IFMP will be updated once the detailed local plan has been completed through the Area 25 Harvest Committee.

**13.1.3.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO WCVI ISBM CHINOOK FISHERIES**

Table 13.1-6: Actions to protect wild chinook stocks

<b>First Nations Fishery</b>	<b>Recreational Fishery</b>	<b>Commercial Fishery</b>
Harvest documents and Communal licence harvest targets  Conservation measures under discussion.	Time and area closures, including: - Finfish closures - Salmon non-retention areas - Chinook non-retention areas - Maximum size limits  Daily and annual limits  Measures will vary by area	Time and area closures during the July to October period

### 13.1.3.5 ALLOCATION AND FISHING PLANS

#### 13.1.3.5.1 First Nations Fisheries

##### *Food Social and Ceremonial*

First Nations target chinook stocks for FSC purposes throughout the WCVI.

Refer Section [10.2](#) for Communal Licence Harvest Target Amount [Table 10.2-1](#) in Southern BC/Fraser River First Nations Fisheries. Note that AABM and ISBM chinook amounts are combined.

##### *Specific Conservation Measures for First Nations Fisheries*

Protective measures may be considered in terminal areas, particularly Area 24, to reduce harvest impacts on wild chinook. Potential measures will be the subject of discussion with First Nations communities prior to development of fishing plans.

##### *Treaty Fisheries*

###### *Maa-nulth Fisheries (Domestic)*

The Domestic allocations for chinook salmon under the Maa-nulth First Nations Final Agreement are as follows:

An amount of terminal chinook salmon equal to:

- 200 pieces, when the return of terminal chinook salmon is critical;
- 1,500 pieces, when the return of terminal chinook salmon is low;
- 2,000 pieces, when the return of terminal chinook salmon is moderate; and
- 2,600 pieces, when the return of terminal chinook salmon is abundant.

###### *T'aaq -wiihak First Nations (Ahousaht, Ehattesaht, Hesquiaht, Mowachaht / Muchalaht, and Tla-o-qui-aht First Nations) Salmon Fishery*

Five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the T'aaq-wiihak First Nations) - have aboriginal rights to fish for any species of fish, with the exception of geoduck, within their Fishing Territories and to sell that fish. The First Nations and the Department are currently considering demonstration fishery opportunities for the 2017 season. The scope of these deliberations does not preclude the potential to include any or all salmon species available with the T'aaq-wiihak First Nations' Fishing Territories (located within portions of Pacific

Fishery Management Areas (PFMA) 25/125, 124, 26/126 and all of PFMA 24). Where the Department and the T'aaq-wiihak reach agreement on the approach, this IFMP may be updated to reflect the agreed to approach for the T'aaq-wiihak fishery.

The components of the 2016 demonstration fishery were as follows: a defined share of the commercial TAC, individual chinook vessel caps per opening, time, area and gear restrictions, designated landing sites, and independent dockside monitoring

### *Fishery Monitoring and Catch Reporting*

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

#### **13.1.3.5.2 Recreational Fisheries**

ISBM recreational chinook fisheries in the WCVI take place annually in inshore Areas 21 to 27. ISBM periods in Areas 21 to 24 are August 1-October 15, and in Areas 25 to 27 are July 1-October 15. Chinook caught in these areas outside of this time period are accounted for as part of the AABM fishery catch. Catch and effort typically peaks in these areas during the months of July –August, and effort is largely abundance driven.

The minimum size limit for chinook in recreational ISBM fisheries is 45 cm and the annual limit for chinook is 30. The maximum daily limit for chinook is two, and the possession limit is four. Updates to recreational fisheries are provided via Fishery Notice and published on the recreational fisheries website at:

<http://www.bcsportfishingguide.ca>

### *Recreational Fisheries Specific Conservation Measures*

Conservation measures for ISBM fisheries are designed largely to protect wild chinook returning to the WCVI. Decisions on these management measures are primarily made pre-season and go into effect based on stock outlook and expected returns. In-season changes can also be made based on local chinook returns to rivers. Harvests largely target hatchery

production and management measures are designed to minimize impact on wild WCVI chinook populations.

### *Fishery Monitoring and Catch Reporting*

Catch monitoring programs, including seasonal creel surveys, logbooks and the internet recreational effort and catch survey (iREC), are the main tools used to capture recreational catch and effort information in this fishery. South Coast stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

#### 13.1.3.5.3 Commercial Fisheries

##### *Allocation*

Table 13.1-7: Commercial Allocation Implementation Plan for the 2015–2019 period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South- WCVI Inside	21 to 27	5.0% <sup>h</sup>	75.0% <sup>i</sup>	5.0% <sup>i</sup>	15.0% <sup>j</sup>	0.0%

Notes on chinook allocations (south):

<sup>h</sup>Area 23 sharing arrangement currently 33.3% seine: 66.7% gill net.

<sup>i</sup>Area 25 fishery (potential for future review. 75% fishery to Area D (e.g. Conuma Bay fishery); potential 5% to Area E if future surplus at Nitinat; otherwise default to Area D)

<sup>l</sup>winter troll fishery

Negotiations are ongoing with five Nuu-chah-nulth Nations for a “demonstration” fishery for ISBM chinook involving sale of fish. Canada (DFO) determines the allocation for this fishery as a percentage of the commercial TAC.

### *WCVI ISBM Commercial Chinook Fisheries*

#### *Area D Gill Net Potential Fisheries*

**Mid-August to Early September - Area 23:** The Robertson Creek Hatchery chinook forecast range is from 58,000 to 100,000. The working forecast used to plan fisheries is 79,000 chinook. There will likely be gill net opportunities in Alberni Inlet in 2017.

**Mid-August - Area 25:** The Conuma Hatchery chinook forecast range is from 22,000 to 50,000. The working forecast used to plan fisheries is 36,000 chinook. There will likely be gill net opportunities in Tlupana Inlet in 2017.

*Area B Seine Potential Fisheries*

**Mid-August to Early September - Area 23:** The Robertson Creek Hatchery chinook forecast range is from 58,000 to 100,000. The working forecast used to plan fisheries is 79,000 chinook. There will likely be seine opportunities in Alberni Inlet in 2017.

*Fishery Monitoring and Catch Reporting*

Any potential Area B fishery would be conducted as a pooled fishery with 100% dockside monitoring program.

*Southern Chinook Demonstration Fisheries**Area E Gill Net Nitinat Hatchery Chinook Pooled Demonstration Fishery*

Area E has proposed a fishery in Nitinat Lake, Area 22 or in the outside waters near the entrance to the lake in Area 21. The objective of conducting this fishery is to test the feasibility and explore the potential benefits of accessing surplus Nitinat hatchery chinook, using pre-determined pools fishing to a defined catch target. This demonstration directly controls the total harvest by limiting the participation in the fishery and setting limits on the harvest amount. This fishery is in the planning and feasibility stage, further consultation is required prior to moving ahead.

- **Region:** South Coast Area, Nitinat Lake
- **Participants:** Voluntary pool concept where all Area E license holders with a valid 2016 salmon license will be eligible to register for pools. Area E license holders will have an opportunity to voluntarily organize into pooled fisheries and identify a catcher vessel for each pool. Pools will be organized prior to any commercial fishing in 2016
- **Location of Fishery:** Nitinat Lake and directly outside Nitinat Lake
- **Gear Type:** Selective chinook Net (8" minimum)
- **Time Frame:** Target dates are early August to Early September
- **Target Stock:** This fishery will target surplus Nitinat hatchery chinook
- **Allocation:** The fishery will be based on surplus return of Nitinat Lake hatchery chinook. Other commercial harvesters may also harvest chinook under harvest management plans, the appropriate sharing of harvest will be determined in a manner similar to the Area 23 Harvest Committee.

- **Selectivity:** This fishery uses various selective fishing techniques, including; mesh size restrictions, short set times, location and time restrictions, and revival boxes to minimize mortality on potential by-catch.
- **Monitoring Plan:** Start, end, pause and daily catch reports will be required by phone-in or electronic logbook. There is a requirement for 100% dockside validation of the catch at designated off-loading locations. The selection and coordination of the service provider will be handled by the Area E Harvest Committee (HC). The cost for the observer, and catch validation will be required by the Demonstration Fishery (DF) participants.

### *WCVI ISBM First Nations Commercial Chinook Harvest*

#### *Economic Opportunities*

Economic opportunities for Somass First Nations (Tseshaht and Hupacasath First Nations) are expected as in recent years. Economic opportunity fisheries will be conducted under agreements that specify provisions for planning fisheries, allocations, catch reporting requirements as well as roles and responsibilities regarding the management of the fishery. The Department's general approach is that Aboriginal commercial harvest opportunities are managed using the same harvest decision guidelines as the commercial fishery. Aboriginal commercial harvest opportunities may be implemented with different times, areas, gears and regulations consistent with the overall management approach for the commercial fishery.

#### **13.1.3.5.4 ESSR Fisheries**

There is the potential for ESSR fisheries at the Conuma, Robertson and Nitinat hatcheries when broodstock collection targets will be met. These fisheries are implemented in collaboration with local First Nations and DFO hatchery staff. ESSR fisheries for other enhanced streams may be considered where excess escapements can be identified in-season.

13.1.4 SOUTHERN ISBM CHINOOK

13.1.4.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

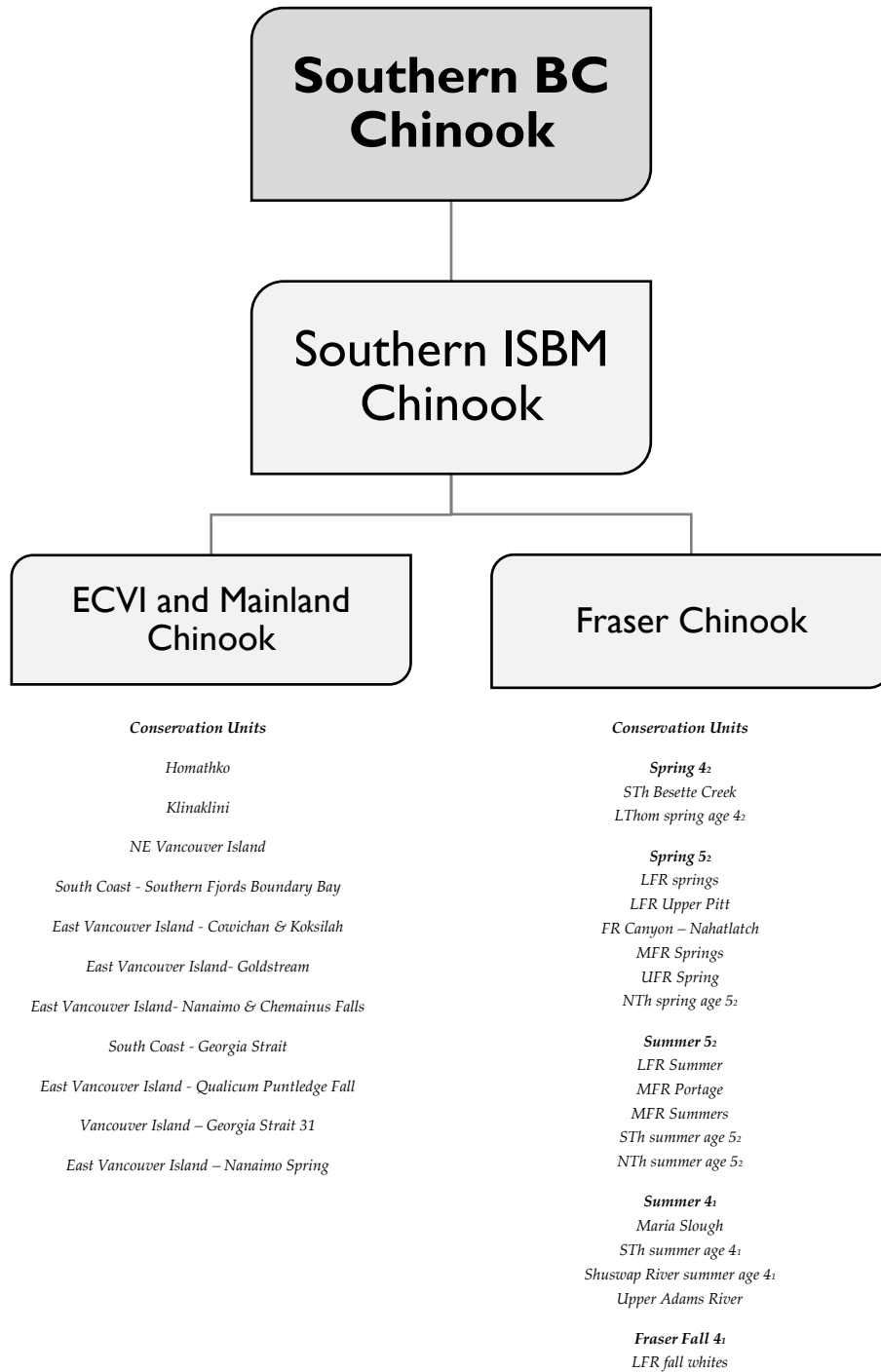


Figure 13.1-5: Overview of Southern ISBM Chinook



ISBM management regimes apply to all chinook salmon fisheries subject to the Pacific Salmon Treaty that are not AABM fisheries. These include marine and freshwater salmon fisheries from northern British Columbia to northern Oregon coast. ISBM fisheries in Southern BC include First Nations, recreational, and commercial net fisheries (e.g. Fraser River gill net).

### Fraser Chinook

For management purposes, Fraser chinook stocks will be managed using the Spring 4<sub>2</sub>, Spring 5<sub>2</sub>, Summer 5<sub>2</sub>, Summer 4<sub>1</sub> and Fraser Fall 4<sub>1</sub> management units employed under the PST process to align fisheries management objectives with indicator stocks, escapement, catch, and exploitation rate data used in the PST process. The relationship between current PST management units and Wild Salmon Policy conservation units (CUs) is shown in the diagram below.

Table 13.1-8: Relationship between current Pacific Salmon Treaty escapement reporting units, Wild Salmon Policy (WSP) conservation units (CUs) and spawning locations.

PST Unit	CU #	CU Name	Spawning Locations
Spring 4 <sub>2</sub> Chinook	16	STh Bessette Creek	Bessette Creek
	17	LTHOM spring	Bonaparte River; Coldwater River; Deadman River; Louis Creek; Nicola River; Spius Creek
Spring 5 <sub>2</sub> Chinook	4	LFR springs	Birkenhead River
	5	LFR Upper Pitt	Pitt River-upper
	8	FR Canyon-Nahatlatch	Nahatlatch River
	10	MFR springs	Cariboo River-upper; Chilako River; Chilcotin River upper; Chilcotin River-lower; Cottonwood River; Horsefly River; Narcosli Creek; Naver Creek; West Road River

<b>PST Unit</b>	<b>CU #</b>	<b>CU Name</b>	<b>Spawning Locations</b>
	12	UFR springs	Bowron River; Dome Creek; East Twin Creek; Fraser River-above Tete Jaune; Forgetmenot Creek; Goat River; Holliday Creek; Holmes River; Horsey Creek; Humbug Creek; Kenneth Creek; McGregor River; McKale River; Morkill River; Nevin Creek; Ptarmigan Creek; Slim Creek; Small Creek; Snowshoe Creek; Swift Creek; Torpy River; Walker Creek; Wansa Creek; West Twin Creek; Willow River
	18	NTHOM spring	Blue River; Finn Creek; Raft River
<b>Summer 5<sub>2</sub> Chinook</b>	6	LFR summers	Big Silver Creek; Chilliwack/Vedder River; Cogburn Creek; Douglas Creek; Green River; Lillooet River; Lillooet River-lower; Lillooet River-upper; Sloquet Creek; Weaver Creek
	9	MFR Portage	Portage Creek
	11	MFR summers	Bridge River; Cariboo River lower; Chilko River; Endako River; Kazchek Creek; Kuzkwa River; Nechako River; Quesnel River; Seton River; Stellako River; Stuart River
<b>Summer 5<sub>2</sub> Chinook</b>	14	STh summer age 5 <sub>2</sub>	Eagle River; Salmon River
	19	NTHOM summer age 5 <sub>2</sub>	Barriere River; Clearwater River; Mahood River; North Thompson River
<b>Summer 4<sub>1</sub> Chinook</b>	7	Maria Slough	Maria Slough
	13	STh summer age 4 <sub>1</sub>	Adams River; Little River; South Thompson River; Lower Thompson River
	15	Shuswap River summer age 4 <sub>1</sub>	Shuswap River-lower; Shuswap River-middle
<b>Fraser Fall 4<sub>1</sub> Chinook</b>	3	LFR fall white	Harrison River

## Notes:

Six early-timed chinook stocks shown in italics.

Chilcotin River upper not part of PST Spring 5<sub>2</sub> aggregate due to short time series.

Salmon River (Salmon Arm), Eagle, Bridge River and Endako River currently included with PST Spring 5<sub>2</sub> aggregate. STh Summer age CU could be changed to STh Spring age CU.

Bridge and Endako suggest for MFR Spring CU.

Raft River may belong with North Thompson Summers based on timing. Currently included with PST Summer 5<sub>2</sub> aggregate.

### **Fraser Spring 4<sub>2</sub> Chinook**

Spring 4<sub>2</sub> chinook return to spawn from early March through late July and migration peaks in June in the lower Fraser River. These populations primarily mature as adults at age 4 (90%) with lower numbers maturing at age 5 (7%) and occasionally at age 3 (3%).

Coded wire tagged (CWT) Nicola River chinook released from the Spius Creek Hatchery are the PST exploitation rate indicator stock used to assess survival and exploitation rates of Spring 4<sub>2</sub> chinook in Canadian and U.S. fisheries. Based on CWT recoveries from fisheries, Fraser Spring 4<sub>2</sub> chinook have historically been encountered in Fraser River First Nations gill net fisheries, Fraser River and tributary recreational fisheries, marine troll fisheries (e.g. WCVI and North Coast), and recreational fisheries in the Strait of Juan de Fuca and Strait of Georgia, with lower rates in other marine recreational fisheries.

There are no pre-season or in-season abundance forecasts developed for this aggregate.

### **Fraser Spring and Summer 5<sub>2</sub> Chinook**

Spring 5<sub>2</sub> chinook return to the Fraser River to spawn from early March through late July and migration peaks in late June in the lower Fraser. Summer 5<sub>2</sub> chinook have later timing and return to the Fraser River to spawn from late June to August with a peak in late July. These populations primarily mature as adults at age 5 (approx. 70%) and age 4 (approx. 20%) with lower numbers at age 3 and age 6.

Currently, there is not a PST indicator stock for these management units, however; information from past CWT recoveries (e.g. Dome Creek, a Spring 5<sub>2</sub> indicator) from these populations indicates that Spring 5<sub>2</sub> chinook have been encountered in many of the same areas as Spring 4<sub>2</sub> chinook. Summer 5<sub>2</sub> chinook are also encountered in the same areas, but relative impacts between fisheries may differ given the approximately 1 month later migration timing of these Summer 5<sub>2</sub> stocks.

There are no pre-season forecasts for this group but an in-season abundance estimate for this aggregate is determined based on catch per unit of effort (CPUE) in the Albion test fishery in the lower Fraser River.

### **Fraser Summer 4<sub>1</sub> Chinook**

The Summer 4<sub>1</sub> chinook management unit consists of several populations which spawn almost exclusively within the Thompson River watershed, and migrate through the Lower Fraser River from mid-July to mid-September.

Within this stock group, coded wire tags (CWT) from the Lower Shuswap River indicator stock are used to monitor survival and exploitation. Other systems of the aggregate are assessed visually, and work is underway to calibrate their escapement estimates. There are no pre-season or in-season abundance forecasts developed for this aggregate.

### **Fraser Fall 4<sub>1</sub> Chinook**

Fall 4<sub>1</sub> chinook spawn mostly in the Harrison and Chilliwack watersheds and return to the Lower Fraser between mid-August and mid-November, with the majority of the run migrating through this area from mid-September to mid-October. This is the only Fraser River chinook population for which quantitative forecasts are produced.

### **ECVI and Mainland Inlets**

Chinook populations in the upper part of the Strait of Georgia include both ocean and stream type chinook that spawn in systems from the Northeast Vancouver Island down to Campbell River and across to the Mainland Inlets.

Within this stock group, coded wire tags (CWT) from the Quinsam River indicator stock are used to monitor survival and exploitation. In the Mainland Inlet area, Phillips River, also an enhanced system is monitored and being developed into an indicator. Only a few other systems are monitored consistently for escapement in this area and those include the Nimpkish River. There are no pre-season or in-season abundance forecasts developed for this unit. Chinook populations in the lower Strait of Georgia are dominated by ocean type life history (Nanaimo Springs are the lone Stream Type) and fall run timing (summers runs exist in Puntledge and Nanaimo, and a spring run in Nanaimo. A summer run may exist in Cowichan as well. Mean generational time is 3 or 4 years. Most populations are enhanced to some level. There are major DFO facilities on the Puntledge, Big Qualicum, Little Qualicum, Tenderfoot and Capilano Rivers. Smaller facilities enhance stocks in the Sliammon, Lang, Chapman, Seymour, Little Campbell, Oyster, Tsable, Tsolum, Englishman, Nanaimo, Chemainus, Cowichan and Goldstream rivers. Most of these systems are monitored for spawner abundance. The rivers at the head of the Mainland Inlets are not well assessed.

Coded-wire tag Indicators include Cowichan and Big Qualicum (Fall run timing) and Puntledge (summer run timing). Pre-season forecasts are not produced for these systems. Some are monitored in-season and reported weekly in a bulletin.

#### **13.1.4.2 STOCK ASSESSMENT INFORMATION**

The integrated biological status of Southern BC chinook CUs has been assessed by CSAS. The Science Advisory Report is available at:

[http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2016/2016\\_042-eng.html](http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2016/2016_042-eng.html)

Status evaluations were completed and an integrated biological status designation identified for 15 of the 35 CUs. Of these, 11 were assigned a Red status, one was assigned a Red/Amber status, one was assigned an Amber status and two were assigned a Green status. For another nine of the 35 CUs, an integrated status evaluation was not possible based on the information presented at the workshop. For these CUs, the status designation is “data deficient” and this designation is not expected to change until more information becomes available. For the remaining 11 of the 35 CUs, status evaluations were not completed. Instead, the status of these CUs was classified as “to be determined”. These CUs are a component of units where the enhanced sites are predominant; consensus was not reached on how to derive a WSP status assessment for such units.

Table 13.1-9: Biological Status Designation

*Integrated status evaluation completed at workshop*

Integrated Status	Case #	CU ID	CU Name	Area
RED	1	CK-10	Middle Fraser River_SP_1.3	Fraser
RED	4	CK-18	North Thompson_SP_1.3	Fraser
RED	6	CK-19	North Thompson_SU_1.3	Fraser
RED	11	CK-09	Middle Fraser River-Portage_FA_1.3	Fraser
RED	24	CK-17	Lower Thompson_SP_1.2	Fraser
RED	25	CK-31	West Vancouver Island-South_FA_0.x	WCVI
RED	26	CK-12	Upper Fraser River_SP_1.3	Fraser
RED	29	CK-29	East Vancouver Island-North_FA_0.x	Inner SC
RED	30	CK-32	West Vancouver Island-Nootka & Kyuquot_FA_0.x	WCVI
RED*	3	CK-16	South Thompson-Bessette Creek_SU_1.2	Fraser
RED*	5	CK-01	Okanagan_1.x	Columbia
RED / AMBER	27	CK-14	South Thompson_SU_1.3	Fraser
AMBER	12	CK-11	Middle Fraser River_SU_1.3	Fraser
GREEN(p)	9	CK-03	Lower Fraser River_FA_0.3	Fraser
GREEN	2	CK-13	South Thompson_SU_0.3	Fraser

*Integrated status evaluation not possible based on information presented at workshop*

Integrated Status	Case #	CU ID	CU Name	Area
DD	7	CK-82	Upper Adams River_SU_x.x	Fraser
DD	8	CK-06	Lower Fraser River_SU_1.3	Fraser
DD	10	CK-05	Lower Fraser River-Upper Pitt_SU_1.3	Fraser
DD	28	CK-28	Southern Mainland-Southern Fjords_FA_0.x	Inner SC
DD	31	CK-08	Middle Fraser-Fraser Canyon_SP_1.3	Fraser
DD	32	CK-20	Southern Mainland-Georgia Strait_FA_0.x	Inner SC
DD	33	CK-34	Homathko_SU_x.x	Inner SC
DD	34	CK-23	East Vancouver Island-Nanaimo_SP_1.x	Inner SC
DD	35	CK-35	Klinaklini_SU_1.3	Inner SC

“(p)” means provisional, and identifies cases where some participants held divergent views.

“\*\*” means that CU definition should be reviewed.

*Integrated status evaluation not attempted at workshop due to unresolved methods*

Integrated Status	Case #	CU ID	CU Name	Area
TBD**	13	CK-04	Lower Fraser River_SP_1.3	Fraser
TBD	14	CK-21	East Vancouver Island-Goldstream_FA_0.x	Inner SC
TBD	15	CK-33	West Vancouver Island-North_FA_0.x	WCVI
TBD	16	CK-22	East Vancouver Island-Cowichan & Koksilah_FA_0.x	Inner SC
TBD	17	CK-02	Boundary Bay_FA_0.3	Inner SC
TBD	18	CK-07	Maria Slough_SU_0.3	Fraser
TBD	19	CK-25	East Vancouver Island-Nanaimo & Chemainus_FA_0.x	Inner SC
TBD	20	CK-15	Shuswap River_SU_0.3	Fraser
TBD	21	CK-83	East Vancouver Island-Georgia Strait_SU_0.3	Inner SC
TBD	22	CK-27	East Vancouver Island-Qualicum & Puntledge_FA_0.x	Inner SC
TBD	23	CK-9008	Fraser-Harrison fall transplant_FA_0.3	Fraser

“\*\*” means that CU status should be re-evaluated after review of enhancement level definition.

**13.1.4.2.1 Pre-season**

Table 13.1-10: Stock outlook anticipated in ISBM chinook fisheries

Management Unit	Stock Outlook for 2017
Fraser Chinook - Spring 4 <sub>2</sub>	The Outlook is low. Expectations for 2017 are for continued depressed abundance due to low parental escapements in 2013 and ongoing unfavorable and highly variable marine survival conditions. Escapements in 2016 declined compared to the parent brood escapements in 2012.
Fraser River Spring and Summer 5 <sub>2</sub> Chinook	The Outlook is low. Expectations are for continued overall low abundance related to depressed parental escapements and continuing unfavorable and highly variable marine survival conditions. Escapements in 2016 were variable, but on average, for spring 5 <sub>2</sub> chinook almost attained the parental brood escapement level and for summer 5 <sub>2</sub> chinook failed to meet parental escapement levels.

Management Unit	Stock Outlook for 2017
Fraser River Summer 4 <sub>1</sub> Chinook	The Outlook is near target. Instability in smolt to adult survival rates, combined with highly variable escapements temper the outlook for this aggregate. If marine survival conditions improved, abundance in 2017 may attain average levels. Early indication of return in 2016 is poor and similar to parent levels in 2012.
Fraser Lates	The Outlook is low. Current marine conditions are appear unfavorable, thus expectations for escapements in 2017 are highly uncertain, and are tempered by the low parental brood escapement in 2013. A formal forecast for 2017 will be available in early spring.
Lower Strait of Georgia Chinook	Lower Strait of Georgia chinook abundance remains low. Recent returns to Cowichan suggest that rebuilding is continuing, whereas Nanaimo returns remain low but stable. Hatchery chinook returns to major facilities also remain low but stable.
North Vancouver Island/ Johnstone Strait Chinook	Outlook is similar to recent years with wild stocks at low level and hatchery stocks likely near target.

### *Harrison Chinook Pre-season Forecast*

The 2017 forecast estimate of the spawner abundance (i.e. returns to the spawning grounds after all ocean and freshwater fisheries removals) for Harrison chinook is 64,476. This forecast is less than the biologically-based escapement goal range of 75,100 to 98,500 spawners.

Table 13.1-11: Harrison Chinook Forecast

Location	Age 3	Age 4	Age 5	Total
Harrison	23,129	39,796	1,551	64,476



#### 13.1.4.2.2 In-season

##### *Fraser River Spring and Summer 5<sub>2</sub> chinook*

An assessment of abundance determined from the relationship between the cumulative Catch per Unit Effort (CPUE) of chinook caught in the Albion test fishery from early May to mid-June is used to determine the management actions that will be in place for fisheries.

Updates of the predicted return of Spring and Summer 5<sub>2</sub> chinook to the mouth of the Fraser River, for informational purposes, are generally released in mid-May and early June, with a final in-season update by the third Monday in June. Management actions for the appropriate zone will be announced following the final in-season update.

#### 13.1.4.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

##### All ISBM Fisheries

The PST imposes a limit on the adult equivalent mortality rate for individual stock groups. In Canada, the adult equivalent mortality rate in all ISBM fisheries was limited to 63.5% of the historic base period (1979-1982) adult equivalent mortality rate on each stock group.

##### Fraser Spring 4<sub>2</sub> Chinook

Management measures to protect Spring 4<sub>2</sub> chinook will continue to be required in Juan de Fuca and Strait of Georgia recreational fisheries, and in WCVI commercial troll fisheries, consistent with recent years. For directed chinook fisheries in the Fraser River, First Nations management actions implemented since 2010 to protect and conserve Fraser Spring 4<sub>2</sub> chinook in the Fraser River are planned to continue. Actual fishing plans will be developed collaboratively between First Nations and DFO. Directed chinook recreational fisheries in the Fraser River are proposed to remain closed until August. Management actions for Fraser Spring 4<sub>2</sub> chinook populations are identified separately in each of the First Nations, recreational and commercial sections that follow.

##### Fraser Spring and Summer 5<sub>2</sub> Chinook

Annually, fisheries will be planned based on a cautious approach and management will be based on Zone 1 as outlined in [Table 13.1-2](#) until such time as a final in-season abundance estimate is confirmed. Salmon fisheries in 5 primary areas where these populations are most likely to be encountered will be managed consistent with the management zones which may change in mid- June including:

- Northern (Area F) commercial troll fisheries
- West Coast of Vancouver Island (Area G) commercial troll fisheries;
- Juan de Fuca (Victoria area) recreational fisheries;
- Fraser River recreational fisheries; and
- Fraser River First Nations FSC fisheries.

Specific management actions for Zone 1 and 2 are identified separately in each of the First Nations, recreational and commercial sections that follow.

Table 13.1-12: Fraser Spring and Summer 5<sub>2</sub> chinook Management Zone Approach

Zone	Predicted Return to the Fraser River	Actions
3	<p>Greater than 85,000</p> <p>Rationale: Manage to meet expected spawner abundance of at least 60,000.</p> <p>Populations rebuilding towards maximum sustained yield (MSY) levels.</p>	<p>First Nations directed fisheries.</p> <p>Directed recreational and commercial fisheries consistent with Allocation policy.</p>
2	<p>45,000 to 85,000</p> <p>Rationale: Manage to meet expected spawner abundance of at least 30,000 and up to 60,000.</p> <p>Caution is required to avoid population declines. Populations well below MSY levels.</p>	<p>First Nations directed fisheries subject to abundance.</p> <p>By-catch retention/ limited directed Fraser recreational fisheries may be initiated.</p> <p>Management actions to reduce by-catch in commercial fisheries.</p>
1	<p>Below or equal to 45,000</p> <p>Rationale: Expected spawner abundance will likely be 30,000 or less.</p> <p>Significant conservation concerns. Very high risk of extremely low spawning populations.</p>	<p>By-catch retention /limited directed First Nations fisheries.</p> <p>Non-retention/closed recreational and commercial chinook fisheries in the Fraser River and tributaries.</p> <p>Management actions to reduce by-catch in other recreational and commercial fisheries.</p>

Maximum sustained yield (MSY) is defined in the Wild Salmon Policy as: the largest catch (yield) that can be taken on average from a population under existing environmental conditions. Catch will vary annually due to variation in a population's survival rate.

### **Rationale for Escapement Objectives for Fraser Spring and Summer 5<sub>2</sub> Chinook**

While PST escapement targets and exploitation rate targets have not been formally identified for Fraser Spring and Summer 5<sub>2</sub> chinook, biological factors were nonetheless principal considerations in establishing the breakpoints between the management zones:

***Zone 3: Populations rebuilding towards maximum sustained yield (MSY) levels (>85,000 terminal return; expected spawner abundance of at least 60,000).***

Preliminary analysis of the number of spawners required to utilize the productive capacity of the habitat to produce maximum sustained harvests ( $S_{MSY}$ ) for these populations is approximately 138,000 spawners (including ~80,000 Spring 5<sub>2</sub> and ~57,000 Summer 5<sub>2</sub>). The number of spawners at 40% of  $S_{MSY}$ , a metric suggested as a lower abundance benchmark, is 55,000 spawners. The original PST base period doubling goal is approximately 60,000 spawners. In 15 of the 34 years from 1979-2012 spawner abundances greater than 60,000 were observed; the highest spawner abundance recorded for these populations was 102,000 in 2003.

***Zone 2: Caution is required to avoid population declines. Populations well below MSY levels (45,001 to 85,000 terminal return; expected spawner abundance of at least 30,000).***

The average escapement of Fraser Spring and Summer 5<sub>2</sub> chinook during the 1979-1982 base period was about 30,000 spawners; a level at which substantial management actions were taken to rebuild populations. This number of spawners is half of the value of 40%  $S_{MSY}$  increasing the likelihood of extremely low spawner abundance in CUs.

***Zone 1: Significant conservation concerns. Very high risk of extremely low spawning populations (<45,000 terminal returns; Expected spawner abundance will likely be 30,000 or less).***

Only four of the 34 years from 1979-2012 had spawner abundances less than 30,000.

### **Fraser Summer 4<sub>1</sub> Chinook**

A management objective for the Summer 4<sub>1</sub> has not been established. However, the Department is working on developing a management objective for the PST process which requires an escapement objective to be developed consistent with maximum sustained yield (MSY) or other agreed biologically-based escapement goals.

The Lower Shuswap River is the CWT indicator stock for Fraser River's South Thompson 4<sub>1</sub> chinook aggregate, however to date, the continuous time series of data is too short (12 years: 2004-2014) to undertake stock-recruit analyses to estimate the number of spawners required to produce maximum sustained yield ( $S_{MSY}$ ). Based on preliminary analysis from habitat models,  $S_{MSY}$  for the Lower Shuswap indicator population is estimated at approximately 14,000 spawners. Mark-recapture estimates of adult escapements to the Lower Shuswap River were close to or slightly above the estimated  $S_{MSY}$  in 2004 (17,000), 2005 (18,000), 2007 (16,000) and 2008 (15,000); exceeded the  $S_{MSY}$  value in 2006 (59,000), 2009 (~25,000), 2010 (~71,000), 2011(~19,000) 2013 (~29,000) and 2014 (~44,000); and was well below in 2012 (~4,000).

Directed fishing opportunities may occur on this stock group, provided that fisheries can be designed to limit impacts on co-migrating possible stocks of concern including: Spring 4<sub>2</sub> chinook, Spring/Summer 5<sub>2</sub> chinook, Fraser Fall chinook, Fraser River sockeye, and Interior Fraser River coho.

#### **13.1.4.3.1 Fraser Fall 4<sub>1</sub> (Harrison) Chinook**

The PST approved escapement goal for the Fall 4<sub>1</sub> (Harrison) chinook is a range of 75,100 to 98,500 spawners.

While the overall exploitation rates on this chinook management unit are relatively low (averaging approximately 25%), this year's forecast return is significantly below the escapement goal range. As a result, additional management actions will be implemented, including chinook non-retention in effect for Fraser River commercial fisheries and recreational fisheries on the Harrison River.

#### **LGS Chinook**

Conservation concerns for Lower Strait of Georgia (LGS) chinook stocks will guide fisheries planning. The Cowichan River chinook stock is an indicator stock of the LGS chinook aggregate. Escapement trends have shown improvements in recent years.

#### **13.1.4.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO INSIDE CHINOOK ISBM FISHERIES**

ISBM fisheries are constrained in order to meet PST obligations and domestic management objectives.

### 13.1.4.5 ALLOCATION AND FISHING PLANS

#### 13.1.4.5.1 First Nations Fisheries

##### *First Nations Food Social and Ceremonial*

###### *Marine Waters*

First Nations target local and passing salmon stocks for FSC purposes throughout the Inner South Coast.

###### *Non-tidal Waters (excluding Fraser River)*

Some First Nations chinook directed fisheries occur in freshwater systems throughout Southern Inside waters.

###### *Fraser River*

First Nations target Fraser River chinook for FSC purposes throughout the Fraser River main stem and in many tributary areas.

Refer Section [10.2](#) for Communal Licence Harvest Target Amount [Table 10.2-1](#) in Southern BC/Fraser River First Nations Fisheries. Note that AABM and ISBM chinook amounts are combined.

##### *Specific Conservation Measures for First Nations Fisheries*

###### *Lower Strait of Georgia Chinook*

Protective measures may be considered in terminal areas to reduce harvest impacts. Potential measures will be the subject of discussion with First Nations communities, and include processes such as the Cowichan Fisheries Roundtable prior to development of fishing plans.

###### *Fraser River Spring 4<sub>2</sub> and Spring and Summer 5<sub>2</sub> Chinook*

For Fraser River First Nations fisheries, fishing plans will be developed collaboratively between First Nations and DFO with the objective of maintaining overall fishing pressure at levels that will permit rebuilding of these populations. This will result in limited or reduced fisheries openings or fishing times; actual plans will be announced in-season.

**January 1 to July 15:** Management actions implemented since 2010 to protect Fraser Spring 4<sub>2</sub> chinook in the Fraser River are planned to continue in 2017. First Nations fisheries occurring during the Spring 4<sub>2</sub> migration period will be managed taking into account conservation

requirements for this stock aggregate, while ensuring that fishery impacts are distributed as evenly as possible across all contributing populations.

Additionally, fishing plans prior to July 15 will be aligned with the management zone identified for Fraser Spring and Summer 5<sub>2</sub> chinook. For 2017, the Department has decided to start the season in Zone 1, given the continued poor outlook for the Fraser Spring and Summer 5<sub>2</sub> chinook aggregates. By mid-June, in-season assessment of these stocks will guide the decision to remain in Zone 1, or to move to a different zone for the remainder of the season. Specific objectives guiding the development of Fraser River First Nations fishing plans are as follows:

**Zone 1:** Expected exploitation rates on Spring and Summer 5<sub>2</sub> chinook reduced by at least 45% compared with the 2000 to 2006 period.

**Zone 2:** Expected exploitation rates on Spring and Summer 5<sub>2</sub> chinook similar to those of the 2000 to 2006 base period.

**Zone 3:** Harvests of Spring and Summer 5<sub>2</sub> chinook may occur during chinook-directed fisheries or as by-catch in sockeye-directed fisheries.

**After July 15:** All in-river fisheries will be continue to be managed consistent with the management zone identified for Fraser Spring and Summer 5<sub>2</sub> chinook, but fisheries will no longer be constrained by management measures directed on Fraser Spring 4<sub>2</sub> chinook. Fishery impacts will need to take into account harvests in chinook directed fisheries and/or as by-catch in sockeye directed fisheries.

The Department consults with First Nations on specific fishing plans for FSC fisheries.

### *Treaty Fisheries*

#### *Tsawwassen Fisheries (Domestic)*

In any year, the Tsawwassen Fishing Right Allocation for chinook salmon will be determined by an abundance based formula, based on Canadian Total Allowable Catch that produces an average annual harvest of 625 Fraser River chinook salmon based on Fraser River chinook salmon returns for the 1982 to 2004 time period. The Tsawwassen Final Agreement is available at:

<http://www.aadnc-aandc.gc.ca/eng/1100100022703/1100100022704>

#### *Tla'amin Fisheries (Domestic)*

The Domestic allocations for chinook under the Tla'amin First Nations Final Agreement are as follows:

**Non-terminal chinook:** A maximum of 200 chinook salmon, that are not of terminal origin, caught in the Tla'amin Fishing Area. The Tla'amin Fishing Area for all species of Fish and Aquatic Plants is within portions of Pacific Fisheries Management Areas 14, 15, and 16.

The allocation will be determined by an abundance-based formula.

**Terminal chinook:** A number of chinook salmon equal to 25% of the Available Terminal Harvest for chinook salmon stocks that originate from a Terminal Harvest Area, if the Minister determines that there is an Available Terminal Harvest for those stocks. The Tla'amin Final Agreement is available at:

<http://www.aadnc-aandc.gc.ca/eng/1397152724601/1402079284345>

### *Fishery Monitoring and Catch Reporting*

#### *Marine Waters*

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

#### *Fraser River*

In the Fraser River watershed, catch monitoring programs are managed through Activity Funding or Comprehensive Fisheries Agreements.

In the Lower Fraser, monitoring programs implemented typically include landing site or vessel based collection of catch and effort information paired with validation of effort by vessel patrols or overflights. Specific focus has also been placed on sampling of chinook salmon for mark rate information and coded-wire tags (CWTs) in recent years to support the Salmon Head Recovery Program.

For fisheries above Sawmill Creek, catch monitoring programs range from basic census type to more enhanced programs that include collecting effort and catch rate information in creel sample programs.

### 13.1.4.5.2 Recreational Fisheries

#### *Recreational Conservation Measures All ISBM Fisheries*

ISBM recreational chinook fisheries in inside waters take place from Queen Charlotte Strait south to the Strait of Juan de Fuca throughout the year. Significant areas of catch and effort occur in waters near Port Hardy, Campbell River, the Strait of Georgia and Southern Vancouver Island including Juan de Fuca Strait, with both catch and effort peaking during the summer months.

The minimum size limit for chinook in Queen Charlotte Strait, Johnstone Strait and the Strait of Georgia is 62 cm and the annual limit for chinook is 15. The minimum size limit in waters south of Cadboro Point through Juan de Fuca Strait (Subareas 19-1 to 19-4 and 20-5 to 20-7) is 45 cm and the annual limit is 20. The daily limit for all areas is two, and the possession limit is four. Updates to recreational fisheries are provided via Fishery Notice and published on the recreational fisheries website at:

<http://www.bcsportfishingguide.ca>

#### *LGS Chinook*

Management measures are in place to protect Lower Strait of Georgia chinook, including the Nanaimo, Chemainus and Cowichan River chinook stocks. These include seasonal time and area closures in specific locations in the Strait of Georgia and the approach waters of these systems.

A decision rule matrix for in-river angling opportunities in the Cowichan River is currently being developed through a subcommittee of the Cowichan Harvest Round Table. This matrix will help define when recreational angling opportunities can be expected and further develop the draft decision guidelines.

#### *Fraser River Spring 4<sub>2</sub> and Spring and Summer 5<sub>2</sub> Chinook*

Management measures will be in place to conserve Fraser chinook stocks in Juan de Fuca Strait and the Southern Strait of Georgia. Management measures are put in place to protect Spring 4<sub>2</sub> chinook from March 1st to June 16th. Following June 16th, the management measures currently vary depending on the zone, and are put in place to protect Spring and Summer 5<sub>2</sub> chinook.

#### *Juan de Fuca recreational fishery (Subareas 19-1 to 19-4 and Subareas 20-4 and 20-5)*

March 1 through June 16th, two chinook per day which may be wild or hatchery marked between 45 and 67 cm or hatchery marked greater than 67 cm in Subareas 19-1 to 19-4 and 20-4 and 20-5.



**Zone 1:** June 17th through July 15th, two chinook per day which may be wild or hatchery marked between 45 and 85 cm or hatchery marked greater than 85 cm.

**Zone 2 and 3:** June 17th through July 15th, two chinook per day of which only one may be greater than 67 cm. (This measure is to protect Spring 4<sub>2</sub> chinook.)

*Strait of Georgia recreational fishery (Subareas 18-1 to 18-6, 18-9, 18-11, 19-5, and portions of Subareas 29-3, 29-4 and 29-5)*

Subareas 18-1 to 18-6, 18-9 and 18-11, 19-5, and those portions of Subareas 29-3 to 29-5 that lie southeasterly of a line from a point on the east side of Valdes Island located at 49 degrees 05.562'N and 123 degrees 39.989'W then extending approximately 57 degrees True to the North Arm Jetty Light located at 49 degrees 15.440'N and 123 degrees 16.778'W.

**Zone 1:** Commences the Monday following the first Saturday of May each year through June 16th, two chinook per day of which only one may be greater than 67 cm. The minimum size limit is 62 cm. (This measure is to protect Spring 4<sub>2</sub> chinook.) June 17th to July 15th, two chinook per day between 62 cm and 85 cm.

**Zone 2 and 3:** Commences the Monday following the first Saturday of May each year through July 15th, two chinook per day of which only one may be greater than 67 cm. The minimum size limit in these areas is 62 cm in length. (This measure is to protect Spring 4<sub>2</sub> chinook.)

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

Effective January 1 until July 31, there is no fishing for chinook in the above noted areas.

*Fraser River tidal waters (29-11 to 29-17) and the non-tidal waters of Region 2:*

Effective January 1 until July 31 there is no fishing for salmon in the above noted areas.

*Fraser River, Region 3*

Fraser River: (some exceptions listed below under tributaries)

- January 1 through July 15, no fishing for salmon.
- Zone 1: July 16th to August 21st closed to fishing for salmon. August 22 to September 16, four chinook per day, none over 50 cm.
- Zone 2 and 3: early August to September 16, four chinook per day, none over 50cm. (This fishery is targeting Summer 4<sub>1</sub> jack chinook).

*Tributaries*

Zone 1:

- Thompson River from Kamloops Lake downstream to the confluence of the Fraser River: Closed to fishing for salmon until August 21.
- Bridge River, Clearwater and North Thompson Rivers: No fishing for salmon.
- South Thompson River: No fishing for salmon to August 15.

Zone 2:

- Thompson River from Kamloops Lake downstream to the confluence of the Fraser River, July 16 to August 21, four chinook per day, none over 50 cm. Note: No fishing for salmon at the mouths of the Deadman River, the Bonaparte River or the Nicola River.
- Clearwater and North Thompson Rivers: August 1 to August 21, one chinook per day.
- Bridge River/ Fraser River near Bridge River – approx. June 18 – July 6 Sun to Thurs each week, one chinook per day.
- South Thompson River: No fishing for salmon to August 15.

Zone 3:

- Thompson River from Kamloops Lake downstream to the confluence of the Fraser River, July 16 to August 21, four chinook per day, none over 50cm. Note: No fishing for salmon at the mouths of the Deadman River, the Bonaparte River or the Nicola River.
- Clearwater and North Thompson Rivers: August 1 to August 31, four chinook per day, only two over 50 cm.
- Bridge River/ Fraser River near Bridge River – approx. June 18 – July 14 Sun to Thurs; weekly, four chinook per day only one over 50 cm.
- South Thompson River: No fishing for salmon to August 5

*Fraser River, Region 5A*

- January 1 to July 15, no fishing for salmon.
- Zone 1: January 1 to December 31, no fishing for salmon, except after August 10 in Horsefly Bay, no fishing for chinook salmon and September 15th to September 23th on the Quesnel River; no fishing for chinook salmon.

- Zone 2: One chinook per day between 30cm and 77cm at the following dates and locations: July 15 to Sept 01 (Quesnel River); July 25 to Aug 16 (Chilko River); July 25 to Aug 16 (Cariboo River)
- Zone 3: Two chinook per day at the following dates and locations: July 15 to Sept 01 (Quesnel River); July 25 to Aug 16 (Chilko River); July 25 to Aug 16 (Cariboo River)

### *Fraser River, Region 7*

- January 1 to July 15, no fishing for salmon.
- Zone 1: January 1 to December 31, no fishing for salmon, except after August 27 in the Nechako River downstream of the Foothills Bridge, no fishing for chinook salmon.
- Zone 2: One chinook per day between 30cm and 77cm at the following dates and locations: August 15 to August 27 (Nechako River at Prince George); July 15 to Aug 15 (Bowron River)
- Zone 3: Two chinook per day between at the following dates and locations: August 15 to August 27th (Nechako River at Prince George); July 15 to Aug 15 (Bowron River)

Please refer to the Fisheries and Oceans website for the exact descriptions of these opportunities:

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

## ***Fishery Monitoring and Catch Reporting***

### *Marine Waters*

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch survey (iREC) are the main tools used to capture recreational catch and effort information in this fishery. South Coast stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

### *Fraser Watershed*

A recreational creel survey is conducted during periods when study area is open to fishing for salmon. Catch estimates are generated for all salmon species harvested (kept) and released in the study area; the creel survey program concludes on September 30.

Similar to recent years, catch monitoring programs in the Fraser watershed upstream of Alexandria will range from no monitoring to fisher reported catch to highly intensive creel

surveys. The expected effort and catch in a fishery, harvest rate, potential by-catch, and any biological sampling requirements will be taken into account when planning the catch monitoring program for these areas.

### 13.1.4.5.3 Commercial Fisheries

There are no directed commercial chinook fisheries in Southern Inside marine waters and chinook non-retention is in place in most times and areas.

#### *Allocation*

Table 13.1-13: Commercial Allocation Implementation Plan for the 2015–2019 period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South- Inside	11 to 20, 29	1.0% <sup>e</sup>	3.0%	90.0% <sup>f</sup>	0.0%	6.0%

Notes on chinook allocations (south):

<sup>e</sup>subject review pending completion of southern BC chinook initiative

<sup>f</sup>directed Fraser chinook fishery

#### *Southern ISBM Commercial Chinook Fisheries*

Due to concerns for Lower Strait of Georgia stocks, no directed chinook fisheries are planned for 2017 and there will be non-retention in fisheries directed at other stocks.

##### *Area B Seine*

There will be no directed chinook fisheries and non-retention is in effect.

##### *Area D Gill Net*

There will be no directed chinook fisheries and non-retention is in effect.

##### *Area E Gill Net*

There will be no directed chinook demonstration fisheries in the Fraser River in 2017, due to the poor outlook for most Fraser chinook stocks and the anticipated insufficient availability of commercial sockeye allocation to account for sockeye by-catch impacts of this fishery. If the pre-season forecast for Fall 4<sub>1</sub> chinook is well below the lower benchmark there will be no retention of chinook permitted during chum directed fisheries.

##### *Area H Troll*

There will be no directed chinook fisheries and non-retention is in effect.

### *Fishery Monitoring and Catch Reporting*

There is a mandatory harvest log and in-season reporting program for catch information for all commercial fisheries.

- Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest or electronic transmission with an electronic harvest log (E-log).

Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type. Additional requirements are in place for providing biological samples as required.

### *Southern ISBM First Nations Commercial Chinook Harvest*

#### *Demonstration Fisheries – RWS RiverFresh Wild Salmon Ltd – In-River Chinook Fisheries*

RWS RiverFresh Wild Salmon Ltd (RiverFresh) is a Commercial Fishing Enterprise incorporated in September 2012 as a partnership between four Secwepemc communities of the Shuswap Nation Tribal Council. For 2017 the Secwepemc Fisheries Commission (SFC) will continue to function as the operational planning and business management team on behalf of RiverFresh. SFC has been coordinating demonstration fisheries and conducting business feasibility analyses since 2005. SFC will build on previous year’s experiences and expand their knowledge and abilities participating in larger scale fisheries. Fishery expectations are to target South Thompson 41 chinook salmon with retention of pink and sockeye to be taken as by-catch.

- **Participants:** Secwepemc Fisheries Commission and Skeetchestn Indian Band and other partners to be determined
- **Location of Fisheries:** Kamloops Lake
- **Gear Type:** Chinook fishery – 8” mesh set gill net
- **Time Frame:** NOTE: All fishery time frames are estimates and final dates will be determined according to in-season migration timing information
- **Chinook Fishery:** Fishery will target late summer South Thompson (41); potential start date is August 22 ending Sept. 23.
- **Allocation:** Chinook fishery – the initial chinook allocation will be expressed as a percentage (%) share of Commercial Total Allowable Catch (CCTAC) of Fraser chinook based on commercial licences set aside from the Area F troll fishery and

accounting for stock composition. The allocation will be determined based on pre-season information on the Area F allocation in the Northern BC AABM fishery and stock composition of south Thompson chinook. Potential changes may be made in-season if the Area F AABM TAC is revised or to account for potential changes from in-season stock identification information if it is available from the Albion test fishery.

- **Monitoring Plan:** Fishery will be monitored using designated landing sites, electronic logbook system (ELOG) and independent validation of catch at the processing plant and independent validation of releases when required.

#### 13.1.4.5.4 ESSR Fisheries

ESSR fisheries may occur at DFO hatchery facilities that have a surplus of returning hatchery chinook. In past years, ESSR fisheries have taken place at:

- Capilano Hatchery – Mainland BC
- Chilliwack River Hatchery – Lower Fraser

### 13.1.5 OKANAGAN CHINOOK

#### 13.1.5.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

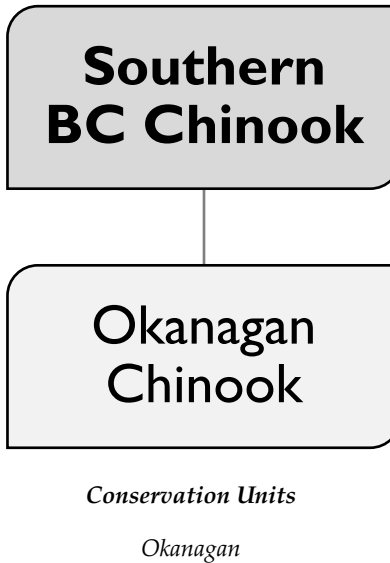


Figure 13.1-6: Overview of Okanagan Chinook

The Okanagan chinook population is the last remaining Columbia basin stock that resides within Canada and it is geographically and genetically distinct from chinook populations elsewhere in Canada. The Canadian Okanagan population consists of anadromous salmon that migrate to and from the Pacific Ocean through the Columbia River to Canadian portions of the Okanagan River. The annual number of chinook spawning in Canada is less than 50 adults.

The Canadian portion of the Okanagan chinook population likely has a life history similar to the life history of other Upper Columbia River summer stocks.

#### 13.1.5.2 STOCK ASSESSMENT INFORMATION

This stock is listed as Threatened by the Committee of Endangered Species and Wildlife in Canada (COSEWIC) however it was not listed under the Species at Risk Act. The 10 year reassessment of the COSEWIC listing is currently underway and should be completed sometime in 2017.

The WSP biological status of Okanagan chinook was assessed as in the red zone by CSAS. The Science Advisory Report is available at:

[http://publications.gc.ca/collections/collection\\_2016/mpo-dfo/Fs70-6-2016-042-eng.pdf](http://publications.gc.ca/collections/collection_2016/mpo-dfo/Fs70-6-2016-042-eng.pdf)

#### **13.1.5.2.1 Pre-season**

No pre-season information is available specific to Okanagan chinook however Okanagan chinook are part of the Columbia River Summer chinook aggregate of which the United States produces a formal forecast.

#### **13.1.5.2.2 In-season**

Preliminary indications of returns can be done via adult chinook counts past Zozel dam at the outlet of Osoyoos Lake. A high degree of uncertainty exists with this count as an unknown number of fish likely drop back downstream and spawn in the United States portions of the Okanagan River and/or the Similkameen River. Spawning ground assessments are done on an annual basis by the Okanagan Nation Alliance fisheries staff and are comprised of visual / dead recovery surveys to determine spawner abundance in the Okanagan River and Skaha Lake system.

#### ***Decision Guidelines and Management Actions***

This stock likely has the same life history pattern as other Upper Columbia summer chinook populations and could be intercepted in fisheries targeting these stocks. In the terminal area in Canada (Osoyoos Lake), this stock may be intercepted in FSC, commercial and recreational sockeye directed fisheries. There are no Canadian directed fisheries on this stock.

#### **13.1.5.3 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO FISHERIES**

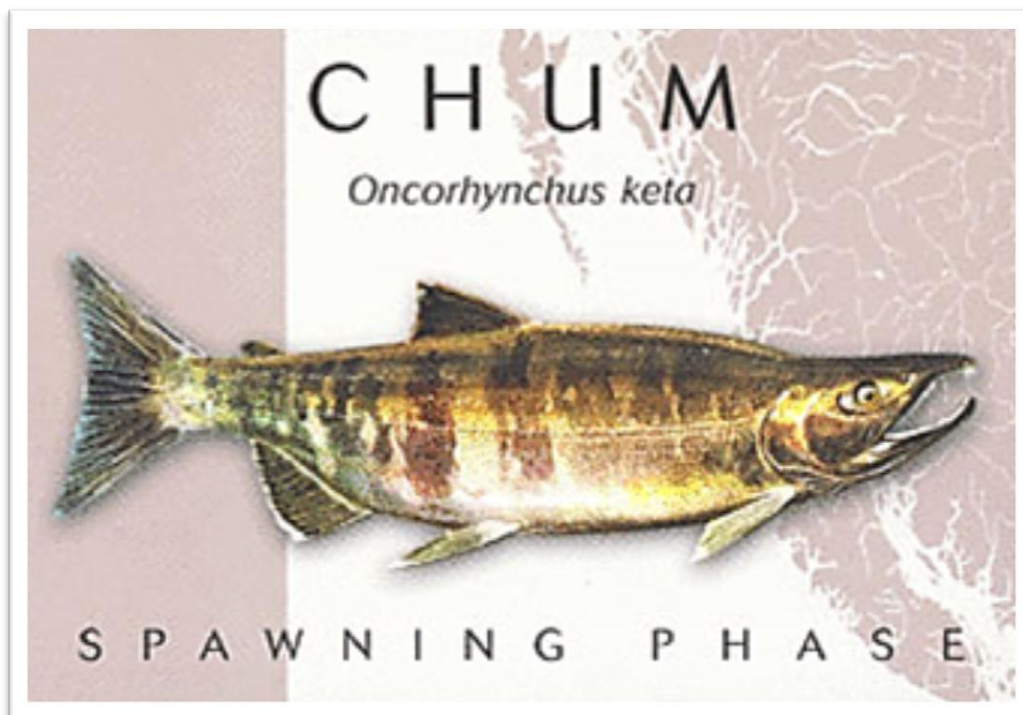
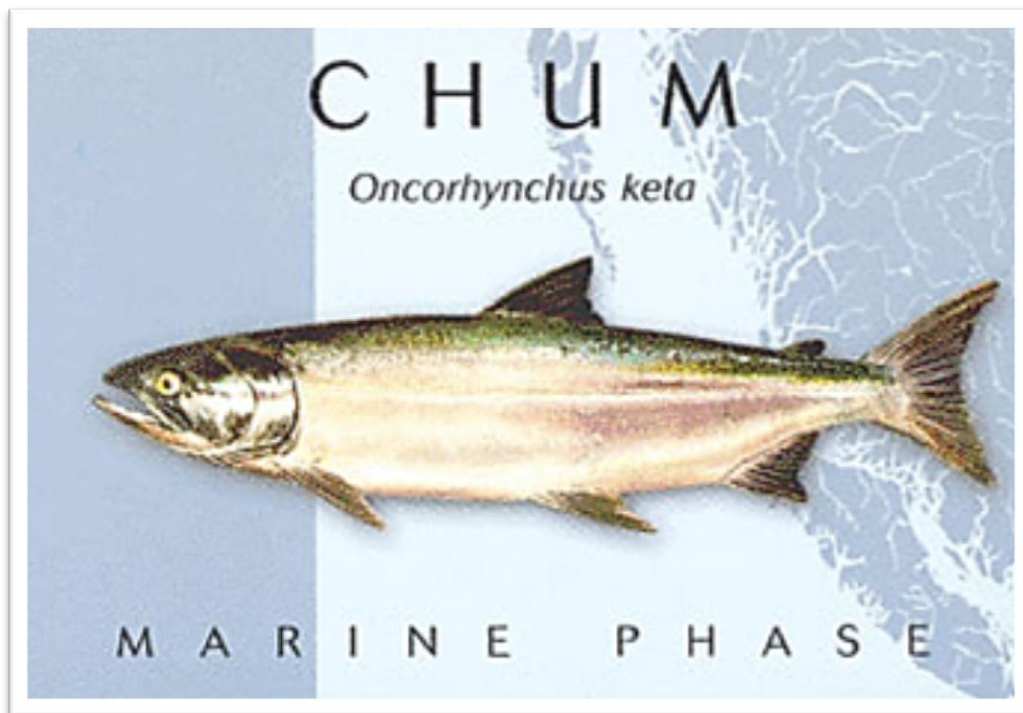
Non-retention measures are in effect in Canadian fisheries.

#### **13.1.5.4 ALLOCATION AND FISHING PLANS**

There are no directed fisheries on this stock



## 13.2 SOUTHERN CHUM SALMON FISHING PLAN



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### 13.2.1 SOUTHERN CHUM - OVERVIEW

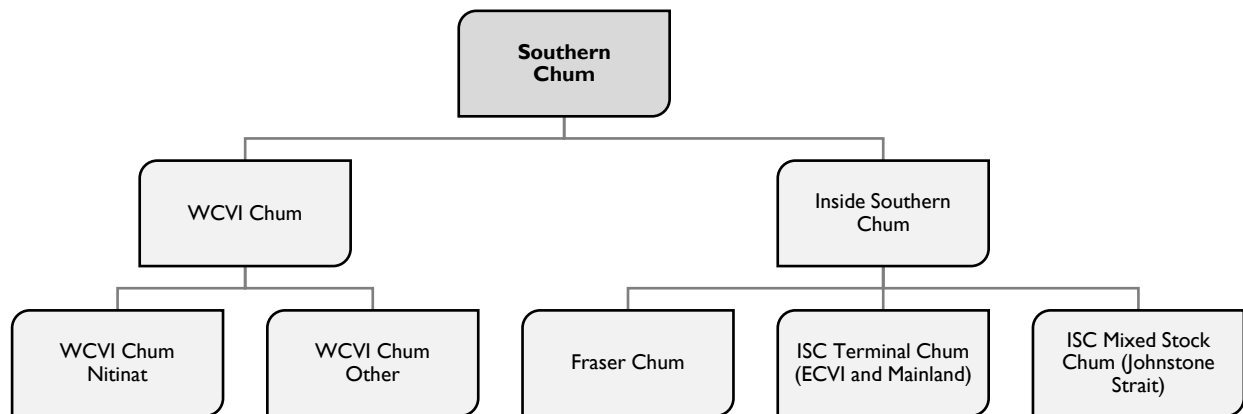


Figure 13.2-1: Overview of Southern Chum

#### SOUTHERN CHUM ENHANCEMENT INFORMATION:

The major DFO operation enhancement facilities that produce chum are:

- **BC South Coast:**
  - Big Qualicum River hatchery
  - Conuma River hatchery
  - Little Qualicum River hatchery
  - Nitinat River hatchery
  - Puntledge River hatchery
  - Quinsam River hatchery
- **BC Lower Fraser:**
  - Capilano River hatchery
  - Chehalis River hatchery
  - Chilliwack River hatchery
  - Inch Creek hatchery
  - Tenderfoot Creek hatchery

- Weaver Spawning Channel

The information available at the link below addresses production from major DFO Operations (OPS) facilities, contracted Community Economic Development Program hatcheries (CEDP), larger or more complex Public Involvement Projects (Designated Public Involvement or DPI) operated by volunteers, and Aboriginal Fisheries Strategy (AFS). Not included are smaller Public Involvement Projects (PIPs) that are focused toward stewardship, stock rebuilding or educational activities and do not release large numbers of fish that would affect fisheries.

There are two datasets available: Post-Season Production from the 2015 brood year (i.e. 2016 releases, and numbers on hand for 2017 release), and the Production Plan, which includes proposed targets for the upcoming 2017 brood year.

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

### 13.2.2 INSIDE SOUTHERN CHUM - OVERVIEW

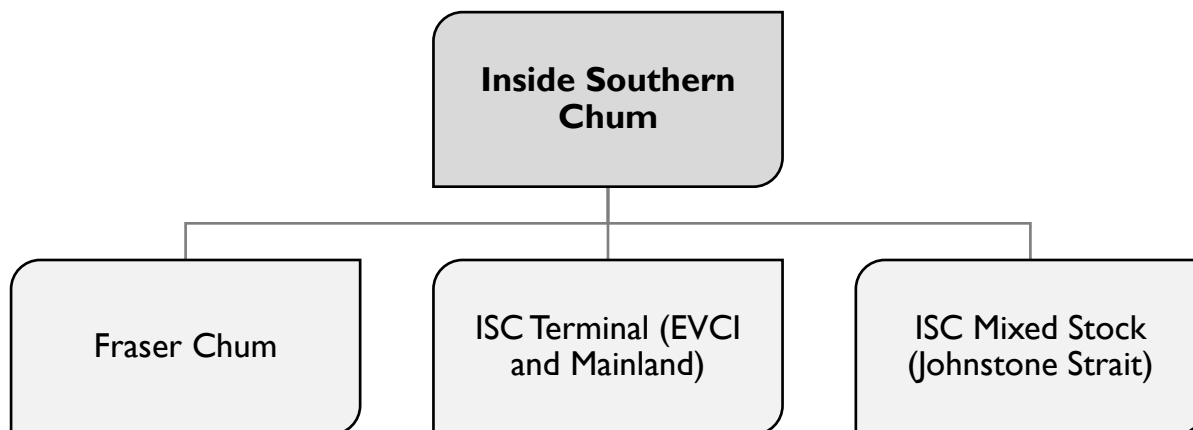


Figure 13.2-2: Overview of Inside Southern Chum

Inside Southern Chum (ISC) salmon spawn throughout Inner South Coast and in the Fraser River watershed, with Fraser stocks typically making up a significant portion of the returning abundance. ISC are managed in two distinct fall timed (mid-September into December) groups: Fraser Chum with two Conservation Units (CU) and ISC Terminal with 7 CUs; with ISC fisheries classified as ISC Mixed Stock (Johnstone Strait), ISC Terminal (EVCVI and Mainland), and the Fraser River ([Figure 13.2-2](#)). In addition to these fall timed populations, there are summer timed chum within the ISC which have distinct timing (late July through to mid-September). There are no directed fisheries on these populations and they are passively managed as by-catch in Fraser directed sockeye and pink fisheries.

The Johnstone Strait mixed-stock fishery targets the ISC aggregate and is managed to a 20% exploitation rate. Fisheries target individual stocks in terminal fisheries throughout the ISC area and in the Fraser River. ISC terminal fisheries are managed to spawning goals at a more local level than the conservation units identified under the Wild Salmon Policy. The Fraser River terminal chum fishery is managed under an abundance-based harvest plan built around an aggregate spawning goal and a terminal run size specified in the Pacific Salmon Treaty.

Assessment of Inside Southern Chum relies on in-season test fisheries (in Johnstone Strait and the Fraser River) which provide indications of relative chum abundance, migration timing, stock compositions, and other biological information. Terminal river escapements for Inside Southern Chum populations are typically estimated through visual surveys of index systems with some higher quality estimates from other key systems (i.e. Harrison River chum mark recapture and DIDSON fixed site programs on the Cowichan and Nanaimo Rivers). Coverage

of visual surveys has declined since the 1980s in terms of number of surveyed systems, but the remaining surveys still cover most of the production for the aggregate.

Hatchery programs for ISC are mostly done to supplement harvest (Chehalis, Chilliwack, Inch, Weaver channel, Big Qualicum, Little Qualicum, Puntledge), but there are also some rebuilding programs (e.g. Nimpkish Chum).



### 13.2.3 FRASER CHUM

#### 13.2.3.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

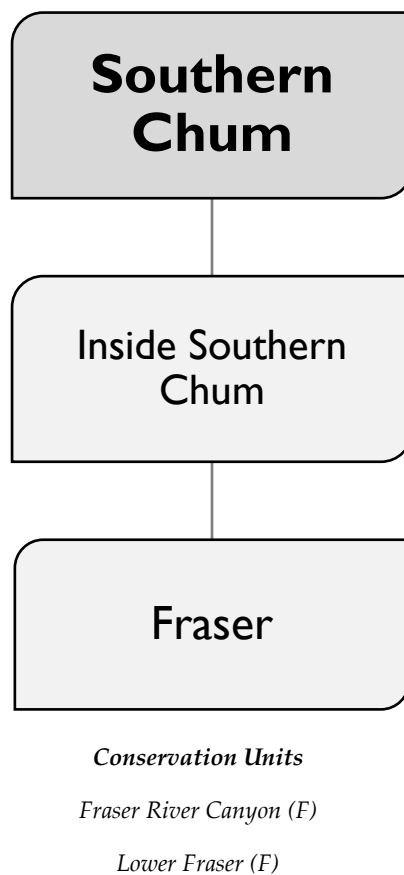


Figure 13.2-3: Overview of Fraser Chum

The Fraser Chum Management Unit includes all chum which return to spawn in the Fraser River main stem and Fraser River tributaries and is comprised of two WSP Conservation Units: Lower Fraser chum and Fraser Canyon chum. The vast majority of chum returning to the Fraser River are part of the Lower Fraser chum CU, and spawn in the Fraser Valley downstream of Hope. Major spawning aggregations occur within the Harrison River (including Weaver Creek and Chehalis River), the Stave River and the Chilliwack River. No spawning locations have been identified upstream of Hells Gate. Chum salmon return to the Fraser River from September through December, with the typical peak of migration through the lower river occurring from mid to late October.

Chum-directed fisheries which harvest Fraser chum include mixed-stock fisheries in Johnstone Strait, mixed-stock fisheries in the U.S. Strait of Juan de Fuca and San Juan Islands, and Fraser chum-targeted fisheries occurring within the Fraser River.

Fraser chum are assessed in-season using Albion test fishery data to estimate chum abundance, migration timing, and other biological information. Escapement estimates provided post-season rely on visual surveys of index systems, as well as a mark-recapture estimate in the Harrison River. Coverage of visual surveys has declined since the 1980s in terms of number of surveyed systems, but the remaining surveys still cover most of the key production areas for Fraser Chum.

DFO hatchery programs in the Lower Fraser River produce chum to supplement harvest (Chehalis, Chilliwack, Inch, and Weaver channel), but hatchery production is also used for population rebuilding, such as helping to establish spawning populations in areas that have benefitted from habitat improvement projects. Chum are also produced at smaller-scale community-run hatcheries for educational and stewardship purposes.

### **13.2.3.2 STOCK ASSESSMENT INFORMATION**

#### **13.2.3.2.1 Pre-season**

Formal quantitative forecasts are not prepared for Fraser River chum, but the qualitative Salmon Outlook for 2017 is “abundant”. Returns in 2017 will be based largely on the brood from the 2013 escapement; escapement in 2013 was estimated at 980,000 spawners. Directed fisheries are likely for the 2017 season, subject to in-season assessments.

The preliminary estimate of spawning escapement in 2016 was 1.9 million chum, but this value is expected to increase slightly as estimates from some smaller systems are still outstanding. The Oct. 26, 2016 in-season terminal return estimate was 2.0 million chum salmon (99% probability that the run would exceed the escapement goal).

#### **13.2.3.2.2 In-season**

Terminal abundance of Fraser River chum salmon is estimated based on in-season information on chum catch from the Albion Chum test fishery and a Bayesian model that incorporates prior information on run size and migration timing.

The Albion Chum test fishery has operated annually since 1979 on the lower Fraser River in Area 29 at Albion (near Fort Langley). The test fishery is conducted with a drifted gill net at a specific site near the old Albion ferry crossing. The test fishery begins in early September of each year, and usually fishes until the end of November. On each day of operation, the boat

fishes two sets, timed to coincide with the daily high tide. The Albion Chum test fishery normally fishes every other day from September 1st through October 20th, alternating days with the Albion chinook test fishery (which fishes an 8" mesh gill net during this period). From October 21st through the end of November, the Chum salmon test fishery operates daily. The gill net used in the Albion Chum test fishery is 150 fathoms long, constructed from uniform 6.75" mesh.

The first in-season estimate of terminal Fraser River Chum salmon abundance is typically provided in mid-October. Decisions regarding fishing opportunities are based on the Albion test fishery in-season information.

Table 13.2-1: Planned Chum Test Fisheries

Test Fishery	Proposed Proponent	Test Fishery Purpose	Potential Dates (preliminary <sup>a</sup> )	
			Start	End
Albion GN	DFO	Fraser Chum	01-Sep	23-Nov

<sup>a</sup> All dates subject to change based on in-season factors.

### 13.2.3.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Management of Fraser River chum fisheries is based upon in-season information. As described in detail in the previous section, Albion test fishing data will be used to identify the abundance of chum salmon returning to the Fraser River. The first in-season run strength assessment is announced in mid- October once the peak of the return has been identified.

The in-season estimate of abundance for Fraser River Chum is used for international as well as domestic management, as outlined in Chapter 6 of the Pacific Salmon Treaty. If Fraser River Chum in-season abundance is estimated to be less than 900,000, the Canadian commercial chum salmon fisheries within the Fraser River and in associated marine areas (Area 29), will be suspended. Catch will also be restricted in U.S. Areas 7 and 7A if a terminal Fraser Chum return of less than 900,000 is identified.

Table 13.2-2: Summary of key decision points for the management of the Fraser River chum fishery

Run Size	Harvest Plan	Lower Fraser First Nations	Commercial	Recreational

Run Size	Harvest Plan	Lower Fraser First Nations	Commercial	Recreational
<500,000 in Fraser	<10%	Limited (reduced hours and days/week fishing)	Closed	Mainstem Fraser River closed, restricted openings on tributaries
500,000 to 800,000 in Fraser	Directed fisheries limited to FSC	Normal	Closed	Mainstem Fraser River closed, restricted openings on tributaries
800,000 to 916,000 in Fraser	Catch not to exceed 91,800 (82,800 First Nations and 9,000 test fishing)	Normal	Closed	Mainstem Fraser River open, restricted openings on tributaries
916,000 to 1,050,000 in Fraser	Commercial catch not to exceed 10% for chum.	Normal	Open (35,000-105,000)	Open
>1,050,000 in Fraser	Commercial catch not to exceed 15% for chum.	Normal	Open (105,000 plus)	Open

Commercial fishing opportunities (including First Nations Economic Opportunities) are contingent upon the identification of a commercial TAC:

- At run sizes less than 916,000, no commercial TAC is available.
- At run sizes from 916,000 to 1,050,000, the commercial TAC is a maximum of 10% of the run size. A minimum commercial TAC of 35,000 chum has been identified as a requirement to support Area E gill net fishery openings.
- At run sizes greater than 1,050,000, the commercial TAC is a maximum of 15% of the run size.

Commercial gillnet fisheries within the Fraser River are constrained in their ability to access this TAC by the requirement to minimize impacts on Interior Fraser River steelhead. The current IFMP Interior Fraser River steelhead objective of “protecting 80% of the Interior Fraser River Steelhead stocks from commercial gill nets with a high degree of certainty” provides a very small temporal window in which to schedule all commercial gillnet fisheries, while concurrently providing First Nations access to chum for FSC.

The Department intends to work with participants in the Fraser commercial chum fisheries, including First Nations, to outline considerations that will guide planning and scheduling of in-season commercial fishery openings.

Specific details of the fisheries and target allocations will be determined as part of the in-season planning process. The involvement of the Area B seine fleet in the Fraser River chum fishery is dependent on the Area B Seine Harvest Committee developing and implementing a limited participation fishing plan that limits the harvests of chum to identified target allocations.

The recreational fishery within the Fraser River is usually open from mid-July or early August to December 31 annually. In-season information is used to determine fishing opportunities and is also dependent on the estimated Fraser River chum run size:

- At run sizes below 800,000 the recreational fishery on the main stem Fraser will be closed and openings on tributaries would be limited to those where a surplus is likely to occur. Surpluses may be identified on hatchery enhanced systems.
- At run sizes from 800,000 to 916,000 the recreational fishery will remain open on the main stem Fraser. Openings on tributaries would be limited to those where a surplus was likely to occur.
- At run sizes greater than 916,000, the recreational fishery will remain open in the Fraser River main stem and tributaries.

First Nations FSC fisheries will be initiated in early October, after most of the Interior Fraser coho return has moved through the Lower Fraser River. If in-season information indicates that the Fraser chum return is less than 500,000, FSC fisheries targeting Fraser chum will be limited to a harvest rate of less than 10%.

Implementation of the WSP will require the development of lower and upper escapement “benchmarks” and associated biological status zones for Fraser River chum. When these benchmarks are identified, corresponding decision breakpoints and management actions may be reviewed. Analyses have not yet been initiated on benchmark identification for Fraser River chum.

#### **13.2.3.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO FRASER CHUM FISHERIES**

Chum fisheries within the Fraser River will be managed to minimize by-catch of co-migrating stocks of concern, including Lower Fraser River coho, Interior Fraser River coho and Interior Fraser River steelhead. For chum-directed fisheries within the Fraser River, a “window closure” has been the primary tool applied in First Nations, commercial, and recreational fisheries to

protect Interior Fraser River Coho from non-selective fishing gear (e.g. gill nets, rod and reel fishing with bait). Selective fishing gear (e.g. beach seines, rod and reel fishing with no bait, dip nets) has been allowed to fish within these window closure dates, which span the period from early September to mid-October in the Lower Fraser River. Additional details on Interior Fraser Coho management are outlined in the Southern Coho Species Plan section (13.3) of Section 13.

The current approach for managing fisheries which impact Interior Fraser River steelhead has been developed jointly by DFO and the Province of British Columbia. In 2017, management actions will continue to protect 80% of the Interior Fraser River steelhead run with a high degree of certainty. In order to meet this objective, commercial gill net opportunities will be delayed to avoid the majority of the Interior Fraser steelhead migration period. Other factors, including possible implementation of additional precautionary measures in gill net fisheries to protect Interior Fraser River steelhead will be taken into account in determining the specific timing of fisheries.

All gears are required to use fishing methods to avoid/reduce steelhead encounters and minimize steelhead mortality. For Area E chum fisheries, this includes using shorter nets and reducing soak times - practices which have been in place since 2002. The use of revival tanks is also mandatory for commercial fisheries.

The Department will continue to discuss with harvesters and with the Province potential strategies to increase flexibility in the conduct of fisheries to address concerns related to safety, improved monitoring and access to available allocations, while achieving a high level of protection for co-migrating stocks of concern.

### **13.2.3.5 ALLOCATION AND FISHING PLANS**

#### **13.2.3.5.1 First Nations Fisheries**

##### *Food Social and Ceremonial Fisheries*

FSC fisheries for Fraser chum are culturally significant for First Nations communities in the Lower Fraser River. Current proposed communal licence harvest targets for these communities total 91,300 Fraser chum.

Refer to Section 10.2 for [Table 10.2-1](#) - Communal Licence Harvest Target Amounts for Southern BC/Fraser River First Nations Fisheries.

First Nations will be provided FSC fishing opportunities within the Fraser River as the Interior Fraser River coho window closure ends in each area, beginning in early October. At run sizes below 500,000 chum, FSC fishing opportunities may be reduced. For planning purposes, returns

less than 500,000 will be considered to be a conservation concern. This value may be revised in the future based on subsequent analyses.

### ***Fishery Monitoring and Catch Reporting***

In the Lower Fraser, catch monitoring programs are managed through Activity Funding or Comprehensive Fisheries Agreements. Monitoring programs implemented vary between Nations but typically include landing site or vessel based collection of catch and effort information paired with validation of effort by vessel patrols or overflights.

### ***Treaty Fisheries***

#### ***Tsawwassen Fisheries (Domestic)***

As per the Tsawwassen Fisheries Operation Guidelines (TFOG), each year the Tsawwassen First Nations (TFN) will develop a Tsawwassen Annual Fishing Plan (TAFP) for the harvest of salmon as per the Tsawwassen First Nations Final Agreement. The TAFP will include the Tsawwassen preference for stocks and species to be harvested, locations, timing, access to specific runs, method of harvest, catch monitoring and reporting, enforcement, etc. The TAFP is then presented to the JFC for their review. The JFC is made up of representatives of Canada (DFO), Province of BC and the Tsawwassen First Nations. The JFC considers the TAFP in making its recommendations to the Minister of Fisheries and Oceans about the issuance of Harvest Document(s) which in effect licence the fishing of FSC salmon during the season. Multiple harvest documents will be issued over the course of a season for each salmon species. Harvest Documents may include: species and quantity, use of fish, gear type, dates and times, area, designations, monitoring and reporting, etc.

The domestic allocation for chum salmon under the Tsawwassen First Nations Final Agreement will be 2.58% of the Terminal Surplus of Fraser River chum salmon to a maximum of 2,576 Fraser River chum salmon.

### ***Fishery Monitoring and Catch Reporting***

The monitoring program for Tsawwassen Domestic fisheries includes fisher logs supplemented by validations of catch through on-water patrols and/or observations of landings and effort through on-water patrols. Details of monitoring programs in place can be found in the Tsawwassen Fisheries Operational Guidelines.

#### **13.2.3.5.2 Recreational Fisheries**

Chum retention in the Fraser River is usually open from mid-July or early August until December 31. In the tidal portion of the Fraser River (Area 29 downstream of the CPR bridge at

Mission), the daily limit is four chum. In non-tidal portions of the Fraser River (Region 2, from Mission to the Hope Bridge), the daily limit is two chum. The fishery does not open upstream of the Hope Bridge in order to reduce impacts on Fraser River Canyon chum. Fishery openings are published on the recreational fisheries website, <http://www.bcsportfishingguide.ca/> updates are provided in-season via fishery notices.

<http://www.bcsportfishingguide.ca>

### *Fishery Monitoring and Catch Reporting*

A recreational creel survey is conducted in the lower Fraser River in order to estimate catch and releases all salmon species during the time and area surveyed. Typically, the creel survey in the Lower Fraser concludes on September 30 which is prior to the peak Fraser River chum migration period.

#### **13.2.3.5.3 Commercial Fisheries**

The commercial licence groups that can access Fraser chum in the terminal area (i.e. Area 29) are Area E, Area H and Area B. Additionally, Fraser chum are harvested in mixed stock fisheries in the Johnstone Strait by a number of commercial licence groups (see Johnstone Strait Mixed Stock Chum Section [13.2.5](#)). Other commercial opportunities to harvest Fraser Chum include economic opportunity fisheries for First Nations in the Lower Fraser River and demonstration fisheries for First Nations and commercial licence groups.

### *Allocation*

The following table describes the overall allocation for all Inside Southern chum, which includes Fraser Chum (refer to [Figure 13.2-2](#) in Section [13.2.2](#) - Inside Southern Chum). These allocations are used to balance overall harvest amounts in the JS Mixed stock, ECVI and mainland, and Fraser River commercial fisheries.

Table 13.2-3: Commercial Allocation Implementation Plan for the 2015–2019 period.

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Inside Chum	11 to 19, 28 to 29	63.0%	19.2%	12.0%	0.0%	5.8%



### *Fraser Commercial Chum Fisheries*

#### *Area B and Area E (Area 29)*

Gill net and seine fishing opportunities for chum salmon will be confirmed in-season, based upon in-season assessment of the abundance of the chum salmon returns and management objectives for Interior Fraser River steelhead (see Section [13.2.3.4](#)).

Opportunities for retention of hatchery marked (adipose clipped) coho by-catch may be considered in lower Fraser area commercial chum fisheries in late October and November.

#### *Area H Troll (Area 29)*

Mid to Late October/Early November - Area 29

Potential fishing opportunities for chum in Area 29 will be determined in-season based on in-season abundance assessments.

### *Fishery Monitoring and Catch Reporting*

Fishery Monitoring and Catch Reporting includes the following:

- Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest log or electronic transmission with an electronic harvest log (E-log) is required in all commercial fisheries. (Catch Reporting requirements specific to each licence group and are detailed in the conditions of licence for each gear type).
- Vessel counts conducted to verify number of vessels (effort) in each Area E gill net opening.
- On-grounds charter patrol and DFO catch monitoring coverage in Fraser River during each Area E gill net openings.
- Roving on-water Observer coverage in each Area E gill net opening to conduct net haul observations and gather independent information on encounters of non-target species.
- Partial independent on-board/at-sea observer coverage for Area B seine fisheries.
- Dockside validation for Area B seine fisheries.

## *Demonstration Fisheries*

### *E Modified Net (Shallow Seine) Chum Demonstration Fishery*

The Area E Harvest Committee has submitted a demonstration fishery proposal for chum by shallow seine net under the Commercial Salmon Allocation Framework process. See Appendix 6 for more details.

### *Area B Seine Area 29 Chum Fishery*

The Area B Harvest Committee has expressed an interest in continuing to further explore an Area 29 directed chum seine fishery similar to that of 2015.

- **Region:** South Coast
- **Participants:** All Area B licence holders
- **Location of Fishery:** The fishing area that will be considered is portions of Area 29 off the Fraser River mouth
- **Gear Type:** Seine gear using both, regular seine and shallow seine nets, the use of power skiffs is permitted and selective fishing measures are mandatory; specified by licence conditions.
- **Time Frame:** The fishery would occur between mid-October and early November
- **Allocation:** Fishing opportunities will be based on catch levels in relation to the overall allocation of Inside Southern chum |

The target species is chum, retention of pink is permitted. There will be non-retention of sockeye, coho, chinook and steelhead.

- **Monitoring Plan:** Start, end, pause and daily catch reports will be required by phone-in or electronic logbook. There will a requirement for observer coverage on vessels participating in this fishery. In addition to monitoring catch, observers will be available to collect any DNA sampling that is required and identified.

### *Area B Seine Fraser River Chum Demonstration Fishery in the Lower Fraser River*

The purpose of this experimental fishery project is to demonstrate the effectiveness of harvesting Fraser River chum salmon within the confines of the Fraser River employing the selective capabilities of a purse seine, and secondly to capitalize on the ability to continue the harvest of chum salmon that may not be available in marine areas, due to other constraints.

- **Region:** Lower Fraser River Area

- **Participants:** All Area B licence holders will be eligible however as this is an experiment; effort controls will be in place to limit participation to a maximum of eight to ten vessels fishing on any given day
- **Location of Fishery:** Area 29 in-river; Area B has indicated there are a number of potential locations around New Westminster, Glenrose, the Cement Plant and down to the Deas Tunnel that would be suitable for seining and would for the most part, be out of the shipping lanes
- **Gear Type:** Seine gear using shallow seine nets, the use of power skiffs and selective fishing measures are mandatory and are specified by licence conditions
- **Time Frame:** The fishery would occur between mid-October and early November.
- Consideration of other fisheries in the area will be taken into account when planning Area B in-river fishing activities. Specific fishing times would be confirmed in-season through an integrated planning process. The amount of available fishing days for this experiment will be confirmed in- season.
- **Allocation:** Fishing opportunities will be based on catch levels in relation to the overall allocation of Inside Southern chum

The target species is chum, retention of pink is permitted. There will be non-retention of sockeye, coho, chinook and steelhead.

- **Monitoring Plan:** Start, end, pause and daily catch reports will be required by phone-in or electronic logbook. There will a requirement for observer coverage on all vessels participating in this fishery. In addition to monitoring catch, observers will be available to collect any DNA sampling that is required and identified.

#### 13.2.3.5.4 Fraser First Nations Commercial Chum Harvest

##### *Demonstration Fisheries*

##### *2017 Harrison-Fraser River Demonstration Fishery*

- **Region:** Lower Fraser Area
- **Participants:** Sts'ailes and Scowlitz First Nations
- **Location of Fishery:** The waters of the Harrison River located between the outlet of Harrison Lake downstream to the orange boundary signs labelled 'Fishing Boundary HFA' approximately 1000 meters below the CN Railway Bridge; and

- The waters of the Fraser River bounded on the west by a line from a white boundary sign on the upstream side of the Fraser River at the mouth of the Sumas River, thence true north to a white boundary sign on the opposite shore and bounded on the east by the downstream side of the bridge across the Fraser River at Agassiz.
- **Gear Type:** Chum: Beach seines only. Beach seines not to exceed a maximum mesh size of 2 ¾ inches and a length of 50 fathoms or 360 feet.
- **Allocation:** Chum: To be determined but will be expressed as a percentage (%) share of the Fraser River Terminal Commercial Total Allowable Catch (FRTCTAC) utilizing relinquished licences from the PICFI program
- **Time Frame:** All fishery time frames are estimates and final dates will be determined according to in-season migration timing information.
  - Chum: Mid–October to mid-November
  - Fraser Chinook: Fraser chinook by-catch retention may be permitted subject to abundance.
  - Hatchery Marked Coho: Hatchery-marked coho by-catch retention may be permitted subject to abundance.
- **Monitoring Plan:** During any beach seining activity, a Monitor will be present with every beach seining crew during all fishing activity and provide set by set updates to the Sts’ailes Fishery Manager, before the beach seine crews deploy their next set to ensure there is TAC available. The Sts’ailes Fishing Authority will collect all catch statistics via these monitors and report this information to DFO immediately after the fishery closes.

### *Harvest Agreement Fisheries*

#### *Tsawwassen Fisheries (Commercial)*

In addition to the allocation of salmon for domestic harvests, TFN have an allocation for commercial catch outside of the Treaty as identified via the “Tsawwassen First Nations Harvest Agreement”. The allocation in the Harvest Agreement (HA) does not affirm Aboriginal or Treaty rights. Fishing undertaken via the HA will be comparable to the requirements of the current Fraser River commercial fishery (First Nations economic opportunity (EO) fishery), or a general commercial fishery (e.g. Area E). Tsawwassen fishers will be expected to operate under the same rules that apply to other fishers taking part in that Fraser River commercial fishery. TFN may also prepare a HA Fishing Plan and give to the JFC for review prior to the season’s commencement. Each year that the Minister authorizes a Fraser River commercial fishery in the

Tsawwassen fishing area, or a general commercial fishery, the Minister will issue a communal commercial fishing licence for the Tsawwassen First Nations. The JFC set up by the Tsawwassen Final Agreement will conduct a post season review.

Chum salmon allocation under the Harvest Agreement:

- 3.27% of the Terminal Commercial Catch for Fraser River chum salmon for that year

### *Fishery Monitoring and Catch Reporting*

The monitoring program for Tsawwassen Harvest Agreement fisheries includes a mandatory landing program (MLP) using 2-4 landing sites at which all fishers must land and have their catch validated and is supplemented by effort validation by vessel patrols. If selective gear is used (e.g. purse seines) monitors are to be present during all fishing activity to record catch information on a set-by-set basis.

### *Economic Opportunity Fisheries*

Negotiations to provide economic opportunities to First Nations the lower Fraser River are expected similar to recent years. Economic opportunity fisheries will be conducted under agreements that specify provisions for planning fisheries, allocations, catch reporting requirements as well as roles and responsibilities regarding the management of the fishery. The Department's general approach is that Aboriginal commercial harvest opportunities are managed using the same harvest decision guidelines as the commercial fishery and opportunities are only afforded if commercial TAC is available.

Aboriginal commercial harvest opportunities may be implemented with different times, areas, gears and regulations consistent with the overall management approach for the commercial fishery. In the lower Fraser, DFO will work with First Nations and commercial harvesters to develop an approach to an integrated commercial fishery based on the principles of transparency, accountability and collaboration.

In addition to economic opportunity fisheries, the Department continues to support the development of inland fisheries with First Nations. For 2017, as in previous years, the focus with First Nations will be on experimenting mainly in terminal areas on abundant stocks. These fisheries will be conducted separately from FSC fisheries, under the same harvest decision guidelines as the commercial fishery and fish harvested will be off-set with licences that have been voluntarily relinquished from the commercial fishery.

### *Fishery Monitoring and Catch Reporting*

While details will be finalized prior to fisheries occurring, the monitoring programs in place in recent years are as follows:

- Non-selective (e.g. gill-net) EO fisheries have been monitored using a mandatory landing program (MLP) with packer and land-based sites where all fishers must land and have their catch validated. This program is supplemented by effort validation by vessel patrols and overflights.
- Selective (e.g. beach seine and purse seine) EO fisheries have required monitors to be present during all fishing activity to record catch information on a set-by-set basis.

#### **13.2.3.5.5 ESSR Fisheries**

ESSR fisheries may occur at DFO hatchery facilities that have a surplus of returning hatchery chum. In past years, ESSR fisheries have taken place at:

- Chehalis Hatchery – Lower Fraser
- Inch Creek Hatchery – Lower Fraser
- Chilliwack River Hatchery – Lower Fraser

## 13.2.4 INSIDE SOUTHERN CHUM TERMINAL FISHERIES

### 13.2.4.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

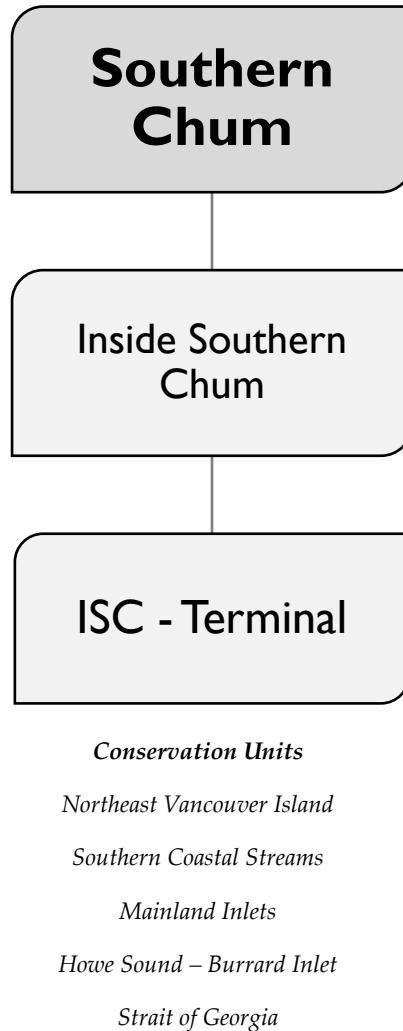


Figure 13.2-4: Overview of Inside Southern Chum Terminal

ISC Terminal include all chum salmon spawning in watersheds adjacent to Johnstone Strait and the Strait of Georgia (i.e. Areas 11 to 19), plus Fraser River approach areas (Howe Sound, Burrard Inlet; statistical area 28), but not the Fraser River main stem and tributaries. The major ISC Terminal systems, grouped by CU, management and PFMA are included in the following table:

Table 13.2-4: Population Structure of the ISC Terminal chum conservation units

**Bold font** indicates systems for which four or more annual escapement observations are available over the period 1998 to 2006.

Underlined fonts are summer run timed populations.

*Italicized font with an asterisk\** marks systems with active hatchery enhancement.

Methods for identifying CUs are documented in Holtby and Ciruna (2007). A complete list of sites for each Conservation Unit (CU) is available at:

[http://www-comm.pac.dfo-mpo.gc.ca/pages/consultations/wsp/CUs\\_e.htm](http://www-comm.pac.dfo-mpo.gc.ca/pages/consultations/wsp/CUs_e.htm)

Conservation Unit	Management Area	PFMA	Spawning Sites
Southern Coastal Streams	Johnstone Strait	11/12	<b>Driftwood Creek</b> (Area 11), Waldon Creek (Area 12)
	Kingcome	12	<u>Bughouse Creek</u> , Charles Creek, <u>Cohoe Creek</u> , Embley Creek, Hauskin Creek, Jennis Bay Creek, Kenneth River, <b>Kingcome River</b> , <b>Mackenzie River</b> , Nimmo Creek, <i>Scott Cove Creek*</i> , Shelter Bay Creek, Simoom Sound Creek, Sullivan Bay Creek, <b>Wakeman River</b>
	Bond/Knight	12	<b>Ahta River</b> , <u>Ahta Valley Creek</u> , Gilford Creek, Hoeya Sound Creek, <b>Kakweiken River</b> , Kamano Bay Creek, Lull Creek, Maple Creek, Matsiu Creek, Mcalister Creek, <b>Shoal Harbour Creek</b> , <i>Viner Sound Creek*</i> , Wahkana Bay Creek
Upper Knight	Bond/Knight	12	<u>Ahnuhati River</u> , Franklin River, <b>Klinaklini River</b> , <b>Kwalate Creek</b> , Sim River
Loughborough	Bond/Knight	12	Bouhey Creek, Call Creek, Cracroft Creek, <b>Glendale Creek</b> , Port Harvey Lagoon Creeks, Protection Point Creek, Shoal Creek
	Johnstone Strait	12	<b>Fulmore River</b> , Potts Lagoon Creek, Robbers Knob Creek, Tuna River



Conservation Unit	Management Area	PFMA	Spawning Sites
	Loughborough to Bute	13	<b>Apple River</b> , Bachus Creek, Cameleon Harbour Creek, Chonat Creek, Elephant Creek, Fanny Bay Creek, <b>Frazer Creek</b> , Frederick Arm Creek, <b>Granite Bay Creek</b> , <b>Grassy Creek</b> , <b>Gray Creek</b> , Hanson's Creek, Hemming Bay Creek, <b>Heydon Creek</b> , Kanish Creek, Knox Bay Creek, Owen Creek, <b>Phillips River</b> , <b>Read Creek</b> , St. Aubyn Creek, Stafford River, Thurston Bay Creek, <b>Village Bay Creek</b> , Waiatt Bay Creek, <b>Willow Creek</b> , <b>Wortley Creek</b>
<b>Northeast Vancouver Island</b>	Upper VI	12	Cluxewe River, Keogh River, Nahwitti River, <i>Quatse River*</i> , Shushartie River, Songhees Creek, Stranby River, Tsulquate River
	Johnstone Strait	12	<b>Adam River</b> , Hyde Creek, <b>Kokish River</b> , Mills Creek, New Vancouver Creek, <b>Nimpkish River*</b> , Tsitika River,
		13	Amor De Cosmos Creek, Hyacinthe Creek, Salmon River
	Mid-VI	13	Pye Creek
<b>Strait of Georgia</b>	Mid Vancouver Island	13	Campbell River, Kingfisher Creek, Menzies Creek, Mohun Creek, Quinsam River, Simms Creek
	Loughborough to Bute	13	Bird Cove Creek, Drew Creek, Open Bay Creek, Quatam River, Whiterock Pass Creek
<b>Bute Inlet</b>	Loughborough to Bute	13	Cumsack Creek, Homathko River, Orford River, <b>Southgate River</b> , Teaquahan River
<b>Strait of Georgia</b>	Mid Vancouver Island	14N	Bob Creek, Brooklyn Creek, Chef Creek, Cook Creek, Cowie Creek, Hart Creek, Kitty Coleman Creek, McNaughton Creek, Millard Creek, Morrison Creek, <i>Oyster River*</i> , Portuguese Creek, <i>Puntledge River*</i> , <i>Rosewall Creek*</i> , Roy Creek, Sandy Creek, Storie Creek, Trent River, Tstable River, Tsolum River, Waterloo Creek, Wilfred Creek, Woods Creek
		14S	Annie Creek, Englishman River, French Creek, <i>Little Qualicum River*</i> , Nile Creek, <i>Qualicum River*</i>

Conservation Unit	Management Area	PFMA	Spawning Sites
	Toba Inlet	15	Black Lake Creek, <b>Brem River</b> , Brem River Tributary, Filer Creek, Forbes Bay Creek, Forbes Creek, Klite River, Little Toba River, <b>Okeover Creek</b> , Pendrell Sound Creek, Refuge Cove Creek, <b>Store Creek</b> , Tahumming River, <b>Theodosia River</b> , Toba River, Twin Rivers
	Jervis Inlet	15	<i>Lang Creek*</i> , Lois River, <i>Sliammon Creek*</i> , Whittall Creek
		16	Albion Creek, Angus Creek, Baker Creek, Brittain River, Burnet Creek, Carlson Creek, Cranby Creek, Deighton Creek, Deserted River, Doriston Creek, Earle Creek, Frock Creek, Gray Creek, Halfmoon Creek, High Creek, Hunaechin Creek, Jefferd Creek, Mill Creek, Mouat Creek, Park Creek, Pender Harbour Creeks, Ruby Creek, Sechelt Creek, , Skwawka River, Snake Bay Creek, Storm Creek, Tsuahdi Creek, Tzoonie River, Vancouver River, West Creek
<b>Strait of Georgia (cont)</b>	Howe Sound / Sunshine Coast	16	Dakota Creek, Mcnab Creek, Mcnair Creek, Potlatch Creek, Rainy River, Twin Creek,
	Lower Vancouver Island	17	Beck Creek, Bloods Creek, Bonell Creek, <i>Bonsall Creek*</i> , Bush Creek, Chase River, Departure Creek, Haslam Creek, Holland Creek, Knarston Creek, Millstone River, <i>Nanaimo River*</i> , Nanoose Creek, Napoleon Creek, Porter Creek, Stocking Creek, Tyee Creek, Walker Creek
	South Vancouver Island	17	<i>Chemainus River*</i>
		18	Cowichan River, Fulford Creek, Koksilah River, Shawnigan Creek
		19	<i>Goldstream River*</i>
	<b>Howe Sound – Burrard Inlet</b>	Jervis Inlet	16
Howe Sound /		16	Wilson Creek

Conservation Unit	Management Area	PFMA	Spawning Sites
	Sunshine Coast	28A	Avalon Creek, Centre Creek, Eagle Creek, Hutchinson Creek, <b>Langdale Creek</b> , Long Bay Creek, Mannion Creek, Nelson Creek, <b>Ouillet Creek</b> , Terminal Creek, West Bay Creek, Whispering Creek
	Burrard Inlet	28A	Brothers Creek, Capilano River, Hastings Creek, <b>Indian River</b> , Lynn Creek, Mackay Creek, Maplewood Creek, McCartney Creek, Mosquito Creek, Mossom Creek, Noons Creek, Richards Creek, Seymour River
Strait of Georgia	Howe Sound / Sunshine Coast	28A	Chapman Creek, <b>Chaster Creek</b> , Flume Creek, <b>Roberts Creek</b> , Wakefield Creek,
		28B	Ashlu Creek, B.C. Rail Spawning, Branch 100 Creek, Brennan Channel, Brohm River, Cheakamus River, Chuk-Chuk Creek, Dryden Creek, Fries Creek, Hop Ranch Creek, July Creek, Lower Paradise Channel, Mamquam River, Mashiter Creek, Mashiter Spawning Channel, Meighan Creek, Mission Creek, Moody Channel, Pillchuck Creek, Raffuse Creek, Shovelnose Creek, Spring Creek, Squamish River, Stawamus River, Stawamus Spawning Channel, Tenderfoot Creek, Thirty Seven Mile Creek, Thirty-Six Mile Creek, Tiempo Spawning Channel, Twenty Eight Mile Creek, Upper Paradise Channel, Wildwood Spawning Channel
	Burrard Inlet	29B	Serpentine River

ISC Terminal fry emerge from the gravel as early as February and migrate downstream shortly after emergence, primarily in March and April. The juvenile chum rear near the estuary and in near-shore areas until approximately late May, and subsequently enter the major marine water bodies (i.e. Strait of Georgia) where they gradually migrate northward through Johnstone Strait. The juvenile migration continues to more off-shore waters and towards the Gulf of Alaska beginning in June and July and continues through the summer months. In the first year, chum are primarily located along the coast of North America and into the Gulf of Alaska (Salo, 1991).

Return migrations are of considerable distance, and the beginning of return migrations is not well documented. For ISC populations, some summer chum are first observed in streams in

August (Ahnuhati River) while the vast majority of fall chum spawn starting in early October with the peak of spawning occurring mid to late October and ending as late as mid-December.

### 13.2.4.2 STOCK ASSESSMENT INFORMATION

#### 13.2.4.2.1 Pre-season

Table 13.2-5: Inside Southern Chum Terminal 2017 Salmon Outlook

Management Area	Stock Outlook
<b>Johnstone Strait and Mainland Inlets (Area 12 and 13)</b>	Expectations for 2017 are near target. This is based on the strong parental brood abundances in 2013 (ocean entry 2014 and age 4 in 2017) with below average returns in 2014 (ocean entry 2015 - age 3 in 2017). Marine survival will likely decline from the good survival of ocean entry 2013; poor marine condition in 2014 and 2015 (poor pink and coho returns to the local area in both 2015 and 2016). Expect more variability in chum returns. Summer chum stocks in 2016 appear to have done well but were mainly below average throughout the area and will likely stay the same in 2017.
<b>Area 14</b>	Specific details not yet available. Preliminary escapement enumeration data for 2016 indicate higher abundances and above target escapements. For 2017, returns are expected to be lower than 2016 for the Cowichan, Goldstream and Jervis Inlet stocks, and similar for the Nanaimo and Mid-Island stocks, based on brood year escapement in 2013.
<b>Area 16</b>	See Area 14 above.
<b>Area 17</b>	See Area 14 above.
<b>Area 18</b>	See Area 14 above.
<b>Area 19</b>	See Area 14 above.

#### 13.2.4.2.2 In-season

Refer to Tables 2-6 and 2-7 for in-season assessment information. There are no planned chum Test fisheries in ISC Terminal areas

### 13.2.4.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

#### 13.2.4.3.1 Structure of Harvest Management Decision

Overall Inside Southern Chum Terminal are managed under a precautionary harvest approach to fisheries management, with a focus on identifying fishing opportunities in terminal areas of Johnstone Strait, Strait of Georgia and Mainland Inlets based on in-season abundance estimates and observed escapements into the natal streams. In terminal fisheries, smaller stocks are protected through time and area closures, and targeted stocks are managed to escapement goals.

The primary management tool is to control fishing effort and catch through restricting the area, the duration of the fishery, the number of licensed vessels fishing within an area (i.e. limited entry licencing) and, recently through share-based demonstration fisheries (some areas and gear types). Other tools include altering gear efficiency or fishing power through manipulation of permitted gears (e.g. net length or depth, mesh sizes). Any available surplus stocks are harvested by nets and troll terminally, adjacent to natal streams using knowledge of run timing as a management tool to limit by-catch of non-target stocks and species. Time and area closures, as well as selective fishing techniques, are used to protect specific non-target populations or species of concern.

#### 13.2.4.3.2 Harvest Approach for ISC Terminal Fisheries

Management Escapement Goals (MEG) are in place for most chum bearing systems within the ISC Terminal Area. All terminal chum fisheries are managed under a general fixed escapement strategy (i.e. target harvest is any surplus to the MEG), but implementation details differ by area.

[Table 13.2-6](#) and [Table 13.2-7](#) summarize the fishery reference points and harvest guidelines for the Strait of Georgia terminal fisheries.

Annual implementation of the harvest guidelines follows the general approach below:

- Terminal fisheries are managed based on escapement with fisheries initiated to harvest abundances in terminal areas.
- Terminal chum fisheries are generally implemented with shorter, low impact openings early in the run, and then expanded as warranted by in-season information. For example, terminal chum fisheries in the Strait of Georgia typically have short initial openings, and are either extended or closed depending on in-season escapement data and catch information from the initial opening.

- Harvest opportunities in terminal fisheries are typically based on the lower quartile of the probability distribution for the abundance estimate (i.e. estimated 3 out of 4 chance that abundance is larger; 25th percentile).

Table 13.2-6: Management Escapement Goals (MEG) and Harvest Plans for Terminal Chum Fisheries in the Strait of Georgia

	<b>Area 14 (Puntledge, Little Qualicum and Big Qualicum)</b>	<b>Area 16 (aggregate escapement Goal)</b>
<b>MEG</b>	240,000 (incl. 10K hatchery broodstock)	110,000
<b>Based on</b>	These are interim targets based on stock recruit relationships for each of these populations	Habitat area and chum spawning densities in the various rivers, combined for the aggregate
<b>Major Systems</b>	Puntledge (60K goal) Little Qualicum (85K), Big Qualicum (85k)	Tzoonie, Deserted, Brittain, Vancouver and Skwawka Rivers
<b>In-season Assessment</b>	Early catches, visual observations at river estuaries and escapement counts in the three river systems completed by hatchery and stock assessment staff.	Visual surveys by, DFO Stock Assessment and Sechelt Indian Band staff
<b>Implementation strategy</b>	Manage early-season fisheries to meet aggregate spawner goal but also avoid large surpluses (>100k). If forecast exceeds 340k (240k escapement goal plus 100k to account for forecast uncertainty), then target for early fisheries is 65% of the surplus, and remaining fisheries occur once abundance is confirmed in-season. If forecast falls below 240k, then river-specific escapement levels for the 3 major systems must be almost achieved (70% of Puntledge, 75% of Little Qualicum and of Big Qualicum)	Fisheries would occur after aggregate goal is achieved (i.e. fish observed in-river and inside a designated sanctuary area), but there have been no commercial openings in recent years. Potential implementation of a weekly assessment fishery with limited fleet size (3-5 vessels) in conjunction with river escapement assessments is being explored.

Table 13.2-7: Management Escapement Goals (MEG) and Harvest Plans for Terminal Chum Fisheries in the Strait of Georgia

	<b>Area 17 (Nanaimo River)</b>	<b>Area 18 (Cowichan)</b>	<b>Area 19 (Goldstream)</b>
<b>MEG</b>	40,000	160,000	15,000
<b>Based on</b>	This is an interim target based on stock recruit relationship	Habitat area and chum spawning densities in the Cowichan River	Habitat area and chum spawning densities in the Goldstream River
<b>Major Systems</b>	Nanaimo River	Cowichan	Goldstream
<b>In-season Assessment</b>	Historically a variety of visual survey methods were employed to estimate escapement into the Nanaimo. Since 2013 a joint Snuneymuxw/DFO fixed site DIDSON counter program has been used. If weather permits, hatchery staff conducts swim surveys to help validate and provide species composition for the DIDSON program.	In past approaches chum abundance has been evaluated through a variety of techniques from a test fishing program to over flight visual surveys. In river chum escapement estimates are provided by a DIDSON counter ran jointly with the Cowichan Tribes and DFO located in the lower river since 2006.	Visual surveys via stream walks by hatchery staff.
<b>Implementation strategy</b>	Commercial openings occur only if in-season observations indicate high probability of meeting the spawning goal. The development of a detailed harvest plan is scheduled for the spring of 2017.	Commercial openings occur only if in-season observations indicate high probability of meeting the spawning goal. The development of a detailed harvest plan is scheduled for the spring of 2017.	Commercial openings occur only if in-season observations indicate high probability of meeting the spawning goal. The development of a detailed harvest plan is scheduled for the spring of 2017.

#### 13.2.4.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO INSIDE SOUTHERN CHUM FISHERIES

Refer to [Table 13.2-8](#) for management actions specific to ISC Terminal fisheries.

Table 13.2-8: Incidental Harvest, By-catch and Constraints to ISC Terminal Fisheries

Area	Incidental Harvest, By-catch and Constraints to Inside Southern Chum Fisheries
<p><b>Nimpkish</b> (Area 12-19)</p>	<p>Observations in recent years have shown consistently low abundance of chum returning to the Nimpkish River. Low brood year returns in 2012 and no significant improvements in marine survival leave expectations for Nimpkish chum well below target in 2016. The timing of Nimpkish River chum is later than most ISC terminal stocks. The ISC Mixed Stock fisheries are complete prior to the historical peak of the Nimpkish Chum return. Furthermore, during these fisheries, the near terminal approach area and area adjacent to the mouth of the river are closed to fishing.</p>
<p><b>Area 14</b></p>	<p>Beach boundaries are generally in effect to protect coho and chinook. Boundaries may range from zero to one and a half miles depending upon by-catch concerns and time of year. A Filongly Creek radius boundary and Baynes Sound closures are in effect to protect wild chum and coho stocks. Coho conservation measures are in effect until November 10, including non-retention, maximum soak times for gill nets, barbless hooks for trollers and mandatory brailing for seines. The gill net fishery may be restricted to daylight hours only if there are significant levels of non-target species catch (e.g. coho).</p> <p>The presence of sea lions in Area 14 appears to have reduced net and troll CPUE, reduced escapement in some streams, and altered migration and holding behaviour which has impacted assessment capabilities. These impacts will be considered in the management of the fishery, and may include exploring new assessment techniques.</p>
<p><b>Area 16</b></p>	<p>There is mandatory non-retention of coho. Fishing is limited to terminal areas to minimize impacts on passing stocks.</p>



Area	Incidental Harvest, By-catch and Constraints to Inside Southern Chum Fisheries
Area 17	<p>Fishery boundaries are in place to protect migrating stock such as Fraser River chum and to confine the fishery to the Nanaimo River stock.</p> <p>Coho and chinook conservation measures in effect until November 10 include non- retention and barbless hooks for troll.</p> <p>The gill net fishery may be restricted to daylight hours and maximum soak times if coho encounters are high. Restrictions would be implemented after consultation with the Chum Advisory Committee.</p> <p>The gill net fleet will be allowed to use 90 mesh Alaska twist in Area 17 based on previous work conducted in Area 14. The two areas are similar with respect to target species and incidental catch issues, and therefore the results from Area 14 are applicable to Area 17.</p>
Area 18	<p>There is a half a nautical mile boundary in effect off Cherry Point to protect coho holding in this area.</p> <p>Beach boundaries may be in effect to protect coho and chinook.</p> <p>Cowichan Bay is usually closed to protect coho and chinook and to provide a refuge for holding chum; however, if chum escapement targets are reached and timing is such that chinook escapement is complete this area could be opened to access surplus chum. This would occur following consultation with the Cowichan Roundtable and the Chum Advisory Committee.</p> <p>Other coho conservation measures in effect include non-retention, barbless hooks for troll, and mandatory brailing for seines.</p> <p>The gill net fishery may be restricted to daylight hours. Maximum soak times for gill nets could be implemented if high coho by-catch occurs.</p>
Area 19	<p>Subarea boundaries to protect chinook and coho holding in Squally Reach.</p> <p>Commercial fisheries will utilize selective fishing techniques to minimize by-catch impacts.</p>

### 13.2.4.5 ALLOCATION AND FISHING PLANS

#### 13.2.4.5.1 First Nations Fisheries

##### *Food Social and Ceremonial Fisheries*

First Nations target local salmon stocks for FSC purposes throughout the Inner South Coast. First Nations harvest of chum salmon can fluctuate depending on individual areas, preference, strength of chum return, and also status and availability of other salmon species annually.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount [Table 10.2-1](#) in Southern BC/Fraser River First Nations Fisheries.

##### *Treaty Fisheries*

##### *Tla'amin Fisheries (Domestic)*

The Domestic allocations for salmon under the Tla'amin First Nations Final Agreement are as follows:

- Sliammon River Chum
  - When the Available Terminal Harvest for Sliammon River chum salmon is less than or equal to 7,400, a number of Sliammon River chum salmon equal to the Available Terminal Harvest for Sliammon River chum salmon; or
  - When the Available Terminal Harvest for Sliammon River chum salmon is greater than 7,400, then 7,400 Sliammon River chum salmon plus 25% of that portion of the Available Terminal Harvest of Sliammon River chum salmon that is greater than 7,400.
- Terminal Chum
  - A number of chum salmon equal to 25% of the Available Terminal Harvest for the chum salmon stocks that originate from a Terminal Harvest Area, other than Sliammon River chum salmon stocks, if the Minister determines that there is an Available Terminal Harvest for those stocks.

##### *Fishery Monitoring and Catch Reporting*

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested

by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

#### **13.2.4.5.2 Recreational Fisheries**

Marine recreational fisheries targeting ISC Terminal stocks take place in tidal and non-tidal waters and angler effort is focussed on terminal chum returning to the Puntledge, Qualicum, Nanaimo and Cowichan River systems.

Chum recreational fisheries are open year round, with the majority of marine recreational chum harvest occurring in Areas 13 and 18 from late September to late October. The normal daily limit is four. For 2017 in Southern BC tidal waters, it is anticipated that normal chum opportunities will be provided for Southern BC chum.

In non-tidal waters, chum retention is typically permitted based on observed abundances, and primarily occurs in hatchery systems. Freshwater recreational fisheries can retain chum in several of the watersheds (e.g. Puntledge, Cowichan, Nanaimo). Total (marine and freshwater) recreational harvests have ranged from about 5,000 to about 20,000 in recent years.

#### ***Fishery Monitoring and Catch Reporting***

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch survey (iREC) are the main tools used to capture recreational catch and effort information in this fishery. South Coast Stock Assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

#### **13.2.4.5.3 Commercial Fisheries**

Canadian commercial fisheries are managed to try and achieve allocation targets in the commercial allocation implementation plan. Commercial fishery allocations take into account catches of Inside Southern Chum including: Johnstone Strait Mixed-Stock fisheries, terminal area fisheries, and the Fraser River fisheries. In the ISC Terminal, fishing effort focuses on a terminal harvests in a few larger systems (some of them with substantial hatchery supplementation).

## Allocation

Table 13.2-9: Commercial Allocation Implementation Plan for the 2015–2019 Period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Inside	11 to 19, 28 to 29	63.0%	19.2%	12.0%	0.0%	5.8%

### ISC Terminal Commercial Chum Fisheries

For 2017, an average return is expected to most Strait of Georgia systems; however, chum forecasts remain highly uncertain.

Chum fishing opportunities in terminal areas will be determined in-season and discussed through pre-season meetings and the in-season chum advisory process. The following opportunities may be available:

The fisheries in each area are managed as follows:

- 1) Johnstone Strait and Mainland Inlet Terminal fisheries: Any Johnstone Strait or Mainland Inlet terminal fisheries targeting chum would be managed in-season based on terminal abundance, and harvesting would be by seine, gill net or troll gear. Fishery openings would be confined to minimize incidental harvest of other passing chum stocks. No fishing opportunities directed at Nimpkish River chum are anticipated due to recent trends of poor returns. In-season assessment will confirm the potential for any harvest opportunities; however, there have been no opportunities in recent years.
- 2) Strait of Georgia Terminal fisheries: Managed in-season based on terminal abundance. Chum harvests focus on terminal stocks listed below; however, there may be incidental retention of some other minor local stocks in the terminal areas as well. The major systems are:
  - **Area 14** - Puntledge, Big Qualicum and Little Qualicum: The fishery is directed at the enhanced stocks of these three river systems. Chum returning to this area have been enhanced since the late 1960s and terminal fisheries have occurred in October and November since the 1970s. ESSR fisheries are possible on enhanced stocks.

- Area D gill net openings are possible starting in October. Further gill net openings are subject to overall abundance in Area 14 and escapements in the Puntledge, Little Qualicum and Big Qualicum Rivers.
- Area B seine limited effort opportunities may be available in late October dependent on escapement levels, abundance and allocation status. Full fleet opportunities may also be available.
- Area H troll – openings are possible openings starting in October. Further troll openings are subject to overall abundance in Area 14 and escapements in the Puntledge, Little Qualicum and Big Qualicum Rivers.
- **Area 15** – No targeted commercial fisheries for chum are anticipated.
- **Area 16** - Jervis Inlet: This terminal fishery targets wild chum stocks returning to river systems in the Jervis Inlet area. The main systems are Tzoonie, Deserted and Skwawka Rivers. Commercial opportunities are not anticipated due to the recent trend of poor returns; this will be confirmed in-season. Openings in this Area generally take place in late-Oct to mid-Nov.
- **Area 17** – Nanaimo: This fishery is directed primarily at Nanaimo River stocks. The Nanaimo River chum stocks are supplemented by the Nanaimo River Hatchery on poor return years. Openings usually occur in October and early November.
  - Area E gill net - Openings are subject to in-season abundance estimates.
  - Area B seine - opportunities will depend on abundance and licence area allocation status.
  - Area H troll - Openings are subject to in-season abundance estimates.
- **Area 18** – Cowichan: This fishery is directed primarily at Cowichan River stocks. Cowichan chum and to some extent Goldstream chum are also harvested. Chemainus River stocks are also impacted but likely to a lesser extent. Openings generally occur in late October to late November. Commercial net fisheries in Satellite Channel are possible. Openings are subject to in-season abundance estimates for the Cowichan River.
- **Area 19** – Goldstream (Saanich Inlet): This fishery is directed primarily at Goldstream River chum stocks, but some Cowichan River chum are harvested incidentally. Openings generally occur in late October to early December. Possible commercial net fisheries in Satellite Channel and Saanich Inlet.

Openings are subject to in-season abundance estimates for the Cowichan and Goldstream Rivers.

### ***Fishery Monitoring and Catch Reporting***

There is a mandatory harvest log and in-season reporting program for catch information for all commercial fisheries.

- Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest or electronic transmission with an electronic harvest log (E-log).

Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type. Additional requirements are in place for providing biological samples as required.

### ***Demonstration Fisheries***

The Area H Harvest Committee has submitted a demonstration fishery proposal for Mainland Inlet chum under the Commercial Salmon Allocation Framework process. See Appendix 6 for more details.

### ***ISC Terminal First Nations Commercial Chum Harvest***

The First Nations Salmon Coordinating Committee has submitted a demonstration fishery proposal for Cowichan chum under the Commercial Salmon Allocation Framework process. See Appendix 6 for more details.

#### **13.2.4.5.4 ESSR Fisheries**

ESSR fisheries may be considered in the following Rivers: Little Qualicum, Big Qualicum, Cowichan, Puntledge, and Sliammon.

## 13.2.5 INSIDE SOUTHERN CHUM MIXED STOCK FISHERIES

### 13.2.5.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

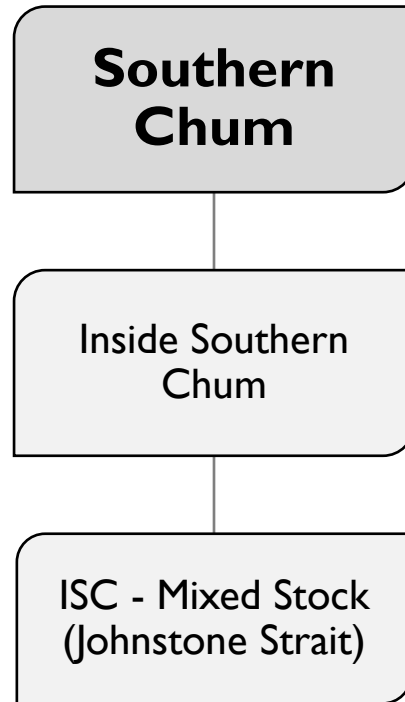


Figure 13.2-5: Overview of Inside Southern Chum Mixed Stock Fisheries

The Inside Southern Chum mixed stock fishery targets fall run chum stocks that migrate through Johnstone Strait. Most of these fish spawn in systems adjacent to Johnstone Strait, the Strait of Georgia, and in the Fraser River, though a small component is bound for Washington State systems. The main components of the harvest are the Mid-Vancouver Island (MVI) and the Fraser River stock groupings. This fishery also intercepts enhanced chum from Big Qualicum hatchery, Little Qualicum hatchery, Puntledge hatchery, Chehalis hatchery, Chilliwack hatchery, Inch Creek hatchery, and Weaver Creek spawning channel.

The migration timing of these fall chum stocks in the Johnstone Strait fishing area ranges from September to November with the peak typically early to mid-October. Mixed-stock fisheries occur in Areas 12 and 13, with terminal opportunities where surpluses are identified. Harvesters include First Nations (FSC fisheries), recreational, and commercial (seine, gill net and troll).

Canadian conservation units that may be encountered in this fishery include:

- Fraser River Canyon (F)

- Lower Fraser (F)
- Bute Inlet
- Loughborough
- Northeast Vancouver Island
- Southern Coastal Streams
- Upper Knight
- Howe Sound - Burrard Inlet
- Strait of Georgia

### 13.2.5.2 STOCK ASSESSMENT INFORMATION

#### 13.2.5.2.1 Pre-season

Table 13.2-10: ISC Mixed Stock 2017 Salmon Outlook

Management Area	Stock Outlook
<b>Johnstone Strait and Mainland Inlet (Area 12 and 13)</b>	The Outlook is <i>near target</i> . Returns in 2016 are still being assessed; however abundance appears to be well above average and above target in most systems surveyed. A strong 4 year old age class was evident this year coming from the average 2012 brood year and 2013 ocean entry. Expectations for 2017 are near target. This is based on the strong parental brood abundances in 2013 (ocean entry 2014 and age 4 in 2017) with below average returns in 2014 (ocean entry 2015 - age 3 in 2017). Marine survival will likely decline from the good survival of ocean entry 2013; poor marine condition in 2014 and 2015 (poor pink and coho returns to the local area in both 2015 and 2016). Expect more variability in chum returns. Summer chum stocks in 2016 appear to have done well but were mainly below average throughout the area and will likely stay the same in 2017.
<b>Strait of Georgia</b>	The Outlook is <i>near target</i> . Preliminary escapement enumeration data for 2016 indicate higher abundances and above target escapements. For 2017, returns are expected to be lower than 2016 for the Cowichan, Goldstream and Jervis Inlet stocks, and similar for the Nanaimo and Mid-Island stocks, based on brood year escapement in 2013.



Management Area	Stock Outlook
Fraser River (CUs: Fraser Canyon and Lower Fraser)	The Outlook is <i>abundant</i> . Returns in 2017 will be based largely on the brood from the 2013 escapement; escapement in 2013 was estimated at 980,000 spawners. Escapement assessments in 2016 are ongoing; an estimate of the 2016 escapement will be available by March 2017. The Oct. 26, 2016 in-season terminal return estimate was 2.00 million Chum salmon (99% probability that the run will exceed the escapement goal).

### 13.2.5.2.2 In-season

The upper Johnstone Strait (Area 12) chum seine test fishery uses standardized methods of test fishing, based on specific set locations. Two vessels, one fishing the Blinkhorn area (Subareas 12-3 & 12-4) of the Vancouver Island shoreline and the other fishing the Double Bay (Subareas 12-5 & 12-6) area are used to assess abundance and biologically sample the stocks passing through the upper Johnstone Strait area. Test fishery information is used to determine whether we are at or above the Lower Fishery Reference Point, and is also used for post season representation of the timing and spread of the aggregate return.

Table 13.2-11: Planned Chum Test Fisheries

Test Fishery	Proposed Proponent	Test Fishery Purpose	Potential Dates (preliminary <sup>a</sup> )	
			Start	End
Area 12	Namgis/A- Tlegay	ISC Mixed Stock Chum	15-Sept	3-Nov

<sup>a</sup> All dates subject to change based on in-season factors. In-season information from initial TFs important to determining timing of subsequent TFs.

### 13.2.5.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

#### Harvest Approach for Mixed-Stock Chum Fisheries in Johnstone Strait

In Johnstone Strait, a fixed harvest rate approach was initiated in 2002. It was agreed that the exploitation would be limited to a more cautious level of 20% implemented through a fixed effort approach, with two seine openings and limited gill net and troll opportunities through the month of October. This implementation approach was assessed through modeling and testing of assumptions by in-season mark-recapture (conducted in 2000-2002) to estimate harvest rates, fleet efficiencies, and migration rates of chum through the mixed stock fishing

area. Many of the parameters (run-timing and spread) required for the planning of these fisheries was obtained through the existing chum test fishery. While cautious in the mixed stock areas, this approach provides a more stable marketing opportunity compared to the previous stepped harvest rate approach (also known as Clockwork).

The level of exploitation in Johnstone Strait and a critical abundance threshold of 1.0 million Inside Southern Chum used to manage both Canadian and U.S. fisheries is identified within the PST revised Annex IV Chapter 6. The critical abundance threshold for the ISC aggregate including Fraser stocks provides a reference point to either initiate (>1.0 million) mixed stock fisheries in Johnstone Strait and U.S. waters or suspend (<1.0 million). Of the overall 20% exploitation rate, commercial fisheries are organized using historic catch and effort fishing data to plan fisheries targeting 15% of passing stocks and the remaining 5% is set aside for FSC, test fishing, recreational and a commercial harvest buffer. The 15% commercial harvest is allocated between the purse seine, gill net and troll fisheries following commercial salmon allocation arrangements. The implementation of the management Strategy in Johnstone Strait has three distinct benefits:

- 1) To minimize potential impacts on less productive stocks that are not following the aggregate abundance pattern;
- 2) To improve stability and predictability for harvesters; and
- 3) In periods of high abundance, increased terminal opportunities will develop focusing harvest on those abundant stocks.

The harvest plan is designed to achieve the provisions of the PST, which specifies a run size reference point of 1 million for the Inside Southern Chum aggregate (Johnstone Strait, Strait of Georgia, Fraser). The PST defines this as a critical threshold, and it is used as a Limit Reference Point (LRP) for commercial fisheries.

Table 13.2-12: Fishery Reference Points and Harvest Plan for Mixed-Stock Chum Fisheries in Johnstone Strait

Management Zone	Run Size Range*	Harvest Guideline	Exploitation Rate Range**
1 – Critical	0 – 1 Million	Non-commercial fisheries only	up to 5%
<b>Limit Reference Point for Commercial Fisheries = 1 Million run size</b>			
2 – Very Low 3 – Low 4 – Moderate 5 – High	More than 1 Million	Commercial harvest up to 15% ER, and non-commercial fisheries at 5% ER.	up to 20%

\* Run size is defined as aggregate abundance of chum.

\*\* Exploitation rate is defined as % of the aggregate abundance caught in Canadian fisheries.

The harvest guidelines for Mixed-Stock Fisheries in Johnstone Strait are used for pre-season planning, in-season implementation, and post-season review:

- 1) **Pre-Season:** The pre-season planning model takes into account average migration timing and spread of the Inside Southern chum aggregate, historic gear efficiencies and anticipated effort and distribution of effort by gear type (Area B purse seine, Area D gill net, and Area H troll).
  - The general outline of the fisheries is as follows:
    - **Area B seine** - Fisheries are managed as two full-fleet competitive (derby) openings. There have been requests by the seine fleet to review the effort-based management approach and develop a revised approach that is better suited to implement share-based (e.g. ITQ) fisheries. Discussions are continuing regarding potential demonstration fishery options for 2017.
    - **Area D gill net** - Fisheries are managed as three full-fleet competitive (derby) openings.
    - **Area H troll** - Johnstone Strait chum harvest opportunities are managed as an Individual Transferable Boat Day demonstration fishery.
  - Outputs from the model illustrate the exploitation (differing harvest strategies) by gear type and are presented as scenarios to the Chum Working Group. Participants in the Chum Working Group agree on a plan and finalize a fishing plan pre-season.

- 2) **In-season:** Test fishing catch per unit effort data is tracked daily and compared to previous years of known run sizes. Fisheries are conducted as per the pre-season fishing plan if test fishery catches indicate a run size greater than the LFRP.
- 3) **Post-Season:** Test fishery information is used for post season representation of the timing and spread of the aggregate return.

#### 13.2.5.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO ISC MIXED STOCK FISHERIES

For Inside Southern Chum salmon a critical threshold, where little or no harvesting occurs, is defined as 1.0 million in Chapter 6 of the PST.

Commercial opportunities for chum may be constrained prior to late September to achieve coho management objectives.

The implementation of the management Strategy minimizes impacts on less productive stocks that are not tracking the aggregate abundance pattern.

A plan to minimize gear interaction between the commercial and recreational sectors was implemented starting in 2007. Fishing opportunities for Area D gill nets during daylight hours on weekends are generally not planned in order to minimize any potential gear interactions with the recreational fishery in lower Area 13. Fishing opportunities for Area D gill nets on weekends are also generally not planned to minimize any processing issues on weekends. Fishing schedules and fishing dates will be confirmed pre-season following consultation with industry, First Nations, and stakeholders through the Chum Working Group process.

Subareas 13-6 and 13-7 will be closed to troll fishing during weekends to minimize conflict with recreational fleet. During weekdays, Subareas 13-6 and 13-7 will be open to the commercial troll fleet.

#### 13.2.5.5 ALLOCATION AND FISHING PLANS

##### 13.2.5.5.1 First Nations Fisheries

###### *Food Social and Ceremonial*

First Nations target local salmon stocks for FSC purposes throughout the Inner South Coast. Inner South Coast First Nations harvest of chum salmon is typically small with an aggregate communal licence harvest target of 155,000 for the South Coast, including the West Coast of Vancouver Island.

## *Treaty Fisheries*

### *Tla'amin Fisheries (Domestic)*

The Domestic allocations for chum salmon under the Tla'amin First Nations Final Agreement is a maximum of 2,000 chum salmon, that are not of terminal origin, caught in the Tla'amin Fishing Area. The allocation will be determined by an abundance-based formula.

### *Fishery Monitoring and Catch Reporting*

Fishery monitoring will be conducted by DFO and First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

#### **13.2.5.5.2 Recreational Fisheries**

Chum recreational fisheries are open year round, with the majority of marine recreational chum harvest occurring in lower Area 13 (Deepwater Bay) from late September to late October. Updates are provided via Fishery Notice and published on the recreational fisheries website (<http://www.bcsportfishingguide.ca>). The normal daily limit is four. For 2017 in Southern BC tidal waters, it is anticipated that normal chum opportunities will be provided for Southern BC chum.

### *Fishery Monitoring and Catch Reporting*

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch survey (iREC) are the main tools used to capture recreational catch and effort information in this fishery. South Coast Stock Assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

#### **13.2.5.5.3 Commercial Fisheries**

### *Allocation*

Canadian commercial fisheries are managed to try and achieve allocation targets between fleets for all Inside Southern Chum harvests. Commercial fishery allocations take into account catches from: Johnstone Strait mixed-stock fisheries and terminal area fisheries in inside waters,

including the Fraser River. Commercial allocation sharing arrangements in Johnstone Strait are: seine Area B – 77%; gill net Area D – 17%; and troll Area H – 6% with allocations in terminal areas allocated to try and balance overall allocations below.

Table 13.2-13: Commercial Allocation Implementation Plan for the 2015–2019 period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Inside	11 to 19, 28 to 29	63.0%	19.2%	12.0%	0.0%	5.8%

### *Inside Southern Chum - Mixed-Stock (Johnstone Strait) Commercial Fisheries*

ISC Mixed-Stock fisheries (Areas 12/13): Target fall run chum, with seine, gill net and troll gear. Specific fishing plans will be determined pre-season following consultation with the Chum Working Group. A Chum Working Group meeting will be scheduled during the May – June time period to begin this planning process. The fishing plan for Johnstone Strait mixed-stock fishery will follow the general outline:

- **Area B Seine**
  - First fishery will provide for a one day, 12 hour fishery, at the end of September or first week of October.
  - Second fishery will provide for a one day, 10 hour fishery, around the third week of October. Note that the reduction in time to 10 hours is due to reduced daylight hours.
  - If effort during the first and/or second fishery is considerably less than anticipated or severe weather hampers the fishery then additional fishing time will be considered.
- **Area D Gill Net**
  - Gill net fisheries are scheduled to commence at the end of September or in the first week of October.
  - There may be as many as three separate openings throughout the time period of the end of September to the end of October (preliminary fishing dates will be determined at the pre-season chum working group meeting).
  - Duration of each fishing period is generally 41 hours and will be confirmed in-season based on effort.

- Fishing times are scheduled separate from the seine fishery when and where possible.
- If effort during the first and/or second fishery is considerably less than anticipated or severe weather hampers the fishery then additional fishing time will be considered.
- Fishing opportunities on the weekend are generally not planned in order to minimize any potential gear interactions with the recreational fishery in lower Area 13 and to minimize any processing issues on weekends.
- **Area H – Troll**
  - Troll fisheries are scheduled to commence in late September and to finish by late October/early November.
  - This fishery is planned to occur as Individual Transferable Effort (ITE) demonstration fishery (Please see details below in demonstration fishery section). Troll fisheries are not planned during Area B seine openings.

### *Inside Southern Chum - Mixed-Stock Demonstration Fisheries*

#### *Area H Troll Johnstone Strait Chum Individual Transferable Effort (ITE) Demonstration Fishery*

It is anticipated that this fishery will be similar to the effort based ITE fishery that occurred in 2009-2015.

- **Region:** South Coast
- **Participants:** All Area H troll licence holders
- **Location of Fishery:** Johnstone Straits (portions of Areas 12 and 13). Restrictions will be in place on weekends and holidays to restrict the fishery above Subarea 13-6
- **Gear Type:** Troll, barbless hooks and revival tanks are mandatory
- **Time Frame of Fishery:** The fishery is anticipated to commence in late September and continue until early November. The fishery will be divided into two fishing periods. The timing of the two fishing periods and a potential 1 to 2 day closure between fishing periods is under review. There will be closures on seine fishing days depending on the structure of the seine fishery. Fishing plans and start dates will be confirmed prior to the season through the Chum Working Group consultation process.

- **Allocation:** Boat day allocations are based on the anticipated amount of effort and the distribution of that effort in order to stay within the Area H share of the harvest rate.

The allocation of 5 boat days per licence (3 days in fishing period 1 and 2 days in fishing period 2) provided pre-season in 2015 is under review and will be confirmed prior to the start of the 2017 season. Boat days will be permitted to be transferred between other Area H licence holders within fishing periods, but not between periods.

The target species is chum, retention of pink is permitted. There will be non-retention of sockeye, coho, chinook and steelhead.

- **Monitoring Plan:** Start, end, pause and daily catch reports will be required by phone-in or electronic logbook. Over flights will be conducted and charter patrol will monitor the fishery.

#### *Mixed-Stock First Nations Commercial Chum Harvest*

There are no First Nations commercial fisheries for mixed-stock chum.

#### **13.2.5.5.4 ESSR Fisheries**

ESSR fisheries are identified in the Fraser and ECVI/Mainland chum sections.



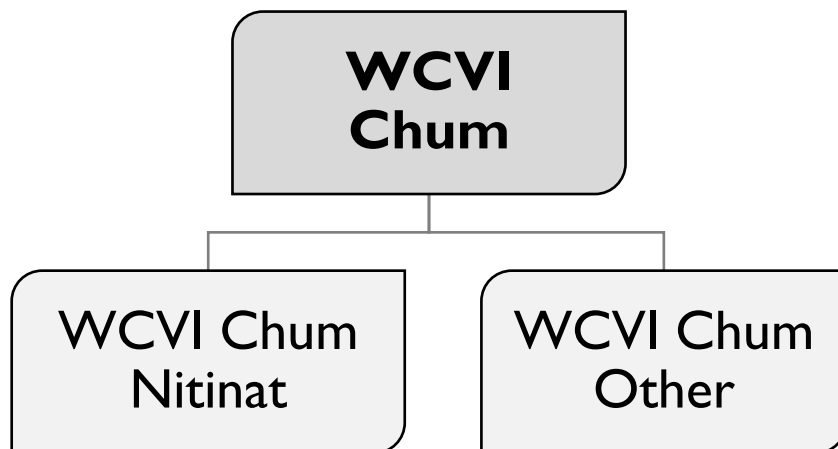
**13.2.6 WEST COAST VANCOUVER ISLAND CHUM – OVERVIEW**

Figure 13.2-6: Overview of West Coast Vancouver Island Chum

## 13.2.7 WCVI CHUM - NITINAT

### 13.2.7.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

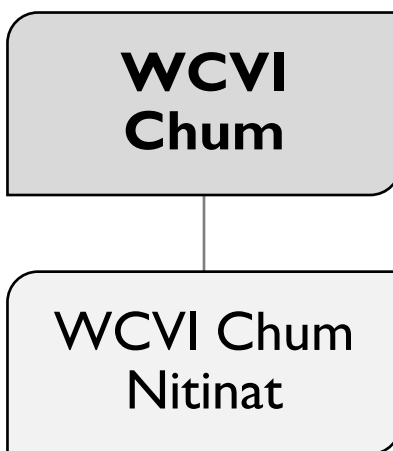


Figure 13.2-7: Overview of WCVI Chum – Nitinat

### 13.2.7.2 STOCK ASSESSMENT INFORMATION

#### 13.2.7.2.1 Pre-season

Annual pre-season forecasts for the Nitinat system (predominantly enhanced) are based on brood year escapements, hatchery smolt output and estimated survival rates. The pre-season Nitinat chum forecast range is 190,000 to 830,000. The working forecast used to plan fisheries is 510,000. The accuracy of pre-season forecasts has been very poor.

#### 13.2.7.2.2 In-season

Nitinat Hatchery staff work in cooperation with the Ditidaht First Nations fishery program to assess escapement of chum into Nitinat Lake and area. Through a combination of observations gathered from river surveys (swims, boat-based, and helicopter), brood collection activities and in-lake fishing, an in-season estimate of abundance is generated. Although there is high degree of uncertainty in the abundance estimate, it is generated from relatively consistently applied survey methods by observers with significant local knowledge and experience. Therefore, it provides a general gauge of the observed escapement relative to in-season escapement benchmarks defined for Nitinat Lake and area.

A scientific licence may be issued to the Ditidaht First Nations to provide biological samples and additional information on stock status and movement in Nitinat Lake.

In addition to the Ditidaht Nitinat Lake fishery, an Area E gill net limited-effort commercial assessment fishery, designed to achieve a maximum harvest rate of 15%, provides in-season assessment information. This fishery occurs in the approach waters to Nitinat Lake in Area 21 and 121.

A test fishery was operated in Nitinat Lake in the past; however, this is no longer operating.

### 13.2.7.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

The lower fishery reference point for Nitinat chum is based on a gross escapement goal to Nitinat Lake of 225,000 chum, including 175,000 into the rivers, 10,000 for Ditidaht First Nations FSC, and a minimum of 40,000 into the Nitinat hatchery. The upper fishery reference point is based on an escapement target of 325,000. The additional 100,000 chum salmon are partly utilized as hatchery broodstock and to increase the distribution of spawners in the Nitinat River and to other Nitinat Lake tributaries.

#### **In-season Commercial Fishery Decision Guidelines**

Since 2013, a fixed harvest rate strategy has been used to harvest Nitinat Hatchery chum when the stock abundance is considered above the lower fishery reference point but below the target fishery reference point. The maximum harvest rate for the Nitinat stock is 25% when it is below the target fishery reference point. The management and harvest strategies for WCVI chum stocks are described below:

- Stage 1 Limited Entry Assessment Fisheries may occur when the pre-season forecast indicates the run size is below the lower fishery reference point. They require increased monitoring and are designed to provide in-season information about the run size within a low-risk fishing strategy (i.e. limit overall mortality less than 15%).
- Stage 2 Limited Effort fisheries may occur when the pre-season forecast or Stage 1 fisheries indicate the run size is above the lower fishery reference point, but below the upper fishery reference point. They are designed to be lower risk and limit mortality to a precautionary level through a fixed harvest rate strategy.
- Stage 3 Full Fleet fisheries that may occur when the pre-season forecast or Stage 1 and/or 2 fisheries indicate the run size is above the upper fishery reference point. In Stage 3 a “surplus-to-escapement” target fishery is implemented. The surplus is the projected abundance above the 325,000 escapement target.

Additional descriptions of the three different commercial fishery stages are provided in the table below:

Table 13.2-14: Nitinat commercial fisheries by stage category

Fishery	Stage 1 Assessment Fishery	Stage 2 Commercial Fishery Fixed effort / maximum harvest rate strategy	Stage 3 Commercial Fishery Surplus to Escapement Target strategy
<b>Objective</b>	Assess stock abundance in-season through commercial CPUE	Limit effort to achieve a precautionary harvest rate of 25%, assess run size	Limit effort to achieve the allowable catch
<b>Trigger</b>	Pre-season forecast below the lower fishery reference point of 225,000	Pre-season forecast above the target fishery reference point OR Stage 1 Assessment Fishery indicates abundance is above the lower fishery reference point of 225,000	In-season assessment suggests escapement to Nitinat Lake will exceed the upper fishery reference point of 325,000
<b>Effort</b>	Limited entry and limited effort fishery – i.e. 20 commercial g/n boats maximum participating for 2 days/week.  First day fishing on mandatory “grid pattern” – i.e. maximum of 5 vessels per quadrant.  Mandatory catch validation at offload + daily hail.	Commercial G/N:  Situation 1: Greater than 75 vessels participating: each weekly opening is limited to 1 day.  Situation 1. Less than 75 vessels participating: each weekly opening is limited to a total of 120 vessel-days per week.  Commercial S/N.  2 openings: 1 in Statweek 10/3 and the second in 10/4.  Option 1: Limit vessel-days to 80 total, 40 per week.  Option 2: Limit vessel-days to 50 total week 10/3 and 15 total week 10/4.	Stage 3 fisheries not planned prior to week 10/3  Allowable catch and effort is determined by the expected surplus given escapement observations and timing.

#### 13.2.7.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO NITINAT CHUM FISHERIES

No commercial fishing takes place prior to statistical week 10/1 to address Fraser River steelhead by-catch concerns. Commercial gill net fisheries (stage 2 and 3) in statistical weeks 10/1 and 10/2 will operate inside a two mile boundary between Dare Point and Pachena Point, with a weed line of between 1.2 and 2.0 meters on nets and daylight fisheries only in order to reduce encounters of steelhead and coho. After statistical week 10/2, fisheries are permitted within a two mile boundary of the shore line between Bonilla Point and Pachena Point.

Retention of steelhead in commercial fisheries is prohibited. Boundaries at Cheewhat River, Klanawa River and Carmanah Creek are in place to protect local chum and coho stocks.

When both fleets (Area B seine and Area E gill net) fish at the same time there is an added gillnet only fishing area from Bonilla Point to Logan Creek. This area may be adjusted by the Fishery Manager subject to concerns for coho and other local stocks.

### **13.2.7.5 ALLOCATION AND FISHING PLANS**

#### **13.2.7.5.1 First Nations Fisheries**

##### *Food Social and Ceremonial Fisheries*

Ditidaht First Nations target chum stocks for FSC purposes in Areas 21, 22 and 121. Most harvest occurs in Nitinat Lake (Area 22).

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount [Table 10.2-1](#) in Southern BC/Fraser River First Nations Fisheries.

##### *Fishery Monitoring and Catch Reporting*

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

##### *Treaty Fisheries*

There are no treaty fisheries for Nitinat chum.

#### **13.2.7.5.2 Recreational Fisheries**

Marine recreational fisheries targeting Nitinat Chum take place primarily in Nitinat Lake (Area 22). Chum recreational fisheries are open year round. The normal daily limit is four. In the Nitinat River, retention for chum opens October 15 with a daily limit of two. Opening the freshwater recreational fishery is contingent on achieving escapement goals and mitigating concerns for impacts on spawning fish. There is a finfish closure at mouth of the Nitinat River to prevent foul hooking.

For 2017 in Southern BC tidal waters, it is anticipated that chum opportunities will be provided for Nitinat chum. Updates are provided via Fishery Notice and published on the recreational fisheries website: <http://www.bcsportfishingguide.ca>

### *Fishery Monitoring and Catch Reporting*

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch survey (iREC) are the main tools used to capture recreational catch and effort information in this fishery. South Coast stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

#### 13.2.7.5.3 Commercial Fisheries

##### *Allocation*

In the early portion of the fishery (Oct 01-15), the allocation target will be 75% gill net and 25% seine. The overall fishery allocation targets are outlined below.

Table 13.2-15: Commercial Allocation Implementation Plan for the 2015–2019 period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
Nitinat	21 to 22	65.5%	0.0%	34.5%	*	0.0%

\* by-catch provision

##### *WCVI – Nitinat Commercial Chum Fisheries*

The table below provides an outline of potential fisheries by statistical week. Statistical weeks run from Sunday to Saturday.

Table 13.2-16: 2017 Nitinat Chum Fishing Plan

Stat. Week	Guidelines	ACTION
Week 9/4 (Sep 24 to Sep 30)	No fisheries prior to week 10/1 due to Interior Fraser River steelhead concerns.	No fisheries.

Stat. Week	Guidelines	ACTION
<p><b>Week 10/1</b> (Oct 1- Oct 7)</p>	<p>Stage 1 limited entry gill net assessment fishery may occur if pre-season forecast is below lower fishery reference point.</p> <p>Stage 2 limited effort gill net fishery if pre-season forecast is above lower fishery reference point.</p> <p>Escapement milestone of 75,000* (total to date).</p>	<p>Weedlines mandatory.</p> <p>Stage 1 fishery occurs in Area 21 and a portion of 121. Effort limited to 20 boats for two days. Mandatory dockside monitoring program.</p> <p>Stage 2 fishery occurs in Area 21 only. If vessels &gt;75 then only 1 day. If vessels &lt;75 then a maximum of 2 days.</p>
<p><b>Week 10/2</b> (Oct 8 to Oct 14)</p>	<p>If 10/1 escapement goal not met, only Stage 2 fishery may occur.</p> <p>If week 10/1 escapement milestone has been met, Stage 3 fishery may occur.</p> <p>Escapement milestone of 125,000* (total to date).</p>	<p>Weedlines mandatory</p> <p>Stage 1 fishery occurs in Area 21 and a portion of 121. Effort limited to 20 boats for two days. Mandatory dockside monitoring program.</p> <p>Stage 2 fishery occurs in Area 21 only. If vessels &gt;75 then only 1 day. If vessels &lt;75 then a maximum of 2 days.</p> <p>Stage 3 fisheries occur in Area 21 and portions of 121 and 20. Gill net fisheries are limited if the catch to date is greater than 200,000.</p>
<p><b>Week 10/3</b> (Oct 15 to Oct 21)</p>	<p>If week 10/2 escapement milestone has been met, Stage 2 fishery can continue. If escapement goal not met, only Stage 1 fishery may occur. Stage 3 fisheries will commence if in-season forecast is greater than 325,000 and escapement goals are met.</p> <p>Escapement milestone of 175,000* (total to date).</p>	<p>Stage 1 fishery occurs in Area 21 and a portion of 121. Effort limited to 20 boats for two days. Mandatory dockside monitoring program.</p> <p>Stage 2 fishery occurs in Area 21 only. If vessels &gt;75 then only 1 day. If vessels &lt;75 then a maximum of 2 days.</p> <p>Stage 3 fisheries occur in Area 21 and portions of 121 and 20. Gill net fisheries are limited if the catch to date is greater than 200,000.</p>

Stat. Week	Guidelines	ACTION
Week 10/4 (Oct 22 to Oct 28)	<p>If week 10/3 escapement milestone has been met, Stage 2 fishery can continue. If escapement milestone not met, only Stage 1 fishery may occur. Stage 3 fisheries can continue/commence if in-season forecast is greater than 325,000 and escapement milestones are met.</p> <p>Escapement milestone of 225,000* (total to date).</p>	<p>Stage 1 fishery occurs in Area 21 and a portion of 121. Effort limited to 20 boats for two days. Mandatory dockside monitoring program.</p> <p>Stage 2 fishery occurs in Area 21 only. If vessels &gt;75 then only 1 day. If vessels &lt;75 then a maximum of 2 days.</p> <p>Stage 3 fisheries occur in Area 21 and portions of 121 and 20. Gill net fisheries are limited if the catch to date is greater than 200,000.</p>

\* With sufficient stock outside. Min weekly influx = 50,000

Seine fisheries are not normally considered for week 10/2 however, if escapement milestones have been exceeded and in-season abundance indices suggest a return larger than the target fishery reference point then options for earlier seine fisheries will be discussed with the Area E and B Harvest Committees. In this case, seines and gill nets would initially start with an allocation of 25:75.

No commercial fisheries inside Nitinat Lake (Area 22).

Dependent on pre-season forecast seine fisheries possible from October 2nd to 8th inside two mile boundary and north of Dare Point.

Further fisheries depend on reaching escapement milestones into Nitinat Lake and indications of abundance through commercial fishing, test fishing and stream enumeration.

### ***Area G (Troll)***

Chum may be retained as by-catch in fisheries targeting other stocks (e.g. AABM chinook fishery). There are no directed troll fisheries on Nitinat chum.

### ***Fishery Monitoring and Catch Reporting***

Stage 1 gill net assessment fisheries will require a dockside monitoring program (DMP) using an approved certified DMP service provider. Regular catch monitoring and reporting requirements are in place for Stage 2 and 3 gill net and seine fisheries.



*WCVI – Nitinat First Nations Commercial Chum Harvest*

There are no First Nations commercial fisheries for Nitinat chum.

**13.2.7.5.4 ESSR Fisheries**

ESSR fisheries in Nitinat Lake can occur when surpluses to escapement goals and broodstock egg targets are anticipated to be exceeded. The Ditidaht First Nations participates in the ESSR fishery in coordination with Nitinat Hatchery staff and broodstock collection activities.

13.2.8 WCVI CHUM - OTHER

13.2.8.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

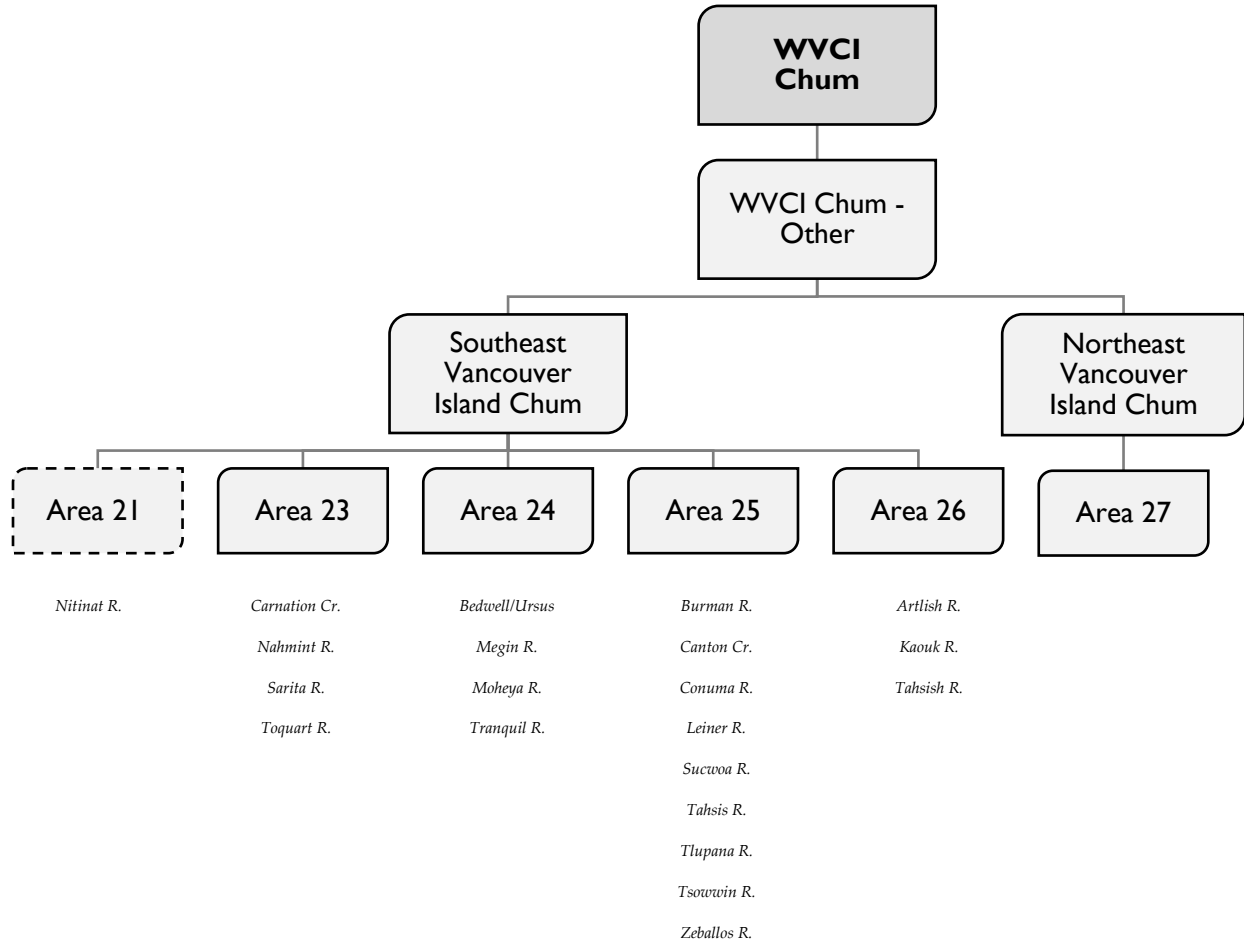


Figure 13.2-8: : Overview of WCVI Chum - Other

Note that the management approach for enhanced Nitinat chum is described separately in the WCVI Chum – Nitinat section ([13.2.7](#)).

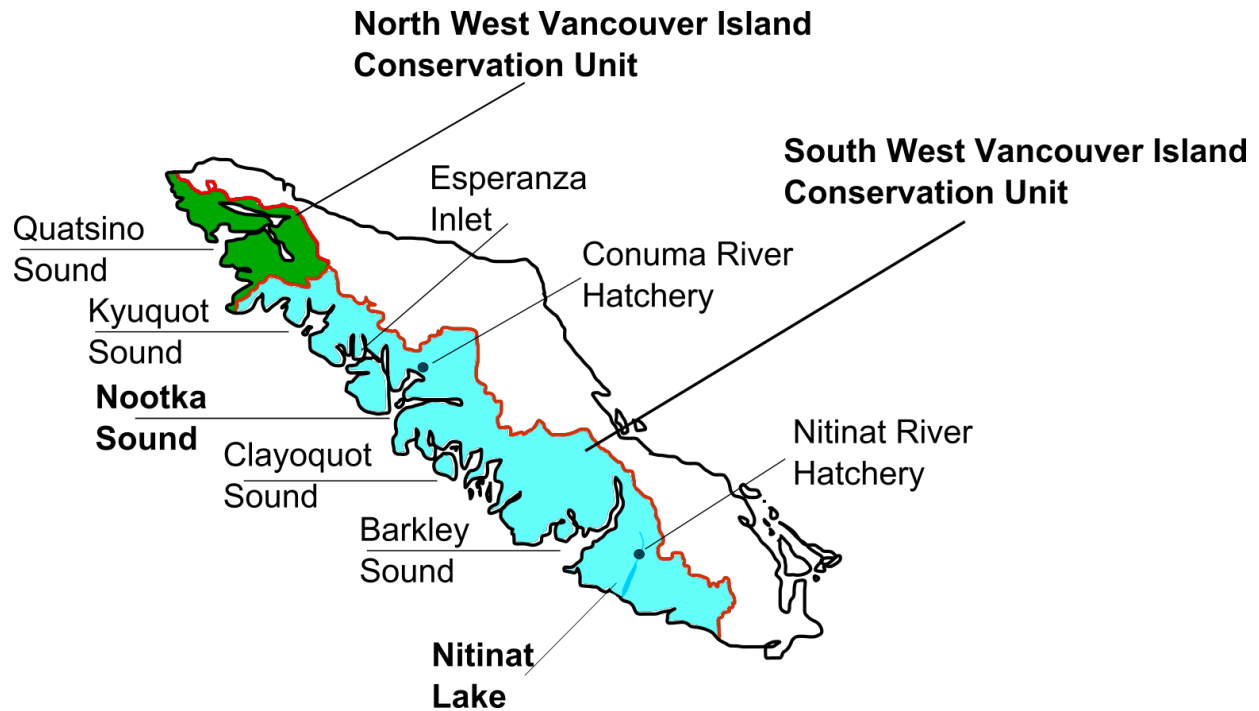


Figure 13.2-9: Map of WCVI Chum - Other Fisheries

### Population Structure of WCVI Chum

Chum salmon occur throughout the West Coast of Vancouver Island (WCVI) and have been grouped into 2 Conservation Units (CU) under the Wild Salmon Policy (WSP):

- 1) Southwest Vancouver Island (SWVI) with roughly 170 distinct spawning sites
- 2) Northwest Vancouver Island (NWVI) with roughly 60 distinct spawning sites

Major runs of chum salmon originate in the following systems:

- Area 20: De Mamiel Cr., Sooke R.
- Area 22: Nitinat R. (enhanced). Note: The management approach for Nitinat chum is described separately in the WCVI Chum – Nitinat section ([13.2.7](#)).
- Area 23: Cous Cr., Effingham R., Little Toquart Cr., Nahmint R., Sarita R., Toquart R.
- Area 24: Atleo River, Moyeha River, Tranquil Creek, Warn Bay Creek.
- Area 25: Black Creek, Burman River, Canton Creek (enhanced), Conuma River (enhanced), Deserted Creek, Espinosa Creek, Leiner River, Sucwoa River, Tahsis River, Tlupana River (enhanced), Tsowinn River, Zeballos River
- Area 26: Chamiss Creek, Kaouk River

- Area 27: Colonial / Cayeghle Creeks

### 13.2.8.2 STOCK ASSESSMENT INFORMATION

#### 13.2.8.2.1 Pre-season

**Method:** WCVI chum mature and return to the terminal area as mainly 3, 4 and 5 year old fish. For naturally spawning stocks, expected returns for each contributing brood year are forecast based on observed spawner abundance and average recruitment and maturation rates. For hatchery stocks, expected returns for each contributing brood year are forecast based on hatchery releases and average marine survival rate. For both naturally spawning and hatchery stocks, observed returns of younger age classes are used to adjust forecasts of older age classes from the same brood year. In addition, for naturally spawning stocks, forecast returns of index populations within each terminal area are expanded based on their average historical contribution to production within the area.

**Sources of Uncertainty:** Likely as a function of lower quality assessment data quality (i.e. age data available for few stocks, estimates of spawner abundance are low quality) and also perhaps resulting from the highly volatile lower river spawning habitat that chum favor, the performance of chum forecasts is relatively poor. For WCVI areas, the mean absolute percentage error (MAPE) in recent year forecasts averages about 60%; meaning the observed returns are typically about 60% higher or lower than the forecast returns. Some of the key sources of uncertainty include: incomplete age data across stocks, uncertainty in spawner abundance, uncertainty in relative levels of production among index and non-index stocks.

Forecast production for WCVI stock management units are summarized in Table 13.2-17 below. With the exception of the Nitinat Hatchery stock management unit, the forecast returns of chum to SWVI areas (Barkley and Clayoquot) are below average and below lower fishery reference points. The forecast return of Nitinat Hatchery chum is 510,000 (range 190,000 to 830,000). Forecasts for NWVI areas (Nootka, Kyoquot) are about average and above lower fishery reference points. However, the forecast return of Conuma Hatchery (Tlupana Inlet) chum remains relatively low at 24,000 (range 13,000 to 36,000).

Table 13.2-17: 2017 forecast return of chum to WCVI stock management units in relation to commercial fishery reference points.

Location	PFMA	2017 Forecast	Forecast Range	Lower Fishery Reference Point	Target Fishery Reference Point
Nitinat Hatchery/Lake*	21/22	510,000	(190000 - 830000)	225,000	325,000
Barkley	23	38,000	(17000 - 74000)	48,000	146,000
Clayoquot	24	18,000	(8000 - 28000)	42,000	75,000
Conuma (Tlupana Inlet)*	25	24,000	(13000 - 36000)	TBD	
Nootka	25	41,000	(20000 - 63000)	26,000	53,000
Esperanza	25	60,000	(30000 - 90000)	24,000	50,000
Kyuquot	26	62,000	(24000 - 99000)	25,000	68,000

\* Hatchery stock.

### 13.2.8.2.2 In-season

When the catch-per-unit effort in fisheries is related to run size, fishery data can be used to provide in-season stock assessment information. This approach is responsive to in-season abundances rather than pre-season forecasts that are highly uncertain, particularly for chum stocks. In the case that fishery results suggest the abundances are relatively low as expected, the resulting harvest rate will not significantly impede stock rebuilding. Alternatively, if results suggest the abundance is higher than expected, harvest opportunities are not unnecessarily foregone.

### 13.2.8.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

The Decision Guidelines in this plan are under construction and will be updated as local plans are developed.

For naturally spawning WCVI chum stocks, upper and lower fishing reference points were developed using the “sustainable escapement goal” or “SEG” approach described in Bue and Hasbrouck (2001). This method uses escapement estimates to set fishery reference points and is suitable for stocks with relatively low quality assessment data, such as WCVI chum. The SEG algorithm was determined by relating MSY reference points with time series derived benchmarks for model populations with more reliable data sets for which stock-recruit analysis is feasible. Conservative “SEGs” were defined as the 25% and 75% of a long-term escapement time series. The lower SEG is estimated to represent approximately 0.8  $S_{MSY}$  (i.e. size of spawning population at 80% maximum sustained yield), which is similar to an “upper

biological benchmark”, or healthy state, described for salmon populations. (Fishery reference points are used to trigger fisheries, in contrast to biological reference points which are used to assess the conservation status of stocks). Use of precautionary fishery reference points to set abundance-based limits on harvest supports Marine Stewardship Council (MSC) third-party eco-certification of the fishery and also an objective of Canada’s Wild Salmon Policy.

Within each WCVI management area, SEGs were calculated for index populations with higher quality escapement data. To develop fishery reference points for the entire area, index SEGs were summed and this value expanded based their average historical contribution to escapement within the area. (Note: forecasts of abundance for each area are estimated from index populations using the same expansion factor). For WCVI hatchery populations, the lower and upper fishery reference points are determined by the needs of the hatchery and spawning objectives for nearby rivers.

Although more work is required to finalize the reference points for natural systems and associated harvest strategy and management plan for WCVI chum, reference points have been applied in recent years to set target levels for commercial fisheries ([Table 13.2-18](#)). That is, commercial fisheries have been curtailed when forecast abundance is below the lower fishery reference point in order to comply with the conditions of MSC certification.

Commercial fisheries for WCVI chum employ a two-tiered harvest strategy for controlling removals; either a constant harvest rate strategy or a surplus-to-escapement goal strategy:

- **Fixed Harvest Rate Strategy** (fisheries targeting natural origin stocks, hatchery stocks at low abundance): For those fisheries where a significant component of the target stock is from naturally spawning populations, a constant harvest rate strategy of 10-20% is implemented. The maximum harvest rate is set a precautionary level relative to stock-recruit derived optimal exploitation rates for WCVI chum; which are in the order of 30-40%. This approach allows limited harvest while protecting the biodiversity of chum stocks and permitting rebuilding when the population is low. In areas of low quality data or only naturally spawning stocks, including Barkley (Area 23), Clayoquot (Area 24), Esperanza Inlet (Area 25) and Kyuquot Sound (Area 26), the maximum allowable harvest rate is 10 to 15%. In Nootka Sound, up to 20% harvest is permitted given the prevalence of hatchery stock in the area.
- **Surplus-to-Escapement Goal Strategy** (fisheries targeting hatchery stocks at high abundance): This strategy only applies to Area 25 (Nootka Sound) fisheries that target hatchery surpluses. The allowable harvest rate is determined by the escapement goal when it is determined the stock is forecasted in-season to be above the Upper Fishery Reference Point and broodstock capture targets have been or will

be met. This fishery occurs only in the Tlupana Inlet portion of Area 25 where little or no interception of non-enhanced stocks occurs.

All Conuma hatchery chum are thermally marked, which allows for assessment of the hatchery contribution to fisheries and spawning. Sampling of the commercial catch was conducted in 2015 and 2016. As part of the Marine Stewardship Council certification of the WCVI chum fisheries, the Department is working with the Canadian Pacific Sustainable Fisheries Society to develop a plan to complete analysis of the samples to determine the presence of hatchery chum in Nootka Sound chum fisheries.

Stage 1 fisheries are Limited Entry Assessment Fisheries that may occur when the pre-season forecast indicates the run size is below the lower fishery reference point. They require increased monitoring and are designed to provide in-season information about the run size within a low-risk fishing strategy (i.e. limit overall mortality to less than 15%).

Further work on developing assessment criteria needs to occur prior to proceeding with stage 1 assessment fisheries and is contingent on additional consultation with First Nations and stakeholders.

Stage 2 fisheries are Limited Entry or Limited Effort fisheries that may occur when the pre-season forecast or Stage 1 fisheries indicate the run size is above the lower fishery reference point, but below the upper fishery reference point. They are designed to be lower risk and limit mortality to a precautionary level through a fixed harvest rate strategy.

Stage 3 fisheries are Full Fleet fisheries that may occur when the pre-season forecast or Stage 1 and/or 2 fisheries indicate the run size is above the upper fishery reference point. They are designed to be relatively low risk and limit mortality to a precautionary level through a fixed-harvest rate strategy.

Table 13.2-18: Table on Fishery Triggers of Each Harvest Strategy

<b>Fishery Trigger</b>	<b>Harvest Strategy</b>	<b>Nootka (Enhanced)</b>	<b>Barkley, Clayoquot, Esperanza, Kyuquot</b>
<b>Pre-season forecast below Lower Fishery Reference Point</b>	Assessment Fishery	Stage 1: Assessment Fishery	Stage 1: Assessment Fishery
<b>Pre-season forecast between Lower and Upper Fishery Reference Point</b>	Fixed Harvest Rate	Stage 2: Limited Entry / Limited Effort Fishery	Stage 2: Limited Entry / Limited Effort Fishery

<b>Fishery Trigger</b>	<b>Harvest Strategy</b>	<b>Nootka (Enhanced)</b>	<b>Barkley, Clayoquot, Esperanza, Kyuquot</b>
<b>In-season forecast above Upper Fishery Reference Point</b>	Fixed Harvest Rate	Stage 3: Full Fleet/Limited Effort Fishery	Stage 3: Full Fleet / Limited Effort Fishery
<b>In-season forecast above Upper Fishery Reference Point and broodstock capture near target</b>	Surplus to Escapement Goal	Full Fleet terminal fishery	n/a

Local Harvest Committee's (Roundtables), that include representatives from First Nations, commercial and recreational sectors, conservation groups, local governments and DFO on the West Coast of Vancouver Island are in various stages of developing local detailed chum fishing plans, including management guidelines and assessment criteria for all fishery stages.

#### **13.2.8.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO WCVI CHUM - OTHER FISHERIES**

By-catch of wild chinook is a concern for these chum fisheries. To reduce chinook encounters, commercial fisheries will start no earlier than September 25 in Kyuquot and Nootka Sounds and no earlier than October 1 in Barkley Sound and October 15 in Clayoquot Sound. In addition, commercial fisheries will be daylight only to reduce encounters of non-target species.

In general, fishing area and the timing of openings are also designed to avoid specific areas where non-target stocks are prevalent:

- In Area 25, Hisnit Inlet is closed during Tlupana Inlet fisheries to protect Deserted River chums as they are no longer enhanced. A stream mouth boundary at Marvinas Bay will protect local stocks adjacent to fishing area.

#### **13.2.8.5 ALLOCATION AND FISHING PLANS**

##### **13.2.8.5.1 First Nations Fisheries**

###### *Food Social and Ceremonial Fisheries*

WCVI First Nations target chum stocks for FSC purposes throughout NW and SW Vancouver Island.



Refer to Section [10.2](#) for Communal Licence Harvest Target Amount [Table 10.2-1](#) in Southern BC/Fraser River First Nations Fisheries.

### ***Treaty Fisheries***

#### *Maa-nulth Fisheries (Domestic)*

The annual Domestic allocations for chum salmon under the Maa-nulth First Nations Final Agreement are as follows:

- 3,000 pieces, when the return of Terminal Chum Salmon is critical;
- 6,500 pieces, when the return of Terminal Chum Salmon is low;
- 10,000 pieces, when the return of Terminal Chum Salmon is moderate;
- 14,000 pieces, when the return of Terminal Chum Salmon is abundant;
- 17,500 pieces, when the return of Terminal Chum Salmon is very abundant.

#### **13.2.8.5.2 T'aaq -wiihak First Nations (Ahousaht, Ehattesaht, Hesquiaht, Mowachaht / Muchalaht, and Tla-o-qui-aht First Nations) Salmon Fishery**

Five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the T'aaq-wiihak First Nations) - have aboriginal rights to fish for any species of fish, with the exception of geoduck, within their Fishing Territories and to sell that fish. The First Nations and the Department are currently considering demonstration fishery opportunities for the 2017 season. The scope of these deliberations does not preclude the potential to include any or all salmon species available with the T'aaq-wiihak First Nations' Fishing Territories (located within portions of Pacific Fishery Management Areas (PFMA) 25/125, 124, 26/126 and all of PFMA 24). Where the Department and the T'aaq-wiihak reach agreement on the approach, this IFMP may be updated to reflect the agreed to approach for the T'aaq-wiihak fishery.

No T'aaq-wiihak chum demonstration fishery occurred in 2016. Chum bycatch was authorized for sale in the AABM and ISBM chinook demonstration fisheries.

#### ***Fishery Monitoring and Catch Reporting***

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish

harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

### 13.2.8.5.3 Recreational Fisheries

Marine recreational fisheries targeting Southern Chum take place in inshore and offshore waters of the west coast of Vancouver Island (Areas 21 to 27 and 121 to 127). These fisheries are open year round, with the majority of the catch and effort taking place in September to November in terminal areas. The normal daily limit is four. In non-tidal waters, chum retention is typically permitted based on observed abundances, and primarily occurs in hatchery systems.

For 2017 in Southern BC tidal waters, it is anticipated that chum opportunities will be provided for all areas of the South Coast. Updates are provided via Fishery Notice and published on the recreational fisheries website:

<http://www.bcsportfishingguide.ca>

#### *Fishery Monitoring and Catch Reporting*

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch survey (iREC) are the main tools used to capture recreational catch and effort information in this fishery. South Coast stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

### 13.2.8.5.4 Commercial Fisheries

#### *Allocation*

Table 13.2-19: Commercial Allocation Implementation Plan for the 2015–2019 period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Outside	23 to 27	0.0% <sup>d</sup>	98.0%	0.0%	2.0%	0.0%

<sup>d</sup> potential for future re-negotiation if chum populations re-build

#### *WCVI – Other Commercial Chum Fisheries*

Earliest anticipated gill net start dates:

- Barkley Sound – Oct. 1

- Clayoquot Sound – Oct. 15
- Nootka Sound – Sept. 25
- Esperanza Inlet – Sept. 25
- Kuyoquot Sound – Sept. 25
- Nerotsos Inlet – Oct. 1

Detailed planning for Area D chum fisheries in Nootka Sound and Esperanza Inlet are on-going with local First Nations and the Area 25 Roundtable.

Coho retention in net fisheries may be permitted when abundance permits.

There are separate approach area and terminal fisheries to facilitate bio-sampling for age and hatchery contribution.

### ***Area G (Troll)***

Chum salmon may be retained as by-catch in other directed fisheries, such as the AABM chinook fishery in Areas 23 to 27, and 123 to 127.

### ***Fishery Monitoring and Catch Reporting***

There is a mandatory harvest log and in-season reporting program for catch information for all commercial fisheries.

- Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest or electronic transmission with an electronic harvest log (E-log).

Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type. Additional requirements are in place for providing biological samples as required.

### ***WCVI Chum - Other Chum Demonstration Fisheries***

None

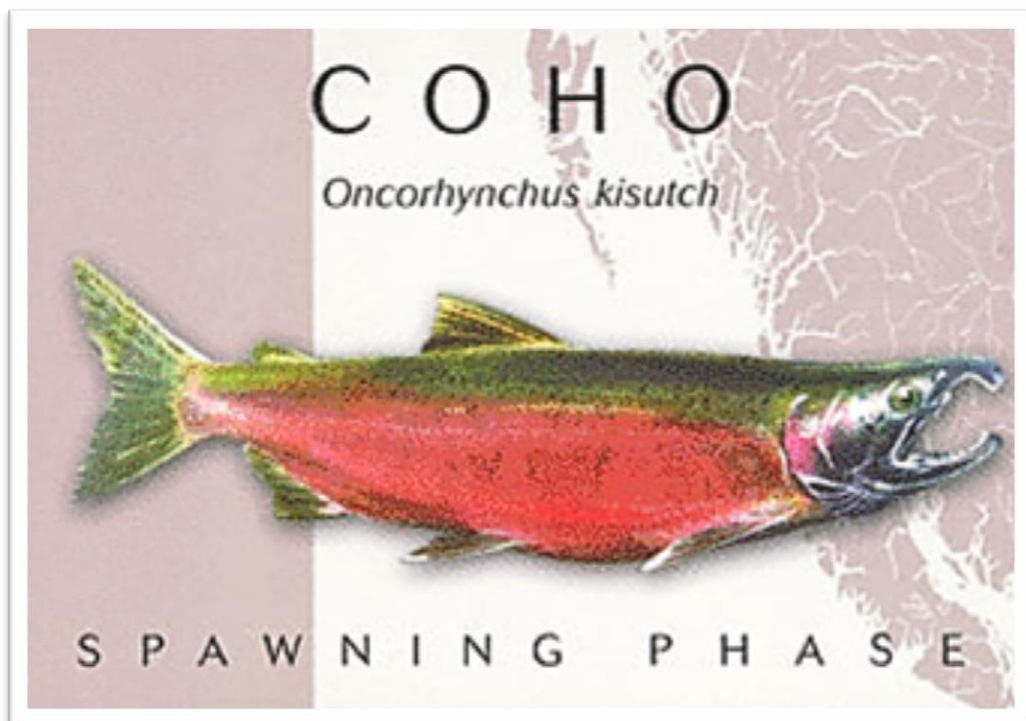
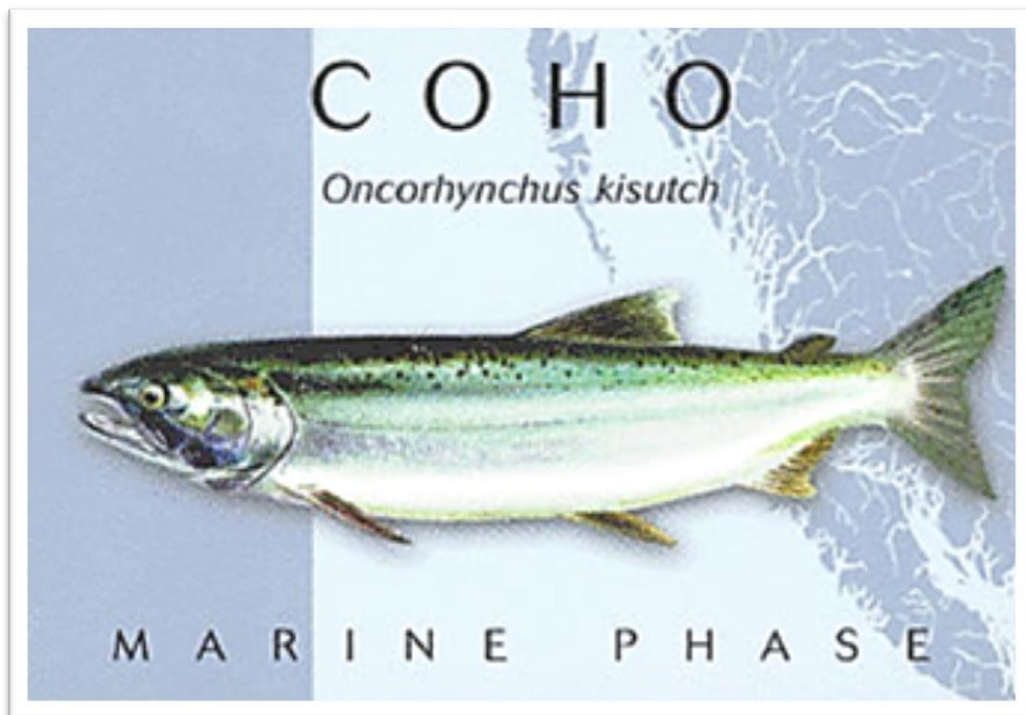
### *Economic Opportunities*

Negotiations to provide economic opportunities for the Tseshaht and Hupacasath First Nations are expected similar to recent years. Economic Opportunity fisheries will be conducted under agreements that specify provisions for planning fisheries, allocations, catch reporting requirements as well as roles and responsibilities regarding the management of the fishery. The Department's general approach is that Aboriginal commercial harvest opportunities are managed using comparable rules to the commercial fishery.

#### **13.2.8.5.5 ESSR Fisheries**

There is potential for an ESSR fishery at Conuma Hatchery which is dependent upon identifying a surplus to the enhanced systems in Tlupana Inlet through in-season abundance indicators. The likelihood of an ESSR fishery has been reduced in recent years due to poor returns.

### 13.3 SOUTHERN COHO SALMON FISHING PLAN



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### 13.3.1 SOUTHERN COHO - OVERVIEW

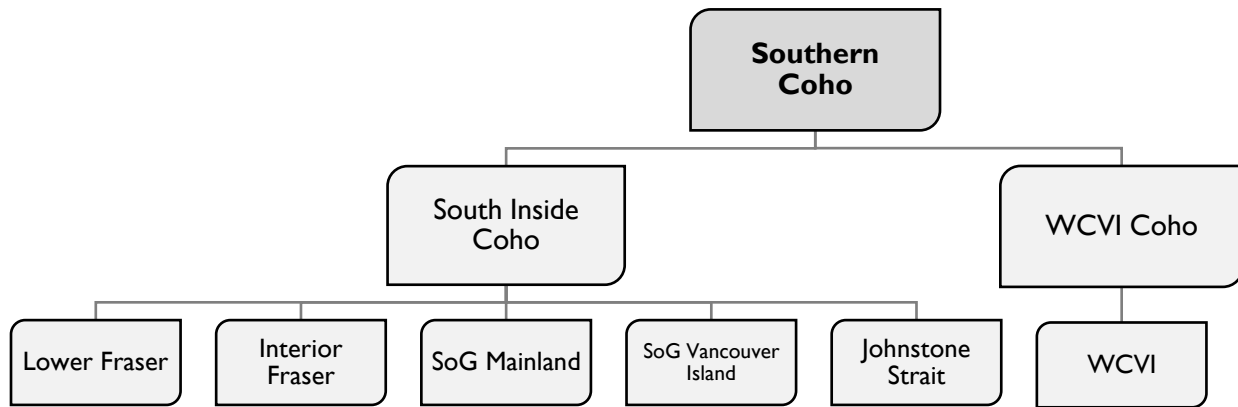


Figure 13.3-1: Overview of Southern Coho

Coho fisheries in southern BC are managed in a manner consistent with the umbrella of the PST, with considerations for Canadian stocks of concern resulting in a range of measures to reduce fisheries impacts, including selective fishing practices.

#### PST COHO ABUNDANCE BASED MANAGEMENT FRAMEWORK

The basis for managing fisheries impacting wild coho originating from southern BC, Washington State, and Oregon is set out in the PST. This abundance based management (ABM) system was adopted in 2002 and will define harvests of Southern coho through 2018.

The ABM plan constrains total fishery exploitation of key stock management units, including Strait of Georgia Mainland, Strait of Georgia Vancouver Island, Lower Fraser, and Interior Fraser.

Conservation units in the WCVI and Johnstone Strait are managed domestically.

In the United States, the management units relevant to the agreement include the Skagit River, the Stilligamish, the Snohomish, Hood Canal, tributaries to the Strait of Juan de Fuca, the Quillayute, the Hoh, Queets, and Grays Harbour.

For each of these management units, annual limits of fishing mortality will be established based on the level of abundance and the health of the wild stocks. The text of the agreement and formulae for sharing between the two countries can be found on the PSC website at:

<http://www.psc.org/publications/>.

Under the principles of coho ABM management, as stocks become less abundant, more stringent fishery management actions will be implemented. As stocks become more abundant, increased fishing opportunities will be considered.

### **SOUTHERN COHO ENHANCEMENT INFORMATION:**

The major DFO operation enhancement facilities that produce coho are:

- **BC South Coast:**
  - Big Qualicum River hatchery
  - Conuma River hatchery
  - Nitinat River hatchery
  - Puntledge River hatchery
  - Quinsam River hatchery
  - Robertson Creek hatchery
  
- **BC Fraser River:**
  - Capilano River hatchery
  - Chehalis River hatchery
  - Chilliwack River hatchery
  - Inch Creek hatchery
  - Spius Creek Hatchery

The information available at the link below addresses production from major DFO Operations (OPS) facilities, contracted Community Economic Development Program hatcheries (CEDP), larger or more complex Public Involvement Projects (Designated Public Involvement or DPI) operated by volunteers, and Aboriginal Fisheries Strategy (AFS). Not included are smaller Public Involvement Projects (PIPs) that are focused toward stewardship, stock rebuilding or educational activities and do not release large numbers of fish that would affect fisheries.

There are two datasets available: **Post-Season Production** from the 2015 brood year (i.e. 2016 releases, and numbers on hand for 2017 release), and the **Production Plan**, which includes proposed targets for the upcoming 2017 brood year.

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



13.3.2 SOUTHERN INSIDE COHO

13.3.2.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

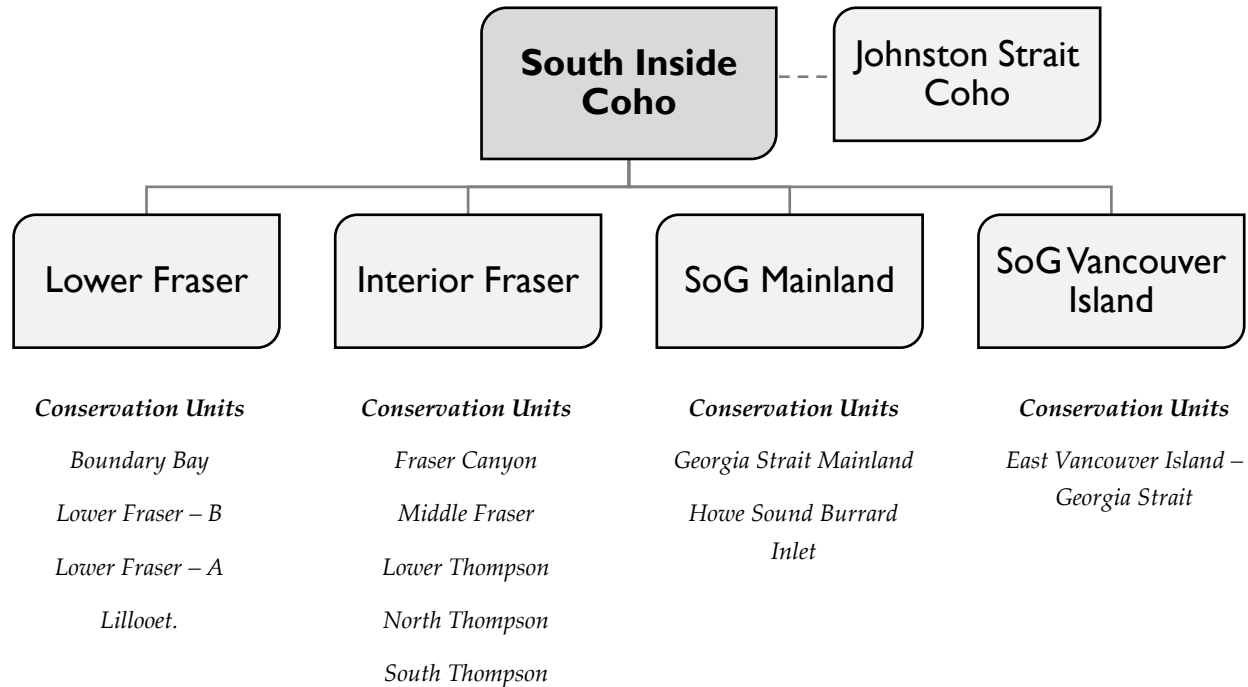


Figure 13.3-2: Overview of Southern Inside Coho

There are 4 management units identified in the Pacific Salmon Treaty –Southern Coho Management Plan in Annex IV, Chapter 5-Coho Salmon including: Lower Fraser, Interior Fraser, Strait of Georgia Mainland, and Strait of Georgia Vancouver Island. In addition, there are also 4 conservation units in the Johnstone Strait area including: Homathko-Klinaklini Rivers; Nahwitti Lowland; East Vancouver Island-Johnstone Strait-Southern Fjords; and Southern Coastal Streams-Queen Charlotte Strait- Johnstone Strait-Southern Fjords. These conservation units are not actively managed.

Coho may be encountered as by-catch in fisheries directed at other stocks. Depending on the location, First Nations FSC fisheries are generally directed at more abundant stocks and species with retention of hatchery or hatchery and wild coho by-catch considered where abundances permit. Limited First Nations FSC directed fisheries may also be permitted in terminal areas where abundances permit. Most commercial and recreational fisheries in southern BC do not permit retention of wild coho in times and areas where Interior Fraser coho may be prevalent. However, mark-selective fisheries have been implemented in most southern BC recreational

fisheries and some commercial fisheries permit retention of hatchery enhanced stocks, while minimizing impacts on wild stocks.

### 13.3.2.2 STOCK ASSESSMENT INFORMATION

The WSP biological status of the 5 Interior Fraser River coho CUs has been assessed by CSAS. The Science Advisory Report is available at:

[http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2015/2015\\_022-eng.pdf](http://www.dfo-mpo.gc.ca/csas-sccs/Publications/SAR-AS/2015/2015_022-eng.pdf)

Up to and including the 2013 return year, three CUs were determined to have an integrated status of AMBER (Middle Fraser, Fraser Canyon, South Thompson) and two were determined to have an integrated status of AMBER/GREEN (Lower Thompson, North Thompson). Integrated status has not been re-evaluated after the low escapements observed in 2014 and 2015.

This assessment found no evidence that smolt-adult survival has improved or returned to the higher productivity regime. Because the productivity is low, the sustainable harvest that can be expected from the management unit is also low relative to historic levels.

The *Conservation Strategy for Coho Salmon (Oncorhynchus kisutch), Interior Fraser River Populations* was published in 2006 (<http://www.dfo-mpo.gc.ca/Library/329140.pdf>) and contains the following recovery objectives:

- **Objective 1:** The 3-year average escapement in at least half of the sub-populations within each of the five populations is to exceed 1,000 wild-origin spawning coho salmon, excluding hatchery fish spawning in the wild. This represents a total Interior Fraser Coho spawning escapement of 20,000 to 25,000 wild-origin coho. This objective is designed to provide the abundance and diversity required to satisfy the recovery goal.
- **Objective 2:** Maintain the productivity of Interior Fraser Coho so that recovery can be sustained. This objective is designed to ensure that the threats to recovery are addressed. This objective may be met by addressing the causes for the decline that were identified by COSEWIC:
  - Development of a harvest management plan to ensure that exploitation rates are appropriate to changes in productivity caused, for example, by fluctuations in ocean conditions.
  - Identification, protection, and, if necessary, rehabilitation of important habitats.
  - Ensure that the use of fish culture methods is consistent with the recovery

The CSAS stock assessment advice from 2014 interpreted the above recovery objectives for Interior Fraser coho as follows:

- **Short Term Objective 1:** 3 year geometric mean escapement in at least half of the subpopulations within each of the 5 CUs to exceed 1000 natural spawners, excluding hatchery fish spawning in the wild; approximately 20,000 wild spawners; and
- **Longer Term Objective 1:** 3 year geometric mean escapement in all of the subpopulations within each of the 5 CUs to exceed 1000 natural spawners, excluding hatchery fish spawning in the wild; approximately 40,000 wild spawners

(Note 1: Using geometric means provides more precautionary generational averages and recognizes the importance (through heavier weighting) of smaller escapements to genetic diversity.)

#### **13.3.2.2.1 Pre-season**

A pre-season forecast is produced annually. The description of the models used can be found in Simpson *et al.* (2004). The processes used have been modified annually based on model performance and development of new models although the underlying methods are unchanged. Marine survival forecasts are derived for Qualicum, Quinsam, Inch, and Robertson Hatchery stocks, and Black and Carnation Creek wild stocks. Abundance forecasts are derived for Interior Fraser and Thompson River Aggregates, and selected aggregates from Areas 12 and 13.

Table 13.3-1: Observed and forecast marine survival and aggregate abundance indicators from Southern BC coho indicator stocks.

Stock	2015	2016			2016	Change from Forecast	Change From 2015	2017			Change from 2016
	Observed	Forecast	50% CI	Model	Observed			Forecast	50%CI	Model	
<b>Johnstone Strait/Mainland Inlets</b>											
Area 12	1,500	1,909	1,322 - 2,757	3YRA	811	-58%	-46%	1,367	944 - 1,981	3YRA	71%
Area 13	202	286	196 - 416	3YRA	80	-72%	-60%	162	110 - 239	3YRA	103%
<b>Georgia Basin – West</b>											
Quinsam Hatchery	0.010	0.016	0.011 - 0.022	3YRA	0.013	-19%	37%	0.008	0.006 - 0.010	NPGO	-38%
Big Qualicum Hatchery	0.004	0.004	0.002 - 0.007	LLY	0.027	575%	575%	0.004	0.003 - 0.007	Growth	-85%
Black Creek (wild)	0.003	0.009	0.006 - 0.013	3YA	N/A			0.007	0.005 - 0.012	NPGO	
<b>Lower Fraser</b>											
Inch Creek Hatchery	0.006	0.006	0.003 - 0.010	LLY	0.038	533%	533%	0.012	0.008 - 0.018	PDO	-68%
<b>Interior Fraser</b>											
Interior Fraser Aggregate	14,260	14,260	8,556 - 23,767	LLY	68,292	379%	379%	31,212	19,309 - 50,453	3YRA	-54%
Thompson River Aggregate	12,374	12,374	7,419 - 20,638	LLY	49,904	303%	303%	24,752	15,119 - 40,525	3YRA	-50%
<b>South-west Vancouver Island</b>											
Robertson (Stamp Falls) Hatchery	0.054	0.016	0.013 - 0.021	NPGO	0.076	376%	41%	0.062	0.048 - 0.079	NPGO	-19%
Carnation Creek (wild)	0.003	0.003	0.002 - 0.004	NPGO	0.020	557%	516%	0.008	0.004 - 0.015	3YRA	-59%
Distribution Index P(inside)		0.216	0.155 - 0.294	Salinity				0.335	0.430 - 0.252	Salinity	

*An Explanation of Column Headings*

**Stock:** The name of the Management Unit in Bold, followed by the individual indicator or stock grouping within that Management Unit.

**2015 Observed:** The values in this column represent either the aggregate value (whole numbers) or the estimated marine survival (decimal numbers), from the 2015 return year.

**2016 Forecast, 50% CI, and Model** refer to the forecast for the 2014 return year. The actual forecasted value is given first, followed by the 50% confidence interval, then the forecasting model used.

**2016 Observed, Change from forecast and Change from 2015** refer to the estimated values for each indicator, then the % change from the forecasted value and the observed value in the previous year.

The % change is in relation to the base value so a marine survival of 1.5% in year one increasing to 2.0% in the next year is expressed as a 33% change. A decrease of 2.0% to 1.5% is expressed as a – 25% change.

**2017 Forecast, 50% CI and Model** refer to the forecast for the current year.

**Change from 2016** is the change in value from the observed 2016 to the 2017 forecast.

**Distribution Index (P<sub>inside</sub>)** does not have an annual inside/outside measure so there are no observed data to report or compare to.

### ***Johnstone Strait Coho***

The 2017 Salmon Outlook for Area 12 coho is *low/ near target*. Monitoring of the key indicator streams (Keogh) is still ongoing, but preliminary information suggests very poor returns in 2016. Return levels in 2017 will be influenced by: 1) above average brood year escapement in 2014, 2) average freshwater survival (based on the Keogh River indicator), and 3) indication of poor marine conditions with poor coho returns in 2016. Expectations are for similar to slightly improved returns over 2016 but with high uncertainty.

### ***Strait of Georgia Coho***

2016 escapements are not complete and to date indicate variability between systems. Preliminary surveys suggest greater returns to Cowichan River and Black Creek. Marine survival continues to be below the long term average suggesting that GST coho remain in a low productivity regime, likely driven by both freshwater and marine processes. Recreational fishing results indicate a change in marine rearing areas with Strait of Georgia becoming more important. The Salmon Outlook for Area 13-North, including Quinsam River hatchery indicator, is somewhat better with a *low/near* target rating. Escapement monitoring for 2016 is still underway and to date has indicated variable returns to the area, with some indication of a reduction in wild stocks. Lower coho and poor pink returns may indicate poor marine survival for 2015 ocean entry. Early estimates for the 2016 return to the Quinsam River hatchery indicator are moderate and similar to 2015. 2017 expectations are for returns similar to 2016 (below average escapement), but are highly uncertain with wild stocks at *low* and hatchery stocks *at near* target.

### ***Lower Fraser Coho***

The 2017 outlook classifies Lower Fraser coho as a *stock of concern* due to current marine conditions. Fall/winter 2016/2017 escapement surveys are now underway; however, it is too early to determine trends. The outlook for 2017 is for continued low abundance due to current marine conditions. Sustained improvement in marine conditions will be required to improve outlook. A formal forecast of smolt-adult survival will be presented in spring 2017.

### ***Interior Fraser Coho***

The 2017 Salmon Outlook is *stock of concern* and a 2014 CSAS paper determined that Interior Fraser coho remain in a low productivity (i.e. low coho survival rate) regime. Sustained improvement in marine conditions will be required to improve outlook and rebuild abundance.

The 2017 forecast of abundance is 31,212 coho with a forecast range: 9,500 (p10) to 64,300 (p90) based on the three year average forecast model. However, forecast results have considerable uncertainty and high prediction error.

#### 13.3.2.2.2 In-season

At this time, there is no in-season assessment done on southern inside coho stocks, with the exception of some programs to assess local abundance in some terminal areas.

#### 13.3.2.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Annex IV, Chapter 5 of the Pacific Salmon Treaty establishes the international management regime for southern BC and southern U.S. origin coho based on the status of defined Management Units (MU) in each country. Each MU is to be managed to constrain exploitation rates based on the status of the MU, or groups of MUs in the case of the US. Until such time as the Parties provide specific maximum exploitation rate targets for each MU which originates within its jurisdiction consistent with attainment of maximum sustained harvest levels, Canada and the U.S. will manage their fisheries consistent with the maximum exploitation rate ranges for three status levels – *low*, *moderate* and *high*.

Table 13.3-2: Pacific Salmon Treaty abundance-based exploitation rate limits on coho salmon stocks in fisheries harvesting southern BC coho.

MU Status	US ER caps	Total ER
Low	10%	Up to 20%
Moderate	12%	>21 to 40%
Abundant	15%	>41 to 65%

In addition, within the *low status* zone, each country is expected to implement additional fishery management measures as may be necessary to address conservation needs for MUs within its jurisdiction. For most years since 1998 (except 2014 and 2015) Canada has done this by planning on reducing its share of the total exploitation rate on IFR coho to approximately 3% or less.

The coho management units used by the PST under the Southern Coho management plan are:

- Lower Fraser
- Interior Fraser

- Strait of Georgia - Vancouver Island (SoG V)
- Strait of Georgia – Mainland (SoG Mainland)

### **Domestic Canadian Management**

In response to large declines in total returns and escapements of IFR coho in the mid-nineties, exploitation rates in Canadian fisheries were significantly reduced, and for many years, with the exception of 2014 and 2015, the maximum Canadian exploitation rate (ER) has been set at 3%. Since 1998, this level of exploitation has led to significant fisheries management restrictions for fisheries in times and areas where IFR coho may be encountered. These management actions have generally ranged from non-retention of wild coho to time and area closures. Non-retention or time and area closures may be in place in the following fisheries:

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

Management measures for Interior Fraser coho are generally in place from January to September when these populations are expected to be encountered in southern BC waters. These measures are expected to also limit impacts on other Southern Inside coho populations.

For fishery planning purposes, IFR coho fishing mortality is estimated pre-season using a variety of domestic models. Exploitation rates in the marine fisheries are estimated using a harvest rate spreadsheet model, which is based on the historical relationship between fishing effort and associated exploitation rates in the period 1986 to 1997 as determined from coded wire tag recoveries of IFR coho and release mortality rates as identified in the South Coast Integrated Fisheries Management Plan (IFMP).

Food, social and ceremonial, commercial and recreational impacts, from the Fraser River mouth to Sawmill Creek, are estimated using results from a decay model. Results are based on the number of coho encounters in fisheries directed on other species; the proportion of IFR to LFR coho present in the river at the time of the particular fishery; and, release mortality rates as identified in the IFMP. Coho encountered in tributary and mainstem Fraser River fisheries upstream of Sawmill Creek are assumed to be 100% IFR coho.

A post-season estimate of exploitation rate is developed from the same models but using reported catch and release and/or fishing effort data collected during the fishing season. For 2014, standard post-season model outputs were compared with alternative methods including DNA-based analysis for marine fisheries.

For the purpose of implementing the PST arrangements in the Annex 4 Coho Chapter, Canada works with the United States to estimate fishery impacts on southern BC coho using a bilaterally agreed Fisheries Regulation Assessment Model (FRAM). The FRAM model is used pre-season by the United States to plan fisheries within stock-specific constraints associated with MU status as identified in the Agreement. FRAM estimated impacts on IFR coho may not match the estimates projected by Canadian domestic models as FRAM is based on a shorter base period of CWT data (1986-92, instead of 1986-97 used in CDN domestic models), impacts in Fraser River in-river fisheries are accounted for differently, and includes other impacts associated with natural mortalities and dropouts.

Post season, FRAM reconstructs cohort abundance(s) to estimate fishery-stock-specific ERs. The post season application of the FRAM model has recently been updated to incorporate Fraser River freshwater fisheries impacts.

For 2017, based on poor marine conditions and on-going low productivity regime, the Department is planning to manage Canadian fisheries in a highly precautionary manner with fisheries management measures similar to those in place prior to 2014.

### **Fraser River Fisheries**

Within the Fraser River, the “window closure” has been the primary tool applied in First Nations, commercial, and recreational fisheries to protect Interior Fraser Coho from non-selective fishing gear (e.g. gill nets, rod and reel fishing with bait). Selective fishing gear (e.g. beach seines, rod and reel fishing with no bait, dip nets) has been allowed to proceed within these window closure dates. The window closure is implemented on subsequent dates in upstream areas of the Fraser and Thompson Rivers, depending on when the peak migration of IFR coho is expected to pass through each area.



In the past decade, with the exception of 2014, the start and end dates of the window closure have been selected to protect 90% of the Interior Fraser coho migration from exposure to non-selective fishing gear, with adjustments made on an annual basis to initiate the closure period following the Labour Day weekend. The objective of protecting 90% of the run was developed when IFR coho were in critically low status, and was aligned with other domestic management measures to meet an overall domestic management objective of limiting the total Canadian exploitation rate on Interior Fraser Coho to 3% or less.

For 2017, the window closure dates are identified below. During the times and areas specified below, fisheries will be closed for non-selective fishing gear, and only selective or limited experimental fisheries will be permitted.

Table 13.3-3: 2017 Window Closure Dates for non-selective fishing gear

<b>Subareas 29-6, 29-7, 29-9 and 29-10</b>	September 5 to October 6
<b>Fraser River - Below Mission</b>	September 5 to October 6
<b>Fraser River - Mission to Hope</b>	September 7 to October 9
<b>Fraser River - Hope to Sawmill Creek</b>	September 9 to October 14
<b>Fraser River - Sawmill Creek to Lytton</b>	September 16 to December 31
<b>Fraser River - Lytton to Williams Lake River</b>	September 23 to December 31
<b>Fraser River - Upstream of Williams Lake River</b>	October 1 to December 31
<b>Thompson River Downstream of the confluence of the North and South Thompson Rivers</b>	September 23 to December 31
<b>Thompson River Upstream of the confluence of the North and South Thompson Rivers</b>	October 1 to December 31

## INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO SOUTHERN INSIDE COHO FISHERIES

All fisheries where IFR coho are known to be prevalent will be conducted with a non-retention restriction for unmarked coho, except for an extremely limited number of FSC fisheries conducted in terminal areas by First Nations in Fraser and Thompson River tributaries.

Fisheries for other salmon species will be managed taking into consideration the anticipated incidental mortalities of IFR coho which may result in reduced harvest opportunities for other salmon species.

### 13.3.2.4 ALLOCATION AND FISHING PLANS

Based on the IFR coho management objective, the following fishing plan considerations have been identified.

#### 13.3.2.4.1 First Nations Fisheries

##### *Food Social and Ceremonial*

##### *Marine Waters*

First Nations target local salmon stocks for FSC purposes throughout the Inner South Coast. Sockeye salmon are a priority species for First Nations, but the overall objective expressed by many First Nations in consultation is to access a diversity of fishing opportunities throughout the season and across species. Coho salmon make up part of that diversity.

2017 management measures include:

- Retention of wild coho salmon is permitted in portions of southern Queen Charlotte Sound, Queen Charlotte Strait, northern Johnstone Strait, and Mainland Inlets (Kingcome, Knight, and Bute).
- In other Management Areas of Southern BC, all efforts and attempts shall be made to return all wild coho to the water alive and unharmed. After all efforts and attempts to return wild coho to the water alive and unharmed have been made, wild coho that are dead may be retained. All coho missing an adipose fin (with a healed over scar) may be retained.

##### *Non-tidal Waters (excluding Fraser River)*

Some First Nations coho-directed fisheries may occur in freshwater systems throughout Southern Inside waters subject to local abundance.

### *Lower Fraser*

Due to recent trends of poor abundances of Fraser coho stocks, there have been no First Nations' fisheries in the lower Fraser Area that target coho salmon (with the exception of terminal ESSR harvests in hatchery-enhanced systems). With the exception of 2014 and 2015, First Nations have been asked to release alive and unharmed where possible incidentally-caught unmarked coho salmon.

Marked coho salmon may be retained for FSC purposes. Where applicable, First Nations may retain un-marked coho salmon for FSC purposes following the window closure dates noted above.

Directed harvest may be permitted in specific areas or terminal systems where abundance permits. These fisheries are generally for very small numbers of coho. Fishing plans are discussed and agreed upon between DFO and the appropriate First Nations once coho have begun to return to the area and terminal abundance sufficient to support some small-scale FSC harvest can be assessed.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount [Table 10.2-1](#) in Southern BC/Fraser River First Nations Fisheries.

## ***Fishery Monitoring and Catch Reporting***

### *Marine Waters*

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

### *Fraser River and tributaries*

In the Fraser River watershed, catch monitoring programs are managed through Activity Funding or Comprehensive Fisheries Agreements.

In the Lower Fraser, monitoring programs implemented typically include landing site or vessel based collection of catch and effort information paired with validation of effort by vessel patrols or overflights. Specific focus has also been placed on sampling of chinook salmon for mark rate

information and coded-wire tags (CWTs) in recent years to support the Salmon Head Recovery Program.

For fisheries above Sawmill Creek, catch monitoring programs range from basic census type to more enhanced programs that include collecting effort and catch rate information in creel sample programs.

### ***Treaty Fisheries***

#### *Tsawwassen Fisheries (Domestic)*

As per the Tsawwassen Fisheries Operation Guidelines (TFOG), each year the Tsawwassen First Nations (TFN) will develop a Tsawwassen Annual Fishing Plan (TAFP) for the harvest of salmon as per the Tsawwassen First Nations Final Agreement.

The treaty outlines that in any year, the Tsawwassen Allocation for coho salmon is an amount of Fraser River coho salmon that will result in an annual average harvest of 500 Fraser River coho salmon and will be harvested a) incidentally in fisheries that target other species; or b) using selective harvesting techniques to capture specific coho stocks.

<http://www.aadnc-aandc.gc.ca/eng/1100100022703/1100100022704>

The monitoring program for Tsawwassen Domestic fisheries includes fisher logs supplemented by validations of catch through on-water patrols and/or observations of landings and effort through on- water patrols. Details of monitoring programs in place can be found in the Tsawwassen Fisheries Operational Guidelines.

#### *Tla'amin Fisheries (Domestic)*

The Domestic allocations for salmon under the Tla'amin First Nations Final Agreement for coho are as follows:

- **Non-terminal Coho**

A number of coho salmon equal to 2.1% of the total amount of coho salmon, as determined by the Minister, harvested by all other mixed-stock coho fisheries in Management Area 15

- **Terminal Coho**

A number of coho salmon equal to 25% of the Available Terminal Harvest for coho salmon stocks that originate from a Terminal Harvest Area, if the Minister determines that there is an Available Terminal Harvest for those stocks.

### 13.3.2.4.2 Recreational Fisheries

Conservation measures to protect coho will be in place in a number of areas and times.

#### *Marine Waters*

Marine recreational fisheries targeting inside coho take place in Johnstone Strait (Areas 11/12/13), the Strait of Georgia (Areas 13 to 19) and Juan de Fuca Strait (Areas 19 to 20). Inside coho fishing opportunities in the South Coast are dependent on the stock status of Interior Fraser coho and Strait of Georgia coho, and fishing opportunities are largely based on minimizing impacts on wild coho with opportunities for retention of hatchery-marked coho. Management measures are often required in order to meet conservation objectives for Interior Fraser Coho, and include non-retention of wild coho in many areas in the South Coast at certain times of the year when they are vulnerable to fisheries.

Marine recreational coho fisheries are typically open from June 1 to December 31, and updates are provided via Fishery Notice and published on the recreational fisheries website: <http://www.bcsportfishingguide.ca>. Normal limits are 2 per day for hatchery-marked fish in most areas. Wild retention and increased daily limits may be considered in some terminal areas of the South Coast where fisheries are targeting local coho stocks. In non-tidal waters, coho retention is permitted based on observed abundances and escapement targets being met. These occur mainly in hatchery systems.

Anglers must release with the least amount of harm any fish caught that may not legally be retained; when releasing a fish, anglers must immediately return it to the water where it was caught.

Wild coho opportunities may be permitted consistent with pre-2014 management measures with greater restrictions in place than in 2014 and 2015; changes to fishery management actions will be announced by Fishery notice.

#### *Fraser River and Tributaries*

Recreational fishing for coho will be closed in the tidal waters of the Fraser River and in non-tidal waters of the Fraser River in Region 2 from January 1 until October 6. Additionally, in this same area, there will be a ban on using bait while fishing for salmon from September 5 until October 6.

In Region 2, opportunities for hatchery marked coho will be provided after the closure dates above. Opportunities on tributaries to the Fraser River are provided in those systems where hatchery production can support a coho fishery. Details can be found at:

<http://www.bcsportfishingguide.ca>

In Regions 3, 5A, 7 and 8, there are no recreational fisheries that target coho. Fisheries for other species may be limited after September 16th if they potentially have impacts on co-migrating coho.

### *Fishery Monitoring and Catch Reporting*

#### *Marine Waters*

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch survey (iREC) are the main tools used to capture recreational catch and effort information in this fishery. South Coast stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

#### *Fraser River and Tributaries*

A recreational creel survey is conducted in the lower Fraser River from Mission to Hope when the area is open to salmon fishing until September 30. In some years the program has been extended into October. Catch estimates are generated for all salmon species harvested (kept) and released.

The catch monitoring program in the Fraser watershed upstream of Alexandria will range from no monitoring to fisher-reported catch to highly intensive creel surveys. The expected effort and catch in a fishery, harvest rate, potential by-catch, and any biological sampling requirements will be taken into account when planning the catch monitoring program.

### **13.3.2.4.3 Commercial Fisheries**

Commercial fisheries are managed to avoid impacts to Southern Inside coho. Generally all coho caught incidentally during fisheries targeting other species must be released in a manner that causes the least harm. Estimates of release mortality are calculated post-season. Fisheries targeting other salmon species may be constrained if potential impacts to IFR coho cannot be reduced to an acceptable level.

#### *Allocation*

Table 13.3-4: Commercial Allocation Implementation Plan for the 2015–2019 period

<b>Description</b>	<b>Areas</b>	<b>Seine B</b>	<b>Gill Net D</b>	<b>Gill Net E</b>	<b>Troll G</b>	<b>Troll H</b>
<b>South Inside</b>	11 to 20, 29	TBD	TBD	TBD	TBD	TBD

Notes on coho allocations (south):

<sup>TBD</sup> currently no directed fisheries in this area. Will be reviewed should future directed opportunity develop.

### *Southern Inside Commercial Coho Fisheries*

#### *Area B Seine*

No directed southern inside coho fisheries and coho non-retention in fisheries directed at other stocks.

#### *Area D Gill Net*

No directed southern inside coho fisheries and coho non-retention in fisheries directed at other stocks.

#### *Area E Gill Net*

No directed southern inside coho fisheries and coho non-retention in fisheries directed at other stocks. During the times specified in [Table 13.3-3](#) fishing will be restricted to limited selective and / or demonstration fisheries only. The retention of coho (hatchery marked only) by-catch during directed chum fisheries may be permitted.

#### *Area H Troll*

No directed southern inside coho fisheries and coho non-retention in fisheries directed at other stocks.

### *Fishery Monitoring and Catch Reporting*

There is a mandatory harvest log and in-season reporting program for catch and release information for all commercial fisheries.

- Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest or electronic transmission with an electronic harvest log (E-log).

Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type. Additional requirements are in place for providing biological samples as required.

### *Southern Inside Coho Demonstration Fisheries*

There are no demonstration fisheries targeting Southern Inside coho.

### *Southern Inside First Nations Commercial Coho Harvest*

There is no First Nations commercial harvest of Southern Inside coho.

### *Harvest Agreements*

There are no harvest agreements for directed coho fisheries on Southern Inside Coho. Harvest Agreements typically include provisions for fishing under the same or comparable rules as commercial fisheries operating in the same areas.

### *Economic Opportunities*

There are no economic opportunity fisheries for Southern Inside coho.

#### **13.3.2.4.4 ESSR Fisheries**

ESSR fisheries may occur at DFO hatchery facilities that have a surplus of returning hatchery coho. In past years, ESSR fisheries for Southern Inside coho have taken place at:

- Big Qualicum Hatchery
- Chapman Creek
- Capilano Hatchery
- Chehalis Hatchery
- Chilliwack Hatchery
- Inch Creek Hatchery



### 13.3.3 WCVI COHO

#### 13.3.3.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

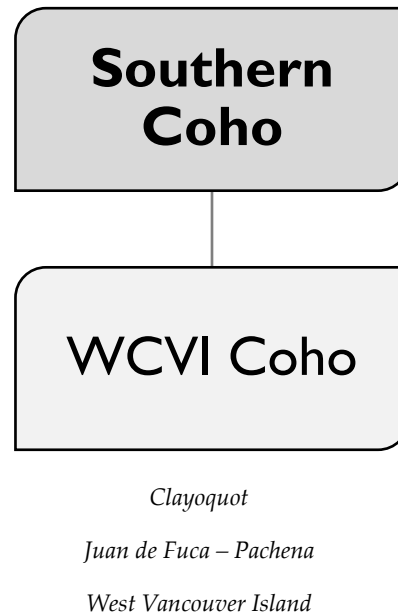


Figure 13.3-3: Conservation Units within the WCVI Coho Management Unit

WCVI coho originate from streams along the West Coast of Vancouver Island. Three major hatchery facilities, including Nitinat (Area 22), Conuma (Area 25), Robertson (Area 23), as well as, production from smaller enhancement facilities also contribute to coho returns. Coho harvest opportunities for these populations are provided for First Nations, recreational and commercial fisheries in inshore waters depending on local abundance.

#### 13.3.3.2 STOCK ASSESSMENT INFORMATION

##### 13.3.3.2.1 Pre-season

In the 2017 Salmon Outlook coho from the West Coast of Vancouver Island are classified as *low* to *near target*. Information to forecast coho returns is limited. Therefore, there is considerable uncertainty in this outlook. For 2017, most of the return will be coho originating from the 2014 brood year that smolted in 2016. While most ocean indicators correlated with early marine survival deteriorated during sea entry years 2014 through 2016, the observed marine survival rate and return of WCVI coho for both sea entry years 2014 and 2015 was higher than expected. In addition, for most WCVI areas, coho spawning populations are relatively stable.

A pre-season marine survival forecast is derived for the Robertson Creek Hatchery stock each year. The results of this forecast for Roberson Creek and Carnation Creek stocks can be found in section 13.3.2.2.1.

#### **13.3.3.2 In-season**

At this time, there is no in-season assessment of abundance done on WCVI coho stocks.

#### **13.3.3.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS**

Fisheries taking place in offshore waters (Areas 121 and 123 to 127) are constrained by Interior Fraser Coho decision guidelines. Fisheries taking place in near shore waters (Areas 23 to 27) are managed based on pre-season assumptions of returns to the area.

#### **13.3.3.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO WCVI COHO FISHERIES**

All fisheries where IFR coho are known to be prevalent will be conducted with a non-retention restriction for unmarked coho.

Fisheries for other salmon species will be managed taking into consideration the anticipated incidental mortalities of IFR coho, resulting in many cases, in reduced harvest opportunities for other salmon species until such time as IFR coho are assumed to have migrated out of the area.

#### **13.3.3.5 ALLOCATION AND FISHING PLANS**

##### **13.3.3.5.1 First Nations Fisheries**

###### *Food Social and Ceremonial*

Management measures to protect stocks of concern, including Interior Fraser coho may constrain WCVI FSC fisheries in the offshore area.

By-catch or incidental retention may be permitted during fisheries for abundant species or stocks. Directed harvest may be permitted in specific areas or terminal systems where abundance permits.

###### *Treaty Fisheries*

###### *Maa-nulth Fisheries (Domestic)*

Each year, the Maa-nulth Fish Allocation for coho salmon is a) an amount of Ocean Coho Salmon equal to 7,000 pieces; and b) An amount of Terminal Coho Salmon equal to:

- 1,200 pieces, when the return of Terminal Coho Salmon is critical;
- 1,850 pieces, when the return of Terminal Coho Salmon is low;
- 3,050 pieces, when the return of Terminal Coho Salmon is moderate; and
- 3,630 pieces, when the return of Terminal Coho Salmon is abundant.

***T'aaq -wiihak First Nations (Ahousaht, Ehattesaht, Hesquiaht, Mowachaht / Muchalaht, and Tla-o-qui-aht First Nations) Salmon Fishery***

Five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the T'aaq-wiihak First Nations) - have aboriginal rights to fish for any species of fish, with the exception of geoduck, within their Fishing Territories and to sell that fish. The First Nations and the Department are currently considering demonstration fishery opportunities for the 2017 season. The scope of these deliberations does not preclude the potential to include any or all salmon species available with the T'aaq-wiihak First Nations' Fishing Territories (located within portions of Pacific Fishery Management Areas (PFMA) 25/125, 124, 26/126 and all of PFMA 24). Where the Department and the T'aaq-wiihak reach agreement on the approach, this IFMP may be updated to reflect the agreed to approach for the T'aaq-wiihak fishery.

In 2016, hatchery marked coho bycatch was authorized for sale in the AABM chinook demonstration fishery after September 15th.

***Fishery Monitoring and Catch Reporting***

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

**13.3.3.5.2 Recreational Fisheries**

Marine recreational fisheries targeting outside coho take place in inshore and offshore waters of the west coast of Vancouver Island (Areas 21 to 27, 121 to 127). Outside coho fishing opportunities are largely dependent on the stock status of Interior Fraser coho and WCVI coho,

and fishing opportunities are largely based on minimizing impacts on wild coho and mark-selective fishing for hatchery-marked coho. Management measures are often required in order to meet conservation objectives for Interior Fraser Coho, and include non-retention of wild coho in many areas in the South Coast at certain times of the year when they are vulnerable to fisheries.

Marine recreational coho fisheries typically operate June 1-Dec 31, and updates are provided via Fishery Notice and published on the recreational fisheries website:

<http://www.bcsportfishingguide.ca>. Normal limits are 2/day and 4 in possession for hatchery-marked fish in most areas. Wild retention and increased daily limits are permitted in most inshore areas on the west coast of Vancouver Island where fisheries are targeting local coho stocks. In non-tidal waters, coho retention is permitted based on observed abundances; escapement targets being met, and primarily occurs in hatchery systems.

For 2017 in Southern BC tidal waters, it is anticipated that some wild coho retention opportunities will be provided in inshore areas of the west coast of Vancouver Island. Limits will be reduced, as was the case in 2016, given expectations for lower abundance. Any changes will be announced via Fishery Notice.

### *Fishery Monitoring and Catch Reporting*

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch survey (iREC) are the main tools used to capture recreational catch and effort information in this fishery. South Coast stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

#### **13.3.3.5.3 Commercial Fisheries**

General commercial fishery overview for Southern Outside coho.

#### *Allocation*

Table 13.3-5: Commercial Allocation Implementation Plan for the 2015–2019 period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Outside	21 to 27, 121 to 127	9.5%	9.5%	1.0%	80.0% <sup>b</sup>	0.0%

Notes on coho allocations (south):

<sup>b</sup> coho taken primarily in offshore fisheries

### *Southern Outside Commercial Coho Fisheries*

#### *Area B Seine*

No directed WCVI coho fisheries and coho non-retention in fisheries directed at other stocks.

#### *Area D Gill Net*

No directed offshore coho fisheries. Near shore fisheries may permit by-catch retention in fisheries targeting other species based on pre-season forecasts of abundance. Coho directed fisheries may be permitted in terminal locations on enhanced stocks.

#### *Area E Gill Net*

No directed southern outside coho fisheries and coho non-retention in fisheries directed at other stocks.

#### *Area G Troll*

Management measures to protect stocks of concern, including Interior Fraser coho will constrain WCVI fisheries in the offshore area. However, there may be potential opportunities available for retention of coho (hatchery marked or hatchery marked and wild) by-catch during directed chinook fisheries. Currently, any fishery that allows coho retention will occur after mid-September to minimize possible impacts on Interior Fraser coho. The Department may permit the retention of hatchery marked coho and/or limited retention of wild coho prior to mid- September subject to the review of available data.

### *Fishery Monitoring and Catch Reporting*

There is a mandatory harvest log and in-season reporting program for catch information for all commercial fisheries.

- Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest or electronic transmission with an electronic harvest log (E-log).

Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type. Additional requirements are in place for providing biological samples as required.

### *WCVI Coho Demonstration Fisheries*

There are no proposed demonstration fisheries targeting Southern Outside coho.

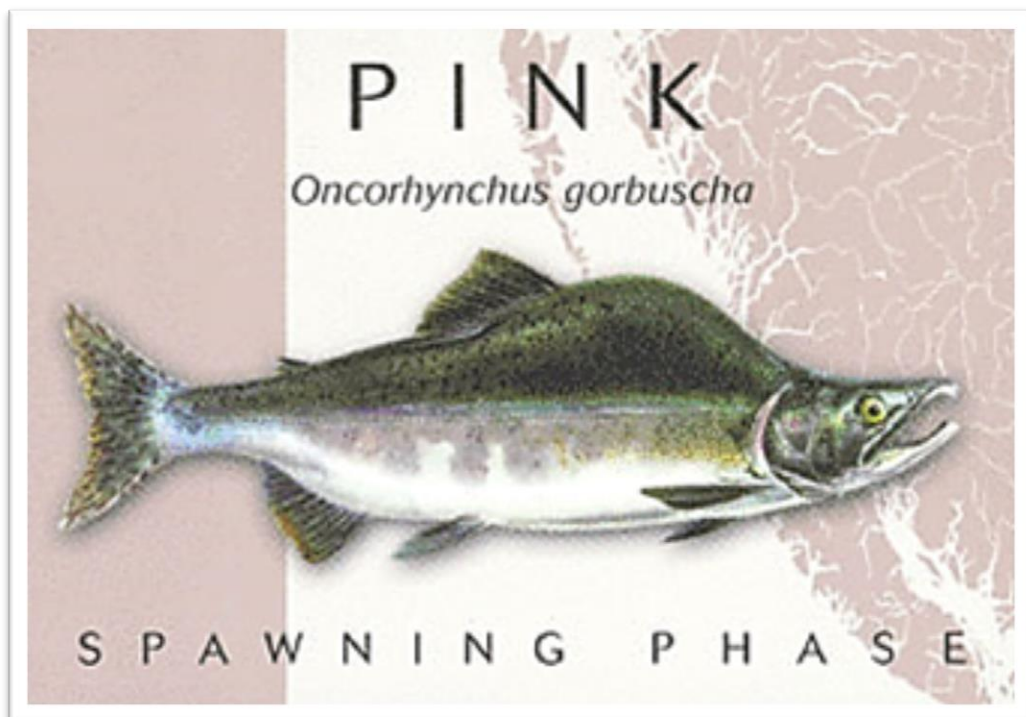
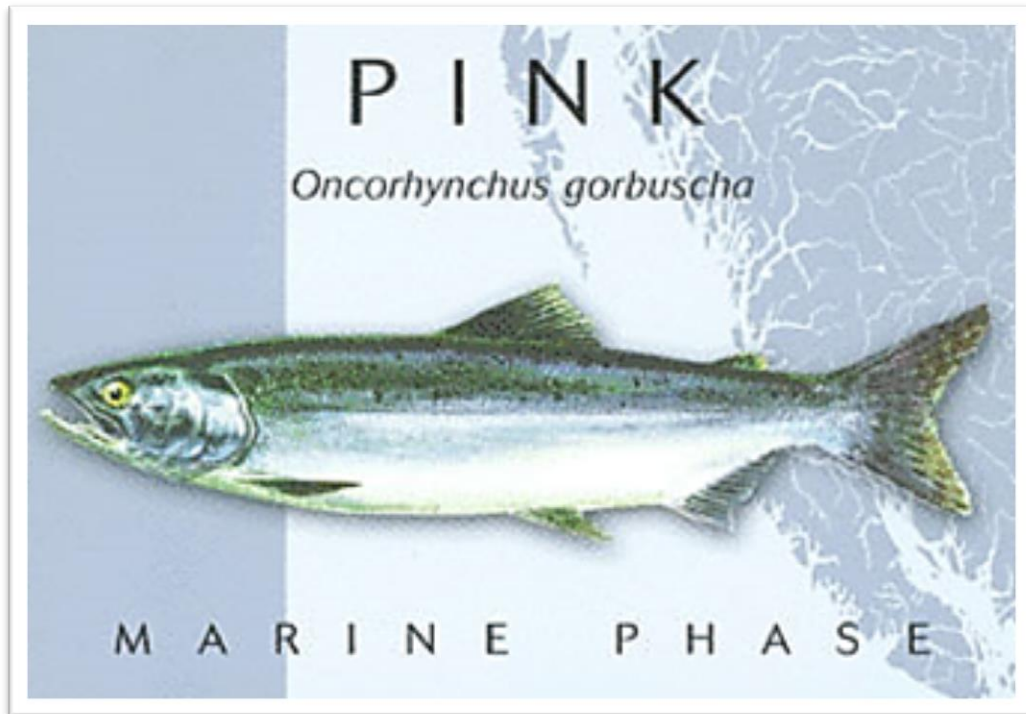
### *Economic Opportunities*

Negotiations to provide economic opportunities for the Tseshaht and Hupacasath First Nations are expected similar to recent years. Economic opportunity fisheries will be conducted under agreements that specify provisions for planning fisheries, allocations, catch reporting requirements as well as roles and responsibilities regarding the management of the fishery. The Department's general approach is that Aboriginal commercial harvest opportunities are managed using the same harvest decision guidelines as the commercial fishery. Aboriginal commercial harvest opportunities may be implemented with different times, areas, gears and regulations consistent with the overall management approach for the commercial fishery.

#### **13.3.3.5.4 ESSR Fisheries**

ESSR fisheries may occur at DFO hatchery facilities that have a surplus of returning hatchery coho. These fishery opportunities are provided to the local First Nations. In past years, ESSR fisheries have taken place at the Roberson Creek Hatchery and Nitinat Hatchery.

### 13.4 SOUTHERN PINK SALMON FISHING PLAN



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### 13.4.1 SOUTHERN PINK - OVERVIEW

In southern BC, pink salmon stocks are found primarily in tributaries of the Fraser River and in streams on the East Coast of Vancouver Island and the Mainland. Pink returns on the WCVI are small and are not actively managed. Most pink fisheries in southern BC target Fraser River origin pink salmon in odd years; pink harvests in other areas primarily occur near terminal areas. Detailed information is provided below outlining management of Fraser River, ECVI and Mainland populations.

Information on smaller WCVI pink populations is under development and further information will be provided in a subsequent year.

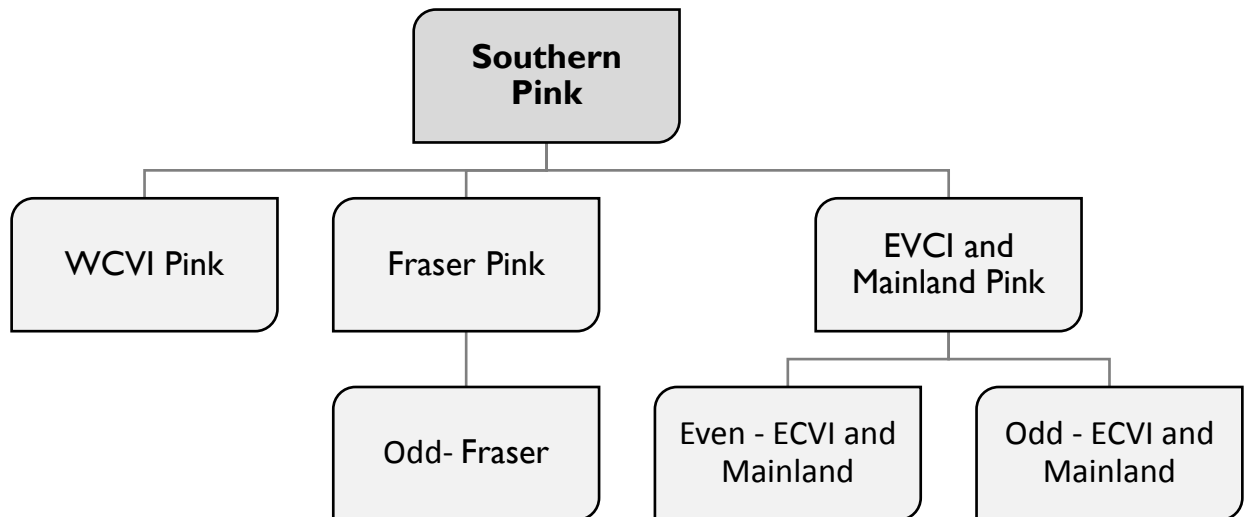


Figure 13.4-1: Overview of Southern Pink Salmon

#### SOUTHERN PINK SALMON ENHANCEMENT INFORMATION:

The major DFO operation enhancement facilities that produce pinks are:

##### BC South Coast:

- Puntledge River hatchery
- Quinsam River hatchery

##### BC Lower Fraser (odd year run only):

- Capilano River hatchery
- Chehalis River hatchery

- Chilliwack River hatchery
- Tenderfoot Creek hatchery
- Weaver Spawning Channel

The information available at the link below addresses production from major DFO Operations (OPS) facilities, contracted Community Economic Development Program hatcheries (CEDP), larger or more complex Public Involvement Projects (Designated Public Involvement or DPI) operated by volunteers, and Aboriginal Fisheries Strategy (AFS). Not included are smaller Public Involvement Projects (PIPs) that are focused toward stewardship, stock rebuilding or educational activities and do not release large numbers of fish that would affect fisheries.

There are two datasets available: Post-Season Production from the 2015 brood year (ie. 2016 releases, and numbers on hand for 2017 release), and the Production Plan, which includes proposed targets for the upcoming 2017 brood year.

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

## 13.4.2 FRASER PINK SALMON

### 13.4.2.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

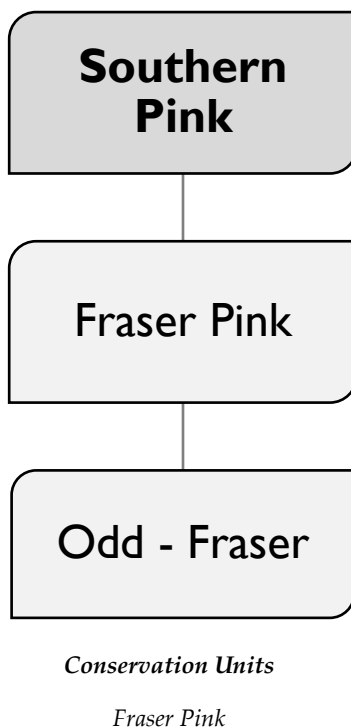


Figure 13.4-2: Conservation Units in the Fraser Pink Salmon Management Unit (1 CU)

Fraser pink salmon migrate up the Fraser system from early August through early October, peaking in early to mid-September. Returns occur on a two year cycle, almost entirely in odd numbered calendar years only. Minimal numbers of Fraser River pink salmon return in even years and no directed harvest occurs in these years.

### 13.4.2.2 STOCK ASSESSMENT INFORMATION

#### 13.4.2.2.1 Pre-season

##### *2017 Fraser Pink Salmon Forecast*

The total 2017 forecast of Fraser Pink Salmon ranges from 4.4 million to 16.7 million at the 10% and 90% probability-levels, with a median (50% probability level) forecast of 8.7 million. The median forecast is below average (12.4 million). Pink Salmon fry abundance in the 2015 brood year was 230 million, which was almost half of the long term average (441 million). Due to

changes in assessment methods of adult returns over time the 2017 pink forecast is highly uncertain.

For further details, refer to the Canadian Science Advisory Secretariat (CSAS) Pacific Region Science Response: DFOa. 2017. Pre-season run size forecasts for Fraser River Sockeye (*Oncorhynchus nerka*) and Pink (*O. gorbuscha*) salmon in 2017. DFO Can. Sci. Advis. Sec. Sci. Resp. 2017/nnn.

Table 13.4-1: 2017 Pre-season Fraser pink return forecasts (DFO, 2017)

Forecase Model	Brood Year (2015) Fry	Mean Run Size	Probability that Return will be at/or Below Specified Run Size				
			10%	25%	50%	75%	90%
Power (Fry) – SSS	230,000,000	12,400,000	4,447,000	6,177,000	8,693,000	12,353,000	16,682,000

### *2017 Pre-season Fraser River Pink and Sockeye Run Timing Curves:*

The Fraser pink timing estimate is based on historic cycle line medians. As shown below it is expected that there will be considerable overlap between the pink and Summer and Late run sockeye in 2017.

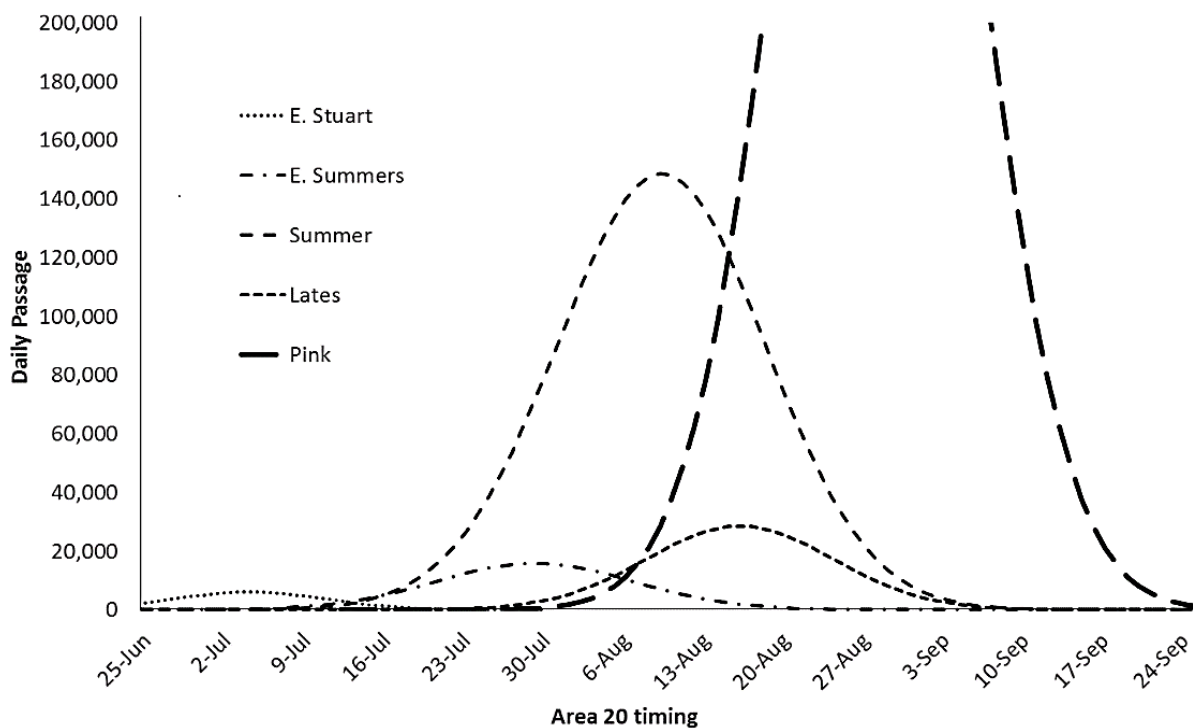


Figure 13.4-3: Pre-season Run Timing Curve for 2017 Fraser River Pink Salmon

### *Planned Test Fisheries*

Test fishery plans to assess in-season abundances of Fraser sockeye and pink salmon are developed annually by the FRP. The plan will take into account conservation concerns for all stocks and species, assessments required for in-season management, total allowable catch and cost. The pre-season planned test fishing schedule may be adjusted based on in-season information.

#### **13.4.2.2.2 In-season**

In-season information including estimates of abundance, run timing, stock composition, and other technical information are used to assess potential fishing opportunities relative to pre-season fishing plans.

In-season information derived from, catch in test and other fisheries, and in-river hydro-acoustic estimates of salmon passage are provided by the Pacific Salmon Commission (PSC) staff to the DFO and FRP for consideration when planning fisheries.

The Fraser River Panel meets regularly from early July to mid-September to review information as it becomes available over the course of the sockeye and pink migration. During this period in-season information is regularly updated by the Fraser River Panel to set spawning

escapement objectives, and calculate Total Allowable Catch (TAC). The availability of the TAC to harvesters will be affected by other factors, including migration pathways and conservation requirements for co-migrating species.

In-season information including fishery openings are posted on the Internet regularly throughout the fishing season by the DFO and the PSC at the following web sites:

- Weekly PSC News Release:  
[http://www.psc.org/news\\_frpnews.htm](http://www.psc.org/news_frpnews.htm)
- Aboriginal, Commercial and Recreational Fishery Notices:  
<http://www-ops2.pac.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?>

Test fisheries:

- FRP approved test fishery results are available from the PSC at:  
[http://www.psc.org/info\\_testfishing.htm](http://www.psc.org/info_testfishing.htm)
- Domestic test fishery results are available from DFO at:  
<http://www.pac.dfo-mpo.gc.ca/fm-gp/fraser/index-eng.html>

In even numbered years, there is no in-season assessment for pink salmon.

In odd years, assessment of Fraser pink run size is conducted by the Pacific Salmon Commission using the Mission Hydro Acoustic site and test fisheries conducted at various locations in southern BC and the Fraser River.

### 13.4.2.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Prior to each fishing season a spawning escapement plan is confirmed and conservation constraints identified. A pre-season fishing plan is then developed by DFO and the Fraser River Panel (FRP) that takes into consideration pre-season forecasts of abundance, timing, and diversion rate.

In even years, there are no fisheries planned to target directly on Fraser pink salmon. In odd years, pink salmon are managed to the decision guidelines in the table below.

Table 13.4-2: Fraser Pink Salmon Odd Year Decision Guidelines

Run Size	Escapement Plan
Less than 7.059 M	The allowable exploitation rate (ER) increases linearly from zero percent at a run size of zero to 15% at a run size of 7.059M.  (For run sizes less than 7.059M, the allowable % ER is the run size expressed in millions multiplied by (15%/7.059))
between 7.059M & 20M	The allowable ER increases from 15% to 70%.  The escapement goal is 6M, the remainder is harvestable surplus.
Greater than 20M	The allowable ER is 70%.  The escapement goal increases as the run size increases beyond 20M.

#### 13.4.2.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO FRASER PINK FISHERIES

Even year Fraser pink returns are extremely low and fisheries are not planned to target directly on the stock.

Fishing plan options are evaluated for a range of possible run sizes and return timing. In-season run size and timing estimates form the basis for management once these estimates are available. Harvest of Fraser pink salmon in odd years may be constrained by the management objectives for Fraser sockeye and for stocks of concern, particularly Interior Fraser (IFR) coho salmon. Fisheries targeting pink salmon may be constrained to meet the management objective for Fraser sockeye, IFR coho or other stocks of concern.

Due to conservation concerns for some co-migrating species, it is anticipated that, similar to previous years, alternative fishing gear and fishing strategies may be employed to access Fraser pink TAC. Alternative gears used in the past have included beach seines and shallow seines in the Fraser River. In the marine areas, varying fishing strategies and gear are being considered such as allowing purse seines with independent observer coverage to access shallow areas at the mouth of the river and possibly within the river.

When pink TAC is available and there are bycatch constraints for other species (i.e. Fraser sockeye) the Department may consider decision rules similar to recent years where the total sockeye mortalities associated with a gear specific pink fishery is 1% or less for sockeye. This calculation takes into account the release mortality rate of the gear being used to harvest pink



salmon as well as the estimated proportion of sockeye expected to be encountered in the fishery.

#### 13.4.2.5 ALLOCATIONS AND FISHING PLANS

In-season information including estimates of abundance, run timing, stock composition, and other technical information are used to assess potential fishing opportunities relative to pre-season fishing plans.

In-season information derived from, catch in test and other fisheries, and in-river hydro-acoustic estimates of salmon passage are provided by the Pacific Salmon Commission (PSC) staff to DFO and Fraser River Panel (FRP) for consideration when planning fisheries.

The Fraser River Panel meets regularly from early July to early September to review information as it becomes available over the course of the sockeye migration. During this period in-season information is regularly updated by the Fraser River Panel to set spawning escapement objectives and calculate Total Allowable Catch (TAC). The availability of the TAC to harvesters will be affected by other factors, including migration pathways and conservation requirements for co-migrating stocks or species.

In-season information including fishery openings are posted on the Internet regularly throughout the fishing season by the DFO and the PSC at the following web sites:

- Weekly PSC News Release:  
[http://www.psc.org/news\\_frpnews.htm](http://www.psc.org/news_frpnews.htm)
- Aboriginal, Commercial and Recreational Fishery Notices:  
<http://www-ops2.pac.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?>

##### 13.4.2.5.1 First Nations Fisheries

###### *Food Social and Ceremonial Fisheries*

First Nations target local salmon stocks for FSC purposes throughout the south coast.

First Nations opportunities to harvest salmon for food, social and ceremonial purposes is provided through communal licences issued by DFO. Catches are typically higher in odd years when Fraser River pink are on their dominant cycle year. Minimal pink catch is thought to occur in even years.

Refer to Section [10.2](#) for [Table 10.2-1](#) of Communal Licence Harvest Target Amounts for Southern BC/Fraser River First Nations Fisheries.

In addition to these FSC fisheries, local First Nations access pink salmon through ESSR harvests at several hatchery facilities.

### ***Treaty Fisheries***

#### *Tsawwassen Fisheries (Domestic)*

In any year, the Tsawwassen Fishing Right Allocation for pink salmon will be that number of fish caught incidentally in the harvest of Tsawwassen Allocation for sockeye salmon, up to a maximum of 2,500 Fraser River pink salmon.

The monitoring program for Tsawwassen Domestic fisheries includes fisher logs supplemented by validations of catch through on-water patrols and/or observations of landings and effort through on-water patrols. Details of monitoring programs in place can be found in the Tsawwassen Fisheries Operational Guidelines.

#### *Tla'amin (Domestic)*

The Domestic allocations for salmon under the Tla'amin First Nations Final Agreement are in any year, the Tla'amin Fish Allocation for pink salmon is a maximum of 5,000 pink salmon. The allocation will be determined by an abundance-based formula.

#### ***T'aaq -wiihak First Nations (Ahousaht, Ehattesaht, Hesquiaht, Mowachaht / Muchalaht, and Tla-o-qui-aht First Nations) Salmon Fishery***

Five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the T'aaq-wiihak First Nations) - have aboriginal rights to fish for any species of fish, with the exception of geoduck, within their Fishing Territories and to sell that fish. The First Nations and the Department are currently considering demonstration fishery opportunities for the 2017 season. The scope of these deliberations does not preclude the potential to include any or all salmon species available with the T'aaq-wiihak First Nations' Fishing Territories (located within portions of Pacific Fishery Management Areas (PFMA) 25/125, 124, 26/126 and all of PFMA 24). Where the Department and the T'aaq-wiihak reach agreement on the approach, this IFMP may be updated to reflect the agreed to approach for the T'aaq-wiihak fishery.

In 2016, pink bycatch was authorized for sale in the AABM chinook demonstration fishery.

## *Fishery Monitoring and Catch Reporting*

### *Marine waters*

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

### *Fraser River and tributaries*

First Nations catch monitoring programs are managed through Activity Funding or Comprehensive Fisheries Agreements. In the Lower Fraser River, monitoring programs implemented vary between Nations but typically include landing site or vessel based collection of catch and effort information paired with validation of effort by vessel patrols or overflights. For fisheries on the Fraser watershed above Sawmill Creek, catch monitoring programs typically range from basic census type to more enhanced programs that include collecting effort and catch rate information in creel sample programs.

#### **13.4.2.5.2 Recreational Fisheries**

In most south coast tidal waters, the daily limit in recreational fisheries will be four pink salmon. Marine recreational pink fisheries typically take place in August and September. Updates are provided via Fishery Notice and published on the recreational fisheries website: <http://www.bcsportfishingguide.ca>

Non-tidal, Fraser River opportunities are anticipated for Fraser River pink salmon in odd numbered years.

## *Fishery Monitoring and Catch Reporting*

### *Marine Waters*

Catch monitoring programs including seasonal creel surveys, logbooks and the internet recreational effort and catch survey (iREC) are the main tools used to capture recreational catch and effort information in this fishery. South Coast and Lower Fraser stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

*Fraser River*

The Lower Fraser River Recreational creel survey is conducted during periods when the study area is open to fishing for salmon until September 30. In some years the program has been extended into October. Catch estimates are generated for all salmon species harvested (kept) and released.

Catch monitoring programs in the Fraser watershed upstream of Alexandria will range from fisher reported catch to highly intensive creel surveys; however, some times and areas are unmonitored. Expected effort and catch, harvest rates, potential by-catch, and any biological sampling requirements are taken into account when planning the catch monitoring program for these areas.

**13.4.2.5.3 Commercial Fisheries**

Allocation arrangements for Fraser pink salmon within the commercial fleet is as follows:

Table 13.4-3: Allocation arrangements for Fraser pink salmon within the commercial fleet

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
Fraser	11 to 20, 29, 121, 123 to 127	82.5%	4.0%*	3.0%*	0.5% <sup>c</sup>	10.0%

Notes on pink allocations (south):

\* pink by-catch provision required for fisheries on more abundant species

<sup>c</sup> potential for future re-negotiation. Pink by-catch required for fisheries on more abundant species

***Fraser Commercial Pink Fisheries***

This section will be updated once the 2017 Forecast for Pink Salmon is released.

***Area B (Seine) and Area D/E (Gill Net)***

This section will be updated once the 2017 Forecast for Pink Salmon is released.

***Area G Troll***

This section will be updated once the 2017 Forecast for Pink Salmon is released.

***Area H Troll***

This section will be updated once the 2017 Forecast for Pink Salmon is released.

### *Fraser Pink Demonstration Fisheries*

Area B and Area H Fraser sockeye and pink fisheries will be managed as an individual transferrable quota (ITQ) demonstration fishery. Please see Appendix 7 for the guidelines used to manage the fishery.

### *Fishery Monitoring and Catch Reporting*

There is a mandatory harvest log and in-season reporting program for catch and other fishing information for all commercial fisheries, including “Start/Pause/Cancel/End” fishing reports. Mandatory catch reporting by phone-in is required with a paper harvest log OR electronic transmission is required with an electronic harvest log (E-log). Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type. Additional requirements are in place for providing biological samples as required. Partial independent on-board/at-sea observer coverage and/or mandatory dockside validation maybe required for Area B seine fisheries.

#### **13.4.2.5.4 Fraser First Nations Commercial Pink Harvest**

### *Demonstration Fisheries*

#### *RWS RiverFresh Wild Salmon Ltd – In-River Fraser Pink Fisheries*

RWS RiverFresh Wild Salmon Ltd (RiverFresh) is a Commercial Fishing Enterprise incorporated in September 2012 as a partnership between four Secwepemc communities of the Shuswap Nation Tribal Council. For 2017 the Secwepemc Fisheries Commission (SFC) will continue to function as the operational planning and business management team on behalf of RiverFresh. SFC has been coordinating demonstration fisheries and conducting business feasibility analyses since 2005. SFC will build on previous year’s experiences and expand their knowledge and abilities participating in larger scale fisheries. Fishery expectations are to target South Thompson 4-1 chinook salmon with retention of pinks to be taken as by-catch. Possible pink directed fisheries may occur depending on migration timing into Kamloops Lake and implementation of the Interior Fraser coho window closure in the area.

- **Participants:** Secwepemc Fisheries Commission and Skeetchestn Indian Band and other partners to be determined
- **Location of fisheries:** Kamloops Lake
- **Gear Type:**
- **Chinook Fishery:** 8” mesh set gill net

- **Time Frame:** NOTE: All fishery time frames are estimates and final dates will be determined according to in-season migration timing information
- **Pink Fishery:** Fishery will target Fraser 41 chinook and retention of pink/ sockeye as by-catch; potential start date is August 22 ending Sept. 23. ( Dual Fishing has been approved)
- **Allocation:** Pink Fishery - allocation will be expressed as a percentage (%) share of Commercial Total Allowable Catch (CCTAC) of Fraser pink in-season utilizing relinquished licences from the PICFI program.
- **Monitoring Plan:** Fishery will be monitored using designated landing sites, electronic logbook system (ELOG) and independent validation of catch at the processing plant and independent validation releases when required.

*Upper Fraser Fisheries Conservation Alliance (UFFCA) Partnership – In-River pink Fisheries*

The UFFCA continues to develop their Commercial Fishing Enterprise focusing on viable and sustainable fishing practices. Discussions are on-going with groups participating in the partnership based on the viability of individual fisheries. The 2017 demonstration fishery will build on previous years' experiences to implement successful fisheries and address constraints and challenges to harvesting allocations, marketing, processing and acquiring infrastructure required for the emerging inland fisheries.

- **Participants:** UFFCA Partnership – Northern Shuswap Tribal Council (NSTC); Tsilhqot'in National Government (TNG)/Xeni Gwet'in First Nations Government and Siska (Siska Indian band).
  - North Shuswap Tribal Council
    - **Location:** Quesnel River, Quesnel Lake, Chilcotin River and mainstem Fraser
    - **Gear Type:** Beach seine, dip nets, and fish wheels
    - **Time Frame:** Fishery will target Fraser pinks; potential start date is Sept. 5 for a four week fishery
  - Tsilhqot'in National Gov't / Xeni'Gwet'in First Nations Government
    - **Location:** Chilko River, Chilcotin River and mainstem Fraser
    - **Gear Type:** Beach seine, dip net, partial weir/fish trap, and fish wheel
    - **Time Frame:** Fishery will target Fraser pinks. Potential start date August 25 for a three to four week fishery

- **Allocation:** All  
Allocation to be determined but will be expressed as a percentage (%) share of Commercial Total Allowable Catch (CCTAC) of Fraser pinks stocks utilizing relinquished licences from the PICFI program.
- **Monitoring Plan:** All  
Fishery will be monitored using designated landing sites, electronic logbook system (ELOG) and validation of catch at either landing site or plant.

*Harrison Salmon Producers (Sts'ailes and Scowlitz First Nations)*

- **Region:** Lower Fraser Area
- **Participants:** Sts'ailes and Scowlitz First Nations
- **Location of Fishery:**
  - The waters of the Harrison River located between the outlet of Harrison Lake downstream to the orange boundary signs labelled 'Fishing Boundary HFA' approximately 1000 meters below the CN Railway Bridge; and
  - The waters of the Fraser River bounded on the west by a line from a white boundary sign on the upstream side of the Fraser River at the mouth of the Sumas River, thence true north to a white boundary sign on the opposite shore and bounded on the east by the downstream side of the bridge across the Fraser River at Agassiz.
- **Gear Type:**
  - Pink: Set nets, drift nets or beach seines. Beach seines not to exceed a maximum mesh size of 2 ¾ inches and a length of 50 fathoms or 360 feet.
- **Allocation:** Allocation to be determined but will be expressed as a percentage (%) share of Commercial Total Allowable Catch (CCTAC) of Fraser pinks stocks utilizing relinquished licences from the PICFI program.
- **Time Frame:** All fishery time frames are estimates and final dates will be determined according to in-season migration timing information.
  - Fraser Pinks: This fishery would be planned to take place once a Fraser River pink Canadian Commercial TAC is identified, potentially late August thru Sept.
- **Monitoring Plan:** During any set net or drift net fishing activity the fishers will transport their catch to a predetermined Sts'ailes /Scowlitz landing site to have their

catch monitored. During any beach seining activity a Monitor will be present with every beach seining crew during all fishing activity and provide set by set updates to the Sts'ailes Fishery Manager, before the beach seine crews deploy their next set to ensure there is TAC available. The Sts'ailes Fishing Authority will collect all catch statistics via these monitors and report this information to DFO immediately after the fishery closes.

This section will be updated if further demonstration proposals are received.

#### 13.4.2.5.5 Harvest Agreements

##### *Tsawwassen*

TFN have an allocation for commercial catch outside of the Treaty as identified via the "Tsawwassen First Nations Harvest Agreement". The allocation in the Harvest Agreement (HA) does not affirm Aboriginal or Treaty rights. Fishing undertaken via the HA will be comparable to the requirements of the current Fraser River commercial fishery (First Nations economic opportunity (EO) fishery), or a general commercial fishery (e.g. Area E). For 2015, the HA will be comparable to the EO fishery.

Tsawwassen fishers will be expected to operate under the same rules that apply to other fishers taking part in that Fraser River commercial fishery. TFN may also prepare a HA Fishing Plan and give to the JFC for review prior to the season's commencement. Each year that the Minister authorizes a Fraser River commercial fishery in the Tsawwassen fishing area, or a general commercial fishery, the Minister will issue a communal commercial fishing licence for the Tsawwassen First Nations. The JFC set up by the Tsawwassen Final Agreement will conduct a post season review.

Salmon allocation under the Harvest Agreement:

- **Pink:** 0.78% of the Commercial Allowable Catch for Fraser River Pink Salmon for that year.

#### 13.4.2.5.6 Economic Opportunities

This section will be updated once the 2017 Forecast for Pink Salmon is released.



## *Fishery Monitoring and Catch Reporting*

### *Lower Fraser*

In the Lower Fraser, catch monitoring programs are managed through Activity Funding Agreements and Comprehensive Fisheries Agreements. While details will be finalized prior to fisheries occurring, the monitoring programs in place in recent years are as follows:

- Non-selective (e.g. gill-net) EO fisheries have been monitored using a mandatory landing program (MLP) with packer and land-based sites where all fishers must land and have their catch validated. This program is supplemented by effort validation by vessel patrols and overflights.
- Selective (e.g. beach seine and purse seine) EO fisheries have required monitors to be present during all fishing activity to record catch information on a set-by-set basis.

#### **13.4.2.5.7 ESSR Fisheries**

There are no anticipated ESSR fisheries for Fraser pink salmon.

### 13.4.3 EAST COAST VANCOUVER ISLAND AND MAINLAND PINKS

#### 13.4.3.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

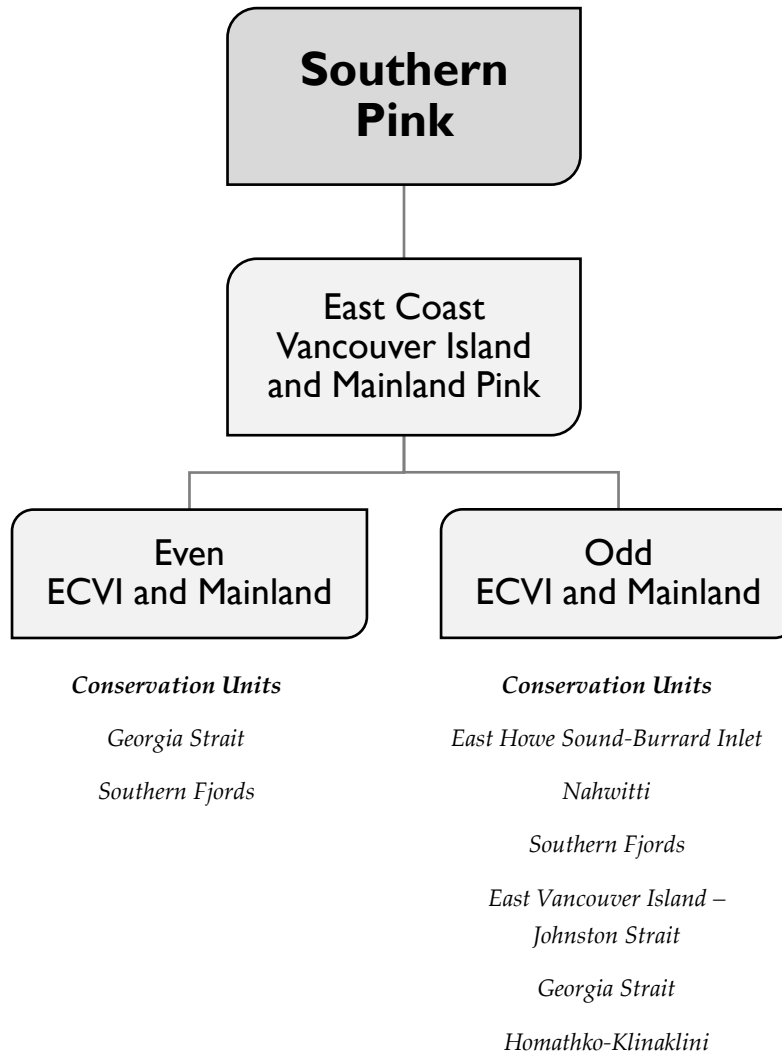


Figure 13.4-4: Conservation Units in the ECVI and Mainland Pink Salmon Management Unit (8 CUs)

East Coast Vancouver Island (ECVI) and Mainland Pinks are grouped into 8 conservation units (CUs) that extend over the entire East Coast of Vancouver Island as well from Seymour Inlet South to Burrard inlet on the Mainland of British Columbia. All pink salmon mature at 2 years of age which results in the reproductive isolation of even and odd year brood lines. Within the ISC region there are many systems that support both even and odd year brood lines and the methods for identifying CUs take that into account. The cycle lines tend to be more even-year dominant as you shift North within the management unit and more odd-year dominant as you move shift South.

These stocks are mainly harvested incidentally or as by-catch during mixed-stock Johnstone Strait Fraser River sockeye and pink directed fisheries. In addition, these stocks can be harvested in Johnstone Strait test fisheries. Directed fisheries have occurred in some terminal areas, for instance portions of Howe Sound, Jarvis Inlet, and Knight Inlet. Historically, the majority of commercial harvests have occurred by purse seine. Opportunities are also available for First Nations and recreational harvesters; however, effort is generally low.

The migration of these stocks to the terminal areas normally begins in early to mid-August and is usually complete by the middle to the end of September. These stocks may be managed as an aggregate early in the season (provided surpluses are expected for stocks) and then separately as they enter the terminal areas.

### 13.4.3.2 STOCK ASSESSMENT INFORMATION

#### 13.4.3.2.1 Pre-season

ECVI and Mainland Pink stocks have been experiencing a steadily improving trend in abundance from the dominant even year cycle since 2008, with a significant return occurring in the 2012 and 2014 brood years.

Table 13.4-4: 2017 Outlook for ECVI and Mainland Pink stocks.

Outlook Unit Sockeye	2017 Outlook Category	Comments
Squamish - Odd only (CUs: East Howe Sound-Burrard Inlet; and, Georgia Strait)	ND	Squamish Pink salmon are rebuilding; however, no run size target has been developed and available quantitative assessment information has not been assessed. (2015 Outlook Category was ND; 2016 Outlook Category was ND)

Outlook Unit Sockeye	2017 Outlook Category	Comments
Areas 11 to 13 - Odd & Even	2/3	<p>Since 2015 Assessment information on pink salmon in this area is limited.</p> <p>Even Year: Preliminary information in 2016 for the dominant cycle returns showed a significant decline in abundance over an improving trend the last 3 return years.</p> <p>Odd Year: Indications in 2015 were that returns to the area were below average. Prior to that we had seen an improving trend in the odd cycle returns to this area. With the indications of poor marine survival in the 2016 returns and the below average brood year returns in 2015, expectations are for below to near target returns in 2017. Historically pink returns to this area have been highly variable and expectations are highly uncertain.</p> <p>(2016 Outlook Category was 2/3; 2015 Outlook Category was 3.)</p>
Georgia Strait - West - Odd & Even	2/3	<p>Preliminary information suggests returns in 2016 were lower than brood returns in 2014. With the indications of poor marine survival in the 2016 pink returns and the well above average brood year returns in 2015, expectations are for below to near target returns in 2017. (2016 Outlook Category was 2; 2015 Outlook Category was 2.)</p>
Georgia Strait - East - Odd & Even	2/3	<p>Assessment information on pink salmon in this area is limited. With 2016 being an off-year for this stock grouping returns have been very low, as expected. With the large escapement in 2015, the expectation is that returns in 2017 will be higher than average. (2015 Outlook Category was 2; 2016 Outlook Category was 2/3.)</p>

Historically pink returns have been highly variable and expectations are highly uncertain.

#### 13.4.3.2.2 In-season

Historically, weekly assessments to determine abundance and potential fishing opportunities have been based on over-flights, on-grounds surveys of the terminal areas and in some years, limited effort seine, gill net, and troll assessment fisheries. Assessment plans for the upcoming season have not yet been developed and are typically dependant on funding availability,

outlook category and early in-season indications of abundance through other programs such as Fraser Sockeye directed test fisheries.

### **13.4.3.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS**

#### **13.4.3.3.1 In-season Decisions**

Commercial representatives are consulted in-season through area harvest committee advisory bodies. The following considerations will guide commercial fisheries management decisions:

- Commercial fishing opportunities are generally not considered until at least 30% to 40% of target escapements are in the river or are identified in terminal sanctuary areas, and there is evidence that a significant proportion of the return has not yet entered the river or sanctuary area.
- A cautious approach to managing pink stocks in terminal areas will continue based on uncertainty in returns.
- Pink directed fisheries will generally be restricted to approach waters and terminal areas.
- Fishing occurs during daylight hours only.
- Fishing boundaries may be established to minimize encounters of chinook, coho, sockeye and chum, and to ensure escapement targets are reached.
- A boundary may be implemented in Upper Knight Inlet to conserve weaker pink stocks.
- Limited participation commercial fisheries may occur. This will be confirmed in-season based on assessment information.

#### **13.4.3.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO ECVI AND MAINLAND PINK FISHERIES**

The abundance of these stocks can be highly variable and there are difficulties in assessing these stocks due to glacial water conditions and limitations of available assessment methods. The funding for in-season assessment of ECVI and mainland pink stocks is currently uncertain; fisheries directed on these stocks are contingent on in-season assessment information.

### 13.4.3.5 ALLOCATION AND FISHING PLANS

#### 13.4.3.5.1 First Nations Fisheries

##### *Food Social and Ceremonial Fisheries*

The majority of the pink harvest occurs incidentally while harvesting co-migrating sockeye salmon and in years of low sockeye abundance.

First Nations opportunities to harvest salmon for food, social and ceremonial purposes are provided through communal licences issued by DFO. The allocation for pink salmon (Fraser and Mainland Inlets combined) from South Coast marine waters is 60,000. In addition to these FSC fisheries, First Nations access pink salmon through ESSR harvests at hatchery facilities. In recent years, harvest opportunities have been available at Big Qualicum and Quinsam River Hatchery facilities.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount [Table 10.2-1](#) in Southern BC/Fraser River First Nations Fisheries.

##### *Fishery Monitoring and Catch Reporting*

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

##### *Treaty Fisheries*

###### *Tla'amin (Domestic)*

The Domestic allocations for salmon under the Tla'amin First Nations Final Agreement is that in any year, the Tla'amin Fish Allocation for pink salmon is a maximum of 5,000 pink salmon. The allocation will be determined by an abundance-based formula.

### 13.4.3.5.2 Recreational Fisheries

The pink return to the Mainland Inlets provide recreational fishing opportunities in inside waters of the South Coast. Mainland pinks typically return in dominant even-year cycles, and fisheries targeting Mainland Pinks take place primarily in Johnstone Strait and terminal areas in the Mainland Inlets.

East Coast Vancouver Island stocks are less abundant and little effort and harvest takes place on these stocks, apart from the Quinsam and Campbell Rivers where pinks can return in abundance. Freshwater recreational fishery effort has increased in recent years, in particular at the Quinsam and Campbell Rivers where high returns have occurred.

Marine recreational pink fisheries typically take place in August, and updates are provided via Fishery Notice and published on the recreational fisheries website: <http://www.bcsportfishingguide.ca>. The normal daily limit is four.

Recreational pink fisheries targeting Mainland Pink stocks and hatchery returns to the Quinsam and Campbell Rivers are anticipated.

#### *Fishery Monitoring and Catch Reporting*

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch survey (iREC) are the main tools used to capture recreational catch and effort information in this fishery. South Coast and Lower Fraser stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

### 13.4.3.6 COMMERCIAL FISHERIES

#### 13.4.3.6.1 Allocations

Table 13.4-5: Commercial Allocation Implementation Plan for the 2015–2019 period

Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
12 to 13 (mainland inlets only)	73.0%	9.0%	0.0%	0.0%	18.0%

#### *ECVI and Mainland Commercial Pink Fisheries*

Fishing opportunities may be considered if stocks appear to be returning in sufficient abundance. Commercial harvest opportunities are dependent on run timing, but typically occur

between mid- August and mid-September. The areas typically fished are outlined below and may be updated in- season.

#### *Area B Seine*

Fishing areas in Thompson Sound, Bond Sound and Jervis Inlet

#### *Area D Gill Net*

Fishing in the approach areas to Thompson Sound and Bond Sound (details to be determined in-season)

#### *Area E Gill Net*

Fishing areas in Jervis Inlet

#### *Area H Troll*

Fishing areas in Jervis Inlet and the terminal approach areas of Thompson Sound, however boundaries will be determined in-season. Coho sensitive areas may remain closed.

### ***Fishery Monitoring and Catch Reporting***

There is a mandatory harvest log and in-season reporting program for catch information for all commercial fisheries.

- Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” fishing reports.
- Mandatory catch reporting by phone-in is required with a paper harvest OR electronic transmission is required with an electronic harvest log (E-log).

Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type. Additional requirements are in place for providing biological samples as required.

#### ***ECVI and Mainland Pink Demonstration Fisheries***

The Area H Harvest Committee has submitted a demonstration fishery proposal under the Commercial Salmon Allocation Framework process. See Appendix 6 for more details.

#### ***ECVI and Mainland First Nations Commercial Pink Harvest***

None at this time.



### **13.4.3.6.2 Economic Opportunities**

There are no economic opportunity arrangements or harvest agreements in this area.

### **13.4.3.6.3 ESSR Fisheries**

ESSR fisheries may occur at DFO hatchery facilities that have a surplus of returning hatchery pinks. In recent years, pink ESSR fisheries have taken place at:

- Quinsam Hatchery
- Weaver Spawning Channel
- Big Qualicum

## 13.4.4 WCVI PINK SALMON

### 13.4.4.1.1 Snapshot Overview and Map of Management Unit

This section of the IFMP is under development and further information will be provided in a future year. There are no directed commercial fisheries on WCVI pink salmon planned for 2017. Pink salmon are permitted to be retained in recreational fisheries. Catch rates are low and occur primarily as incidental catch in fisheries directed at other species.

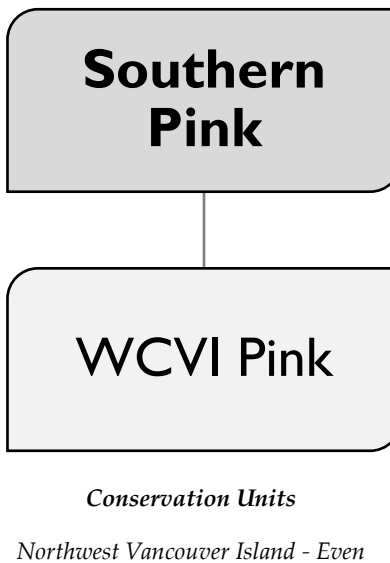
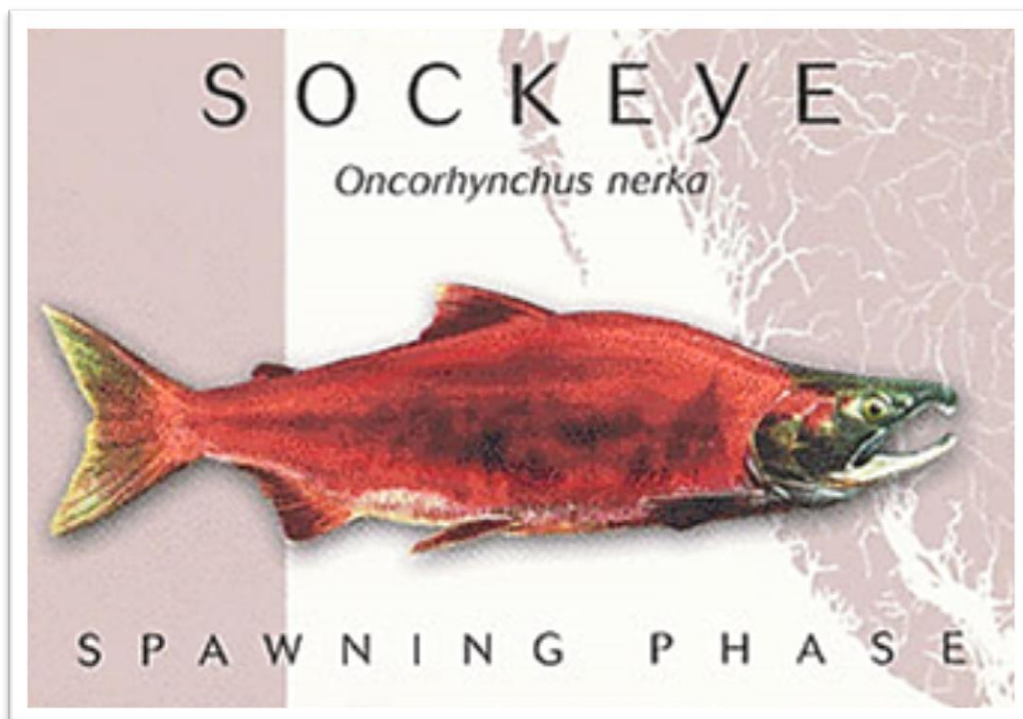
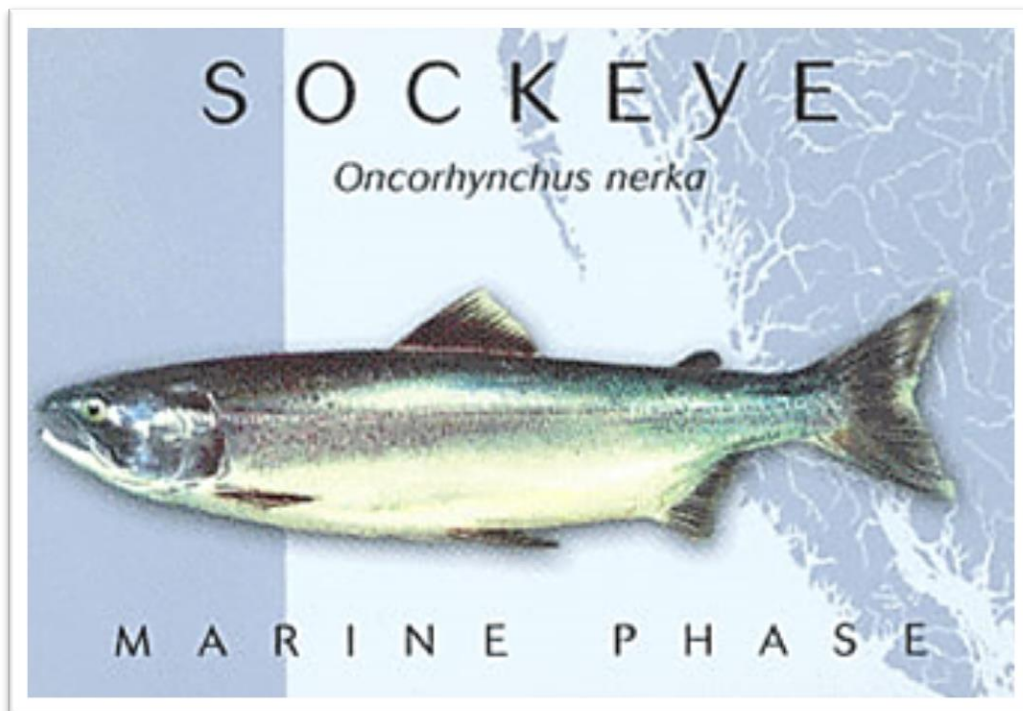


Figure 13.4-5: Overview of WCVI Pink Salmon

### 13.5 SOUTHERN SOCKEYE SALMON FISHING PLAN



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### 13.5.1 SOUTHERN SOCKEYE - OVERVIEW

In Southern BC, sockeye salmon stocks are found primarily in tributaries of the Fraser River and in streams throughout Vancouver Island and the mainland. For Southern Sockeye, returns to Barkley/Somass (WCVI), Fraser River and Okanagan are actively managed and detailed information is provided below outlining management of these populations. Information on smaller sockeye populations in the WCVI-other sockeye unit is under development and further information will be provided in a subsequent year.

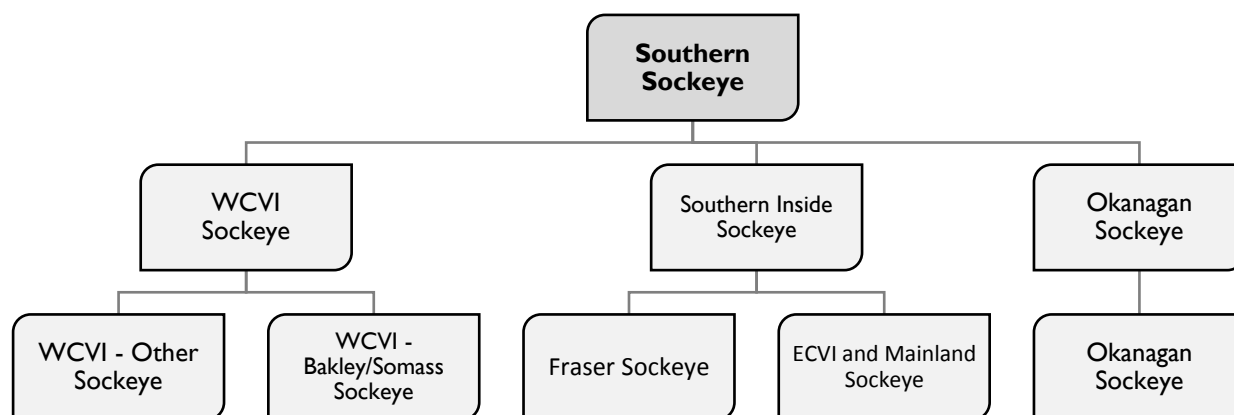


Figure 13.5-1: Southern Sockeye Overview

### SOCKEYE ENHANCEMENT INFORMATION

The major DFO operation enhancement facilities that produce sockeye are:

- **BC South Coast:**
  - Rosewall Creek hatchery
- **Fraser and tributaries:**
  - Inch Creek hatchery
  - Gates Spawning Channel
  - Horsefly Spawning Channel
  - Nadina Spawning Channel
  - Weaver Spawning Channel

The information available at the link below addresses production from major DFO Operations (OPS) facilities, contracted Community Economic Development Program hatcheries (CEDP), larger or more complex Public Involvement Projects (Designated Public Involvement or DPI) operated by volunteers, and Aboriginal Fisheries Strategy (AFS). Not included are smaller Public Involvement Projects (PIPs) that are focused toward stewardship, stock rebuilding or educational activities and do not release large numbers of fish that would affect fisheries.

There are two datasets available: **Post-Season Production** from the 2015 brood year (i.e. 2016 releases, and numbers on hand for 2017 release), and the **Production Plan**, which includes proposed targets for the upcoming 2017 brood year. These are available on the DFO website at: <http://www.pac.dfo-mpo.gc.ca/sep-pmvs/ifmp-pgip-eng.html>

### **FRASER RIVER SOCKEYE – SEP PROPOSALS FOR 2017**

Horsefly Spawning Channel (sockeye) will not be operated in 2017 to allow for needed repairs and infrastructure upgrades which will improve channel operations and productivity in future years.



### 13.5.2 OVERVIEW OF WCVI SOCKEYE

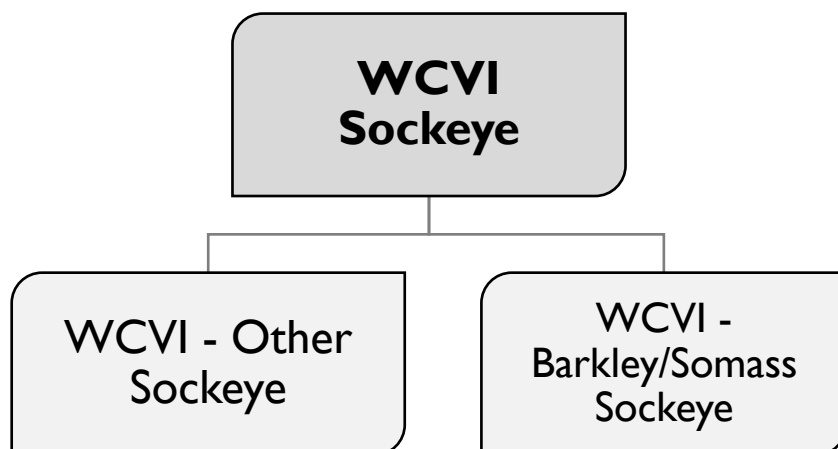


Figure 13.5-2: Overview of WCVI Sockeye

The WCVI Sockeye Management Unit consists of several sockeye conservation units; including 'lake- type' and 'river type sockeye ([Figure 13.5-4](#)). Area 23 stocks are currently the only sockeye populations in the WCVI management unit with sufficient production to support directed fisheries from all sectors. Some other stocks are harvested by local First Nations for domestic use.

### 13.5.3 WCVI BARKLEY/SOMASS SOCKEYE

#### 13.5.3.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

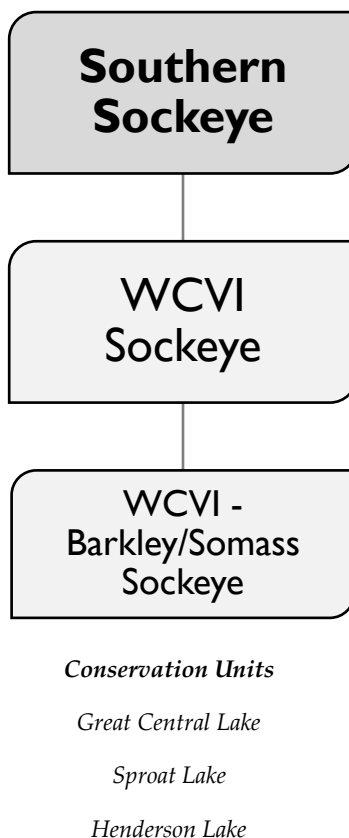


Figure 13.5-3: Overview of WCVI Barkley/Somass Sockeye

There are three major sockeye stocks in Area 23, of which Great Central and Sproat Lake stocks are the largest. The combined production from these two lakes averages about 760,000 annually and accounts for more than 90% of the total sockeye run to the area. Henderson Lake supports a smaller but substantial sockeye run averaging about 30,000 over the past 30 years. However, in many recent years the abundance of Henderson sockeye has been low and fisheries are managed to limit interceptions of this stock. There is a much smaller lake-type population in Maggie Lake as well as small populations of ‘creek-type’ sockeye observed in Carnation Creek, Effingham River, Nahmint River, Sarita River and Toquart River.

Area 23 sockeye fisheries are managed through a “co-management” process via the Area 23 Harvest Committee. Members of the Area 23 Harvest Committee include representatives from local First Nations, fishery advisory committees and local stewardship groups. The Area 23 Harvest Committee serves both a plenary function and a decision-making function. This format

allows for improved planning of local fisheries and better conflict resolution among harvesters. The Area 23 Harvest Committee has developed a detailed Area 23 Sockeye Local Integrated Fisheries Management Plan that describes the basis of the management and assessment of the Area 23 sockeye fisheries and harvest plans for each sector. This plan is used to guide an in-season decision making process during which assessment results are reviewed and weekly harvest plans are determined. An overview of the fishery implementation is provided below.

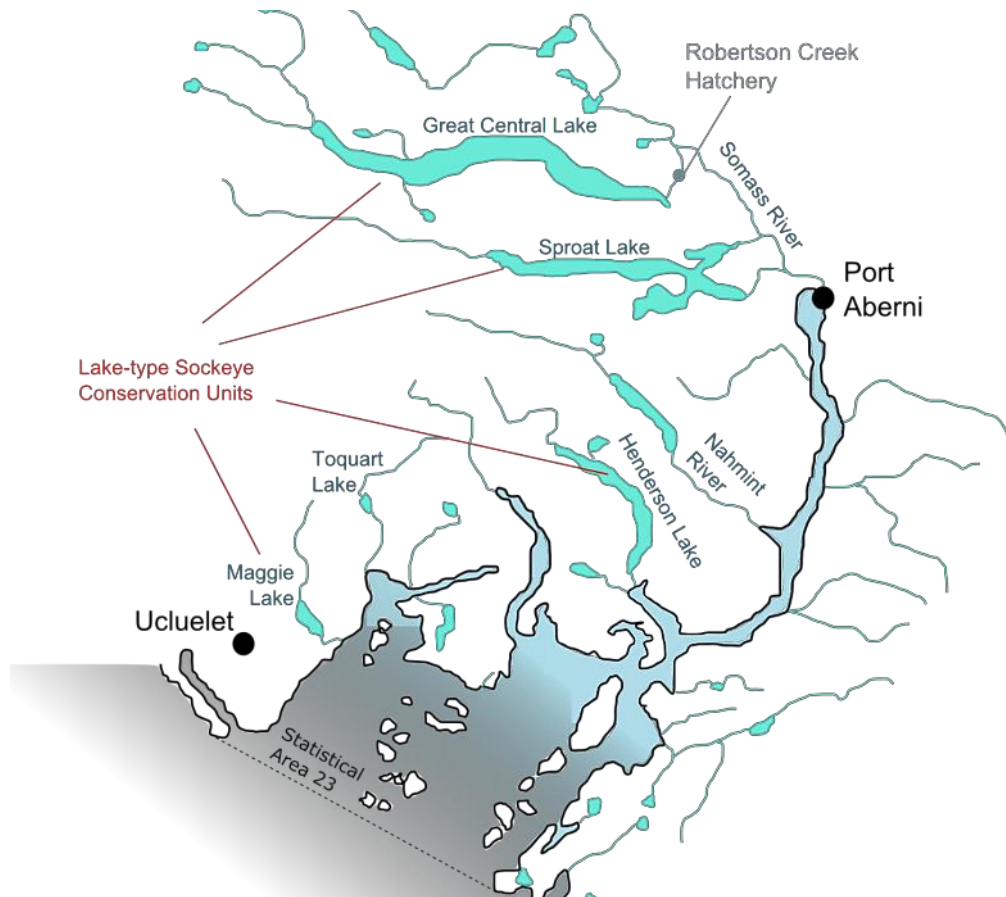


Figure 13.5-4: Barkley Sound and Alberni Inlet - Major features and salmon conservation units

### 13.5.3.2 ENHANCEMENT INFORMATION

For two of the major stocks, enhancement activities have been used to increase production. Great Central Lake was fertilized initially from 1970 to 1973 and then annually since 1977. Henderson Lake was fertilized from 1979 to 1999. Sproat Lake was fertilized once in 1985; however the program was discontinued due to resulting algae blooms. In addition to lake fertilization efforts, a hatchery at Henderson Lake operated by the Uchucklesaht First Nation released fed sockeye fry annually from 1992 to 2007. Total hatchery production ranged from about 70,000 to 2,300,000 fry depending on the year. The contribution of the hatchery to the

Henderson Lake sockeye return was not assessed annually. However, for two brood years when the population was marked the hatchery contribution was variable.

Stable funding for stewardship activities such as habitat restoration and lake fertilization was identified as a priority by the Harvest Committee. In support of this priority, the commercial sector currently provides the proceeds from 10K sockeye out of the commercial harvest to support stewardship activities annually.

There is currently no hatchery supplementation of these stocks.

### **13.5.3.3 STOCK ASSESSMENT INFORMATION**

#### **13.5.3.3.1 Pre-season**

Statistical models are used to forecast sockeye returns to Great Central and Sproat Lakes using correlates of early marine survival and observations of brood year survival (i.e. from earlier returning age classes).

Forecasts generated from all methods are compared and based on their correspondence, their relative accuracy at predicting past returns, and other relevant information a single management forecast is produced for both stocks. The management forecast is used to guide early season fisheries until the run size is estimated based on in-season observations.

Statistical forecast models for Henderson Lake sockeye are not currently generated due to data limitations. However, a salmon “outlook” broadly categorizes status from very low to abundant based on assessments of spawner and juvenile abundance and marine conditions experienced for the contributing brood years. For 2017, the recommended management outlook for Henderson sockeye is in the “very low zone” for harvest management; corresponding to an expected return of less than 15,000. Similar to Somass sockeye, key factors in the low expected abundance for 2017 are the decline in the marine survival rate associated with recent sea-entry years and relatively low smolt production in 2015.

After abundant returns in 2015 and 2016, expectations for the 2017 Somass sockeye return are very low. For 2017, the recommended management forecast for Somass sockeye is the “critical” zone for harvest management; corresponding to an expected return of less than 200,000 adult fish (sibling model forecast return is 172,000). Key factors in the sharp decline of expected abundance relative to recent return years are i) very low observed smolt production and ii) relatively low marine survival rate for the 2014 and 2015 key sea-entry years associated with this year’s adult return.

### 13.5.3.3.2 In-season

Stock assessments are conducted during the migration period using data compiled from escapement counts and fisheries. The objectives of the assessments are to 1) update pre-season run size forecasts for Great Central and Sproat Lake (Somass) sockeye based on in-season observations and 2) evaluate harvest and escapement levels relative to targets. The assessments are conducted weekly starting from mid-June to early August. While there is typically not enough in-season information to revise the outlook for Henderson Lake sockeye, catch of Henderson sockeye in Area 23 fisheries is monitored using stock composition analysis from DNA samples.

Table 13.5-1: Planned Sockeye Test Fisheries.

All dates subject to change based on in-season factors. In-season information from initial TFs is important for determining timing of subsequent TFs.

Test Fishery	Proposed Proponent	Test Fishery Purpose	Potential Dates (preliminary)	
			Start	End
Barkley Sound SN	Hupacasath / Tseshahat	Somass Sockeye	June	August

See Section [12.5](#) for entire table for the 2016 proposed test fisheries.

### 13.5.3.4 DECISION GUIDELINES AND MANAGEMENT ACTIONS

Annual harvest plans are developed to meet the following objectives:

- Achieve the escapement (and corresponding harvest rate) associated with the forecast run size;
- Limit impacts on non-target stocks and species and stocks of concern;
- Meet allocation priorities;
- Distribute the TAC over the duration of the fishing season to maintain the biological diversity of the population (i.e. to maintain a diverse contribution of various age and run timing classes);
- Reduce gear conflict among harvest sectors;
- Maximize the value of harvest;

- Provide for stability and predictability of harvest opportunities;
- Provide assessment information (e.g. catch-per-unit-effort (CPUE) abundance indices, stock and age composition sampling);
- Allow sufficient flexibility to respond to changes in fish behavior / migration caused by environmental conditions through the Area 23 Harvest Committee in-season decision-making process.

The Area 23 local sockeye management plan further details management assumptions, actions and scenarios used to guide in-season decision-making.

### **13.5.3.5 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS**

#### **Environmental Conditions**

In-season harvest planning is complicated by environmental conditions such as low water levels and high water temperatures that impact migration timing and behavior of the fish.

#### **Henderson Lake Sockeye**

With the exception of Maa-nulth Treaty Nations, Henderson sockeye are not targeted in Area 23 sockeye fisheries although they are intercepted. The status and TAC of Henderson sockeye determines the allowable interception rate of Henderson sockeye in Area 23 sockeye fisheries. In-season adjustments to reduce impacts to Henderson sockeye may be necessary if higher harvest rates occur.

### **13.5.3.6 ALLOCATION AND FISHING PLANS**

Assessment results and management issues are reviewed weekly through the Area 23 in-season assessment and management process. Fishing plans are developed based on the Area 23 Sockeye Local Integrated Fisheries Management Plan. The management table for the Somass stocks below shows the escapement and harvest rate targets and allocations by run size. The management table for Henderson sockeye below defines fishery reference points for that stock.

All fisheries are managed to achieve the harvest rate that will result in the escapement target associated with the forecast run size. Methods used to control the harvest rate of the fisheries depend on the gear type. The primary method used to manage catch of First Nations and commercial net fisheries is limiting effort (i.e. the duration of the opening and/or number of participating vessels). The level of effort is determined by an overall weekly catch target. Secondary controls may also be used in net fisheries, such as closing an area with a

concentration of holding fish that are particularly vulnerable to the gear. The primary control to manage the catch of recreational fisheries is through daily limits, which vary according to run size. Secondary controls, such as time and area closures, are also used.

For all fisheries, seasonal closures are in place and in years of low abundance the opening time may be delayed or shortened.

Table 13.5-2: Somass sockeye management table

MANAGEMENT ZONE	RUN SIZE	REFERENCE POINT	ESCAPEMENT GOAL	HARVEST RATE	MAANULTH FIRST NATIONS	RECREATIONAL (expected catch)	TSUMASS ECONOMIC OPPORTUNITY	COMMERCIAL SEINE	COMMERCIAL GILLNET
1 - Critical	Less than 170,000		170,000	0	0	0	0	0	0
2 - Very Low	200,000 to 350,000	low end	170,000	15%	6,000	4,000	16,000	0	4,000
		high end	262,500	25%	13,572	21,000	28,757	11,503	7,669
3 - Low	350,000 to 500,000	low end	262,500	25%	13,572	21,000	28,757	11,503	7,669
		high end	325,000	35%	16,083	45,000	49,013	35,943	23,962
4 - Moderate	500,000 to 700,000	low end	325,000	35%	16,083	45,000	49,013	35,943	23,962
		high end	350,000	50%	21,105	63,000	84,445	102,870	68,580
5 - High	700,000 to 1,000,000	low end	350,000	50%	21,105	63,000	84,445	102,870	68,580
		high end	400,000	60%	22,886	90,000	128,821	208,976	139,317
6 - Abundant	1,000,000 to 1,800,000	low end	400,000	60%	22,886	90,000	128,821	208,976	139,317
		high end	540,000	70%	22,886	100,000	302,971	491,486	327,657

Table 13.5-3: Management zones for Henderson Lake sockeye

MANAGEMENT ZONE	RUN SIZE	REFERENCE POINT	ESCAPEMENT TARGET	HARVEST RATE
1 - Very Low	UP to 15,000		up to 12,750	<15%*
2 - Low	15,000 to 25,000	low end	12,750	15%
		high end	20,000	20%
3 - Moderate	25,000 to 45,000	low end	20,000	20%
		high end	31,500	30%
4 - High	45,000 to 60,000	low end	31,500	30%
		high end	36,000	40%
5 - Abundant	60,000 to 150,000	low end	36,000	40%
		high end	75,000	50%

\* incidental catch only

### 13.5.3.6.1 First Nations Fisheries

#### *Food Social and Ceremonial*

The Tseshaht and Hupacasath First Nations target Somass sockeye for FSC purposes in Area 23. Harvest occurs in the Somass River and upper Alberni Inlet.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount [Table 10.2-1](#) in Southern BC/Fraser River First Nations Fisheries.

#### *Treaty Fisheries*

##### *Maa-nulth First Nations*

Maa-nulth First Nations (Huu-ay-aht, Toquaht, Uchucklesaht, Yu?tu?i?ath (Ucluelet), Ka:'yu:'k't'h'/Che:k:tl'es7et'h' (Kyuquot Sound)) are allocated a portion of the catch of sockeye returning to Henderson Lake as well as the Somass River through a modern treaty (the Maa-nulth Final Agreement). Individuals within the Nations are designated to harvest using a variety of gear; from smaller vessels using hook and line to larger, higher capacity vessels using commercial type gear (e.g. gill net and seine). The Maa-nulth may also designate vessels operated by non-members (e.g. commercial vessels) to fish on behalf of the Nations. The Maa-nulth fishery protocols are reported in the Fishery Operation Guidelines and the Supporting Documents associated with the Final Agreement.



The Domestic allocations for salmon under the Maa-nulth First Nations Final Agreement are as follows:

- Sockeye salmon
  - Each year, the Maa-nulth Fish Allocation for sockeye salmon is: an amount of Somass sockeye salmon equal to:
    - When the Somass Sockeye Canadian Total Allowable Catch is 50,000 or less, 20% of the Somass Sockeye Canadian Total Allowable Catch;
    - When the Somass Sockeye Canadian Total Allowable Catch is greater than 50,000 and less than or equal to 85,000, then 10,000 plus 10% of that portion of the Somass Sockeye Canadian Total Allowable Catch that is greater than 50,000 and less than or equal to 85,000;
    - When the Somass Sockeye Canadian Total Allowable Catch is greater than 85,000 and less than or equal to 412,421, then 13,500 plus 2.87% of that portion of the Somass Sockeye Canadian Total Allowable Catch that is greater than 85,000 and less than or equal to 412,421; and
    - When the Somass Sockeye Canadian Total Allowable Catch is greater than 412,421, then 22,886
  - An amount of Henderson Lake sockeye salmon equal to 26.85% of the Henderson Lake Total Allowable Catch up to a maximum of 17,055 pieces.

### ***Fishery Monitoring and Catch Reporting***

#### *Maa-nulth First Nations*

The Maa-nulth First Nations have developed a harmonized catch monitoring system based on complete catch accounting and reporting using standardized catch reporting books and the Maa-nulth Electronic Reporting Program (MERP) developed by DFO. Catch is estimated by summing individual logbook catch from each harvester as reported through the MERP database. Catch estimates are stratified by time (duration of the opening) and by area (DFO Statistical Area 23A and 23B). Effort is estimated by summing individual fishing trips as reported through the MERP database. Effort estimates are stratified by time (duration of the opening) and by area (DFO Statistical Area 23A and 23B).

### 13.5.3.6.2 Recreational Fisheries

In most years, Somass sockeye returns support sockeye directed recreational fishing opportunities in Barkley Sound, Alberni Inlet and the Somass River. Recreational sockeye fisheries typically commence May 1. The normal daily limit is four sockeye per day in marine waters and two sockeye in non-tidal waters. The preseason outlook for Barkley Sound sockeye is low. Opportunities for directed harvest are unlikely.

Fishing opportunities are subject to in-season management changes depending on abundance.

Fishery updates are provided via Fishery Notice and published on the recreational fisheries website:

<http://www.bcsportfishingguide.ca>

Recreational harvesters in possession of a valid tidal waters recreational license and salmon stamp may participate in the fishery.

The average daily participation is about 150 vessels per day over the duration of the fishing season (e.g. June through July). However, the level of effort varies depending on the timing and catch-per-unit effort. In moderate to abundant run size years and during the peak of the migration, daily effort is typically between 250 to 450 individual vessels with observations of up to 600 vessels during peak weekend periods. There are typically 2 to 3 individual harvesters on each vessel.

#### *Fishery Monitoring and Catch Reporting*

The WCVI Creel Survey generates recreational catch and effort statistics by area and species. Unlike logbook based catch and effort estimates, which require full reporting, the creel survey employs sampling techniques using independent creel surveyors. In order to estimate catch and effort within a coefficient of variation (CV) of 10%, the survey objective is to interview 10% of the landings and conduct a minimum of 8 effort counts per month per area.

#### *Fishery Monitoring Plan*

The creel survey combines angler surveys and aerial boat counts to estimate recreational catch.

Anglers are interviewed at the end of fishing trips to provide both average catch by species and average fishing times, while the aerial counts from chartered aircraft capture 'instantaneous' snapshots of the number of recreational boats fishing at the time of the flight. The fishing times obtained through angler interviews are used to generate a daily profile of fishing activity which is used to expand the 'instantaneous' aerial counts of boats fishing to an estimate of the total number of boats fishing that day. In the most basic sense, the estimate of the number of boats

fishing is multiplied by the average catch by species to estimate the total catch by species on that day.

By adopting a stratified random sampling design for angler interviews and aerial counts, unbiased estimates of daily catch rate are obtained and then expanded to generate monthly estimates. The estimates are stratified by day type (weekday vs. weekend), location (by creel sub-area) and time (monthly and time of the day).

For the Area 23 sockeye fishery, designated survey sites include Clutesi Ramp, China Creek (plus others in Barkley Sound). The survey operates from mid-June to mid-September.

### 13.5.3.6.3 Commercial Fisheries

#### *Allocation*

Table 13.5-4: Commercial Allocation Implementation Plan for the 2015–2019 period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South Local	23	60.0%	40.0%	0.0%	0.0% <sup>c</sup>	0.0%

Notes on sockeye allocation (south):

<sup>c</sup> potential for future re-negotiation

#### *WCVI Barkley/Somass Commercial Sockeye Fisheries*

Commercial harvesters in possession of an Area B seine net licence or Area D gill net licence may participate in this fishery. The preseason forecast for Barkley Sound sockeye is in the critical zone. Opportunities for directed harvest are unlikely. Normally, fishing opportunities for all net fleets in Area 23 occur from mid-June to Early August.

#### *Area B Seine*

Since 2002, Area B harvesters have fished Area 23 sockeye with a weekly catch target that is shared among the Area B licence holders. The number of vessels participating in any given opening is limited and depends on the weekly quota available. The intention of defining a weekly catch target is to provide opportunities for seine harvest that otherwise would not be available under a derby fishery model (i.e. for smaller run sizes or during early season fisheries). Prior to any scheduled opening, the Area B Seine Association provides the local area fishery manager with a list of harvesters designated to fish in that opening. The list is determined based on Area B Association protocol. The opening will not proceed if vessels

outside the designated list are present in the fishing area due to the risk of additional effort exceeding the allowable harvest rate.

#### *Area D Gill Net*

The Area D sockeye fishery operates throughout Area 23 (notwithstanding conservation closures). However, typically early season commercial gill net fisheries are restricted to the “outside” portion (Barkley Sound) seaward of Pocahontas Point to reduce gear conflict within Alberni Inlet. In early to mid-July, the fishery is restricted to the “inside” portion (Alberni Inlet) in order to reduce interceptions of later migrating Henderson sockeye, which are vulnerable in the outside area.

Scheduled openings occur during the day between the hours of 06:00 and 18:00. The fishing area and allowable effort (timing, number and length of openings) are used as harvest controls.

#### ***Fishery Monitoring and Catch Reporting***

##### *Area B Seine*

Catch is estimated by summing individual harvest log catch from each harvester as reported through the FOS (Fishery Operating System) database. Catch estimates are stratified by time (duration of the opening) and by area (Subarea 23-1 and 23-2). Effort is estimated by summing individual phone in reports from each harvester as reported through the FOS database. Effort estimates are stratified by time (duration of the opening) and by area (Subarea 23-1 and 23-2).

All Area B catch landed in the Area 23 sockeye fishery is validated by an independent Observer Service Provider through a dockside monitoring program. Validated catch reported are submitted weekly (by COB Wednesday) to the local fishery manager by the Observer Service Provider.

##### *Area D Gill Net*

Catch is estimated by summing individual harvest log catch from each harvester as reported through the FOS (Fishery Operating System) database. Catch estimates are stratified by time (duration of the opening) and by area (Subarea 23-1 and 23-2). Effort is estimated by summing individual phone in reports from each harvester as reported through the FOS database. Effort estimates are stratified by time (duration of the opening) and by area (Subarea 23-1 and 23-2).

#### **13.5.3.6.4 WCVI – Barkley/Somass Sockeye Demonstration Fisheries**

There are currently no demonstration fisheries planned on these stocks.

### 13.5.3.6.5 WCVI Barkley/Somass First Nations Commercial Sockeye Harvest

#### *Demonstration Fisheries*

There are currently no demonstration fisheries planned on these stocks.

#### *Harvest Agreements*

##### *Maa-nulth Fisheries (Commercial)*

In addition to the allocation of salmon for domestic purposes, Maa-nulth has an allocation for commercial catch outside of the Treaty as identified in the “Maa-nulth First Nations Harvest Agreement”. Fishing under the HA will be managed with requirements comparable to the regular commercial fisheries.

Under the Harvest Agreement, the allocation for Henderson Lake Sockeye Salmon in a portion of Area 23 will be for 20% of the Terminal Commercial Total Allowable Catch after accounting for the Maa-nulth Domestic harvest allocation from the total CTAC.

#### *Economic Opportunities*

Economic opportunity fisheries for Tseshaht and Hupacasath First Nations on terminal sockeye returns are planned as in recent years. However, the preseason forecast for Barkley Sound sockeye is in the critical zone. Opportunities for directed harvest are unlikely. Economic opportunity fisheries will be conducted under agreements that specify provisions for planning fisheries, allocations, catch reporting requirements as well as roles and responsibilities regarding the management of the fishery. These fisheries will be conducted separately from FSC fisheries, under the same harvest decision guidelines as the commercial fishery and fish harvested have been off-set with licences voluntarily relinquished from the commercial fishery. Communal licences are issued weekly to both the Tseshaht and Hupacasath First Nations following the development of an Annual Harvest Plan and through the in-season decision-making process.

The Tseshaht and Hupacasath First Nations share an allocation of Somass sockeye for economic opportunity (EO) fisheries as defined in the Tsu-mu-ass Fishery Agreement. There are two distinct types of fisheries that operate. The first provides for designated communal fishing days, when harvest occurs through a collective effort such as using a drag seine net off one vessel at the Papermill Dam site in the lower Somass River. The harvest is distributed among members of the Nations. The second type of fishery is a traditional, artisanal net fishery. Typically, harvest occurs from relatively small vessels using gill nets. However, the bands may also designate vessels operated by non-members (e.g. commercial vessels) to fish on behalf of the nation. These vessels require a separate licence.

### *Fishery Monitoring and Catch Reporting*

Catch is estimated by summing landing slip information as collected by First Nations monitors stationed at the designated landing sites. Monitors are stationed at landing sites for the full duration of the fishery opening. Catch estimates are stratified by time (duration of the opening) and by area. A landing slip identifies the catch attributed to each designated harvester. More than one landing slip may be attributed to a single vessel (i.e. more than one designated harvester fishing on the vessel and catch is shared among the harvesters).

Effort will be estimated by summing individual landing events from each harvester as reported through the FOS reporting system. The E-logs will be maintained by First Nations monitors stationed at the designated landing sites. Effort estimates will be stratified by time (duration of the opening) and by area (Inlet/Lower River (as delimited by the “green lights” at the pilings)/Papermill Dam). A landing event refers to the landing of a vessel at a designated landing site. As described above, there may be more than one landing slip associated with a landing event.

#### **13.5.3.6.6 ESSR Fisheries**

An ESSR for sockeye is rare but may occur at Robertson Creek Hatchery.

**13.5.4 WCVI –OTHER SOCKEYE**

This section of the IFMP is under development and further information will be provided in a subsequent year. There are no commercial or recreational directed fisheries on these sockeye planned for 2017. However, there are directed First Nations FSC and treaty harvests that occur on many of these stocks.

**13.5.4.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT**

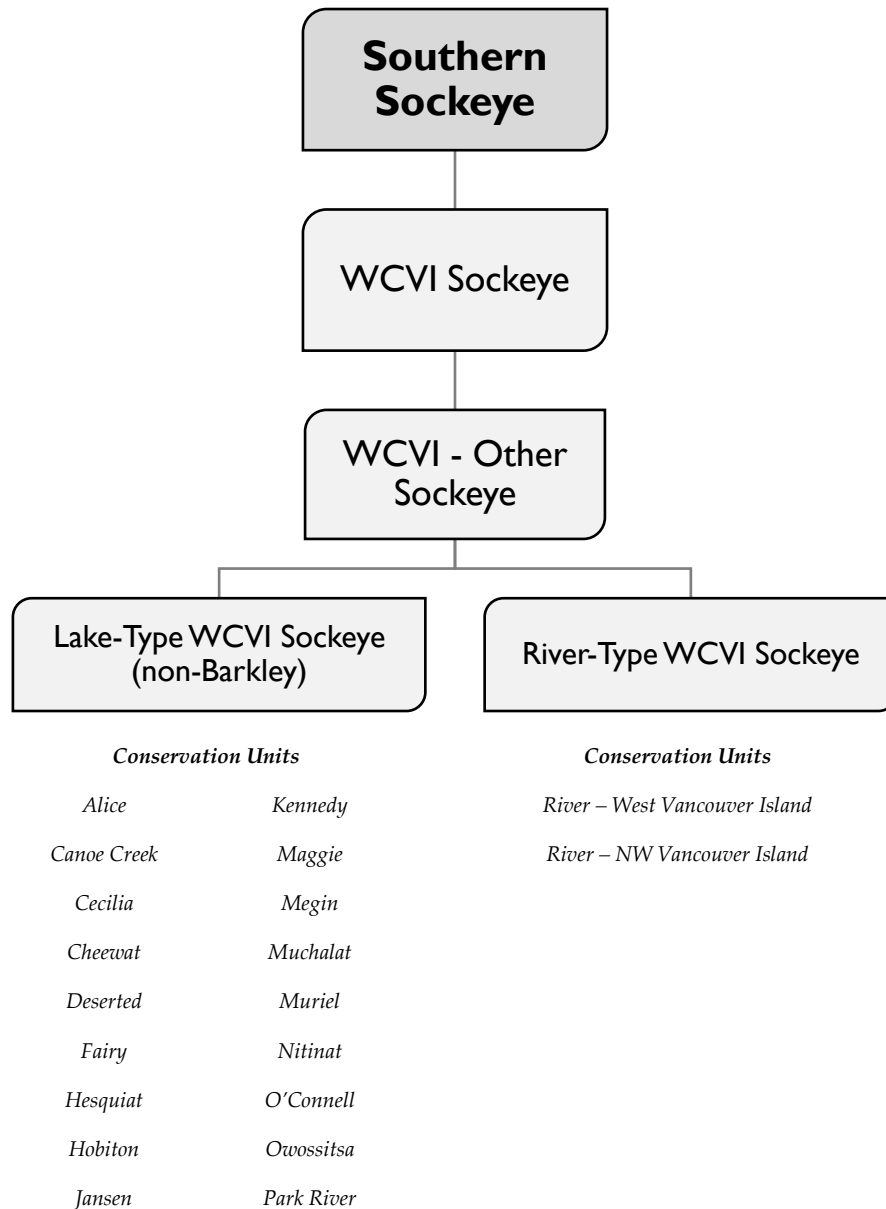


Figure 13.5-5: Overview of WCVI - Other Sockeye

**13.5.5 OVERVIEW OF SOUTHERN INSIDE SOCKEYE**

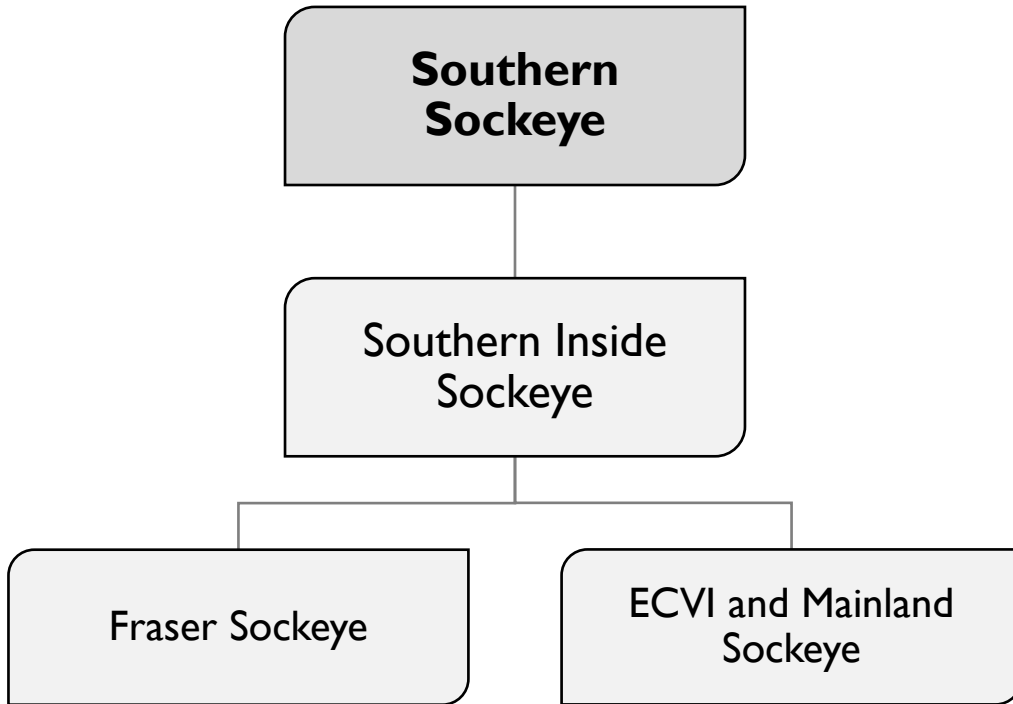


Figure 13.5-6: Overview of Southern Inside Sockeye



13.5.6 FRASER SOCKEYE

13.5.6.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

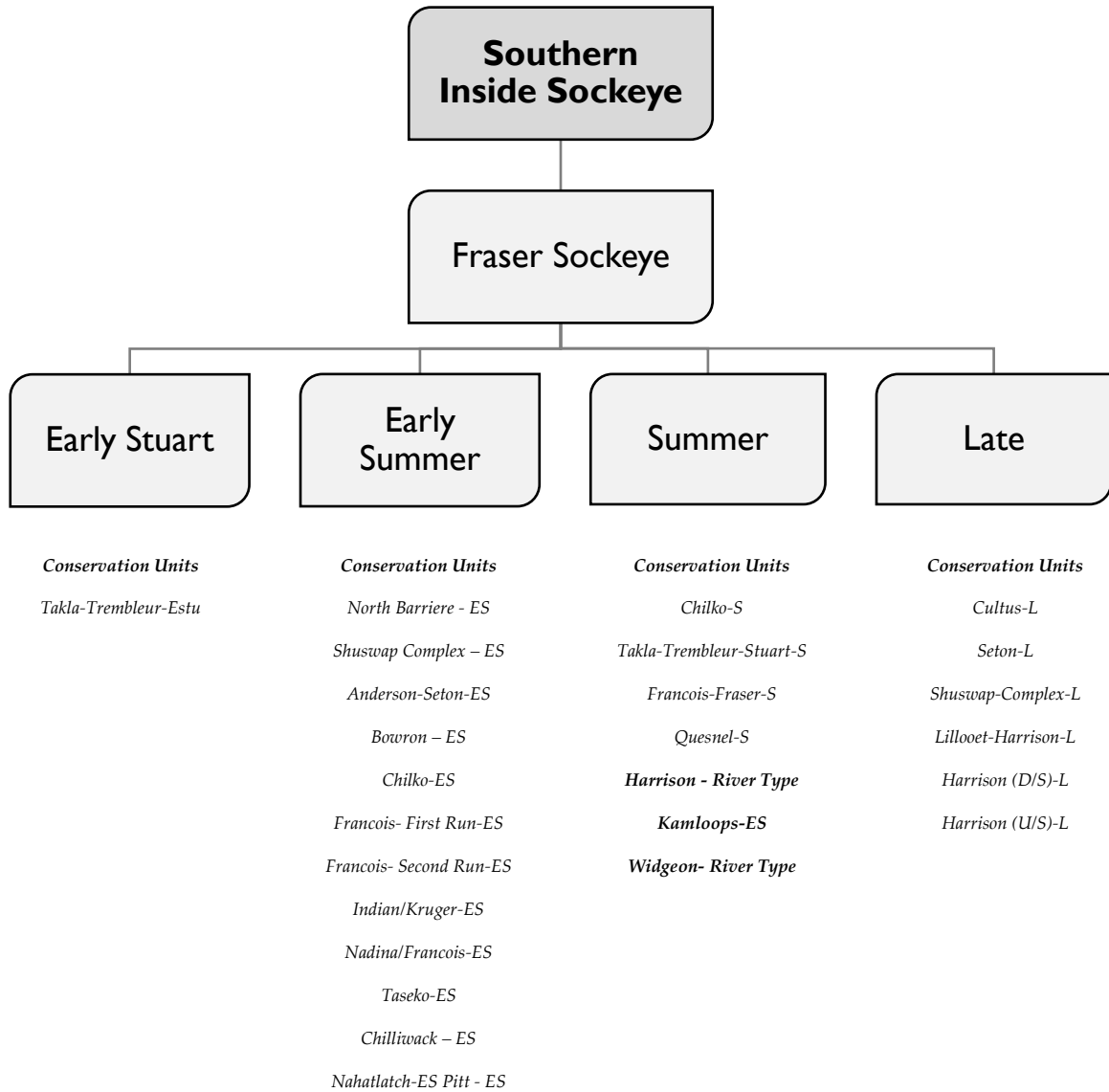


Figure 13.5-7: Overview of Fraser Sockeye

Note: **bolded** CUs have been managed as part of the Summer run aggregate since the 2012 season

Fraser River sockeye are managed based on four management groups (Early Stuart Run, Early Summer Run, Summer Run, and Late Run). However, management actions for specific populations within the four management groups may be considered. Spawning escapement targets and harvest rules are developed annually for each management group.

The Fraser River Sockeye Spawning Initiative process was initiated in 2006 as a Wild Salmon Policy project and is used to inform escapement strategy options. Refer to DFO's consultation website for details:

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

Fisheries targeting Fraser sockeye may also encounter some ECVI and Mainland sockeye and pink salmon. Terminal fisheries on ECVI and Mainland sockeye and pink populations are escapement goal driven. Targeted terminal fisheries on ECVI and Mainland pinks will be determined in-season, while directed sockeye fisheries on ECVI stocks are not anticipated in 2017.

Fisheries targeting on Fraser sockeye may also encounter some ECVI and Mainland sockeye. The ECVI and Mainland sockeye populations are not actively managed.

#### **13.5.6.2 STOCK ASSESSMENT INFORMATION**

The integrated biological status of Fraser River sockeye salmon CUs has been assessed by CSAS. The Science Advisory Report is available at:

<http://www.dfo-mpo.gc.ca/Library/349836.pdf>

Status evaluations were completed and an integrated biological status designation identified for each of the 24 Fraser Sockeye CUs is identified in the table below.

Table 13.5-5 Status Evaluations 24 Fraser Sockeye CUs

Status	Conservation Unit	Cyclic	Stock
Red	Takla-Trembleur-ES	cyclic	Early Stuart
Red	Nadina-Francois-ES		Nadina
Red*	Taseko-ES		Miscellaneous Early Summers
Red	Nahatlatch-ES		Miscellaneous Early Summers
Red	Bowron-ES		Bowron
Red	Cultus-L		Cultus
Red	Widgeon – River		Miscellaneous Lates
R/A	Chilliwack-ES		Miscellaneous Early Summers
R/A	Francois-Fraser-S		Stellako
R/A	Quesnel-S	cyclic	Quesnel
R/A	Takla-Trembleur-Stuart-S	cyclic	Late Stuart
Amber	North Barriere-ES		Fennel & Miscellaneous Early Summer
Amber	Anderson-Seton-ES	cyclic	Gates
Amber	Kamloops-ES		Raft & Miscellaneous Early Summers
Amber	Harrison (U/S)-L		Weaver
A/G	Pitt-ES		Pitt
A/G	Shuswap-ES	cyclic	Scotch, Seymour, Misc.E.Sum.
Green*	Chilko-S & Chilko-ES agg.		Chilko
Green*	Lillooet-Harrison-L		Birkenhead
Green	Shuswap Complex-L	cyclic	Late Shuswap
Green	Harrison – River		Harrison
Green	Harrison (D/S)-L		Miscellaneous Lates
?	DD	Chilko-ES	Chilko
?	Undet.	Seton-L	cyclic Seton

### 13.5.6.2.1 Pre-season

Prior to each fishing season a spawning escapement plan and conservation constraints are determined through the Salmon Outlook and IFMP consultations. A pre-season fishing plan is then developed by the bilateral US-Canada Fraser River Panel process (FRP) that takes into consideration pre-season forecasts of abundance, timing, diversion rate and environmental conditions and/or values based on historical data when forecasts are not available. Final forecasts of timing and diversion rate are not completed until early June.

#### *2017 Pre-season Fraser River Sockeye Run Size Forecast:*

Pre-season forecasts of run size at a range of probability levels are developed for all individual Fraser sockeye stocks, and then aggregated into the four management (run timing) groups Table 13.5-6. Fraser sockeye run size forecasts are highly uncertain, largely due to the wide variability in annual survival rates and the lack of indicators to predict this variation. Fraser sockeye survival for most stocks (notable exceptions include Late Shuswap and Harrison) went through a period of decline that with record low survivals in the 2009 return year, improvements from 2010 to 2014, and declined again (2015 & 2016).

The 2017 run size forecast approach uses a suite of models, which were selected on a stock-specific basis based on their ability to predict true returns over the full stock-recruitment time series. The forecast is highly uncertain as represented by the cumulative probabilities, which largely represent uncertainty in stock survival. If survivals fall outside a stock's historic stock-recruitment time series, then returns could fall outside the forecast distribution. It is more appropriate to reference individual stock forecast distributions, versus the total Fraser sockeye forecast, since not all stocks will exhibit the same survival in a particular year. Therefore, the total forecast distribution from 1,315,000 to 17,633,000 at the 10% to 90% probability levels will likely under-estimate or over-estimate total returns at the ends of the probability distribution. The median of the total forecast distribution (50% probability) is 4,432,000 (there exists a one in two chance the return will be at or below this value). Forecast returns are dominated by Summer Run stocks in general and Chilko in specific in 2017. At the median forecast, Chilko makes up 48% of the entire Fraser Sockeye forecast for 2017.

The effects of extremely warm water temperatures on survival have been incorporated quantitatively into the forecasts for seven stocks where temperature covariate models historically perform well. Although the effect of the warm coastal temperatures on Fraser Sockeye survival is highly uncertain, forecasts for these stocks using temperature covariate models were consistently smaller than forecasts produced by models that exclude these covariates. However, these stocks account for only 15% of the total forecast at the median forecast level. Given that the warm ocean conditions that developed in late 2013 have persisted, median (50% probability level) forecasts based on models that do not include indices of environmental conditions may overestimate returns. Therefore, for the remaining stocks, emphasis on the 25% probability level of the 2017 forecasts is recommended. This is particularly important for the Summer-run timing group because the forecasts for key Summer-run stocks such as Chilko, Late Stuart and Stellako, which are expected to contribute a high proportion (63%) to the total 2017 Fraser Sockeye forecast, were not produced with temperature covariate models. Furthermore, these Summer-run stocks exhibited particularly low survivals in the last two return years (2015 & 2016). Thus, the overall Summer-run return may more closely align with the 25%, rather than the 50% probability level of the forecast. (source:DFOa)

For further details, refer to the Canadian Science Advisory Secretariat (CSAS) Pacific Region Science Response: DFOa. 2017. Pre-season run size forecasts for Fraser River Sockeye (*Oncorhynchus nerka*) and Pink (*O. gorbuscha*) salmon in 2017. DFO Can. Sci. Advis. Sec. Sci. Resp. 2017/nnn.

To support the 2017 Fraser sockeye forecast, an additional CSAS Regional Peer Review (RPR) process occurred to summarize data on fish condition and/or survival from the 2013 parental spawners and their offspring. This work will be published in a separate Pacific Region Science

Response: Supplement to the Pre-Season Return Forecasts for Fraser Sockeye Salmon in 2017 (DFOb, *in press*).

Run sizes for Fraser sockeye will be updated in season.

Table 13.5-6: 2017 Pre-season sockeye return forecasts by stock and timing group (DFO, 2017)

Run timing group Stocks	Mean Run Size		Probability that Return will be at/or Below Specified Run Size <sup>a</sup>				
	all cycles <sup>c</sup>	2017 cycle <sup>d</sup>	10%	25%	50%	75%	90%
<b>Early Stuart</b>	<b>298,000</b>	<b>754,000</b>	<b>42,000</b>	<b>64,000</b>	<b>99,000</b>	<b>158,000</b>	<b>253,000</b>
<b>Early Summer</b>	--	--	<b>95,000</b>	<b>166,000</b>	<b>343,000</b>	<b>792,000</b>	<b>1,971,000</b>
<i>(total excluding miscellaneous)</i>	523,000	272,000	<b>78,000</b>	<b>132,000</b>	<b>250,000</b>	<b>563,000</b>	<b>1,444,000</b>
Bowron	37,000	23,000	2,000	4,000	7,000	12,000	21,000
Fennell	24,000	12,000	5,000	8,000	14,000	25,000	43,000
Gates	56,000	46,000	15,000	25,000	49,000	96,000	197,000
Nadina	75,000	67,000	19,000	35,000	67,000	129,000	232,000
Pitt	71,000	74,000	35,000	52,000	84,000	140,000	227,000
Scotch	116,000	22,000	0	1,000	9,000	90,000	533,000
Seymour	144,000	28,000	2,000	7,000	20,000	71,000	191,000
Misc (Early Shuswap) <sup>e</sup>	--	--	1,000	2,000	7,000	24,000	71,000
Misc (Taseko) <sup>e</sup>	--	--	100	300	500	900	1,000
Misc (Chilliwack)	--	--	14,000	28,000	78,000	191,000	431,000
Misc (Nahatlatch) <sup>f</sup>	--	--	2,000	4,000	7,000	13,000	24,000
<b>Summer</b>	--	--	<b>1,065,000</b>	<b>1,861,000</b>	<b>3,407,000</b>	<b>6,631,000</b>	<b>12,560,000</b>
<i>(total excluding miscellaneous)</i>	3,873,000	6,546,000	1,048,000	1,826,000	3,348,000	6,508,000	12,312,000
Chilko	1,415,000	881,000	663,000	1,168,000	2,142,000	4,090,000	7,588,000
Late Stuart	527,000	1,564,000	100,000	190,000	375,000	789,000	1,561,000
Quesnel	1,304,000	3,726,000	45,000	91,000	192,000	466,000	951,000
Stellako	466,000	241,000	174,000	247,000	355,000	503,000	734,000
Harrison <sup>h &amp; i</sup>	130,000	108,000	52,000	109,000	251,000	603,000	1,390,000
Raft <sup>h</sup>	31,000	26,000	14,000	21,000	33,000	57,000	88,000
Misc (N. Thomp. Tribs) <sup>h &amp; j</sup>	--	--	2,000	5,000	8,000	17,000	34,000
Misc (N. Thomp River) <sup>h &amp; j</sup>	--	--	14,000	28,000	47,000	98,000	199,000
Misc (Widgeon) <sup>k</sup>	--	--	1,000	2,000	4,000	8,000	15,000
<b>Late</b>	--	--	<b>113,000</b>	<b>247,000</b>	<b>583,000</b>	<b>1,292,000</b>	<b>2,849,000</b>
<i>(total excluding miscellaneous)</i>	3,171,000	837,000	<b>106,000</b>	<b>234,000</b>	<b>557,000</b>	<b>1,244,000</b>	<b>2,765,000</b>
Cultus <sup>g</sup>	37,000	14,000	1,000	1,000	3,000	6,000	13,000
Late Shuswap	2,409,000	200,000	12,000	58,000	174,000	444,000	1,027,000
Portage	41,000	45,000	8,000	20,000	51,000	139,000	331,000
Weaver	332,000	282,000	43,000	84,000	186,000	398,000	880,000
Birkenhead	352,000	296,000	42,000	71,000	143,000	257,000	514,000
Misc non-Shuswap <sup>k</sup>	--	--	7,000	13,000	26,000	48,000	84,000
<b>TOTAL SOCKEYE SALMON</b>	--	--	<b>1,315,000</b>	<b>2,338,000</b>	<b>4,432,000</b>	<b>8,873,000</b>	<b>17,633,000</b>
<i>(TOTAL excluding miscellaneous)</i>	7,865,000	8,409,000	<b>1,274,000</b>	<b>2,256,000</b>	<b>4,254,000</b>	<b>8,473,000</b>	<b>16,774,000</b>

- a. Probability that return will be at, or below, specified projection.
- c. Sockeye: 1953-2014 (depending on start of time series)
- d. Sockeye: 1953-2013 (depending on start of time series)
- e. Misc. Early Shuswap stocks use forecasted Scotch and Seymour R/EFS; Misc. Taseko uses Chilko R/EFS in forecast
- f. Misc. Nahatlatch uses Early Summer Run stocks R/EFS in forecast
- g. Brood year smolts in columns C & D (not effective females)
- h. Raft, Harrison, Miscellaneous North Thompson stocks moved in current forecast to Summer Run timing group due to changes in run timing of these stocks
- i. Harrison are age-4 (column C) and age-3 (column D).
- j. Misc. North Thompson stocks use Raft & Fennel R/EFS in forecast
- k. Misc. Late Run stocks (Harrison Lake down stream migrants including Big Silver, Cogburn, etc.), and river-type Widgeon use Birkenhead R/EFS in forecast

Table 13.5-7: Age composition of 2017 forecasted returns for each stock at the 50% probability level

Sockeye stock/timing group	2017 Fraser Sockeye Forecasts			
	FOUR YEAR OLDS	FIVE YEAR OLDS	TOTAL	Four Year Old Proportion
	50% <sup>a</sup>	50% <sup>a</sup>	50% <sup>a</sup>	
<b>Early Stuart</b>	<b>95,000</b>	<b>4,000</b>	<b>99,000</b>	<b>96%</b>
<b>Early Summer</b>	<b>176,000</b>	<b>167,000</b>	<b>343,000</b>	<b>51%</b>
Bowron	7,000	0	7,000	100%
Fennell	12,000	2,000	14,000	88%
Gates	44,000	5,000	49,000	90%
Nadina	48,000	19,000	67,000	72%
Pitt	11,000	73,000	84,000	13%
Scotch	9,000	0	9,000	99%
Seymour	20,000	0	20,000	100%
Misc (EShu)	7,000	0	7,000	100%
Misc (Taseko)	500	0	500	100%
Misc (Chilliwack)	12,000	66,000	78,000	15%
Misc (Nahatlatch)	5,000	2,000	7,000	71%
<b>Summer</b>	<b>3,006,000</b>	<b>402,000</b>	<b>3,408,000</b>	<b>88%</b>
Chilko	2,121,000	21,000	2,142,000	99%
Late Stuart	356,000	19,000	375,000	95%
Quesnel	192,000	0	192,000	100%
Stellako	209,000	146,000	355,000	59%
Harrison <sup>b</sup>	40,000	211,000	251,000	16%
Raft	29,000	4,000	33,000	88%
Misc (N. Thomp. Tribs)	8,000	0	8,000	100%
Misc (N. Thomp River)	47,000	0	47,000	100%
Widgeon	4,000	1,000	5,000	80%
<b>Late</b>	<b>563,000</b>	<b>20,000</b>	<b>583,000</b>	<b>97%</b>
Cultus	3,000	0	3,000	98%
Late Shuswap	174,000	0	174,000	100%
Portage	51,000	0	51,000	100%
Weaver	180,000	6,000	186,000	97%
Birkenhead	133,000	10,000	143,000	93%
Misc. non-Shuswap	22,000	4,000	26,000	85%
<b>Total</b>	<b>3,840,000</b>	<b>593,000</b>	<b>4,433,000</b>	<b>87%</b>

a. Probability that actual return will be at or below specified run size

b. Harrison are four (in four year old columns) and three (in five year old columns) year old forecasts

### 2017 Pre-season Fraser River Sockeye Run Timing Curves:

Preliminary run timing estimates shown in the figure below are based on cycle line medians for the timing group, with the exception of the Late Run, which weights the historical timing of the Birkenhead component by the midpoint run size forecast. All timing estimates may be updated for pre-season planning once timing forecasts are developed for Early Stuart and Chilko sockeye. As shown below it is expected that there will be considerable overlap between the timing groups in 2017.

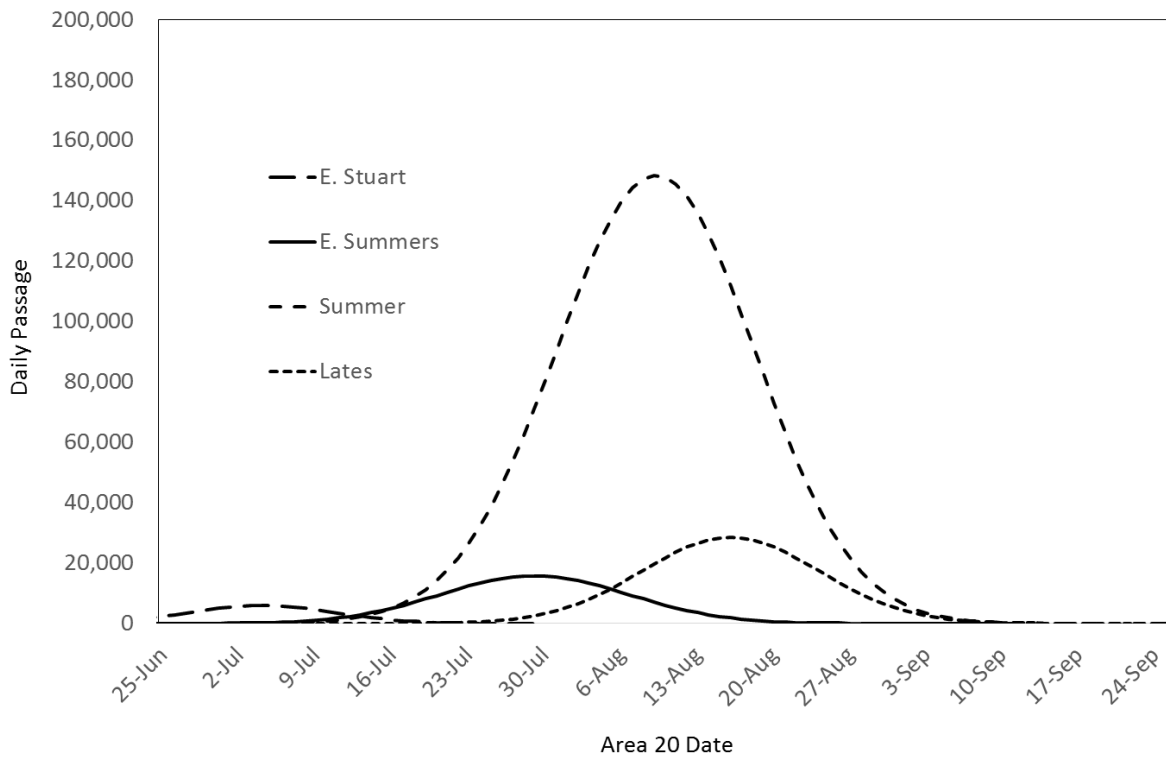


Figure 13.5-8: Pre-season Run Timing Curves for 2017 Fraser Sockeye Salmon

Test fishery plans to assess in-season abundances of Fraser sockeye and pink salmon are developed annually by the FRP. The plan will take into account conservation concerns for all stocks and species, assessments required for in-season management, total allowable catch and cost. The pre-season planned test fishing schedule will be responsive to in-season information.

#### 13.5.6.2.2 In-season

In-season information including estimates of abundance, run timing, stock composition, and other technical information are used to assess potential fishing opportunities relative to pre-season fishing plans.



In-season information derived from catch in test and other fisheries, and in-river hydro-acoustic estimates of salmon passage are provided by the Pacific Salmon Commission (PSC) staff to the DFO and FRP for consideration when planning fisheries.

The Fraser River Panel meets regularly from early July to mid-September to review information as it becomes available over the course of the sockeye and pink migration. During this period in-season information is regularly updated by the Fraser River Panel to set spawning escapement objectives, management adjustments, and calculate Total Allowable Catch (TAC). The availability of the TAC to harvesters will be affected by other factors, including migration pathways and conservation requirements for co-migrating stocks or species.

In-season information including fishery openings is posted on the Internet regularly throughout the fishing season by the DFO and the PSC at the following web sites:

- Weekly PSC News Release:  
[http://www.psc.org/news\\_frpnews.htm](http://www.psc.org/news_frpnews.htm)
- Aboriginal, Commercial and Recreational Fishery Notices:  
<http://www-ops2.pac.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?>
- Sockeye Test fisheries:
  - FRP approved test fishery results are available from the PSC at:  
[http://www.psc.org/info\\_testfishing.htm](http://www.psc.org/info_testfishing.htm)
  - Other test fishery results are available from DFO at:  
<http://www.pac.dfo-mpo.gc.ca/fm-gp/fraser/index-eng.html>

### 13.5.6.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS

#### Fraser Sockeye Run Timing Groups

The four stock groups (Early Stuart, Early Summer, Summer and Late Run) identified under the Pacific Salmon Treaty Annex generally contain stocks with similar timing in the marine area. A preliminary analysis of the run timing for Raft River, North Thompson, and Harrison stocks supported a decision made in advance of the 2012 season to include these stocks in the Summer Run management group (based on similar run timing). The 2017 Fraser sockeye escapement plan reflects this continued re-alignment of stocks. The harvest rules have been adjusted since 2012 to account for this change.

## Proportional Management Adjustments & Proportional Difference Between Estimates

Proportional management adjustments (pMA) and/or proportional difference between estimates (pDBEs) are adopted by the Fraser River Panel to assist in the achievement of escapement goals. Management adjustments (pMA x escapement goal) are added to the escapement goal when necessary to account for historic differences between Mission hydroacoustic estimates of fish passage (plus catch upstream of the hydroacoustics site) and spawning ground escapement estimates. That is, sometimes more fish are needed to be counted going upstream at Mission (in the lower Fraser River) than the escapement goal (plus expected catch upstream of Mission) in order to achieve the escapement goal on the spawning grounds. Differences between estimates at Mission and the spawning grounds (DBEs) occur for many reasons, including measurement errors in the number of fish estimated at Mission, on the spawning grounds, caught along the way, stock ID error, en-route losses due to migration difficulties, and unaccounted for removals (e.g., predation). DBEs expressed as a proportion = pDBE can be interpreted as the percentage of fish estimated to pass Mission that would not be expected to be enumerated by the spawning ground assessment programs, assuming no additional catch.

The pre-season pMAs shown in the escapement plan are comprised of historical median pDBEs. Prior to the start of the season in 2016, a change was made by the Fraser River Panel regarding how pMAs are calculated to better reflect the pDBE of individual stocks. Within the management groups, the pDBEs for some individual stocks (e.g., Chilliwack, Pitt, Harrison and Birkenhead type stocks) were weighted with the pDBEs from the remaining aggregated stocks in their respective timing groups over the range of forecast values. This results in different pMAs within a management group across the range of forecast run sizes. When combining pMAs and escapement goals that both change across the range of forecast run sizes, the resulting allowable exploitation rate can sometimes decrease as the run size increases. However, as expected, the number of fish that can be harvested does increase with run size in these instances.

When forecasts or in-season information on temperature, discharge and/or timing is available, the pMA/pDBE for each management group can be estimated based on historical relationships between the temperature and discharge or the timing of a particular run timing group, and the discrepancy between the number of fish estimated at Mission and the spawning grounds.

The Fraser Panel may update the pMAs and/or pDBEs pre-season and in-season as information on environmental conditions, return timing, return strength and fish health becomes available.

## 2017 Escapement Strategy

The Fraser River Sockeye Spawning Initiative (FRSSI) was undertaken to develop escapement strategies for Fraser River sockeye.

A range of harvest rules (also called Total Allowable Mortality or “TAM” rules) have been evaluated in the Fraser River Sockeye Spawning Initiative (FRSSI) model. An illustration of the harvest rules, taken from the Pestal et al. 2011 CSAS paper, is shown below.

It is important to note that each harvest or TAM rule is characterized by Lower Fishery Reference Points (vertical dashed line through No-Fishing Point) and Upper Fishery Reference Points (vertical dashed line through Cut-Back Point) to describe the shape of the Total Allowable Mortality (TAM) rule for each management aggregate. The TAM cap and the Low Abundance Exploitation Rate (LAER) describe the upper and lower ranges of exploitation rates, respectively. These four values define the harvest rule for each management group in the escapement plan, and once finalized, do not change in-season. During the fishing season, in-season estimates of run size and pMAs are used in conjunction with the escapement plan to determine the total allowable harvest for a given management group at a given time.

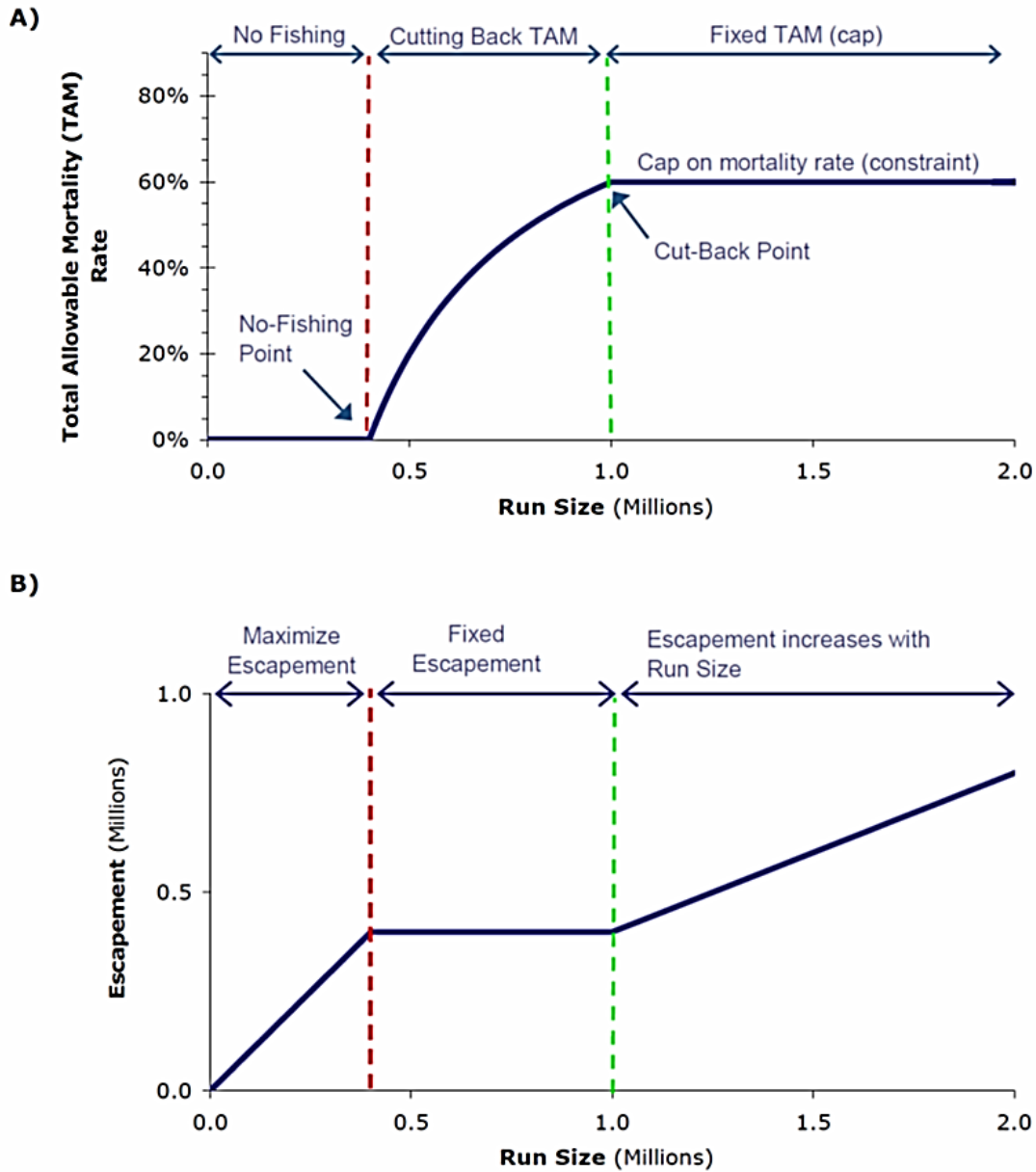


Figure 13.5-9: Shape of Total Allowable Mortality (TAM) rule.

Note: the Low Abundance Exploitation Rate (LAER) is applied after the TAM rule and is not shown in the figure.

The Lower & Upper Fishery Reference Points interact with the TAM cap to describe the shape of the TAM rule:

- The Upper Fishery Reference Point describes the run size above which the TAM plateaus at the TAM cap (e.g. 60%) and the remaining proportion goes to escapement (e.g., 40% of the run at run sizes above the Upper Fishery Reference Point).

- The Lower Fishery Reference Point describes the numerical escapement target when the run size is between the Upper and Lower Fishery Reference Points.

When the run size is below the Lower Fishery Reference Point, the escapement target is the run size, but it is recognized that there will be some low incidental harvest in the form of low abundance exploitation rates (LAERs) to allow for fisheries directed on co-migrating stocks and species. In 2016 the LAER for Early Stuart, Early Summer, and Summer Run timing groups was 10% and 20% for Late Run and Cultus Lake sockeye.

### 2017 Escapement Plan Options

The 2017 escapement plan is consistent with the 2013 escapement plan (brood year). [Table 13.5-9](#) and shows the escapement plan for the four management groups. The fishery reference points shown are evaluated for the stocks that have a long term stock-recruit relationship. For the Early Summers, Summers, and Lates, the fishery reference points are scaled up annually to account for the expected contribution of the unforecasted, or “miscellaneous”, stocks to the run timing group at the p50 abundance forecast (see [Table 13.5-6](#)).

[Table 13.5-10](#) shows, at the management group level, the range of expected outcomes (e.g., exploitation rates, available harvest, management adjustments and expected numbers of spawners to the grounds) for the range of the abundance forecast and fisheries reference points. Note that these values do not take into account the pre-spawn mortality which can occur after adult salmon reach spawning grounds. We currently do not have any methods to predict pre-spawn mortality rates. [Table 13.5-8](#) provides an example of descriptions of the information presented in [Table 13.5-10](#).

Table 13.5-8: Description example of information shown in [Table 13.5-10](#).

From Escapement Options Table		Description
forecast	p10 42,000	run size forecast probability level being used for calculations in this column forecast associated with p-level (above) and this management group
TAM Rule (%)	0%	total allowable mortality (TAM) at this run size forecast
Escapement Target	42,000	escapement goal at this run size
MA	29,200	management adjustment (MA=pMA x escapement target)
Esc. Target + MA	71,200	adds up escapement target and management adjustment
LAER	10%	low abundance exploitation rate
ER at Return	0%	exploitation rate given TAM rule, run size, escapement target, & MA
Allowable ER	10%	larger of the values in the two previous rows
available harvest	4,200	harvest available for test fish, US, and Canada (=allowable ER x run size)
<b>Performance</b>		
Projected S (after MA)	22,300	projected adult spawners to the grounds (NOT accounting for pre-spawn mortality (PSM))
BY Spawners	86,311	number of adult spawners four years previous (compare to line above)
Proj. S as % BY S	26%	projected spawners as a percentage of brood year spawners
cycle avg S	210,606	average number of spawners on this cycle line (NOT accounting for PSM)
Proj. S as % cycle S	11%	projected spawners as a percentage of cycle line average spawners

[Table 13.5-11](#) shows the projected escapement for each forecasted stock over the range of forecast probability levels (i.e. the “projected S (after MA)” from [Table 13.5-10](#) are distributed to the component stocks). Note that this makes the additional assumption that the exploitation rate will be distributed evenly within a management group. As of 2017, these tables reflect stock-specific pDBEs for Pitt, Chilliwack, Harrison, and Birkenhead sockeye.

Table 13.5-9: - 2017 Fraser sockeye Escapement Plan

Management Unit	Harvest Rule Parameters		Lower Fishery Reference Point	Upper Fishery Reference Point
	Low Abundance ER (LAER)	TAM Cap		
Early Stuart	10%	60%	108,000	270,000
Early Summer (w/o misc)	10%	60%	100,000	250,000
Summer (w/o misc)	10%	60%	1,250,000	3,125,000
Late (w/o misc)	20%-30%	60%	300,000	750,000

Table 13.5-10: 2017 Escapement Plan for the Fraser River Sockeye management groups over a range of preseason forecasts.

For description of the values in this table, refer to [Table 13.5-8](#). The bolded columns represent the pre-season planning values that are anticipated to be used to start the season in 2017

Management Unit		Pre-season Forecast Return				
		p10	p25	p50	p75	p90
<b>Early Stuart</b>	forecast	42,000	64,000	<b>99,000</b>	158,000	253,000
	TAM Rule (%)	0%	0%	<b>0%</b>	32%	57%
	Escapement Target	42,000	64,000	<b>99,000</b>	108,000	108,000
	MA	29,200	44,500	<b>68,800</b>	75,100	75,100
	Esc. Target + MA	71,200	108,500	<b>167,800</b>	183,100	183,100
	LAER	10%	10%	<b>10%</b>	10%	10%
	ER at Return	0%	0%	<b>0%</b>	0%	28%
	Allowable ER	10%	10%	<b>10%</b>	10%	28%
	Available harvest	4,200	6,400	<b>9,900</b>	15,800	69,900
<b>2017 Performance</b>						
	Projected S (after MA)	22,300	34,000	<b>52,600</b>	83,900	108,000
	BY Spawners	86,311	86,311	<b>86,311</b>	86,311	86,311
	Proj. S as % BY S	26%	39%	<b>61%</b>	97%	125%
	cycle avg S	210,606	210,606	<b>210,606</b>	210,606	210,606
	Proj. S as % cycle S	11%	16%	<b>25%</b>	40%	51%
Management Unit		Pre-season Forecast Return				
		p10	p25	p50	p75	p90
<b>Early Summer</b>	<i>lower ref. pt. (w misc)</i>	137,000	137,000	<b>137,000</b>	137,000	137,000
<b>(w/o RNT)</b>	<i>upper ref. pt. (w misc)</i>	342,500	342,500	<b>342,500</b>	342,500	342,500
	forecast (incl. misc)	95,100	166,300	<b>342,500</b>	791,900	1,971,000
	TAM Rule (%)	0%	18%	<b>60%</b>	60%	60%
	Escapement Target	95,100	137,000	<b>137,000</b>	316,760	788,400
	MA	39,400	60,400	<b>65,800</b>	163,000	426,600
	Esc. Target + MA	134,500	197,400	<b>202,800</b>	479,760	1,215,000
	LAER	10%	10%	<b>10%</b>	10%	10%
	ER at Return	0%	0%	<b>41%</b>	39%	38%
	Allowable ER	10%	10%	<b>41%</b>	39%	38%
	Available harvest	9,500	16,600	<b>139,700</b>	312,100	756,000
<b>2017 Performance</b>						
	Projected S (after MA)	60,500	103,900	<b>137,000</b>	316,800	788,400
	BY Spawners	210,690	210,690	<b>210,690</b>	210,690	210,690
	Proj. S as % BY S	29%	49%	<b>65%</b>	150%	374%
	cycle avg S	81,685	81,685	<b>81,685</b>	81,685	81,685
	Proj. S as % cycle S	74%	127%	<b>168%</b>	388%	965%

**I3 SOUTHERN SOCKEYE SALMON FISHING PLAN**

Management		Pre-season Forecast Return				
Unit		p10	p25	p50	p75	p90
<b>Summer</b>	<i>lower ref. pt. (w misc)</i>	1,375,100	1,375,100	<b>1,375,100</b>	1,375,100	1,375,100
<b>(w. RNT &amp; Har)</b>	<i>upper ref. pt. (w misc)</i>	3,437,750	3,437,750	<b>3,437,750</b>	3,437,750	3,437,750
	forecast	1,065,000	1,861,000	<b>3,407,000</b>	6,631,000	12,560,000
	TAM Rule (%)	0%	26%	<b>60%</b>	60%	60%
	Escapement Target	1,065,000	1,375,100	<b>1,375,100</b>	2,652,400	5,024,000
	MA	105,900	140,200	<b>145,600</b>	292,600	580,000
	Esc. Target + MA	1,170,900	1,515,300	<b>1,520,700</b>	2,945,000	5,604,000
	LAER	10%	10%	<b>10%</b>	10%	10%
	ER at Return	0%	19%	<b>55%</b>	56%	55%
	Allowable ER	10%	19%	<b>55%</b>	56%	55%
	Available harvest	106,500	345,700	<b>1,886,300</b>	3,686,000	6,956,000
<u>2017 Performance</u>						
	Projected S (after MA)	871,800	1,375,100	<b>1,375,100</b>	2,652,400	5,024,000
	BY Spawners	1,928,582	1,928,582	<b>1,928,582</b>	1,928,582	1,928,582
	Proj. S as % BY S	45%	71%	<b>71%</b>	138%	261%
	cycle avg S	1,577,700	1,577,700	<b>1,577,700</b>	1,577,700	1,577,700
	Proj. S as % cycle S	55%	87%	<b>87%</b>	168%	318%
Management		Pre-season Forecast Return				
Unit		p10	p25	p50	p75	p90
<b>Late</b>	<i>lower ref. pt. (w misc)</i>	314,000	314,000	<b>314,000</b>	314,000	314,000
<b>(w/o Har)</b>	<i>upper ref. pt. (w misc)</i>	785,000	785,000	<b>785,000</b>	785,000	785,000
	forecast	113,000	247,000	<b>583,000</b>	1,292,000	2,849,000
	TAM Rule (%)	0%	0%	<b>46%</b>	60%	60%
	Escapement Target	113,000	247,000	<b>314,000</b>	516,800	1,139,600
	MA	85,700	211,400	<b>286,700</b>	505,500	1,152,600
	Esc. Target + MA	198,700	458,400	<b>600,700</b>	1,022,300	2,292,200
	LAER	20%	20%	<b>20%</b>	30%	30%
	ER at Return	0%	0%	<b>0%</b>	21%	20%
	Allowable ER	20%	20%	<b>20%</b>	30%	30%
	Available harvest	22,600	49,400	<b>116,600</b>	387,600	854,700
<u>2017 Performance</u>						
	Projected S (after MA)	51,400	106,500	<b>243,800</b>	457,200	991,500
	BY Spawners	321,018	321,018	<b>321,018</b>	321,018	321,018
	Proj. S as % BY S	16%	33%	<b>76%</b>	142%	309%
	cycle avg S	177,190	177,190	<b>177,190</b>	177,190	177,190
	Proj. S as % cycle S	29%	60%	<b>138%</b>	258%	560%
	Available Harvest (TF, US, CDN)	142,800	418,100	<b>2,152,500</b>	4,401,500	8,636,600
	Total projected spawners	1,006,000	1,619,500	<b>1,808,500</b>	3,510,300	6,911,900



Table 13.5-1 I: Projected spawners by forecasted stock over the forecast range, applying TAM rules and pMAs.

Color code shows comparison of p50 abundance forecast outcomes compared to cycle average and brood year escapement (green = greater than 125%, yellow = between 25% - 75%, red = less than 25%, no color = between 74% - 125%)

Run timing group Stocks	Total Escapement		Projected esc. across range of run size forecasts at specified TAM + MA					comparisons @p50 to cycle and brood year	
	cycle yr	brood year	10%	25%	50%	75%	90%		
<b>Early Stuart</b>	<b>210,606</b>	<b>86,311</b>	<b>22,300</b>	<b>34,000</b>	<b>52,600</b>	<b>83,900</b>	<b>108,000</b>	<b>25%</b>	<b>61%</b>
<b>Early Summer</b>	<b>81,685</b>	<b>210,690</b>	<b>60,500</b>	<b>103,900</b>	<b>137,000</b>	<b>316,800</b>	<b>788,400</b>	<b>168%</b>	<b>65%</b>
Bowron	5,613	3,306	1,200	2,300	2,700	4,700	8,300	48%	82%
Fennell (cycle avg since 1959)	3,050	3,513	2,900	4,600	5,300	9,700	17,000	174%	151%
Gates	6,114	57,326	8,600	14,400	18,600	37,200	77,700	304%	32%
Nadina	21,652	13,493	10,900	20,200	25,400	50,000	91,500	117%	188%
Pitt	26,780	59,279	26,800	39,800	42,300	72,100	118,900	158%	71%
Scotch (cycle avg since 1983)	5,120	24,708	0	600	3,400	34,900	210,300	66%	14%
Seymour	6,287	23,429	1,200	4,000	7,600	27,500	75,400	121%	32%
Misc (EShu)	721	11,603	600	1,200	2,700	9,300	28,000	374%	23%
Misc (Taseko)	730	213	100	200	200	300	400	27%	94%
Misc (Chilliwack)	2,563	11,705	7,200	14,400	26,300	66,000	151,400	1026%	225%
Misc (Nahatlatch)	3,055	2,115	1,200	2,300	2,700	5,000	9,500	88%	128%
<b>Summer</b>	<b>1,586,431</b>	<b>1,954,088</b>	<b>871,800</b>	<b>1,375,100</b>	<b>1,375,100</b>	<b>2,652,400</b>	<b>5,024,000</b>	<b>87%</b>	<b>70%</b>
Chilko	244,789	1,235,234	549,000	874,900	879,600	1,671,200	3,114,800	359%	71%
Quesnel	839,358	184,038	37,300	68,200	78,800	190,400	390,400	9%	43%
Late Stuart	379,176	132,603	82,800	142,300	154,000	322,400	640,800	41%	116%
Stellako	57,183	110,196	144,100	185,000	145,800	205,500	301,300	255%	132%
Harrison	49,588	250,117	33,200	63,000	79,500	190,100	440,300	160%	32%
Raft	7,606	16,394	11,600	15,700	13,600	23,300	36,100	179%	83%
Misc (N. Thomp. Tribs)	466	2,524	1,700	3,700	3,300	6,900	14,000	708%	131%
Misc (N. Thomp River)	6,866	19,024	11,600	21,000	19,300	40,000	81,700	281%	101%
Misc (Widgeon)	1,399	3,958	600	1,200	1,300	2,500	4,800	93%	33%
<b>Late</b>	<b>177,190</b>	<b>321,018</b>	<b>51,400</b>	<b>106,500</b>	<b>243,800</b>	<b>457,200</b>	<b>991,500</b>	<b>138%</b>	<b>76%</b>
Cultus (incl. hatchery contributions)	5,673	3,312	300	300	1,000	1,800	3,900	18%	30%
Late Shuswap	65,125	185,245	4,100	20,000	59,900	133,600	309,100	92%	32%
Portage	4,621	7,509	2,800	6,900	17,500	41,800	99,600	379%	233%
Weaver	31,336	36,077	14,800	28,900	64,000	119,800	264,900	204%	177%
Birkenhead	68,237	80,120	25,200	42,600	85,800	134,900	269,900	126%	107%
Misc. non-Shuswap	2,198	8,755	4,200	7,800	15,600	25,200	44,100	710%	178%

### 13.5.6.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO FRASER SOCKEYE FISHERIES

Though total allowable catch (TAC) is identified for various management groupings in most years, conservation and management constraints on co-migrating stocks, management groups, or other species can affect harvest opportunities.

**Incidental Harvest:** In cases when the total allowable mortality minus any management adjustment results in a zero or very low total allowable mortality for a timing group, the Department may consider measures to protect 80-90% of the return of that timing group while allowing for the harvest of co-migrating stocks and or species. Test fishing impacts are included as part of this incidental harvest calculation on the group. The intention of this provision is to allow for limited fisheries directed on co-migrating stocks or species but may also permit

limited harvest in some cases. This provision is not intended to create directed harvest opportunities on the run timing groups with zero or very low total allowable mortality. These provisions will also take into account any harvest (directed or incidental) that may have occurred previously on the timing group and can also include delayed mortalities associated with fish released in fisheries targeting other species. In the escapement plan table, this concept is expressed as the low abundance exploitation rate (LAER).

**Harvest Constraints:** Fishing plan options are evaluated for a range of possible run sizes and return timing. In-season run size and timing estimates form the basis for management once these estimates are available. There is significant overlap between run timing groups. The overlap of one timing group may constrain harvest opportunities on another timing group.

### Early Stuart Management

The 2017 Early Stuart return represents the historically dominant cycle year. However, the return in 2009 was affected by the record low productivity, as were most Fraser sockeye stocks. The main contributor to the 2017 return is forecasted to be four year old fish from the 2013 brood year (approximately 96% 4 year olds).

Similar to the management of all timing groups the implications of the escapement strategy for Early Stuart fishing plans will be strongly influenced by in-season run size estimates and management adjustments which may be adjusted based on temperature and discharge conditions in the Fraser River during the return migration. Based on the pre-season forecast and long term median management adjustments, Early Stuart sockeye remain in a low abundance exploitation rate (LAER) situation if actual returns fall at the p75 forecast and lower.

In recent years, window closures and other fishing restrictions have been required in commercial, recreational and First Nations fisheries to stay within the LAER objectives identified in the escapement plan. Management measures in 2017 will include a rolling window closure based on the run timing of the Early Stuart migration through various fishing areas. Potential window closure dates in [Table 13.5-12](#) are provided for planning purposes to protect Early Stuart sockeye. These dates may be revised based on timing forecasts or in-season information.

The window closure dates shown in [Table 13.5-12](#) includes a one week extension, which has been implemented to provide protection to early-timed stocks (e.g. Bowron, Taseko and Seymour) of the Early Summer Run management group.

In addition to the window closure, considerations are being given for reducing test fishing activities during the earlier part of the Early Stuart migration. This may take the form of delaying the start of marine gill net test fisheries and/or reducing the number of test fish vessels.

Table 13.5-12: Potential Early Stuart Run Closure Dates.

Area	Start (date, time)	End (date, time)	Management Action
Areas 24 to 27, 111, 121, 123 to 127	Open 21-Jul, 7 days/week		Earliest potential opening to FN FSC fishing for Fraser sockeye = July 21 (Sn, Gn, Tr)
Area 11	Open 21-Jul, 7 days/week		Earliest potential opening to FN FSC fishing for Fraser sockeye = July 21 (Gn, Tr); July 25 (Sn) <sup>1,2</sup>
Area 12	Open 21-Jul, 7 days/week		Earliest potential opening to FN FSC fishing for Fraser sockeye = July 21 (Gn, Tr); July 25 (Sn) <sup>1,2</sup>
Area 13	Open 21-Jul, 7 days/week		Earliest potential opening to FN FSC fishing for Fraser sockeye = July 21 (Gn, Tr); July 25 (Sn) <sup>1</sup>
Areas 14 to 16	Open 21-Jul, 7 days/week		Earliest potential opening to FN FSC fishing for Fraser sockeye = July 21 (Gn, Tr); Aug 15 (Sn) <sup>1</sup>
Areas 17, 19, 20 and 21	Open 21-Jul, 7 days/week		Earliest potential opening to FN FSC fishing for Fraser sockeye = July 21 (Sn, Gn, Tr)
Areas 18 and 29	26-Jun Noon	27-Jul Noon	Earliest potential opening to FN's FSC fishing for Fraser sockeye = July 27, noon
Steveston-Mission Bridge	26-Jun Noon	27-Jul Noon	
Mission Bridge-Sawmill Cr	27-Jun 6:00 AM	29-Jul 6:00 AM	Earliest potential opening to FN's FSC fishing for Fraser sockeye = July 29, noon
Sawmill Cr-Texas Cr	03-Jul 6:00 PM	31-Jul 6:00 PM	FN's FSC: Open to selective fishing for chinook (dip net, angling and potential for 8" mesh gill net) and open in tribs for sox and chinook.
Texas Cr-Kelly Cr	03-Jul 6:00 PM	31-Jul 6:00 PM	
Kelly Cr-Deadman	03-Jul 6:00 PM	31-Jul 6:00 PM	FN's FSC: Open to selective fishing for chinook (dip net, angling) and open in tribs for sox and chinook.
Deadman-Chilcotin	06-Jul 6:00 PM	03-Aug 6:00 PM	
Chilcotin-Quesnel	06-Jul 6:00 PM	03-Aug 6:00 PM	FN's FSC: Open to selective fishing for chinook (dip net and 8" mesh gill net) and open in tribs for sox and chinook.
Quesnel-Hixon	06-Jul 6:00 PM	03-Aug 6:00 PM	
Hixon-Prince George	10-Jul 6:00 PM	07-Aug 6:00 PM	FN's FSC: some allowable harvest in terminal areas.
Prince George-Stuart R	10-Jul 6:00 PM	07-Aug 6:00 PM	

<sup>1</sup> Gear restrictions remain in place to protect Sakinaw sockeye until July 25 (Queen Charlotte and Johnstone Straits) and August 15 (northern Strait of G

<sup>2</sup> Additional sockeye closures may remain in place in portions of Areas 11 and 12 until late July in waters north of Lewis Point to protect Nimpkish socke

### Early Summer Management

Forecast returns for stocks within this management group are variable with below average returns predicted for some earlier stocks within the aggregate (e.g. Bowron, Taseko and Seymour). Similar to 2015, the Early Stuart sockeye window closure dates in [Table 13.5-12](#) include additional time to provide protection to the early-timed stocks.

Based on the pre-season forecast range and long term median management adjustment values, directed harvest opportunities on Early Summers is anticipated to be minimal to moderate. While fisheries may be directed on the Early Summer timing group, harvest may be incidental during directed Summer sockeye fisheries.

### Summer Run Management

The Summer Run sockeye make up approximately 77% of the total return at the median forecast. Nearly half (48%) of the total median sockeye forecast come from Chilko. If the actual Summer return is as large as the p25 forecast, directed fisheries are expected in 2017. Harvest

may be limited by constraints on co-migrating groups (e.g., Early Summer and Late Run sockeye) and stocks of concern (e.g. Cultus Lake sockeye). Some Summer Run harvest may be incidental to pink directed fisheries.

### **Late Run and Cultus Lake Sockeye Management**

The Late Run return in 2017 is expected to be below the cycle line average at the midpoint of the forecast distribution. The Late Run sockeye make up approximately 13% of total return at the median forecast.

Historically, the ocean migration timing of Late Run sockeye was similar to Summer Run sockeye, however, Late Run sockeye typically delayed entering the Fraser River by 4-6 weeks. Since the mid-1990s, Late Run sockeye have entered the Fraser River much earlier, and they have experienced very high levels of enroute and/or pre-spawn mortality in these instances. In 2009-2011, the Late Run delay off the river mouth increased to approximately two weeks; in 2014 Late run sockeye delayed approximately three weeks. However, in 2012, 2013, and 2015 there was little to no delay. While a range of studies have been undertaken to understand the cause and impact of this phenomenon, no causal factors have been identified. Planning for 2017 may take timing into account specifically when calculating in-season management adjustments for this group.

Given pre-season assumptions it is likely Late Run sockeye will be managed within the LAER if the actual return is at the p50 forecast. Any Late Run sockeye harvest will likely be incidental in fisheries directed on Summer run sockeye and pink salmon and be subject to constraints on co-migrating stocks of concern such as Cultus Lake sockeye and Interior Fraser coho.

### **Cultus Lake sockeye**

Management of Cultus Lake sockeye will be based on the Cultus Lake sockeye recovery objectives and an assessment of in-season information for the Late Run sockeye stock aggregate. For more information on the recovery objectives, refer to Section 6 of the IFMP under Fishery Management Objectives for Stocks of Concern.

Due to the low numbers of Cultus Lake sockeye compared to co-migrating stocks, the abundance and exploitation rate for Cultus Lake sockeye cannot be calculated directly. For management purposes, the Cultus abundance, exploitation rate and en-route mortality will be assumed to be the same as the abundance (relative to run size forecast p-values), exploitation and en-route mortality rate for similarly timed Late Run stocks caught seaward of the confluence of the Fraser and Vedder Rivers. Exploitation rates are based on DNA analysis of sockeye sampled either directly from fisheries or indirectly, from nearby test fisheries. En-route

mortality estimates are based on the Late Run management adjustment which may be updated in-season. Assessment of the Cultus population shown in [Table 13.5-13](#) is sensitive to assumptions about en-route and pre-spawn mortality.

Assuming the average estimated pre-spawn mortality (PSM) since the early upstream migration of Late Run began in 1996 (approximately 40%), the Late Run pMA, and the p10 to p90 pre-season forecast abundance range, the short term minimum recovery objectives 1 & 2 (see below and Section 6 of the IFMP under Fishery Management Objectives for Stocks of Concern) for the Cultus population are unlikely to all be met in 2017.

For pre-season planning purposes, the average estimated pre-spawn mortality (PSM) since the early upstream migration of Late Run began in 1996 (approximately 40%), Late Run (excluding Birkenhead) pDBE, and the p10 to p90 pre-season forecast abundance range was used. The values in the table are also limited to the maximum exploitation rate permissible for Late run sockeye based on the escapement plan, abundance and management adjustment. In-season, these maximum exploitation rates for Cultus sockeye may be higher or lower than indicated, due to interactions between run size, management adjustment, pre-spawn mortality, Late run escapement plan and Cultus recovery objectives.

These exploitation rates are not intended to be used as management targets and in-season fishery management planning will take into account a range of considerations including updated assumptions based on in-season information as well as objectives for other Fraser sockeye management groups and/or other stocks/species. [Table 13.5-13](#) shows how the projected successful spawners compared to Objectives 1 & 2 across the middle forecast range, with pre-season assumptions of en-route and pre-spawn mortalities. Objectives 3 & 4 are longer term objectives and the performance of Cultus in relation to them are not being assessed in [Table 13.5-13](#).

- Objective 1 - Ensure the genetic integrity of the population by exceeding a four-year arithmetic mean of 1,000 successful adult spawners with no fewer than 500 successful adult spawners on any one cycle. This objective secures genetic variability.
  - 1a. 4 year average successful spawners > 1,000
  - 1b. minimum of 500 successful spawners in each of the last 4 years
- Objective 2 - Ensure growth of the successful adult spawner population for each generation (that is, across four years relative to the previous four years), and on each cycle (relative to its brood year) for not less than three out of four consecutive years. This objective ensures the population is growing.
  - 2a. 4 year average spawners > previous 4 year average spawners

- 2b. current year spawners > brood year spawners
- Objective 3 - Rebuild the population to the level of abundance at which it can be delisted (designated Not at Risk) by COSEWIC.
- Objective 4 - Rebuild the population to a level of abundance (beyond that of Objective 3) that will support ecosystem function and sustainable use. This long term objective proposes candidate benchmarks for Cultus sockeye that correspond to our current understanding of the dynamics of Cultus sockeye.

Table 13.5-13: Assessment of Cultus population performance compared to management objectives 1 & 2, based on the escapement plan, a range of pre-season run sizes and management adjustments to account for enroute losses.

The 2017 calculations assume the average pre- spawn mortality rate since 1996 of approximately 40%. Exploitation rates are from the 2017 escapement plan options (i.e., LAER) are compared with a zero percent (e.g. no harvest) scenario in the second column to illustrate the potential differences.

*2017 projected Cultus successful spawners*

run size	p25		p50		p75	
	1,000	0%	3,000	0%	6,000	0%
exploitation rate (ER)	20%	0%	20%	0%	30%	0%
pDBE	-0.57					
projected adults to the fence	344	430	1,032	1,290	1,806	2,580
brood stock (excluded from calculations)	200					
potential spawners	144	230	832	1,090	1,606	2,380
pre-spawn mortality (PSM)*	40%					
projected successful adult spawners	90	140	500	650	960	1430

*Cultus Management Objectives - projected 2017 evaluation*

Management Objectives	value	p25		p50		p75	
1a. 4 year avg successful spawners **		1,245	1,257	1,347	1,385	1,462	1,580
	>1000	yes	yes	yes	yes	yes	yes
1b. minimum 500 in each year (2013-2017)**		no	no	yes	yes	yes	yes
2a. 4 year avg > previous 4 year avg	>1250	no	yes	yes	yes	yes	yes
2b. current year > brood year	>1230	no	no	no	no	no	yes

\* PSM value of 40% used in these calculations are based on the average PSM since 1996, some of which were not directly attained through stock assessment programs - see note below

\*\* successful spawners estimates are highly dependent on PSM assumptions, which can be difficult to assess due to difficulties in retrieving Cultus sockeye carcasses after spawning



### 13.5.6.5 ALLOCATION AND FISHING PLANS

#### 13.5.6.5.1 First Nations Fisheries

##### *Food Social and Ceremonial*

First Nations opportunities to harvest salmon for food, social and ceremonial purposes is provided through communal licenses issued by DFO. These licenses support the effective management and regulation of First Nations fisheries. These licenses are typically issued to individual bands or tribal groupings, and describe the details of the FSC fishery including the dates, times, methods, and locations of harvest. Communal licenses for Southern Coastal First Nations are typically multi-species and are issued on an annual basis. Shorter duration amendments to licenses are also issued on occasion. For Fraser River First Nations, licenses are typically of shorter duration, and are issued to provide for specific First Nations' salmon fisheries openings.

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.

Refer to Section [10.2](#) for Communal Licence Harvest Target Amount [Table 10.2-1](#) in Southern BC/Fraser River First Nations Fisheries.

##### *Specific Conservation Measures for First Nations Fisheries*

###### *Early Stuart Sockeye*

Refer to 5.2.1.5 Incidental Harvest, By-catch and Constraints to Fraser Sockeye Fisheries for details.

###### *Cultus Lake and Late Run Sockeye*

Refer to 5.2.1.5 Incidental Harvest, By-catch and Constraints to Fraser Sockeye Fisheries for details.

##### *Fishery Monitoring and Catch Reporting*

###### *Marine Waters*

Fishery monitoring will be conducted by DFO and First Nations under Fisheries Agreements if applicable. First Nations keep records of harvest and provide catch information to DFO in a variety of formats. If a commercial vessel is used for fishing under this licence, First Nations are

asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

#### *Fraser River and tributaries*

Catch monitoring programs are managed through Activity Funding or Comprehensive Fisheries Agreements. In the Lower Fraser, monitoring programs implemented vary between Nations but typically include landing site or vessel based collection of catch and effort information paired with validation of effort by vessel patrols or overflights. For fisheries on the Fraser watershed above Sawmill Creek, catch monitoring programs typically range from basic census type to more enhanced programs that include collecting effort and catch rate information in creel sample programs.

#### *Treaty Fisheries*

##### *Tsawwassen Fisheries (Domestic)*

The domestic allocation for sockeye salmon under the Tsawwassen First Nations Final Agreement is as follows:

- When the Canadian Total Allowable Catch for Fraser River sockeye salmon is 500,000 or less, 1.0% of the Canadian Total Allowable Catch for Fraser River sockeye salmon;
- When the Canadian Total Allowable Catch for Fraser River sockeye salmon is greater than 500,000 and less than 3.0 million, then 5,000 Fraser River sockeye salmon plus 0.40904% of that portion of the Canadian Total Allowable Catch for Fraser River sockeye that is greater than 500,000 and less than 3.0 million; and
- When the Canadian Total Allowable Catch for Fraser River sockeye salmon is equal to or greater than 3.0 million, then 15,226 Fraser River sockeye salmon.

The monitoring program for Tsawwassen Domestic fisheries includes fisher logs supplemented by validations of catch and effort through on-water patrols and/or observations of landings.

Details of monitoring programs in place can be found in the Tsawwassen Fisheries Operational Guidelines.

##### *Tla'amin Fisheries (Domestic)*

The Domestic allocations for Fraser River Sockeye under the Tla'amin First Nations Final Agreement are as follows:



- When the CTAC for Fraser River sockeye salmon is less than or equal to 2.0 million, 0.5% of the CTAC for Fraser River sockeye salmon; or
- When the CTAC for Fraser River sockeye salmon is greater than 2.0 million and less than or equal to 6.5 million, 10,000 Fraser River sockeye salmon plus 0.1% of that portion of the CTAC for Fraser River sockeye salmon that is greater than 2.0 million and less than or equal to 6.5 million; or
- When the CTAC for Fraser River sockeye salmon is greater than 6.5 million, 14,500 Fraser River sockeye salmon plus 0.048% of that portion of the CTAC for Fraser River sockeye salmon that is greater than 6.5 million.

#### *Maa-nulth Fisheries (Domestic)*

The domestic allocation for sockeye salmon under the Maa-nulth First Nations Final Agreement is an amount of Fraser River sockeye salmon equal to 0.13366% of the Fraser River Sockeye Salmon Canadian Total Allowable Catch.

#### **13.5.6.5.2 T'aaq -wiihak First Nations (Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht First Nations) Salmon Fishery**

Five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht (the T'aaq-wiihak First Nations) - have aboriginal rights to fish for any species of fish, with the exception of geoduck, within their Fishing Territories and to sell that fish. The First Nations and the Department are currently considering demonstration fishery opportunities for the 2017 season. The scope of these deliberations does not preclude the potential to include any or all salmon species available with the T'aaq-wiihak First Nations' Fishing Territories (located within portions of Pacific Fishery Management Areas (PFMA) 25/125, 124, 26/126 and all of PFMA 24). Where the Department and the T'aaq-wiihak reach agreement on the approach, this IFMP may be updated to reflect the agreed to approach for the T'aaq-wiihak fishery.

In 2016, sockeye bycatch was not authorized for sale in the AABM chinook demonstration fishery.

#### **13.5.6.5.3 Recreational Fisheries**

Opportunities for targeted Fraser River sockeye fisheries will be determined based upon in-season assessment and abundance of Fraser River sockeye stocks. Sockeye non-retention will be in effect in most South Coast waters for 2017. Non-retention will remain in effect until such

time as in-season information indicates an allowable recreational / commercial total allowable catch of Fraser Sockeye.

In years when opportunities are available for recreational sockeye, fisheries typically take place in August, and updates are provided via Fishery Notice and on the recreational fisheries website: <http://www.bcsportfishingguide.ca>. The normal daily limit is four sockeye in marine waters and two sockeye in non-tidal waters.

### *Fishery Monitoring and Catch Reporting*

#### *Marine Waters*

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch survey (iREC) are the main tools used to capture recreational catch and effort information for this fishery. South Coast stock assessment staff use these programs to provide annual estimates of the recreational harvest in each area.

#### *Fraser River and Tributaries*

The Lower Fraser River Recreational creel survey is conducted during periods when the study area is open to fishing for salmon until September 30. In some years the program has been extended into October. Catch estimates are generated for all salmon species harvested (kept) and released.

Catch monitoring programs in the Fraser watershed upstream of Alexandria will range from fisher reported catch to highly intensive creel surveys; however, some times and areas are unmonitored. Expected effort and catch, harvest rates, potential by-catch, and any biological sampling requirements are taken into account when planning the catch monitoring program for these areas.

#### **13.5.6.5.4 Commercial Fisheries**

Commercial fisheries for Fraser River sockeye may occur both in the marine approach waters and within the Fraser River and tributaries. In the marine waters these commercial fisheries include the Area B seine and Area H troll Individual Transferable Quota fishery, and the Area D gill net full fleet competitive (derby) fishery. Additionally in years with large returns, Area G Troll fishing opportunities on the West Coast of Vancouver Island may be considered. Within the Fraser River and tributaries commercial fisheries include the Area E gill net full fleet competitive (derby) fishery, along with First Nations economic opportunity (EO) and demonstration fisheries. There may also be consideration for escapement surplus to spawning requirement (ESSR) fisheries in terminal areas.

Opportunities for targeted Fraser River sockeye fisheries will be determined based upon in-season assessment and abundance of Fraser River sockeye stocks. Fishing opportunities will also be subject to achieving fisheries management objectives for constraining stocks and species of concern (Early Stuart sockeye, Cultus Lake sockeye, Nimpkish sockeye, Sakinaw sockeye, Interior Fraser River coho, Interior Fraser River steelhead, and Fraser River Spring 42 and Spring/Summer 52 chinook) in areas where they are present.

### *Allocation*

Table 13.5-14: Commercial Allocation Implementation Plan for the 2015–2019 period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South - Fraser	11 to 20, 29, 121, 123 to 127	48.5%	21.6%	25.1%	0.0% <sup>d</sup>	4.8%

Notes on sockeye allocation (south):

<sup>d</sup> a 1% share to occur in large Fraser River return years only. A 1% reduction will be proportionately applied across other fleets in those years.

### *Johnstone Strait (Areas 11 to 13)*

#### *Area B (Seine) and Area D (Gill Net)*

Early to Late July - Areas 11 to 13

No fisheries are anticipated prior to late July in order to protect Sakinaw Lake and Fraser River Early Stuart sockeye. No fishing opportunities are available above Lewis Point prior to late July to protect returning Nimpkish River sockeye.

August to Mid-September - Areas 11 to 13

Directed fisheries may occur for Fraser River sockeye. Opportunities will be based on in-season assessment and abundance information. If a fishery occurs, Area B seines will be managed as an ITQ demonstration fishery (along with Area H troll- see details below in demonstration fisheries section). Area D gill nets will be managed as open, competitive (derby-style) fishery.

***Strait of Georgia (Area 16)****Area B (Seine)*

Consideration may be given for Fraser River sockeye seine fisheries in portions of Area 16 (Sabine) subject to in-season information, as well as constraints for Sakinaw sockeye and for other stocks of concern.

***Juan de Fuca Strait, Strait of Georgia and Fraser River (Areas 18, 20 and 29)****Area B (Seine)*

Subject to in-season information, Area B Seine opportunities will be considered in Juan de Fuca (Area 20), Area 18, and Area 29. Opportunities and fishing locations will be confirmed based on in-season information.

The Fraser River Panel in conjunction with DFO will develop and implement Fraser River sockeye fishing plans for these areas, as they fall within Fraser River Panel management responsibilities.

Early to Late July – Areas 18, 20 and 29

No fisheries anticipated prior to late-July in order to protect Fraser River early timed sockeye stocks.

Late July to Mid-August - Area 20

- Fraser River sockeye fishing plans will be based on in-season estimates of abundance and timing.
- Coho release mortalities, TAC and diversion rate will be factors determining available harvest opportunities during this period.
- Late August to early September – Areas 18, 20, 29
- Opportunities for harvesting sockeye will be based on in-season abundance and assessment information, and subject to IFR coho and Cultus (Late Run) sockeye constraints.

***Area 29 and Tidal Waters of the Fraser River****Area E Gill Net*

Subject to in-season information, Area E gill net opportunities will be considered in Area 29, including tidal waters of the Fraser River and off the Fraser River mouth. Opportunities and fishing locations will be confirmed based on in-season information. Fisheries may take place in

August. Fisheries in early September will be subject to constraints due to co-migrating coho salmon. Sockeye fisheries will not be considered after the Interior Fraser coho window closure date as described under Fraser River Fisheries in Section [13](#) of the Southern Coho Species plan ([13.3](#)).

***Queen Charlotte Strait and Johnstone Strait (Areas 11 to 13), and lower Strait of Georgia (Areas 18 and 29)***

*Area H (Troll)*

Actual opportunities for targeted Fraser River sockeye fisheries will be determined based upon in-season assessment and abundance of Fraser River sockeye stocks and also subject to achieving fisheries management objectives for constraining stocks and species of concern (Early Stuart sockeye, Cultus Lake sockeye, Nimpkish sockeye, Sakinaw sockeye, Interior Fraser River coho, Interior Fraser River steelhead, and Fraser River Spring 42 and Spring/Summer 52 chinook) in areas where they are present.

If an opportunity is available, ITQ fisheries could occur in Queen Charlotte Strait and Johnstone Strait (Areas 11 to 13), and in the lower Strait of Georgia (Areas 18 and 29). Fishing opportunities will be confirmed in-season following consultation with industry and will depend on run size, diversion rate and Area H TAC. If a fishery occurs, Area H troll will be managed as part of the Area B Seine and Area H Troll ITQ demonstration fishery (see details below in demonstration fisheries section).

***West Coast Vancouver Island (Areas 11, 20, 111 121 to 127)***

*Area G (Troll)*

Fishing opportunities on Fraser river sockeye are not planned in 2017 given Area G receives an allocation for Fraser sockeye only in years of large returns (e.g. dominant cycle years) based on commercial allocation arrangements.

***Fishery Monitoring and Catch Reporting***

Fishery Monitoring and Catch Reporting includes the following:

- Over-flights conducted to count vessels (effort) in each Area D gill net opening; counts of Area B seine and Area H troll vessels are also made if they are present in the fishing area.
- Vessel counts conducted to verify number of vessels (effort) in each Area E gill net opening.

- On-grounds DFO funded charter patrol coverage in portions of Areas 12 and 13.
- On-grounds charter patrol and DFO catch monitoring coverage in Fraser River during each Area E gill net opening.
- Roving on-water Observer coverage in each Area E gill net opening to conduct net haul observations and gather independent information on encounters of non-target species.
- Mandatory requirement to file fishing reports in all commercial fisheries, including “Start/Pause/Cancel/End” Fishing reports.
- Mandatory catch reporting by phone-in with a paper harvest log and electronic transmission with an electronic harvest log (E-log). Catch reporting requirements are specific to each licence group and are detailed in the conditions of licence for each gear type
- 100% dockside catch validation for Area B seine and Area H troll ITQ fisheries.
- It is anticipated that the Area D gill net fishery will have a 20% catch validation program in place. Details of this program are currently being worked on by the Department and members of the Area D AHC through the CSAB Catch Monitoring Working Group.
- It is anticipated that the Area E gill net fishery will have a 20% catch validation program in place. Details of this program are currently being worked on by the Department and members of the Area E AHC through the CSAB Catch Monitoring Working Group.
- Partial independent on-board/at-sea observer coverage for Area B seine and Area H troll fisheries.

### ***South Coast Fraser Sockeye Demonstration Fisheries***

#### *Area B Seine and Area H Troll Fraser River Sockeye Individual Transferable Quota (ITQ) Demonstration Fishery*

Please see [Appendix 7](#) for more information on the Area B and Area H Fraser sockeye and Pink ITQ demonstration fishery guidelines for 2017.

This demonstration fishery will be similar to the quota based ITQ Fraser River sockeye fishery that was planned for 2009-2015. Note that a separate demonstration fishery proposal is provided for a demonstration – experimental seine fishery in the lower Fraser River.

- **Region:** South Coast and Lower Fraser River Areas
- **Participants:** All Area B and H licence holders
- **Location of Fishery:** Seine fishing areas that will be considered in the fishery include: Johnstone Strait (portions of Area 12 and 13), Juan de Fuca (portions of Area 20), portions of Areas 16 and 18, and portions of Area 29 off the Fraser River mouth, which may include depths shallower than 45 m.

In Area 20, additional measures may be in place to minimize impacts on coho. Consideration for seine fishing opportunities in Area 20 will also be dependent on diversion rate estimates.

Troll fishing areas that will be considered in the fishery include; Johnstone Strait (portions of Area 12 and 13), portions of Area 16 and 18, and portions of Area 29 off the Fraser River mouth.

In Areas 12, 13 and 20 additional restrictions will be identified around test-fishing locations to minimize impacts on test-fishery assessment requirements.

- **Gear Type:** Seine and Troll gear, selective fishing measures are mandatory and are specified by licence conditions.

Power skiffs may be used where conditions of licence permit. Shallow seine nets may be used in areas off the mouth of the Fraser.

- **Time Frame:** This fishery is planned to occur when Fraser River sockeye Canadian Commercial TAC is identified. It is anticipated that this fishery will take place within the time period of late July to early September.

The Area H troll fishery is anticipated to be open on a 7 day per week basis as TAC permits. The Area B seine fishery is expected to be open 5 to 7 days per week and will be dependent on the amount of available TAC and the available time frame for the fishery.

It is expected that Area B seine fishing opportunities in Area 20 will also be managed to a boat day limit to control impacts on Interior Fraser coho.

- **Allocation:** The fishery will be based on available Fraser River sockeye commercial TAC. Shares for each fleet will be based on the commercial allocation plan.

The Fraser River sockeye quota (ITQ) will be determined by DFO by dividing the respective Area B and Area H Fraser River sockeye allocations by the total number of licences for Area B and Area H multiplied by the available commercial Fraser River sockeye Total Allowable Catch (TAC) determined in-season. The quota share will be expressed as a percentage of the TAC and the percentage will remain fixed in-season subject to amendments for in-season quota transactions. The TAC may be distributed over the course of the fishery in increments. The TAC will be announced by fishery notice and adjusted as required. Updates will typically be announced following Fraser River Panel meetings (usually Tuesday and Friday).

Quota will be transferable within each licence area (e.g. Area B to Area B; or, Area H to Area H) as well as between licence areas (e.g. Area B to Area H; or vice versa).

Transfers to or from other commercial fisheries is currently under review by the Department.

The target species is sockeye, by-catch retention of pink and chum is permitted (except chum retention is not permitted in Area 20). There will be non-retention of coho, chinook and steelhead.

- **Monitoring Plan:** Start, end, pause and daily catch reports will be required by phone-in or electronic logbook. There is a requirement for 100% dockside validation of the catch at designated landing locations. Over flights will be conducted and charter patrol will monitor the fishery.

Additional on-grounds observer coverage/monitoring will be required to assess the releases of non-target species in Area B and H sockeye fisheries. Observer requirements will be determined in-season, subject to areas fished and effort.

Additional monitoring requirements are required and in place for the Area 20 seine fishery including on-grounds management, set by set reporting in established grid zones and observer coverage.

### ***Area B Seine Fraser River Sockeye Experimental Demonstration (ITQ) Fishery in the Lower Fraser River***

This demonstration fishery proposal is similar to the proposal that was provided by Area B to DFO in 2010.



The purpose of this experimental fishery project is to demonstrate the effectiveness of harvesting Fraser River sockeye and/or pink salmon within the confines of the Fraser River employing the selective capabilities of a purse seine and secondly to capitalize on the ability to continue the harvest of sockeye salmon and/or pink salmon that may not be available in marine areas due to other constraints.

This fishery would be managed as part of the Area B and H demonstration ITQ fishery for Fraser River sockeye and pink salmon.

- **Region:** Lower Fraser River Area
- **Participants:** All Area B licence holders will be eligible however as this is an experiment; effort controls will be in place to limit participation to a maximum of eight to ten vessels fishing on any given day
- **Location of Fishery:** Area 29 In-river: Area B has indicated there are a number of potential locations around New Westminster, Glenrose, the Cement Plant and down to the Deas Tunnel that would be suitable for seining and would for the most part, be out of the shipping lanes
- **Gear Type:** Seine gear using shallow seine nets, the use of power skiffs and selective fishing measures are mandatory and are specified by licence conditions
- **Time Frame:** This fishery is planned to occur when Fraser River sockeye and/or pink Canadian Commercial TAC is identified. It is anticipated that this experimental fishery would take place sometime within the time period of mid-August to late September

Consideration of other fisheries in the area will be taken into account when planning Area B in- river fishing activities. Specific fishing times would be confirmed in-season through an integrated planning process. The amount of available fishing days for this experiment will be confirmed in-season.

- **Allocation:** For this experimental fishery to proceed, it will require available Fraser River sockeye commercial TAC. The harvest from this fishery will be part of the Area B and H Fraser River sockeye demonstration ITQ fishery. The quota share will be expressed as a percentage of the commercial TAC.

As this is an experimental fishery, there will be a cap on the total allowable harvest in this fishery and the amount will be confirmed in-season. The target species is sockeye

and/or pink salmon, retention of chum may be permitted; there will be non-retention of all other species.

- **Monitoring Plan:** As per the Area B and H Fraser River sockeye and pink demonstration ITQ fishery, start, end, pause and daily catch reports will be required by phone-in or electronic logbook. There is a requirement for 100% dockside validation of the catch at designated off-loading locations.

There will be a requirement for observer coverage on all vessels participating in this fishery. In addition to monitoring catch, observers will be available to collect any DNA sampling that is required and identified.

### *Area E Gill Net Sockeye Pooled Demonstration Fishery*

The objective of conducting this fishery is to test the feasibility and explore the potential benefits of changing the management of the fishery to a pooled quota style, thereby demonstrating the use of defined shares and the ability to access available TAC at levels insufficient for a full fleet fishery to access. In this situation, a limited participation (i.e. less than full fleet) pooled fishery would be conducted to provide an opportunity for small amounts of commercial TAC to be accessed by the Area E fleet. The implementation of this demonstration fishery directly controls the total harvest by limiting participation in the fishery.

- **Region:** Lower Fraser Area
- **Participants:** Voluntary pool concept where all Area E licence holders with a valid salmon licence will be eligible to register for pools. Area E licence holders will have an opportunity to voluntarily organize into pools and identify a designated catcher vessel for each pool. Pools will be organized prior to any commercial fishing and will apply to all Area E pooled demonstration fisheries.
- **Location of Fishery:** Lower Fraser River, Area 29
- **Gear Type:** Gill net gear specifications for sockeye-targeted fisheries. Selective fishing measures are mandatory, as specified by licence conditions.
- **Time Frame:** This fishery is planned to occur when insufficient Fraser River sockeye Canadian Commercial TAC is identified to conduct full fleet fisheries. It is anticipated that this fishery will take place within the traditional sockeye fishery season during the August to early September time frame.
- **Allocation:** The target species for this demo fishery is Fraser River sockeye. The amount available for harvest will be determined in-season and based on available

Fraser River sockeye Canadian Commercial TAC and shares will be assigned based on the number of vessels in a pool. The minimum pool size will be 5 vessels with no maximum number of vessels.

- **Monitoring Plan:** In addition to requirements outlined in the licence conditions there is a requirement for 100% dockside validation of the catch at designated off-loading locations.

### 13.5.6.5.5 Fraser First Nations Commercial Sockeye Harvest

#### *Demonstration Fisheries*

Discussions regarding demonstration fisheries that will provide commercial opportunities for First Nations and allow for experimentation and testing of inland fisheries are on-going. As in previous years, the focus with First Nations will be on experimenting mainly in terminal areas on abundant stocks. These fisheries will be conducted separately from FSC fisheries, under comparable rules to the commercial fishery and fish harvested will be off-set with licences voluntarily relinquished from the commercial fishery.

#### *Upper Fraser Fisheries Conservation Alliance (UFFCA) Partnership – In- River Sockeye Fisheries*

The UFFCA continues to develop their Commercial Fishing Enterprise focusing on viable and sustainable fishing practices. Discussions are on-going with groups participating in the partnership based on the viability of individual fisheries. The 2017 demonstration fishery will build on previous years' experiences to implement successful fisheries and address constraints and challenges to harvesting allocations, marketing, processing and acquiring infrastructure required for the emerging inland fisheries.

- **Participants:** UFFCA Partnership – Northern Shuswap Tribal Council (NSTC); Tsilhqot'in National Government (TNG)/Xeni Gwet'in First Nations Government; Carrier Sekani Tribal Council (CSTC); Lheidi T'enneh First Nations (LTFN)

#### *North Shuswap Tribal Council*

- **Location:** Quesnel River, Quesnel Lake, Chilcotin River and mainstem Fraser
- **Gear Type:** Beach seine, purse seine, dip nets, and fish wheels
- **Time Frame:** Fishery will target Summer run (Quesnel / Chilko / Late Stuart / Nechako Rivers) sockeye. Potential start date is August 16 for a six week fishery

*Tsilhqot'in National Gov't / Xeni'Gwet'in First Nations Government*

- **Location:** Chilko River, Chilko Lake and Chilcotin River
- **Gear Type:** Beach seine, purse seine, dip net, partial weir/fish trap, and fish wheel
- **Time Frame:** Fishery will target Summer run (Chilko) sockeye. Potential start date is August 16 for a three to four week fishery

*Carrier Sekani Tribal Council and Lheidli T'enneh First Nations*

- **Location:** Fraser River, Fraser Lake and potentially other suitable locations
- **Gear Type:** Beach seine, dip net, partial weir/fish trap, and purse seine
- **Time Frame:** Fishery will target Summer run (Late Stuart/Stellako) sockeye. Potential start date is August 15 for a four week fishery.

NOTE: All fishery time frames are estimates and final dates will be determined based on in- season migration timing and abundance information.

- **Allocation:** All  
Allocation to be determined but will be expressed as a percentage (%) share of Commercial Total Allowable Catch (CCTAC) of Fraser sockeye stocks in the area utilizing relinquished licences from the PICFI program.
- **Monitoring Plan:** All  
Fishery will be monitored using designated landing sites, electronic logbook system (ELOG) and validation of catch at either landing site or plant.

*RWS RiverFresh Wild Salmon Ltd – In-River Sockeye, and Chinook Fisheries*

RWS RiverFresh Wild Salmon Ltd (RiverFresh) is a Commercial Fishing Enterprise incorporated in September 2012 as a partnership between four Secwepemc communities of the Shuswap Nation Tribal Council. The Secwepemc Fisheries Commission (SFC) continues to function as the operational planning and business management team on behalf of RiverFresh. SFC has been coordinating demonstration fisheries and conducting business feasibility analyses since 2005. The 2017 SFC demonstration fisheries expectations are similar to 2012 and 2013; preseason forecasts for Early Summer, Summer and Late run sockeye stocks in the Secwepemc fishing area are uncertain. Fishery expectations are to target South Thompson 4-1 chinook salmon with any available sockeye and pink allocations to be taken as by-catch. If no sockeye allocations available, by- catch may be identified and retained for food, social and ceremonial purposes subject to dual fishing guidelines.

SFC will build on previous year's experiences and expand their knowledge and abilities participating in larger scale fisheries.

- **Participants:** SFC, Skeetchestn Indian Band other partners to be determined
- **Location of Fisheries:** Kamloops Lake
- **Gear Type:** Chinook fishery – 8" mesh set gill net – set gill net retaining sockeye as by-catch if CCTAC for Fraser sockeye becomes available. If sockeye returns are abundant, shallow purse seines may be utilized.
- **Time Frame:**  
NOTE: All fishery time frames are estimates and final dates will be determined according to in-season migration timing information.

Sockeye Fishery: Fishery will potentially target Early Summer, Summer and Late Run Thompson sockeye; potential start date of Aug 22 for a six week fishery ending Sept. 23

- **Allocation:**  
Sockeye Fishery: Sockeye allocation will be expressed as a percentage (%) share of Commercial Total Allowable Catch (CCTAC) of Fraser sockeye in-season utilizing relinquished licences from the PICFI program.
- **Monitoring and Reporting Plan:**  
Fishery will be monitored using designated landing sites, independent validation of catch at the processing plant and independent validation releases when required. Reporting will along include electronic logbook system (ELOG).

#### *2017 Harrison-Fraser River Demonstration Fishery*

- **Region:** Lower Fraser Area
- **Participants:** Sts'ailes and Scowlitz First Nations
- **Location of Fishery:** The waters of the Harrison River located between the outlet of Harrison Lake downstream to the orange boundary signs labelled 'Fishing Boundary HFA' approximately 1000 meters below the CN Railway Bridge; and

The waters of the Fraser River bounded on the west by a line from a white boundary sign on the upstream side of the Fraser River at the mouth of the Sumas River, thence true north to a white boundary sign on the opposite shore and bounded on the east by the downstream side of the bridge across the Fraser River at Agassiz.

- **Gear Type:** Set nets, drift nets or beach seines, Beach seines not to exceed a maximum mesh size of 2 ¾ inches and a length of 50 fathoms or 360 feet,
- **Allocation:**  
Sockeye: To be determined but will be expressed as a percentage (%) share of Canadian Commercial Total Allowable Catch (CCTAC) utilizing relinquished licences from the PICFI program.
- **Time Frame:** All fishery time frames are estimates and final dates will be determined according to in-season migration timing information.

Sockeye: This fishery would be planned to take place once a Fraser River sockeye Canadian Commercial TAC is identified, potentially late July to early September.

Fraser chinook: Fraser chinook by-catch retention may be permitted subject to abundance.

- **Monitoring Plan:** During any set net or drift net fishing activity the fishers will transport their catch to a predetermined Sts'ailes /Scowlitz landing site to have their catch monitored. During any beach seining activity, a Monitor will be present with every beach seining crew during all fishing activity and provide set by set updates to the Sts'ailes Fishery Manager, before the beach seine crews deploy their next set to ensure there is TAC available. The Sts'ailes Fishing Authority will collect all catch statistics via these monitors and report this information to DFO immediately after the fishery closes.

### *Harvest Agreements*

#### *Tsawwassen Fisheries (Commercial)*

In addition to the allocation of salmon for domestic harvests, TFN have an allocation for commercial catch outside of the Treaty as identified via the "Tsawwassen First Nations Harvest Agreement". Fishing undertaken via the HA will be comparable to the requirements of the current Fraser River commercial fishery (First Nations economic opportunity (EO) fishery), or a general commercial fishery (e.g. Area E). Tsawwassen harvesters will be expected to operate under the same rules that apply to other fishers taking part in that Fraser River commercial fishery.

Sockeye Salmon allocation under the Harvest Agreement: 0.78% of the Commercial Allowable Catch for Fraser River Sockeye Salmon for that year.

The monitoring program for Tsawwassen Harvest Agreement fisheries includes a mandatory landing program (MLP) using 2 to 4 landing sites at which all fishers must land and have their catch validated and is supplemented by effort validation by vessel patrols. If selective gear is used (e.g. purse seines), monitors are to be present during all fishing activity to record catch information on a set-by-set basis.

### *Economic Opportunities*

Negotiations to provide economic opportunities to First Nations in the lower Fraser River will be undertaken as in recent years. Economic opportunity fisheries may be conducted under agreements that specify provisions for planning fisheries, allocations, catch reporting requirements as well as roles and responsibilities regarding the management of the fishery. The Department's general approach is that Aboriginal commercial harvest opportunities are managed using requirements comparable to the commercial fishery.

#### **13.5.6.5.6 Fishery Monitoring and Catch Reporting**

##### *Lower Fraser*

In the Lower Fraser, catch monitoring programs are managed through Comprehensive Fisheries Agreements. While details will be finalized prior to fisheries occurring; the monitoring programs in place in recent years are as follows:

- Non-selective (e.g. gill-net) EO fisheries have been monitored using a mandatory landing program (MLP) with packer and land-based sites. All fishers must land their catch at these sites and have their catch validated. This program is supplemented by effort validation by vessel patrols and overflights.
- Selective (e.g. beach seine and purse seine) EO fisheries have required monitors to be present during all fishing activity to record catch and release information on a set-by-set basis.

#### **13.5.6.5.7 ESSR Fisheries**

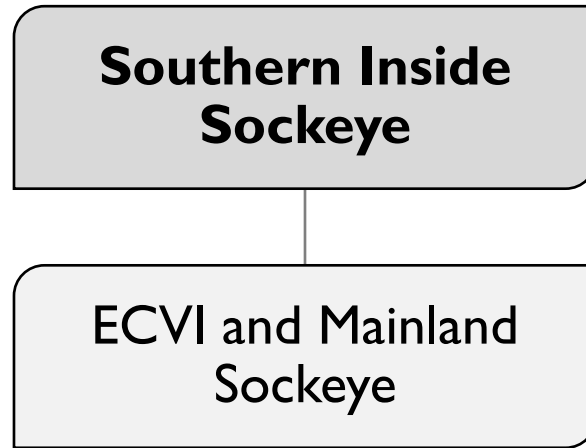
ESSR fisheries for individual Fraser sockeye spawning populations may be considered if the projected number of effective spawners is expected to exceed the freshwater productive capacity of the system taking into account requirements for adult spawners or juvenile rearing. Given inherent uncertainties about freshwater capacity, a decision on whether an ESSR will proceed will be made by the Department and any amounts specified for harvest may take into account available information and associated uncertainties on a range of factors including: stock-specific abundance, projected spawner abundances, productive capacity of the system,

stock composition in the proposed fishing area and selectivity of fishing gear. Given uncertainties in in-season information, the Department may permit only a portion of any estimated surplus to be harvested.



**13.5.7 EAST COAST VANCOUVER ISLAND AND MAINLAND SOCKEYE**

**13.5.7.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT**



*Conservation Units*

<i>Fulmore</i>	<i>Quatse</i>
<i>Heydon</i>	<i>Schoen</i>
<i>Ida/Bonanza</i>	<i>Shushartie</i>
<i>Kakweiken</i>	<i>Southern Fjords</i>
<i>Loose</i>	<i>River Type</i>
<i>Mackenzie</i>	<i>Tzoonie</i>
<i>Nahwitti</i>	<i>Vernon</i>
<i>Nimpkish</i>	<i>Village Bay</i>
<i>Pack</i>	<i>Woss</i>
<i>Phillips</i>	<i>Sakinaw</i>

Figure 13.5-10: Overview of East Coast Vancouver Island and Mainland Sockeye

## 13.5.7.2 STOCK ASSESSMENT INFORMATION

### 13.5.7.2.1 Pre-season

Table 13.5-15: ECVI and Mainland Sockeye 2017 Salmon Outlook

Outlook Unit	2017 Outlook
Areas 11-13	Preliminary sockeye returns in 2016 to the Nimpkish River (Area 12) were above average with returns similar to the 2012 brood year. The assessment of the escapement data associated with the Quaste River (Area 12) has not yet been completed, but indications are for below average return abundance. Preliminary 2016 sockeye returns in Area 13, specifically the Phillips River, were average. The only indication of marine survival comes from decreased returns of local pink and coho salmon in 2016 (same 2015 outmigration year as the sockeye). Consequently, the above average brood and potential for reduced marine survival conditions result in an outlook that is low to near target.
Sakinaw	171 adult and 1 jack sockeye were enumerated in 2016, coming from a smolt count of 126,000 in 2014. The marine survival of smolt to escaping adult is only 0.2% for hatchery origin and 0.8% for wild origin smolts indicating a continuation of poor marine survivals. This return is mostly comprised of progeny from captive brood, held at Rosewall and Ouilette hatcheries, and a small number of wild origin sockeye. The expectation for 2017 is for a very low number of adults (52) due to fewer smolts observed in 2015 (17,000).

### 13.5.7.2.2 In-season

Historically many of these sockeye populations were assessed visually by fishery officers, charter patrol, and stock assessment personnel. In recent years escapements have been consistently monitored for 3 populations: Nimpkish River, Quatse and Sakinaw.

The Quatse River sockeye population has been estimated using a DIDSON acoustic system since 2006. With the installation of a new resistivity fence on the Quatse system, future estimates will be provided from that program with a few years of DIDSON calibration.

The Nimpkish river escapement has been estimated through a standardized swim survey program since 2002. Information on timing and fish distribution is also collected during this program. In 2015, the Namgis First Nations in conjunction with DFO initiated a pilot program to enumerate sockeye in the lower portion of the Nimpkish River using a DIDSON system and

a deflection fence. Preliminary results are promising and continued development of the program is planned for 2017.

Sakinaw Lake sockeye have been enumerated both as they leave as smolts through a smolt trap and when they return as adults through a counting fence with video recording over the last 13 years. This intensive assessment provides very accurate estimates of abundance, and also provides the adipose fin clip rate (used to identify hatchery origin fish) for further evaluation of freshwater survival rates of hatchery releases, number of natural smolts per spawner and enhanced contribution to the total return (marine survival rates of both hatchery and natural sockeye).

### **13.5.7.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS**

This section of the IFMP is under development and further information will be provided in a subsequent year. There are no commercial or recreational directed fisheries on these sockeye planned for 2017. However, there are some small directed First Nations FSC harvests that occur on some of these stocks.

### **13.5.7.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO SOUTH LOCAL SOCKEYE FISHERIES**

Fisheries are structured to reduce the harvest of Sakinaw Lake sockeye and Nimpkish sockeye in mixed stock areas.

First Nations FSC fisheries harvest related measures will continue in 2017 to ensure protection of Sakinaw Lake sockeye. First Nations fisheries in Johnstone Strait will be restricted to gill net and troll only until July 25 and until August 15 in the northern Strait of Georgia. Furthermore, roving window closures to protect Early Stuart sockeye and potentially additional closures to protect early-timed Early Summer run sockeye can limit or delay FSC fisheries. The waters near the mouth of Sakinaw Creek in Area 16 will be closed to all fishing all season.

Harvest measures continue to be required to minimize impacts on Nimpkish sockeye. In order to protect this stock, time and area closures may be implemented for First Nations, commercial, and recreational fisheries in the approach waters to the Nimpkish River (including the river). With the exception of test fisheries, marine waters north of Lewis Point on Vancouver Island (Subareas 11-1, 11-2, & 12-5 to 12-19) are scheduled to be closed to sockeye retention in all fisheries until late July. However, marine waters north of Lewis Point may be open to sockeye retention in First Nations FSC fisheries prior to late July if in-season abundance of Nimpkish sockeye is higher than expected and no other weak stock constraints exist.

Further constraints to fisheries may include harvest restrictions based on Early Stuart, Early Summer, and Late Run (Cultus) Fraser River sockeye.

### 13.5.7.5 ALLOCATION AND FISHING PLANS

#### 13.5.7.5.1 First Nations Fisheries

##### *Food Social and Ceremonial*

The Department continues to work with the Namgis First Nations on the development of a lower river assessment program for Nimpkish sockeye. This program will work towards providing a much earlier indication of sockeye abundance in the Nimpkish River and help to develop a First Nations FSC harvest plan. If in-season abundance permits, some First Nations FSC harvest may occur in the Nimpkish River.

##### *Treaty Fisheries*

###### *Tla'amin (Domestic)*

The Domestic allocations for terminal sockeye salmon under the Tla'amin First Nations Final Agreement are as follows:

- A number of sockeye equal to 25% of the Available Terminal Harvest for the sockeye salmon stocks that originate from a Terminal Harvest Area

##### *Specific Conservation Measures For First Nations Fisheries*

###### *Sakinaw Lake Sockeye*

Harvest related measures to ensure protection of Sakinaw Lake sockeye will continue. First Nations FSC fisheries in Johnstone Strait will be restricted to gill net and troll only until July 25 and until August 15 in the northern Strait of Georgia. The waters near the mouth of Sakinaw Creek in Area 16 will be closed to fishing all season.

###### *Nimpkish Sockeye*

Harvest related measures continue to be required to minimize impacts on this stock. In order to protect this stock, time and area closures may be implemented for First Nations, commercial, and recreational fisheries in the approach waters to the Nimpkish River (including the river). Marine waters north of Lewis Point on Vancouver Island (Subareas 11-1, 11-2 and 12-5 to 12-19) are scheduled to be closed to sockeye retention in all fisheries until late July. However, marine waters north of Lewis Point may be open to sockeye retention in First Nations FSC fisheries prior to late July if in-season abundance of Nimpkish sockeye is higher than expected and no

other weak stock constraints exist. The Department has been working with the Namgis First Nations on the development of a lower river assessment program for Nimpkish sockeye. This program will work towards providing a much earlier indication of sockeye abundance in the Nimpkish River and help to develop a First Nations FSC harvest plan. If in-season abundance permits, some First Nations FSC harvest may also occur in the Nimpkish River.

### *Fishery Monitoring and Catch Reporting*

Fishery monitoring will be conducted by DFO and the First Nations under Fisheries Agreements if applicable. First Nations are required to keep records of harvest and provide catch information to DFO. If a commercial vessel is used for fishing under this licence, First Nations are asked to provide information respecting the species and quantity of fish harvested by the vessel to the DFO Catch Reporting Officer within 24 hours of the landing of fish harvested from that vessel. With respect to timing of catch reports, First Nations are requested to report as follows: by the end of each month between April 1 and May 14; weekly (Wednesdays) between May 15 and October 31 inclusive; and at the end of each month between November 1 and March 31.

#### **13.5.7.5.2 Recreational Fisheries**

For southern BC tidal waters, it is anticipated that sockeye non-retention will be in effect during those times and in those areas when stocks of concern are present. Updates will be provided in-season based on fishery notices. In non-tidal waters, sockeye non-retention is in effect year-round except where harvestable surpluses are identified and potential impacts on stocks of concern are within management constraints.

### *Fishery Monitoring and Catch Reporting*

Catch monitoring programs including creel surveys, logbooks and the internet recreational effort and catch survey (iREC) are the main tools used to capture recreational catch and effort information in this fishery.

#### **13.5.7.5.3 Commercial Fisheries**

##### *Allocation*

There are no directed commercial fisheries for ECVI and Mainland sockeye populations. Commercial allocation arrangements are set for Fraser River sockeye fisheries.

Table 13.5-16: Commercial Allocation Implementation Plan for the 2015–2019 period

Description	Areas	Seine B	Gill Net D	Gill Net E	Troll G	Troll H
South - Fraser	11 to 20, 29, 121, 123 to 127	48.5%	21.6%	25.1%	0.0% <sup>d</sup>	4.8%

Notes on sockeye allocation (south):

<sup>d</sup> a 1% share to occur in large Fraser River return years only. A 1% reduction will be proportionately applied across other fleets in those years.

### *East Coast Vancouver Island and Mainland Commercial Sockeye Fisheries*

There are no commercial sockeye harvest opportunities for ECVI and Mainland sockeye populations. Commercial fisheries target Fraser River sockeye stocks and opportunities are subject to achieving fisheries management objectives for constraining stocks which includes Nimpkish and Sakinaw sockeye.

### *East Coast Vancouver Island and Mainland First Nations Commercial Sockeye Harvests*

There are no First Nations commercial harvests for ECVI and Mainland sockeye populations.

#### **13.5.7.5.4 ESSR Fisheries**

There are no ESSR fisheries for these populations.

## 13.5.8 OKANAGAN SOCKEYE

### 13.5.8.1 SNAPSHOT OVERVIEW AND MAP OF MANAGEMENT UNIT

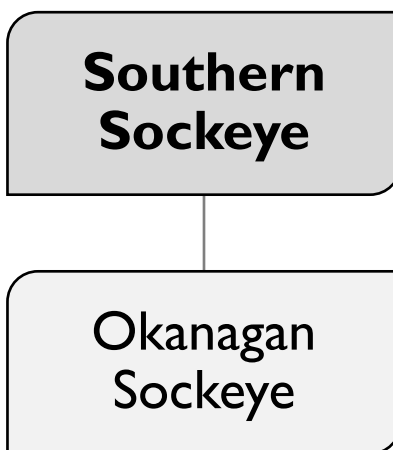


Figure 13.5-11: Overview of Okanagan Sockeye

Okanagan sockeye is the last remaining viable sockeye salmon population returning to Canada within the Columbia River Watershed. Run timing into the Okanagan system is primarily affected by water temperature within the Okanagan River. Okanagan sockeye tend to hold in the Columbia River until migration conditions are favourable. Peak spawning usually occurs from mid to late October. Of all Okanagan River sockeye enumerated at Wells Dam on the Columbia River, on average roughly 60% of those adults are enumerated on the spawning grounds in Canada.

### 13.5.8.2 STOCK ASSESSMENT INFORMATION

#### 13.5.8.2.1 Pre-season

Returns of Okanagan sockeye adults to the Columbia and Okanagan rivers in 2017 will come from smolt cohorts that migrated seaward in spring 2014 (returning as 5-year-olds), 2015 (returning as 4-year-olds) and 2016 (returning as 3-year old jacks/jills). Although year-specific smolt-to-adult survival values for these specific cohorts are not available as yet, Okanagan sockeye exhibit marine survival variations similar to Barkley Sound sockeye in that above and below average survivals occur in association with either cold ocean (La Nina) or warm ocean (El Nino) events, respectively.

The outlook forecast for 2017 is a category 2 for Okanagan sockeye of 138,000 adults of all ages (includes jacks and jills). Given a domestic escapement objective of roughly 60,000 adults through Wells Dam and an associated terminal escapement of 35,000 sockeye at Oliver could

result in a surplus of only 28,000 large adults and possibly 50,000 jacks or jills to support fisheries in both the U.S. and Canada while still achieving Canada's current domestic escapement objective. (2016 Outlook Category was 3.)

#### **13.5.8.2.2 In-season**

Assessment of returns is done via counts of escapement past dams located on the Columbia River in the United States. Spawning ground assessments are done on an annual basis by the Okanagan Nation Alliance fisheries staff and are comprised of visual / dead recovery surveys to determine spawner abundance in the Okanagan River and Skaha Lake system.

#### **13.5.8.3 DECISION GUIDELINES AND MANAGEMENT ACTIONS**

The current science based spawning objective is 35,500 fish as enumerated on an indexed section of the spawning ground which is equivalent to approximately 61,200 fish as enumerated through Wells Dam on the Columbia River in Washington State.

The following decision rules are used to manage Okanagan sockeye in Canada:

- If projected escapement past Wells Dam on the Columbia River is less than 10,000 sockeye, limited fishing for FSC purposes is permitted by Okanagan Nation.
- If projected escapement past Wells Dam is between 10,000 and 60,000 fish, an Okanagan Nation FSC catch of 5% of the run that has migrated past Wells Dam is permitted.
- If projected escapement past Wells Dam exceeds 60,000 fish, an Okanagan Nation FSC minimum catch of 10% of the run that has migrated past Wells Dam is permitted.

Should the projected escapement past Wells Dam exceed 80,000 fish; additional opportunities may be considered.

#### **13.5.8.4 INCIDENTAL HARVEST, BY-CATCH AND CONSTRAINTS TO OKANAGAN SOCKEYE FISHERIES**

Fisheries are managed to avoid incidental capture of Okanagan River chinook.

#### **13.5.8.5 ALLOCATION AND FISHING PLANS**

Allocations are described above in the Decision Guidelines and Management Actions section.



### 13.5.8.5.1 First Nations Fisheries

#### *Food Social and Ceremonial*

The Okanagan Nation Alliance opportunities to harvest salmon for food, social and ceremonial purposes are provided through a communal licence negotiated annually with DFO. This licence provides the details of the FSC fishery.

#### *Fishery Monitoring and Catch Reporting*

Okanagan Nation Alliance uses a variety of methods to estimate FSC harvests. Current methods include video monitoring, roving creel monitors, catch card reporting and phone interviews.

### 13.5.8.5.2 Recreational Fisheries

Recreational fisheries will take place if the Wells Dam counts are sufficient to meet spawning escapement and FSC requirements. The allowable catch will be determined in-season based on sockeye counts over Wells Dam and movement of fish into Osoyoos Lake. This fishery takes place on Osoyoos Lake.

A creel survey utilizing access sites and boat patrols are conducted capturing effort, landed catch and release data during the fishery. The survey is conducted by the Okanagan Nation Alliance in conjunction with DFO.

### 13.5.8.5.3 Commercial Fisheries

Commercial harvesting will only be conducted if the Wells Dam counts are sufficient to meet spawning escapement and FSC requirements. The allowable catch will be determined in-season based on sockeye counts over Wells Dam and movement of fish into Osoyoos Lake.

These fisheries will be monitored using designated landing sites, electronic logbook system (ELOG) and validation of catch at either landing site or plant.

#### *Okanagan First Nations Commercial Sockeye Harvest*

##### *Okanagan Sockeye First Nations Demonstration Fishery*

The Okanagan Nation Alliance (ONA) will be working towards sustaining commercial sales of Okanagan sockeye in addition to working with strategic allies for increasing sales and trade from other inland commercial fisheries. A 2017 fishery will be similar to 2016 and continue to build on previous year's demonstration fisheries and address the challenges involved in informing business plans for in-river fisheries in the BC Interior where commercial fisheries are developing, and establishing markets for inland commercial sockeye.

- **Region:** BC Interior
- **Participants:** Okanagan Nation Alliance partnership: Okanagan Indian Band, Westbank First Nations, Penticton Indian Band, Osoyoos Indian Band, Upper Nicola Indian Band Lower and Upper Similkameen Indian bands.
- **Location of Fishery:** Osoyoos Lake and Okanagan River
- **Gear Type:** Purse seine(s), troll fleet and tangle net
- **Time Frame:**  
NOTE: All fishery time frames are estimates and final dates will be determined according to in-season migration timing information. Fishery will target on Okanagan (Columbia) sockeye. Potential start date of July 20 with end date determined on run timing and fish quality
- **Allocation:** The pre-season forecast for Okanagan sockeye indicates a lower return than 2016 is expected. Limited opportunities for commercial and recreational fisheries are possible in 2017. Opportunities will be identified based on in- season information of passage thru Wells Dam on the Columbia River. Commercial and recreational harvesting will only be conducted if the Wells Dam counts are sufficient to meet spawning escapement and FSC requirements The allowable catch will be determined in-season based on sockeye counts over Wells Dam and movement of fish into Osoyoos Lake.
- **Monitoring Plan:** These fisheries will be monitored using designated landing sites, electronic logbook system (ELOG) and validation of catch at either landing site or plant. In addition, biotelemetry tracking of adult sockeye will continue to be developed for estimating instantaneous mortality rates (natural or fishing) during spawner migration.

#### 13.5.8.5.4 ESSR Fisheries

There are no ESSR fisheries for Okanagan sockeye.

# APPENDIX I: LOGBOOK SAMPLES

**SALMON TROLL** Logbook I.D. # **T SAMPLE** Report Catch to: 1-(888) 387-0007 Record all catch in pieces Page #

Date		Mgmt. Area	Zone or Subarea <input type="checkbox"/>	Hours fished	Catch frozen or iced?	<sup>2</sup> Kept or Released	Sockeye	Coho	Pink	Chum	<sup>3</sup> Legal Sized Chinook	<sup>3</sup> Sublegal Sized Chinook	<sup>4</sup> Grilse	Atlantic	<sup>5</sup> Rockfish	<sup>6</sup> Other Species	
Day	Mon																
Vessel Name: <i>Pacific Blue</i> VRN (CFV#): <b>12346</b> Vessel Master Name: <i>Dan Doe</i> <sup>1</sup> FIN: <b>#####</b>																	
15	Jul	4	9	3	(F)	Kept	25	0	12	0	0	X	X	3	0	0	
Trip ID #: <b>FOS-12345</b>						Rel.	0	0	0	0	3	3	5	0	8 Yellowtail, 3 Canary, 6 Silvergrey	4 L, 2 D	
Comments: <i>8 Hake released, lots of seals around</i>															DCR Conf. #: <sup>7</sup> <b>FOS-12346</b>		
15	Jul	4	5	8½	(F)	Kept	42	0	8	0	0	X	X	0	0	0	
Trip ID #: <b>FOS-12345</b>						Rel.	0	0	0	0	2	5	1	0	2 Yelloweye, 6 unknown rockfish	0	
Comments:															DCR Conf. #: <sup>7</sup> <b>FOS-12346</b>		
16	Jul	5	1	10	F or I	Kept	12	0	0	0	0	X	X	0	0	0	
Trip ID #: <b>FOS-12345</b>						Rel.	0	0	0	0	0	1	2	0	2 Chilepepper, 2 unknown rockfish	0	
Comments:															DCR Conf. #: <sup>7</sup> <b>FOS-12349</b>		
18	Jul	5	1	6	F or I	Kept	0	0	0	0	8	X	X	0	0	0	
Trip ID #: <b>FOS-12398</b>						Rel.	0	6	0	0	0	1	0	0	0	0	1L
Comments: <i>1 Coho dead, 5 released in good condition</i>															DCR Conf. #: <sup>7</sup> <b>FOS-12402</b>		
18	Jul	5	3	5½	F or I	Kept	0	0	0	0	12	X	X	0	0	0	
Trip ID #: <b>FOS-12398</b>						Rel.	0	0	0	0	0	0	0	0	0	0	2D
Comments:															DCR Conf. #: <sup>7</sup> <b>FOS-12402</b>		
19	Jul	5	3	11	F or I	Kept	0	0	0	0	7	X	X	0	0	0	
Trip ID #: <b>FOS-12398</b>						Rel.	0	1	0	0	0	1	3	0	3 Canary	0	
Comments:															DCR Conf. #: <sup>7</sup> <b>FOS-12491</b>		

1. Enter the vessel master's Fisher Identification Number.
2. **Kept** are species retained on board; **Released** are species returned to the ocean.
3. As defined in the applicable Fishery Notice.
4. **Grilse** are juvenile salmon under 30 cm.
5. If possible, rockfish are to be identified by species (using names in accompanying guide); if unsure of species, record as Unknown Rockfish.
6. Other Species: L= Lingcod, H=Halibut, D=Dogfish, M= Mackerel, S= Steelhead, B=Bird.
7. **DCR Conf. #** is the confirmation number received upon completion of the Daily Catch Report.

2016

APPENDIX 2: FISHING VESSEL SAFETYLOGBOOK SAMPLES

SALMON GILLNET Logbook I.D. # <b>G</b> <b>SAMPLE</b> Report Catch to: 1-(888) 387-0007 Record all catch in pieces Page #																	
Vessel Name: <b>Pacific Blue</b>		VRN (CFV#): <b>12346</b>			Vessel Master Name: <b>Dan Doe</b>							FIN: <b>#####</b>					
Net Details		Type <sup>1</sup> : <b>A</b>	# Strands <sup>2</sup> : <b>6</b>	Length: <b>200</b>	(fathoms)	Weedline Depth <sup>3</sup> : <b>30cm</b>	Hang Ratio: <b>3</b> :1	Mesh Size <sup>3</sup> : <b>4 7/8"</b>	# Meshes: <b>90</b>								
Date	Mgmt. Area	Sub-area(s)	Hours fished	# of sets	<sup>4</sup> Kept or Released	Sockeye	Coho	Pink	Chum	Chinook	Steel-head	Atlantic	Dogfish	Sturgeon	<sup>5</sup> Other Fish	<sup>6</sup> Non-fish	
Day	Mon																
<b>4</b>	<b>Aug</b>	<b>12</b>	<b>12-4</b>	<b>5.5</b>	<b>5</b>	Kept	<b>4</b>	<b>0</b>	<b>23</b>	<b>127</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Yes</b>
Trip ID #: <b>FOS-12480</b>					Rel:	<b>0</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>No</b>
Comments: <b>2 birds killed in 10AM set, kept for research program. Probably surf scoters.</b>															DCR Confirmation #: <sup>7</sup> <b>FOS-12346</b>		
<b>5</b>	<b>Aug</b>	<b>12</b>	<b>12-5</b>	<b>7</b>	<b>3</b>	Kept	<b>73</b>	<b>0</b>	<b>245</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Yes</b>
Trip ID #: <b>FOS-12480</b>					Rel:	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>No</b>
Comments: <b>Offloaded at CANFISCO in Port Hardy on August 5 at 14:00.</b>															DCR Confirmation #: <sup>7</sup> <b>FOS-12367</b>		
<b>5</b>	<b>Aug</b>	<b>12</b>	<b>12-4</b>	<b>2</b>	<b>3</b>	Kept	<b>88</b>	<b>0</b>	<b>116</b>	<b>7</b>	<b>0</b>	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Yes</b>
Trip ID #: <b>FOS-12480</b>					Rel:	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>11 M, 2 R</b>	<b>No</b>
Comments: <b>Steelhead released in good condition. 2 sea lions released alive around 11AM.</b>															DCR Confirmation #: <sup>7</sup> <b>FOS-12367</b>		
<b>29</b>	<b>Aug</b>	<b>17</b>	<b>17-11</b>	<b>6</b>	<b>6</b>	Kept	<b>163</b>	<b>0</b>	<b>328</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Yes</b>
Trip ID #: <b>FOS-12773</b>					Rel:	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>No</b>
Comments:															DCR Confirmation #: <sup>7</sup> <b>FOS-12521</b>		
<b>29</b>	<b>Aug</b>	<b>29</b>	<b>29-2</b>	<b>4</b>	<b>6</b>	Kept	<b>205</b>	<b>0</b>	<b>493</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>Yes</b>
Trip ID #: <b>FOS-12773</b>					Rel:	<b>0</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>No</b>
Comments: <b>Both coho put in rev. tank, one died, one released in good condition</b>															DCR Confirmation #: <sup>7</sup> <b>FOS-12523</b>		
						Kept											<b>Yes</b>
Trip ID #:					Rel:												<b>No</b>
Comments:															DCR Confirmation #: <sup>7</sup>		

- Net Types:** enter 'A' for Alaska Tw ist, 'M' for Multi Strand or 'C' for Combination.
- Enter number of strands if net is 'Alaska Tw ist' type mesh.
- Give measurement units ( in or " = inches, cm = centimeters, mm = millimeters ).
- Kept** are species retained on board; **Released** are species returned to the ocean.
- Other Fish:** M=Mackerel, L=Lingcod, H= Halibut, R= Rockfish. Give full name for other species.
- Circle Yes or No as appropriate if any **birds, marine mammals, or turtles** were encountered. Give time of capture and species details in comments.
- DCR Confirmation#** is the confirmation number received upon completion of the Daily Catch Report.

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APPENDIX 2: FISHING VESSEL SAFETYLOGBOOK SAMPLES

**SALMON SEINE** Logbook I.D. # **S SAMPLE** Report Catch to: 1-(888) 387-0007 Record daily catch in pieces Page #

Vessel Name: **Pacific Blue** VRN (CFV#): **12346** Vessel Master Name: **Dan Doe** <sup>1</sup> FIN: **#####**

**Daily Catch Records**

Date	Mgmt. Area	Sub-area(s)	Hours fished	# of sets	<sup>2</sup> Kept or Released	Sockeye	Coho	Pink	Chum	Adult Chinook	<sup>3</sup> Jack Chinook	Steel-head	Atlantic	<sup>4</sup> Other Fish	<sup>5</sup> Non-fish
14 Aug	3	3-3, 3-2	8	5	Kept	42	0	431	0	0	0	0	6	0	Yes
Trip ID #: FOS-12281					Rel:	0	3	0	12	2	0	0	0	0	No
Comments: 2 scoters released alive at 10 AM, 1 coho clipped, 2 coho dead, 1 alive at release												DCR Confirmation #: <sup>6</sup> FOS-12346			
15 Aug	4	4-5	5½	2	Kept	38	0	850	0	0	0	0	0	0	Yes
Trip ID #: FOS-12281					Rel:	0	0	0	2	1	0	1	0	4 D, 1 L, 1 salmon shark	No
Comments: 1 harbour seal released, steelhead revived in tank, then released in good condition												DCR Confirmation #: <sup>6</sup> FOS-12358			
19 Aug	4	4-5	9	4	Kept	53	0	560	0	0	0	0	0	0	Yes
Trip ID #: FOS-12403					Rel:	0	2	0	17	4	12	0	0	0	No
Comments: Both coho rel'd in good condition. 12 jack chinook squishers all dead.												DCR Confirmation #: <sup>6</sup> FOS-12428			

**Offload Catch Records**

Dates Fished		#	Date offloaded	Sockeye	Coho	Pink	Chum	Chinook	(Other)	Complete if catch pooled with that of another vessel:	
First date	Last date	Days	Day	<input type="checkbox"/> Pieces <input checked="" type="checkbox"/> Lbs	<input type="checkbox"/> Pcs <input type="checkbox"/> Lbs	<input checked="" type="checkbox"/> Lbs	<input type="checkbox"/> Pieces <input type="checkbox"/> Lbs	<input type="checkbox"/> Pieces <input type="checkbox"/> Lbs	<input type="checkbox"/> Pcs <input checked="" type="checkbox"/> Lbs	Received from:	Offloaded to:
Day	Month	Day	Month	fished	Day	Month	Day	Month	Day	Month	Vessel
14 Aug	15 Aug	2	15 Aug	471	0	3958	0	0	42	<input type="checkbox"/>	<input type="checkbox"/>
Business and port offloaded to: Canfisco, Pr. Rupert				Fish slip # 79768		OCR Confirmation #: <sup>6</sup> FOS-12380				Name: VRN (CFV#):	
19 Aug	19 Aug	1	20 Aug	310	0	1692	0	0	0	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Business and port offloaded to:				Fish slip # 79801		OCR Confirmation #: <sup>6</sup> FOS-12482				Name: Home Run II VRN (CFV#): 12347	

1. Enter the vessel master's Fisher Identification Number.
2. Kept are species retained on board; Released are species returned to the ocean.
3. **Jack Chinook** are all chinook smaller than 67 cm fork length. Note that 67cm is approximately 26 inches.
4. **Other Fish:** M= Mackerel, L= Lingcod, H= Halibut, D= Dogfish, R=Rockfish. Give full name for other species.
5. Circle Yes or No as appropriate if any **birds, marine mammals, or turtles** were encountered. Give time of capture and species details in comments.
6. **DCR Confirmation#** is the confirmation number received upon completion of the Daily Catch Report. **OCR Confirmation** is the Offload Catch confirmation number.

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# APPENDIX 2: FISHING VESSEL SAFETY

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## I OVERVIEW – FISHING VESSEL SAFETY

Vessel owners and masters have a duty to ensure the safety of their crew and vessel. Adherence to safety regulations and good practices by owners, masters and crew of fishing vessels will help save lives, prevent vessel damage and protect the environment. All fishing vessels must be in a seaworthy condition and maintained as required by Transport Canada (TC), WorkSafeBC, and other applicable agencies. Vessels subject to inspection should ensure that the certificate of inspection is valid for the area of intended operation.

In the federal government, responsibility for shipping, navigation, and vessel safety regulations and inspections lies with Transport Canada (TC); emergency response with the Canadian Coast Guard (CCG) and DFO has responsibility for management of the fisheries resources. In BC, WorkSafeBC also regulates health and safety issues in commercial fishing. This includes requirements to ensure the health and safety of the crew and safe operation of the vessel. DFO (Fisheries and Aquaculture Management (FAM) and CCG) and TC through an MOU have formalized cooperation to establish, maintain and promote a safety culture within the fishing industry.

Before departing on a voyage the owner, master or operator must ensure that the fishing vessel is capable of and safe for the intended voyage and fishing operations. Critical factors for a safe voyage include the seaworthiness of the vessel, vessel stability, having the required personal protective and life-saving equipment in good working order, crew training, and knowledge of current and forecasted weather conditions. As safety requirements and guidelines may change, the vessel owner, crew, and other workers must be aware of the latest legislation, policies and guidelines prior to each trip.

There are many useful tools available for ensuring a safe voyage. These include:

- Education and training programs
- Marine emergency duties
- Fish Safe – Stability Education Course & 1 Day Stability Workshop
- Fish Safe – SVOP/Safe on the Wheel Course
- Fish Safe – Safest Catch Program
- First Aid
- Radio Operators Course
- Fishing Masters Certificate

- Small Vessel Operators Certificate
- Publications:
  - Transport Canada Publication TP 10038 Small Fishing Vessel Safety Manual (can be obtained at Transport Canada Offices from their website at: <http://www.tc.gc.ca/eng/marinesafety/tp-tp10038-menu-548.htm>)
  - Gearing Up for Safety – WorkSafeBC
  - Safe At Sea DVD Series – Fish Safe
  - Stability Handbook – Safe at Sea and Safest Catch – DVD Series
  - Safest Catch Log Book
  - Safety Quick

For further information see:

<http://www.tc.gc.ca/eng/marinesafety/menu.htm>

<http://www.fishsafebc.com>

<http://www.worksafebc.com>

## **2 IMPORTANT PRIORITIES FOR VESSEL SAFETY**

There are three areas of fishing vessel safety that should be considered a priority. These are: vessel stability, emergency drills and cold water immersion.

### **2.1 FISHING VESSEL STABILITY**

Vessel stability is paramount for safety. Care must be given to the stowage and securing of all cargo, skiffs, equipment, fuel containers and supplies and also to correct ballasting. Fish harvesters must be familiar with their vessel's centre of gravity, the effect of liquid free surfaces on stability, loose water or fish on deck, loading and unloading operations and the vessel's freeboard. Know the limitations of your vessel; if you are unsure contact a reputable naval architect, marine surveyor or the local Transport Canada Marine Safety Office.

Fishing vessel owners are required to develop detailed instructions addressing the limits of stability for each of their vessels. The instructions need to be based on a formal assessment of the vessel by a qualified naval architect and include detailed safe operation documentation kept on board the vessel. Examples of detailed documentation include engine room procedures, maintenance schedules to ensure watertight integrity, and instructions for regular practice of emergency drills.



The *Small Fishing Vessel Inspection Regulations* currently require, with certain exceptions, a full stability assessment for vessels between 15 and 150 gross tons that do not exceed 24.4 metres in length and are used in the herring or capelin fisheries. Once the proposed new *Fishing Vessel Safety Regulations* take effect, more vessels may be required to have a stability booklet.

In 2006, Transport Canada Marine Safety (TC) issued [Ship Safety Bulletin \(SSB\) 04/2006](#) (“Safety of Small Fishing Vessels: Information to Owners/Masters About Stability Booklets”), which provides a standard interpretation of the discretionary power available under Section 48 and the interim requirements prior to the implementation of the proposed *Fishing Vessel Safety Regulations*. The bulletin calls for vessels more than 15 gross tons to have a stability booklet where risk factors that negatively affect stability are present. The bulletin also suggests vessels less than 15 gross tons assess their risk factors. Every fishing vessel above 15 GRT built or converted to herring or capelin after 06 July 1977 and engaged in fishing herring or capelin must have an approved stability book. Additionally, Transport Canada has published a Stability Questionnaire (SSB 04/2006) and Fishing Vessel Modifications Form which enable operators to identify the criteria which will trigger a stability assessment. A stability assessment is achieved by means of an inclining experiment which has to be conducted by a naval architect. Please contact the nearest Transport Canada office if you need to determine whether your vessel requires one.

In 2008, TC issued [SSB 01/2008](#), which sets out a voluntary record of modifications for the benefit of owners/masters of any fishing vessels. For vessels of more than 15 gross tons, the record of modifications was to be reviewed by TC inspectors during regular inspections and entered on the vessel’s inspection record. However, information gathered during the Transportation Safety Board’s (TSB) Safety Issues Investigation into the fishing industry showed minimal recording of vessel modifications prior to this date.

The TSB has investigated several fishing vessel accidents since 2002 and found that vessel modifications and loading of traps have been identified as contributing factors in vessels capsizing, such as: [M02W0102](#) - *Fritzi-Ann*, [M05W0110](#) - *Morning Sunrise*, [M07M0088](#) - *Big Sisters*, [M08W0189](#) - *Love and Anarchy*, [M09L0074](#) - *Le Marsouin I*, [M10M0014](#) - *Craig and Justin*, [M12W0054](#) - *Jessie G*, [M12W0062](#) - *Pacific Siren*, and [M15P0286](#) - *Caledonian*.

Vessel masters are advised to carefully consider stability when transporting gear. Care must be given to the stowage and securing of all traps, cargo, skiffs, equipment, fuel containers and supplies and also to correct ballasting. Know the limitations of your vessel; if you are unsure contact a reputable marine surveyor, naval architect or the local Transport Canada Marine Safety office.

In 2013, Fish Safe developed a code of best practices for the food and bait herring fishery and the prawn fishery: 'Food and Bait – Best Practice Reminders'; 'Prawn Industry - Best Industry Recommended Practices.' Please contact Ryan Ford at Fish Safe for a copy of the program materials they developed to address safety and vessel stability in these fisheries. Ryan Ford – Cell phone: 604-739-0540 - Email: ryan@fishsafebc.com

## **2.2 EMERGENCY DRILL REQUIREMENTS**

The Canada Shipping Act 2001 requires that the Authorized Representative of a Canadian Vessel shall develop procedures for the safe operation of the vessel and for dealing with emergencies. The Act also requires that crew and passengers receive safety training. The Marine Personnel Regulations require that all personnel on board required to meet the minimum safe manning levels have received MED (Marine Emergency Duties) training to an A1 or A3 level, depending on the vessel's voyage limits, within 6 months of serving aboard. MED A3 training is 8 hours in duration and is applicable to seafarers on fishing vessels less than 150 GRT that are within 25 miles from shore (NC2). MED A1 training is 19.5 hours duration and is applicable to all other fishing vessels.

MED provides a basic understanding of the hazards associated with the marine environment; the prevention of shipboard incidents; raising and reacting to alarms; fire and abandonment situations; and the skills necessary for survival and rescue.

Between 2011 and 2015 the TSB investigated 17 fishing vessel accidents which resulted in 17 fatalities. The reports findings highlighted the lack of safety drills and safety procedures and practices.

## **2.3 COLD WATER IMMERSION**

Drowning is the number one cause of death in BC's fishing industry. Cold water is defined as water below 25 degrees Celsius, but the greatest effects occur below 15 degrees. BC waters are usually below 15 degrees. Normal body temperature is around 37 degrees Celsius; cold water rapidly draws heat away from the body. The effects of cold water on the body occur in four stages: cold shock, swimming failure, hypothermia and post-rescue collapse. Know what to do to prevent you or your crew from falling into the water and what to do if that occurs. More information is available in the Work Safe Bulletin *Cold Water Immersion* (available from the WorkSafeBC website at <http://www.worksafebc.com>) where the need to don PFD's while working in or near the water during fishing operations is clearly emphasized.

## 2.4 OTHER ISSUES

### 2.4.1 WEATHER

Vessel owners and masters are reminded of the importance of paying close attention to current weather trends and forecasts during the voyage. Marine weather information and forecasts can be obtained on VHF channels 21B, Wx1, Wx2, Wx3, or Wx4. Weather information is also available from Environment Canada website at:

[http://www.weatheroffice.gc.ca/marine/index\\_e.html](http://www.weatheroffice.gc.ca/marine/index_e.html)

### 2.4.2 EMERGENCY RADIO PROCEDURES

Vessel owners and masters should ensure that all crew are able to activate the Search and Rescue (SAR) system early rather than later by contacting the Canadian Coast Guard (CCG). It is strongly recommended that all fish harvesters carry a registered 406 MHz Emergency Position Indicating Radio Beacon (EPIRB). These beacons should be registered with the National Search and Rescue secretariat. When activated, an EPIRB transmits a distress call that is picked up or relayed by satellites and transmitted via land earth stations to the Joint Rescue Co-ordination Centre (JRCC), which will task and co-ordinate rescue resources.

Fish harvesters should monitor VHF channel 16 or MF 2182 KHz and make themselves and their crews familiar with other radio frequencies. All crew should know how to make a distress call and should obtain their restricted operator certificate from Industry Canada. However, whenever possible, masters should contact the nearest Canadian Coast Guard (CCG) Marine Communications and Traffic Services (MCTS) station (on VHF channel 16 or MF 2182 kHz) prior to a distress situation developing. Correct radio procedures are important for communications in an emergency. Incorrect or misunderstood communications may hinder a rescue response.

Since August 1, 2003 all commercial vessels greater than 8 metres in length are required to carry a Class D VHF Digital Selective Calling (DSC) radio. A registered DSC VHF radio has the capability to alert other DSC equipped vessels in your immediate area and MCTS that your vessel is in distress. Masters should be aware that they should register their DSC radios with Industry Canada to obtain a Marine Mobile Services Identity (MMSI) number or the automatic distress calling feature of the radio may not work. For further information see the Coast Guard website at:

<http://www.ccg-gcc.gc.ca/eng/CCG/Home>

or go directly to the Industry Canada web page:

<http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01032.html>

A DSC radio that is connected to a GPS unit will also automatically include your vessel's current position in the distress message. More detailed information on MCTS and DSC can be obtained by contacting a local Coast Guard MCTS centre (located in [Vancouver](#), [Victoria](#), [Prince Rupert](#), [Comox](#) and [Tofino](#)) or from the Coast Guard website: <http://www.ccg-gcc.gc.ca/Pacific>

### 2.4.3 COLLISION REGULATIONS

Fish harvesters must be knowledgeable of the Collision Regulations and the responsibilities between vessels where risk of collision exists. Navigation lights must be kept in good working order and must be displayed from sunset to sunrise and during all times of restricted visibility. To help reduce the potential for collision or close quarters situations which may also result in the loss of fishing gear, fish harvesters are encouraged to monitor the appropriate local Vessel Traffic Services (VTS) VHF channel when travelling or fishing near shipping lanes or other areas frequented by large commercial vessels. Vessels required to participate in VTS include:

- a) every ship twenty metres or more in length,
- b) every ship engaged in towing or pushing any vessel or object, other than fishing gear,
- c) where the combined length of the ship and any vessel or object towed or pushed by the ship is forty five metres or more in length; or
- d) where the length of the vessel or object being towed or pushed by the ship is twenty metres or more in length.

Exceptions include:

- a) a ship towing or pushing inside a log booming ground,
- b) a pleasure yacht *less than* 30 metres in length, and
- c) a fishing vessel that is *less than* 24 metres in length and *not more than* 150 tons gross.

More detailed information on VTS can be obtained by calling (250) 363 8904 or from the Coast Guard website:

<http://www.ccg-gcc.gc.ca/eng/CCG/Home>

### 2.4.4 BUDDY SYSTEM

Fish harvesters are encouraged to use the buddy system when transiting and fishing as this allows for the ability to provide mutual aid. An important trip consideration is the use of a sail

plan which includes the particulars of the vessel, crew and voyage. The sail plan should be left with a responsible person on shore or filed with the local MCTS. After leaving port the fish harvester should contact the holder of the sail plan daily or as per another schedule. The sail plan should ensure notification to JRCC when communication is not maintained which might indicate your vessel is in distress. Be sure to cancel the sail plan upon completion of the voyage.

### **3 WORKSAFEBC**

Commercial fishing is legislated by the requirements of the Workers Compensation Act (WCA) and for diving, fishing and other marine operations Part 24 of the Occupational Health and Safety Regulation (OHSR) applies. Many general hazard sections of the OHSR also apply to commercial fishing and other marine operations. For example, Part 8: Personal Protective Clothing and Equipment addresses issues related to safety headgear, safety foot wear and personal floatation devices. Part 15 addresses issues on rigging, Part 5 addresses issues of exposure to chemical and biological substances, and Part 3 addresses training of young and new workers, first aid, and accident investigations. Part 3 of the WCA also defines the roles and responsibilities of owners, employers, supervisors and workers. The OHSR and the WCA are available from the Provincial Crown Printers or by visiting the WorkSafeBC website:

<http://ww.worksafebc.com>

For further information, contact an Occupational Safety Officer:

- Bruce Logan, Lower Mainland, (604) 244-6477
- Mark Lunny, Courtenay, (250) 334-8732
- Jessie Kunce, Victoria, (250) 881-3461
- Pat Olsen, Manager of Interest for Marine and Fishing, (250) 334-8777

For information on projects related to commercial fishing:

- Lisa Houle, (604) 214-6922, Toll-Free 1-888-621-6922, [Lisa.Houle@worksafebc.com](mailto:Lisa.Houle@worksafebc.com)

### **4 FISH SAFE BC**

Fish Safe encourages Vessel masters and crew to take ownership of fishing vessel safety. Through this industry driven and funded program Fish Safe provides fishing relevant tools and programs to assist fishermen in this goal. The Fish Safe Stability Education Course and 1 Day Stability Workshop are available to all fishermen who want to improve their understanding of stability and find practical application to their vessel's operation. The SVOP/Safe on the Wheel Course is designed to equip crewmen with the skills they need to safely navigate during their

wheel watch. The Safest Catch Program along with fishermen trained Safety Advisors is designed to give fishermen the tools they need to create a vessel specific safety management system.

Fish Safe is managed by Ryan Ford, Program Coordinator John Krgovich, interim Program Assistant Yana Ingelsman, bookkeeper Rhoda Huey and an experienced team of fishermen Safety Advisors. All activities and program development is directed by the Fish Safe Advisory Committee (membership is open to all interested in improving safety on board). The advisory committee meets quarterly to discuss safety issues and give direction to Fish Safe in the development of education and tools for fish harvesters.

Fish Safe also works closely with WorkSafeBC to improve the fishing injury claims process. For further information contact:

Ryan Ford, Program Manager

Cell: (604) 739-0540

Fish Safe Office: (604) 261-9700

#100, 12051 Horseshoe Way

Richmond, BC, V7A 4V4

Email: [ryan@fishsafebc.com](mailto:ryan@fishsafebc.com)

Website: <http://www.fishsafebc.com>

## 5 TRANSPORTATION SAFETY BOARD

The Transportation Safety Board (TSB) is not a regulatory board. The TSB is an independent agency that investigates marine, pipeline, railway and aviation transportation occurrences to determine the underlying risks and contributing factors. Its sole aim is the advancement of transportation safety by reporting publicly through Accident Investigation Reports or Marine Safety Information Letters or Advisors. It is not the function of the Board to assign fault or determine civil or criminal liability. Under the TSB Act, all information collected during an investigation is completely confidential.

In 2014 the TSB released three investigation reports:

- the collision between trawl fishing vessel [Viking Storm](#) and US long line fishing vessel Maverick and the subsequent fatality,
- the person over board off the prawn fishing vessel [Diane Louise](#) and the subsequent fatality, and
- the capsizing of the crab fishing vessel [Five Star](#) and subsequent fatality.

In 2016 the TSB released one investigation report:

- the capsizing of the trawl [Caledonian](#) and subsequent fatalities.

The TSB issues five recommendations following the *Caledonian* report. Three recommendations issued are aimed at ensuring all crews have access to adequate stability information that meets their needs. That means:

- All commercial fishing vessels should have a stability assessment appropriate for their size and operation.
- The information from that assessment must then be kept current, and it must be used to determine safe operating limits.

Moreover, these operating limits must be easily measurable, and relevant to the vessel's operation. For example, that could mean marking the sides of a vessel's hull to indicate the maximum operating waterline. Or maximum permitted loads can be specified in the most relevant unit of measure—total catch weight for instance, or the safe number of traps. Regardless, for it to be of real, practical use, the information must be presented in a format that is clearly understood and easily accessible to crew.

The other two recommendations address the most basic step that fishermen can take: wearing a personal flotation device. Here in British Columbia, roughly 70 percent of all fishing-related fatalities in the past decade came while not wearing a PFD. Yet many fishermen still don't wear them. Regulations currently require that PFDs be worn only if fishermen identify a risk, however; you never know when you could end up in the water. So the TSB is recommending to TC and WorksafeBC to require persons to wear suitable personal flotation devices at all times when on the deck of a commercial fishing vessel or when on board a commercial fishing vessel without a deck or deck structure and that programs are developed to confirm compliance.

For more information about the TSB, visit the website at:

<http://www.tsb.gc.ca>

For information about the TSB's investigation into fishing safety, or to view a brief video, visit:

<http://www.tsb.gc.ca/eng/medias-media/videos/marine/m09z0001/index.asp>

To view a brief video about some of the issues on the TSB's recent safety Watchlist, visit:

<http://www.tsb.gc.ca/eng/medias-media/photos/index.asp>

Reporting an Occurrence:

<http://www.tsb.gc.ca/eng/incidents-occurrence/marine>

After a reportable occurrence happens, you can fill out the TSB 1808 form or call the TSB at the contact information below:

[Glenn Budden](#), Investigator, Marine - Fishing Vessels

Transportation Safety Board of Canada

4 - 3071 No. 5 Road

Richmond, BC, V6X 2T4

Telephone: (604) 666-2712

Cell: (604) 619-6090

Email: [glenn.budden@tsb.gc.ca](mailto:glenn.budden@tsb.gc.ca)



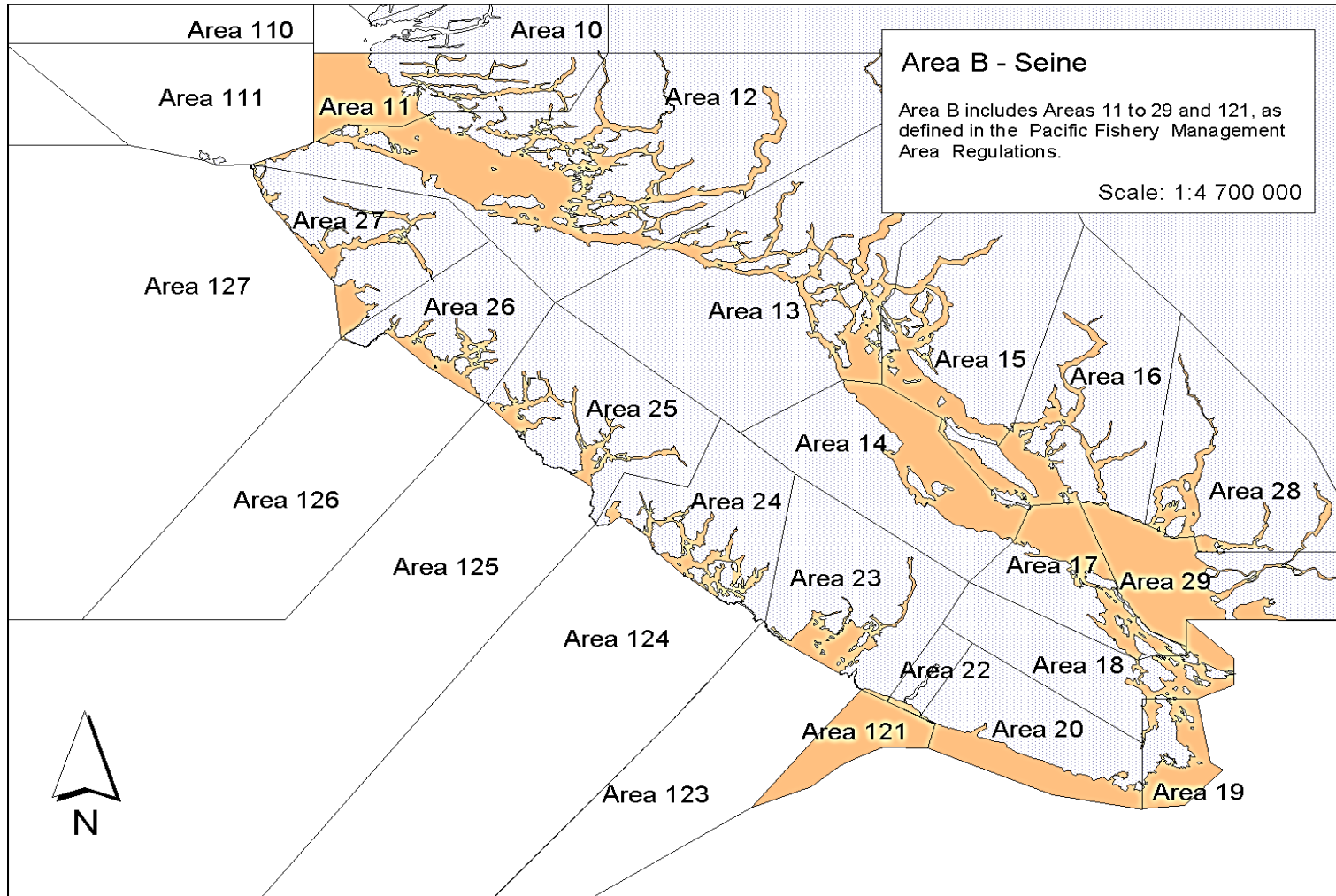
## APPENDIX 3: COMMERCIAL SALMON LICENCE AREAS

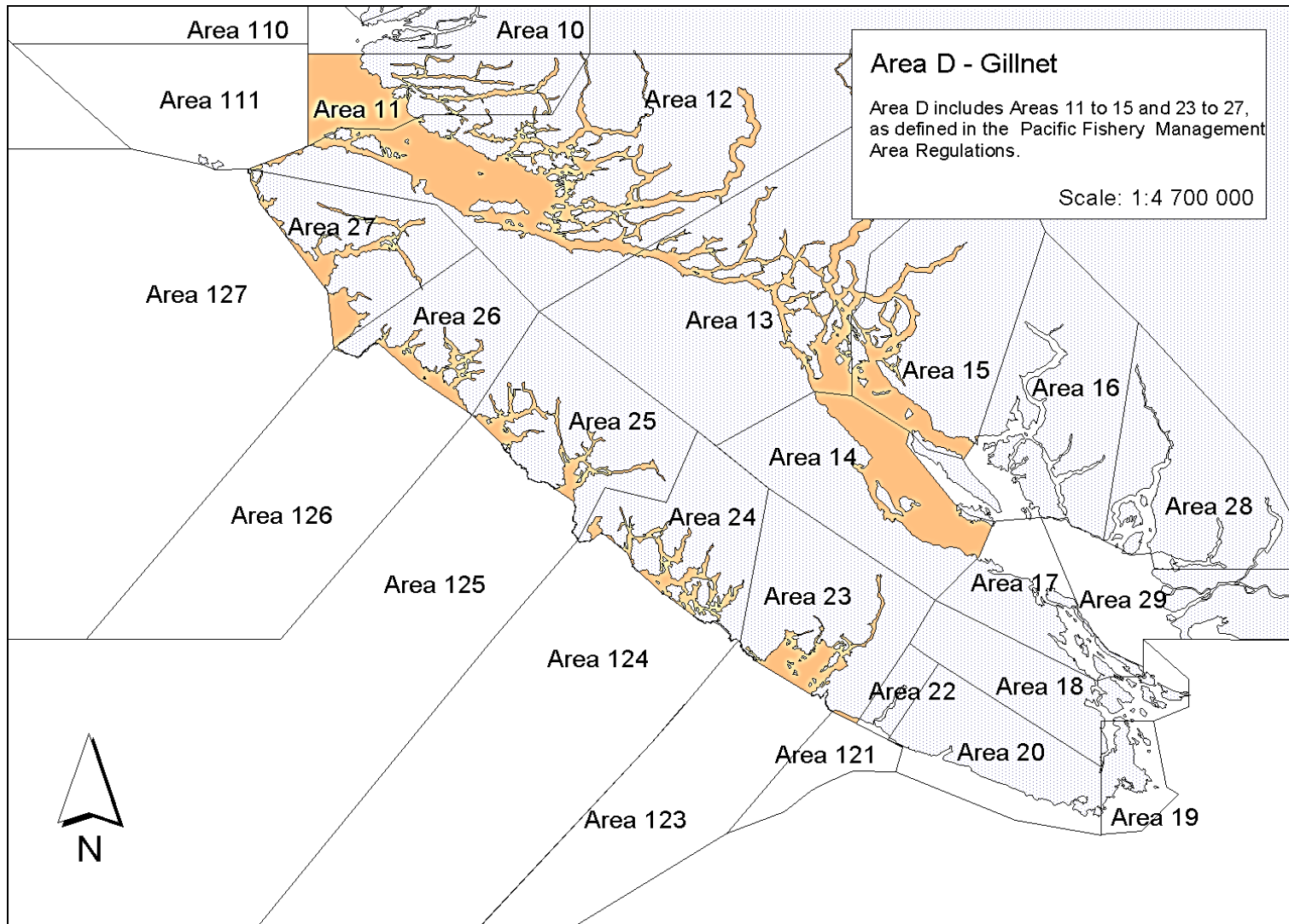
Pacific Salmon Fishing Area	Gear	Corresponding Pacific Fisheries Management Areas (PFMA)
Salmon Area A	Seine	Areas 1 to 10, Subarea 101-7
Salmon Area B	Seine	Areas 11 to 29 and 121
Salmon Area C	Gill net	Areas 1 to 10, Subarea 101-7
Salmon Area D	Gill net	Areas 11 to 15 and 23 – 27
Salmon Area E	Gill net	Areas 16 to 22, 28, 29 and 121
Salmon Area F	Troll	Areas 1 to 10, 101 to 110, 130 and 142
Salmon Area G	Troll	Areas 11, 20 to 28, 111, 121, 123 to 127 and Subareas 12-5 and 12-6
Salmon Area H	Troll	Areas 12 to 19, 28 and 29

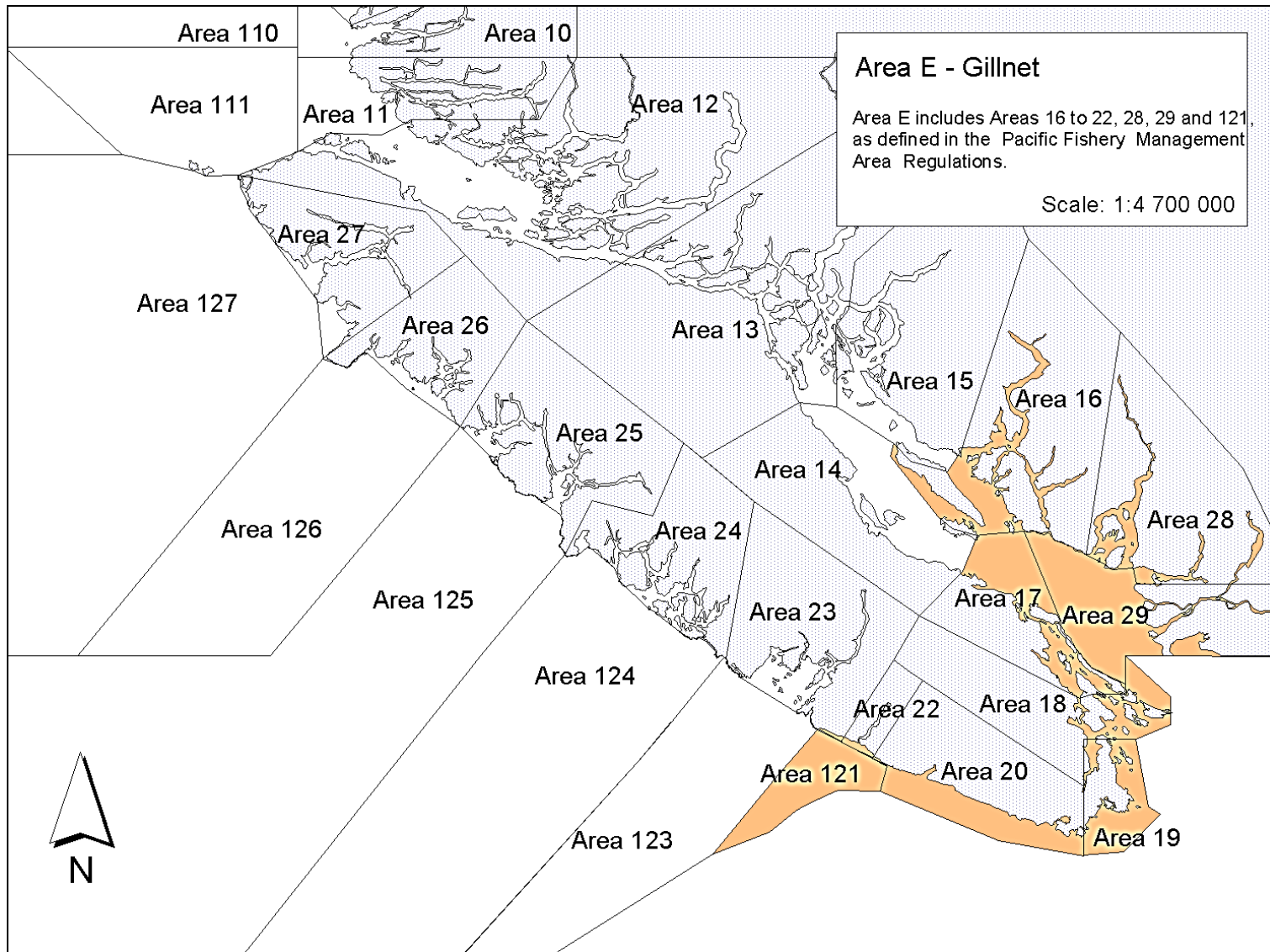
For South Coast PFMA's please see Appendix 6 of this IFMP.

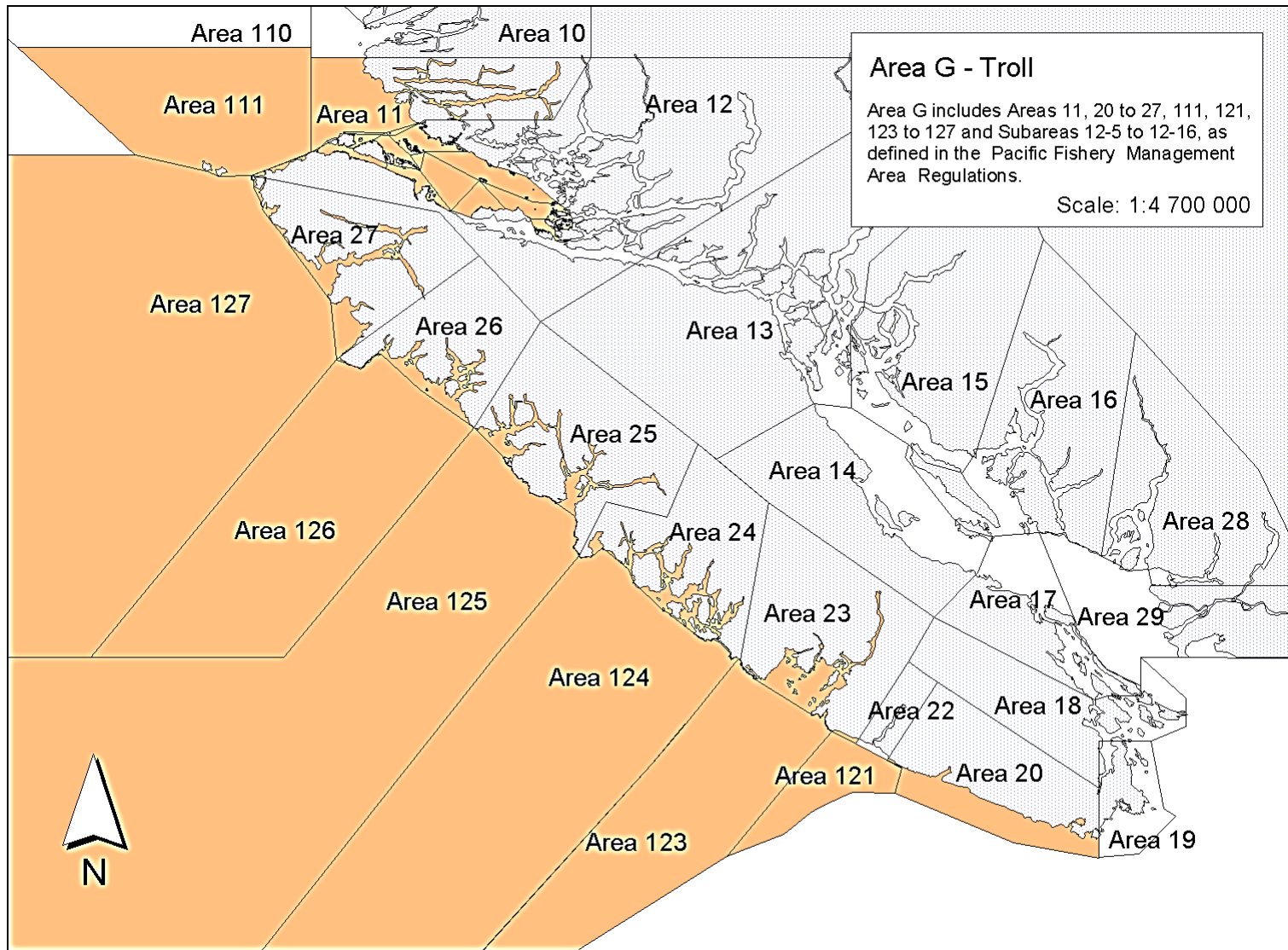
For maps of South Coast commercial licence areas, (Areas B, D, F, G, and H), please see [Appendix 4](#).

# APPENDIX 4: MAPS OF SOUTH COAST COMMERCIAL LICENCE AREAS

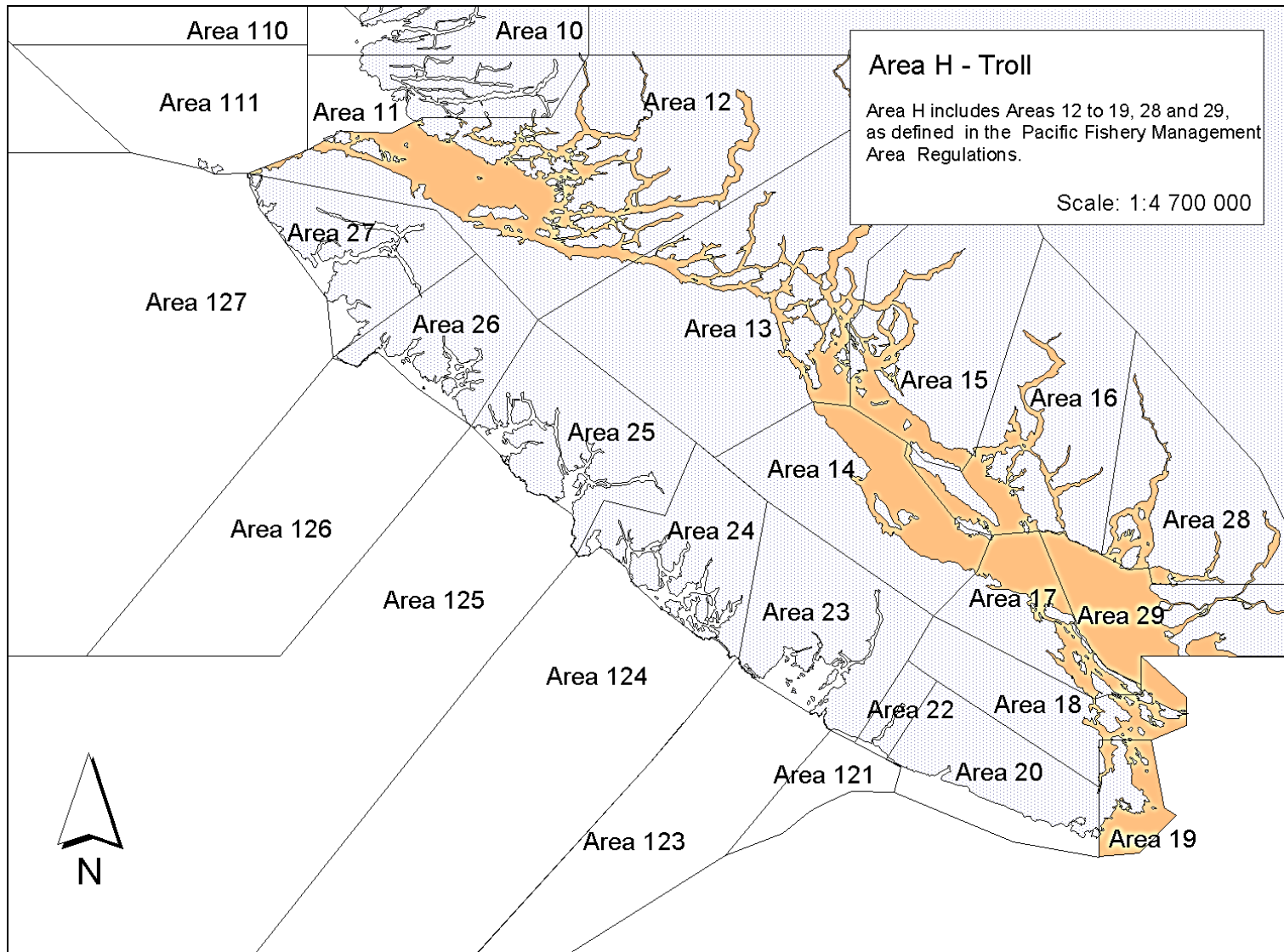












## APPENDIX 5: ADVISORY BOARD MEMBERSHIPS

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Meeting dates and records of consultation can be found at:

<http://www.pac.dfo-mpo.gc.ca/consultation/fisheries-peche/smon/ihpc-cpip/index-eng.htm>

The IHPC membership list can also be found on the DFO website at:

<http://www.pac.dfo-mpo.gc.ca/consultation/smon/ihpc-cpip/membs-eng.html>

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**ALTERNATE**

Vacant

**FIRST NATIONS (FOUR) MEMBERS**

Vacant

Vacant

Vacant

Vacant

**PROVINCE (EX-OFFICIO) (ONE) MEMBER**

Vacant

# APPENDIX 6: UPDATES TO THE COMMERCIAL SALMON ALLOCATION FRAMEWORK

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## I INTRODUCTION AND PURPOSE

The purpose of this appendix is to outline progress related to updates to the Commercial Salmon Allocation Framework (CSAF), including:

Document approved updates to the Commercial Salmon Allocation Framework and areas for further discussion;

Describe principles and guidelines for sharing arrangements, building on guidelines approved in the 2015/2016 IFMP (Section 3);

Outline CSAF demonstration fishery proposals received for consideration for the coming season which have been assessed through the Departments' Evaluation Framework.

## 2 BACKGROUND

In September 2013, as part of the Pacific Salmon Treaty Mitigation program, Fisheries and Oceans Canada started a process to obtain advice on updating the CSAF to address deficiencies raised by commercial harvesters and First Nations. The Department engaged the existing advisory processes, principally the First Nations Salmon Coordinating Committee (SCC) and the Commercial Salmon Advisory Board (CSAB), and also sought the views of other First Nations and commercial interest on possible changes to the framework. The Department developed a Terms of Reference that provided the scope for the work. Discussions with the SCC and CSAB were completed at the end of January 2015 and proposed updates were included in the draft 2015/16 IFMP and further feedback on these were sought in the fishery planning process. Updates approved by the Department in June, 2015 were included in the final Salmon 2015/2016 IFMP (see Commercial Salmon Allocation Plan in Section [Error! Reference source not found.12.4](#)). A summary of previous work completed related to the initiative to update the CSAF is also available through the following link:

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

Principles and guidelines approved through the 2015 IFMP and additional principles, approved in 2017 are included in Section 2.3 below. These guidelines have been developed based on discussions with the SCC and CSAB and may be updated in future years.

### 2.1 WHAT IS THE CSAF?

*An Allocation Policy for Pacific Salmon* (<http://www.dfo-mpo.gc.ca/Library/240366.pdf>) outlines how DFO prioritizes salmon for conservation requirements, First Nations requirements for food, social and ceremonial purposes, and recreational harvest, as well as, outlining how the salmon are shared among commercial salmon fisheries. The part of the policy that outlines how

the commercial allowable harvest (after accounting for conservation, First Nations FSC requirements and recreational sharing arrangements) is shared among commercial salmon fisheries is referred to as the ‘commercial salmon allocation framework’ (CSAF).

## **2.2 DFO ROLE IN PROCESS TO UPDATE THE CSAF**

The Department’s broad interests are to support changes to the CSAF that can improve the long term sustainability of Pacific wild salmon, help commercial fishery participants achieve greater economic benefit, and create more resilient commercial salmon fisheries. The Department’s role has not been to propose changes to the CSAF; rather its focus has been to consider proposed changes to ensure that these were consistent with key Departmental objectives (specified in the Terms of Reference), policies, and programs.

More specifically, the Department evaluated possible outcomes against several objectives. This included: improving compliance with conservation objectives; improving the stability of commercial salmon allocation arrangements; providing more flexibility to licence holders to adapt to uncertain business markets and fish abundance; assisting in catch reporting and monitoring; and promoting collaboration among licence holders, First Nations and the Department. In undertaking this work, the Department was directed by its policies, regulations and legal obligations and any outcomes from this initiative had to be consistent with this direction.

## **2.3 WHAT CHANGES TO THE CSAF WERE APPROVED FOR THE 2015/2016 SALMON IFMP?**

Based on recommendations received from the SCC and CSAB following from discussions occurring from September 2013 through January, 2015, and feedback through the draft 2015/2016 IFMP process, the following key recommendations were approved by the Department:

- Defined shares for commercial fleets at the species, fleet and fishery production areas for a period of 5 years with provisions to review the allocations after year 4, starting in 2015;

- A set of principles and operational guidelines that would form the basis of incremental testing of flexibilities (alternatives fishing locations and methods) to harvest shares, with potential for testing starting in 2016 prior to wider implementation; and

- The development of a revised collaborative advisory process to coordinate the collective interests of First Nations economic fishery and A-H commercial fleet fisheries.

### **3 PRINCIPLES AND GUIDELINES FOR CALCULATING SALMON SHARES**

These principles and guidelines are intended to provide clarity on commercial sharing arrangements and have been developed as part of the initiative to update the CSAF in collaboration with the CSAB and SCC. Below are principles and guidelines included in the final 2015 IFMP as well as additional principles reviewed as part of this draft 2017 IFMP and approved for implementation in the 2017 fishing season.

Please note that these guidelines and principles may be reviewed and updated annually as part of the post-season review process to ensure they remain relevant and clear.

#### **APPROVED PRINCIPLES**

For simplicity, the updates to the CSAF are organized into three categories: 1. Stabilizing commercial shares; 2. Flexibility to harvest the shares and integrated planning process; and 3. Additional elements for future discussion.

#### **CATEGORY 1: STABILIZING COMMERCIAL SHARES**

The following recommendations form the basis for the commercial allocation plan starting in 2015:

Commercial salmon shares (specified as a % allocation of the allowable commercial harvest) will be assigned by species, fleet and fishery production area. Shares at the species, fleet and fishery production area are provided in Section 12.4 of the IFMP;

Shares will apply for a 5 year period with a provision for a review after year 4 to determine if adjustments should be made to Area A-H sharing arrangements in subsequent years. An earlier review could be considered if circumstances warrant by majority agreement of the commercial advisory board;

Sockeye equivalents will no longer be used to adjust shares on an annual basis;

Licences transferred to First Nations communities for commercial purposes, from an individual relinquished commercial licence, will be based on an equal percentage allocation of the allowable commercial harvest for all licences (e.g.  $1/X$  where  $X$  = total licences per fleet) in that commercial licence area (i.e. Areas A to H). Please note that licence shares may change over time due to changes in fleet size (e.g. licence retirements, stacking) or updates to the A-H sharing arrangements outlined in the

commercial salmon allocation plan based on the periodic review (i.e. for the 2019 season).

A central, common tracking system developed to provide an open and transparent annual accounting of all commercial A to H licences/allocations and First Nation economic fishery allocations by each First Nations economic fishery.

In addition to the 22 fishery production areas that existed pre-2015, three new areas have been added, as of 2015, to better define sharing arrangements for troll fisheries limited by the Pacific Salmon Treaty including the WCVI Aggregate Abundance Based Management (AABM) chinook, Northern BC AABM chinook and the AB-line pink troll fisheries.

Sharing arrangements in the commercial salmon allocation plan are not fixed entitlements. Although best efforts will be made to achieve fishery production area target allocations over the course of the season, no guarantees are offered that allocations will actually be achieved in any given year. The achievement of commercial allocations will depend upon the ability to fish selectively and the conservation needs of the resource. In the event that allocations are not achieved over the course of the season, no compensatory adjustments (i.e. overage/underage provisions) will be made to future allocations.

Fishing opportunities for all commercial fisheries, including First Nations commercial fisheries, targeting the same fishery management unit should be planned to provide reasonable opportunities to harvest shares. Post season reviews will address whether fisheries adjustments may be required in future years to address situations where allocations are not achieved.

In the event of extenuating circumstances (e.g. when fisheries are opened until further notice after escapement objectives are met in a terminal fishery), commercial sharing arrangements may be set aside and commercial opportunities will focus on harvesting surplus salmon. These situations will be discussed at local processes where possible to coordinate fishing plans.

### **Further considerations on Stabilizing Commercial Shares**

In addition to the three additional production areas which were approved starting in 2015, the SCC recommended adding an additional fishery production area for a total of 26. This 26th fishery production area would result by dividing the Fraser river chum from the southern inside chum production area. This additional production area was not approved, however may be considered in the future pending additional discussion.



It is expected that annual post-season reviews will be conducted to consider how well the approved allocation arrangements have been implemented in commercial fisheries that season.

## **CATEGORY 2: FLEXIBILITY TO HARVEST SHARES AND INTEGRATED PLANNING PROCESS**

Both the CSAB and the SCC are seeking greater flexibility to harvest the shares that are assigned at the fishery production area level and/or are associated with voluntarily relinquished commercial licences transferred to First Nations.

The following principles and operational guidelines form the basis for the incremental testing of flexibilities to harvest shares which started in 2016 informed through the collaborative advisory process (CSAF small group, which includes participants of from the SCC, CSAB and DFO) and a Departmental evaluation framework (these are described in more detail under “further considerations on flexibilities” below):

Greater flexibility, such as fishing location and methods, should be provided to harvest the shares; however, ‘one size does not fit all’ and each gear type through its area harvest committee or First Nations economic fishery should determine the best approach to harvest their shares;

First Nations that have Area A-H licences may continue to fish those licences in the current A-H fisheries or they may choose to transfer the harvest share associated with those licences to a First Nation economic fishery. Under the SCC proposal, any First Nations economic fishery would have to be managed in coordination with other fisheries and would require approval from the Department (including proposed fishing method, location and time);

A revised collaborative process will be required to coordinate the collective interests of the A-H fisheries and First Nations economic fisheries in order to produce integrated fishing plans. A Terms of Reference for an updated commercial salmon advisory board that includes both First Nations economic fishery and CSAB representatives should be developed to clarify membership, roles and responsibilities, management functions, and other relevant features of the collaborative process. This could also include more local harvest planning processes as required;

In-season transfers of shares among and between A-H and First Nation economic fisheries will be considered. These arrangements will be subject to operational guidelines for pre-season and in-season transfers (see the current Guidelines for Temporary Commercial Salmon Share Transfers, Section 12.13);

Transfers between fisheries, including marine and inland areas, must account for similar stocks/species, as well as, any management adjustments that may need to be taken into consideration for transfers to inland areas;

By-catch and stocks of concern (i.e. non-targeted species that limit target species access) will not be formally allocated at this time. Available impacts must be shared between all commercial fisheries, including First Nation economic fisheries, in the development of operational plans to allow every fishery reasonable access to its target species. Operational plans should be discussed annually through a collaborative process among all commercial fishery participants, including First Nations economic interests. The use of by-catch will require more discussion to further clarify how by-catch is best used under different scenarios;

There will be a requirement to have accurate, timely and accessible fisheries data, such that there is sufficient information for all Pacific salmon fisheries to be managed sustainably and to meet other reporting obligations and objectives; and

Common standards and approach will be used for evaluating and approving flexibilities to harvest shares whether these are Area A-H or First Nations economic fisheries. Operational issues about how to operationalize harvest flexibilities in different areas has underscored the need for greater clarity and transparency in applying any of the proposed changes.

Assessment fisheries should take into consideration existing sharing arrangements between A to H and First Nations commercial fisheries; opportunities for assessment fisheries should be proportionate with existing shares or as agreed to by the relevant parties.

### **Further Considerations on Flexibility to Harvest Shares:**

The SCC proposal envisaged that any First Nations that have Area A-H licence(s) may continue to fish those licence(s) in A-H fisheries or choose to transfer the harvest share associated with that licence to a First Nation economic fishery. This could result in First Nation economic fisheries in marine or inland areas based on shares converted from A-H fisheries. The relevant First Nations economic fishery (including any proposed fishing methods, times and locations) would need approval from the Department. Any First Nations fishery would have to be managed in coordination with other commercial fisheries (including A-H), on the same species and would have to meet Department requirements for stock assessment, catch monitoring, compliance and enforcement.

Similarly, the CSAB suggested that fleets in the A-H fisheries should decide how to best harvest their shares through harvest committee deliberations and thus endorsed the view that “one size does not fit all” when it came to how fleets may choose to harvest their shares.

The Department will adopt an incremental approach to implementation of harvesting flexibilities starting in 2016, informed through a collaborative advisory process and a common evaluation framework to review proposals submitted.

### **Collaborative Process**

A revised commercial advisory board including commercial representatives from the A – H fisheries and First Nations economic fisheries will be required for the Department supporting implementation of any proposed flexibilities. This may include commercial harvesters developing a revised commercial salmon advisory board terms of reference including details on membership, roles and responsibilities. The purpose of this board would be as a forum to discuss and make recommendations for the Department’s consideration on implementation of the revised allocation framework, the operational details associated with proposed flexibilities and how to prioritize testing of potential harvesting flexibilities including: reviewing and assessing proposals pre-season and considering the results of pilots against evaluation criteria post-season. The Department will continue to work with the existing CSAB and SCC to determine next steps and support the use of the CSAF small group process for collaborative discussions.

Discussions on commercial harvest plans including which group fishes first, sequencing of opportunities, amounts of fishing time and other fishing plan parameters should be discussed among fishery participants at planning processes suitable to the scale of the fishery (e.g. local area) and included within the IFMP as required. The Department will continue to consider advice and recommendations on proposed fishing plans from the local First Nations, Area Harvest Committees, and other groups to promote integrated fishery planning.

Local management committees are encouraged to promote effective communication, consultation and support increased collaboration and integration of commercial fisheries. Structure and protocol for any local committees should promote effective management through open, transparent and collaborative process to develop and implement commercial fishing plans. Existing processes will be used whenever possible/practical to support pre-season planning, in-season management and post-season review. Operational plans should be guided by the principles and guidelines outlined in this document and, where possible, identify clear decision guidelines that

address the potential fishery configurations and effort associated with a range of potential commercial harvest scenarios.

Pre-agreed methods for calculating in-season harvest amounts associated with commercial allocations for all groups should be identified in local area fishing plans and/or the IFMP where appropriate and communicated preseason so all commercial participants have clarity on sharing arrangements. Methods should account for all commercial allocations including A to H fleets, FN demonstration, economic opportunities and harvest agreement fisheries.

Approaches for in-season communication (e.g. integrated conference calls, Fisheries Notices, etc.) of fishing opportunities, sharing arrangements and catch to date should be provided for discussion with First Nations and stakeholders.

### **Evaluation Framework**

In 2016, DFO in collaboration with the SCC and CSAB developed an Evaluation Framework (E.F.) supported by all parties. The E.F. outlines the objectives and criteria that is used to assess CSAF proposals for flexible harvest arrangements for all commercial/economic fisheries. The E.F. may be reviewed and updated annually based on post-season discussions.

### **CATEGORY 3: ADDITIONAL ELEMENTS FOR DISCUSSION:**

In addition to commercial allocation arrangements within Section 12.4 of the IFMP and those listed above in Category 2: *Flexibility to Harvest Shares*, there are a number of additional elements in the SCC and CSAB proposals where differences remain. These elements may have policy implications and require additional discussion, collaboration and analysis by commercial harvesters, First Nations and the Department.

Details are included within the original proposals received by both the SCC and CSAB in 2015 which can be reviewed at:

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

### **Further considerations on additional elements:**

The following areas have been highlighted by the SCC and CSAB where there was no agreement concerning the proposed changes.

The SCC has proposed that the current DFO practice for treating un-harvested commercial allocations (catch not caught by a more seaward or downstream fishery) should continue. Specifically, un-harvested allocations should be transferred to other

fisheries, including First Nations economic fisheries, if it was no longer accessible to the original fishery. These arrangements would not require compensation.

Conversely, the CSAB has proposed that uncaught allocations should be handled differently including establishing the conditions when arrangements are required for the transfer of un-harvested allocations, and whether or not there should be compensation to the fleet with the un-harvested shares.

There was also a difference of views on the approach to dual fishing (the retention of fish for food, social and ceremonial purposes during a commercial fishery under agreed circumstances). The SCC has proposed that First Nations economic fisheries be permitted to have dual fishing whereas the CSAB has raised concerns about fairness of this approach to the A to H fishery and its potential conservation issues on stocks of concern. CSAB has recommended that the Department continue its' current approach to considering requests on a case by case basis.

The CSAB has indicated concerns with the guidelines for the conversion of an existing marine A-H commercial licence (not including licences held in DFO inventory) into a First Nation economic fishery allocation (guidelines the CSAB would like to be consider prior to approval of conversions include timing (e.g. pre-season vs. in-season), notification, and transfer/tracking requirements.

In addition, there are some proposed changes that are principally matters best handled between DFO and the relevant group. These matters will require further discussion with the Department.

- The SCC has proposed a separate management body/process to manage First Nations salmon shares including a proposed body (a 'First Nations' licensing board') to administer use of shares associated with relinquished commercial salmon licences from the DFO inventory or licences otherwise set aside for First Nations use.
- The CSAB had indicated interest in reviewing commercial licencing policy.

Finally, there are several areas such rules for determining the circumstances when by-catch can be treated like a target species and so forth where discussions have commenced but not concluded. These, mostly operational matters, will need to be addressed over time.

## 4 CSAF DEMONSTRATION FISHERY PROPOSALS FOR FLEXIBLE HARVEST ARRANGEMENTS

As part of implementing changes to the CSAF, the Department indicated that it would adopt an incremental approach to providing increased flexibility to harvest salmon shares starting in 2016. This decision was subject to completion of a common Evaluation Framework to review proposals submitted with the intent to use this Framework to define principles and operational guidelines to ensure appropriate implementation of proposed harvesting flexibilities. The Department's Evaluation Framework was developed to assess proposals for 2016 with input from the SCC and CSAB and has been reviewed during the post-season. There was general agreement from DFO, the SCC and CSAB to continue using the Evaluation Framework with no updates to the principles, objectives and criteria suggested.

Below is a table outlining demonstration fishery proposals that were reviewed with the Department's Evaluation Framework and did not result in substantial conservation concerns. Please note that proposals included within this IFMP reflect wording provided by the proponents and have not been revised by DFO. The Department will be discussing operational details with First Nations and stakeholders to develop fishing plans, which must be approved in the area, prior to initiating fisheries. CSAF demonstration proposals included below will proceed in 2017 subject to operational considerations being resolved and contingent on sufficient returns for commercial harvest. Should operational considerations not be resolved, the demonstration fishery will not occur in 2017.

Any demonstration fishery that does proceed in 2017 will be reviewed as part of the post-season review process. Below is a table which outlines the section and related demonstration fishery project included within this appendix.

<b>Year</b>	<b>Salmon Coordinating Committee Northern B.C.</b>	<b>Commercial Salmon Advisory Board Northern B.C.</b>
2016	<a href="#">4.1</a> Central Coast hatchery chum (2 proposals from Heiltsuk/Kitasoo)	<a href="#">4.6</a> Central Coast coho (Area F)
2016	<a href="#">4.2</a> Nass River sockeye (2 proposals from Nisga'a Lisims Government and Gitanyow)	
2016	<a href="#">4.3</a> Skeena sockeye - Area 4 (NCSFNSS)	
NEW 2017	<a href="#">4.4</a> Central Coast chum (Nuxalk)	

Year	Salmon Coordinating Committee Northern B.C.	Commercial Salmon Advisory Board Northern B.C.
NEW 2017	<a href="#">4.5</a> Haida Gwaii coho mosquito fleet (CHN)	

Year	Salmon Coordinating Committee Southern B.C.	Commercial Salmon Advisory Board Southern B.C.
2016	<a href="#">4.7</a> Cowichan chum (Cowichan Tribes)	<a href="#">4.9</a> Mainland/Inlet pink and chum (Area H)
		<a href="#">4.10</a> Fraser River sockeye, pink, chum - alternate gear (Area E)
NEW 2017	<a href="#">4.8</a> Area 18 Goldstream chum (Saanich Tribes)	<a href="#">4.11</a> Area 12 sockeye/coho encounter study (Area D)
		<a href="#">4.12</a> Area 14 chum (Qualicum/Puntledge) (Area D)

First Nations requests for access to salmon allocations associated with licences in the Departmental licence inventory will be reviewed internally by the Department and outcomes will be confirmed First Nations proponents. Demonstration fisheries that do not receive requested allocations will not proceed.

**4.1 CENTRAL COAST HATCHERY CHUM (2 PROPOSALS INCLUDED WITHIN FINAL 2016 IFMP)**

**KITASOO NATION: TROUT BAY TERMINAL CHUM DEMONSTRATION FISHERY**

**Background**

Participant: Kitsoo Nation – (either Band or Development Corp.)

Allocation: 15.9% of chum catch based the respective gear shares in the Central Coast Chum production area and the allocation associated with the 88 Area C and 19 Area A and 14 Area F licences in the DFO Inventory.

Final allocation % will be modified based on actual licenses converted to shares as identified by DFO and any other additional licences converted to shares and acquired by Kitsoo prior to the fishing season.

### **Proposal Overview**

Fishing opportunity for the Kitsoo share will take place 1 - 5 days after each scheduled A and/or C fisheries prosecuted in the same area. (typically Monday/Tuesday).

In order to determine the target chum share for the Kitsoo fishing opportunity the total chum catch from the previous A and/or C fishery would be multiplied by 18.9% (or other percentage based on I-c).

### **Fishery Elements/Attributes**

Location – Portion of 7-5 in front of Trout Bay – Klemtu village. Same fishing boundaries as designated for the previously scheduled Area A and/or C fisheries.

Gear type – gillnet and purse seine vessels similar to those used in Area C and A fisheries.

Number of vessels – to be determined based on the number of fish to be harvested. Anticipated to be 1 seine or 2- 6 gillnet vessels for each fishing opportunity for 2016.

Target Species – Kitsoo creek hatchery chum

Bycatch – small numbers of other salmon species. Handling requirements would be same for Area A and/or C fisheries in same area.

Other nearby/relevant fisheries – marine FSC fisheries and recreational fisheries in Area 7 and 8. It is possible the Kitsoo fishing opportunity could occur simultaneously with other all citizens commercial fisheries in the area (often scheduled for Thursday). Preference is to avoid days when other A and/or C fisheries.

### **Harvest Guidelines and Management Decision Rules**

All Fishing opportunities (A and C or Demonstration) will be based on abundance in the terminal area as determined by a management team consisting of DFO and Kitsoo Fisheries Program and Hatchery representatives.

Proposed fishery management controls



- i. Fishery Timing Controls – Typical timing is August 20 – September 20. with most fishing opportunities preferred prior to September 10 to maximize quality.
- ii. Times for each fishery opening (1 – 5 days after each regularly scheduled fishery) would be identified in the pre-season plan and modified in-season as required. The fishery would open at 6:00 am and would remain open till 6:00 pm or until the target is achieved.
- iii. Fishing Gear Control – The Kitsoo Fisheries Program representative would identify the vessels that may participate in a fishery at least 24 hours before each fishery opening.
- iv. Output Controls – it will be decided by the fishers in communication with the Kitsoo Fisheries manager to determine if the harvest target will be divided equally amongst the designated vessels or all vessels will fish as a pool.

### **Monitoring and Compliance Plan**

Type of program to monitor – combination of at-sea patrols and a single designated mandatory landing site.

- v. At-sea patrols – a member of the Kitsoo Co-mgt program and/or DFO will monitor the fishery and record hauls after each set to confirm running tally of total fish captured relative to the target and relay this information to the fishers throughout the day. Also to confirm the number of fishing vessels participating and ensure compliance with fishing times and area boundaries.
- vi. Mandatory landing site – all of the catch would be enumerated by the Kitsoo Co-mgt. representative and potentially sampled at the designated landing sites (Trout Bay dock) and final tallies provided to DFO. If a single seine vessel is utilized the monitor would operate aboard the vessel and individually count fish into the fish holds after each set.

Security Clearance for Patrolman/validator- DFO and Kitsoo Fisheries Program would work cooperatively to train and provide designation and security clearance to the Kitsoo patrolman/validator. Guidelines to be determined.

Level of coverage – 100% dock side enumeration

Biological sampling requirements – any sampling requirements will be discussed with DFO

Monitoring plan – implemented by Kitasoo Fisheries Program and/or DFO.

In-season Reporting – numbers of each species caught, sold, kept and released by each participating FN will be provided to DFO within 24 hours of the end of each opening.

Communication protocol – Kitasoo Fisheries Program will be responsible for all pre-season, in-season and post-season communications with DFO and participating FNs.

### **Communication**

A Kitasoo Fisheries demonstration fishery manager will be identified and will be responsible for the coordination of the Kitasoo fishery and will be the primary contact for all communication with DFO and fishers

Kitasoo Fisheries Program representatives will participate in pre-season planning meetings, in-season weekly conference calls and any post-season review meetings related to the operation of the Kitasoo Demonstration fishery.

## **HEILTSUK NATION: MCLOUGHLIN TERMINAL CHUM DEMONSTRATION FISHERY**

### **I. Background**

Participant: Heiltsuk Nation – (either Band or Development Corp.)

Allocation: 15.9% of chum catch based the respective gear shares in the Central Coast Chum production area and the allocation associated with the 88 Area C and 19 Area A and 14 Area F licences in the DFO Inventory.

Final allocation % will be modified based on actual licenses converted to shares as identified by DFO and any other additional licences converted to shares and acquired by Heiltsuk prior to the fishing season.

### **Proposal Overview**

Fishing opportunity for the Heiltsuk share will take place 2 - 4 days after each scheduled A or C fisheries prosecuted in the same area. (A or C fisheries typically Monday).

In order to determine the target chum share for the Heiltsuk fishing opportunity the total chum catch from the previous A or C fishery would be multiplied by 18.9% (or other percentage based on I-c).

**Fishery Elements/Attributes**

Location – Portion of 7-17 in front of McLoughlin Bay. Same fishing boundaries as designated for the scheduled Area A or C fisheries.

Gear type – gillnet and purse seine vessels similar to those used in Area C and A fisheries.

Number of vessels – to be determined based on the number of fish to be harvested. Anticipated to be 1 – 2 seines or 3 - 8 gillnet vessels for each fishing opportunity for 2016.

Target Species – McLoughlin Bay creek hatchery chum.

Bycatch – small numbers of other salmon species. Handling requirements would be same for Area A or C fisheries in same area.

Other nearby/relevant fisheries – marine FSC fisheries and recreational fisheries in Area 7 and 8. It is possible the Heiltsuk fishing opportunity could occur simultaneously with other all citizens commercial fisheries in the area (often scheduled for Thursday). Preference is to avoid days when other A or C fisheries are open nearby to maximize product flow, quality and employment at Heiltsuk processing plant.

**Harvest Guidelines and Management Decision Rules**

All Fishing opportunities (A and C or Demonstration) will be based on abundance in the terminal area as determined by a management team consisting of DFO and Heiltsuk Fisheries Program representatives.

Proposed fishery management controls

- i. Fishery Timing Controls – Typical timing is August 20 – September 20. with most fishing opportunities preferred prior to September 10 to maximize quality.
- ii. Times for each fishery opening (2 – 4 days after each regularly scheduled fishery) would be identified in the pre-season plan and modified in-season as required. The demonstration fishery would open at 6:00 am and would remain open till 6:00 pm or until the target is achieved.

- iii. Fishing Gear Control – The Heiltsuk Fisheries Program representative would identify the vessels that may participate in a fishery at least 24 hours before each fishery opening.
- iv. Output Controls – it will be decided by the fishers in communication with the Heiltsuk Fisheries manager to determine if the harvest target will be divided equally amongst the designated vessels or all vessels will fish as a pool.

### **Monitoring and Compliance Plan**

Type of program to monitor – combination of at-sea patrols and a single designated mandatory landing site.

- v. At-sea patrols – a member of the Heiltsuk Co-mgt program and/or DFO will monitor the fishery and record hauls after each set to confirm running tally of total fish captured relative to the target and relay this information to the fishers throughout the day. Also to confirm the number of fishing vessels participating and ensure compliance with fishing times and area boundaries.
- vi. Mandatory landing site – all of the catch would be enumerated by the Heiltsuk Co-mgt. representative and potentially sampled at the designated landing sites (Heiltsuk fish plant) and final tallies provided to DFO.

Security Clearance for Patrolman/validator- DFO and Heiltsuk Fisheries Program would work cooperatively to train and provide designation and security clearance to the Heiltsuk patrolman/validator. Guidelines to be determined.

Level of coverage – 100% dock side enumeration

Biological sampling requirements – any sampling requirements will be discussed with DFO

Monitoring plan – implemented by Heiltsuk Fisheries Program and/or DFO.

In-season Reporting – numbers of each species caught, sold, kept and released by each participating FN will be provided to DFO within 24 hours of the end of each opening.

Communication protocol – Heiltsuk Fisheries Program will be responsible for all pre-season, in-season and post-season communications with DFO and participating FNs.

### Communication

A Heiltsuk Fisheries demonstration fishery manager will be identified and will be responsible for the coordination of the Heiltsuk fishery and will be the primary contact for all communication with DFO and fishers.

Heiltsuk Fisheries Program representatives will participate in pre-season planning meetings, in-season weekly conference calls and any post-season review meetings related to the operation of the Heiltsuk Demonstration fishery.

## 4.2 NASS RIVER SOCKEYE (2 PROPOSALS FOR NASS SOCKEYE – INCLUDED WITHIN FINAL 2016 IFMP)

### NISGA’A NATION AREA 3 SOCKEYE ALLOCATION PROPOSAL 2017

NOTE: All **bold, highlighted** writing represent changes in the CSAF proposal for 2017/18 from the previously approved proposal in 2016/17.

#### I. Background

**Nisga’a Lisims Government (NLG) is proposing to receive licence/quota for commercial Nass sockeye salmon as part of Fisheries and Oceans Canada’s new Commercial Salmon Allocation Framework process for allocation of harvest shares associated with licences in the DFO Inventory.**

The Nisga’a Treaty expressly provides that the Nisga’a Nation continues to have the right to participate in and benefit from programs and services offered by Canada and British Columbia. Specifically, neither the Nisga’a Treaty nor the Nisga’a Harvest Agreement prohibits the Nisga’a Nation from acquiring additional commercial access to salmon or other fisheries resources in accordance with the general criteria applicable to a federal program.

Since 2013, the Nisga’a Nation has been participating in demonstration fisheries whereby a portion of unfished commercial licences have been transferred inland to the Nisga’a Nation. From 2013 to 2015, quota associated with these licences has been fished by NLG, on behalf of the Nisga’a Nation, at the Nisga’a Fish and Wildlife Department (NFWD) upper fishwheels. In 2016, the Nisga’a Nation decided to not fish in the demonstration fishery due to the

low return of sockeye at the Meziadin fishway which did not reach its escapement goal in 2016. The Nisga'a Nation demonstration fisheries that occurred from 2013 to 2015 were well managed and fully utilized each year and have provided additional harvest opportunities to the Nisga'a Nation. In fact, NLG has successfully conducted economic fisheries on the Nass River since the implementation of the Nisga'a Final Agreement ("Nisga'a Treaty") in 2000 and has had no catch disputes over the past 16 years of implementation. A copy of the Nisga'a Lisims Government Nass River In-land Demonstration Fishery (NIDF) Management Plan for the 2015 fishery is attached to this proposal (Appendix 7A).

NLG is requesting 12.9% of the CTAC for Nass sockeye for 2017 fisheries which is 100% of the potential re-allocation (hereafter referred to as sockeye shares) associated with the 88 Area C gillnet licences and 19 Area A seine licences currently available in the DFO Inventory with harvest shares for Nass sockeye (Appendix 7b). These sockeye shares would be for the benefit of all four Nisga'a Villages (Gingolx, Laxgalts'ap, Gitwinksihlkw, and Gitlaxt'aamiks) and four urban locals (Terrace, Prince Rupert, Port Edward, and Vancouver) representing over 7,000 eligible Nisga'a citizens based on NLG's Citizenship statistics to 31 March 2016.

### Proposal Overview

**The sockeye shares received by the Nisga'a Nation will be fished within the Nass Area by means of 1) fishwheels operated by NLG, 2) Individual Sale (IS) fisheries in marine portions of the Nass Area, and 3) IS fisheries within the lower Nass River. No changes will be required to the existing fishery management decision rules or harvest guidelines by virtue of a re-allocation of sockeye salmon shares to the Nisga'a Nation. NLG and DFO already have the necessary and proven fishery management protocols and procedures necessary for a well-managed fishery. Sockeye shares allocated to the Nisga'a Nation in accordance with this proposal will be fished in the same manner as for the Nisga'a Harvest Agreement shares and the NIDF. Sockeye catch will be delivered to either a marine packer (for the marine IS fishery) or the NLG Processing Plant in Gitlaxt'aamiks (for the in river IS fishery) using 100% validation of catch by NLG observers.**

In addition to economic benefits to the Nisga'a Nation, this proposal has the following benefits to other beneficiaries of Area 3 sockeye fisheries;

- i. Nisga'a economic salmon fisheries have a very high probability of being successfully implemented and thus are good example of how First Nation economic fisheries can be conducted,
- ii. There are no additional management costs to Canada associated with this proposal, and
- iii. Any additional management costs to NLG are minor and will be fully absorbed by NLG.

### **Fishery Elements/Attributes**

For Nisga'a commercial sockeye fisheries the anticipated fleet size will be approximately 25 marine gillnet vessels and 296 in-river permit holders fishing with river gillnets and vessels, based on 2015 fisheries. Sockeye harvested communally by NLG will take place at 4 fishwheels located at Grease Harbour.

As has occurred since the Nisga'a Treaty Effective Date in 2000, NLG (as represented by NFWD) and DFO will cooperatively plan Nisga'a fishery openings and general commercial fishery openings to ensure a smoothly run fishery. A pre-season fishing plan will be jointly developed to identify approximate weekly harvests, closures to protect Kwinageese sockeye and minimize bycatch of other non-target species like chum and steelhead, and fishery openings by day of the week. The fishing plan will be adjusted as the season progresses to account for run size, catch-to-date, and any other matters that might arise in-season.

NFWD have very experienced fishery managers that have been directly involved in managing Nass Area salmon fisheries for the past 25 years.

Bycatch handling requirements will be similar to those for Area C fisheries and **any bycatch kept will be accounted for as part of Nisga'a Treaty fisheries.**

Other nearby and relevant fisheries include marine and in-river Nisga'a Treaty domestic fisheries, other Areas 3 and 4 First Nation FSC fisheries, general commercial fisheries in Areas 3 and 4, and all citizen recreational fisheries in Areas 3 and 4.

Fisheries operations will be as in previous post-treaty years. NLG will determine the maximum number of sockeye that can be harvested by each Nisga'a permit holder who is authorized to participate in Nisga'a commercial fisheries. The

size of the individual share may vary during the season depending on the size of the total Nisga'a commercial TAC and fisher effort.

### **Harvest Guidelines and Management Decision Rules**

As described above, a fishing plan will be developed jointly with DFO that will integrate the additional sockeye shares allocated to the Nisga'a Nation with existing economic fisheries already occurring under the Nisga'a Harvest Agreement. As such, no specific new decision rules or guidelines will be required.

NFWD monitors the returns of Nass sockeye to the fishwheels at Gitwinksihlkw using a combination of rigorous catch monitoring of Nisga'a fisheries, catch data provided in-season by DFO for non-Nisga'a fisheries, and a mark-recapture program that has been in operation since 1992. The run tracking and data management of Nass salmon and steelhead stocks by NFWD is widely recognized as extremely reliable in achieving annual escapement goals while maximizing commercial salmon fisheries opportunities in Area 3. Commercial fisheries in Area 3 have occurred annually while major sockeye fisheries in other areas of BC have recently struggled and not opened on an annual basis.

The sockeye shares provided to the Nisga'a Nation under this proposal will be integrated with existing Nisga'a Harvest Agreement shares and managed using well proven fishery controls on the Nisga'a IS fisheries including 100% catch validation within 12 hours of each fishery opening. This combined with daily run size estimation to Gitwinksihlkw enables DFO and NFWD managers to make adjustments to catch targets and fishery openings on a weekly basis.

### **Monitoring and Compliance Plan**

As mentioned above, all Nisga'a Nation salmon fisheries are closely monitored with all Nisga'a IS fisheries receiving 100% catch monitoring and validation at either a marine packer or the Nisga'a Processing Plant in Gitlakdamiks. All Nisga'a fisheries are also sampled for marks (those applied at the Nass River fishwheels or otherwise). All non-target salmon caught (released and kept) are also accounted for in all Nisga'a salmon fisheries.

**The nature and form of data collected in Nisga'a domestic and IS fisheries are well established and accepted by DFO managers in Prince Rupert since the implementation of the Nisga'a Treaty in 2000. They include weekly updates of Nisga'a catch to date and total run size as well as significant additional**



**data. An example of an in-season updated from NFWD in 2016 is attached as Appendix 7C to this proposal.**

## Communication

NFWD will continue as in previous years to provide timely information (e.g. Appendix 7C) to numerous recipients (DFO, BC FLNRO, NGOs, other First Nations) throughout the season by posting in-season weekly updates to DFO's (<http://www.pac.dfo-mpo.gc.ca/fm-gp/northcoast-cotenord/nass-eng.html>) and NLG's sponsored websites (<http://www.nisgaanation.ca/stock-assessments>) and <ftp://ftp.lgl.com/Nass Stock Assessment Updates>) that are available publicly. NFWD managers will participate in weekly conference calls with DFO throughout the sockeye fishing season and will continue to provide in-season and post-season Nass escapement and run size information needed to manage Nass Area sockeye and other salmon species like in other.

\* Appendices referred to in this proposal may be requested from Cynthia Johnston at [cynthia.johnston@dfo-mpo.gc.ca](mailto:cynthia.johnston@dfo-mpo.gc.ca).

## GITANYOW NATION 2017 CSAF PROPOSAL (AREA 3 FISHERY)

NOTE: All **bold, highlighted** writing represent changes in the Gitanyow Nation CSAF proposal for 2017/18 from the previously approved proposal in 2016/17.

### II. Background

The Gitanyow Nation has had an inland economic demonstration fishery in Area 3 (Nass River) since 2009, supported by DFO ATP/PICFI licences.

A Gitanyow CSAF Fishery proposal was approved in 2016 through the DFO 2016/17 IFMP process, but did not go ahead because of low sockeye abundance in the Nass River.

DFO allocated a total of 8 Area A licences (1.852% of the commercial TAC) and 37 Area C licences (4.412% of the commercial TAC) for the Gitanyow CSAF fishery in 2016. This allocation represented a total of 6.264% of the sockeye TAC for the Area 3 commercial fishery.

All the licences originated from the DFO ATP/PICFI licence bank. In total DFO had 19 Area A licences (4.398% of the commercial TAC) and 88 Area C licences (10.493% of the commercial TAC) which represented a total of 14.891% of the sockeye TAC for the Area 3 commercial fishery.

For 2017/18 DFO has indicated that there will likely be the same number of licences available overall for First Nation use in Area 3 from the DFO ATP/PICFI licence bank. However, the total share will only be 12.954% of the TAC for Area 3 commercial fishery because an error was made in the previous year where the Nisga’a Treaty sockeye allocation wasn’t factored into the calculation of shares.

The Gitanyow proposes that all of the DFO ATP/PICFI licence allocation (19 Area A / 88 Area C licence) be provided to the Gitanyow CSAF fishery in 2017/18. The Gitanyow respectfully make this request given that the only other First Nation commercial fishery organization in Area 3, the Nisga’a Nation, have been accommodated for economic commercial access through the Nisga’a Treaty since the year 2000. **If the department does not plan on providing all of the available DFO ATP / PICFI licences to the Gitanyow CSAF fishery in 2017/18, it is recommended that a fair, transparent and equitable arrangements for licence sharing be implemented in consultation with the Gitanyow Nation.**

**Proposal Overview - Concept being proposed / Changes:**

Weekly shares based on in-season estimates of CTAC for Nass sockeye to be harvested using dipnets and seine nets in Gitanyow Traditional Territory in the inland waters of the Nass and Meziadin Rivers.

The Gitanyow harvest share would be distributed between the 8 traditional Gitanyow House groups who have the capacity and willingness to implement a fishery in 2017. It is anticipated that most of the harvest in 2017 will take place on the Meziadin River (like in other years), but that some pilot mainstem Nass River fisheries may also occur.

The Gitanyow are proposing like last year that the adjustments to the Gitanyow allocation to account for the Nass sockeye stock composition not available in the fishery, not be applied to harvests at the Meziadin fishing site in 2017. This change is being proposed in order to promote and recognize the benefits of the terminal and selective nature of the Gitanyow Meziadin fishery. The proposed harvesting within the Meziadin system will promote the conservation of other Nass sockeye stocks of concern (e.g. Kwinageese sockeye) and help rebuild them quicker than if the Gitanyow allocation was harvested from the Nass sockeye aggregate. This proposal has the potential to extend benefits to all fishing sectors that target Nass sockeye, because stock of concern can be rebuilt

quicker and fishing restrictions related to these stocks (e.g. Kwinageese sockeye window closure) can be lifted sooner. If in-season it looks like Meziadin sockeye will not meet and or exceed there management escapement goals, GFA proposes that provision adjustment remain in place to maximize the likelihood that the management goals will be met. This provision will be reviewed in-season regularly and in the post- season annually and Gitanyow and DFO will decide if it should be continued for future years. This provision will only apply to the Meziadin fishing site.

NOTE: Nisga’a Treaty and economic demonstration fishery adjustment provisions for stock composition in the inland waters of Area 3 have not been applied in any year since the Nisga’a Treaty was implemented and since the Nisga’a have been fishing in demonstration fisheries in the Nass (starting in 2015).

### **Fishery Elements/Attributes**

Location – Mainstem Nass and the Meziadin River at existing traditional fishing sits.

Gear Type – Dipnets, and potentially the use of a fishwheel and / or beach seines in the mainstem of the Nass River.

Number of Fishing/Landing Sites – To be determined based on the number of fish to be harvested and number of participating Gitanyow house groups taking part in the fishery. We do not anticipate anymore than four fishing sites, and 3 landing sites. Only **two** landing sites will be open at any given time for the ease of management.

Target Species – Nass and Meziadin sockeye.

By-catch – At the Meziadin fishing site the water is very clear and fishing is conducted exclusively using dipnets. In the last 7 years there has been no by-catch in the economic fishery. If fishing takes place on the mainstem of the Nass, by-catch could include chinook, coho and steelhead. In these cases all by-catch would be released back into the river with the least possible harm **except for coho salmon. For 2017 the Gitanyow are requesting that if other commercial fishing sectors are allowed to retain coho salmon for sale, that the Gitanyow also be provided the opportunity to harvest and sell coho in Nass mainstem fisheries.** By-catch impacts are expected to be small overall and likely to have minimal impact due to the selective nature of the fisheries being proposed.

Other Nearby/Relevant Fisheries – In-river Gitanyow FSC fisheries, Nisga’a Treaty fisheries, Nass River recreational fisheries.

Fisheries Operations/Coordination – The GFA have effectively managed and operated Gitanyow FSC and inland demonstration commercial fisheries in the inland waters of Area 3 for the last 7 years and there have been very few if any fishing ground conflicts. This is partly because the GFA policy has always been to provide Gitanyow FSC fishers with priority access to the fishing sites over economic and it is expected that this policy will be followed again in 2017.

Recreational fishing sites do not overlap with mainstem Nass Gitanyow traditional fishing sites and salmon fishing is not permitted by DFO on the Meziadin River.

Nisga’a economic fishers have not fished on the Meziadin River for at least the last 20 years so we don’t expect any conflicts or competing interests at the Meziadin fishing site. We do not expect any fishing ground conflicts on the mainstem of the Nass River either, given that Gitanyow FSC fisheries and Nisga’a Treaty Fisheries have taken place without serious incident since the Treaty was implemented. If there are any potential conflicts in 2017, GFA suggests that the economic openings at this site (and any other potential overlap fishing sites) be coordinated (e.g. staggered) between GFA and Nisga’a Fisheries.

### **Harvest Guidelines and Management Decision Rules**

Description of guidelines and management decision rules and process for adjusting allocations – The Gitanyow are proposing that allocations of Nass sockeye be based on a share of the CTAC from Area 3. The share would be determined weekly in-season through the existing Nass management process, whereby Nass sockeye abundance is estimated using information collected from outside fisheries and the Nass Fishwheels mark / recapture program. This system has been in place for many years (>15 years) and has been used since at least 2000 to allocate CTAC shares to the Nisga’a for Treaty entitlement. We propose that the Gitanyow share be calculated in- season using the same methods currently employed to determine the Nisga’a Treaty shares of the Nass sockeye fishery. GFA also recommends that clear fishery opening and closing triggers be developed in the pre- season and used in season to manage all fisheries so there is no confusion of subjectivity on when groups can fish or not fish. These clear transparent fishing rules should be based on good science and developed with the department in consultation with the GFA.

GFA does not believe that a CTAC system for the Gitanyow CSAF fishery will reduce DFO's workload in-season compared to the old system (pre-2016) whereby Gitanyow allocations were based on calculation multipliers applied to the Area A & C catch inseason.

#### Proposed fishery management controls

- i. Meziadin Fishery Timing Controls – At the Meziadin fishing site the fishery would be opened once sockeye become available for harvest at the fishing site (usually by Mid July). It would remain open until all the allocation has been caught for the season minus any other allocations designated for other fishing sites (mainstem Nass). The Gitanyow allocation (share) would be updated once a week. Because of the terminal nature of the Meziadin fishery there are no mixed stock concerns, therefore there is no need to manage it on a weekly basis.
- ii. Other Nass Fishery Timing Controls – Dates, times and a sockeye allocation of the Gitanyow share would be identified in the pre- season plan and modified in-season as approved by GFA and DFO, weekly prior to each fishery opening. Each fishing site would be allocated a share of the target weekly catch. Fishing would stop when a weekly harvest share has been harvested. Any uncaught allocation would move up to the Gitanyow Meziadin Fishing site once it passes the fishery area during any given week.
- iii. Fishing Gear Control – GFA will determine in consultation with DFO, the % allocation to be divided by fishing site to maintain an orderly fishery in 2017. Specific fishing site allocations may be increased or decreased in-season by GFA, in consultation with DFO, based on the performance and compliance of any given fishery. GFA would declare which fishing / landing sites would be open at least 48 hours prior to any fishery openings.

#### **Monitoring and Compliance Plan**

Monitoring Program – A combination of fishing site and landing site monitoring will take place in-season. GFA monitor(s) and DFO enforcement staff would conduct all monitoring of the Gitanyow fishery.

- iv. Fishing Sites –To ensure selective fishing provisions are being followed according to pre-season plans, by-catch is being released **except**

**potentially coho on the Nass River mainstem**), catch is accurately accounted for and timing and area boundaries are followed.

- v. Landing sites – All of the catch would be enumerated and potentially sampled at the designated landing sites.

Level of coverage – 100% of catch enumerated at landing sites.

Biological sampling requirements – Any sampling requirements will be discussed with DFO.

In-season Reporting – Numbers of each species caught, sold, kept and released broken down by fishing site and week will be provided to DFO within 48 hours of the end of each fishing week.

Communication protocol – GFA will be responsible for all pre-season, in- season and post-season communications with DFO and participating Gitanyow House Group fishers.

### **Communication**

GFA representatives will participate in pre-season planning meetings, in- season weekly conference calls and any post-season review meetings related to the operation of the Gitanyow CSAF fishery. The Gitanyow Fisheries Authority would also communicate with DFO in-season and provide tag recovery information as timely as possible.

### **Fishery Benefits**

This proposal will allow the Gitanyow Nation an opportunity to harvest a small share of the CTAC of Nass sockeye and coho salmon and continue to develop their fishery in a sustainable manner. It will also provide well- needed employment opportunities for the remote community of Gitanyow where unemployment rates are some of the highest in the province and where salmon fishing is one of the only economic drivers.

The Gitanyow proposed fishery will allow for more targeted selective and terminal fisheries in the Nass by moving additional CTAC to the largest and most productive Nass sockeye stock located in the Meziadin River. This will likely have conservation benefits for Nass sockeye as a whole, and provide particular benefits for stocks that are currently depressed such as Kwinageese sockeye.

It is the Gitanyow Nations hope that this fishery will help foster better cooperative fisheries management in the Nass Watershed between the Gitanyow, Nisga'a, DFO and the CSAB. It is hopeful that this can be achieved through the expansion of the current local harvest planning committees and the Nass Watershed Process whereby all First Nations would have representation and a say on how fisheries will take place Area 3.

By allocating all of the available DFO ATP/PICFI Licence inventory Area 3 through this proposal, DFO will realize the full benefits of PICFI and ATP programs in the Nass Watershed. Programs that were originally established to support First Nations' increased participation in Pacific commercial fisheries.

#### **4.3 TSIMSHIAN AREA 4 SOCKEYE FISHERY (NCSFNSS – INCLUDED WITHIN FINAL 2016 IFMP)**

NOTE: All **bold, highlighted** writing represent changes in the CSAF proposal for 2017/18 from the previously approved proposal in 2016/17.

##### **I. Background**

First Nation Group: North Coast Skeena First Nations Stewardship Society

Allocation: 4.968% of the allowable commercial harvest of Skeena sockeye which has been recently based on actual weekly commercial catches of sockeye in Area 4. This percentage is based on a 1/3 share of the 14.9% of Skeena sockeye allocation associated with the 88 Area C and 19 Area A licences in the DFO Inventory.

##### **Proposal Overview**

**As proposed in 2016 and discussed with DFO, CSAB and Skeena First Nations during the 2016 post-season review of the 2016 Tsimshian CSAF Demo fishery, NCSFNSS propose that weekly catch targets for the Tsimshian Area 4 Sockeye Fishery be determined using in-season estimates of Commercial Total Allowable Catch (CTAC) for Skeena sockeye combined with a pre-season fishing plan and in-season estimates of the number of Skeena sockeye caught in Area A, Area C and Tsimshian commercial fisheries.**

If DFO does not approve the proposed CTAC based approach for 2017, the Tsimshian weekly catch target will be equal to 5.83% of the weekly commercial sockeye TAC in Area A and C fisheries in Area 4, such that the allowable Tsimshian catch is equal to 4.968% of the total allowable commercial catch for

Skeena Sockeye in all Area 4 commercial fisheries and inland Demonstration fisheries. The equation used to calculate the 5.83% value is  $1/3 * 14.9\% / (1 - 14.9\%)$ .

The Tsimshian Area 4 commercial sockeye fishery will be conducted using gillnet and/or purse seine gear in Area 4-12 and 4-15 at times when Area C fisheries are closed for these areas.

The Tsimshian harvest share would be distributed equally between the 6 Tsimshian First Nations.

### **Fishery Elements/Attributes**

Location – Area 4-12 and 4-15

Gear type – gillnet and/or purse seine vessels similar to Area C and A fisheries.

Number of vessels – to be determined based on the number of fish to be harvested and number of participating First Nations. Anticipated to be 1-3 vessels per Tsimshian First Nation for each fishing week in 2017.

Target Species – Skeena sockeye

**Bycatch – will be a very small proportion of the total catch will be other salmon species. Species retention would be similar to those for Area C fisheries. For example: if Area C fishers are permitted to retain Coho salmon, Tsimshian fishers would be permitted to retain Coho salmon.**

Other nearby/relevant fisheries – marine FSC fisheries, all citizens commercial fisheries and recreational fisheries in Area 4.

Fisheries operations – Tsimshian First Nations may collaborate on harvesting their shares depending on the number of fish to be harvested. This could change in-season depending on the number of vessels available and the relative success of the individuals involved.

### **Harvest Guidelines and Management Decision Rules**

Guidelines and management decision rules used to implement the Tsimshian fishery will be similar to those for other Area 4 commercial fisheries that target Skeena sockeye salmon.

Proposed fishery management controls



- i. Fishery Timing Controls - dates and times for each fishery opening would be identified in the pre-season plan and modified in-season as required, at least one week prior to each fishery opening.
- ii. Fishing Gear Control – each Tsimshian FN would identify the vessels that may participate in a fishery at least 12 hours before each fishery opening.
- iii. Output controls – each FN would be allocated an equal share of the target weekly catch and fishing by a specific FN would stop when their harvest share has been reached. Target catch amounts could be defined as group or individual vessel quota. Target amounts may be adjusted for individual Nations depending upon variability of catch rates amongst the fleet and with the collective intent to harvest the entire allocation provided. Further discussions will occur in early 2017 to develop a fishing plan to coordinate fishery openings with existing fisheries.

### Monitoring and Compliance Plan

Type of program to monitor

- iv. At-sea patrols – **at-sea patrols will be limited to a maximum of one per fishing week to confirm the number of fishing vessels participating. The 2016 fishery demonstrated complete compliance with fishing times, area boundaries and delivery at designated landing sites.**
- v. Mandatory fisher logs will track release of non-target species.
- vi. Landing sites – all of the catch would be enumerated and potentially sampled at the designated landing sites.

Landing, site(s)

Level of coverage – 100% dockside validation, will confirm the number of target and bycatch species landed

Biological sampling requirements – any sampling requirements will be discussed with DFO

Monitoring plan – implemented by NCSFNSS and chosen Service Provider

In-season Reporting – numbers of each species caught, sold, kept and released by each participating FN will be provided to DFO within 48 hours of the end of each fishing period.

Communication protocol – NCSFNSS will be responsible for all pre-season, in-season and post-season communications with DFO and participating FNs.

### Communication and Coordination

NCSFNSS will work with other Skeena First Nations, DFO and CSAB to establish a Local Harvest Planning Committee (LHPC) to discuss and coordinate fishing plans. The first meeting of the proposed LHPC should be in April or May 2017.

NCSFNSS representatives will participate in pre-season planning meetings, in-season weekly conference calls and any post-season review meetings related to the operation of the Tsimshian fishery. Representatives from participating Tsimshian FNs will be encouraged to participate in these meetings and calls.

### Fishery Benefits

The Tsimshian Area 4 Commercial Sockeye Fishery provides Tsimshian First Nations with the opportunity to harvest their portion on the catch represented by the 19 Area A and 88 Area C licences in the DFO inventory.

The proposed fishery will allow the participating Tsimshian First Nations to continue to evaluate the appropriate amount of fishing effort (vessel-days) needed to harvest their share of the weekly catch targets.

The fishery will assist each of the participating First Nations with their goal of maintaining the fishing capacity needed to access salmon and other fish species for both commercial and domestic (FSC) purposes.

There could be future benefits associated with improved in-season estimates of sockeye returns resulting from timely data on daily catch rates from Tsimshian fisheries conducted at locations close to the mouth of the Skeena River with similar fishing effort each week (i.e. small fleet test fishery to augment the information from the Tyee Test Fishery).

The proposed CTAC approach for determining weekly catch targets for Skeena sockeye commercial fisheries will facilitate the development of pre-season fishing plans and ensure that weekly catch targets consistent with in-season estimates of the Total Return to Canada, CTAC derived from the harvest rule for Skeena sockeye commercial fisheries, and the total commercial catch to date.

#### **4.4 NUXALK NATION - BELLA COOLA TERMINAL CHUM DEMONSTRATION FISHERY (NEW FOR 2017)**

##### **I. Background**

Participant: Nuxalk Nation – (either Band or Development Corp.)

Allocation: 15.6% of chum catch based the respective gear shares in the Central Coast Chum production area and the allocation associated with the 88 Area C and 19 Area A licences in the DFO Inventory.

Final allocation % will be modified based on actual licenses converted to shares as identified by DFO and any other additional licences converted to shares and acquired by Nuxalk prior to the fishing season.

##### **Proposal Overview**

Fishing opportunity for the Nuxalk share will take place 2 - 4 days after each scheduled Area C fisheries prosecuted in the same area. (Area C fisheries typically start Monday).

In order to determine the target chum share for the Nuxalk fishing opportunity the total chum catch from the previous Area or C fishery from the Bella Coola Gill net Area would be multiplied by 18.5% ( $15.6\% / (1 - 15.6\%)$ ) or other percentage based on I-c).

##### **Fishery Elements/Attributes**

Location – Portion of 8-11 at the head of North Bentinck arm from Tallio Cannery to 10 mile point.

Gear type – gillnet vessels similar to those used in Area C fisheries.

Number of vessels – to be determined based on the number of fish to be harvested. Anticipated to be 3 - 7 gillnet vessels for each fishing opportunity for 2017.

Target Species – Bella Coola River hatchery chum.

Bycatch – small numbers of other salmon species. Handling requirements would be same for Area A or C fisheries in same area.

Other nearby/relevant fisheries – marine FSC fisheries and recreational fisheries in Area 8. Preference is to avoid days when other Area C fisheries are open.

### Harvest Guidelines and Management Decision Rules

All Fishing opportunities (Area C or Demonstration) will be based on abundance in the terminal area as determined by a management team consisting of DFO and Nuxalk Stewardship Office representatives.

Proposed fishery management controls

- i. Fishery Timing Controls – Typical timing is June (22)– August 20 with most fishing opportunities preferred prior to August 31 to maximize quality.
- ii. Times for each fishery opening (2 – 4 days after each regularly scheduled fishery) would be identified in the pre-season plan and modified in-season as required. The demonstration fishery would open at 6:00 am and would remain open till 6:00 pm or until the target is achieved.
- iii. Fishing Gear Control – The Nuxalk Stewardship Office representative would identify the vessels that may participate in a fishery at least 24 hours before each fishery opening.
- iv. Output Controls – it will be decided by the fishers in communication with the Nuxalk manager to determine if the harvest target will be divided equally amongst the designated vessels or all vessels will fish as a pool.

### Monitoring and Compliance Plan

Type of program to monitor – a single designated mandatory landing site.

- v. Mandatory landing site – all of the catch would be enumerated by the Nuxalk Coastal Guardian Watchman representative at the Bella Coola wharf and final tallies provided to DFO.

Security Clearance for Patrolman/validator- DFO and Nuxalk Coastal Guardian Watchmen would work cooperatively to train and provide designation and security clearance to the Nuxalk patrolman/validator. Guidelines to be determined.

Level of coverage – 100% dock side enumeration

Biological sampling requirements – any sampling requirements will be discussed with DFO

Monitoring plan – implemented by Nuxalk Stewardship Office and/or DFO.

In-season Reporting – numbers of each species caught, sold, kept and released by each participating FN will be provided to DFO within 24 hours of the end of each opening.

Communication protocol – Nuxalk Stewardship Office will be responsible for all pre-season, in-season and post-season communications with DFO and participating FNs.

### **Communication**

A Nuxalk Coastal Guardian will be assigned as the demonstration fishery manager and will be responsible for the coordination of the Nuxalk fishery and will be the primary contact for all communication with DFO and fishers

Nuxalk Stewardship Office representatives will participate in pre-season planning meetings, in-season weekly conference calls and any post-season review meetings related to the operation of the Nuxalk Demonstration fishery.

### **Fishery Benefits**

The Nuxalk CSAF Demo Chum Fishery provides the Nuxalk Nation with the opportunity to harvest our portion on the Central Coho commercial catch represented by the 19 Area A and 88 Area C licences in the DFO inventory.

The proposed fishery will provide Nuxalk fisheries managers with the information needed to evaluate the appropriate amount of fishing effort (vessel-days) needed to harvest their weekly catch targets.

The fishery will assist the Nuxalk Nation in our efforts to maintain the fishing capacity needed to access salmon and other fish species for both commercial and domestic (FSC) purposes.

## **4.5 COUNCIL OF THE HAIDA NATION: HAIDA GWAI COHO TROLL (“MOSQUITO FLEET”) (NEW FOR 2017)**

\*please note that this proposal has been updated from the original proposal included in the draft IFMP

### **I. Background**

Participant: Haida Nation

Allocation: 3.1-10%<sup>6</sup> of North Coast commercial coho catch based on the respective gear shares in the North Coast Coho production area and the allocation of the coho component of 19 Area A seine, 88 gillnet and 21 Area F troll licenses in DFO inventory.

Final allocation percentage will be modified based on the actual licenses converted to shares as identified by DFO and any other additional licenses acquired by Haida Nation prior to the fishing season.

### **Proposal Overview**

Fishing opportunity for the Haida shares will take place in conjunction with the Area F Coho Troll openings

The Haida share will be a percentage of the total commercial harvest of North Coast Coho, which will be calculated on a weekly basis.

DFO will be responsible for estimating the weekly commercial Coho catch for North Coast Coho fisheries and providing these estimates along with the weekly catch targets for the Haida CSAF Demo Fishery on Monday of each week. The Haida Fishery will start in conjunction with the Area F Troll fishery and will continue until the Haida share of the total Coho catch has been achieved or closures due to conservation/allocation concerns. In the absence of any in season closures the Haida CSAF Demo Fishery will close for the balance of the season effective midnight September 30, 2017.

### **Fishery Elements/Attributes**

Location: : In Area 1 (North Coast of Haida Gwaii) DFO fishing management areas 1-3, 1-5 and a portion of 101-7 east of Klashwun Point (Shag Rock) to the eastern boundary of Rose Spit. In Area 2W (West Coast Haida Gwaii) DFO fishing management areas 2-63, 2-64 & 2-68 (West Skidegate Inlet and Cartwright Sound).

- a.** Gear type: troll vessel with limit of one gurdy (or downrigger) per side, barbless hooks, no bait and lures which target coho over chinook.

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<sup>6</sup> The Haida share depends on the allocation of the 19 Area A, 88 Area C and 21 Area F licences in the DFO Inventory (3.1% is the harvest share associated with 19 Area A and 88 Area C licences; 10% is the harvest share associated with 19 Area A, 88 Area C and 21 Area F licences).

Number of vessels – vessels will be limited to boats 17 feet to 26 feet long (mosquito fleet) with food quality totes and ice for storage. Limit on the total number of vessels not anticipated. Expect participation of 20-30 total vessels.

Target species: coho

Bycatch: Chinook will not be retained. Bycatch of other salmon species (sockeye and chum) is expected to be minimal will also not be retained.

Other nearby/relevant fisheries include: recreational and First Nation FSC fisheries in all proposed areas

Fishers will be required to deliver daily or once every two days. Boats and storage will be subject to inspection and adherence to safe fish handling procedures.

### **Harvest Guidelines and Management Decision Rules**

All opportunities will be based on abundance and determined by a management team consisting of DFO and Haida Fisheries Program representatives. First week's allocation will be a set number (based on previous years) or based on previous weeks total commercial landings. All subsequent allocations will be based on previous weeks total commercial landings.

Proposed fishery management controls

- i. Fishing Timing Controls: Timing for commercial Area F coho is typically mid-July 15 – to the end of September. Openings will coincide with Area F troll, but could be less if abundance and Haida allocation are very low.
- ii. Daily delivery of coho catch for accurate and timely information. Haida Demo Fishery will close in the following week if it is determined that the applicable inseason allocation is reached or is exceeded .
- iii. Fishing Gear control : Haida vessels participating in the fishery will be identified weekly and will be identifiable by a flag issued by HFP staff

### **Monitoring and Compliance Plan**

Type of program to monitor: At-sea patrols and validation of all offloads at designated landing sites.

- iv. At-sea patrols: Haida Fisheries Guardians and /or DFO C&P will monitor the fishery and record Haida Demo vessels observed engaged in fishing activities

- v. All offloads will be monitored, recorded and observed by Haida Fisheries Guardians

Coho catch will be sold to Haida Wild and landing areas will be at CBI Island fish plant in Masset, the Albion offload facility in Queen Charlotte or as designated by Haida Wild (mobile offload a future possibility).

Level of coverage : 100% of dockside enumeration

Biological sampling requirements : TBD, possible CWT

DFO & Haida Fisheries Staff will work together on monitoring plan, but will be developed and led by Haida Fisheries

In-season Reporting – numbers of each species caught, sold, kept and released by each Haida participant will be provided to DFO within 24 hours of the end of each weekly opening.

Communication protocol – Haida Fisheries Program will be responsible for all pre-season, in-season and post-season communications with DFO and Haida participants

### **Communication**

A Haida Fisheries demonstration fishery manager will be identified and will be responsible for the coordination of the Haida fishery and will be the primary contact for all communication with DFO and fishers

Haida Fisheries Program representatives will participate in pre-season planning meetings, in-season weekly conference calls and any post-season review meetings related to the operation of the Haida Demonstration fishery.

### **Fishery Benefits**

The Haida CSAF Demo Coho Fishery provides the Haida Nation with the opportunity to harvest our portion on the North Coast Coho commercial catch represented by the 19 Area A, 88 Area C and 21 Area F licences in the DFO inventory.

The proposed fishery will provide Haida Fisheries managers with the opportunity needed to evaluate the appropriate amount of fishing effort (vessel-days) needed to harvest their weekly catch targets.



The fishery will assist the Haida Nation in our efforts to maintain the fishing capacity needed to access salmon and other fish species for commercial purposes.

#### **4.6 CENTRAL COAST TROLL COHO FISHERY (AREA F - INCLUDED WITHIN FINAL 2016 IFMP)**

##### **I. Background**

Area F troll

Allocation: A limited opportunity fishery is proposed to assist in determining any harvestable surplus. Limited numbers of vessels, area and time will be used to control harvests. This fishery currently lacks sufficient information to calculate a TAC. Any harvestable opportunities (set harvest ceiling, fixed harvest rate or defined effort fishery) would be shared as per the new CSAF. Assuming a harvestable surplus is identified each Area Harvest Committee would be responsible for determining an appropriate fishery for their fleets (ITQ, lottery limited effort, pool, allowing retention in net fisheries targeting other species, etc). These fishery plans should be made preseason to not limit or delay any opportunity.

##### **Proposal Overview**

This proposal is a change in harvest management. There has been limited to no troll coho opportunities for many years in the central coast. Recreational fisheries in these areas are at full quota of 4/day and 8 possession. This proposal is seeking to re-initiate directed commercial coho fisheries in a cautious systematic and well thought manner while respecting the First Nation fsc rights and recreational priorities as per the 1999 Allocation Policy. Coho returns were quite weak in the late 1990's and into the 2000's but have improved to generally good returns in recent years. Prior to the late 1990's the central coast was an important fishery for trollers. The DFO Outlook document projects good coho returns to Areas 6-10 (level 3 /4). Working with DFO the concept is to use a limited number of vessels to assess returning coho in the central coast Areas 6-7-8 for harvestable surpluses. It is proposed that 4 troll vessels would fish each of Areas 6, 7 and 8. The thought was to start the fishery in Area 6 Caamano Sound and work down towards Price Island and Ivory Island and potentially into Area 8. The main timing for coho assessment is early-July to late August (with each month divided into 2 time periods). CPUE and total

catch of coho in each time period and location would be used to determine relative abundance. The information from a limited opportunity fishery could allow for potential fishery opportunities for more vessels depending on catch results. Relative abundance estimates to be made in-season would potentially enable all groups to participate in the harvest depending on harvestable surplus. The coho results would assist in defining opportunities for other fleets which could potentially reduce discard mortalities (net fishery retention in fisheries directed at other species).

Chinook – In the future there may be opportunities for a chinook assessment fishery. There has been considerable discussion in recent years since the 2008 renewal of the Fishing Chapters of the PST that with the reduced AABM fisheries there should be increased opportunities in ISBM areas. At present we understand from DFO that overall North Coast chinook troll management is driven by concerns for the weak WCVI chinook stocks and also local stocks of concern (ISBM) in the Kilbella and Chuckwalla rivers. The Atmarko River and Kitimat Rivers are two local stocks that have had good returns in recent years. Discussion for potential ISBM limited opportunity fisheries should be established. DFO also advised that troll gear assessments in 2002 and more recently in recreational catches have found higher proportions of WCVI chinook in the central coast than further north. And lastly that as CWT rates have been decreased from Robertson Creek (WCVI indicator stock) that genetic and otolith sampling will also be required along with CWT monitoring for any new fisheries. Given the above it would be good for DFO managers and the central coast management group to consider when and where it may be appropriate to consider an assessment fishery which would be designed to focus on local (ISBM) stocks. A limited opportunity chinook fishery is not being considered for 2017.

### **Fishery Elements/Attributes**

The target species would be coho salmon with retention of pink salmon. All other species would be released unless agreed to by DFO for sampling or other reasons (other commercial fisheries are open in the same areas for another species). Vessels would be assigned to each of the three Management Areas with data recorded in 2 week time strata. Specific locations/management units would be determined in meetings with DFO and First Nations economic fishery interests. Given the relatively low release mortality (15%) from trolling minimal impact to non-target encountered species is expected. However DFO

has identified a potential concern for releases of chinook due to 2002-2003 sampling results showing significant proportions of WCVI stocks. Areas of high chinook encounters may need to be closed.

The assessment data provided by this fishery would be available to evaluate the viability of First Nations Economic Fisheries and other commercial fleet's fisheries. Pre-season planning at the IHPC level would inform all harvest groups. There is unlikely to be any conflicts with overlap of harvest areas with other users. Data from the limited opportunity fishery would inform opportunities for others and could be defined pre-season limiting the need for an in season harvest committee. Conference calls could be good to assist in developing a good working relationship and ensure clear understandings by all parties. Pre-season Area F would define their fishery options for various harvest abundance opportunities (ITQ, limited fleet lottery, pooled, etc.). Net fleets would be seeking retention of coho in fisheries targeting other species if abundances warrant.

Areas of higher concentrations of non-target species could be identified for possible closures if needed. Historical harvests, CPUE and resulting escapements could be provided by DFO for stock abundance reference and shared pre-season to be used by the Central Coast management group to set relative abundances and potential fishery opportunities.

### **Harvest Guidelines and Management Decision Rules**

Any fishery opportunities resulting from the limited opportunity fishery would be decided pre-season by the Central Coast management group. Initially these could be a range of low, low-moderate, moderate, moderate-high and high. After a number of years of information more specific harvest rates, harvest ceilings or effort management may be possible. Fishery plan options corresponding to return abundance should be established pre-season by harvest groups (e.g. low – no increase in vessels above assessment levels; low to moderate – up to 10 vessels per Area or X coho; moderate - up to 20 vessels per Area or 2X coho; mod-high - up to 30 vessels or 3X coho and high –full fleet). A low level of harvest during the limited opportunity fishery may result in vessels deciding to discontinue fishing in a given area or time period as the harvests are the only source of funds to cover costs. The pre-season management meeting would be tasked with setting relative levels of CUPE, catch per 2 week period or some other metric that would correspond to harvest opportunities. It is expected that after a few years of assessment data collection

as well as comparisons to key indicator spawning estimates this could allow for annual plans to be established pre-season for yearly implementation such as occurs for many chinook and coho fisheries.

If there are any known data on timing and abundances of any coho stocks of concern (e.g. Thompson River coho) this would assist in defining closed areas or times.

#### Proposed fishery management controls

- i. Input control would be provided by limiting opportunity fishery openings to 4 vessels maximum to each of Areas 6, 7 and 8. Not all areas would need to start at once. Specific locations within each management area could be set at pre-season meetings. Caamano Sound, Price Island and Milbanke Sound are thought to be the best starting locations with shifts into Area 8 based on reasonable results. Assessment period would be defined by DFO and the harvest committee but is expected to be set as 2 week intervals during early July through late August. Discussions are needed at the local harvest committee level to define how harvests and encounters will be analyzed with regards to any further fishing opportunities, impacts to fsc, and resulting spawning escapements. First Nations have indicated an interest in participating in increased stock assessment activities which would benefit all fisheries. If harvestable surpluses are identified it would be the responsibility of each group to set appropriate fishery controls as per its share. If a limited number of vessels were permitted then the Harvest Committee would need to define how its share of vessels would be determined e.g. lottery, pool, etc. Net fleets would be seeking to have coho retention in fisheries directed at other species if possible. First Nation economic fisheries would likewise need to define how their share would be harvested.
- ii. Output control would be defined by each group preseason depending on harvestable surplus (ITQ, max. boat days, or pool quota).

#### **Monitoring and Compliance Plan**

The risk assessment framework developed under the CMF would need to be completed to assess this fishery. Start, end, pause, cancel and daily catch reporting (as per conditions of licence) would be required of all vessel masters participating in the fishery. Catch reporting requirements as per other Area F

fisheries would be a starting point. Data from the limited opportunity fishery could be provided daily or weekly as appropriate to DFO, First Nation economic fishery rep and an Area F rep. Data from any fishery opening would be provided within 24 hours of offload.

A limited number of catch validation/landing sites may need to be confirmed in the pre-season meetings.

Level of monitoring would be 100% of vessels participating in the limited opportunity fishery. Level of monitoring of any fishery above the assessment level to be defined based on CMF risk assessment and fishery opportunity by local harvest committee.

Biological sampling could be undertaken based on discussions with DFO. All CWT coho would be sampled from the limited opportunity fishery and 20% sample rate would be objective for any further fishery opportunities. In 2015 9 CWT coho were identified in the Area 7 & 8 recreational catch of approximately 14,500. No data was available for Area 6. A discussion on the results from these CWT recoveries as well as any previous years would assist in setting appropriate sampling requirements and need for on-board monitors. DNA punches could be taken from released chinook to add to the general management of central coast chinook.

Communication in-season would be via the local harvest committee reps established pre-season. DFO Resource Managers currently provide weekly information bulletins to all harvest groups. It is expected this would continue to be the basis for informing all parties.

Vessel masters would be required to complete a logbook or E-log entry for each day of fishing. The catch data would be provided to DFO at intervals agreed between DFO and Central Coast harvest committee.

Assessment monitoring results would be provided weekly to all Central Coast reps via email.

### **Communication**

Communication protocols with other fisheries and participants and DFO would be coordinated with the Resource Manager and could be distributed as part of current weekly fishery notices. Pre-season meetings should include local First Nations fsc reps to ensure no impacts to their planned fisheries and establish a

protocol for them to receive all data in a timely manner. This proposal would be identified in IHPC process and the IFMP for input from all groups.

### **Fishery Benefits**

The Area F troll limited opportunity fishery will assist DFO and others in determining potential commercial fishery opportunities in cautious and controlled manner in an area with limited stock assessment data at present;

- iii. The proposed fishery will promote effective management arrangements and support open, transparent and collaborative decision making;
- iv. It will increase flexibility of licence holders and producers to better adapt and optimize economic benefits in an uncertain business environment; and
- v. Will improve required standards for monitoring and catch reporting so that timely and accurate information is available to decision-makers to support prosperous and sustainable fisheries.

## **4.7 COWICHAN TRIBES – COWICHAN TERMINAL CHUM DEMONSTRATION FISHERY (INCLUDED WITHIN FINAL 2016 IFMP WITH SOME SUGGESTED CHANGES)**

\*please note that this proposal has been updated from the original proposal included in the draft IFMP

### **I. Background**

Participant: Cowichan Tribes

Allocation: 13% of chum catch based on the respective gear shares in the Southern Inside Chum production area and the allocation associated with the 23 Area B, 14 Area D and 70 Area E licences in the DFO inventory.

Final Allocation % will be modified based on actual licences converted to shares and acquired by Cowichan Tribes prior to the fishing season.

### **Proposal Overview**

The initial fishing opportunity for the Cowichan share will take place prior to the Area B, E and H fisheries prosecuted in the same area.

The initial catch amount for Cowichan Tribes will be determined pre-season using a range that will be developed between DFO and Cowichan Tribes; so that in-season the amount aligns with the relative DIDSON count at that time.

**Fishery Elements/Attributes**

Location: A portion of Subarea 18-6 northwesterly of a line from Swartz Head on Vancouver Island, to the most southerly point of Pym Island, to Canoe Rock, to Beaver Point on Saltspring Island. A portion of Subarea 18-7 southeasterly of a line from Musgrave Point on Saltspring Island, to Separation Point on Vancouver Island to Cherry Point on Vancouver Island. A portion of Subarea 18-8 southeasterly of a line from Separation Point to the boundary sign at the Wilcuma Marina in Cowichan Bay. A 1/2 mile beach boundary is in effect from the boundary sign at the Wilcuma Marina to Hatch Point on Vancouver Island. – same boundary as those for Area B, D and E fisheries. Please note: a) Fisheries will only be considered in Subarea 18-6 once the spawning escapement targets in both the Cowichan and the Goldstream Rivers are estimated to be reached, b) all of Subarea 18-8 may be open to the Cowichan Tribes demonstration fishery if stock assessment determines there are no concerns with by-catch of Cowichan coho and chinook.

Gear Type: Seine (brailing of fish required and a revival tank in operating order) and gillnet vessels similar to those used in Area B and E fisheries.

Number of Vessels: to be determined based on the number of fish to be harvested. Anticipate being 1- 2 seines or 3-5 gillnet vessels for each fishing opportunity for 2016.

Target species: Cowichan River chum

Bycatch: small number of neighbouring river chum, Cowichan coho and Cowichan Chinook stragglers. Handling requirements would be the same as those for Area B and E fisheries.

Outline any nearby/relevant fisheries – Marine and in-river First Nation food harvest fisheries and recreational fisheries in Area 18-6, -7 and -8. No overlap with commercial fleet fisheries opening to maximize product flow and quality but also provide space between the openings to allow fish passage.

**Harvest Guidelines and Management Decision Rules**

All fishing opportunities (Area B, E and H or Demonstration) will be based on abundance in the terminal area based on DIDSON counts and as determined by the harvest round table (representatives from Cowichan, DFO, commercial fleet and recreational).

Proposed fishery management controls

- i. Fishery Timing Controls: Typical timing is mid October – end of October, with most fishing opportunities preferred prior to October 20th to maximize quality.
- ii. Times for each fishery opening would be identified in the pre-season plan (June) and modified in-season as required. The demonstration fishery would open at 7:00 am and would remain open till 7:00 pm or until the target is achieved.
- iii. Fishing Gear Control: The Cowichan Tribes Fisheries Program representative(s) would identify the vessels that may participate in a fishery at least 24 hours before each fishery opening.
- iv. Output Controls: it will be decided by the fishers in communication with the Cowichan Tribes Fisheries Manager to determine if the harvest target will be divided equally amongst the designated vessels or all vessels will fish as a pool.

**Monitoring and Compliance Plan**

Type of program to monitor: combination of at-sea observations by Guardians and dock side:

- v. At-sea observer (Guardian): a member of the Cowichan Tribes Guardian program and/or DFO will monitor the fishery and record catch after each set to confirm running tally of total fish captured relative to the target and relay this information to the fishers throughout the day. Also to confirm the number of fishing vessels participating and ensure compliance with the fishing times and area boundaries. Potential sampling on-board.
- vi. Mandatory landing site: all of the catch would be further enumerated by the processor at the landing site (Sidney or Stevenson) and final tallies provided to Cowichan Tribes with fish slips.

Level of coverage: 100% At sea

Biological sampling requirements: any sampling requirements will be discussed with DFO.

Monitoring plan: implemented by the Cowichan Tribes fisheries department and/or DFO.



In-season reporting: numbers of each species caught, sold, kept, released by each participating vessel will be provided to DFO within 24 hours of the end of each opening and/or as requested. Data collection format to be discussed with DFO and any additional data requirements.

Communication protocol: Cowichan Tribes will take responsibility to communicate with DFO and vessels during pre-season, in-season and post-season.

### **Communication**

A Cowichan Tribes Fisheries demonstration fishery manager will be identified and will be responsible for the coordination of the Cowichan fishery and will be the primary contact for all communication with DFO and fishers.

Cowichan Tribes Fisheries Program representatives will participate in pre-season planning meetings (June), in-season weekly conference calls (chum working group and harvest round table) and any post-season review meetings related to the operation of the Cowichan Tribes Demonstration fishery.

### **Fishery Benefits**

The 2016 fishery and future Cowichan fisheries will assist us with our goal of building and maintaining the fishing capacity needed to access salmon and other fish species for both commercial and food harvest purposes.

### **Recommendations**

Cowichan chum fishery to start when the DIDSON count has exceeded 70,000.

Cowichan chum fishery to have first opening each week and continue to fish prior to the commercial fleet at each opening and separate from the competitive commercial fishery openings. To be non-competitive and support our small fleet, allowing Cowichan Tribes to fish first, sets an allowable catch for the larger commercial fleet to target during its opportunity

Have the opportunity to seine within the commercial fishing area prior to the return of chum, first week of October, to ensure our fishery vessel and crew are prepared.

A set schedule, suggest daily, on which DFO will provide DIDSON count and commercial catch to date.

To follow the fishery plans agreed to prior to season opening, unless all those at the harvest roundtable reach consensus to change or deviate from the plan.

## 4.8 SAANICH NATIONS DEMONSTRATION CHUM FISHERY PROPOSAL (NEW FOR 2017)

\*please note that this proposal has been updated from the original proposal included in the draft IFMP

### I. Background

The Saanich Nations are proposing to conduct a Chum salmon fishery targeting Goldstream Chum with a proposed allocation of 13% of available chum catch. The catch for Area B and E fisheries will be multiplied by 14.9% to calculate the Saanich share so Saanich equals 13% of the total number of fish harvested by Area B, Area E and Saanich Nations. This is based on the respective gear shares in the Inside Southern Chum production area and the allocation associated with the 23 Area B, 14 Area D, 70 Area E and 20 Area H licenses in the DFO inventory.

*The final Allocation % will be modified based on actual licenses converted to shares and acquired by Saanich Tribes prior to the fishing season.*

### Proposal Overview

Saanich Nations will have unlicensed Seine vessels for the fishing opportunity for the Saanich Nations. The fishing will take place during the Area B and E fisheries in the same area. In order to determine the target chum share for the Saanich Nations fishing opportunity the total chum catch from the previous B and E fishery would be multiplied by 13% or the modified allocation based actual licenses specified in I.a.

### Fishery Elements/Attributes

#### Location:

A portion of Subarea 19-8 south of a line from Henderson Point to Bamberton, Subareas 19-10, 19-11, and that portion of Subarea 19-12 northerly of a line from Elbow Point to northerly side of Christmas Point.

Gear Type: Seine (brail of fish combined with a revival tank in operating order to release any non-targeted species) and gillnet vessels similar to those used in Area B and E fisheries.

Number of Vessels: to be determined based on the number of fish to be harvested and the length of the opening for the fishery. We anticipate up to 2 seine boats or three to five gillnet vessels for each fishing opportunity for 2017.

Target species: Goldstream Chum

Bycatch: Possible by-catch may include a small number of neighbouring river chum, coho and chinook salmon stragglers/hatchery strays. All efforts will be made to release the wild coho and wild chinook salmon. Handling requirements would be the same as those for Area B and E fisheries.

Outline any nearby/relevant fisheries –Marine and in-river First Nations food harvest fisheries and recreational fisheries in Area 18 - 6, - 7 and - 8. Preference is to avoid days when the other Area B and E fisheries are open to minimized impacts and allow Chum escapement to the Goldstream watershed. However, it may be possible to fish simultaneously with other commercial fisheries in the area depending on in river fish counts.

### **Harvest Guidelines and Management Decision Rules**

All fishing opportunities (Area B and E or Demonstration) will be based on abundance in the terminal area as determined by the harvest round table (representatives from Goldstream Hatchery, Saanich Nations, Cowichan, DFO, commercial fleet and recreational).

Proposed fishery management controls

- i. Fishery Timing Controls: Typical timing is Late October to mid-November, with most fishing opportunities preferred prior to November 15th to maximize quality.
- ii. Times for each fishery opening (two to four days after each scheduled fishery) would be identified in the pre- season plan (June) and modified in season as required. The demonstration fishery would open at 6:00 am and would remain open till 6:00 pm or until the target is achieved.
- iii. Fishing Gear Control: The Saanich Tribes Fisheries Program representative(s) would identify the vessels that may participate in a fishery at least 24 hours before each fishery opening.
- iv. Output Controls: it will be decided by the Saanich Tribes Fisheries Managers in communication with the fishers to determine if the harvest

target will be divided equally amongst the designated vessels or all vessels will fish as a pool.

### **Monitoring and Compliance Plan**

Type of program to monitor: combination of at - sea patrols and a single designated mandatory landing site.

- v. At sea patrols: a member of the Saanich Nations Fisheries program(s) and/or DFO will monitor the fishery and record hauls after each set to confirm running tally of total fish captured relative to the target and relay this information to the fishers throughout the day. Also to confirm the number of fishing vessels participating and ensure compliance with the fishing times and area boundaries.
- vi. Mandatory landing site: all of the catch would be enumerated by the Saanich Tribes co-management representative (guardian, biologist or technician) and potentially sampled at the landing site(primary Tsehum Harbour, Sidney, secondary if needed Cowichan Bay Government Wharf) and final tallies provided to DFO.

Level of coverage: 100% dock side monitoring

Biological sampling requirements: DFO will supply training, equipment and methods that enable fishery managers to collect samples during the fishery.

Monitoring plan: implemented by the Saanich Tribes fisheries department and/or DFO.

In-season reporting: numbers of each species caught, sold, kept, released by each participating vessel will be provided to DFO within 24 hours of the end of each opening. Data collection format and any additional data requirements to be determined in collaboration with DFO.

Communication protocol: Saanich Tribes will take responsibility to communicate with DFO and vessels during pre-season, in-season

### **Communication**

A Saanich Tribes Fisheries demonstration fishery manager will be identified and will be responsible for the coordination of the Saanich fishery and will be the primary contact for all communication with DFO and fishers.

Saanich Tribes Fisheries Program representatives will participate in pre-season planning meetings (June), in-season weekly conference calls (Chum salmon working group and harvest round table) and any post - season review meetings related to the operation of the Saanich Tribes Demonstration fishery.

An agreement resulting from this proposal does not abrogate or derogate from any Aboriginal, treaty or other right or freedom that pertains now or in the future to any of the Saanich Nations.

Participating Saanich Nations to date:

Tsawout First Nation

Tseycum First Nation

Malahat First Nation

Pending Nations:

Pauquachin First Nation

Tsartlip First Nation

#### **4.9 SOUTH COAST/MAINLAND INLET PINK & CHUM FISHERY (AREA H - INCLUDED WITHIN FINAL 2016 IFMP)**

##### **I. Background**

Area H Troll

Allocation: A limited opportunity fishery is proposed to assist in determining any harvestable surplus. Limited numbers of vessels, area and time will be used to control harvests. This fishery currently lacks sufficient information to calculate a TAC. Any harvestable surplus would be shared as per the new CSAF. Assuming a harvestable surplus is identified each Area Harvest Committee would be responsible for determining an appropriate fishery for their fleets. These fishery plans should be made pre-season to not limit or delay any opportunity.

##### **Proposal Overview**

This proposal is a change in harvest management. Given the absence of harvest information in recent years and the limited assessment estimates, catch data from a limited opportunity fishery along with Johnstone Straits seine test fishery results and any spawning area information would be used to identify relative magnitude of pink and chum returns and potential further commercial

harvest opportunities (fixed harvest rate or effort based management). Fishery effort, areas and times would be limited. The concept is to use a limited number of vessels to assess potential locations for harvestable surpluses. It is currently understood that DFO relies primarily on a limited number of overflights to assess returns once the pinks and chums are near or in their natal spawning streams. The Johnstone Straits seine testing program for Fraser sockeye and pinks provides some indication of relative pink salmon returns. Stock discrimination is limited to Fraser, U.S. and Canadian south coast. The additional earlier information from a limited opportunity fishery will allow for a paced fishery each week, increased fish quality and relative abundance estimates to be made which would enable all groups to participate in the harvest depending on harvestable surplus. The limited opportunity fishery is with Area H troll gear that would occur in the Mainland Inlets and near major rivers on Vancouver Island of the Strait of Georgia and Johnstone Strait (Statistical Areas 12 to 19) and Howe Sound (Statistical Area 28). Working with DFO a limited number of vessels (2-3?) fishing 2-3 days/week would be designated to each of the specific areas with potential for a harvestable surplus based on brood year escapements and other available data. Specific locations to be determined in consultations with DFO managers. Pink Outlook levels are forecast at 2/3 except Howe Sd at ND with well above average escapements in Georgia Strait west and east in the brood year, Chum outlook is for level 3 with strong brood year abundances in Areas 11-13 and good but lower abundances than 2016 which was a very good return year and Coho outlook is level 2 to 2/3 with high uncertainty.

### **Fishery Elements/Attributes**

The target species would be southern inside pink and chum salmon with non-retention of sockeye, chinook, coho and steelhead with the limited opportunity fishery focused on the northern half of this region in which production from the even-year pink salmon dominates. Enhancement programs in the Glendale Creek, Kakweiken River, Quinsam River, and Puntledge River have contributed to significant pink production which might enable fisheries as well. There would be the potential for coho retention in some areas and times if the harvest information indicates available surpluses and it does not impact on interior Fraser coho conservation and sharing arrangements.

The assessment data provided by this fishery would be available to evaluate the viability and coordination of First Nations economic fisheries and other

commercial fleets and recreational Mainland Inlet pink fisheries. The goal is to establish some assessment prior to all or a significant portion of the spawning objectives fish having already entered their natal rivers (as based currently on overflights). By-catch species data would be recorded as required. All by-catch would be released, given the troll release mortality rate at 10% there would be minimal impact to any other species. Assessments in the inlet areas would be expected to have minimal or no co-migrating pink encounters. Any assessments around the Quinsam/Puntledge areas may have a portion of co-migrating Fraser or US stocks. Fraser pinks are generally later timing and should be a small percentage of any harvest. A local harvest committee (DFO, First Nations economic groups and Area B, D, E reps) should be struck to review the acquired data and decide on fishery opportunities for the broader fleets. An established local coordinating committee meeting on set weekly dates and releasing a DFO Fishery Notice should reduce the phone calls/enquiries from individual fishers to DFO Fishery Managers. Having harvest committee reps as part of the fishery management process would result in a better understood and managed fishery. Weekly meetings could be done by conference call. Limited opportunity fishing and any fuller commercial opportunities could be limited to week days to limit conflicts with recreational fisheries.

Terminal First Nations FSC and recreational fisheries are understood to be small but coordination should occur with these groups. First Nations from the Campbell River and Alert Bay areas have been provided this proposal and not expressed any concerns.

Areas of higher concentrations of non-target species could be identified during the limited opportunity fishery for possible closures if needed. Historical harvests, CPUE and resulting escapements could be provided by DFO for stock abundance reference and shared pre-season. This data along with experience of the local harvest committee could be used to set pre-season relative abundance levels for any commercial fishery opportunities.

A review of the current and past spawning assessment programs will also assist in planning opportunities.

### Harvest Guidelines and Management Decision Rules

CPUE rates or combined average harvests of all vessels in each specific location along with other in-season data (Johnstone Straits SN test results and stream inspection data) would be used to assess relative abundance. Various potential options (variable harvest rate/variable allowable effort –days/week and numbers of vessels/ various weekly catch ceilings) for controlling harvest could be considered by the local harvest committee and established pre-season (low –moderate-abundant or more exact if agreed to by local harvest committee) and harvest opportunities set in-season based on these parameters. Each harvest committee/First Nation economic fishery should prepare pre-season appropriate fishery plans for each potential fishery level (e.g. pooled, lottery, ITQ, etc.). If possible Area H would prefer that its fishery be conducted as an Individual Transferable Quota (ITQ) Catch Share fishery in which the initial ITQ estimates would be determined on a precautionary basis.

The available surplus/harvest opportunities would be estimated and adjusted based on the in-season assessment information and linked to pre-season plans. Sharing amongst fleets would be as per the updated CSAF.

Proposed fishery management controls

- i. Input control would be provided by limited opportunity fishery openings 2-3 days per week in each defined Statistical Subarea and the use of only 2-3 vessels per assessment area. Assessment period would be August and September. If commercial harvestable surpluses are identified it would be the responsibility of each group to set appropriate fishery controls as per its share (effort/gear/time/area) (pools, limited number vessels via lottery, ITQ) and fishery would be limited to set areas and times.
- ii. Output control would be provided by the ITQ for the Area H fleet and would be fleet (effort) size via pool or lottery or ITQ and need to be determined for each fleet based on whether the fishery is effort based or a harvest rate as determined in consultations with DFO.

### Monitoring and Compliance Plan

A risk assessment under the CMP policy is needed for this fishery. Appropriate monitoring programs will be set. Start, end, pause, cancel and daily catch reporting (as per conditions of licence) would be required of all vessel masters participating in the fishery.



Catch validation – dockside at designated offload ports or at designated packers – would be a requirement of any ITQ fishery.

There should be no requirement for at-sea observers, however this can be considered during pre-season planning meetings

Given that this is not a mixed stock fishery, there is no requirement for biological sampling.

In cooperation with the Resource Manager, the Area H Harvest Committee will organize and implement the monitoring plan

Vessel masters would be required to complete a logbook or E-log entry for each day of fishing. Upon validation of the catch, the vessel master would be required to review and sign the validation form. The catch data would be entered into the database no later than 12 hours after the validation was completed.

In cooperation with the Resource Manager, the Area H Harvest Committee would be responsible for coordinating pre-season, in-season, and post-season Area H fleet communications.

### **Communication**

Communication protocols with other fisheries and participants and DFO would be coordinated with the Resource Manager. The same type of program that occurs for southern inside chum is envisioned. Weekly conference call of the local harvest committee would review assessment data and other sources of data for possible fishery opportunities for all groups. Information on this proposal will be provided through the normal IFMP document for consideration by all harvesters. In addition local First Nations should be consulted on this proposal.

### **Fishery Benefits**

The Area H troll limited opportunity fishery will assist DFO and others in determining potential commercial fishery opportunities in an area with limited stock assessment data at present;

The proposed fishery will promote effective management arrangements and support open, transparent and collaborative decision making;

It will increase flexibility of licence holders and producers to better adapt and optimize economic benefits in an uncertain business environment; and

Will improve required standards for monitoring and catch reporting so that timely and accurate information is available to decision-makers to support prosperous, sustainable fisheries and achieve conservation objectives.

#### **4.10 PROPOSAL TITLE: FRASER RIVER SOCKEYE, PINK AND CHUM ALTERNATE GEAR (AREA E – INCLUDED WITHIN FINAL 2016 IFMP)**

##### **I. Background**

Area E Harvest Committee

Area E Fraser sockeye and pink are a defined share of the updated CSAF. Chum salmon allocation is as IFMP implementation rules for terminal Fraser chum fisheries. No change to sharing arrangements are proposed. The harvest in this proposal is the entire Area E TAC for Sockeye, Pink and Chum which has not previously been harvested in the traditional fisheries. The usual reason for incomplete harvest of Area E's allocation are limitations on by-catch such as Coho, Steelhead and Cultus sockeye.

##### **Proposal Overview**

Concept being proposed: Alternate gear as a means to assist in harvesting the ongoing issue of Area E not being able to harvest all its share after all usual harvest opportunities have been exhausted. This proposal would use shallow pocket seines and beach seines in the area now traditionally fished by Area E. This proposal does not contemplate Area E using seine gear above Mission Bridge in 2017, but that will be a consideration in future years if it is necessary for Area E to harvest its complete allocation of any species. There is no change to existing fishery management decision rules/ harvest guidelines.

##### **Fishery Elements/Attributes**

The location of this proposal is the main stem Fraser River. Area E will limit the number of shallow seine nets and beach seines it uses to a number that is reasonable for the DFO to supervise with its present compliance and enforcement resources. In 2015 the DFO approved up to 15 shallow seines for Area E to harvest Pinks and that is a reasonable number for future pocket seine fisheries for Sockeye and Chum as well. In the past the DFO approved one beach seine for Area E for a Chum fishery, and that number should be increased to three. An important feature of both these seine fisheries is that the catch would be carefully sorted and the by-catch would be released immediately with minimal harm. This is the same goal as the beach seine and

pocket seine fisheries already in place by the First Nations in the Fraser River. The numbers of shallow seines and the beach seines would be also limited by the uncaught Area E allocation. Plans would be developed for appropriate numbers of each gear type depending on the available TAC. Area E is also requesting the opportunity to practice with the new gear in an area and at a time when salmon are not present. This is meant to learn to use the gear and develop safe fishing practices.

Commercial fishing in the lower Fraser River requires a coordinated approach. First Nation fsc, Treaty and EO fisheries as well as Area B seines also use the same areas. Presently all groups coordinate their fisheries through the DFO Resource Manager and this approach is okay but there could also be a local harvest committee developed if other commercial fleets and First Nations economic fisheries thought this would be useful. Area E could coordinate these shallow seine and beach seine fisheries with the FN EO and Area B seine fisheries which may be occurring in the same areas at similar times if appropriate.

Area E Harvest Committee would make the decision of when to implement these fisheries in coordination with DFO and other fisheries in the area.

### **Harvest Guidelines and Management Decision Rules**

The decision to proceed with this fishery will require two conditions: firstly that the DFO determines that there is a TAC available for Area E and secondly that Area E has determined that it cannot harvest its TAC by its traditional gillnet fisheries.

No changes to TAC calculations is proposed.

Proposed fishery management controls

- i. The input control is the number of pocket seine (max. 15) and beach seines (max. 3) permitted to fish, and the times and area they can fish. The participants would be determined by Area E on a voluntary participation basis, and if there were more participants than needed, they would be limited by voluntary pools or draws. No quota is contemplated at this time. As the total Area E allocation or the limit set for this method of harvest is nearing, the vessels could be restricted to hailing after each set to ensure the target harvest is not exceeded. When the Area E total TAC is harvested, the fishery will end.
- ii. Output controls : no further controls are expected.

**Monitoring and Compliance Plan**

Dock side monitoring for the shallow seines and on grounds monitor for the beach seines. Monitoring standards will be the same as the Musqueam, Tsawassen and Area B vessels fishing in the same areas.

Landing sites: It is expected that 3 sites would be adequate. These sites would be some of the same sites as are now in place for the 25% monitoring requirement for FR sockeye. Likely choices would be Steveston, Ladner and Maple Ridge or Mission. For the beach seines the catch should be monitored at the site of the beach seine fishery.

Level of coverage: see above.

No biological sampling requirements are expected as all by-catch will be released immediately.

Area E would retain, pay for and implement the monitoring plan. Certified service providers would be used for validation and observation.

All landing would be monitored, but observer coverage would be similar to what the DFO has required in similar FN EO fisheries, the Area B seine fisheries and the 2015 Area E seine fishery which was about 25 % on a "roving" basis. Area E would provide data in the format required by DFO. This would include set logs, phone-in and written reports as required. The same format used in these other fisheries will be followed.

Catch and effort would be reported at the close of each fishery.

**Communication**

Area E would appoint a spokesperson for communication with other fisheries and DFO. It is expected that there would be at least weekly in-season communications with DFO and or a local harvest committee if one is struck.

**Fishery Benefits**

The Area E shallow seine and beach seine fishery will enable this fleet a better opportunity to harvest their commercial allocation of each species.

The proposed fishery will allow the Area E Harvest Committee to initiate the use of alternate gears and determine the appropriate amount of fishing effort (vessel-days) needed to harvest their expected uncaught share of their allocations.

The proposed fishery will allow the Area E Harvest Committee to initiate the use of alternate gears and develop the capacity to harvest the uncaught share of each salmon species with gear designed with a lower release mortality thus benefiting co-migrating species of concern.

This proposal encourages the cooperation and coordination and the development of capacity of the First Nations economic fisheries and Area B fishing similar gear in the same areas

The proposed fishery will promote effective management arrangements and support open, transparent and collaborative decision making.

It will increase flexibility of licence holders and producers to better adapt and optimize economic benefits in an uncertain business environment. and

Will improve required standards for monitoring and catch reporting so that timely and accurate information is available to decision-makers to support prosperous, sustainable fisheries and achieve conservation objectives.

#### **4.11 AREA 12 QUEEN CHARLOTTE SOUND SOCKEYE ENCOUNTER COHO GILLNET FISHERY (AREA D - NEW FOR 2017)**

##### **I. Background**

Area D gillnet. Lead contact is Barry Crow [johncrow@shaw.ca](mailto:johncrow@shaw.ca) tel. 250-710-2111 and supported by Les Rombough.

Allocation: Area D has 21.6% of the Fraser sockeye allocation as per the CSAF. A limited effort assessment fishery is proposed to assist in determining any harvestable surplus of Fraser River sockeye. Vessels fishing may be Area D of FSC. If they are Area D the harvest would come out of their in-season allocation. This fishery has occurred in the past and the same structure is proposed.

##### **Proposal Overview**

Changes to existing fishery management decision rules or harvest guidelines are proposed. Subareas 12-9, 12-10, and the western portion of area 12-8 were historically an important part of the fishing area accessed by the gill net fleet fishing Fraser River sockeye. This area has been closed to gillnet fishing since 1998 due to non-targeted species by-catch concerns, including coho conservation concerns existing at that time. The objective of this proposal is to design a limited entry fishery that demonstrates that the Area D gill net fishery

can conduct fisheries directed at Fraser River sockeye in these areas while maintaining acceptable levels of non-targeted species impacts and mortalities.

### **Fishery Elements/Attributes**

The demonstration fishery will run concurrent with other Area D Gill Net Fraser River sockeye directed fisheries operating in Areas 11, 12 and 13. Fishing times in the demonstration area will be the same as in Area 11, where fishing is only open from 6:00 AM to midnight (23:59 PM) daily and maximum soak times are 45 minutes. There will be a minimum of 20% on-board observer coverage in place. The level of observer coverage is still being discussed between the Department and the Area D AHC. All Area D licence holders will be eligible to participate, however, as this is a demonstration fishery effort controls will be in place to limit participation to between 10 and 25 vessels fishing on any given day. The Area D AHC will work in concert with the DFO manager in selecting vessels from the Area D fleet to participate in this fishery. Vessel selection may require a lottery system. Participation in this fishery will require fishermen to support an observer and catch validation program. Gill Net: Minimum mesh 100 mm. Maximum depth 90 meshes. Maximum hang ratio 3:1. Cork line to web distance minimum 0 cm, maximum 1.5 m (same net used in regular Johnstone Strait sockeye fisheries). This fishery is planned to occur between late July (as soon as stocks of concern are not present) and late August

Target species would be sockeye salmon with catches of chum, coho and pink expected. The fishing area is Queen Charlotte Strait (Subareas 12-9, 12-10, and portion of 12-8).

Chinook would only be expected in small number if at all and steelhead are not expected to be encountered at the times of these fisheries. However all encounters of species of concern would be recorded and released either immediately or after use of revival tanks. The fishery will be limited to day-light operation only (6:00 AM to midnight 23:59 PM) with a maximum set time of 45 minutes. Mandatory revival boxes will be used. By-catch releases will be monitored by the on-board observers and reported daily to the DFO manager. The expectations is only limited coho will be encountered and within an acceptable encounter/release mortality rate. Fishery should be reviewed through the IFMP process for consideration with recreational and fsc fisheries. The demo fishery would be limited by Area D sockeye allocation. The assessment data provided by this fishery would be available to evaluate the viability of First Nations economic fisheries and commercial gill net fleets. A

new local harvest committee is not needed as the existing Fraser management committee could be used. Area D will coordinate its fleet's participation.

### **Harvest Guidelines and Management Decision Rules**

A limited effort, time and area fishery is proposed. In-season management decision rules are as per the Fraser sockeye Panel and domestic decision processes.

The relative abundance and potential harvest opportunity would be estimated and adjusted as in-season CPUE and harvest information was generated from the limited opportunity fishery and any other data. Sharing amongst fleets would be as per the updated CSAF.

Proposed fishery management controls

- i. Input control would be provided by limiting effort of 10-25 vessels in management Area 12-8.9&10. Assessment period would be defined by DFO and the harvest committee but is expected to be late July and August.
- ii. Output control is the limited number of vessels and the Area D allocation share. Participation would be limited by a lottery if needed.

### **Monitoring and Compliance Plan**

This fishery is subject to regular Area D Gill Net licence conditions and the fishery will be subject to the conditions of the pilot catch monitoring program that may be in place.

Data from the limited opportunity fishery could be provided daily to the local management committee.

Catch validation/landing sites – Vessels participating in this demonstration fishery will be required to have 100% dockside catch validation. The cost for observer coverage will be spread across the fleet and will be included in the payment to the Landing Observer Service Provider used in the Catch Monitoring Pilot occurring concurrently for all Area D gill net fisheries directed at Fraser sockeye. Payment options were arranged by the Area D AHC.

Level of monitoring to be defined in discussions with DFO and/or based on CMF risk assessment and fishery opportunity by local harvest committee.

Any coho DNA requirements will be met with samples passed to DFO.

Communication in-season would be via the Fraser harvest committee.

Vessel masters would be required to complete a logbook or E-log entry for each day of fishing. The catch data would be collected and provided by the service provider.

Coordination will be through the DFO Resource Manager.

### **Communication**

Communication protocols with other fisheries and participants and DFO would be coordinated with the Resource Manager.

### **Fishery Benefits**

The Area D gillnet limited effort selectivity fishery will assist DFO and others in improving stock and species data for coho salmon. It is expected there will be limited coho encounters and therefore an acceptable level of mortalities. Participating groups would pay the costs of this study.

The proposed fishery will promote improved updated information towards effective management arrangements and support open, transparent and collaborative decision making;

It will increase flexibility of licence holders and producers to better adapt and optimize economic benefits in an uncertain business environment; and

## **4.12 AREA 14 SCVI CHUM FISHERY PROPOSAL (AREA D – NEW FOR 2017)**

### **I. Background**

Area D Gillnet. Lead Barry Crow.

Allocation: Area D has 19.2% of the Southern Inside chum under the CSAF.

Established Chum sharing arrangements would be used to decide how any terminal harvestable surplus would be shared among the fleets or FN EO.

### **Proposal Overview**

This proposal is a change in management objectives for terminal for the Qualicum's (Big and Little) and Puntledge river systems chum management. In discussions with local DFO fisheries manager he has identified there is different management objectives terminal chum fisheries for WCVI and inside Vancouver Is. It was agreed that the use of a limited number of gill net vessels may be useful to estimating abundance and getting full fleets fishing earlier than in recent years when pre-season forecast are not expected to be large. The



current use of stream walks, Didson sounder escapement data and local knowledge are used to calculate in season run sizes. Unfortunately this information arrives too late for effective in season run size estimation and fisheries are started well past peak migration timing often resulting in over escapement and missed opportunities as most fish have escaped into the rivers our are past areas of effective interception.

This proposal will introduce a similar style fishery used in the Nootka Sound Chum fishery. A preseason MSC (Marine Stewardship Council) minimum benchmark will be used to initiate the possibility (To be determined) of a four boat assessment fishery in the traditional fishing grounds of the Area B and D fishing fleets in each of the Area 14 fishing areas (Qualicum and Puntledge Rivers). The number of boats may vary depending on preseason run size estimations. In Nootka if the minimum MSC standard is met by the preseason forecast than four boats test fisheries are initiated, the next level indicates an eight boat test fishery. These bench marks can be worked out with the fisheries managers of Area 14. Fishing periods, areas of fishing, etc. details will be a collaborative effort between Area 14 fish managers and Area D fishers. The objective is using CPUE data from the assessment fishing and escapement data, gradually a data base can be built with high confidence that can be used to trigger full fleet fisheries in the future. As per newer commercial fishing initiatives sharing of assessment fishing opportunities can be shared within First Nation EO groups in the local areas and the Area D gillnet fleet.

### **Fishery Elements/Attributes**

The target species will be Qualicum (Big and Little) and Puntledge Chum Salmon. As per traditional Fisheries Notices all non-target species will be released and noted in the harvest logs. Pink retention is allowed in these areas but all other species have non retention rules.

Area D will coordinate the fishing activity in the proposal. Any potential FSC fisheries will not be impeded and any participation of First Nation EO in the assessment fishery will be encouraged where possible.

Historical harvest have occurred in Area 14 by both seine and gillnet fleets.

### **Harvest Guidelines and Management Decision Rules**

A limited effort, time and area fishery is proposed. No in season management decision rules are needed at this time but are expected to be developed in the

future. Any fishery opportunities in the future would be decided in-season by the local management group. Fishery opportunities beyond the assessment program should be defined pre-season. Initially these could be low – moderate and high or a wider range of options if agreed to by the committee. Fishery plan options corresponding to return abundance should be established pre-season by harvest groups.

The relative abundance and potential harvest opportunity would be estimated and adjusted as in-season CPUE and harvest information was generated from the limited opportunity fishery and any other data. Sharing among fleets would be as per the updated CSAF.

Proposed fishery management controls

- i. Input control would be provided by limiting effort of 4 vessels per the fishery areas, openings to 1-2 days per week in defined locations. Assessment period would be defined by DFO and the harvest committee but is expected to be early October into early November.
- ii. Output control not needed at this time, but would be defined by each group preseason depending on harvest surplus size (Area D would likely be a lottery fishery)

### **Monitoring and Compliance Plan**

Start, end, pause, cancel and daily catch reporting (as per conditions of licence) would be required of all vessel masters participating in the fishery. Data from the limited opportunity fishery could be provided daily to the local management committee.

Catch validation/landing sites – should not be needed with catches reported daily to the DFO Manager. If a FN EO group was jointly participating in the limited opportunity fishery it would be good for FN EO vessels to review catch with Area D vessels daily to build coordination and transparent decision making.

Level of monitoring to be defined based on CMF risk assessment and fishery opportunity by local harvest committee.

No biological sampling is expected but this can be reviewed with DFO manager.

Communication in-season would be via the Chum working group committee.

Vessel masters would be required to complete a logbook or E-log entry for each day of fishing. The catch data would be provided to the harvest committee no later than 12 hours after each day's assessment fishery.

In cooperation with the DFO Resource Manager, First Nations EO rep and the Area D rep would be responsible for coordinating pre-season, weekly in-season assessment results by location, any catch and effort of weekly openings, and post-season communications. Any lack of reporting by any group could result in limiting further harvest opportunities.

### **Communication**

Communication protocols with other fisheries and participants and DFO would be coordinated with the Resource Manager.

Proposal writer is unaware of First Nation fishing coordinators in Area 14

CSAB lead contact is Barry Crow 250 710 2111

### **Fishery Benefits**

The Area D gillnet limited opportunity fishery will assist DFO and others in determining potential commercial fishery opportunities in a timely manner in an area with limited marine in-season stock assessment data at present. Participating groups would pay the costs of their vessels. It should be noted that vessels may stop fishing if catches are so low as to not cover their operating costs;

The proposed fishery will promote effective management arrangements and support open, transparent and collaborative decision making;

It will increase flexibility of licence holders and producers to better adapt and optimize economic benefits in an uncertain business environment; and

Will improve required standards for monitoring and catch reporting so that timely and accurate information is available to decision-makers to support prosperous, sustainable fisheries and achieve conservation objectives.

# APPENDIX 7: AREA B AND AREA H FRASER SOCKEYE AND PINK ITQ DEMONSTRATION FISHERY

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## 2017 GUIDELINES

The following information is provided as a guide to the Area B and Area H Individual Transferable Quota Demonstration fishery. These guidelines are intended for general purposes only. Where there is a discrepancy between the guidelines and the licence conditions, the 2017/2018 Area B Seine Licence Conditions or the 2017/2018 Area H Troll Licence Conditions are the final authority.

### **TOTAL MORTALITY APPROACH FOR MANAGING AREA B AND H INDIVIDUAL TRANSFERABLE QUOTA SHARES FOR FRASER SOCKEYE AND PINK SALMON:**

- Individual licence holders will have the flexibility to decide how to use their available quotas (ITQs) of sockeye and pink salmon during fishery openings and subject to conditions of licence.
- Accounting of ITQs for Fraser River sockeye will be based on total mortalities, including retained catch and assessed release mortalities; for Fraser pink salmon accounting will only include retained catch (release mortalities will not be tracked).
- In the event of conservation concerns for Fraser River sockeye, there may be mandatory non-retention of sockeye salmon in effect for the fishery. However, in these circumstances the ITQ accounting provisions will continue to apply to monitor release mortalities.
- For any pink or sockeye retained, catches will be attributed to available vessel ITQ on a 1 for 1 basis.
- All Fraser sockeye and pink salmon retained will be verified by 100% mandatory landing and independent dockside monitoring.
- Sockeye release mortality will also be attributed to available vessel ITQ based on the steps below.
- **All sockeye retained and sockeye release mortalities will be attributed to ITQs. Sockeye Release mortalities will be assessed as follows:**

- Step 1: The ratio of sockeye: pink salmon encounters (i.e. % sockeye) will be assessed for both Area B and H fleets. The sockeye: pink encounters will be based on independent at-sea observer data. Different encounter rates will be used for each fleet (B vs. H), Area (e.g. Area 12, 13, 18, 29) and time (daily). **NOTE: The same encounter rates will be applied to all vessels in each fleet in each Area on a given day, except those vessels with a stationary observer that have an encounter rate less than the fleet average (see [Appendix 7E](#)).**
- Step 2: The validated pink catch for a vessel will be used to calculate the sockeye encounters.
  - If no sockeye were retained, then sockeye release mortality will be assessed against the sockeye ITQ and calculated as the fleet-wide sockeye encounter rate multiplied by the total pink landing multiplied by the sockeye release mortality rate.
  - If sockeye were retained:
    - in excess of the expected fleet-wide sockeye encounter rate based on the validated pink catch for the vessel, then the vessel's sockeye ITQ is reduced by the number of sockeye retained on a 1 for 1 basis and no sockeye release mortality will be applied;
    - less than what would be expected based on the fleet-wide sockeye encounter rate applied to the validated pink catch for the vessel, then the vessel's sockeye ITQ will be reduced by the number of sockeye retained on a 1 for 1 basis, plus the sockeye release mortality applied to the difference between the number retained and what would be expected based on the fleet-wide sockeye encounter rate.
- Step 3: Sockeye release mortality rates will be fixed at 10% for Area H Troll and 25% for Area B Seine.
  - For example:
    - A troll vessel landing 400 pink salmon and no sockeye from Area 12 on August 20 with a fleet-wide sockeye encounter rate from observer data of 15% sockeye for that day and area would be assessed a release mortality of 6 sockeye against their quota as follows:
      - $400 \text{ pinks} \times 0.15 \text{ encounter rate} \times 0.10 \text{ release mortality} = 6 \text{ sockeye mortalities}$

- A seine vessel landing 10,000 pink salmon and 400 sockeye from Area 12 on August 28 with a fleet-wide sockeye encounter rate from observer data of 7% sockeye for that day and area would be assessed 475 sockeye against their quota as follows:
  - $10,000 \text{ pinks} \times 0.07 \text{ encounter rate} = 700 \text{ expected sockeye encounters}$
  - $700 \text{ expected sockeye} - 400 \text{ landed sockeye} = 300 \text{ releases}$
  - $300 \text{ releases} \times 0.25 \text{ release mortality} = 75 \text{ sockeye release mortalities}$
  - $400 \text{ landed sockeye} + 75 \text{ sockeye release mortalities} = 475 \text{ total sockeye mortalities}$
- (See additional examples in [Appendix 7F](#))

This approach allows for direct transferability of sockeye and pink ITQs between Area B and Area H vessels and allows for different release mortality rates for the Area B and H fleets.

### **SETTING TAC AND ASSOCIATED QUOTA SHARES:**

- The Area B Seine Fraser River sockeye quota will be determined by DFO by dividing the Area B Seine Fraser River sockeye allocation (percent), by the total number of licensed vessels for Area B multiplied by the available Fraser River sockeye commercial Total Allowable Catch (TAC) determined in-season.
- The Area H Troll Fraser River sockeye quota will be determined using the same formula, i.e. by dividing the Area H Fraser River sockeye allocation (percent), by the total number of licensed vessels for Area H multiplied by the available Fraser River sockeye commercial TAC determined in-season.
- The Fraser River pink quota will be determined for both the Area B Seine and Area H Troll fleets using a similar approach to the above.
- The quota share will remain fixed in-season subject to amendments for seasonal quota transactions and will be expressed as a percentage of the commercial TAC.
- The commercial TAC for both sockeye and pink will be distributed over the course of the fishery in increments and will be cumulative over the course of the season.
- The commercial TAC will be announced by fishery notice and adjusted if necessary following Fraser River Panel meetings (usually Tuesday and Friday) depending on abundance and stock composition. Note the commercial TAC announced will be for

the purpose of determining shares in pieces of salmon for the ITQ demonstration fishery only.

- The pink commercial TAC may be adjusted to account for the proportion of the catch attributable to non-Fraser pinks.

<b>Sockeye</b>	<b>Area B</b>	<b>Area H</b>
No. of licences	168	77
Fleet share of SK	48.5%	4.8%
Individual licence share (Fleet Share/# licences)	0.28869%	0.06234%

<b>Pink</b>	<b>Area B</b>	<b>Area H</b>
No. of licences	168	77
Fleet share of Pink	82.5%	10%
Individual licence share (Fleet Share/# licences)	0.49107%	0.12987%

**CALCULATING SOCKEYE ENCOUNTERS:**

- Encounter rates based on observer data will be assessed daily by gear type and area, and applied to all vessels in each fleet in a given area.
- Encounter rates estimated from individual observers on the same gear in the same area in the same day will be averaged to provide a single estimated encounter rate (e.g. a single data point below).
- The encounter rates for a given day will be entered into the ITQ database on the next day.
- For same day trips, the encounter rate from the previous day or a projection may be used if the encounter rate is not yet available for the day the catch was landed.
- Examples are provided in [Appendix 7](#).

**CATCH MONITORING AND VALIDATION:**

- Verification of at-sea releases is essential to the continued MSC certification of Fraser River sockeye and pink fisheries. Data collected by at-sea observers may be used to calculate fleet-wide releases. Poor compliance with permitting observers on-board to collect this data will impact future fishing opportunities.
- The level of coverage for at-sea observers will be determined in-season based on areas open to fishing, effort, and gear type for each day of fishing.
- Start, end, pause, cancel, and daily catch reports (as per conditions of licence) must be made by or on behalf of all Area B and Area H vessel masters by cellular (call or text), land line, or satellite phone to the salmon catch monitoring service provider or by E-log (please refer to your conditions of licence).
- Vessel masters must complete a logbook or E-log entry for each day of fishing. The vessel master must print and sign their name and fisher identification number (FIN) beside each record made in the paper harvest log.
- Catch validation, which will include dockside and designated packer landings, is a requirement of ITQ fisheries and must be arranged in advance by or on behalf of Area B and Area H vessel masters.
- Upon validation of the catch (including by-catch species) the vessel master must review and sign the validation form. The catch (including by-catch species) data will be entered into the ITQ database no later than 12 hours after the validation is complete. Release mortalities of Fraser sockeye will be calculated by the database and assessed against the sockeye ITQ based on pink catches, fleet wide sockeye encounter rates [by area], and gear specific release mortality rates from observer data.
- Mandatory fish hold checks will be performed.
- Conditions of Licence list the designated offload ports.

For reference purposes, seine catch reporting requirements are attached in [Appendix 7A](#) (Johnstone Strait Seine Fishery and Catch Reporting Requirements), [Appendix 7B](#) (Area 20 Seine Fishery and Catch Reporting Requirements), and [Appendix 7C](#) (Area 29 Seine Fishery and Catch Reporting Requirements). The appendices also include further information regarding restrictions when fishing in designated seine test fishing locations ([Appendix 7D](#)), the management approach for this fishery ([Appendix 7E](#)), and examples of quota calculations for illustrative purposes ([Appendix 7F](#)).



**OPENING AND CLOSING THE FISHERY:**

- Areas will open normally, using Variation Orders and Fishery Notices.
- Area B and Area H fisheries will open after a Commercial TAC is identified.
- Certain fishing areas may be restricted to fisheries in order to avoid stocks of concern and to move the fleets into areas of lesser impact.
- Areas 12 and 13 as well as Areas 16, 18, 20, and 29 may not be open at the same time due to species and stock composition, diversion rate, observer coverage, and/or sockeye encounter rate.
- If at any point at the start of or during the season there is no commercial TAC available for Fraser sockeye or a conservation constraint (e.g. Cultus sockeye exploitation rate constraint) limits further commercial sockeye harvest, then the Department may close the fishery to retention of sockeye. In this situation, any fishing opportunities for retention of pink salmon will continue to be managed using the ITQ demonstration fishery guidelines and sockeye release mortalities may continue to be tracked. Specific information for this situation will be communicated in-season via fishery notice.

**AREA FISHING PLANS:**

Appendices A, B, and C contain more detailed fishing plans, however at this time all fishing plans are very general and subject to change in-season following Fraser River Panel meetings. Fishery notices will be posted throughout the season to ensure the most up to date information regarding the Area B and Area H fishing plans is available on a timely basis.

- **Areas 12 and 13:** The start date for the Area B and Area H fisheries will be confirmed by Fishery Notice dependant on in-season information. Area B and Area H fisheries are planned for five to seven days per week, to be confirmed by Fishery Notice. Fishing restrictions in test fishing areas are outlined in [Appendix 7D](#) and will be confirmed by Fishery Notice in-season.
- **Area 16:** Consideration may be given in-season for Fraser River sockeye and pink fisheries in Sabine Channel subject to Sakinaw constraints as well as constraints for other stocks of concern.
- **Area 20:** In 2014, the Area B Harvest Committee requested the Department review the coho release mortality rate previously set at 70%; the release mortality rate was

set at 50%. The coho release mortality rate will remain at 50% for the 2017 fishing season and observer coverage will be mandatory.

- The anticipated start date for the Area B fishery will be confirmed by Fishery Notice. Opportunities in this fishery will be dependent on in-season assessment information, diversion rate, and coho impacts.
- **Areas 18 and 29:** Options for fishing off the river in Area 29 and in Area 18 for Area B and Area H will be confirmed by Fishery Notice. A proposal for an Area 29 in-river demonstration fishery for the Area B fishery is outlined in the IFMP.
- **Test Fishing:** To ensure test fishing information is not compromised during the ITQ fishery, restrictions are in effect when fishing near assessment boats ([Appendix 7D](#)). **Sub-area and opening times will be modified in-season and announced on the grounds by DFO representatives and by Fishery Notice. If any conflicts arise changes to the opening times and fishing areas will be announced by Fishery Notice.**

#### **QUOTA TRANSFERS:**

- Licence holders or designates are encouraged to register with the Quota Transfer Officer prior to the fishing season. The contact information will be used in season to contact the licence holder, designate or skipper in the event of an overage or discrepancy with catch data. Licence holders/designates can confirm their available quota by contacting the Quota Transfer Officer. The Quota Transfer Officer and contact information will be announced by Fishery Notice prior to the season.
- Quota may be reallocated as a percent (for the season) or by pieces (for example, to temporarily cover an overage). Note that once any pieces have been transferred from a licence you can no longer transfer the entire remaining percentage.
- Quota will be transferable within each licence area (e.g. Area B to Area B or Area H to Area H) as well as between licence areas (e.g. Area B to Area H or Area H to Area B). The Department may consider transfers outside of Area B and Area H. Refer to Section [12.13](#) of the 2017-2018 South Coast Salmon IFMP for more details.
- Where the Department has received for processing two or more conflicting requests for trading, all of the requests for trading will be denied.
- Given the short window of fishing opportunity, quota transfers will be permitted while vessels are on-grounds, however if a vessel is in an overage situation they cannot continue to fish until that overage has been covered.

- DFO staff will enter the quota transfer into the ITQ database during normal working hours (8am to 4pm Monday to Friday). If required, additional hours will be available in-season.
- Quota reallocation forms will be available from the Quota Transfer Officer and alternatively from:

Matt Mortimer, (250) 286-5814 or [Matt.Mortimer@dfo-mpo.gc.ca](mailto:Matt.Mortimer@dfo-mpo.gc.ca)

Beth Pechter, (250) 286-5880 or [Beth.Pechter@dfo-mpo.gc.ca](mailto:Beth.Pechter@dfo-mpo.gc.ca)

**OVERAGES:**

- **Overages must be covered by a quota reallocation within 24 hours of landing and validation** (the '24 hour rule'). Vessels are not permitted to recommence fishing until all overages have been covered.
- If a vessel recommences fishing when in an overage situation, Conservation and Protection (C&P) will be notified immediately. Vessels are not permitted to recommence fishing until all overages have been covered.
- An increase in the TAC cannot be used to cover an overage. The quota being transferred to a vessel in an overage situation must be quota that was available prior to the TAC increase.
- Overages as a result of a run downgrade must be covered by a quota reallocation.
- An overage occurring as a consequence of a decrease in the TAC will not have to be covered if the fishery is closed for the duration of the season.

**TRANSHIPPING:**

- Area B and Area H vessels will be permitted to move fish from one vessel to another on the grounds.
- If a vessel transports and lands fish from other vessels, quota reallocations must be made within 24 hours of landing with the catch assigned to the landing vessel only when the landing vessel has a quota overage.
- All vessels are required to document in the Offload Catch Report section of the logbook or E-log, when fish has been pooled (transhipped) onto another vessel or vessels.

- Transporting vessels must document, and provide to the landing observer service provider, detailed information on the name of the vessel that caught the fish, the date the fish were caught, the location (subarea) in which the fish were caught and the amount of each species retained and landed.

### **PACKER-BASED VALIDATION INFORMATION:**

- On-board validators will follow the landing observer service provider's established procedures for verifying catch and performing mandatory hold checks.
- Packers without on-board validators will have the total catch validated by dock-side validators. These packers will need to contact the landing observer service provider when all catch is loaded onto the packer and provide the vessel name and company, date, time and location of landing site, total number of pieces by species and product weight by species.
- Vessel masters using packers must ensure that individual vessel catch numbers are phoned in to the catch reporting service provider on a daily basis.
- Packers must document, and provide to the landing observer service provider, detailed information on the name of the vessel that caught the fish, the date the fish were caught, the location (subarea) in which the fish were caught and the amount of each species retained and landed.

### **VESSEL VALIDATION INFORMATION:**

- **To avoid discrepancies in quota and validation records, vessel masters must review and sign the validation slip.**
- When reporting catch to the service provider, vessel masters must provide an accurate breakdown of daily catch so that the service provider can enter the data in the ITQ database.

### **SERVICE PROVIDER REQUIREMENTS:**

- The service provider is to provide DFO with copies of all validation forms. Validations must be provided to DFO within 24 hours of completing the validation.
- The catch (including by-catch species) validation data will be entered into the ITQ database no later than 12 hours after the validation is complete.

- The service provider is required to perform quality assurance and quality control on all data entered into the ITQ database. Regular checks must be completed to verify the accuracy of the data entry.

## APPENDIX 7A

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### JOHNSTONE STRAIT SEINE FISHERY AND CATCH REPORTING REQUIREMENTS

This document is for information purposes only. Where there is a discrepancy between this document and the Conditions of 2017/2018 Area B Seine Licence, the Conditions of Licence shall prevail.

#### OPENING DATES/TIMES

Fishers must have a valid 2017/2018 Salmon Area B licence, complete with *Conditions of 2017/2018 Salmon Area B Licence*.

Seines open, as per in-season Fishery Notices, in portions of Areas 12 and 13. Fishery openings and closures will also be announced on the grounds by the Charter Patrol vessel.

In Areas 12 and 13, the target species in the fishery is Fraser River sockeye and pink salmon, subject to in-season abundance information. The incidental catch and retention of chum may be permitted in the areas open to fishing. There will be non-retention of coho, chinook and steelhead.

Seine vessel masters are reminded that mandatory brailing and sorting of catch is required, as is the use of revival tanks.

Min Bunt Mesh 70 mm. The use of power skiffs is not permitted.

#### TEST-FISHING

Vessel masters are reminded that test fishing vessels will be operating during the fishery in Areas 12 and 13. Vessels planning to fish near the test fishing locations are not to interfere with test fishing operations. Test fishing information is a key component of the in-season assessment of Fraser River sockeye and pink returns. If interference with test fishing activities occurs, fishery closures in test fishing locations will be considered. Please see the attached [Appendix 7D](#) for more detail pertaining to fishing in the Test-Fishing Zones.

#### CATCH REPORTING REQUIREMENTS

When fishing in Area 12 and 13 the following on-grounds catch reporting information must be reported during the fishery as specified in Conditions of 2017/2018 Salmon Area B Licence:

- 1) Start fishing report: Vessel masters must, prior to leaving for the fishing grounds, phone Archipelago Marine Research Ltd. (AMR) at 1-888-387-0007 and provide a start fishing report and announce their intention to fish by providing the following information to the catch reporting service provider: harvest log identification number, Salmon Licence Area, vessel master's name and Fisher Identification Number, intended fishing start date, time and areas to be fished.
- 2) Daily catch reports: At the end of each fishing day prior to 08:00 hours of the next day and before any fish is landed, the vessel master must, as a condition of licence, record their catch information in their Salmon Logbook and report their catch by calling 1-888-387-0007.
- 3) End fishing report: Within 24 hours of the end of a fishing trip and prior to commencing a subsequent fishing trip, the vessel master shall phone 1-888-387-0007 to provide an End Fishing Report.
- 4) Trip cancellation report: Should a vessel master decide not to fish after having obtained a Trip Identification Number (for a Start Fishing Report) the vessel master shall phone 1-888-387-0007 to provide a Trip Cancellation Report.
- 5) Test-fishing zone catch reports: Additional catch reporting requirements may be in effect while fishing in the Test-Fishing Zones. Please see [Appendix 7D](#) for more information.

Notes:

- For a complete list of reporting requirements refer to the Conditions of 2017/2018 Salmon Area B Licence.
- Vessels with operational E-logs are not required to call or record catch reports in a Salmon Logbook; however the data, as outlined in the requirements in items 1-5 above, must be submitted electronically as per the conditions of licence.
- When fishing in Subarea 12-3, it is important to differentiate between fishing in Subarea 12-3W (west of Robson Bight) and 12-3E (east of Robson Bight).

## CATCH VALIDATION REQUIREMENTS

- 1) Catch validation is mandatory and individual licence holders are required to make their own arrangements with a landing observer service provider authorized by the Department. Licence holders that plan to harvest sockeye and pink salmon are encouraged to register with the landing observer service provider in advance of the fishery to confirm arrangements.

- Prior to any dockside landing of fish, the vessel master shall hail in to the landing observer service provider and provide the following information:
  - vessel name;
  - vessel registration number;
  - name and Fisher Identification Number of the vessel master;
  - contact phone number;
  - date, time, port and location of landing of the fish;
  - name of fish buying station where fish are to be landed;
  - product type;
  - estimated number of pieces by species, by day;
  - area fished; and
  - number of sets made.
  - NOTE: As much notice as possible should be given so the landing observer service provider can make arrangements for a landing observer to be present for the landing which is a mandatory licence requirement.
- A salmon landing observer shall be present during all landings of catch to record the number and weight of each species of salmon delivered. This information will be entered into the ITQ database not later than 12 hours after validation has occurred.
- All salmon shall be landed at one of the following locations: Campbell River, French Creek, Greater Vancouver, Port Hardy, Port McNeill, Port Renfrew, or Quadra Island.

## **DFO CONTACTS**

For additional information please contact:

Matt Mortimer  
250-286-5814

Beth Pechter  
250-286-5880



## **APPENDIX 7B**

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### **AREA 20 SEINE FISHERY AND CATCH REPORTING REQUIREMENTS**

This document is for information purposes only. Where there is a discrepancy between this document and the Conditions of 2017/2018 Area B Seine Licence, the Conditions of Licence shall prevail.

#### **OPENING DATES/TIMES**

Fishers must have a valid 2017/2018 Salmon Area B licence, complete with Conditions of 2017/2018 Salmon Area B Licence.

Seines open, as per in-season Fishery Notices, in a portion of Subareas 20-1, 20-3 and 20-4 in waters deeper than 55 meters (30 fathoms).

In Area 20, the target species in this fishery is Fraser River sockeye and pink salmon, subject to in-season abundance information. There will be non-retention of coho, chum, chinook and steelhead.

Seine vessel masters are reminded that mandatory brailing and sorting of catch are required, as is the use of revival tanks. Power skiffs are permitted to be used. Increased observer coverage may be required for fisheries in this area.

Min Bunt Mesh 100 mm.

#### **TEST-FISHING**

Vessel masters are reminded that test fishing vessels will be operating during the fishery in Area 20. Vessels planning to fish near the test fishing locations are not to interfere with test fishing operations. Test fishing information is a key component of the in-season assessment of Fraser River sockeye and pink returns. If interference with test fishing activities occurs, fishery closures in test fishing locations will be implemented.

#### **CATCH REPORTING REQUIREMENTS**

When fishing in Area 20 the following additional on-grounds catch reporting information must be reported during the fishery as specified in Conditions of

2017/2018 Salmon Area B Licence:

- 1) Start fishing report: Vessel masters must, prior to leaving for the fishing grounds, phone Archipelago Marine Research Ltd. (AMR) at 1-888-387-0007 and provide a

start fishing report and announce their intention to fish by providing the following information to the catch reporting service provider: harvest log identification number, Salmon Licence Area, vessel master's name and Fisher Identification Number, intended fishing start date, time and areas to be fished.

- 2) On-Grounds Reporting: Upon completion of a set (after brailing is completed), the Vessel Master shall report, to the at-sea observer, the **set number** for the current day's fishing, **time** the set was made, **set location** (grid area) and the **number of all species** of fish caught and retained or released. Log sheets for recording and reporting individual set information will be provided by DFO or the at-sea observer prior to commencement of the fishery. The observer will relay the information to the DFO manager upon completion of the set. As communications may be limited, the set by set information may need to be provided to the DFO manager at the end of each fishing day.
  - The observer or DFO will provide the fishing vessel skippers participating in this fishery a chart prior to the commencement of the fishery. This chart divides the fishing area into grid areas and catches by set will be recorded in correspondence to the grid areas.
- 3) Daily catch reports: At the end of each fishing day prior to 08:00 hours of the next day and before any fish is landed, the vessel master must, as a condition of licence, record their catch information in their Salmon Logbook and report their catch by calling 1-888-387-0007.
- 4) End fishing report: Within 24 hours of the end of a fishing trip and prior to commencing a subsequent fishing trip, the vessel master shall phone 1-888-387-0007 to provide an End Fishing Report.
- 5) Trip cancellation report: Should a vessel master decide not to fish after having obtained a Trip Identification Number (for a Start Fishing Report) the vessel master shall phone 1-888-387-0007 to provide a Trip Cancellation Report.

Notes:

- For a complete list of reporting requirements refer to the Conditions of 2017/2018 Salmon Area B Licence.
- Vessels with operational E-logs are not required to call or record catch reports in a Salmon Logbook; however the data, as outlined in the requirements in items 1-5 above, must be submitted electronically as per the conditions of licence.

## CATCH VALIDATION REQUIREMENTS

- 1) Catch validation is mandatory and individual licence holders are required to make their own arrangements with a landing observer service provider authorized by the Department. Licence holders that plan to harvest sockeye and pink salmon are encouraged to register with the landing observer service provider in advance of the fishery to confirm arrangements.
  - Prior to any dockside landing of fish, the vessel master shall hail in to the landing observer service provider and provide the following information:
    - vessel name;
    - vessel registration number;
    - name and Fisher Identification Number of the vessel master;
    - contact phone number;
    - date, time, port and location of landing of the fish;
    - name of fish buying station where fish are to be landed;
    - product type;
    - estimated number of pieces by species, by day;
    - area fished; and
    - number of sets made.
    - Note: As much notice as possible should be given so the landing observer service provider can make arrangements for a landing observer to be present for the landing which is a mandatory licence requirement.
  - A landing observer shall be present during all landings of catch to record the number and weight of each species of salmon delivered. This information will be entered into the ITQ database not later than 12 hours after validation has occurred.
  - All salmon shall be landed at one of the following locations: Campbell River, French Creek, Greater Vancouver, Port Hardy, Port McNeill, Port Renfrew, or Quadra Island.

## **DFO CONTACTS**

For additional information please contact:

Terry Palfrey  
250-756-7158

Matt Mortimer  
250-286-5814

Beth Pechter  
250-286-5880

# APPENDIX 7C

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## AREA 29 SEINE FISHERY AND CATCH REPORTING REQUIREMENTS

This document is for information purposes only. Where there is a discrepancy between this document and the Conditions of 2017/2018 Area B Seine Licence, the Conditions of Licence shall prevail.

### OPENING DATES/TIMES

Fishers must have a valid 2017/2018 Salmon Area B licence, complete with Conditions of 2017/2018 Salmon Area B Licence.

Seines open, as per in-season Fishery Notices, in portions of Area 29. Typical Subareas that may open include 29-3, 29-4, and 29-6. Options to fish in the latter Subareas, as well as portions of Subareas 29-7, 29-9, and 29-10 will be determined in-season and announced by Fishery Notice. Fishery openings and closures will also be announced by Fishery Notice.

In Area 29, the target species in this fishery is Fraser River sockeye and pink salmon, subject to in-season abundance information. The incidental catch of chum may be retained in the areas open to fishing. There will be non-retention of coho, chinook and steelhead. Increased observer coverage may be required for fisheries in this area.

Seine vessel masters are reminded that mandatory brailing and sorting of catch are required, as is the use of revival tanks. Power skiffs are permitted to be used.

Min Bunt Mesh 70 mm.

### CATCH REPORTING REQUIREMENTS

When fishing in Area 29 the following on-grounds catch reporting information must be reported during the fishery as specified in Conditions of 2017/2018 Salmon Area B Licence:

- 1) Start fishing report: Vessel masters must, prior to leaving for the fishing grounds, phone Archipelago Marine Research Ltd. (AMR) at 1-888-387-0007 and provide a start fishing report and announce their intention to fish by providing the following information to the catch reporting service provider: harvest log identification number, Salmon Licence Area, vessel master's name and Fisher Identification Number, intended fishing start date, time and areas to be fished.
- 2) Daily catch reports: At the end of each fishing day prior to 08:00 hours of the next day and before any fish is landed, the vessel master must, as a condition of licence,

record their catch information in their Salmon Logbook and report their catch by calling 1-888-387-0007.

- 3) End fishing report: Within 24 hours of the end of a fishing trip and prior to commencing a subsequent fishing trip, the vessel master shall phone 1-888-387-0007 to provide an End Fishing Report.
- 4) Trip cancellation report: Should a vessel master decide not to fish after having obtained a Trip Identification Number (for a Start Fishing Report) the vessel master shall phone 1-888-387-0007 to provide a Trip Cancellation Report.

Notes:

- For a complete list of reporting requirements refer to the Conditions of 2017/2018 Salmon Area B Licence.
- Vessels with operational E-logs are not required to call or record catch reports in a Salmon Logbook; however the data, as outlined in the requirements in items 1-4 above, must be submitted electronically as per the conditions of licence.

## CATCH VALIDATION REQUIREMENTS

- 1) Catch validation is mandatory and individual licence holders are required to make their own arrangements with a landing observer service provider authorized by the Department. Licence holders that plan to harvest sockeye and pink salmon are encouraged to register with the landing observer service provider in advance of the fishery to confirm arrangements.
  - Prior to any dockside landing of fish, the vessel master shall hail in to the landing observer service provider and provide the following information:
    - vessel name;
    - vessel registration number;
    - name and Fisher Identification Number of the vessel master;
    - contact phone number;
    - date, time, port and location of landing of the fish;
    - name of fish buying station where fish are to be landed;
    - product type;
    - estimated number of pieces by species, by day;

- area fished; and
- number of sets made.
- NOTE: As much notice as possible should be given so the landing observer service provider can make arrangements for a landing observer to be present for the landing which is a mandatory licence requirement.
- A salmon landing observer shall be present during all landings of catch to record the number and weight of each species of salmon delivered. This information will be entered into the ITQ database not later than 12 hours after validation has occurred.
- All salmon shall be landed at one of the following locations: Campbell River, French Creek, Greater Vancouver, Port Hardy, Port McNeill, Port Renfrew, or Quadra Island.

## **DFO CONTACTS**

For additional information please contact:

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## APPENDIX 7D

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### 2017 FRASER SOCKEYE COMMERCIAL FISHERY RESTRICTIONS IN DESIGNATED SEINE TEST FISHING LOCATIONS

In-season test-fishing assessment information in the marine approach areas is critical in estimating abundances of returning Fraser River sockeye and pink stocks and identifying available harvest levels.

Commercial fisheries must be structured and scheduled to ensure that test fishing assessment information is not compromised.

This is particularly critical in the Area B Seine Individual Transferable Quota (ITQ) fishery which provides for additional days of fishing than would be permitted under a derby-style fishery.

#### JOHNSTONE STRAIT:

##### AREA 12

##### Area B Seine ITQ Fishery Restrictions:

- Subarea 12-3 is a Test Fishing Zone. **Catch reports must differentiate between fish caught in 12-3W (west of Robson Bight) and 12-3E (east of Robson Bight).**
- DFO and the PSC will need the cooperation from as many ITQ vessels as possible fishing in the Test Fishing Zone to record set-by-set information. All ITQ vessels must have set-by-set data sheets or E-logs onboard while fishing in the Test Fishing Zone. Data sheets will be available for pickup from the test vessel or from the Charter Patrol in that area. **ITQ vessels fishing in the Test Fishing Zone are required to record set-by-set catch and effort information;** this includes the duration of set times from time when the net goes in the water until the time when the rings are up (closed). E-log software has been modified so that vessel masters are able to send individual set-by-set information. **Please note:** E-log software can handle set-by-set catch information, but at this time, set times and duration of sets cannot be reported by the E-log software. Vessel masters are requested to record set times and set durations separate from the E-log entries.
- Test-fishing vessels will announce their fishing pattern on the grounds for each 4 day test-fishing period.



- Test-fishing vessel will start at the lower areas 1st (Fine Beach or Robson Bight) and work seaward towards Blinkhorn.
- Test-fishing vessel will start fishing 1 hour earlier each day from the previous years (net in the water by 07:00 hours).
- Below Robson Bight will be assessed every 2nd day; Robson Bight will be assessed every day.
- Test-fishing vessel's first set each day will be 07:00 hours at either Fine Beach or Robson Bight and proceed seaward towards Blinkhorn. During this time no vessel will be permitted to fish in front of the test fishing vessel, within 1 net length of the beach. The test-fishing vessel will announce when they have closed their net, after which ITQ vessels can commence fishing in that location. **Please note: Commercial opening times and areas will be announced by Fishery Notice.**
- **ITQ vessels must hail their intention to fish to the test-fishing vessel or to the on-grounds Charter Patrol vessel prior to conducting any fishing in the Test Fishing Zone.**
- **If there is interference with the test fishing vessel additional time and area closures will be implemented during the fishery between Fine Beach and Blinkhorn.**

## AREA 13

### Area B Seine ITQ Fishery Restrictions:

- Loggers Pt to Little Bear Bight is a Test Fishing Zone.
- Regular lower boundary in effect at Loggers Pt.
- **ITQ vessels must hail their intention to fish to the test-fishing vessel or to the on-grounds Charter Patrol vessel prior to conducting any fishing in the Test Fishing Zone.**
- All ITQ vessels must have set-by-set data sheets or E-logs onboard while fishing in the Test Fishing Zone. Data sheets will be available for pickup from the test vessel or from the charter patrol in that area. **ITQ vessels fishing in the Test Fishing Zone are required to record set-by-set catch and effort information;** this includes the duration of set times from time when the net goes in the water until the time when the rings are up (closed). E-log software has been modified so that vessel masters are able to send individual set-by-set information. **Please note:** E-log software can handle set-by-

set catch information, but at this time, set times and duration of sets cannot be reported by the E-log software. Vessel masters are requested to record set times and set durations separate from the E-log entries.

- Priority access for the test vessel is required in all designated test fishing locations.
- **If there is poor compliance, additional closures will be implemented during the fishery starting with a lower boundary at Bodega Pt.**

## **APPENDIX 7E**

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### **2017 FRASER RIVER SOCKEYE AND PINK INDIVIDUAL TRANSFERABLE QUOTA AREA B SEINE AND AREA H TROLL DEMONSTRATION FISHERY MANAGEMENT APPROACH**

Fisheries and Oceans Canada has created this working document at the request of the Area B and H Salmon Harvest Committees to help guide pre-season Fraser sockeye and pink fishery planning. This document outlines some of the management approaches that will be used by the Department, but ultimately the management structure must remain flexible in order to respond to in-season information.

#### **AREAS**

The following Areas may be open to commercial sockeye and/or pink directed fisheries:

- Area H Troll- Areas 12, 13, 18, and 29.
- Area B Seine- Areas 12, 13, 16, 18, 20, and 29.

#### **OBSERVERS**

In 2011, Area H Troll vessels had very limited observer coverage. After preliminary review of the observer data early in the fishery, it was assumed that the sockeye encounter rate for troll vessels was less than the sockeye encounter rate for seine vessels. An additional observer day in late August lends support to this assumption. As troll vessels did not provide observers for most of the fishery the sockeye encounter rate for Area B Seine fleet was applied; this procedure may have in fact penalized troll vessels as the seine encounter rate was assumed to be higher.

Area B Seine vessels provided observers in Areas 12, 13, and 29. The observers in Area 12 were split between Area 12 North (Subareas north of 12-4) and Area 12 South (Subareas 12-4, 12-3, and 12-1), with additional observers for some vessels that experimented with shallow seine gear modifications. Area 29 observers were placed on vessels fishing outside the 45m contour line and on vessels with shallow seine gear modifications fishing the “flats” (inside the 45m contour line). Those vessels fishing the flats with shallow seine nets had increased observer coverage to address concerns with coho, chinook, and steelhead by-catch, and to monitor and record crab encounters and release condition (of crabs and coho).

For 2013, the Department required daily observer coverage in each Area where vessels were actively fishing. The number of observers required was based on the estimated fleet size fishing in a given Area on a given day. Given that sockeye were not to be retained, and the sockeye quota was to account for releases during the pink fisheries, observer coverage was critical in determining the sockeye encounter rates by areas. Observer coverage in Areas 12 and 29 were adequate, but the observer coverage in Area 13 was poor, with vessels avoiding taking observers during the opening.

For 2017, the Department will require daily observer coverage in each Area where vessels are actively fishing. The number of observers required will be based on the estimated fleet size fishing in a given Area on a given day, with a requirement for more observers early in the fishery when the sockeye encounter rates are high (>10%, assuming there is sufficient sockeye quota) and the sockeye/pink composition is fluctuating, as well as in transition areas (moving from Johnstone Strait to Area 29 fisheries). As the fishery progresses and sockeye encounter rates decrease and stabilize, the requirement for observer coverage may decrease, except those areas of special concern (due to stocks or species present or any habitat concerns).

For Area H troll vessels, observers will be necessary periodically during the fishery to verify the assumption that Area H vessels have a lower sockeye encounter rate versus seines. For those days on which Area H vessels take observers, the average fleet-wide encounter rate will be based on the Area H observer data for that fishing Area. If the assumption that Area H vessels have a lower sockeye encounter rate than Area B vessels continues, for those days and areas fished by troll vessels without any observer coverage, the average sockeye encounter rate for seines will be applied. If it is determined that the sockeye encounter rate is higher for troll vessels than for seine vessels, the Department will require the troll fleet to provide additional observers to determine the daily sockeye encounter rates. The additional observer coverage will be subject to fleet size and areas actively being fished.

For Area B seine vessels fishing in Johnstone Strait two to four observers will be required daily in each Area early in the fishery as determined by the Department. As the fishery progresses and the sockeye encounter rates decrease and stabilize this requirement may decrease. A decrease in observers will be subject to fleet size and in-season assessments of risks to sockeye by area managers. As fisheries transition to the mouth of the Fraser River, increased observer coverage will be required to confirm sockeye encounter rates and to monitor by-catch species (coho, chinook, and steelhead) and crab encounters. Those vessels fishing shallower depth will require increased observer coverage. This increased observer coverage will extend to those vessels that may potentially fish in-river.

Fishing opportunities may also exist for Area B seine vessels in Areas 16, 18 and 20. Participation in these areas is likely to be limited however observer coverage will be required when vessels are actively fishing in these areas.

## **DEPLOYING OBSERVERS**

The Department will work with the Area B and H Harvest Committee representatives and the at-sea observer service provider to determine how best to deploy observers based on Areas open to fishing, predicted fleet-size and previous sockeye encounter rate estimates. The final decision for deploying observers rests with the Department.

## **ROVING VS. STATIONARY OBSERVERS**

Observers in Johnstone Strait may be stationary or roving. Roving observers are defined as observers that board a vessel after a set is completely closed prior to the brailing of any fish from the net and remain on that vessel until the last fish is removed from the net. Stationary observers are defined as observers that board a vessel at the start of a fishing trip prior to the commencement of any fishing and remain on the vessel for the entire fishing trip until the vessel has ended the fishing trip by landing the catch.

## **CALCULATION OF SOCKEYE ENCOUNTER RATE**

Encounter rates based on observer data will be assessed daily by gear type and area, and applied to all vessels in each fleet in a given area. Encounter rates estimated from individual observers on the same gear in the same area in the same day will be averaged to provide a single estimated encounter rate for that Area and gear. The encounter rates for a given day will be entered into the ITQ database on the next day.

Note, those vessels with stationary observers will receive the lower of two options:

- Their vessels daily sockeye encounter rate; OR
- The average fleet-wide sockeye encounter rate.

## **TEST FISHERY DATA**

Now that the Department has transitioned back to the use-of-fish to finance salmon test fishery activities, test fishery data may be more reliable than recent years as some fish will be taken on board.

The test fishery data may be used to supplement or augment the sockeye encounter rate data generated by the seine fleet. For example, in 2011 the test fishery data was used to supplement the observer data from Area 12 on September 6 as the stationary observer vessel had very poor

fishing, catching 0 sockeye and 8 pinks vs. the Area 12 seine test vessel which caught 35 sockeye and 1,571 pinks.

## **DFO CONTACTS**

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# APPENDIX 7F

NOTE: These examples are for illustration purposes only. Actual quota amounts (in pieces) could vary substantially from those used in the examples and will be determined based on in-season assessment information.

Example 1: Cumulative TAC with Sockeye & Pink retention

	Week 1 - 1st week August				Week 2				Week 3				Week 4				Week 5 - 1st week Aug/1st week Sep				Week 6			
Hypothetical Sockeye TAC-Cumulative	224,000				235,000				235,500				270,500				277,500				278,000			
Hypothetical Pink TAC-Cumulative	2,000,000				2,000,000				4,000,000				8,400,000				8,400,000				8,400,000			
	FK "catch":		20,600		FK "catch":		7,600		FK "catch":		38,000		FK "catch":		1,794,000		FK "catch":		1,794,000		FK "catch":		60,800	
	FK "avail":		30,000		FK "avail":		275,000		FK "avail":		1,100,000		FK "avail":		2,200,000		FK "avail":		1,900,000		FK "avail":		590,000	
	Area B		Area H		Area B		Area H		Area B		Area H		Area B		Area H		Area B		Area H		Area B		Area H	
Calculations	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink
Initial ITQ allocation	0.2887%	0.4911%	0.0632%	0.1316%	0.2887%	0.4911%	0.0632%	0.1316%	0.2887%	0.4911%	0.0632%	0.1316%	0.2887%	0.4911%	0.0632%	0.1316%	0.2887%	0.4911%	0.0632%	0.1316%	0.2887%	0.4911%	0.0632%	0.1316%
Initial ITQ (pieces)	647	9,821	141	2,632	678	9,821	148	2,632	680	19,643	149	5,283	781	41,250	171	11,053	801	41,250	175	11,053	803	41,250	176	11,053
ITQ Remaining (pieces)	647	9,821	141	2,632	33	9,721	25	2,682	35	19,543	23	5,113	138	41,150	40	10,403	81	31,150	40	8,903	58	21,150	25	7,403
Sockeye Encounters																								
Fleet-wide sockeye encounter rate	55%	n/a	55%	n/a	30%	n/a	30%	n/a	10%	n/a	10%	n/a	3%	n/a	3%	n/a	1%	n/a	1%	n/a	0.1%	n/a	0.1%	n/a
Sockeye release mortality rate	25%	n/a	10%	n/a	25%	n/a	10%	n/a	25%	n/a	10%	n/a	25%	n/a	10%	n/a	25%	n/a	10%	n/a	25%	n/a	10%	n/a
<i>Hypothetical Weekly Landings</i>																								
Retained Catch	645	100	123	50	-	-	-	100	-	-	-	500	-	10,000	-	1,500	-	10,000	15	1,500	-	-	-	800
<i>Release Mortalities Charged</i>																								
Expected sockeye encounters	55		27.5		0		30		0		50		300		45		100		15		0		0.8	
Assessed sockeye released	0		0		0		30		0		50		300		45		100		0		0		0.8	
Additional Release Mortality Assessed	0		0		0		3		0		5		75		5		25		0		0		0	
Total Mortality (catch plus release mortality assessed)	645	100	123	50	-	-	3	100	-	-	5	500	75	10,000	5	1,500	25	10,000	15	1,500	-	-	0	800
Cumulative Catch	645	100	123	50	645	100	128	150	645	100	131	650	720	10,100	136	2,150	745	20,100	151	3,650	745	20,100	151	4,450
ITQ Remaining at end of week	2	9,721	18	2,682	33	9,721	22	2,482	35	19,543	18	4,613	61	31,150	35	8,903	56	21,150	25	7,403	58	21,150	25	6,603

Example 2: Cumulative TAC with Pink retention only (sockeye released)

	Week 1 - 1st week August				Week 2				Week 3				Week 4				Week 5 - 1st week Aug/1st week Sep				Week 6			
Hypothetical Sockeye TAC-Cumulative	224,000		PK "catch": 3,800		235,000		PK "catch": 259,600		235,500		PK "catch": 962,000		270,500		PK "catch": 1,794,000		277,500		PK "catch": 1,794,000		278,000		PK "catch": 542,000	
Hypothetical Pink TAC-Cumulative	2,000,000		PK "avail": 30,000		2,000,000		PK "avail": 275,000		4,000,000		PK "avail": 1,100,000		8,400,000		PK "avail": 2,200,000		8,400,000		PK "avail": 1,900,000		8,400,000		PK "avail": 580,000	
	Area B		Area H		Area B		Area H		Area B		Area H		Area B		Area H		Area B		Area H		Area B		Area H	
<b>Calculations</b>	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink
Initial ITQ allocation	0.2887%	0.4911%	0.0632%	0.1316%	0.2887%	0.4911%	0.0632%	0.1316%	0.2887%	0.4911%	0.0632%	0.1316%	0.2887%	0.4911%	0.0632%	0.1316%	0.2887%	0.4911%	0.0632%	0.1316%	0.2887%	0.4911%	0.0632%	0.1316%
Initial ITQ (pieces)	647	9,821	141	2,632	678	9,821	148	2,632	680	19,643	149	5,263	781	41,250	171	11,053	801	41,250	175	11,053	803	41,250	176	11,053
ITQ Remaining (pieces)	647	9,821	141	2,632	678	9,821	146	2,582	564	18,143	143	5,113	516	34,250	160	10,403	454	24,250	160	8,903	430	14,250	135	7,403
<b>Sockeye Encounters</b>																								
Fleet-wide sockeye encounter rate	55%	n/a	55%	n/a	30%	n/a	30%	n/a	10%	n/a	10%	n/a	3%	n/a	3%	n/a	1%	n/a	1%	n/a	0.1%	n/a	0.1%	n/a
Sockeye release mortality rate	25%	n/a	10%	n/a	25%	n/a	10%	n/a	25%	n/a	10%	n/a	25%	n/a	10%	n/a	25%	n/a	10%	n/a	25%	n/a	10%	n/a
<b>Hypothetical Weekly Landing</b>																								
Retained Catch	-	-	-	50	5	1,500	-	100	15	5,500	-	500	10	10,000	-	1,500	-	10,000	25	1,500	-	3,000	25	500
<b>Release mortalities Charged</b>																								
Expected sockeye encounters	0		27.5		450		30		550		50		300		45		100		15		3		0.5	
Assessed sockeye released	0		27.5		445		30		535		50		290		45		100		0		3		0	
Additional Release Mortality Assessed	0		3		111		3		134		5		73		5		25		0		1		0	
Total Mortality (catch plus release mortality assessed)	-	-	3	50	116	1,500	3	100	149	5,500	5	500	83	10,000	5	1,500	25	10,000	25	1,500	1	3,000	25	500
Cumulative Catch	-	-	3	50	116	1,500	6	150	265	7,000	11	690	348	17,000	15	2,150	373	27,000	40	3,650	373	30,000	65	4,150
ITQ Remaining at end of week	647	9,821	139	2,582	562	9,321	143	2,482	415	12,643	138	4,613	433	24,250	156	8,903	429	14,250	135	7,403	429	11,250	110	6,903

Example 3: Cumulative TAC with Sockeye & Pink retention and 15% drop in sockeye TAC in week 2

	Week 1 - 1st week August				Week 2				Week 3				Week 4				Week 5 - last week Aug/1st week Sep				Week 6			
Hypothetical Sockeye TAC-Cumulative	224,000		PK "catch": 20,600		190,400		PK "catch": -		190,900		PK "catch": -		225,900		PK "catch": 248,400		232,900		PK "catch": 1,839,600		233,400		PK "catch": 542,000	
Hypothetical Pink TAC-Cumulative	2,000,000		PK "avail": 30,000		2,000,000		PK "avail": 275,000		4,000,000		PK "avail": 1,100,000		8,400,000		PK "avail": 2,200,000		8,400,000		PK "avail": 1,900,000		8,400,000		PK "avail": 560,000	
	Area B		Area H		Area B		Area H		Area B		Area H		Area B		Area H		Area B		Area H		Area B		Area H	
<b>Calculations</b>	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink	sockeye	pink
Initial ITQ allocation	0.2887%	0.4911%	0.0632%	0.1316%	0.2887%	0.4911%	0.0632%	0.1316%	0.2887%	0.4911%	0.0632%	0.1316%	0.2887%	0.4911%	0.0632%	0.1316%	0.2887%	0.4911%	0.0632%	0.1316%	0.2887%	0.4911%	0.0632%	0.1316%
Initial ITQ (pieces)	647	9,821	141	2,632	550	9,821	120	2,632	551	19,643	121	5,263	652	41,250	143	11,053	672	41,250	147	11,053	674	41,250	147	11,053
ITQ Remaining (pieces)	647	9,821	141	2,632	(95)	9,721	(3)	2,582	(94)	19,543	(2)	5,213	7	41,150	20	11,003	21	40,350	20	9,503	(2)	30,350	18	7,403
<b>Sockeye Encounters</b>																								
Fleet-wide sockeye encounter rate	55%	n/a	55%	n/a	30%	n/a	30%	n/a	10%	n/a	10%	n/a	3%	n/a	3%	n/a	1%	n/a	1%	n/a	0.1%	n/a	0.1%	n/a
Sockeye release mortality rate	25%	n/a	10%	n/a	25%	n/a	10%	n/a	25%	n/a	10%	n/a	25%	n/a	10%	n/a	25%	n/a	10%	n/a	25%	n/a	10%	n/a
<b>Hypothetical Weekly Landing</b>																								
Retained Catch	645	100	123	50	-	-	-	-	-	-	-	-	-	800	-	1,500	-	10,000	-	2,100	-	3,000	-	500
<b>Release mortalities Charged</b>																								
Expected sockeye encounters	55		27.5		0		0		0		0		24		45		100		21		3		0.5	
Assessed sockeye released	0		0		0		0		0		0		24		45		100		21		3		0.5	
Additional Release Mortality Assessed	0		0		0		0		0		0		6		5		25		2		1		0	
Total Mortality (catch plus release mortality assessed)	645	100	123	50	-	-	-	-	-	-	-	-	6	800	5	1,500	25	10,000	2	2,100	1	3,000	0	500
Cumulative Catch	645	100	123	50	645	100	123	50	645	100	123	50	651	900	128	1,550	676	10,900	130	3,650	677	13,900	130	4,150
ITQ Remaining at end of week	2	9,721	18	2,582	(95)	9,721	(3)	2,582	(94)	19,543	(2)	5,213	1	40,350	15	9,503	(4)	30,350	17	7,403	(3)	27,350	18	6,903