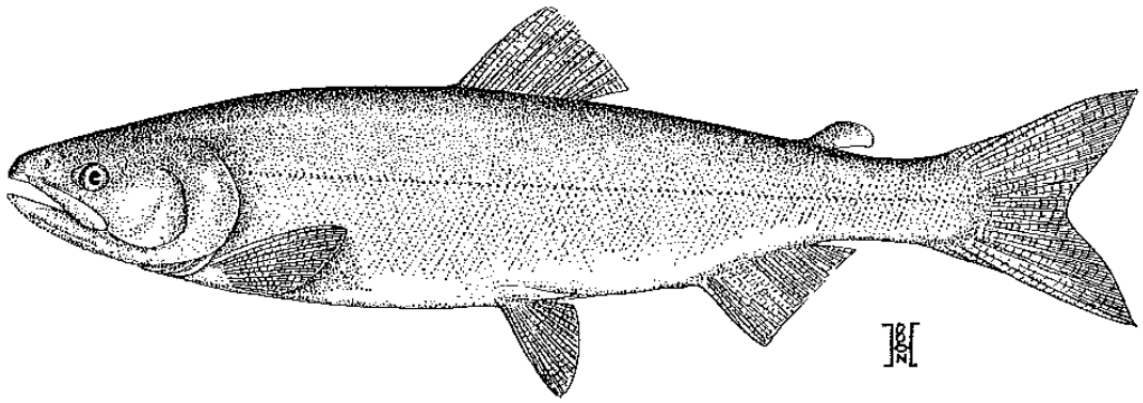
PACIFIC REGION

INTEGRATED FISHERIES MANAGEMENT PLAN

SALMON SOUTHERN BC

JUNE 1, 2015 TO MAY 31, 2016



Genus Oncorhynchus

Fisheries and Oceans Canada
Pêches et Océans Canada

Canada

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

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DEPARTMENT CONTACTS

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

24 Hour Recorded Information (Commercial) Vancouver	(604) 666-2828
Pacific Salmon Commission (PSC) Office	(604) 684-8081
PSC Test Fisheries (Recorded, In-Season Information)	(604) 666-8200

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

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

Regional Headquarters

Regional Director, Fisheries Management Branch	Rebecca Reid	(604) 666-0753
Director, Res. Management, Program Delivery	Paul Ryall	(604) 666-0115
Salmon and PICFI Director	Lisa Kerr	(604) 666-0208
Regional Resource Manager - Salmon	Jeff Grout	(604) 666-0497
Regional Salmon Officer	Kelly Binning	(604) 666-3935
Regional Recreational Fisheries Co-ordinator	Devona Adams	(604) 666-3271
Regional Director, Conservation and Protection	Vacant	(604) 666-0604
Regional Director, Ecosystem Management	Bonnie Antcliffe	(604) 666-6532
Director, Aquaculture Management Division	Diana Trager	(604) 666-7009

Pacific Fishery Licence Unit (By appointment only)	Toll-Free 1-877-535-7307
200-401 Burrard Street	Email: fishing-peche@dfo-mpo.gc.ca
Vancouver, B.C. V6C 3S4	

Lower Fraser River Area

Area Director	Jennifer Nener	(604) 666-6478
Area Chief, Conservation and Protection	Herb Redekopp	(604) 666-2807
Area Chief, Ecosystem Management	Corino Salomi	(604) 666-8712
A/Resource Management Program Co-ordinator	Debra Sneddon	(604) 666-6509
Resource Manager - Recreational/Commercial	Barbara Mueller	(604) 666-2370
Resource Manager - AFS BPM	Brian Matts	(604) 666-2096
Resource Manager - AFS APM	Sheldon Evers	(604) 666-8049
Resource Management Technician	Karen Burnett	(604) 666-4819
Resource Management Biologist (Sockeye, Pink)	Ann-Marie Huang	(604) 992-1019
Resource Management Biologist (Coho, Chum, Chinook)	Louise de Mestral Bezanson	(604) 666-2417
Resource Management Biologist	Matthew Parslow	(604) 666-6608
Aboriginal Affairs Advisor	Terri Bonnet	(604) 666-8590

BC Interior

A/Area Director	Stu Cartwright	(250) 851-4892
Area Chief, Salmon Stock Assessment	Timber Whitehouse	(250) 851-4833
Area Chief, Conservation and Protection	Cliff Todd	(250) 851-4922
Aboriginal Affairs Advisor	Adrian Wall	(250) 318-0022
Resource Manager – Kamloops - AFS/Rec	Dean Allan	(250) 851-4821
Asst. Resource Manager – Kamloops - AFS/Rec	Merv Mochizuki	(250) 851-4952
PICFI Coordinator	Dale Michie	(250) 851-4946
Resource Manager – Williams Lake - AFS/Rec	Linda Stevens	(250) 267-4066
Asst. Resource Manager – Williams Lake - AFS/Rec	David Reedman	(250) 305-4019
Senior Resource Management Biologist - Kamloops	Jamie Scroggie	(250) 851-4948
Resource Management Biologist - Kamloops	Cindy Samaha	(250) 851-4961

South Coast Area

Area Director	Andrew Thomson	(250) 756-7280
Area Chief, Conservation and Protection	Tom Hlavac	(250) 756-7159
Area Chief, Salmon Stock Assessment	Wilf Luedke	(250) 756-7222
A/Aboriginal Affairs Advisor	Kent Spencer	(250) 286-5885
A/Enhancement Operations Section Head	Mel Sheng	(250) 756-7291
RM Program Co-ordinator - WCVI (Areas 20 to 26)	Andrea Goruk	(250) 756-7287
Resource Manager - WCVI (Areas 20 to 26)	Mike Spence	(250) 720-4448
Resource Manager – WCVI (Areas 20 to 26)	Peter Hall	(250) 720-4445
Resource Manager – WCVI (Areas 20 to 26)	Paul Preston	(250) 720-4452
RM Program Co-ordinator - ECVI (Areas 11 to 20, 27)	Beth Pechter	(250) 286-5880
Resource Manager - SOG (Areas 14 to 16)/Area G	Bryan Rusch	(250) 756-7294
Resource Manager – SOG (Areas 17 to 19)	Terry Palfrey	(250) 756-7158
Resource Manager - AFS (Strait of Georgia)	Jonathan Joe	(250) 746-5701
Recreational Fisheries Co-ordinator (South Coast)	Brad Beaith	(250) 756-7190
Resource Manager - JS (Areas 11 to 13 and 27)	Greg Hornby	(250) 286-5886
Resource Manager - JS (Areas 11 to 13 and 27)	Matt Mortimer	(250) 286-5814
A/Resource Manager – AFS (JS)	Kevin Conley	(250) 616-8798
Quota Officer – ITQ fisheries	Christine Bukta	(250) 286-5888
Recorded Information - Port Alberni		(250) 723-0417

Pacific Fishery Licence Unit (By appointment only)	Toll-Free	1-877-535-7307
60 Front Street	Email:	fishing-peche@dfo-mpo.gc.ca
Nanaimo, BC V9R 5H7		

Aquaculture Management

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Senior Finfish Coordinator – Licencing	Bernie Taekema	(250) 754-0398
Finfish Officer	Shirley Choi	(250) 754-0408
Senior Freshwater Coordinator – Licencing	Jennifer Mollins	(250) 754-0394
Chief, Conservation and Protection	Brian Atagi	(250) 754-0367

INDEX OF WEB-BASED INFORMATION

FISHERIES AND OCEANS CANADA - GENERAL INFORMATION

Main Page
Website: 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
Website: 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
Website: 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
Website: http://waves-vagues.dfo-mpo.gc.ca/waves-vagues/

Fisheries and Oceans Canada online library catalogue

Pacific Salmon Treaty
http://www.psc.org/

Background information; full text of the treaty

PACIFIC REGION - GENERAL

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

General information, Area information, Latest news, Current topics

Policies, Reports and Programs
Website: http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/pol/index-eng.html

Reports and Discussion Papers, New Directions Policy Series, Agreements

Oceans Program
Website: 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

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Website: http://www.pac.dfo-mpo.gc.ca/fm-gp/index-eng.htm

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

Aboriginal Fisheries Strategy
Website: 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
Website: 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
Website: 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
Website: 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

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

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

Fisheries Notices
Website: 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
Website: 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
Website: http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/salmon/testfish/default.htm

Definition, description, location and target stocks

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

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)
Website: https://fishing-peche.dfo-mpo.gc.ca/
E-mail: fishing-peche@dfo-mpo.gc.ca (please include your name and the DFO Region in which you are located).
Telephone: 1-877-535-7307
Fax: 613-990-1866
TTY: 1-800-465-7735

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

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

Yukon/Transboundary Rivers Area Main Page
Website: http://www.pac.dfo-mpo.gc.ca/yukon/index-eng.html

Fisheries Management; Recreational fisheries; Habitat; Licencing; Contacts

PACIFIC REGION - SALMONID ENHANCEMENT PROGRAM
Website: http://www.pac.dfo-mpo.gc.ca/sep-pmvs/index-eng.html

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

PACIFIC REGION - POLICY AND COMMUNICATIONS
Website: http://www.dfo-mpo.gc.ca/media-eng.htm

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

Consultation Secretariat
Website: http://www.pac.dfo-mpo.gc.ca/consultation/index-eng.htm

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

Publications Catalogue
Website: http://www.pac.dfo-mpo.gc.ca/publications/index-eng.htm

Listing of information booklets and fact sheets available through Communications branch

Species at Risk Act (SARA)
Website: http://www.dfo-mpo.gc.ca/species-especes/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
Website: http://www.pac.dfo-mpo.gc.ca/science/index-eng.html

Science divisions; Research facilities; PSARC; International Research Initiatives

FOREWORD

The purpose of this Integrated Fisheries Management Plan (IFMP) is to identify the main objectives and requirements for the Southern BC 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 2015/2016

State of the Pacific Ocean and Freshwater Environmental Conditions:

Extremely warm water temperatures were observed in the central NE Pacific ocean throughout 2014; warming of this magnitude has not been observed in over 50 years of historical observations. In contrast, cooler water occurred along coastal British Columbia in early 2014, but record warm water temperatures were observed in near-shore waters by mid-summer of 2014 and have continued into early 2015. These warm water temperatures have caused changes to marine species composition (e.g. marine food web – zooplankton), distributions and productivity. 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. For juvenile salmon entering the ocean in 2014 or earlier, negative impacts on survival or fish condition may be observed as early as 2015, particularly for returns of coho, pink or *jacks (*early maturing chinook and sockeye) and continued warm conditions could affect salmon returns for most species returning in 2016 and 2017. These conditions could also affect salmon returns in 2015 through changes in age-at-return, fish condition, migration routes and run timing.

In addition, extremely low snow pack levels in southern BC increase the probability of low river levels and high river temperatures this summer. These conditions are less than ideal for salmon migration and may be detrimental to salmon migration and survival in freshwater. Additional information can also be found on http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/index-eng.html

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 2015, 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.

Interior Fraser Coho

The Canadian Interior Fraser coho exploitation rate for 2015 fisheries; please refer to Section 5.1.5 for more information.

Fraser River Sockeye

The 2015 Escapement Plan and Harvest Rate Calculations; please refer to Section 7.5.3 for more information.

Catch Monitoring

Electronic Logbooks:

E-log pilot programs have been successfully used in several commercial, recreational and First Nations fisheries. DFO is now advancing an initiative to expand the current e-log initiative to a national program. The vision of the project is to develop and implement, over a phased multi-year approach, a national, integrated, electronic catch and effort system designed to enable ongoing solutions for the fishing industry to meet their evolving data capture and traceability needs. Under a national e-log system, DFO will no longer fund regional specific software programming. DFO will develop specific standards for e-log software in partnership with the Canadian General Standards Board (CGSB) along with a certification process to ensure that all e-log software meets these standards. Harvesters can continue to use their existing e-logs as long as no software changes are required to meet licence conditions. If software changes are required to meet licence conditions, harvesters can select to use paper logbooks or arrange for software updates with a service provider; harvesters will be responsible for any associated costs.

Licencing Service Changes

Fisheries and Oceans Canada (DFO) introduced the web-based National Online Licensing System (NOLS) in the spring of 2013. This web-based system replaces in-person counter service at Pacific Fishery Licencing Units. Fish harvesters/licence holders/vessel owners will now use the new online system to view, pay for and print their commercial fishing licences, licence conditions and/or receipts.

Fish harvesters received a one-time use only DFO Passcode in 2013, allowing them to log into NOLS to register and activate their accounts. At that time they created their own unique Username and Password; fish harvesters must use this Username and Password each time to access their NOLS accounts in order to pay licence fees and request issuance of a licence.

Licence renewal and payment of fees is mandatory on an annual basis prior to the expiry date of each fishery, in order to maintain the eligibility to be issued the licence in the future. Please note the licence eligibility will cease if it is not renewed annually.

In March 2015, documentation will be provided by email detailing full procedures for salmon licence renewal/fees payment via NOLS, including the new 'Submit Request' feature allowing communal commercial licence eligibility holders to designate a vessel (application forms no longer required). Upon the Department receiving the required payment and all necessary information (i.e. logbook clearance), the licence will be issued and notification will be sent via email to advise licence holders/vessel owners that a change has been made to the licence holder's NOLS account. The licence documents, licence conditions and receipt will be available to be printed from NOLS at that time.

For queries, NOLS access problems, or transactions that are not yet available in NOLS (e.g. vessel replacements and nominations), licensing services will continue to be available via:

Telephone: 1-877-535-7307 (ask for the 'Pacific Region')
Fax: 604-666-5855
E-mail: fishing-peche@dfo-mpo.gc.ca (specify 'Pacific Region' in the subject line)

Please visit the Pacific Region Licencing website and subscribe to fishery notices for updates on NOLS and licencing services: http://www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/index-

eng.html. Information on NOLS may be found on the DFO internet site at: http://www.dfo-mpo.gc.ca/fm-gp/sdc-cps/licence-permis-eng.htm.

Use of Fish for Financing Salmon Science Activities

The list of regional salmon projects proceeding in 2015 is the same as those projects in 2014. These include: Pacific Salmon Commission Secretariat-administered projects (11 Fraser Panel projects for Fraser River sockeye and pink); Albion chinook/chum gillnet; Skeena gillnet all species, Johnstone Strait chum seine; Barkley Sound sockeye seine; and Cowichan/Saanich chum seine. A change from 2014 is that the Pacific Salmon Commission Secretariat will no longer be directly administering the Albion chinook / chum gillnet; Skeena gillnet all species and Johnstone Strait chum seine. Details of Southern B.C. salmon test fisheries, including the list of proponents for 2015 are listed in Appendix 7, Section 7.5.

Commercial Salmon Allocation Framework

In September 2013, the First Nations Salmon Coordinating Committee (SCC) and the Commercial Salmon Advisory Board (CSAB) were engaged by the Department in a process to provide advice on updating the Commercial Salmon Allocation Framework (CSAF). Specifically, this work focused on the part of *Allocation Policy for Pacific Salmon* which outlines how the commercial salmon allowable harvest is shared among commercial salmon fisheries after accounting for conservation, First Nations food, social and ceremonial requirements and recreational sharing arrangements.

Since then, a series of productive meetings were held with the SCC, CSAB and interested First Nations to develop potential updates to the CSAF, guided by a Terms of Reference to address shortcomings in the CSAF identified by commercial harvesters and First Nations. Based on recommendations and feedback received through the draft IFMP process, the Department has determined changes which are outlined in the sections below.

Please see **Appendix 7 (Section 7.4)** the commercial allocation plan with shares by species, fleet and fishery production area **and Appendix 8** for a description of other changes.

For background information on this initiative, including the Departments' Terms of Reference for the work and links to the independent facilitator's reports (which provide a summary from meetings held with the SCC and the CSAB, analysis completed and detailed proposals received and considered), please go to: http://www.pac.dfo-mpo.gc.ca/consultation/smon/saf-crrs/index-eng.html.

1 OVERVIEW

1.1 Introduction

This 2015/2016 Southern BC Salmon Integrated Fisheries Management Plan (IFMP) covers the period June 1, 2015 to May 31, 2016.

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 social, cultural, and economic performance of the fishery and its' broader management issues. Section 5 describes the objectives to address the issues identified in Section 4. Sections 6 and 7 describe allocation and management procedures.

The Appendices in the IFMP provide information such as the post season review, and the fishing plans for First Nations and the recreational and commercial sectors.

1.2 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.

1.3 Type of Fishery and Participants

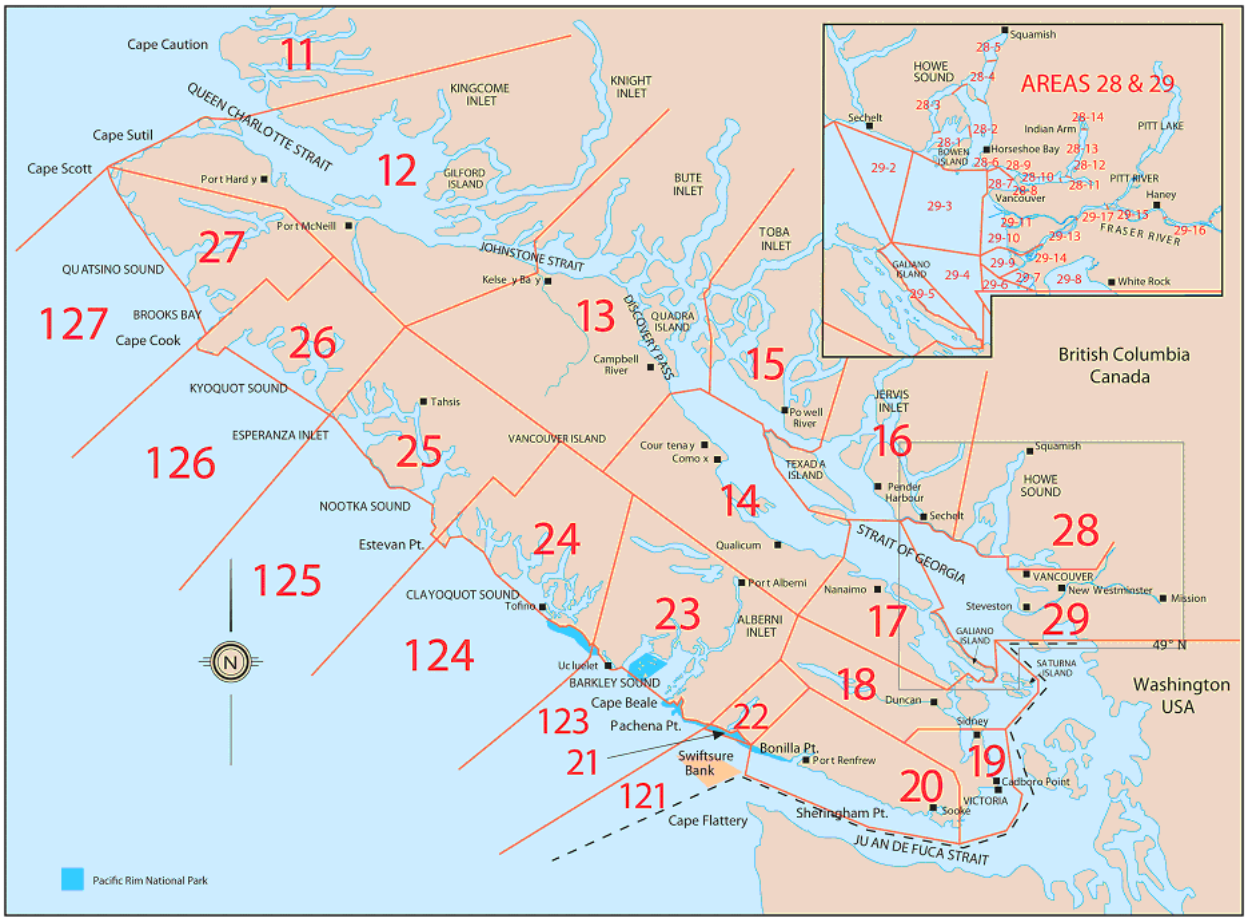
This plan describes the management of First Nations, recreational and commercial fisheries for Pacific salmon in southern BC and the factors that influence decision-making.

Salmon fisheries are coordinated regionally with many management decisions occurring in area and field offices. Key to salmon management is the development and implementation of integrated fisheries management plans that meet specified objectives focusing on conservation, allocation and obligations to First Nations and international treaties.

1.4 Location of Fishery

This IFMP covers fisheries in tidal and non-tidal waters from Cape Caution south to the BC/Washington border, including the Fraser River watershed (Figure 1-1).

Figure 1-1: Management Areas for Southern BC



1.5 Fishery Characteristics

Pacific salmon species covered in the plan include sockeye, coho, pink, chum and chinook. Fisheries include those undertaken by First Nations as well as 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. 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 in in-river areas, 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 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 2015-2016 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 selectively 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 considerable 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 Sustainable Fisheries Framework

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. These new policies include:

- Managing the Impacts of Fishing on Sensitive Benthic Areas
- New Fisheries for Forage Species
- A Fishery Decision-Making Framework Incorporating the Precautionary Approach

For more information on the Sustainable Fisheries Framework and its policies, please visit:

http://www.dfo-mpo.gc.ca/fm-gp/peches-fisheries/fish-ren-peche/sff-cpd/overview-cadre-eng.htm

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 Pacific Region Fishery Monitoring and Reporting Framework.

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 4.1.1 of this plan or at:

http://www.pac.dfo-mpo.gc.ca/publications/pdfs/wsp-eng.pdf

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 5 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/fm-gp/rec/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.

1.6.2 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.

In addition to fishing opportunities for FSC purposes, DFO acknowledges that in *Ahousaht Indian Band et al. v. Canada and British Columbia*, the courts have found that five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht – have "aboriginal rights to fish for any species of fish within their Fishing Territories and to sell that fish, with the exception of geoduck". The Department is actively working with the First Nations to accommodate their rights 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 economic 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.

1.6.3 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 of the Pacific Integrated Commercial Fisheries Initiative until the end of 2015-2016.

1.6.4 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, strategies are being developed to improve catch monitoring programs by clearly identifying information requirements 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

1.7 Consultation

This plan incorporates the results of consultations and input from the Integrated Harvest Planning Committee (IHPC). The IHPC allows for 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 the First Nations Salmon Coordinating Committee (SCC) and other regional and bilateral processes), recreational and commercial harvesters, and the MCC 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.htm

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/fisheries-peche/smon/ihpc-cpip/index-eng.htm

1.8 Approval Process

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

2 STOCK ASSESSMENT, SCIENCE AND TRADITIONAL ECOLOGICAL KNOWLEDGE

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, many sockeye salmon populations are very abundant every third or 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 live the longest. Chinook migrate upstream from the spring through the fall as far as 1,500 kilometers inland. 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 spend between one and three years in a lake before migrating to sea. 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.

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. 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. These programs include:

- Georgia Strait Ecosystem Research Initiative: http://www.pac.dfo-mpo.gc.ca/science/oceans/detroit-Georgia-strait/index-eng.html
- 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 (available at http://www.pac.dfo-mpo.gc.ca/science/oceans-eng.html) on changes 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.

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 Nation 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 forecasts future status of stocks under different scenarios. 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 Nation 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. Programs are required to monitor ecosystem status, species interactions, variations in conditions in aquatic environments and biodiversity.

In the Pacific Region, salmon stock assessment advice is provided through the Salmon Assessment Section of the Salmon and Freshwater Ecosystem Division. The Stock Assessment Coordinating Committee (SACC) serves as the principal forum in the Region for regional planning and coordination of salmon stock assessment programs across the Region's Organizational Areas, while the operational programs are delivered by the Area-based staff. Delivery of the region-wide salmon assessment program requires scientific and technical expertise to design and lead assessment projects, conduct related research and development, analyse data and report information, provide advice, and communicate internally and externally.

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 CU's biological status relative to these benchmarks. Management will be focused on conservation measures for CU's 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 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.

The Centre for Scientific Advice Pacific (CSAP) Salmon Subcommittee serves as the primary regional forum for peer review and evaluation of scientific research and literature, including TEK, on wild Pacific salmon. CSAP 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. CSAP also coordinates communication of the results of the scientific review and advisory processes. Reports on the status of salmon, environmental and ecosystem overviews, and research documents are available from CSAP web site: http://www.pac.dfo-mpo.gc.ca/science/psarc-ceesp/index-eng.html

2.5 Data Sources

Existing reports on the status of salmon and the environmental and ecosystem overviews are available from CSAP 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/outlook-perspective/salmon_outlook-perspective_saumon-2015-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 and status reviewed in 2011, both through Canadian Science Advisory Secretariat (CSA) Regional Peer Review (RPR) processes. DFO completed a CSAS RPR review of WSP benchmarks and status for Southern BC Chinook in February 2014, and an assessment of WSP benchmarks and status for Interior Fraser Coho in November 2014. Work is ongoing to develop a habitat based approach to determine benchmarks for Strait of Georgia and Lower Fraser River Coho Conservation Units.

Additional information about CSAS, the CSAS schedule of RPRs and publications can be found at: http://www.pac.dfo-mpo.gc.ca/science/psarc-ceesp/index-eng.html

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 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 (e.g. Interior Fraser River Coho Conservation Strategy, Cultus Lake Sockeye Conservation Strategy) 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/oceanography-oceanographie/accasp/index-eng.html
  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,and is available at: http://www.pac.dfo-mpo.gc.ca/science/oceans/reports-rapports/state-ocean-etat/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.

- 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)

3 ECONOMIC, SOCIAL AND CULTURAL IMPORTANCE

The intent of this section is to provide a socio-economic review of the salmon fishery in British Columbia. 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 and commercial fishing sectors (including the Aboriginal communal commercial fishery), the processing sector and the export market. 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.

3.1 Aboriginal Fisheries

Generally, DFO manages Aboriginal fisheries to provide access for both food, social, and ceremonial (FSC) and in some cases, commercial purposes. With respect to fishing for FSC purposes, DFO manages FSC fisheries to ensure that after conservation needs are met, the FSC fishery has priority over other fisheries. DFO seeks to provide priority for the FSC fishery in order to ensure that its management is consistent with the Supreme Court of Canada (SCC) decision in R. v. Sparrow, and subsequent case law, which found that where there is an aboriginal right to fish for FSC purposes, this fishery must be given priority over other uses.

First Nations view the harvesting and consumption of salmon as providing a range of social, cultural and health benefits. Fisheries chapters in modern First Nation treaties may articulate a treaty fishing right for FSC purposes that could be protected under Section 35 of the Constitution Act, 1982. Commercial access may be provided either through the general commercial fishery or a Harvest Agreement, which is negotiated at the same time as the treaty and is referenced in the treaty, but is not protected under the Constitution Act.

Three modern treaties (Nisga'a Final Agreement, Tsawwassen First Nation Final Agreement (TFA), and Maa-nulth First Nations Final Agreement (MNA)) have been ratified in British Columbia. These agreements articulate a treaty right to food, social and ceremonial harvest of fish and describe the role for First Nations in fisheries management.[1]

Five Nuu-chah-nulth First Nations have aboriginal rights to fish for any species of fish within their Fishing Territories and to sell that fish, with the exception of geoduck.

[1] Details of the Nisga'a Final Agreement can be found at http://www.ainc-inac.gc.ca/al/ldc/ccl/fagr/nsga/nis/nis-eng.asp Details of the TFA and MNA agreements can be found on the BC Treaty Commission website at www.bctreaty.net

Appendix 5 provides background and details with regard to the Southern BC/Fraser River First Nations Fishing Plan.

Through the AFS Program, the Department provides Food, Social and Ceremonial (FSC) fishery access to aggregate groups or individual First Nations through fisheries agreements and communal licences. 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.

Where requests are put forward by First Nations for changes in FSC access arrangement, 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

AFS agreements serve as a guide for DFO and First Nations on the collaborative management of First Nations fisheries, and support a range of fishery co-management arrangements. Currently the Pacific Region accounts for roughly two-thirds of these agreements Canada-wide. In the region in 2014-2015, there were 85 AFS agreements, representing 164 First Nations that contain provisions relating to salmon management including, but not limited to, FSC fishery arrangements. Among the areas, BC Interior had 18 agreements, Lower Fraser had 13, North Coast had 18, South Coast had 32, and the Yukon had 4.

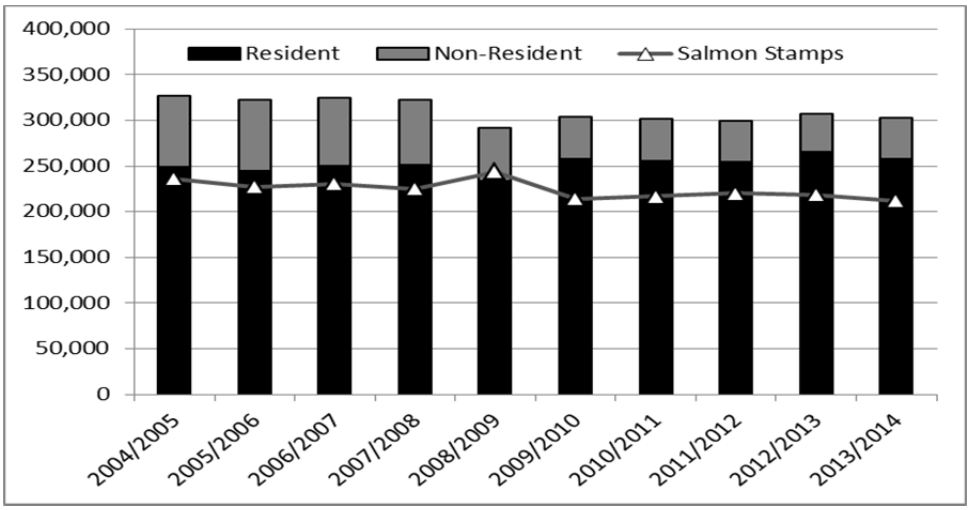
In addition to AFS, the Aboriginal Aquatic Resources and Oceans Management (AAROM) program has been implemented to fund aggregations of First Nation groups to build the capacity required to coordinate fishery planning and program initiatives. AAROM is focused on developing affiliations between First Nations to work together at a broad watershed or ecosystem level where there are common interests and where decisions and solutions can be based on integrated knowledge of several Aboriginal communities. In the conduct of their activities, AAROM bodies are working to be accountable to the communities they serve, while working to advance collaborative relationships between member communities, DFO and other interests in aquatic resource and oceans management. For 2015-2016, there are 20 AAROM agreements in the Pacific Region. The 20 AAROM Organizations are Aboriginal Aquaculture Association, A-Tlegay Fisheries Society, Canadian Columbia River Inter-Tribal Fisheries Commission, First Nations Fishery Council, Fraser River Aboriginal Fisheries Secretariat, Central Coast Indigenous Resource, Q'ul'lhanumutsun Aquatic Resources Society, Island Marine and Aquatic Working Group (IMAWG), Sumas First Nation (LFFA), Nlaka'pamux Nation Tribal Council, North Coast Skeena FNs Stewardship Society, Nuu-chah-nulth Tribal Council, Okanagan Nation Alliance, Pacific Salmon Commission – FNFC, Secretariat of the Haida Nation, Shuswap Nation TC (Secwepemc), Skeena Fisheries Commission, Sto:lo Nation, Sto:lo Tribal Council, and Upper Fraser Fisheries Conservation Alliance.

3.2 Recreational Sector

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 a range of benefits to the participants as well as contribute directly and indirectly to the economy. Based on the most recent 2010 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 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[2].

In order to fish for salmon an angler needs either a tidal or a freshwater licence; however, in order to keep salmon the licence must also have a Pacific Salmon Conservation (PSF) Stamp. Since undertaking the 2005 Survey of Recreational Fishing in Canada, there has been a decline in the total number of tidal water licences issued by DFO, largely driven by a substantial decline in non-resident licences between 2007/08 and 2008/09. In fact, licence data show that the number of non-resident licences sold annually has declined almost continuously since 1999, dropping by 50% over the past 3 years, though the number of licences sold has been relatively stable over the past three years (Figure 3-1, below). The number of PSF Stamps also declined from 2008/09 to 2009/10, but has since made a partial recovery.

Figure 3-1: Tidal Water Recreational Fishing Licences (left) and Pacific Salmon Conservation Stamps (right) Sold, 2008/09 to 2013/14



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

The Survey of Recreational Fishing in Canada provides an estimate of individual expenditures and investment for recreational fishing. Historically, the combined tidal and freshwater fisheries of BC were the second largest recreational fisheries in Canada in terms of direct and package

[2] 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.

expenditures, and third largest in terms of investments. 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 totalled $139,772,544. 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[3]. 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[4]. A further 19% would have shortened their stay in the province.

Figure 3-2; Recreational Fishing Direct and Package Expenditures and Investments, **in constant (2010) dollars**

	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
Total	$ 224,080,223	$ 97,517,809	$ 283,143,116	$ 604,741,147
	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
Total	$ 243,591,830	$ 153,971,744	$ 295,645,676	$ 693,209,250
	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
Total	$ 263,774,405	$ 103,799,372	$ 338,246,574	$ 705,820,350

Source: Survey of Recreational Fishing in Canada, multiple years

Figure 3-2 (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

[3] The British Columbia's Fisheries and Aquaculture Sector (2013) report 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.

[4] 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.

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.

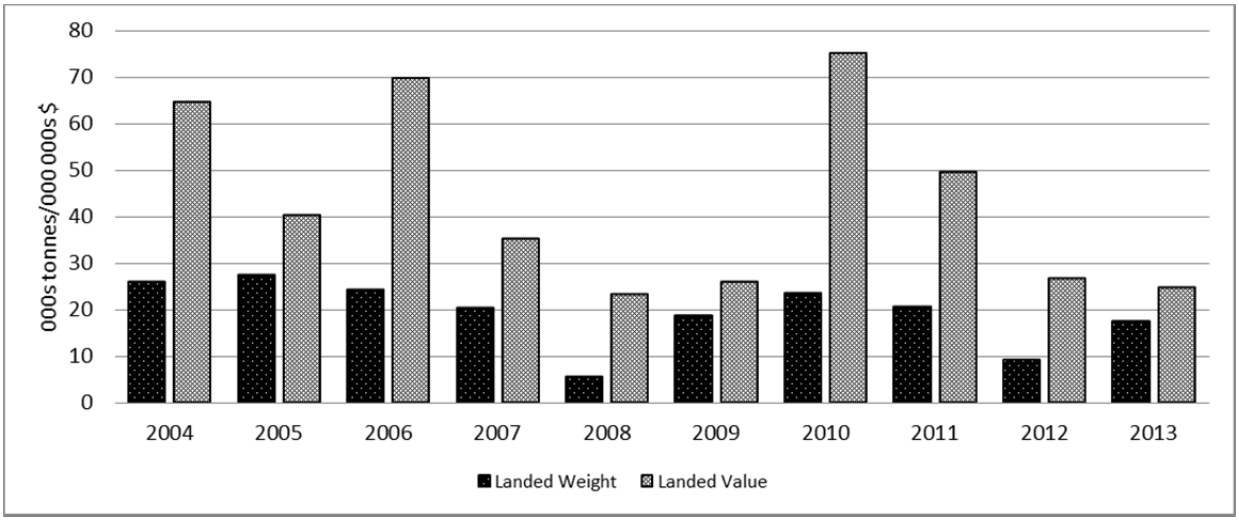
Additional information on the history and vision for recreational fisheries can be found in the document "Vision for Recreational Fisheries in BC": http://www.pac.dfo-mpo.gc.ca/consultation/smon/sfab-ccps/docs/rec-vision-eng.pdf

3.3 Commercial Sector

In BC, the salmon fishery is a limited access, competitive fishery[5]; however, several parts of the fishery have operated under individual quotas during the past five years. 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. BC Stats (2013) estimates that the commercial salmon fishery directly contributed $15.2 million to the gross domestic product (nominal) in 2011[6].

During the last decade, salmon contributed an average of 12% of the landed value and 10% of the volume of BC wild caught seafood. In 2013 dollars, the value ranged from a high of $75.1 million in 2010 to a low of $23.3 million in 2008 (Figure 3-3, below). On average, sockeye was the most important species in terms of landed value, followed by chinook and then chum.

Figure 3-3: Pacific Region salmon harvest and landed value (2013 dollars)



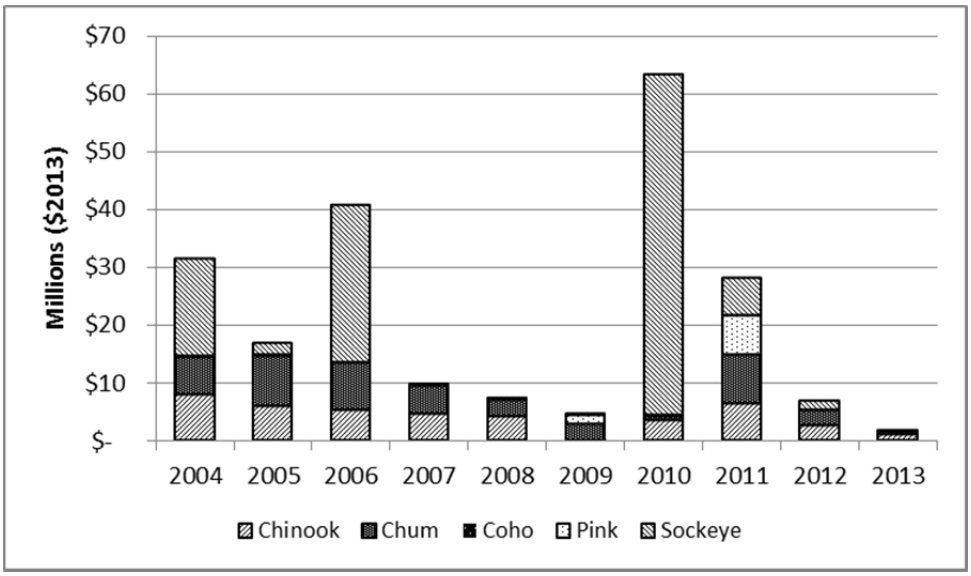
Source: BC Seafood Industry Year in Review (various years). Note: "Salmon" here refers to salmon harvested by commercial fisheries and does not include aquaculture production.

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

[6] BC Stats (2013) British Columbia's Fisheries and Aquaculture Sector, 2012 edition. Prepared for the Fisheries and Oceans Canada by BC Stats. Available at: http://www.bcstats.gov.bc.ca/Publications/AnalyticalReports.aspx last accessed: January 16, 2015.

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. However, the record Fraser River sockeye run in 2010 meant that the South Coast accounted for 84% of the landed value in that year. Despite a decline in harvest since 2010, for the most recent decade the South Coast accounted for an average of 43% and 50% of BC wild caught salmon landings and value, respectively. Like landings, the landed value of the South Coast salmon harvest has been variable and does not have an overall trend up or down (Figure 3-4, below). The most significant impact is due to the collapse of the Fraser sockeye harvest in 2007 to 2009, and the strong rebound in 2010.

Figure 3-4: South Coast salmon value by species, (2013 dollars)



Source: http://www.pac.dfo-mpo.gc.ca/stats/comm/summ-somm/index-eng.htm

Salmon licence values declined steadily from 2005 to 2010, reflecting poor returns to the fleet.[7] Licence values increased in 2011 due to improved outlook for the sockeye fishery (including the record run in 2010) and higher prices for pink and chum salmon. Seine licences have continued to increase in value through 2013, while gillnet and troll licences have been steady. 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;[8] this was reiterated in the 2009 financial snapshot.[9] The results also suggested a positive financial performance for the troll fleet, which was enhanced further by participation in other fisheries. Breaking down the analysis by licence area, however, it is apparent that the South Coast troll is smaller and less productive

[7] Nelson, Stuart. Various years West Coast Fishing Fleet: Analysis of Commercial Fishing Licence, Quota, and Vessel Values. http://waves-vagues.dfo-mpo.gc.ca/waves-vagues/

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

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

than the BC average and does not generate positive earnings from its salmon harvest.[10] 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. Detailed tables for each fleet (gill net, seine and troll) are available within both documents (Nelson, 2009 & 2011), and are available by licence area in Gislason, 2011.

The Department's general approach is that Aboriginal commercial harvest opportunities are managed using similar rules to the commercial fishery. In addition, 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 – First Nations to accommodate their rights ("aboriginal rights to fish for any species of fish within their Fishing Territories and to sell that fish, with the exception of geoduck") without jeopardizing Canada's legislative objectives and societal interests in regulating the fishery.

The landings and value attributable to Aboriginal commercial harvest are included in the values reported for the commercial sector above. Participation in the commercial salmon fishery provides socio-economic benefits to Aboriginal communities and individuals from fishery revenues and employment-generated income.

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 7% of commercial licences in the South Coast, were reduced fee licences. 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 were in the South Coast in 2014.

Since 1994, DFO has acquired a total of 479 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), the Allocation Transfer Program (ATP), the Pacific Integrated Commercial Fisheries Initiative (PICFI), First Nations Inland Demonstration Fisheries projects, Economic Opportunity Fishery arrangements and treaties. In the 2014 season, 159 communal commercial salmon licence eligibilities were issued to First Nations under the AFS and ATP, 45 were issued under PICFI, 255 were used to offset First Nations Inland Demonstration Fisheries projects and Economic Opportunity Fishery arrangements with First Nations in the lower Fraser, Somass, Skeena and Nass Rivers and 20 were used for treaties or other contingencies. The Demonstration Fisheries proposed for 2015 are described in Appendix 5 (section 5.5).

The Tsawwassen First Nations and Maa-nulth First Nations also have commercial fisheries covered by Harvest Agreements outside of their Treaties. The Tsawwassen agreement came into effect in April 2009, and the Maa-nulth agreement came into effect in April 2011.

[10] Gislason, Gordon. 2011. British Columbia's salmon fleet financial profile 2009. http://www.dfo-mpo.gc.ca/Library/343812.pdf

3.4 Processing Sector

Since 2000, salmon accounted for an average of 25% of the total wholesale value from the processing of wild caught seafood in BC[11]. Processing wild caught salmon provided about 1,473 positions in 2011 or a little over 30% of the BC total[12]. A 2008 report estimates that approximately 80% of employment is to process domestic landings, with processing occurring primarily in the Greater Vancouver (47%) and the Skeena-Queen Charlotte (38%) regional districts.[13] 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.

3.5 Export Market

British Columbia benefits from a strong seafood exports sector, valued at $903M[14] in 2013, which is supplied by the domestic wild harvest, aquaculture and raw imports. The BC Year in Review further reports that pink and chum salmon are among the most widely exported seafood products in 2013; being shipped to 25 and 22 countries, respectively. Over the five-year period from 2009 to 2013, BC exported wild salmon to some 53 countries. On average over this period, the United States accounted for 27% of the export value ($27.4 million in 2013 dollars), followed by Japan (21% and $21.8 million) and the United Kingdom (15% and $15.2 million). Japanese imports of BC salmon closely follow trends in sockeye production, Japan absorbing much of the windfall arising from the record harvest of Fraser sockeye in 2010. China has grown as a market in recent years with an export value of $13.9 million in 2013.

The value of wild caught salmon exports averaged $102 million in 2013 dollars from 2009 to 2013. On average, sockeye accounted for 40% of this value, with pink accounting for 24%. Of this value, 8% was from the sale of salmon roe, which is often produced from pink salmon.

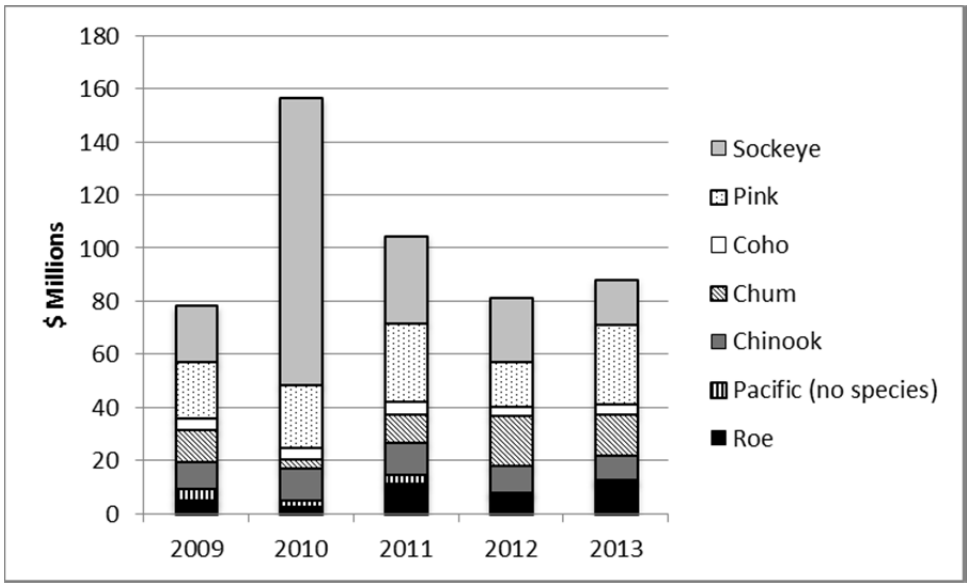
[11] British Columbia Seafood Industry Year in Review. Various years, BC Ministry of Environment and Ministry of Agriculture. For years 2010 and earlier available at: http://www.env.gov.bc.ca/omfd/index.html. For 2011 and forward available at: http://www.agf.gov.bc.ca/stats/

[12] BC Ministry of Agriculture, Internal data.

[13] Fraser and Associates 2008, Linkages Between the Primary Fish Production and Fish Processing Sectors in British Columbia, The actual % of wild salmon processing employment supported by domestic landings varies greatly year-to-year.

[14] British Columbia Seafood Industry Year in Review (2013)

Figure 3-5: Salmon Export Value by Species, 2009-13 (2013 dollars)



Source: Statistics Canada. December 2014.

4 MANAGEMENT ISSUES

4.1 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 behaviour all add risks that can threaten conservation. Accordingly, management actions will be precautionary and risks will be specifically evaluated where possible.

4.1.1 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. Since 2005, 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 more modest efforts to assess habitat and ecosystems as part of integrated strategic planning pilots in key areas. Currently, the Department is preparing a new Wild Salmon Policy Implementation Plan, which was one of the recommendations from the 2012 Cohen Commission Final Report. This work will allow alignment with changes to legislation and programs since the policy was released in 2005, such

as recent changes to the Fisheries Act, implementation of the Fisheries Protection Program, and release of the Sustainable Fisheries Framework. Our intention is to start engaging First Nations and stakeholders on this work in 2015.

Additional details regarding WSP and its implementation can be found at: http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/wsp-pss/index-eng.html

4.2 International Commitments

4.2.1 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. Various chapters in Annex IV of the Treaty have been renegotiated and ratified since 1985.

The Pacific Salmon Commission, established under the Pacific Salmon Treaty, provides regulatory and policy advice as well as recommendations to Canada and the United States (US) 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.

To properly account for the full impact of fishing on chinook and coho stocks, the Pacific Salmon Treaty specifies that the parties develop programs to monitor all sources of fishing related mortality on chinook and coho. Catch monitoring programs are being modified to include estimates of encounters of all legal and sub-legal chinook and coho, as well as other salmon species, in all fisheries.

Coded-wire tag (CWT) data are essential to the management of chinook and coho salmon stocks under the Pacific Salmon Treaty. In 1985, the United States and Canada entered into an August 13, 1985 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. An expert panel review concluded the coded-wire tag system is the only technology currently capable of providing the data required for Pacific Salmon Treaty management regimes for chinook and coho salmon, thus confirming the approach being employed. The expert panel's full report may be found at http://www.psc.org/pubs/psctr18.pdf. In response to the Expert Panel's recommendations, the PSC appointed a CWT Workgroup to develop recommendations to correct deficiencies and to improve analysis of CWT recovery data. The Workgroup's full report may be found at http://www.psc.org/pubs/psctr18.pdf. As the CWT system is central to the ability to implement the 2009 PST Chinook Agreement, the Parties agreed to provide $7.5 million each in their respective currencies over a five year period to implement critical improvements to the CWT programs operated by their respective management agencies (Annex IV, Chapter 3, paragraph 3(b)). The Five Year Synthesis Report of the PSC Coded Wire Tag Improvement Program may be found at: http://www.psc.org/pubs/psctr33.pdf.

The chapters in Annex IV outline the joint conservation and harvest sharing arrangements between Canada and the US 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.

Fisheries and Oceans Canada and US agencies continue to implement the management regimes under Annex IV for the 2015 season. Key details from the chapters under Annex IV relevant to the South 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 fishery and 30% below the 1999 catch ceiling in the Canadian West Coast Vancouver Island fishery were agreed to by the parties and are detailed in Table 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 aggregate abundance based management fisheries, as well as the individual stock-based management fisheries in both countries, should certain stocks fail to meet escapement objectives outlined in the agreement.

The agreement also includes provisions for a bilateral funding framework to support implementation of the chinook chapter. Key elements include: (i) $30M for Canada to help mitigate the impacts of commercial harvest reductions in Canada; (ii) $15M ($7.5M from each country) over five years to support the coast-wide coded-wire tag program; (iii) $10M from the Northern and Southern Endowment Funds for a "Sentinel Stocks Program"; (iv) $1M from the US to improve the analytical models to implement the chinook agreement.

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 consider more than four Fraser River sockeye management groups, which provides greater flexibility to address more 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 raise potential issues regarding incidental catches of Fraser River sockeye in Alaska as well as updates to the Aboriginal Fisheries Exemption.

Chapter 5 (Coho Salmon, Southern BC and Washington State): The current coho chapter incorporates the joint Southern Coho Management Plan developed in 2002 with the abundance-based management framework established in 1999.

Chapter 6 (Chum Salmon, Southern BC and Washington State): The current chum chapter includes a 20% fixed harvest rate in Johnstone Strait, linking the US catch ceiling to the abundance of Fraser River chum (i.e. in the case of a terminal run size below 900,000 chum salmon, the US would restrict its fisheries in Area 7 and 7A to 20,000 chum), and the

establishment of a "critical level" for southern-bound chum salmon of one million. There is also a defined annual start date of October 10, for US fisheries in Areas 7 and 7A.

4.3 Oceans and Habitat Considerations

4.3.1 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 three principles: 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

4.3.2 Pacific North Coast Integrated Management Area

An integrated management plan for the Pacific North Coast Integrated Management Area (PNCIMA) has been developed to help coordinate various ocean management processes and to complement and link existing processes and tools including IFMPs. The PNCIMA is one of five national Large Ocean Management Areas identified in Canada's 2005 Oceans Action Plan, and the plan is the product of a collaborative process led through an oceans governance agreement between the Government of Canada, British Columbia and First Nations, and contributed to by a diverse group of organizations, stakeholders and interested parties. High level and strategic, the plan provides direction on and commitment to 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 a framework for ecosystem-based management (EBM) for PNCIMA that includes assumptions, principles, goals, objectives and strategies. This EBM framework has been developed to be broadly applicable to managers, 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.

Implementation of the plan is the shared responsibility of all signatories to the planning process and will be undertaken within existing programs and resources.

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

4.3.3 Marine Protected Area Network Planning

The Oceans Act mandates the Minister of Fisheries and Oceans 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 (National Framework) provides strategic direction for the design of a national network of marine protected areas (MPAs) that will be composed of a number of bioregional networks. This is an important step towards meeting Canada's domestic and international commitments to establish a national network of marine protected areas. Regionally, the Canada-British Columbia Marine Protected Area Network Strategy has been developed jointly by federal and provincial agencies and reflects the need for governments to work together to achieve common marine protection and conservation goals. Bioregional marine protected area network planning may identify new areas of interest for protection by DFO, Parks Canada, Environment Canada, the Province of BC, and any other agencies with a mandate for protecting marine spaces. Future networks of MPAs may overlap and/or include salmon fishing areas, depending on the type and nature of the MPA.

More information on MPA Network Planning can be found at the following links:

http://www.dfo-mpo.gc.ca/oceans/planning/marineprotection-protectionmarine/index-eng.htm

http://www.dfo-mpo.gc.ca/oceans/planning/marineprotection-protectionmarine/bc-mpa/index-eng.html

4.3.4 Marine Protected Areas

DFO is also responsible for designating Marine Protected Areas (MPAs) under Canada's Oceans Act. Under this authority, DFO has designated two MPAs in the Pacific Region. 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 SK-B MPA are managed through the Integrated Fisheries Management process. Three zones are identified, some of which are fisheries closures which are used to manage the sablefish fishery (see Groundfish IFMP for details). All other commercial fisheries are not permitted to occur in any zones of the MPA.

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). Work also continues towards

designating the Hecate Strait and Queen Charlotte Sound Glass Sponge Reefs Area of Interest as a Marine Protected Area under the *Oceans Act*. DFO has implemented fishing closures to protect nine glass sponge reefs in the Strait of Georgia and Howe Sound. Commercial and recreational bottom-contact fishing is prohibited within 150 metres of all nine glass sponge reefs. Starting April 1, 2016, all aboriginal communal licences that are issued and include these sponge reef closures will be prohibited from all bottom contact aboriginal fishing activities within 150 meters of all nine glass sponge reefs.

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 links www.pac.dfo-mpo.gc.ca/oceans/index-eng.htm and http://www.dfo-mpo.gc.ca/oceans/marineareas-zonesmarines/mpa-zpm/index-eng.htm

4.3.5 National Marine Conservation Areas

Gwaii Haanas

Gwaii Haanas National Park Reserve, National Marine Conservation Area Reserve, and Haida Heritage Site is a 5000 km2 land-and-sea protected area in the southern portion of Haida Gwaii (formerly the Queen Charlotte Islands), approximately 100 km off the north coast of British Columbia. 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 Fisheries and Oceans Canada 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.

Development of a long-term management plan for the Gwaii Haanas marine area is underway and will be completed in 2015. This process will take place in consultation with the commercial and recreational fishing sectors through Fisheries and Ocean's established integrated fisheries planning and advisory processes. Annual fishing plans will be developed in consultation with stakeholders.

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.

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

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

4.3.6 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 on 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

4.3.7 Committee on the Status of Endangered Wildlife Species Assessment

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/rpts/Detailed_Species_Assessments_e.html

4.3.8 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*, 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. Species listed as special concern are not included in these prohibitions.

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:

Birds

1. Ancient Murrelet – Special Concern
2. Marbled Murrelet – Threatened

Fish

1. Basking Shark – Endangered
2. Green Sturgeon – Special Concern
3. Longspine Thornyhead Rockfish – Special Concern
4. Rougheye Rockfish Types I & II – Special Concern
5. Sixgill Shark – Special Concern
6. Soupfin Shark (Tope) – Special Concern
7. Yelloweye Rockfish – Special Concern
8. White Sturgeon – Upper Fraser Designatable Unit – Endangered
9. White Sturgeon – Upper Columbia Designatable Unit – Endangered
10. White Sturgeon – Nechako Designatable Unit – Endangered
11. White Sturgeon – Kootenay River Designatable Unit - Endangered

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. Shellfish Northern Abalone – Endangered
2. Olympia Oyster – Special Concern

Some marine mammals and marine or anadromous species of fish designated by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) that are currently under consideration for listing under SARA include:

Fish

1. Bocaccio Rockfish – Threatened
2. Canary Rockfish – Threatened
3. Darkblotched Rockfish – Special Concern
4. Quillback Rockfish – Threatened
5. Yellowmouth Rockfish – Threatened
6. Eulachon – Fraser River Designatable Unit – Endangered;
7. Eulachon – Central Pacific Coast Designatable Unit – Endangered.
8. Eulachon – Nass/Skeena Rivers Designatable Unit – Special Concern
9. North Pacific Spiny Dogfish – Special Concern

Mammals

1. Northern Fur Seal – Threatened

White Sturgeon

In August of 2006, four populations of White Sturgeon (Upper Fraser, Upper Columbia, Nechako, and Kootenay River) were listed as Endangered under SARA, while two populations (Lower Fraser and Mid Fraser) were not. Only those populations listed under SARA are subject to the general prohibitions.

A Recovery Strategy has been developed for the four listed populations, which provides a recovery goal, and population and distribution objectives, as well as management activities for the two non-listed populations. The Recovery Strategy may be found at:

http://www.sararegistry.gc.ca/document/default_e.cfm?documentID=1774

Humpback Whales

In 2003, the North Pacific Humpback Whale population was assessed by COSEWIC, and was subsequently listed as Threatened under SARA in January 2005. Humpback was re-assessed by COSEWIC as Special Concern in 2011, and a change to the listed status of this species is being considered. A Recovery Strategy has been developed for this species. Threats identified in the Recovery Strategy include entanglement, vessel strike, acoustic disturbance and prey reduction. The Recovery Strategy may be found at:

http://www.sararegistry.gc.ca/document/default_e.cfm?documentID=1344

Salmon

Three populations of salmon have been assessed by COSEWIC as Endangered (Cultus Lake sockeye (2003), Sakinaw Lake sockeye (2003), and Interior Fraser River coho (2002)) and one has been designated as Threatened (Okanagan Chinook (2006)). Following extensive public and stakeholder consultation processes for each population, the Government of Canada did not list these populations on Schedule I of SARA (Cultus Lake sockeye (2005), Sakinaw Lake sockeye (2005), Interior Fraser River coho (2006) and Okanagan Chinook (2010)). However, recovery efforts are continuing for each population.

DFO, in cooperation with the Interior Fraser River coho Recovery Team, has 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: www.dfo-mpo.gc.ca/Library/329140.pdfConservation Strategies for Cultus and Sakinaw Lake sockeye have also been finalized, and can be viewed at:

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

Specific conservation objectives for these and other stocks are found in Section 5.

Shark Codes of Conduct

Out of the fourteen shark species in Canadian Pacific waters, three species are listed under SARA. The Basking Shark (*Cetorhinus maximus*) is listed as Endangered, and the Bluntnose Sixgill Shark (*Hexanchus griseus*) and Tope Shark (*Galeorhinus galeus*) are listed as species of Special Concern. 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 bycatch 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

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

4.3.9 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 BC Cetacean Sighting Network:

Toll free: 1-866-I-SAW-ONE (1-866-472-9663)
Fax: (604) 659-3599
Email: sightings@vanaqua.org
Internet: 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: turtles@vanaqua.org
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
http://www.pac.dfo-mpo.gc.ca/science/species-especes/elasmobranch/baskingshark-lepelerin-eng.html

4.3.10 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 is being developed and near completion which identifies implementation priorities to reduce anthropogenic threats and address research needs for resident killer whales. The *Recovery Strategy for Northern and Southern Resident Killer Whales (*Orcinus orca*) 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

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 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 designed a series of 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 produce a report documenting its findings.

The first of the three workshops occurred September 21-23, 2011 in Seattle; the second occurred March 13-15, 2012 in Vancouver, Canada, and the third occurred in Seattle on September 18-20, 2012. A diverse and multidisciplinary group of approximately a hundred actively participated in the workshop process. These experts were drawn from Canadian and US Federal, Provincial and State management and research agencies, First Nations, Treaty Indian Tribes, academia, non-governmental environmental organizations and industry (e.g., fishing and whale-watch industries).

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

Contaminants:

There are numerous chemical and biological pollutants that may directly or indirectly impact Resident Killer Whales, 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 US researchers continue to monitor Resident Killer Whale populations.

Disturbance:

All cetaceans, including Resident Killer Whales, are subjected to increasing levels of disturbance from vessels, aircraft and other sources of anthropogenic noise. Industrial activities such as: dredging, pile driving, construction, seismic testing, military sonar and other vessel use of low and mid-frequency sonars may result in acoustic disturbance. 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.pac.dfo-mpo.gc.ca/fm-gp/species-especes/mammals-mammiferes/view-observer-eng.html

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

Critical Habitat:

In the March 2008 Recovery Strategy for the northern and southern resident killer whales, their critical habitat was defined. On February 23, 2009 a Species at Risk Act Section 58(4) Order by the Ministers of Fisheries and Oceans, and Environment was posted to protect that critical habitat from destruction. The Recovery Strategy identifies specific actions intended to protect killer whale critical habitat and its features. 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.

Marine Mammal Management Plans

Fisheries Depredation:

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

Depredation is a learned behaviour that can spread throughout whale social groups and once established is impossible to eliminate. It is critical that BC 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 MarineMammals@dfo-mpo.gc.ca or by calling (250) 756-7253. 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 log book/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 BC 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.

More information on COSEWIC, SARA, and the listing process can be found at:

http://www.cosewic.gc.ca/eng/sct5/index_e.cfm
http://www.dfo-mpo.gc.ca/species-especes/home_e.asp
http://www.sararegistry.gc.ca/

Contacts for marine mammal inquiries:

Fisheries and Oceans Canada Contacts:
MarineMammals@dfo-mpo.gc.ca
Paul Cottrell (604) 666-9965
Graeme Ellis (250) 756-7245

4.3.11 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 BC and in fisheries in Alaska and Washington State. However, the number of local seabirds getting entangled in gill nets as a result of the BC salmon gill net fishery is not well known.

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, BC
Telephone: (604) 940-4679
Email: laurie.wilson@ec.gc.ca.

4.3.12 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 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 assesses, makes decisions and issues aquaculture licences.

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). Public reporting is undertaken to ensure the transparency and accountability of the management of aquaculture in BC. 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 licencing, 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 Departmental 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. Information relating to AMAC meeting is posted on the DFO Consultations web pages: http://www.pac.dfo-mpo.gc.ca/consultation/aquaculture/index-eng.htm. Meetings are open to the public.

More information on IMAPs and AMACs is available through IMAPS@dfo-mpo.gc.ca.

4.3.13 Salmonid Enhancement Program

The Salmonid Enhancement Program (SEP) in British Columbia, Canada is comprised of nearly 300 projects across the province and the Yukon and includes hatcheries, fishways, spawning and rearing channels, and small classroom incubators. Projects range in size from spawning channels producing nearly 100 million juvenile salmon annually to school classroom incubators releasing fewer than one hundred juveniles.

SEP enhances chinook, chum, coho, pink, and sockeye salmon at the population level throughout the Pacific Region, supporting sustainable fisheries through fish production that provides harvest opportunities. Fish production from the program also supports stock assessment and conservation, both of which enable harvest management as well as community involvement and public education.

The program is delivered through three components:

1. Major Operations (OPS) SEP facilities that rebuild stocks and provide harvest opportunities through hatcheries and spawning channels;
2. The Community Involvement Program (CIP), which includes the Community Economic Development Program (CEDP) that operates contracted SEP facility operations with local community groups and First Nations, and Public Involvement Program (PIP) projects that are divided into designated (DPI) and non-designated categories. The latter are smaller projects that focus on outreach, stewardship and educational activities, which do not produce large numbers of fish.
3. The Resource Restoration Unit supports habitat improvements, stock assessment, effectiveness monitoring, watershed planning, and partnerships related to habitat initiatives.

Steelhead and cutthroat trout are produced at some SEP facilities in partnership with the province of British Columbia; however, targets and release numbers are not included in SEP production planning as the province is responsible for management of these species.

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. This production planning process operates within the consultative framework of an integrated harvest planning process that is used to develop the IFMP.

Production planning meetings involve most DFO sectors (SEP, Science, and Fisheries Management), and external consultation and involvement is achieved through the IFMP process. Based on these production planning meetings, a draft production plan is assembled, taking into account production priorities and the results of post-season fishing and production reviews. This process operates through an annual planning cycle, while at the same time planning for the longer-term. Priorities are established annually based on the national and regional priorities using a consistent approach across the program.

The production planning cycle establishes maximum numbers of eggs to be collected and juveniles to be released, 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. Operationally, SEP production targets for a given facility are set for individual populations or stocks. Each individual stock or population together with its run timing, release site, life-history stage and the associated release numbers, is known as a production group and has a specific production objective. A single regional production plan is produced, that comprises donor stocks, release sites, egg-take and juvenile salmon release targets, and stages at release for each SEP facility. Production targets are considered upper limits and will be documented as such in each Facility PAR licence.

The risks of salmon enhancement to wild populations include undesirable genetic effects, disease implications, ecological interactions, harvest impacts and marine carrying capacity. DFO is aware of potential interactions of enhanced fish with wild stocks, and has developed an array of risk mitigation and management procedures, guidelines, and practices. Hatchery programs are designed to avoid or minimize these risks.

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. Facilities may also enhance steelhead and cutthroat trout; however, targets are not included as management of these species is under the authority of the Province of British Columbia.

There are two datasets available: **Post-Season Production** from the 2013 brood year (i.e. 2014 releases, and #'s on hand for 2015 release), and the **Production Plan**, which include proposed targets for the upcoming 2015 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.

4.3.14 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 WorksafeBC to ensure coordinated approaches to improving fishermen's safety. See Appendix 2 for more information.

5 OBJECTIVES

5.1 Fishery Management Objectives for Stocks of Concern

5.1.1 Lower Strait of Georgia Chinook

The objective for Lower Strait of Georgia (LGS) chinook is to reduce fishery exploitation in known areas of significant impact.

In the 2015 Salmon Outlook, LGS chinook are classified as *low* given poor marine survival rates and low levels of escapements in recent years. The Cowichan River is the primary indicator of marine survival and exploitation for the LGS fall chinook. In 2014, the naturally spawning component of the adult escapement, estimated at 4,185, remains below the target of 6,500 and has been below the goal since 1986 and less than half of the target between 2002 and 2012. Spawner levels have seen improvements since historic lows in 2009, and returns in 2013 and 2014 were slightly higher than the previous years suggesting that the rebuilding seen recently is continuing. Management measures to protect these stocks continue to be required in 2015.

LGS chinook are harvested in terminal First Nations fisheries, 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. Restrictions introduced in recent years (including PST reductions to the WCVI allowable harvest) are reducing the WCVI commercial troll TAC and will continue in 2015. Restrictions and closures in the terminal and approach areas for recreational harvesters and First Nations will continue as well. The development of a management framework that considers abundance levels, triggers and associated management measures consistent with the Southern BC Chinook strategic planning and the Wild Salmon Policy is being initiated.

5.1.2 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%. The objective for North Coast chinook is to manage in accordance with the allocation policy, and to manage the northern troll fishery 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 measured 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.

DFO will manage commercial troll fisheries in the North Coast to a 3.2% exploitation rate ceiling on total WCVI chinook return to Canada. The harvest rate of WCVI chinook in the Area F troll fishery is calculated based on 3.2% of the total WCVI return to Canada and is used as an in-season proxy for exploitation rate. The in-season harvest rate will be estimated using the mean effort-harvest rate relationship developed from historical DNA analysis. The fishery will be further constrained by remaining closed during the first three weeks of June and the month of August as these periods are known to have higher proportions of WCVI chinook in the total catch. DNA analysis and/or coded-wire tag analysis of catch will be used to assess the 3.2% exploitation rate objective post season.

2015 is the seventh year that the Annex IV provisions of the 2008 PST agreement will be implemented. The 2015 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.

5.1.3 Fraser Spring 4_2 Chinook

The objective for Fraser Spring 4_2 chinook is to conserve these populations by continuing to minimize incidental harvests in Canadian ocean fisheries. For directed fisheries in the Fraser River, the objective is to minimize directed harvests of Spring 4_2 chinook until July 15th. Fisheries beginning July 15th will be managed consistent with the management zone identified for Fraser Spring 5_2 and Summer 5_2 chinook (see section 5.1.4) given timing overlaps between these populations for much of the adult migration period.

Fraser Spring 4_2 chinook is one of five management units for Fraser chinook used in the Pacific Salmon Treaty process. This group contains two conservation units spawning in the interior Fraser area. Spring 4_2 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_2 chinook in Canadian and US fisheries. Based on CWT recoveries from fisheries, Fraser Spring 4_2 chinook have historically been encountered in Fraser River First Nation 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.

In the 2015 Salmon Outlook, Spring 4_2 chinook has been classified as at *low* abundance given depressed parental abundance and unfavourable marine conditions in recent years. Expectations for 2015 are for continued modest improvements over brood. Returns of Spring 4_2 chinook in 2015 will come primarily from a parent generation of approximately 2,230* spawners in 2011.

Additional consultations will occur, beginning in the fall/winter of 2015, if changes are contemplated on fishery plans for First Nations, recreational and commercial harvesters for the spring of 2016.

*this value is an estimate of actual spawners to the following systems: Deadman, Coldwater, Nicola, Spius and Bessette. This value does not include the escapement to the Bonaparte system.

5.1.4 Fraser Spring 5_2 and Summer 5_2 Chinook

The objective for Fraser Spring and Summer (age 5_2) chinook is to conserve these populations consistent with the management zones outlined below.

In the 2015 Salmon Outlook, Spring 5_2 and Summer 5_2 chinook stocks have been classified as *low* abundance given depressed parental abundance and unfavourable marine conditions in recent years. For the return in 2015, the parental brood year (2010) escapement index was approximately 36,300 spawners. 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. Additionally, a run-reconstruction analysis 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_2 and Summer 5_2 chinook stocks (including those streams that are not monitored regularly). The run-reconstruction model estimate of the 2010 Spring 5_2 and Summer 5_2 escapement was 39,700 spawners.

Table 5-1: Fraser Spring 5_2 and Summer 5_2 chinook Management Zone Approach

Zone	Predicted Return to the Fraser River	Actions
3	Greater than 85,000 **Rationale**: Manage to meet expected spawner abundance of at least 60,000. Populations rebuilding towards maximum sustained yield (MSY) levels.	First Nations directed fisheries. Directed recreational and commercial fisheries consistent with Allocation policy.
2	45,000 to 85,000 **Rationale:** Manage to meet expected spawner abundance of at least 30,000. Caution is required to avoid population declines. Populations well below MSY levels.	First Nations directed fisheries subject to abundance. By-catch retention/ limited directed Fraser recreational fisheries may be initiated. Management actions to reduce by-catch or incidental harvest in commercial fisheries.
1	Below or equal to 45,000 **Rationale:** Expected spawner abundance will likely be 30,000 or less. Significant conservation concerns. Very high risk of extremely low spawning populations.	By-catch retention /limited directed First Nations fisheries. Non-retention/closed recreational and commercial chinook fisheries in the Fraser River and tributaries. Management actions to reduce by-catch or incidental harvest in other recreational and commercial fisheries.

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 populations survival rate.*

Management actions for zone 1 and 2 have been identified in five primary areas: Northern (Area F) and West Coast of Vancouver Island (Area G) commercial troll fisheries; Juan de Fuca (Victoria area) and Fraser River recreational fisheries; and Fraser River First Nation FSC fisheries. Specific management actions are identified separately for First Nations (Appendix 5, Section 5.2.8), recreational (Appendix 6, Section 6.3.3) and commercial fisheries (Appendix 7, Section 7.13).

For the last 3 years, the Department has begun the season with management actions based on returns being in the lowest abundance level (zone 1). Based on the estimated abundance at the Albion test fishery in mid-June, an in-season adjustment was then made to the management zone when required.

Based on a brood-year reconstructed abundance of 39,722 spawners and recruitment rates from the 2008 to 2012 time frame, there is a likelihood that the terminal return to the Fraser River in 2015 will be in zone 1 (less than 45,000 chinook).

The Department is currently planning to begin the 2015 season and subsequent seasons with zone 1 management actions. This approach is likely to be in place until brood year escapements and/or the recruitment rates substantially improve.

Table 5-1b: Summary of escapement, terminal run size (abundance entering the mouth of the Fraser River) and recruitment rates for Fraser River Spring $5_2$and Summer 5_2 chinook

Fraser Spring and Summer 52 Chinook

Year	Brood Year Escapement (5 years prior)	In-season Terminal Run Size [a]	Reconstructed Terminal Run Size	CTC Escapement Index	Escapement [b]	Implied R/S [c]
2008	111,347	~61,000	52,941	32,581	40,474	0.59
2009	79,694	~63,000	76,385	47,123	56,867	1.18
2010	51,436	~62,000	48,980	36,513	39,722	1.18
2011	52,131	50,390	48,030	30,674	34,079	1.14
2012	29,151	42,730	37,140	21,797	26,430	1.57
2013	40,474	38,550	[d]	30,103	[d]	[d]

[a] Final in-season Albion run size estimate used for management purposes

[b] Total escapement estimate which includes infilling for missing escapement data

[c] R/S estimate assumes returns and escapements are all 5 year olds. Pre fishery recruitment is estimated by assuming a marine harvest rate of 19%.

[d] Run recontruction estimates not yet available

The management zone may be updated in-season based on 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 May 3rd through June 13th. Updates of the predicted return of Spring 5_2 and Summer 5_2 chinook to the mouth of the Fraser River, for informational purposes, are tentatively planned for May 19th and June 1st, with a final in-season update by June 15th. Management actions for the appropriate management zone will be announced following the final in-season update.

Rationale for Escapement Objectives for Fraser Spring and Summer 5_2 Chinook

While PST escapement targets and exploitation rate targets have not been formally identified for Fraser Spring and Summer 5_2 Chinook, biological factors were nonetheless a principal consideration 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_2 and ~57,000 Summer 5_2). 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_2 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.

The Southern BC Chinook strategic planning initiative will likely inform future management approaches for Fraser River Spring and Summer 5_2 Chinook.

5.1.5 Interior Fraser River Coho

The objective for Interior Fraser River coho (including Thompson River coho) is to manage Canadian fisheries to an exploitation rate of 10% or less.

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. From that time to 2013, Canadian fisheries impacting these stocks were curtailed to limit the exploitation rate to 2 to 3 percent (currently 3 percent or less), with an additional 10 percent permitted in US fisheries (as per the Pacific Salmon Treaty management regime). In 2014, an exploitation rate of up to 16% was permitted in Canadian fisheries. Despite some improvements to forecast returns and spawner abundances in some recent years, 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. Spawner abundances in 2014 were well below recent years' levels and pre-season expectations based on projected fisheries impacts and the 2014 forecast range highlighting continued uncertainties about stock productivity and/or fisheries impacts.

The *Conservation Strategy for Coho Salmon (Oncorhynchus kisutch), Interior Fraser River Populations* (October 2006) 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 informing 2014 management was based on the following interpretation of the above recovery objectives for Interior Fraser coho:

1. Short Term Objective 1: 3 year geometric mean[1] 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

2. 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.)

For fishery 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.

Management measures for Interior Fraser River coho are generally in place 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 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 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.

5.1.6 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 7.5.4.4).

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 will be 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 contaminant studies. 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

The recovery objectives as outlined in the *National Conservation Strategy for Cultus Lake* Sockeye Salmon (*Oncorhynchus nerka*) (Cultus Lake sockeye Recovery Team, 2009) can be found online at: http://www.dfo-mpo.gc.ca/Library/337479.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.

Work is underway 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. In 2015, enhancement activities to supplement juvenile production will continue at reduced levels. 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 are a threat to population recovery.

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 Section 7.5.3 Fraser River sockeye decision guidelines.

5.1.7 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 2015 Salmon Outlook, Sakinaw Lake sockeye has been classified as a *stock of concern* given continued very low marine survival 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 achieve this objective quickly, 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 near 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 upper 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 upper 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 upper 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 returned to the lake. The captive brood program will continue as a form of insurance to reduce the possibility of extirpation.

In 2014, 452 adult and 12 jack sockeye returned to Sakinaw Lake, coming from a smolt count of 163,000 in 2012 (marine survival was only 0.3% which is a concern). This group is mostly comprised of progeny from captive brood, held at Rosewall and Ouilette hatcheries, and an unknown but small number of wild origin sockeye. The expectation for 2015 is for a greater number of adults due to a larger number of smolts (253,000).

5.1.8 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. The escapements in 2012 and 2013 were similar around 73,000 sockeye. The most recent escapement estimate in 2014 is 112,000 sockeye. The escapement target for Nimpkish sockeye is currently under review, and consultations are planned over the coming year.

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). 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.

5.1.9 Interior Fraser River Steelhead

The objective for Interior Fraser River steelhead is to minimize the impact of Canadian fisheries and to increase spawner abundance.

Based on the management framework developed by the province and endorsed by DFO, the limit reference point (LRP) for minimum spawning escapements identified for the Thompson and Chilcotin River steelhead groups is 1250 fish. Monitoring of stock abundance will continue.

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. Additionally, a tri-partite First Nations / Canada, / B.C. Thompson Steelhead has been

in operation in recent years, serving as a forum for discussions and analysis related to stock recovery and management. Selective commercial fisheries will be considered consistent with *Policy for Selective Fishing in Canada's Pacific Fisheries.* 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.

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. The Department will continue to engage with the Province on the strategy for addressing steelhead impacts in fisheries.

5.1.10 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.

Rockfish Conservation Areas (RCAs) are no fishing zones for fishing gear that impact on rockfish except for FSC access. Permitted fishing activities within RCAs for commercial and recreational fisheries are listed on the DFO's website at www.pac.dfo-mpo.gc.ca/recfish and in Appendix 3. DFO will continue working with First Nations so that management of their fisheries will be consistent with conservation objectives and priority access for food, social, and ceremonial purposes. First Nations are encouraged to employ fishing methods that do not impact inshore rockfish or fish in other locations to avoid the harvest of inshore rockfish in RCAs. DFO will also continue working with First Nations to improve catch reporting and rockfish identification.

There are currently 164 RCAs along the coast of British Columbia. The RCAs have been implemented within the Strait of Georgia and in all outside waters including Haida Gwaii. The conservation strategy for inshore 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 may take several decades. The strategy addresses four areas under the fisheries management and stock assessment regime:

a) Protect a part of inshore rockfish populations from harvest through the use of Rockfish Conservation Areas;

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

c) Reduce harvests to levels that are less than the estimates of natural mortality; estimated at 2%; and

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

Prior to fishing, fish harvesters are reminded to review the locations of these RCAs and the permitted activities within RCAs. A description of all RCAs and permitted fishing can be found at: http://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/rca-acs/index-eng.html

6 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*.

6.1 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.

6.2 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, *An Allocation Policy for Pacific Salmon* and the 2015 Pacific Salmon Commercial Allocation Implementation Plan (See Appendix 8).

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 each of the three commercial fishing gear groups. An explanation of some of the features of Allocation planning is set out in Section 6.5.

6.3 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*.

In addition to fishing opportunities for FSC purposes, DFO acknowledges that in *Ahousaht Indian Band et al. v. Canada and British Columbia*, the courts found that five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht – have "aboriginal rights to fish for any species of fish within their Fishing Territories and to sell that fish, with the exception of geoduck". The Department is actively working with the First Nations to accommodate their rights without jeopardizing Canada's legislative objectives and societal interests in regulating the fishery." (See Appendix 5, Section 5.5.1)

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.

The Department is continuing to work with the FNFCs' Salmon Coordinating Committee to develop information summaries to inform specific performance measures for incorporation in the future. This information will be included in Appendix 5 once complete.

6.4 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.

6.5 Allocation Guidelines

Allocation decisions are made in accordance with *An Allocation Policy for Pacific Salmon*

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

Table 6-1 describes a generalized framework by which fishing opportunities are allocated to different fishing groups at different abundance levels.

Table 6-1: Allocation guidelines

	Low Abundance		**High Abundance**		
First Nations FSC	Non-retention / closed	By-catch Retention	Directed	Directed	Directed
Recreational	Non-retention / closed	Non-retention	By-catch Retention	Directed	Directed
Commercial	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 of concern 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.

6.6 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.

6.7 First Nations Economic Opportunity and Inland Demonstration Fisheries

For a more detailed description of Aboriginal commercial fishing opportunities please refer to Appendix 5, Section 5.4.

6.8 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 average of 5% of the combined recreational and commercial harvest of each species on a coast-wide basis over time.

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

directed on any stocks of concern, nor is the impact on any stocks of concern significant in accordance with the *Selective Fishing Policy.*

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

6.9 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 **Appendix 7 (Section 7.4)** 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) generally 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.

6.10 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 DECISION GUIDELINES AND SPECIFIC MANAGEMENT MEASURES

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 Appendices 5 to 7.

7.1 General Decision Guidelines

7.1.1 Pre-season Planning

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

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

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

7.1.3 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**.**

7.1.4 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 7-1. 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 7-1 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: 7-1 Post-Release Mortality Rates

Fishery	**Pre 2001 Post-Release Rates (for historical comparison)**	**Post 2001-Release Rates**
First Nations Fisheries	Note: When using the same gear and methods noted below the same mortality rates were applied.	Various – Depending on gear used and fishery. Gill net – 60% same as commercial below

Fishery	Pre 2001 Post-Release Rates (for historical comparison)	Post 2001-Release Rates
		Beach seine – 5% for sockeye and coho in-river Fraser Modified Shallow Seine- 10% for sockeye and coho in-river Fraser Tooth Tangle net – 3.5" mesh is 10% sockeye and 15% coho. Fishwheel - 5% for sockeye and coho in-river Fraser
Recreational troll gear – sockeye, coho, pink and chum	10%	10% except 3% for sockeye in-river Fraser
Recreational Troll gear – chinook	15%	15%
Recreational mooching gear – coho and chinook	10% for coho; 15% for chinook	10% for coho in South Coast areas; 15% for chinook in all areas.
Commercial gill net (South Coast)	60% to 70%	60% with provision for rates as low as 40% where selective techniques warrant.
Commercial seine – South Coast (Areas 11 to 29)	15% to 25%	25% Johnstone Strait; 50%* Area 20 – coho; 25% all areas for sockeye
Commercial troll – All Areas	26%	10% sockeye, 15% coho and chinook.
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 2015 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.

7.2 AABM Chinook Decision Guidelines

7.2.1 Background

Chinook fisheries in BC are managed under the umbrella of the PST, with domestic considerations for stocks of concern, allocation between sectors of the fishery and application of selective fishing practices.

The basis for managing fisheries impacting chinook 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, revised for implementation in 2009, maintains the abundance based management framework established under the 1999 Agreement.

Further explanation and the text of the chinook agreement can be found on the PSC website at: http://www.psc.org/Index.htm.

Two types of fisheries are identified in this agreement; that is, Aggregate Abundance Based Management (AABM) and Individual Stock Based Management (ISBM). In southern BC, the AABM applies to the following waters on the WCVI:

- Offshore waters including Areas 121 to 127
- Inside waters including Areas 21, 23, and 24 from Oct 16 to July 31; and
- Areas 25, 26, and 27 from Oct 16 to June 30

7.2.2 Constraints

The mixed-stock aggregate fisheries of southeast Alaska, northern BC, and WCVI are managed on the forecast abundance of the AABM stocks. Fisheries are managed based on a chinook fishery year which extends from October 1 in one calendar year to September 30 in the next calendar year.

7.2.3 Decision Guidelines

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*. Domestic conservation concerns may reduce the TAC to levels less than identified under the PST Chinook AABM fisheries.

When there is a TAC identified for the AABM management area, targeted chinook fisheries are planned for First Nations, recreational, and commercial sectors. Table 7-2 describes management measures that will be taken to minimize impacts on stocks of concern in AABM chinook fisheries.

Table 7-2: Stock management actions anticipated in AABM chinook fisheries to limit impacts on stocks of concern.

Stock of Concern (constraint)	First Nation (FN) Fishery	Recreational Fishery	Commercial Fishery
WCVI Chinook	Harvest levels outlined in communal licences	On-going terminal area restrictions for wild stocks of concern	Area G - Time and area closures on WCVI (i.e. avoid inshore fisheries during the time period July to September)
		Maximum size limits inside the management corridor, time and area restrictions.	Area F - measures in the North Coast troll fishery to limit ER to 3.2%
South Coast Coho (Interior Fraser River coho management objective)	Harvest levels outlined in communal licences. By-catch retention permitted during fisheries for other species.	Coho retention limited to selective hatchery mark fishery (SHMF) in most areas. Consideration for retention of wild coho in inside waters on the WCVI.	Non-retention of coho in most areas of southern BC.
			Potential consideration of coho retention after mid-September
Fraser River Spring 4_2 Chinook	No impacts on WCVI First Nations fisheries anticipated	No impacts on WCVI recreational fisheries anticipated	Time and area closures and effort limits
Fraser River Spring 5_2 and Summer 5_2 Chinook	No impacts on WCVI First Nations fisheries anticipated	No impacts on WCVI recreational fisheries anticipated	Time and area closures and effort limits
			Proposed June and July closure if returns are in management zone 1
Lower Strait of Georgia Chinook	Harvest levels outlined in communal licences	Time and area closures 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

7.2.4 Issues

Table 7.3 outlines the level of risk of impact on chinook stocks of concern during fishing periods throughout the year.

Table 7-3: Assessment of risk of impact on stocks of concern during chinook fisheries in the AABM management area of the WCVI.

Fishery Period	Risk of impact on stocks of concern
Oct. – Feb	**Low risk.** Fisheries in October are outside the migration period and area for several stocks of concern, including Interior Fraser River coho, WCVI chinook, Fraser River Spring 4_2, Spring 5_2 and Summer 5_2 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.
Mar. – May	**Moderate - High risk.** Specific concerns for Fraser River Spring 4_2 chinook. Increased incidence of lower Strait of Georgia chinook especially in May.
June - mid-Sept	**Moderate - High risk.** Potential concern for impacts on Fraser River Spring 5_2 and Summer 5_2 chinook in June and July. Monitoring of coho encounters in early to mid-June is required. Stocks of concern, including Interior Fraser River coho are prevalent. Risk increases as coho recruit to fishery. Selective fishing methods may reduce risk by avoiding coho. Concerns for impacts on returning local WCVI chinook stocks. Offshore fishing may reduce risk by avoiding WCVI chinook. Concerns for impacts on lower Strait of Georgia chinook.
Mid Sept	**Low risk.** WCVI chinook may be avoided by area restrictions. Concerns for impacts on lower Strait of Georgia chinook. Interior Fraser **c**oho impacts reduced because end of migration out of WCVI area

7.2.5 Prospects

The Chinook Technical Committee (CTC) provides a final calibration of the Chinook Model for the 2014/2015 fishing season (October 1, 2014 to September 30, 2015). The completed calibration provides the Abundance Indices (AI) that are required for determining the preseason estimated allowable catches for the three Aggregate Abundance Based Management (AABM) fisheries: Southeast Alaska all gear (SEAK), Northern British Columbia troll and Haida Gwaii sport (NBC), and West Coast Vancouver Island troll and outside sport (WCVI). The AIs and the associated allowable catches are shown in Table 7-4.

Effective January 1, 2009 the renegotiated Pacific Salmon Treaty terms were put into effect including, the implementation of a 15% reduction in Southeast Alaska (SEAK) and a 30%

reduction in the Total Allowable Catch (TAC) for the WCVI AABM. The allowable catches in Table 7-4 reflect this change.

Table 7-4: Pre-season Abundance indices and associated allowable catches for the 2015/2016 AABM Fisheries

	SEAK	NBC	WCVI
Abundance Index	1.45	1.23	0.85
Allowable Catch	236,995	160,400	127,278

Table 7-5: Stock outlook anticipated in AABM chinook fisheries

	Stock Outlook for 2015
WCVI Chinook	Overall, returns in 2015 will likely decline relative to the last few years due to very low apparent survival of the 2011 brood and low observed survival of the 2010 brood (returning as 4 and 5 year old fish in 2015). In contrast, ocean indicators suggest the 2012 brood may have experienced a relatively high survival rate. However, fish that return at 3 years of age are dominantly male and therefore make a lower contribution to egg-based brood and escapement targets. Pre-season forecasts are not yet available. Wild populations have either been well below target and/or declining for several generations. In recent years, stocks in the NWVI CU showed moderate improvements; however this trend is not generally observed in SWVI wild populations in Clayoquot. Expectations are for continued low abundance in 2015 and probable declines relative to recent years.
South Coast Coho (including Interior Fraser River)	For WCVI stocks, the status is for a near target return (Outlook category 3). For Interior Fraser stocks the 2015 Outlook is low. The Outlook for 2015 is for improving abundance given spawner abundance in 2012 was approximately 54, 000. However, escapements in 2014 were below pre-season expectations.
Fraser River Spring 4_2 Chinook	Expectations for 2015 are for modest improvements over 2011 parental brood escapements but continued overall low abundance levels. Expect continuation of fisheries restrictions.

Fraser River Spring 5_2 and Summer 5_2 Chinook	The Outlook is low and the expectation is for a modest improvement over parental brood escapement levels but overall low escapements are due to depressed parental abundance and unfavourable marine conditions. Abundance estimated in-season based on Albion test fishery CPUE.
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.

7.3 ISBM Chinook Decision Guidelines

7.3.1 Background

Chinook fisheries in BC are managed under the umbrella of the Pacific Salmon Treaty (PST), with domestic considerations for stocks of concern, allocation between sectors of the fishery, and application of selective fishing practices.

Under the PST, an ISBM fishery is 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. 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 recreational, WCVI seine and gill net and Fraser River gill net.

For management purposes in 2015, Fraser chinook stocks will be managed using the Spring 4_2, Spring 5_2, Summer 5_2, Summer 4_1 and Fraser Fall 4_1 (Harrison) 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, Wild Salmon Policy conservation units (CUs) and spawning locations is shown in Table 7-6.

Management objectives have been identified for Spring 4_2 chinook (Section 5.1.3) and for the combined management units of Spring 5_2 and Summer 5_2 chinook (Section 5.1.4). Fishery guidelines for the Summer 4_1 and Fraser Fall 4-1 management units are outlined below.

Table 7-6: 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_2 Chinook	16	STh Bessette Creek	Bessette Creek;

PST Unit	CU #	CU Name	Spawning Locations
	17	LTHOM spring	Bonaparte River; *Coldwater River*; Deadman River; *Louis Creek*; Nicola River; *Spius Creek*
Spring 5_2 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
	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
Spring 5_2 Chinook	18	NTHOM spring	Blue River; Finn Creek; Raft River
Summer 5_2 Chinook	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;
	14	STh summer age	Eagle River; Salmon River;
	19	NTHOM summer age	Barriere River; Clearwater River; Mahood River; North Thompson River
Summer 4_1 Chinook	7	Maria Slough	Maria Slough
	13	STh summer age	Adams River; Little River; South Thompson River; Lower Thompson River;

PST Unit	CU #	CU Name	Spawning Locations
	15	Shuswap River summer age	Shuswap River-lower; Shuswap River-middle
Fraser Fall 4-1	3	LFR fall white	Harrison River

Table 7-6 Notes:

1. Seven early-timed chinook stocks shown in italics.
2. Chilcotin River upper not part of PST Spring 5_2 aggregate due to short time series.
3. Salmon River (Salmon Arm), Eagle, Bridge River and Endako River currently included with PST Spring 5_2 aggregate.
4. STh Summer age CU could be changed to STh Spring age CU.
5. Bridge and Endako suggest for MFR Spring CU.
6. Raft River may belong with North Thompson Summers based on timing. Currently included with PST Summer 5_2 aggregate.

7.3.2 Constraints

Vancouver Island fisheries are constrained in order to meet PST obligations to reduce chinook harvest rates and adult equivalent mortality levels. To meet this requirement in mixed-stock fisheries, there is non-retention of chinook in all commercial fisheries, recreational chinook fisheries have daily and annual limits, and First Nations are provided opportunities for FSC purposes only. In particular, management actions will continue to minimize impacts on Strait of Georgia origin chinook in 2015. Further fishery opportunities may be provided in-season in terminal locations with an identified surplus. Table 7-7 summarizes management actions taken in ISBM management areas to reduce impacts on stocks of concern.

Table 7-7: Management actions anticipated in ISBM chinook fisheries to limit impacts on stocks of concern.

Stock of Concern (constraint)	First Nation (FN) Fishery	Recreational Fishery	Commercial Fishery
WCVI Chinook	- Communal licence harvest targets - Conservation measures under discussion. - FN self-imposed harvest constraints	- Time and area closures - Size limit inside the WCVI management corridor and other areas shoreward of the management corridor -Some areas will be 2 chinook but only 1 >77cm or 2 < 77cm - Catch limits - Measures will vary by area.	Time and area closures during the July to October period
South Coast Coho (driven by Interior Fraser River coho management objective)	- Time and area restrictions -Gear restrictions - Communal licence harvest targets. -Measures will vary by area	- Time and area closures - Mark selective retention for coho. Retention of wild coho may be permitted in some times and areas. - Catch limits - bait bans - Measures will vary by area.	Generally non-retention of coho except for by-catch retention in terminal fisheries in Nootka and Barkley
Fraser Chinook - Spring 4_2, Spring 5_2 and Summer 5_2	- Time and area restrictions - Gear restrictions - Communal licence harvest targets - Measures will vary by area	- Time and area closures - Size limits -Mark selective retention in Areas 19 and 20 - Catch limits - Measures will vary by area. - Additional measures for portions of Areas 18, 19, 20, 29 and in the Fraser River	No directed commercial chinook salmon fisheries in ISBM waters on the east side of Vancouver Island and non-retention of chinook in salmon fisheries directed at other species.

Strait of Georgia Chinook	- Time and area restrictions - Gear restrictions - Communal licence harvest targets. -Measures will vary by area	- Time and area finfish closures - Time and area chinook non-retention - Catch limits - Size limits - Gear restriction (i.e. barbless hooks) - Measures will vary by area.	No directed commercial chinook salmon fisheries in ISBM waters on the east side of Vancouver Island and non-retention of chinook in salmon fisheries directed at other species.
North Vancouver Island / Johnstone Strait Chinook	- Communal licence harvest targets.	- Time and area finfish closures -Time and area chinook non-retention - Catch limits - Size limits - Gear restriction (i.e. barbless hooks) - Measures will vary by area.	No directed commercial chinook salmon fisheries in ISBM waters on the east side of Vancouver Island and non-retention of chinook in salmon fisheries directed at other species.

7.3.3 Decision Guidelines

For these fisheries, the Agreement 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.

WCVI Chinook

The 2015 pre-season forecast of chinook returns to the terminal areas of Alberni Inlet/Stamp River is estimated at 33,000, and to Nootka (Conuma hatchery) is estimated at 42,000. In-season abundance estimates will be reviewed by DFO and First Nations staff in a timely manner to allow additional terminal fishing opportunities that may arise in-season for WCVI chinook and other terminal returns of unexpected salmon abundances. The Area 23 Harvest Committee focus group is developing a Somass chinook local integrated fishery management plan that will define the escapement targets and harvest rates under various run sizes. A Harvest Committee has also been established in Area 25 to develop a local management plan for chinook fisheries in in both Nootka Sound and Esperanza Inlet. It is anticipated that the fishing plans developed through these processes will be utilized in the management of 2015 fisheries.

A small ISBM assessment fishery near the Brooks Peninsula has been proposed as one component of a PSC high priority chinook project to improve the precision and accuracy of annual WCVI chinook return estimates. Sampling in this fishery is to collect approximately 200 chinook per week for 8-10 weeks that would be lethally sampled for DNA, otoliths and CWT's. For 2015, sampling will be reduced to up to 600 chinook in total to investigate feasibility. The

sampling will be a collaboration between Ka:'yu:'k't'h'/Chek'tles7et'h' First Nations and DFO using Maa-nulth Treaty domestic allocation.

Fraser Spring 4_2 Chinook

Fishery restrictions for this management unit are planned consistent with the management objective (Section 5.1.3) and identified separately for First Nations (Appendix 5, Section 5.2.8), recreational (Appendix 6, Section 6.3.3) and commercial fisheries (Appendix 7, Section 7.13).

Fraser Spring 5_2 and Summer 5_2 Chinook

The Fraser Spring 5_2 and Summer 5_2 chinook are two of five PST management units for Fraser chinook. This group contains 11 conservation units and includes four populations previously referred to as Early-timed chinook. Spring 5_2 chinook return to the Fraser River to spawn from early March through late July and migration peaks in late June in the lower Fraser. Summer 5_2 chinook has 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_2 indicator) from these populations indicates that Spring 5_2 chinook have been encountered in many of the same areas as Spring 4_2 chinook. Summer 5_2 chinook are also encountered in the same areas, but relative impacts between fisheries may differ given the approximately 1 month later migration timing of these Summer 5_2 stocks.

Fishery restrictions for this management unit are planned consistent with the management objective (Section 5.1.4) and identified separately for First Nations (Appendix 5, Section 5.2.8), recreational (Appendix 6, Section 6.3.3) and commercial fisheries (Appendix 7, Section 7.13-Area G Troll).

Fraser Summer 4_1 Chinook

The Fraser Summer 4_1 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.

The management objective for the Fraser Summer 4_1 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 Aged 4_1 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).

Within this stock group, the Lower Shuswap River indicator stock is 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.

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_2 chinook, Spring/Summer 5_2 chinook, Fraser Fall chinook, Fraser River sockeye, and Interior Fraser River coho. Recent reductions to SE Alaska fisheries as a result of changes to the PST chinook Annex may provide some limited additional flexibility in planning fisheries directed on Summer 4_1 chinook. While formal projections of terminal abundance for this aggregate are not produced, the number of additional chinook returning to the Fraser River as a result of SE Alaska reductions may be between 3,000 and 10,000 chinook based on fishing patterns observed from 2004 to 2008.

Fraser Fall 4_1 (Harrison) Chinook

The PST approved escapement goal for the Fraser Fall 4_1 (Harrison) chinook is a range of 75,100 to 98,500 spawners.

Fraser Fall 4_1 chinook spawn mostly in the Harrison and Chilliwack watersheds and return to the Lower Fraser between mid-August and mid-November, with the majority of the run migrating through this area from mid-September to mid-October. These are the only Fraser River chinook population for which quantitative forecasts are produced. The forecast estimate of the spawner abundance (i.e. returns to the spawning grounds after all ocean and freshwater fisheries removals) for Harrison chinook is 33,000.

While the overall exploitation rates on this chinook management unit are low, averaging approximately 25%, additional fishery management actions including chinook non-retention in commercial fisheries in the Fraser River will be considered because the forecast is below the escapement goal range.

7.3.4 Issues

Issues regarding ISBM chinook stocks are covered in the previous subsections.

7.3.5 Prospects

In the 2015 Salmon Outlook, Fraser River Spring 4_2, Spring 5_2, Summer 5_2 chinook have been classified as *low*. For Summer 4_1 chinook, the outlook for most of the component populations is *near target*. For Fraser Fall 4_1 (Harrison) chinook the outlook is low/near target (Harrison (wild) is low, Chilliwack (hatchery) is near target). The forecast for the Fraser Fall 4_1 management unit is 72, 073. The stock outlook for ISBM chinook is listed in Table 7-5.

Table 7-8: Stock outlook anticipated in ISBM chinook fisheries.

Stock	Stock Outlook for 2014

WCVI Chinook	See Table 7-5
South Coast Coho (including Interior Fraser River)	See Table 7-5
Fraser Chinook - Spring 4	See Table 7-5
Strait of Georgia Chinook	See Table 7-5
North Vancouver Island / Johnstone Strait Chinook	Returns expected to be well below average.

7.4 ABM Coho Decision Guidelines

7.4.1 Background

Coho fisheries in southern BC are managed under the umbrella of the PST, with domestic considerations for stocks of concern, allocation between sectors of the fishery, and application of 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 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. Other Canadian management units of domestic importance include the WCVI, Johnstone Strait - Mainland Inlets and the Central Coast. In the United States, the management units relevant to the agreement include the Skagit River, the Stilliguamish, 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/Index.htm.

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.

7.4.2 Constraints

Within the PST coho management framework, Canadian domestic policy will further define fishing opportunities. Domestic conservation concerns may limit total fishing mortality to a level less than stipulated in the PST coho ABM. For example, if abundance is "critically" low, domestic fisheries may be limited below the lowest allowable exploitation identified by the coho ABM agreement. Allowable catch is determined according to the priorities set out in *An*

Allocation Policy for Pacific Salmon. Selective fishing practices are also taken into account when developing fishing opportunities.

7.4.3 Decision Guidelines

Management of salmon fisheries in southern BC will be shaped to accommodate the status level of coho within management units defined by the PST. Table 7-9 summarizes the general fishery management approaches by fishery sector associated with each status level (critically low, low, moderate and abundant).

Table 7-9: Southern BC coho mixed-stock fishery guidelines

Coho Abundance / Status Level (3 levels within PSC Coho ABM and 4 levels in domestic Canadian management)				
PSC STATUS	**LOW**		**MODERATE**	**ABUNDANT**
DOMESTIC	**Critically Low**	**Low**	**Moderate**	**Abundant**
First Nations FSC Fisheries	Non-directed fisheries and avoidance, very limited by-catches permitted.	Opportunities will range from incidental/by-catch to limited directed fisheries to regular FSC fisheries.	Opportunities move from incidental/by-catch to limited directed fisheries to regular FSC fisheries.	Regular FSC fisheries.
Recreational Fisheries	Severe restrictions in approach areas, non-retention and avoidance through time and area closures. SHMF may be considered.	A combination of SHMF and limited retention fisheries are possible, depending upon time and area under consideration.	Up to normal limits, marked and un-marked.	Normal limits.
Commercial - Net Fisheries	Severe restrictions including time and area closures, non-retention and avoidance. Selective fishing practices are required.	Generally non-retention and selective fishing practices. Potential for limited by-catch retention for gill nets depending on times/areas.	Generally non-retention and selective fishing practices. Potential for limited by-catch retention for gill nets depending on times/area.	Some non-retention and increased potential for by-catch retention for gill nets and seines.

Coho Abundance / Status Level (3 levels within PSC Coho ABM and 4 levels in domestic Canadian management)				
PSC STATUS	**LOW**		**MODERATE**	**ABUNDANT**
DOMESTIC	**Critically Low**	**Low**	**Moderate**	**Abundant**
Commercial - Troll Fisheries	Severe restrictions including time and area closures, non-retention and avoidance. Selective fishing practices are required.	Generally non-retention and selective fishing practices. Potential for limited by-catch retention depending on times/areas.	Limited by-catch retention possible. Potential for small target catch fisheries.	Targeted fisheries are likely.

Annex IV, Chapter 5 of the Pacific Salmon Treaty (PST), commonly referred to as the Coho Chapter, establishes the international management regime for southern BC and southern US origin coho based on the status of defined Management Units (MU) in each country. Each MU is to be managed using a series of decision rules which are based on the status of the MU, or groups of MUs in the case of the US. The three status levels are low, moderate and abundant and in the case of Canadian MU's like the Interior Fraser coho MU, the limits on US interceptions are expressed as exploitation rate limits (Table 7-10). Within the PST specified 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, which Canada has done, for example, by reducing its share of the total exploitation rate in low status from 10% to 2-3% for Interior Fraser Coho from 1998 to 2013.

Table 7-10: Pacific Salmon Treaty abundance-based exploitation rate limits on coho salmon stocks in fisheries harvesting southern BC coho

MU Status	US ER caps	Total Exploitation Rate
Low	10%	Up to 20%
Moderate	12%	>20 to 40%
Abundant	15%	>41 to 65%

Canadian fisheries have been managed to limit total fishing mortality through a range of management actions that limit encounters of wild coho in southern BC fisheries where Interior Fraser River coho are prevalent, that is, in waters south of Cape Caution.

Coho fishing mortality is estimated pre-season from predicted encounters, predicted fishing effort levels, a best estimate of the proportion of Interior Fraser River stocks within the total encounters, and an average release mortality rate. A post-season review is conducted to estimate Interior Fraser coho impacts based on data from the years fishery, such as observed fishing effort coho encounters.

7.4.4 Issues

Directed coho fisheries will be constrained when there is evidence of co-migrating stocks of concern. Table 7-11 summarizes management actions that will be taken to limit impacts on salmon stocks of concern encountered in coho fisheries.

Table 7-11: Management actions in coho fisheries to limit impacts on stocks of concern

Stock of Concern (constraint)	Stock Outlook for 2015	First Nation (FN) Fishery	Recreational Fishery	Commercial Fishery
Interior Fraser River coho	2015 Outlook is low. Returns are expected to be well below desired levels.	Time and area closures By-catch or incidental retention during fisheries for abundant species or stocks. Directed harvest may be permitted in specific areas or terminal systems where abundance permits based on in season assessment. Specific measures outlined in outlined in communal	Time and area closures Gear restrictions (i.e. barbless hooks) Constraints on coho by-catch Measures will vary by area and associated impacts on individual stocks. See Appendix 6 section 6.4.	No directed commercial coho fisheries (or coho retention) in areas where Interior Fraser River coho are prevalent. Significant restrictions on commercial fisheries directed at other salmon stocks in areas and times where Interior Fraser River coho are prevalent.

Stock of Concern (constraint)	Stock Outlook for 2015	First Nation (FN) Fishery	Recreational Fishery	Commercial Fishery
		licences		

The ABM approach will be to substantially reduce coho exploitation below historic levels, and may result in some terminal surpluses. Terminal selective fishery opportunities and by-catch retention may be considered in-season in locations in which coho surpluses are identified.

7.4.5 Prospects

For 2015, the status of southern BC stocks ranges from low to near target. Most adults returning in 2015 are from the 2012 brood year that smolted in 2014. Ocean indicators suggest conditions affecting early marine survival deteriorated in 2014. Therefore, a decline in abundance relative to recent years is expected in 2015.

In the 2015 Salmon Outlook, stocks in Johnstone Strait and the Strait of Georgia, and the West Coast of Vancouver Island are classified as *near target*.

Escapement estimates for 2014 for the Strait of Georgia are not complete resulting in high uncertainty. Preliminary surveys suggest strong returns to Cowichan and Black Creek but some others have less than expected abundance. Marine survival continues to be below the long term average suggesting that Strait of Georgia coho remain in a low productivity regime.

Lower Fraser

Escapements last fall were again marginally above those of the parental brood year. Parental brood escapements in 2012 were moderate. Sustained improvements in smolt to adult survival will be required to improve outlook further.

Interior Fraser Coho:

The 2014 escapement for Interior Fraser coho is currently estimated to be in the range of 15,000 to 20,000 fish. The 2015 Salmon Outlook classifies this stock as remaining in the *low* category and a 2014 CSAS paper determined that Interior Fraser coho remain in a low productivity (i.e. low coho survival rate) regime. The escapement in 2012 (brood year) for Interior Fraser coho was 54,000. The 2015 Marine Survival Forecast for Southern BC Coho provides a forecast range of 31,477 to 77,754 based on a 3 year average survival. However, caution is required as the forecast method does not incorporate environmental information; ocean condition indicators suggest the potential for low marine survival for those stocks that went to sea starting in 2014. The 2015 return will be the first returns for juvenile coho salmon that entered the ocean in 2014 and likely experienced anomalously warm ocean conditions.

7.5 Fraser River Sockeye Decision Guidelines

7.5.1 Background

Fraser River sockeye are managed based on four management groups (Early Stuart Run, Early Summer Run, Summer Run, and Late Run) however, as in past years, 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/Wild Salmon Policy process was initiated in 2006 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).

7.5.2 Constraints

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.

7.5.3 Decision Guidelines

Pre-season Planning

Prior to each fishing season, decisions are made about the spawning escapement plan, management priorities and identification of conservation constraints. These decisions are made based on pre-season forecasts of run size, timing, stock composition, other technical information and input from various consultative processes. Potential fishing opportunities are identified based on these pre-season guidelines and subsequently updated using in-season information.

2015 Pre-season Fraser River Sockeye Run Size Forecast, Proportional Management Adjustments and Escapement Strategy Options:

Run Size Forecast

Pre-season forecasts of run size at a range of probability levels are developed individually for all Fraser sockeye stocks, which are aggregated into the four management (run timing) groups. Fraser sockeye run size forecasts are highly uncertain, largely attributed to the wide variability in annual survival rates and the lack of indicators to predict this variation. Fraser sockeye survival for most stocks (most notable exceptions include Late Shuswap and Harrison) went through a period of decline that concluded in record low survivals in the 2009 return year, and has subsequently improved (2010 to 2014).

The 2015 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 2,364,000 to 23,580,000 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 6,778,000 (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 2015 (i.e. Chilko and Harrison), and to a much lesser extent Late Run and Early Summer Run stocks. (Table 7-12).

For further details, refer to the Canadian Science Advisory Secretariat (CSAS) Pacific Region Science Response: Pre-season run size forecasts for Fraser River Sockeye (*Onchorhynchus nerka)* and Pink (*O. gorbuscha*) salmon in 2015 (DFOa 2015)

To support the 2015 Fraser sockeye forecast, an additional CSAS Regional Peer Review (RPR) process occurred to summarize data on fish condition and/or survival from the 2011 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 2014 (DFOb, 2015).

For 2015, the Fraser Panel will be starting the season with the p50 forecast run sizes for all stocks except Early Stuart, which will use the p25 forecast. Run sizes for Fraser sockeye will be updated in-season.

Table 7-12: 2015 Pre-season sockeye return forecasts by stock and timing group (DFO, *in press*)

Run timing group	Mean Run Size		Probability that Return will be at/or Below Specified Run Size [a]				
Stocks	all cycles[c]	2015 cycle[c]	10%	25%	50%	75%	90%
Early Stuart	**303,000**	**162,000**	**8,000**	**16,000**	**30,000**	**58,000**	**108,000**
Early Summer	--	--	**236,000**	**424,000**	**837,000**	**1,603,000**	**2,963,000**
(total excluding miscellaneous)	**507,000**	**462,000**	**192,000**	**325,000**	**624,000**	**1,256,000**	**2,342,000**
Bowron	38,000	75,000	6,000	11,000	21,000	40,000	72,000
Fennell	24,000	30,000	10,000	16,000	27,000	47,000	78,000
*Gates	54,000	31,000	46,000	79,000	141,000	280,000	502,000
Nadina	75,000	81,000	8,000	15,000	31,000	65,000	126,000
Pitt	71,000	70,000	33,000	51,000	79,000	120,000	190,000
*Scotch	100,000	20,000	48,000	85,000	185,000	430,000	845,000
*Seymour	145,000	155,000	41,000	68,000	140,000	274,000	529,000
Misc (Early Shuswap) [d]	--	--	33,000	74,000	164,000	258,000	459,000
****Misc (Taseko) [e]			1,000	2,000	4,000	7,000	9,000
Misc (Chilliwack) [f]	--	--	4,000	9,000	18,000	33,000	61,000
Misc (Nahatlatch) [f]	--	--	6,000	14,000	27,000	49,000	92,000
Summer	--	--	**1,701,000**	**2,681,000**	**4,675,000**	**8,764,000**	**16,511,000**
(total excluding miscellaneous)	**3,866,000**	**2,524,000**	**1,693,000**	**2,666,000**	**4,648,000**	**8,710,000**	**16,406,000**
Chilko [g]	1,405,000	1,545,000	1,117,000	1,587,000	2,387,000	3,813,000	5,972,000
Late Stuart	544,000	81,000	12,000	25,000	54,000	118,000	245,000
Quesnel	1,324,000	151,000	108,000	197,000	367,000	684,000	1,421,000
Stellako	457,000	568,000	186,000	261,000	390,000	552,000	823,000
Raft [h]	31,000	20,000	15,000	23,000	36,000	56,000	87,000
***Harrison [h & j]	105,000	159,000	255,000	573,000	1,414,000	3,487,000	7,858,000
Misc (N. Thomp. Tribs) [h & k]	--	--	1,000	2,000	3,000	7,000	14,000
Misc (N. Thomp River) [h & k]	--	--	5,000	10,000	18,000	37,000	74,000
Misc (Widgeon) h & l	--	--	2,000	3,000	6,000	10,000	17,000
Late	--	--	**419,000**	**703,000**	**1,236,000**	**2,210,000**	**3,998,000**
(total exlcuding miscellaneous)	**3,169,000**	**2,061,000**	**400,000**	**671,000**	**1,176,000**	**2,103,000**	**3,809,000**
Cultus [g]	38,000	81,000	1,000	3,000	6,000	12,000	22,000
*Late Shuswap	2,379,000	1,357,000	168,000	293,000	517,000	924,000	1,758,000
*Portage	41,000	25,000	1,000	3,000	8,000	19,000	55,000
Weaver	346,000	222,000	110,000	189,000	346,000	635,000	1,095,000
[xx]Birkenhead	365,000	376,000	120,000	183,000	299,000	513,000	879,000
Misc non-Shuswap [m]	--	--	19,000	32,000	60,000	107,000	189,000
TOTAL SOCKEYE SALMON	--	--	**2,364,000**	**3,824,000**	**6,778,000**	**12,635,000**	**23,580,000**
(TOTAL excluding miscellaneo	**7,845,000**	**5,209,000**	**2,293,000**	**3,678,000**	**6,478,000**	**12,127,000**	**22,665,000**

a. Probability that return will be at, or below, specified projection
b. Forecast model used for stock
c. Sockeye average run size from 1953-2010 (depending on the start of the time series), either across all cycles (column F) or on the 2015 cycle only (column G)
d. Misellaneous Early Shuswap uses Scotch and Seymour R/EFS in forecast
e. Miscellaneous Taseko uses Chilko R/EFS in forecast
f. Miscellaneous Chilliwack and Nahatlach use Early Summer Run stocks R/EFS in forecast
g. Chilko and Cultus smolt data are presented in column C & D (rather than EFS data that is presented for all other stocks)
h. Raft, Harrison, North Thompson Tributaries and River, and Widgeon were moved into the Summer Run Timing group
j. Harrison EFS for four year olds returning in 2015 (2011 brood year) are in column C and three year olds (2012 brood year) are in column D
k. Miscellaneous North Thompson Tributaries and River use Raft and Fennell R/EFS in forecast
l. Miscellaneous Widgeon use Birkenhead R/EFS in forecast
m. Miscellaneouse non-Shuswap stocks (includes Big Silver, Cogburn, etc.) use Birkenhead R/EFS in forecast

* Stocks with uncertain five year old forecasts due to exceptional EFS in 2010; note: Gates had exceptional escapement in 2011
** Birkenhead was the only stock that returned at abundances associated with well below average survival, therefore, five year old forecasts were generated with sibling models
***Harrison forecasts are extremely uncertain due to exceptionall large 2011 brood year EFS
****Taseko forecasts are additionally uncertain since escapement abundance estimates are indices of abundance only

Definitions: Ei (Entrance Island sea-surface temperature); PDO (Pacific Decadal Oscillation); Pi (Pine Island spring sea-surface temperature); R/S (Recruits per Spawner); MRS or MRJ (Product of average survival from entire time series and brood year Effective Female Spawners or juvenile/smolt); RS1 (Product of average survival from 4 years previous and Effective Female Spawners (or juvenile/smolt)

Table 7-12b. Age composition of forecasted returns for each stock at the 50% probability level

Sockeye stock/timing group	2014 Fraser Sockeye Forecasts				
	FOUR YEAR OLDS 50%[a]	FIVE YEAR OLDS 50%[a]	TOTAL 50%[a]	Four Year Old Proportion	Five Year Old Proportion
Early Stuart	**1,000**	**29,000**	**30,000**	**5%**	**95%**
Early Summer	**547,000**	**290,000**	**837,000**	**65%**	**35%**
Bowron	13,000	8,000	21,000	65%	**35%**
Fennell	22,000	5,000	27,000	81%	**19%**
Gates	128,000	13,000	141,000	90%	10%
Nadina	7,000	24,000	31,000	22%	78%
Pitt	29,000	50,000	79,000	37%	**63%**
Scotch	152,000	33,000	185,000	82%	**18%**
Seymour	96,000	44,000	140,000	69%	**31%**
Misc (EShu)	61,000	103,000	164,000	37%	**63%**
Misc (Taseko)	3,000	1,000	4,000	75%	**25%**
Misc (Chilliwack)	15,000	3,000	18,000	83%	**17%**
Misc (Nahatlatch)	21,000	6,000	27,000	78%	**22%**
Summer	**3,810,000**	**865,000**	**4,675,000**	**81%**	**19%**
Chilko	2,122,000	265,000	2,387,000	89%	**11%**
Late Stuart	26,000	28,000	54,000	48%	**52%**
Quesnel	160,000	207,000	367,000	44%	**56%**
Stellako	186,000	204,000	390,000	48%	**52%**
Raft	26,000	10,000	36,000	72%	**28%**
Harrison[b]	1,273,000	141,000	1,414,000	90%	**10%**
Misc (N. Thomp. Tribs)	2,000	1,000	3,000	67%	**33%**
Misc (N. Thomp River)	11,000	7,000	18,000	61%	**39%**
Widgeon	4,000	2,000	6,000	67%	**33%**
Late	**910,000**	**326,000**	**1,236,000**	**74%**	**26%**
Cultus	6,000	0	6,000	100%	**0%**
Late Shuswap	350,000	167,000	517,000	68%	**32%**
Portage	5,000	3,000	8,000	63%	**38%**
Weaver	274,000	72,000	346,000	79%	**21%**
Birkenhead	236,000	63,000	299,000	79%	**21%**
Misc. non-Shuswap	39,000	21,000	60,000	65%	**35%**
Total	**5,268,000**	**1,510,000**	**6,778,000**	**78%**	**22%**

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

Proportional Management Adjustments

The proportional management adjustment (pMA) assists in the achievement of escapement goals. Proportional management adjustment equivalents (management adjustments) are added to the escapement goal when necessary to account for historic differences between Mission hydro-acoustic estimates of fish passage (plus catch upstream of the hydroacoustics site) and spawning ground escapement estimates (i.e., sometimes more fish are needed to be estimated to have passed by Mission than the escapement goal in order to achieve the escapement goal). Differences between estimates occur for many reasons, including measurement errors at Mission, on the spawning grounds, and of catches along the way, en-route losses due to migration difficulties, and unaccounted for removals (e.g., predation).

The pMA for each management group is 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 counted at Mission (in the lower Fraser River) and the spawning grounds. The pMAs for all run timing groups will likely change in-season with updated information on environmental conditions and migration timing. The pre-season pMA and method for determining pMA for Late Run in 2015 has yet to be decided. The pre-season pMA values for all management groups will continue to be reviewed and updated by the Fraser Panel prior to the start of the fishing season. The "MA" (management adjustment) values used in the tables are the escapement goals multiplied by the pMA and represent the number of fish in addition to the escapement goal and projected catch upstream of Mission that are required to pass Mission to improve the likelihood of reaching the escapement goal.

The proportional management adjustments (pMAs) shown below are the final pre-season values adopted by the Fraser Panel.

- Early Stuart – is the median of the long term pMA dataset to 2014.
- Early Summer – is the median of pMA dataset from 1999 to 2014 (most recent four cycles), weighted by a separate pMA for Pitt.
- Summer – is the median of the long term pMA dataset to 2014, weighted by a separate pMA for Harrison.
- Lates – is the median of the pMA dataset on the odd year cycle lines since early upstream timing began in 1996, weighted by a separate pMA for Birkenhead.

2015 Escapement Strategy

The Fraser River Sockeye Spawning Initiative (FRSSI) was undertaken to develop escapement strategies for Fraser River sockeye.

Fisheries reference points are based on harvest rules (also called Total Allowable Mortality – TAM- rules) that 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.

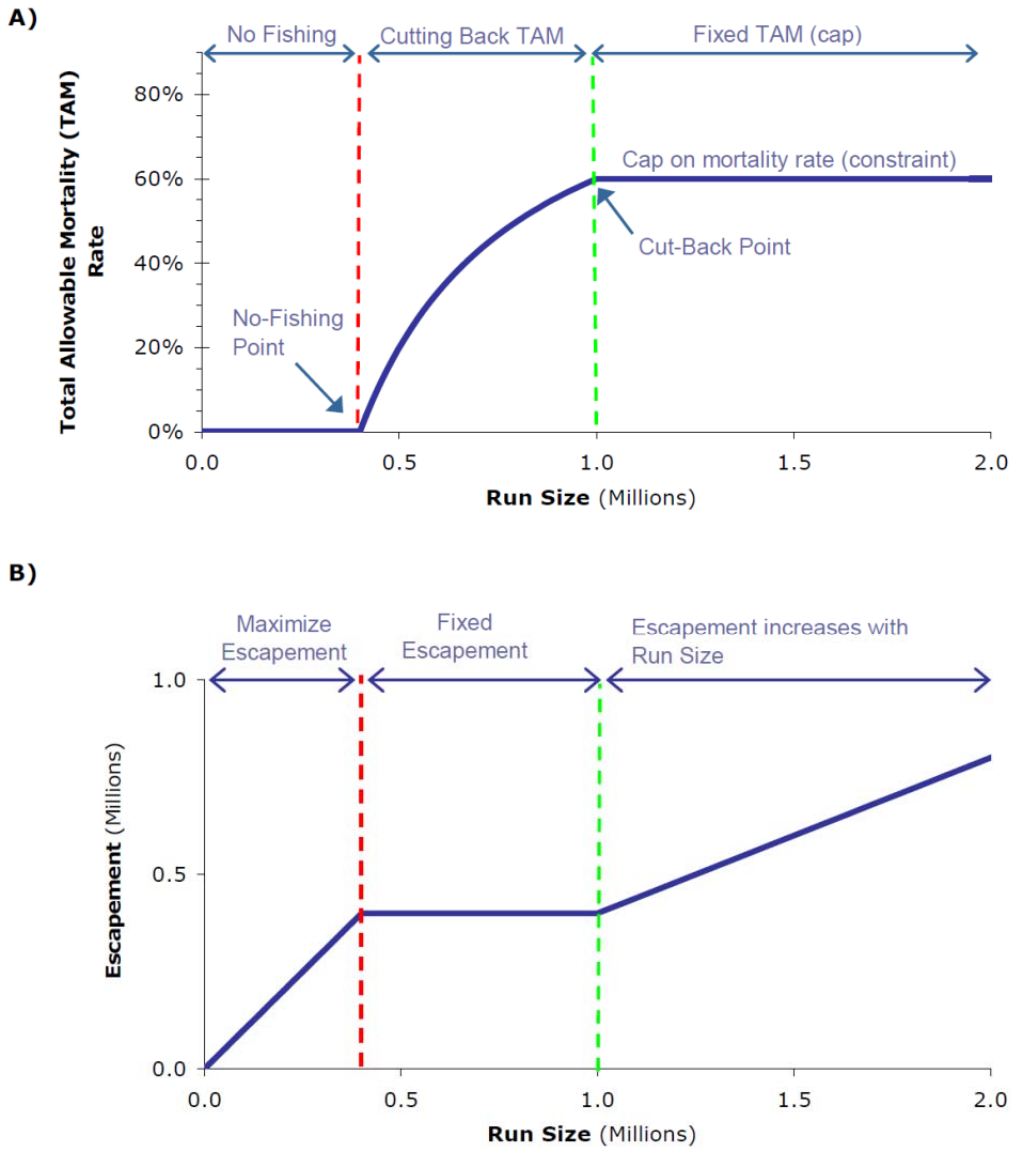


Figure 19: Shape of Total Allowable Mortality (TAM) rule.
Note: Optional floors on exploitation rate (e.g. 2%) are applied after the TAM rule, and are not shown on this figure.

It is important to note that each harvest rule is characterized by Lower Fishery Reference Points (red dashed line) and Upper Fishery Reference Points (green dashed line) 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 escapement plan, and once finalized, do not change in-season. During the fishing season, in-season estimates of run size and management adjustments are used in conjunction with the escapement plan to determine allowable harvest for a given management group at a given time.

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 escapement target is the inverse of the TAM cap (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 2014 the LAER for Early Stuart, Early Summer, and Summer Run timing groups was 10% and 20-30% for Late Run and Cultus Lake sockeye (see "incidental harvest" section for more details).

Table 7-14 show the escapement plan for 2015 for all four management groups. The fishery reference points shown in this table 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 7-12). Since 2014, Harrison and Widgeon have been treated as Summer run "miscellaneous" stocks with respect to scaling up the fishery reference points, due to the greater uncertainty associated with the Harrison forecast.

Table 7-15 shows at the management group level the range of expected outcomes (e.g., exploitation rates, available harvest, and expected numbers of spawners to the grounds) of the escapement plan for the range of the abundance forecast, fisheries reference points and pMAs shown in Table 7-14. 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 7-13 provides an example of descriptions of the information presented in Table 7-15.

Table 7-13 – Description example of information shown in Table 7-15.

From Escapement Options Table		Description
	p10	run size forecast probability level being used for calculations in this column
forecast	132,000	forecast associated with p-level (above) and this management group
TAM Rule (%)	18%	total allowable mortality (TAM) at this run size forecast
Escapement Goal	108,000	escapement goal at this run size
MA	72,400	management adjustment (= pMA x escapement target)
Esc. Goal + MA	180,400	adds up previous two rows
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	13,200	harvest available for test fish, US & Canada (= allowable ER * run size)
2014 Performance		IF run size, MA, and ER are all as described as above, the projected outcomes:
Projected S (after MA)	71,000	total number of spawners to the grounds (NOT accounting for pre-spawn mortality (PSM))
BY Spawners	60,300	number of spawners four year previous (compare to line above)
Proj. S as % BY S	118%	projected spawners as a percentage of brood year spawners
cycle avg S	36,500	average number of spawners to the grounds on this cycle line (NOT accounting for PSM)
Proj. S as % cycle S	195%	projected spawners as a percentage of the cycle year average spawners

Note: example shown is the p10 for Early Stuart (which is the same in both Options)

Abbreviations:

TAM - total allowable mortality

MA - management adjustment

esc. goal - escapement goal

LAER - low abundance expoloitation rate

ER - exploitation rate

S - spawners

BY - brood year

avg - average

Table 7-16 shows the projected escapement for each forecasted stock over the range of forecast probability levels (i.e., the "projected S (after MA)" from Table 7-15 is distributed to the component stocks. Note that this makes the additional assumption that the exploitation rate will be distributed evenly within a management group).

Table 7-14. 2015 Fraser sockeye Escapement Plan.

	Harvest Rule Parameters				
Management Unit	Low Abundance ER (LAER)	TAM Cap	Lower Fishery Reference Point	Upper Fishery Reference Point	Pre-season pMA
Early Stuart	10%	60%	108,000	270,000	0.68
Early Summer (w/o misc)	10%	60%	100,000	250,000	0.64
Summer (w/o misc)	10%	65%	1,000,000	2,857,000	0.17
Late (w/o misc)	20-30%	60%	300,000	750,000	0.95

Table 7-15. 2015 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 7-13. The bolded columns represent the pre-season planning values being used to start the season in 2015.

Management		Pre-season Forecast Return				
Unit		p10	**p25**	p50	p75	p90
Early Stuart	forecast	8,000	**16,000**	30,000	58,000	108,000
	TAM Rule (%)	0%	**0%**	0%	0%	0%
	Escapement Target	8,000	**16,000**	30,000	58,000	108,000
	MA	5,400	**10,900**	20,400	39,400	73,400
	Esc. Target + MA	13,400	**26,900**	50,400	97,400	181,400
	LAER	10%	**10%**	10%	10%	10%
	ER at Return	0%	**0%**	0%	0%	0%
	Allowable ER	10%	**10%**	10%	10%	10%
	available harvest	800	**1,600**	3,000	5,800	10,800
	2015 Performance					
	Projected S (after MA)	4,000	**9,000**	16,000	31,000	58,000
	BY Spawners	1,000	**1,000**	1,000	1,000	1,000
	Proj. S as % BY S	400%	**900%**	1600%	3100%	5800%
	cycle avg S	51,000	**51,000**	51,000	51,000	51,000
	Proj. S as % cycle S	8%	**18%**	31%	61%	114%

Management		Pre-season Forecast Return				
Unit		p10	p25	**p50**	p75	p90
Early Summer	*lower ref. pt. (w misc)*	134,000	134,000	**134,000**	134,000	134,000
(w/o RNT)	*upper ref. pt. (w misc)*	335,000	335,000	**335,000**	335,000	335,000
	forecast (incl. misc)	236,000	424,000	**837,000**	1,603,000	2,963,000
	TAM Rule (%)	43%	60%	**60%**	60%	60%
	Escapement Target	134,000	169,600	**334,800**	641,200	1,185,200
	MA	85,800	108,500	**214,300**	410,400	758,500
	Esc. Target + MA	219,800	278,100	**549,100**	1,051,600	1,943,700
	LAER	10%	10%	**10%**	10%	10%
	ER at Return	7%	34%	**34%**	34%	34%
	Allowable ER	10%	34%	**34%**	34%	34%
	available harvest	23,600	145,900	**287,900**	551,400	1,019,300
	2015 Performance					
	Projected S (after MA)	130,000	170,000	**335,000**	641,000	1,185,000
	BY Spawners	219,000	219,000	**219,000**	219,000	219,000
	Proj. S as % BY S	59%	78%	**153%**	293%	541%
	cycle avg S	150,000	150,000	**150,000**	150,000	150,000
	Proj. S as % cycle S	87%	113%	**223%**	427%	790%

Management		Pre-season Forecast Return				
Unit		p10	p25	**p50**	p75	p90
Summer	*lower ref. pt. (w misc)*	1,448,000	1,448,000	**1,448,000**	1,448,000	1,448,000
(w. RNT & Har)	*upper ref. pt. (w misc)*	4,138,000	4,138,000	**4,138,000**	4,138,000	4,138,000
	forecast	1,701,000	2,681,000	**4,675,000**	8,764,000	16,511,000
	TAM Rule (%)	15%	46%	**65%**	65%	65%
	Escapement Target	1,448,000	1,448,000	**1,636,250**	3,067,400	5,778,850
	MA	246,200	246,200	**278,200**	521,500	982,400
	Esc. Target + MA	1,694,200	1,694,200	**1,914,450**	3,588,900	6,761,250
	LAER	10%	10%	**10%**	10%	10%
	ER at Return	0%	37%	**59%**	59%	59%
	Allowable ER	10%	37%	**59%**	59%	59%
	available harvest	170,100	986,800	**2,760,550**	5,175,100	9,749,750
	2015 Performance					
	Projected S (after MA)	1,308,000	1,448,000	**1,636,000**	3,067,000	5,779,000
	BY Spawners	1,866,000	1,866,000	**1,866,000**	1,866,000	1,866,000
	Proj. S as % BY S	70%	78%	**88%**	164%	310%
	cycle avg S	778,000	778,000	**778,000**	778,000	778,000
	Proj. S as % cycle S	168%	186%	**210%**	394%	743%

Management		Pre-season Forecast Return				
Unit		p10	p25	**p50**	p75	p90
Late	*lower ref. pt. (w misc)*	315,000	315,000	**315,000**	315,000	315,000
(w/o Har)	*upper ref. pt. (w misc)*	788,000	788,000	**788,000**	788,000	788,000
	forecast	419,000	703,000	**1,236,000**	2,210,000	3,998,000
	TAM Rule (%)	25%	55%	**60%**	60%	60%
	Escapement Target	315,000	315,000	**494,400**	884,000	1,599,200
	MA	300,300	300,300	**471,400**	842,800	1,524,700
	Esc. Target + MA	615,300	615,300	**965,800**	1,726,800	3,123,900
	LAER	20%	20%	**20%**	30%	30%
	ER at Return	0%	12%	**22%**	22%	22%
	Allowable ER	20%	20%	**22%**	30%	30%
	available harvest	83,800	140,600	**270,200**	663,000	1,199,400
	2015 Performance					
	Projected S (after MA)	172,000	288,000	**494,000**	792,000	1,433,000
	BY Spawners	494,000	494,000	**494,000**	494,000	494,000
	Proj. S as % BY S	35%	58%	**100%**	160%	290%
	cycle avg S	519,000	519,000	**519,000**	519,000	519,000
	Proj. S as % cycle S	33%	55%	**95%**	153%	276%

Available Harvest (TF, US, CDN)	278,300	1,274,900	**3,321,650**	6,395,300	11,979,250
Total projected spawners	1,614,000	1,915,000	**2,481,000**	4,531,000	8,455,000
total escapement goal	1,905,000	1,948,600	**2,495,450**	4,650,600	8,671,250

Table 7-16. Projected spawners by forecasted stock over the forecast range, applying TAM rules and pMAs shown in Table 7-14.

Run timing group	Total Escapement		Projected esc. across range of run size forecasts at specified TAM + M				
Stocks	cycle yr	brood year	10%	25%	50%	75%	90%
Early Stuart	**51,000**	**1,000**	**4,000**	**9,000**	**16,000**	**31,000**	**58,000**
Early Summer			130,000	170,000	335,000	641,000	1,185,000
(total excluding miscellaneous	**133,000**	**186,000**	**105,800**	**130,300**	**249,700**	**502,200**	**936,600**
Bowron	18,000	4,000	3,300	4,400	8,400	16,000	28,800
Fennell (cycle avg since 1959)	8,000	10,000	1,000,000	6,400	10,800	18,800	31,200
Gates	8,000	56,000	25,300	31,700	56,400	112,000	200,800
Nadina	20,000	10,000		6,000	12,400	26,000	50,400
Pitt	28,000	56,000	18,200	20,400	31,600	48,000	76,000
Scotch (cycle avg since 1983)	10,000	34,000	26,500	34,100	74,000	171,900	337,900
Seymour	41,000	16,000	22,600	27,300	56,000	109,600	211,600
Misc (EShu & Taseko)							
Misc (Chilliwack)							
Misc (Nahatlatch)							
Summer			1,308,000	1,448,000	1,636,000	3,067,000	5,779,000
(tl excl. NThmisc, incl. Har)	**778,000**	**1,866,000**	**1,301,800**	**1,439,900**	**1,626,600**	**3,048,100**	**5,742,200**
Chilko g	501,000	917,000	858,900	857,100	835,300	1,334,400	2,090,200
Late Stuart	20,000	4,000	9,200	13,500	18,900	41,300	85,800
Quesnel	58,000	45,000	83,000	106,400	128,400	239,400	497,400
Stellako	119,000	85,000	143,000	141,000	136,500	193,200	288,100
Raft h	5,000	9,000	11,500	12,400	12,600	19,600	30,500
Harrison	75,000	806,000	196,100	309,500	494,800	1,220,300	2,750,300
Misc (N. Thomp. Tribs)							
Misc (N. Thomp River)							
Late			172,000	288,000	494,000	792,000	1,433,000
(total excluding miscellaneo	**515,000**	**481,000**	**164,200**	**274,900**	**470,000**	**753,700**	**1,365,300**
Cultus (high hatchery contribu	19,000	7,000	400	1,200	2,400	4,300	7,900
Late Shuswap	357,000	166,000	69,000	120,000	206,600	331,200	630,100
Portage	4,000	2,000	400	1,200	3,200	6,800	19,700
Weaver	35,000	73,000	45,200	77,400	138,300	227,600	392,500
Birkenhead	100,000	233,000	49,300	75,000	119,500	183,900	315,100

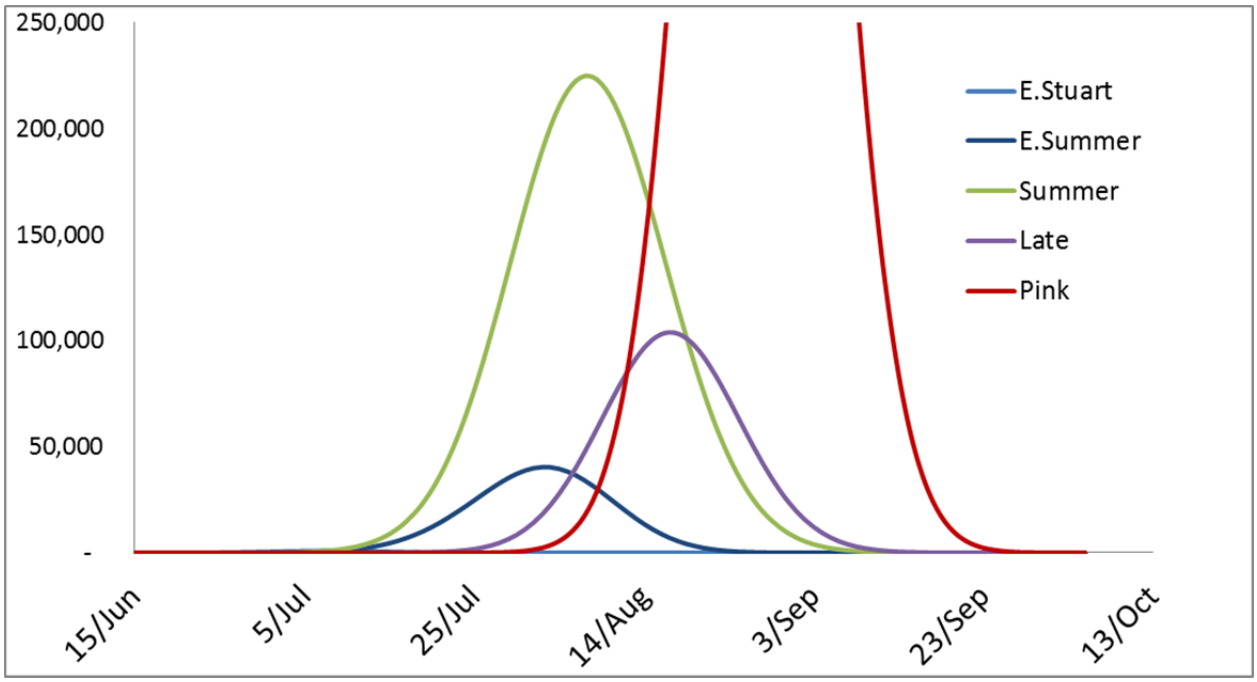
Fraser Sockeye Run Timing Groups: The four stock groups identified under the Pacific Salmon Treaty Annex generally contain stocks with similar timing in the marine area. A preliminary analysis of the Raft River, North Thompson, and Harrison stocks run timing supports the decision made for the 2012 season to include these stocks in the Summer Run management group (based on similar run timings). The 2015 Fraser sockeye escapement plan reflects this continued re-alignment of stocks. The harvest rules have been adjusted to account for this change.

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 70-90% 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).

Run Timing: 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. The preliminary run timing estimates shown in the figure below are based on cycle line medians and may be updated for pre-season planning.

Figure 7-1: Pre-season Run Timing Curves for 2015 Fraser Sockeye and Pink Salmon



7.5.3.1 In-season Decisions

Run Size Estimation and TAC calculations: In-season run size estimates based on information from test fishing operations, catches during fishery openings and hydro-acoustic estimates of in-river abundance will be provided by the Pacific Salmon Commission staff to the Fraser River Panel for consideration.

The Fraser River Panel will meet regularly from early July to late September to review information as it becomes available over the course of the sockeye and pink migrations. Estimates of run size, timing, and pMAs for sockeye will be regularly updated through the Fraser River Panel process. In-season sockeye run size estimates are then used to set spawning escapement objectives, management adjustments, and calculate available TAC to determine

opportunities for fishery openings. The availability of the TAC to harvesters will also be affected by the ability of harvesters to access this TAC and other factors, including in-river migration conditions and conservation requirements for co-migrating stocks or species.

Information on in-season run size estimates and management actions, such as openings and closures, as well as other important information for commercial, recreational and First Nations fisheries are posted on the Internet regularly throughout the fishing season by the Department and the PSC at the following web sites:

Weekly PSC News Release: http://www.psc.org/news_frpnews.htm

Aboriginal, Commercial and Recreational Fishery Notices: http://www-ops2.pac.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?

7.5.4 Issues

7.5.4.1 Early Stuart Management

The 2015 Early Stuart return represents an off cycle following the 2014 subdominant cycle year. The 2011 brood year escapement of 200 effective female spawners (EFS) was the lowest escapement on record for this stock (since 1948) and is expected to contribute very little to the 2015 return. The main contributor to the 2015 return is forecasted to be five year old fish from the 2010 brood year (approximately 95% 5 year olds). In contrast to 2011, the 2010 brood year effective female spawners for Early Stuart sockeye was 34,200, the second largest on record for that cycle.

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 between the p10 to p90 forecasted return levels of the escapement plan. The Fraser Panel has agreed to use the p25 run size forecast level for Early Stuart sockeye to begin the season.

In recent years, window closures and other fishing restrictions have been required in commercial, recreational and First Nations fisheries to stay within LAER objectives indicated by the escapement plan. These measures are expected to be required in 2015 which will likely 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 7-17 are provided for planning purposes to protect Early Stuart sockeye. In the table below the closure is extended by one week to provide protection to early-timed stocks (e.g. Bowron and Nadina) of the Early Summer Run management group which are also forecast to be returning at very low levels in 2015. These dates may be revised based on in-season information.

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 and in-river gill net test fisheries.

Table 7-17: Potential Early Stuart and early-timed Early Summer Run Closure Dates.

Area	Actual Dates Start (date, time)		End (date, time)		Management Action
Area 127	Open July 22, 7days/wk				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 22 (Sn, Gn, Tr)
Area 11	Open July 22, 7days/wk				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 22 (Gn, Tr); July 25 (Sn)[1]
Area 12	Open July 22, 7days/wk				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 22 (Gn, Tr); July 25 (Sn)[1]
Area 13	Open July 22, 7days/wk				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 22 (Gn, Tr); July 25 (Sn)[1]
Area 20	Open July 22, 7days/wk				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 22 (Sn, Gn, Tr)
Areas 18 & 29	28-Jun	midnight	29-Jul	noon	Earliest potential opening to FNs FSC fishing for Fraser sockeye = July 29, noon
Steveston-Port Mann Br	28-Jun	midnight	29-Jul	noon	Potential for FNs FSC Chinook directed fisheries. Earliest potential communal opening to fishing for Fraser sockeye = July 29, noon.
Port Mann Br-Sawmill Cr	29-Jun	midnight	31-Jul	noon	Potential for FNs FSC Chinook directed fisheries. Earliest potential communal opening to fishing for Fraser sockeye = July 31, noon.
Sawmill Cr-Texas Cr	03-Jul	6pm	01-Aug	6pm	FNs FSC: Open to selective fishing for Chinook (dip net, rod and reel and potential 8 inch mesh Gn).
Texas Cr-Kelly Cr	03-Jul	6pm	01-Aug	6pm	
Kelly Cr-Deadman	03-Jul	6pm	01-Aug	6pm	
Deadman-Chilcotin	08-Jul	6pm	07-Aug	6pm	FNs FSC: Open to selective fishing for chinook and open in tribs for sox and chinook.
Chilcotin-Quesnel	08-Jul	6pm	07-Aug	6pm	
Quesnel-Hixon	08-Jul	6pm	07-Aug	6pm	
Hixon-Prince George	12-Jul	6pm	10-Aug	6pm	FNs FSC: Open to selective fishing for chinook (dip net and 8 inch mesh Gn) and open in tribs for sox and chinook.
Prince George-Stuart R	12-Jul	6pm	10-Aug	6pm	FNs FSC: Some allowable harvest in terminal area.

[1] Gear restrictions remain in place to protect Sakinaw sockeye until July 25, 2015.

7.5.4.2 Early Summer Management

Forecast returns for stocks within this management group are variable with below average returns predicted for some of the early-timed groups (e.g. Bowron and Nadina) and above average returns for some of the later timed groups (e.g. Scotch). The Early Stuart sockeye window closure dates in Table 7-17 include additional time (i.e. 1 week) to provide protection to the early-timed stocks.

Based on the pre-season forecast and long term median management adjustment values, directed harvest opportunities on Early Summers are expected throughout the forecast range (p10 to p90) in 2015 as presented in the escapement plan. Fisheries are expected to be directed at Early Summer Run sockeye; however the majority of the harvest may occur while trying to harvest the more abundant Summer Run stocks.

7.5.4.3 Summer Run Management

The Summer Run sockeye make up approximately 70% of the total return at the median forecast. Directed harvest on Summer Run stocks is expected in 2015 throughout the forecast range (p10-p90). It is expected that while fisheries will be directed on the Summer Run timing group, harvest may be limited by constraints on co-migrating groups (Early Summer and Late Run sockeye) and stocks of concern such as Cultus Lake sockeye.

7.5.4.4 Late Run and Cultus Lake Sockeye Management

Late Run sockeye

The Late Run return in 2015 represents the subdominant cycle line and is expected to be below the cycle line average at the midpoint of the forecast distribution. The Late Run sockeye make up approximately 20% 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 en-route and/or pre-spawn mortality in these instances. In 2009-2011, the Late Run delay off the river mouth had increased to approximately two weeks. However, in 2012 and 2013, there was little to no delay, and in 2014 Late run sockeye delayed approximately three weeks. 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 2015 will need to take into account assumptions of delay for this group.

Based on the pre-season forecast and relative abundance compared to Summer Run sockeye and pink salmon, directed harvest opportunities on Late Run sockeye are not expected throughout the forecast range (p10 to p90) in 2015. Based on the escapement plan, Late Run sockeye remain in a LAER situation for most of the forecast range. It is expected that Late Run sockeye will mainly be harvested in fisheries directed on the Early Summer, Summer Run sockeye and Pink salmon, 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 5.1.6.

Due to the low numbers of Cultus Lake sockeye compared to the 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, exploitation and en-route mortality rate for similarly timed Late Run stocks caught seaward of the confluence of the Fraser and the 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 take the form of the Late run management adjustment which may be updated in-season. Preliminary pre-season assessments of the allowable exploitation rate for Cultus shown in Table 7-18 are sensitive to assumptions about en-route and pre-spawn mortality.

For planning purposes, Table 7-18 provides a range of maximum exploitation rates that would be consistent with minimum recovery objectives (refer to Section 5.1.6) to continue growth of the Cultus population given assumptions of a pre-spawn mortality rate, abundance and late run management adjustment. The average estimated pre-spawn mortality (PSM) since early upstream migration of Late Run began in 1996 was used (approximately 40%). 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 7-18. A range of maximum exploitation rates for Cultus Sockeye that would be consistent with minimum recovery objectives described in section 5.1.6 based on the escapement plan, a range of pre-season run sizes and management adjustments to account for enroute losses. These exploitation rate calculations assume the average pre-spawn mortality rate since 1996 of approximately 40%.

	run size		
pMA	*p25*	*p50*	*p75*
0.80	20%	28%	30%
0.85	20%	26%	30%
0.90	20%	24%	30%
0.95	**20%**	**22%**	**30%**

7.5.5 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 for 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 amounts specified for harvest may take into account available information and associated uncertainties on a range of factors including: stock-specific run size, projected spawner abundances, productive capacity of the system, stock composition in 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. See Section 6.10 for general information on ESSR fisheries.

7.6 Barkley Sound Sockeye Decision Guidelines

7.6.1 Background

The Barkley Sound stock group is composed of sockeye returning to the Somass River (Sproat and Great Central Lake) and Henderson Lake. Return timing is from May to October; the main fishing period typically occurs from mid-June to early August. Harvest occurs by First Nations and the recreational and commercial sectors (Area D gill net, Area B seine). Representatives from each of these groups form the Area 23 Harvest Committee. The fishery is terminal, with no directed fisheries outside Area 23 (Alberni Inlet/Barkley Sound). With the exception of Maa-nulth Treaty and Harvest Agreement fisheries, Henderson sockeye are not directly targeted, although there is some interception of these fish by other sectors.

The Area 23 Harvest Committee assists in the development of management plans and in-season management of the various fisheries. The Area 23 Sockeye Fishery Management Plan details the management framework for these fisheries.

The Somass harvest strategy was revised in 2012 by the Area 23 Harvest Committee. Revisions were made to implement reference points consistent with the Wild Salmon Policy, to incorporate Maa-nulth Treaty, Maa-nulth Harvest Agreement and Tsu-mass Economic Opportunity Fishery allocations, and to meet broader fishery objectives by revising access arrangements.

The Area 23 Harvest Committee formed a smaller focus group to develop the Somass sockeye and chinook local Integrated Fishery Management Plan. The intent of the Plan is to describe in detail each of the fisheries, a new management table with new harvest rates and principles/guidelines for each of the fisheries.

7.6.2 Constraints/Objectives

- Achieve the escapement target (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 (e.g. 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 with changes in fish behaviour / migration caused by environmental conditions through the Area 23 Harvest Committee in-season decision-making process
- The department is refining the share based fishery approach

7.6.3 Decision Guidelines

Fishery reference points used to manage the fishery, including exploitation rate, escapement targets and total allowable catch, are shown in Table 7-19.

In addition, the fishery was delineated into three periods. For early-season fisheries (May/June), a standardized fishing regime has been developed for each sector. The standardized fishing regimes are designed to standardize effort (or daily limits, fishing areas and/or opening date in the case of the recreational fishery) to levels that will result in the appropriate harvest rate for management zone determined by the pre-season forecast and maximize the information for in-season reforecasting.

For mid-season fisheries (July), weekly harvest plans are developed based on the run size estimation and remaining TAC for each sector (i.e. a weekly harvest rate/TAC is determined and allocated).

Late-season fisheries (August) may operate as “clean-up” fisheries. In this period, harvesters agree that fisheries should be managed to ensure available TAC is caught.

The Somass TAC may be adjusted downwards in the event one population is significantly less abundant than the other or if environmental conditions indicate the potential for significant pre-spawn mortality.

Table 7-19: Management zones for Somass sockeye (Great Central and Sproat Lake populations)

MANAGEMENT ZONE	RUN SIZE	REFERENCE POINT	ESCAPEMENT TARGET RANGE	EXPLOITATION RATE RANGE	TOTAL ALLOWABLE CATCH
1 - Critical	**Less than 170,000**		170,000	0	0
2 - Very Low	**200,000 to 350,000**	low end	170,000	15%	30,000
		high end	262,500	25%	82,501
3 - Low	**350,000 to 500,000**	low end	262,500	25%	82,501
		high end	325,000	35%	170,001
4 - Moderate	**500,000 to 700,000**	low end	325,000	35%	170,001
		high end	350,000	50%	340,000
5 - High	**700,000 to 1,000,000**	low end	350,000	50%	340,000
		high end	400,000	60%	590,000
6 - Abundant	**1,000,000 to 1,800,000**	low end	400,000	60%	590,000
		high end	540,000	70%	1,245,000

7.6.4 In-season Decisions

In Late May or early June the Area 23 Harvest Committee meets weekly each Thursday during the fishing season. At these meetings they develop weekly fishing plans based on available stock assessment information and revised run-size estimates.

The DFO-First Nation Joint Management Enforcement Committee (JMEC) meets weekly, beginning early June, to review First Nation harvest plans, enforcement issues and any protocol arrangements for shared harvest among First Nations.

The Maa-nulth-DFO Joint Fisheries Technical Committee meets each month to review Maa-nulth fishery issues.

7.6.5 Issues

The ability to provide stable funding for stewardship activities such as; maintaining existing lake fertilization programs. The harvest committee in agreement with the commercial sector has designated 10,000 sockeye to be caught jointly by the commercial sectors with the proceeds going toward local stewardship and enhancement initiatives.

In-season harvest planning is complicated by environmental conditions that impact migration timing and behavior of the fish.

In 2014 the gill net and seine fisheries targeting Somass sockeye exerted a much higher than expected harvest rate on Henderson sockeye. In-season adjustments to reduce impacts to Henderson sockeye may be necessary in 2015 if similar circumstances are identified.

Ensuring the Somass River water use plan (e.g. dam management, mitigation activities) meets the needs of fish/fisheries.

The involvement of the Area B seine fleet in the Alberni Inlet sockeye fishery is dependent on the Area B Seine Harvest Committee developing and implementing a fishing plan that limits the harvests of sockeye to weekly target allocations. In cooperation with DFO Resource Management staff the Area B Harvest Committee actively manages the weekly fishing plan. Without the effort controls provided by this management program there would be no opportunity for Area B seines to participate in this fishery. As a result, Area B vessels must be designated by their representative body, the Area B Harvest Committee, to participate in this fishery. If undesignated seine vessels attend or attempt to participate in this fishery, the department will not open the fishery.

7.6.6 Prospects

For 2015, the recommended management forecast for Somass sockeye is the **"high zone"** for harvest management, corresponding to an expected return of between **700,000 to 1,000,000 adult fish**. The forecast used in season to develop fishing plans is 900,000. Some of the forecasts models suggest the potential for a higher return; however, there is considerable uncertainty in these forecasts given the abundance is driven by only one brood year (i.e. returns of 4-year old fish from the 2011 brood).

The recommended management outlook for Henderson sockeye is the **"moderate zone"** for harvest management, corresponding to an expected return of between **25,000 and 45,000 adult fish**.

7.7 Okanagan Sockeye Decision Guidelines

7.7.1 Background

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.

7.7.2 Decision Guidelines

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.

7.7.3 Prospects

The preliminary forecast for Okanagan River sockeye for 2015 is estimated at 176,000 age four sockeye based on Osoyoos Lake smolt abundance data. 2015 returns will likely be lower than 2014 but should still be sufficient to achieve the Canadian escapement objective of 60,000 at Wells Dam as well as provide for some Canadian domestic fishing opportunities. However, a high degree of uncertainty exists with respect to marine survival conditions as well as in-river migration conditions. A formal forecast will be produced later in the year.

7.8 Johnstone Strait Chum Decision Guidelines

7.8.1 Background

The Johnstone Strait chum 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 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. 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).

The exploitation rate is set at 20% across all fisheries, unless abundance is below a critical threshold of 1 million chum established for conservation purposes. Of the overall 20% exploitation rate, a 15% exploitation rate is provided for commercial fisheries and the remaining 5% is set aside for test fisheries, FSC, and recreational harvest requirements and to provide a buffer to the commercial exploitation. A chum working

group meeting will be scheduled in late-May or early-June to begin planning for the 2015 fishery.

7.8.2 Constraints

- 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.

7.8.3 Decision Guidelines

When chum run size is expected to be below the critical threshold of 1.0 million fish commercial fisheries will be suspended and there will be only assessment fisheries and non-commercial fisheries.

For run sizes above the 1.0 million chum critical threshold, fisheries will be conducted using a fixed 20% harvest rate approach in Johnstone Strait.

The fixed harvest rate fishing schedule is implemented based upon effort, time and area. Fishing schedules are initially developed based on the assumption of 'normal fleet participation' (i.e. recent year's maximum fleet participation in the chum fishery or trend in effort).

Fishing schedules and exact fishing dates will be confirmed pre-season following consultation with industry, First Nations, and stakeholders.

The following fishing plan has been developed in recent years:

Seines

- 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.
- A proposal for an ITQ demonstration fishery in 2015 is under discussion with the Area B Harvest Committee and the final fishing plan will be confirmed prior to the start of the fishery.

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.

Troll

- Fisheries are scheduled to commence at the end of September or the first week of October.
- Fishing opportunities on the weekend and statutory holidays in lower Area 13 (Subareas 13-6 and 13-7) are generally not planned in order to minimize any potential gear interactions with the recreational fishery.
- In 2015, Area H is again planning a full fleet share-based demonstration troll fishery of transferable effort (boat days). The fishery will be divided into two fishing periods with a short break in between. Boat days allocated to a given period can be used during any open time within that fishing period. Boat days are transferable (between harvesters) within each fishing period, but not between fishing periods. Refer to Appendix 7, Section 7.15 for further details.

7.8.4 In-season Decisions

The Chum Working Group Advisory Committee is consulted on harvesting opportunities in-season. These consultations are done regularly through weekly conference calls starting in late September.

The following considerations will guide fisheries management decisions in-season:

- Amount of effort in each fishery and fishing time period
- Weather conditions during the fishery

7.8.5 Issues

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 2015.

A plan to minimize gear interaction between the commercial and recreational sectors was implemented starting in 2007. Fishing opportunities for Area D gillnets 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 gillnets 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 and other stakeholders.

Subareas 13-6 and 13-7 will be closed to troll fishing during weekends. During weekdays, Subareas 13-6 and 13-7 will be open to the commercial troll fleet.

7.8.6 Prospects

Fall chum stocks include those stocks arriving in terminal areas after mid-September; expectations for 2015 are near target. This is based on the average parental brood abundance of the 2011 return; indications of improved marine survival conditions (strong pink and coho returns in 2013) in the 2012 out-migration year (i.e. 2011 brood); significantly smaller average fish size encountered in 2011; and, the high variability in chum returns.

Summer Chum stocks include those stocks arriving in terminal areas before mid-September. In 2011, stocks were mainly below average throughout the area and will likely stay the same in 2015. Overall, there is high variability in chum returns, and ocean survival rates will be a key factor in the strength of 2015 returns.

7.9 Fraser River Chum Decision Guidelines

7.9.1 Background

The Fraser River chum fishery harvests chum returning to spawn exclusively within the Fraser River. The fishery is managed for a single Fraser River Chum Management Unit, but 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.

The escapement objective for Fraser River chum is 800,000 spawners. This objective is based on an estimate of the number of spawners required to maximize recruits per spawner (Smsy). Decisions regarding fishing opportunities are based on the Albion test fishery in-season information. Harvesters in the Fraser River chum fishery include First Nations (FSC and Economic Opportunity), commercial (Area E Gillnet, Area B Seine, Area H troll-Area 29) and recreational.

7.9.2 Constraints

- For Fraser River terminal area run sizes, identified in-season, at abundance levels lower than 900,000 chum salmon, the Canadian commercial chum salmon fisheries within the Fraser River and in associated marine areas (Area 29), will be suspended as per Chapter 6 of the PST.
- Chum fisheries within the Fraser River will be managed to minimize by-catch of co-migrating stocks of concern (e.g. Lower Fraser coho, Interior Fraser River coho and Interior Fraser River steelhead).

- Measures to reduce impacts on Interior Fraser River coho include gear and area restrictions from early September (exact date to be determined) to mid-October in the Fraser River main stem below Mission (i.e. during the Interior Fraser River coho window closure).
- In 2015, 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 continue to be delayed to avoid the majority of the Interior Fraser steelhead migration period. Other factors, including possible implementation of additional precautionary measures in gillnet fisheries to protect Interior Fraser River steelhead will be taken into account in determining the specific timing of fisheries.

7.9.3 Decision Guidelines

Management of Fraser River chum fisheries is based upon in-season information. 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 will be announced in mid-October once the peak of the return has been identified.

First Nations will be provided FSC fishing opportunities as the Interior Fraser River coho window closure ends in each area, beginning in early October. At run sizes deemed to be a conservation concern, 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.

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 fishery openings.

At run sizes greater than 1,050,000, the commercial TAC is a maximum of 15% of the run size.

If the initial Fraser River terminal run-size assessment in mid-October indicates that abundances are in excess of 1,050,000, consideration may be given for Area B fisheries to precede Lower Fraser gill net fisheries, including Area E gill net and First Nation Economic Opportunity (EO) gillnet fisheries; further details and target allocations will be determined as part of the in-season planning process. If in-season abundances are lower than the threshold run size of 1,050,000, consideration will be given for Area B to access commercial allocation remaining after Lower Fraser gill net fisheries have concluded. 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 open from July 16 to December 31st 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.

Table 7-20: Summary of key decision points for the management of the Fraser River chum fishery.

Run Size	Harvest Plan	Lower Fraser First Nations	Commercial	Recreational
<500,000 in Fraser	<10%	Limited (reduced hours and days/week fishing)	Closed	Main stem Fraser River closed, restricted openings on tributaries
500,000 to 800,000 in Fraser	Directed fisheries limited to FSC	Normal	Closed	Main stem 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	Main stem 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

7.9.4 Issues

Economic opportunity or demonstration fisheries for chum salmon for lower Fraser River First Nations will depend upon negotiated Fisheries Agreements. These fisheries will be managed using similar rules as Area E commercial fisheries. However, provided a commercial TAC is identified, a commercial fishery which uses selective fishing gear may access chum earlier than commercial fisheries using non-selective gear (i.e. commercial gillnets). This provision for an earlier opening includes First Nations Economic Opportunity beach seine 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 current general approach for managing fisheries which impact Interior Fraser River steelhead has been developed jointly by DFO and the Province of British Columbia.

Implementation of the Wild Salmon Policy will require the development of lower and upper escapement “benchmarks” and associated biological status zones for Fraser River

chum. As these benchmarks are identified, corresponding decision breakpoints and management actions may be reviewed. These analyses have not yet been initiated on benchmark identification for Fraser River chum.

The Department will continue to discuss 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 with Area E, economic opportunity harvesters and with the province.

7.9.5 Prospects

Formal quantitative forecasts are not prepared for Fraser River chum, but the qualitative Stock Outlook for 2015 is "near target". Estimated escapements in 2012 and 2013 were approximately 1.4 and 1.0 million chum respectively, marking a substantial increase from 2009 and 2010 escapements. Escapement estimates are not yet available for 2014, but observations from on-going assessments are consistent with the 2014 in-season estimate of a terminal return of 1.3 million chum. If this recent trend continues, directed fisheries are likely for the 2015 season, subject to in-season assessments.

7.10 Area 14 Chum Decision Guidelines

7.10.1 Background

This fishery is directed at the enhanced stocks of three systems: Puntledge, Qualicum and Little Qualicum Rivers. The Qualicum River is often referred to as the 'big' Qualicum River, to better distinguish it from the Little Qualicum River. Chum returning to this area have been enhanced since the late 1960s and terminal fisheries have occurred in October and November since the 1970s. A pre-season forecast of chum returning to Area 14 chum is based on brood escapement, average survival and age composition. In-season run strength is assessed from any early catches, visual observations at river estuaries and by escapement counts to the three river systems. The escapement goals for the three river systems are 60,000 for Puntledge River, 85,000 for Little Qualicum River and 85,000 for Qualicum River, adding up to an overall escapement goal of 230,000 chum not including enhancement facility requirements of about 10,000 chum bringing the total escapement goal to 240,000. Note that some of these stream-specific escapement goals have been reduced from previous years, based on a review of productivity information from these stocks in 2014.

Area 14 chum are managed as a component of "mixed-stock harvest strategy" for chum and fishing opportunities are guided by coast-wide allocations of chum salmon. The south coast chum allocation for Area 14 to 19, 28 and 29 is outlined in Appendix 7. The Johnstone Strait chum allocation arrangement differs from the overall allocation structure for these areas. Fishing opportunities in Area 14 will be based on catch levels in relation to the overall south coast allocation of chum.

Management is guided by advice from the South Coast Chum Advisory Committee which has been in operation since 2004. This committee represents interests for mid-Vancouver Island, Johnstone Strait and WCVI fisheries.

First Nations FSC fisheries are conducted in Area 14 and at the hatcheries prior to consideration of ESSR fisheries. Tidal recreational fisheries are subject to the normal daily and possession limits (daily limit four per day/possession eight) and are open throughout the area. Once escapements have been confirmed, non-tidal recreational fisheries for chum, chinook and coho in the Puntledge and Big Qualicum Rivers will be considered. These fishing opportunities may occur as early as the second to fourth week of October based upon in-season and past return timing of chum, chinook and coho.

The management objectives for Area 14 are:

- Achieve Area 14 chum escapement requirements of 240,000
- Ensure adequate chinook and coho escapements to Area 14 streams
- Ensure adequate chinook and coho for enhancement purposes
- Provide access to First Nations for FSC purposes
- Maximize economic return
- Work towards south coast chum allocation targets for gill net, seine and troll
- Minimize the harvest of passing stocks
- Attempt to manage initial fisheries in Area 14 to avoid large surpluses (i.e. greater than 100,000)

7.10.2 Constraints

Beach boundaries are in effect to protect coho and chinook. Boundaries may range from half a mile to one and a half miles depending upon by-catch concerns and time of year. French 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, and 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).

7.10.3 Decision Guidelines

Area 14 commercial chum fisheries are managed based on forecasted abundance. In-season, the management strategy for considering fishery openings falls under one of two categories as described below:

Situation 1: Area 14 Pre-Season Forecast greater than 340,000 chum.

Early chum openings would target up to 65% of the anticipated surplus above 340,000. The 340,000 chum ceiling is a combination of the Area 14 target escapement (240,000 chums) plus a 100,000 chum buffer. The buffer is included to safeguard against uncertainties in the forecasted stock abundance.

For example; if the preseason chum forecast for Area 14 were 500,000 the allowable early harvest would equal 65% of the forecasted preseason abundance minus the target escapement and the buffer (i.e. 65% of [500,000 – (240,000+100,000)] = 104,000).

In this example up to 104,000 chums could be harvested prior to escapement occurring. Escapement information becomes increasingly important when considering further opportunities. Further fishing opportunities would be based on harvesting the 100,000

buffer and the remaining 35% of the surplus provided that escapement targets have been achieved.

Situation 2: Area 14 Pre-Season Forecast less than 340,000 chum.

The chum escapement target for the Big Qualicum River has been achieved only 6 times in the period 1990-2010. The Little Qualicum River has achieved its escapement target only 8 times during the same period. Below average escapements combined with uncertainties in chum forecasting necessitate a precautionary approach to initiating fishery openings when the pre-season forecast is below 340,000 chums.

The escapement targets in Area 14 were reviewed and new targets were used for in season management in 2014. There may be additional work developing or refining Decision Guidelines that trigger and shape Strait of Georgia terminal chum fisheries for the 2015 season. Any changes or development would be in conjunction with Harvest Committees and local advisory processes.

In both Situation 1 and 2, in-season catch per unit effort (CPUE) information from commercial chum fisheries in Johnstone Strait will be a consideration in Area 14 management decisions.

The recommended management option for Area 14 will be presented and reviewed at the pre-season Chum Advisory Committee meeting. Further discussions on the Area 14 chum management, will occur in-season.

In-season Decisions

Additional opportunities using in-season data are evaluated at weekly meetings of the Chum Advisory Committee which usually occur from mid-October to late November. Each week, the following considerations will guide the length of net and troll openings:

- Fleet size will be a consideration in determining the duration of openings.
- Escapement information is factored into the amount of fishing time that is provided. For example, there is a possibility for reducing or eliminating beach and creek mouth boundaries when the overall escapement goal has been reached, individual surpluses have been identified and by-catch of non-target species is not an issue. Escapements are monitored by DFO Stock Assessment and local hatchery staff.
- Additional fishing days are considered if time is lost due to poor weather conditions.

A limited effort seine fishery with a catch target will be considered from late October to late November, based on chum escapement, abundance in the approach areas and allocation guidelines. Full fleet opportunities may also be available. Further fishing opportunities for gill net and troll may be considered following the seine fisheries.

7.10.4 Issues

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.

In recent years the Puntledge River has experienced proportionally greater escapements than the two Qualicum Rivers and in the last two years, escapements to the two Qualicum Rivers have been below target. This trend may continue, necessitating continued consideration of fishing strategies to selectively target the Puntledge River return.

7.10.5 Prospects

For 2015 an average return is expected and the preseason forecast indicates that abundance is on the cusp between Situation 1 and Situation 2 (described above). As there is a high level of uncertainty associated with preseason chum forecasts, the Department will be looking for indications of in-season escapement prior to planning any fishing opportunities.

7.11 Area 16 Chum Decision Guidelines

7.11.1 Background

This fishery targets wild chum stocks returning to river systems in the Jervis Inlet area. The main systems are Tzoonie, Deserted and Skwawka Rivers. The overall escapement goal for Jervis Inlet streams is 110,000. These terminal fisheries occur when the individual or combined escapement goals have been assured.

Management is guided by advice from the South Coast Chum Advisory Committee which has been in operation since 2004. This committee represents interests for mid-Vancouver Island, Johnstone Strait and WCVI fisheries. Fishing opportunities do not occur on a regular basis. There have been no fisheries in Area 16 in recent years.

Area 16 chum are managed as a component of "mixed-stock harvest strategy" chum and fishing opportunities are guided by coast-wide allocations of chum salmon. Assessment in the area is conducted by DFO Stock Assessment and Sechelt Indian Band staff.

7.11.2 Constraints

There is mandatory non-retention of coho. Fishing is limited to terminal areas to minimize impacts on passing stocks.

7.11.3 Decision Guidelines

Commercial fishing opportunities are evaluated at weekly meetings of the Chum Advisory Committee, usually starting in the first week of October. In-season data is reviewed on a weekly basis until the end of the season, which usually occurs around the end of November. Area 16 chum fisheries are not planned based on pre-season forecasts alone. The potential implementation of a limited fleet-size (e.g. three to five vessels) weekly assessment fishery in the lower Jervis Inlet area may be discussed with the Area E and H Harvest Committees. A weekly assessment fishery in the last two weeks of October and the first week of November may, over time, provide an earlier indication of overall abundance returning to this area. Fishing opportunities will be provided in an area when the escapement goal has been achieved. Achievement of the escapement goal includes the numbers of fish in-river plus the amount of fish inside a designated sanctuary area. The earliest potential fishing opportunity is anticipated near the end of October.

7.11.4 Prospects

For 2015, a below average return is expected. As there is a high level of uncertainty associated with chum forecasts, in-season escapement assessments may be used to determine potential fishing opportunities.

7.12 Area 17 Chum Decision Guidelines

7.12.1 Background

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. Escapements fluctuate annually and fishery openings are planned in-season based on escapement estimates. Management is also guided by advice from the Chum Advisory Committee as outlined for Areas 14 and 16. Area 17 chum are managed as a component of "mixed-stock harvest strategy" chum and fishing opportunities are guided by coast-wide allocations of chum salmon. The south coast chum allocation for Area 14 to 19, 28 and 29 is outlined in Appendix 7. The Johnstone Strait chum allocation arrangement differs from the overall allocation structure for these areas. Fishing opportunities in Area 17 will be based on catch levels in relation to the overall south coast allocation of chum. A productivity analysis was conducted in 2014 in order to review escapement targets in the major chum systems of the Strait of Georgia. The results of this analysis have led to a new interim escapement target for the Nanaimo River of 40,000 chum.

7.12.2 Constraints

Subarea boundaries protect migrating Fraser River chum and confine the fishery to the Nanaimo River stock.

Coho and chinook conservation measures in effect until November 10 include non-retention and barbless hooks for troll.

The gill net fishery may be restricted to daylight hours and maximum soak times if coho encounters are high. Restrictions would be implemented after consultation with the Chum Advisory Committee.

7.12.3 Decision Guidelines

Pre-season forecasts are helpful in defining possible opportunities, but decisions to open terminal fisheries for Nanaimo River chum are not based on pre-season information. Opportunities are evaluated during the weekly in-season review of Nanaimo escapement estimates within the Chum Advisory Committee process. Escapement estimates are derived from a combination of helicopter over flights, combined DFO/Snuneymuxw in-river assessment; on-grounds charter patrol surveys of approach and terminal areas, fishery officer patrols of the river and a Didson Counter.

In 2015 there may be more work put into developing or refining Decision Guidelines that trigger and shape Strait of Georgia terminal chum fisheries for the 2015 season. Any changes or development would be in conjunction with Harvest Committees and local advisory processes.

Opportunities for gill net, troll and seine fisheries are discussed once fish have started to enter the Nanaimo River and are present in terminal areas. Final decisions are made at the weekly in-season Chum Advisory Committee meeting. If commercial opportunities are identified, management will be guided by the following considerations:

- Gill nets open for one or two days. Fishing days and duration subject to escapement levels
- Troll open seven days per week based on previously demonstrated low catch rates
- After initial opening, continued fishing opportunities depend upon information derived from CPUE in the commercial fisheries, and on-going approach area and in-river assessments
- If catches remain good and escapement goal is reached, commercial fisheries can continue
- Additional fishing days will be considered if time is lost due to poor weather conditions

7.12.4 Issues

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.

7.12.5 Other Fisheries

First Nations FSC fisheries as well as tidal/non-tidal recreational fisheries are conducted on these stocks. Local FSC fishing opportunities are undertaken by Snuneymuxw First Nation in consultation with the Department. Tidal recreational fisheries are subject to the normal daily and possession limits and there are no closed areas. There are no opportunities for non-tidal recreational fisheries in the Nanaimo River.

7.12.6 Prospects

For 2015 an above average return with a moderate surplus is expected to return to the Nanaimo River. As there is a high level of uncertainty associated with chum forecasts in-season escapement assessments will be used to determine potential fishing opportunities.

7.13 Area 18 Chum Decision Guidelines

7.13.1 Background

This fishery is directed primarily at Cowichan River stocks although some Goldstream chum is also harvested. The outer Cowichan chum fishing boundary is situated to minimize encounters of Saanich Inlet Chum. Chemainus River stocks are also impacted but likely to a lesser extent.

Area 18 chum are managed as a component of “mixed-stock harvest strategy” chum and fishing opportunities are guided by coast-wide allocations of chum salmon. The south coast chum allocation for Area 14 to 19, 28 and 29 is outlined in Appendix 7. The

Johnstone Strait chum allocation arrangement differs from the overall allocation structure for these areas. Fishing opportunities in Area 18 will be based on catch levels in relation to the overall south coast allocation of chum. The escapement goal for the Cowichan River is 160,000 chum. The target was revised from 110,000 in 2009 and is based on habitat area and chum spawning densities in the Cowichan River. In river chum escapement estimates are provided by a DIDSON Counter located in the lower river since 2006.

Fishery openings are planned in-season based on escapement estimates. Management is also guided by advice from the Cowichan Fisheries Roundtable (the Roundtable) and the Chum Advisory Committee.

7.13.2 Constraints

Subarea boundaries protect coho holding off Cherry Point.

Beach boundaries are in effect to protect coho and chinook.

Cowichan Bay is usually closed to protect coho and chinook and to provide a refuge for holding chum; however, if chum escapement targets are reached and timing is such that chinook escapement is complete this area could be opened to access surplus chum.

Other coho conservation measures in effect include non-retention, barbless hooks for troll, and mandatory brailing for seines.

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. This would occur following consultation with the Roundtable and the Chum Advisory Committee.

7.13.3 Decision Guidelines

Pre-season forecasts are helpful in defining possible opportunities, but decisions to open fisheries are not based on pre-season information. Opportunities are evaluated during the weekly in-season review of Cowichan escapement estimates within the Roundtable and the Chum Advisory Committee process.

It is the Cowichan Harvest Roundtable's goal to identify potential commercial fisheries earlier in the run timing, to harvest the identified surplus throughout the run-curve instead of cropping the surplus from the end of the run, and to be able to make decisions quickly so that fisheries can be initiated in a timely manner.

The Cowichan River chum target is 160,000 chum. In river chum escapement estimates are provided by a DIDSON Counter located in the lower river.

Regardless of in-river escapement estimates, the assessment of marine abundance through the test fishery and/or over-flights will determine if there is an opening on Cowichan chum stocks.

The following guidelines are used for in-season management:

- 25,000 chum enumerated in the Cowichan River triggers the start of the Area 18 seine test fishery.

- Area 18 seine test fishery information will be used in conjunction with upper river spot indicators to determine whether the remainder of the escapement goal is expected to be achieved. These test fishery arrangements are under review pending discussions on potential arrangements for use of fish to finance the test fishing activity. As a result, alternatives to the test fishery may need to be explored.
- Small gill net fisheries will be initiated on short notice if in-stream migration numbers and marine approach area abundance warrants an opening. These fisheries are subject to commercial licence area allocation status.
- Troll fisheries may open seven days per week because of demonstrated low catch rates (depending on allocation).
- Sustained in river chum migration and fish abundance in the marine area that indicates a higher probability of reaching escapement goals may trigger a seine fishery.
- Seine commercial fisheries would be subject to commercial licence area allocation status.
- Subject to fishery review and continued escapements, commercial fisheries may continue and opening types will be adjusted to meet overall guidelines.
- Recreational fisheries in the river open when abundance is deemed sufficient.
- Specific dates and boundaries will be determined in-season through the Roundtable and Chum Advisory process. Timing of migration is also important in terms of the health of the run and in relation to mixed stocks of Goldstream chum in the Area 18 fishing area.

A productivity analysis was conducted in 2014 in order to review escapement targets in the major chum systems of the Strait of Georgia. The result of this analysis for the Cowichan River is still under review but could lead to a new interim escapement target for the Cowichan River Chum. There may be more work put into developing or refining Decision Guidelines that trigger and shape Strait of Georgia terminal chum fisheries for the 2015 season. Any changes or development would be in conjunction with Harvest Committees and local advisory processes.

7.13.4 Issues

Discussions are on-going with First Nations regarding the potential for commercial harvest opportunities.

7.13.5 Other Fisheries

First Nations FSC fisheries and tidal/non-tidal recreational fisheries are conducted on these stocks. Tidal recreational fisheries are subject to the normal daily and possession limits. Non-tidal recreational fisheries will also be considered if escapement and FSC needs are met. There is a potential for an ESSR fishery in the Cowichan River by Cowichan Tribes if a surplus occurs.

7.13.6 Prospects

For 2015 an average return is expected to return to the Cowichan River. As there is a high level of uncertainty associated with chum forecasts in-season escapement assessments will be used to determine potential fishing opportunities.

7.14 Area 19 Chum Decision Guidelines

7.14.1 Background

This fishery is directed primarily at Goldstream River stocks although some Cowichan River chum is also harvested. Fishery openings set for mid to late November are limited to portions of Saanich Inlet which are outside or to the north of Squally Reach. This area restriction is implemented to minimize impact on Goldstream chinook and coho. The outer Saanich Inlet chum fishing boundary is situated to minimize encounters of Cowichan Chum.

Fisheries are planned in-season based on escapement estimates. Management is also guided by advice from the Chum Advisory Committee. Area 19 chum are managed as a component of "mixed-stock harvest strategy" chum and fishing opportunities are guided by coast-wide allocations of chum salmon. The south coast chum allocation for Area 14 to 19, 28 and 29 is outlined in Appendix 7. The Johnstone Strait chum allocation arrangement differs from the overall allocation structure for these areas. Fishing opportunities in Area 19 will be based on catch levels in relation to the overall south coast allocation of chum. The overall escapement goal for the Goldstream River is 15,000.

7.14.2 Constraints

Subarea boundaries; to protect chinook and coho holding in Squally Reach

Commercial fisheries will utilize selective fishing techniques to minimize by-catch impacts.

7.14.3 Decision Guidelines

Chum fisheries in Area 19 are managed on the basis of in-season escapement estimates. Goldstream escapement estimates are derived from stream walks as this is a relatively small system with good viewing conditions.

A productivity analysis was conducted in 2014 in order to review escapement targets in the major chum systems of the Strait of Georgia. The analysis for the Goldstream River review did not result in any change to the escapement target to 15,000 chum. There may be more work put into developing or refining Decision Guidelines that trigger and shape Strait of Georgia terminal chum fisheries for the 2015 season. Any changes or development would be in conjunction with Harvest Committees and local advisory processes.

7.14.4 Issues

Discussions are on-going with First Nations regarding the potential for commercial harvest opportunities.

7.14.5 Prospects

For 2015 an above average return with a moderate surplus is expected to return to the Goldstream River. As there is a high level of uncertainty associated with chum forecasts

in-season escapement assessments will be used to determine potential fishing opportunities.

7.15 Nitinat Chum Decision Guidelines

7.15.1 Background

Commercial fisheries occur on a regular basis for seine and gill net; trolling is also permitted, but there has been little interest in recent years.

The fishing period is generally October 1 to November 15.

Nitinat River and Nitinat Lake tributaries escapement estimates are based on river swims and aerial and boat-based surveys.

Ditidaht First Nation provides an indication of chum abundance in Nitinat Lake in conjunction with FSC harvesting.

7.15.2 Constraints

Typically no commercial fishing takes place prior to the first week in October due to Fraser River steelhead by-catch concerns. Consideration for any late September opening will include discussion with the Province.

Commercial fisheries October 1 to October 15 will operate inside a one mile boundary between Dare Point and Pachena Point, with a weed line of between 1.2 and 2.0 meters on nets in order to minimize steelhead interception and mortality.

After October 15, fisheries are permitted within a two mile boundary of the shore line between Bonilla Point and Pachena Point.

There is non-retention of steelhead, coho and chinook during periods of low abundance.

No commercial fishery inside Nitinat Lake.

Boundaries at Cheewhat River, Klanawa River and Carmanah Creek are in place to protect local chum and coho stocks.

When both fleets fish together, gill nets only may be permitted between Bonilla Point and Logan Creek, subject to coho encounters.

7.15.3 Decision Guidelines

The lower fishery reference point for Nitinat chum is based on a gross escapement goal to Nitinat Lake of 225,000 chum; 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 is 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 addition to the Ditidaht lake fishery, a fixed effort commercial fishery, limited to a 25% harvest rate, provides in-season assessment information. This approach will be reviewed and adjusted through preseason consultation for 2015.

Annual pre-season forecasts for the Nitinat system (predominantly enhanced) are based on brood year escapements, hatchery smolt output and estimated survival rates.

The fishing plan is developed in advance of the fishery; by August.

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 in Appendix 7-section 7.4.

If no surplus is forecast pre-season, the commercial fishery is contingent on in-season assessment.

In-season Decision Guidelines

The commencement/continuation of commercial fisheries after the first week of October is contingent on achieving established escapement milestones:

Table 7-21: 2015 Nitinat Chum Fishing Plan

DATE	GUIDELINES	ACTION
Week 9/3 (Sep 14-20)		No fisheries due to Fraser steelhead concerns. No gill net assessment or commercial fishery anticipated.
Week 9/4 (Sep21-Sep 23)		No fisheries due to Fraser steelhead concerns except a gill net assessment fishery may commence inside a line one mile south of Pachena Point to one mile south of Dare Point.
Week 10/1 (Sep 28- Oct 4)	No commercial fishery until October 01; gill net assessment fishery may commence. Fishery opportunity based on preseason forecast. Escapement in lake by Oct. 4 = 75,000 *	Gill net and seine fishery anticipated. Fishery inside a line one mile south of Pachena Point to one mile south of Dare Point. Continue gill net assessment fishery and escapement monitoring to lake.
Week 10/2 (Oct 5- Oct 11)	Escapement in lake by Oct 11 = 125,000*	Fisheries in this week dependent on escapement to date. Early season allocation is 75:25 gill net: seine. Maximum gill net catches of 200,000 chum before seine fishery.
Week 10/3 (Oct 12-18)	Escapement in lake by Oct 18 = 175,000*	Seine and/or gill net opportunities depending on escapement to date, escapement rate and effort.

Week 10/4 (Oct 19- Oct 25)	Escapement in lake by Oct 25 = 225,000	Seine and/or gill net opportunities depending on escapement to date, escapement rate and effort.

*With sufficient stock outside. Min weekly influx = 50,000

Gill net and limited fleet seine fisheries may occur in the first week of October if an adequate surplus is forecast, or if assessment information is required.

A gill net and seine advisory group will be convened, as required, to assist the DFO fishery manager in developing weekly in-season fishing plans.

In the early portion of the fishery (Oct 01-15), seine fisheries will be assigned a weekly catch target.

If the forecast surplus is low, weekly escapement milestones must be achieved before openings are scheduled.

A full fleet seine fishery may proceed when assessments in Nitinat Lake and in the adjacent marine area indicate there is a fishable surplus. During this phase of the fishery, both gill net and seines will fish at the same time in the same areas, except that gill nets may be provided an exclusive fishing area between Bonilla Point and Logan Creek.

7.15.4 Issues

Area B Harvest Committee intends to work towards share-based fishery arrangements in the Nitinat fishery.

Accuracy of pre-season forecasts has been very poor.

An outside gill net assessment fishery in early October may be considered in those years where a below average return is forecast pre-season.

There is considerable uncertainty regarding the use of test/assessment fisheries to assist with in-season management of the fishery.

7.15.5 Other Fisheries

First Nations FSC: no constraints on FSC fisheries at normal run sizes. Ditidaht First Nation works closely with Nitinat Hatchery and participates in research projects which normally require a modest allocation of chum.

Recreational/Tidal: normal limits; finfish closure at mouth of the Nitinat River to prevent foul hooking. Non-tidal: fishery contingent on escapement and concern for impacts on spawning fish.

ESSR fishery in Nitinat Lake by Ditidaht First Nation when surplus occurs.

A scientific licence may be issued to the Ditidaht First Nation to provide biological samples and additional information on stock status and movement in Nitinat Lake.

7.15.6 Prospects

WCVI chum abundance has been declining. Spawner and smolt releases for two of the main contributing brood years were low or very low. Survival rates for the three main contributing brood years are variable (likely low, very low and potentially above average for 2011, 2012 and 2013, respectively). For the 2011 brood year spawner abundances and smolt releases were higher, however the ocean conditions during the smolt ocean entry year (2012) were generally unfavourable.

The 2015 Nitnat Chum pre-season forecast is 150,000 with a range of 60,000 to 240,000. No commercial surplus is expected. An assessment fishery to improve in-season indicators of abundance is being considered subject to discussions with Area E, Area B and the Ditidaht First Nation.

7.16 Nootka Chum Decision Guidelines

7.16.1 Background

There are approximately 30 unenhanced wild chum river systems in Nootka Sound. Conuma Hatchery enhances four systems in Tlupana Inlet.

Outer Nootka fishing boundaries are designed to target fish migrating through the approach area and to avoid harvest of fish holding off the stream mouths.

A limited effort fishery may occur within these boundaries through October to provide further opportunity and indications of abundance, dependent on the pre-season forecast relative to the limit reference point.

In Area 25 when limited effort fisheries are approved in Nootka Sound there is a maximum of 4 vessels, 2 days per week. Effort in the Esperanza Inlet fishery has been limited to 2 vessels, 2 days per week in the past couple year; however, a review of the harvest rate in this area suggests this level of effort is still too high and further review needs to be done:

If abundance allows, full-fleet Nootka openings will occur within the same boundaries for one day in two consecutive weeks; information collected during fishing events are used as an indicator of abundance and fishery potential prior to escapement.

Seines have fished in years of high chum abundance.

There is potential for an ESSR fishery 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 the ability of the fishing industry to conduct controlled fisheries on identifiable surpluses.

In 2014, limited effort fisheries were not conducted in Nootka Sound and in Esperanza Inlet, due to a low pre-season forecast relative to the limit reference point.

7.16.2 Constraints

When there are fisheries they are daylight only fisheries to reduce by-catch. The goal is to optimize Nootka chum harvest and limit by-catch of chinook and dogfish.

Stream mouth boundary at Marvinas Bay will protect local stocks adjacent to fishing area.

Hisnit Inlet is closed during Tlupana Inlet fisheries to protect Deserted River chums.

There are separate approach area and terminal fisheries to facilitate bio-sampling for age and hatchery contribution.

Limited fleet fisheries will be curtailed when the pre-season forecast is lower than the lower fishery reference point in Nootka Sound and Esperanza Inlet.

7.16.3 Decision Guidelines

The general fishery management approach has been to limit the harvest rate to 20% in the approach waters (outer Nootka Sound). This is achieved by fishing one day per week during daylight hours with a "moderate" fleet of a maximum of 50 gill net vessels.

If the return is above the Lower Reference Point (15,000) effort is restricted in order to limit the harvest rate to 20%; catch targets are not used as a harvest control.

Fishing area and the timing of openings are also designed to avoid specific areas where non-target stocks are prevalent:

To reduce chinook interceptions, no openings are scheduled prior to September 25.

For low run sizes when the risk of overharvest is higher, additional controls may be utilized to ensure the allowable harvest rate is not exceeded. For example;

- The fishing area may be restricted
- The number and length of openings may be reduced
- Participants may be limited through the use of "pooled fisheries"

A terminal harvest in Tlupana Inlet may occur if a surplus to escapement requirements is identified through in-season abundance indicators.

In-season Decisions

If in-season assessment information (from escapement surveys and limited effort fisheries) suggests the return of Nootka stocks will be at or near the Target Reference Point (55,000), and broodstock collection is at or near target, a terminal fishery on surplus hatchery stocks in Tlupana Inlet may be conducted.

Seine opportunities will be considered in-season, if chum abundance is adequate.

Coho (and chinook) retention in net fisheries may be permitted when abundance permits.

7.16.4 Issues

Conuma River Hatchery has had difficulty in achieving egg targets on four Tlupana Inlet enhanced systems (Sucwoa, Tlupana, Conuma and Canton) for a number of years.

Deserted River chum stocks are no longer enhanced. These late-run stocks will require additional protection during later Tlupana Inlet openings.

Chinook by-catch is an issue around mid-September.

If a limited fleet fishery in Esperanza Inlet was to occur, the overall Area 25 chum harvest rate would be reviewed.

7.16.5 Prospects

WCVI chum abundance has been declining. Spawner and smolt releases for two of the main contributing brood years were low or very low. Survival rates for the three main contributing brood years are variable (likely low, very low and potentially above average for 2011, 2012 and 2013, respectively). For the 2011 brood year spawner abundances and smolt releases were higher, however the ocean conditions during the smolt ocean entry year (2012) were generally unfavourable.

The 2015 Conuma pre-season forecast is 11,000 with a range of 4,000 to 19,000 for a potential harvest of 2,200. The 2015 Nootka Sound pre-season forecast is 25,000 with a range of 10,000 to 40,000 for a potential harvest of 5,000. Most of the potential harvest is allocated to local First Nations. A limited effort gillnet fishery is being considered subject to discussions with Area D and Area 25 First Nations.

7.17 Nimpkish Chum Decision Guidelines

7.17.1 Background

Nimpkish chum have later timing than other Johnstone Strait chum stocks and are harvested in the terminal area. The spawning escapement goal for the river is set at 110,000 chum with additional fish required for brood-stock (approximately 3,000 females) for the hatchery. The Namgis First Nation participates in the assessment and the management of this stock.

In recent years only sporadic assessments of the chum returns have been conducted. Information on relative return strength is provided from hatchery staff.

Should a commercial fishing opportunity be identified, Area B and D fishing opportunities would be based on the current status of chum allocation goals, fleet participation and expected catch levels. Once all commercial and recreational opportunities are exhausted and if a surplus remains, an ESSR opportunity may be provided to the Namgis First Nation.

7.17.2 Constraints

Area of fishing is confined to a portion of Subareas 12-18 and 12-19 to direct harvest on returning Nimpkish River chum and to minimize impact on other salmon species.

Collection of assessment information and river enumeration is often hampered by poor weather conditions and high water levels, affecting the accuracy of in-season run size estimation and fishing opportunities.

7.17.3 Decision Guidelines

Decision guidelines are developed in-season based on abundance estimates as determined by in-season assessment information.

In-season Decisions

Commercial Area B and D harvest opportunities will be subject to abundance levels and harvest sharing arrangements by all parties.

7.17.4 Issues

- Ability to accurately determine run strength due to poor weather and high water conditions.
- The late timing of this stock can result in market availability issues.

7.17.5 Prospects

Observations in recent years have shown consistently low abundance of chum returning to the Nimpkish River. Low brood year returns in 2011 and no significant improvements indicated in marine survival leave expectations for Nimpkish chum to be below target in 2015.

7.18 Limited Effort Terminal Chum Decision Guidelines

7.18.1 Background

Starting in 2004 the Area D Gill Net Association has proposed limited, small-fleet fishing opportunities for chum salmon in terminal areas.

The intent of this program was to determine if small-scale limited effort gill net fisheries could be economically viable while limiting exploitation rates to 10 to 20% of returning stocks and providing valuable stock assessment information.

In recent years these fisheries occurred in:

- Barkley Sound where 4 vessels fished a maximum of 2 days per week.
- Clayoquot Sound, where 4 vessels started 2 weeks later than Barkley Sound to avoid chinook by-catch.
- Esperanza Inlet, where 2 vessels fished a maximum of 2 days per week.
- Quatsino Sound (Neroutsos Inlet), where 2 vessels fished 1 day per week for a total of 3 fishing days.
- Bute Inlet, where 5 vessels fished for a total of 3 fishing days.

7.18.2 Constraints

- Low chum abundance in recent years has limited the scope of these fisheries
- The 10-20% Harvest Rate target has been consistently exceeded in Esperanza Inlet when limited effort fisheries have occurred.

7.18.3 Decision Guidelines

In 2015, revised target escapements (75% SEGs; Sustainable Escapement Goals) and limit reference points (LRP; 25% SEGs) for all WCVI areas were developed (Table 7-22). Although the WCVI chum forecast can be highly uncertain, the forecast is used to inform pre-season fishery planning. Where the forecast is below the LRP for an area there are no anticipated harvest opportunities.

Fishery planning in 2015 will be guided by the preseason forecast and available in-season assessment information. Fishing plans are developed to include fishery sampling, set log data collections, and observer coverage (if required for each area).

Table 7-22: Southwest Vancouver Island Chum Conservation Unit Preseason Forecast for 2015

Location	PFMA	2015 Forecast	Forecast Range	Lower Reference Point (LRP)	Target Reference Point (TRP)
Nitnat Hatchery/Lake	21/22	150,000	60,000 - 240,000	225,000	325,000
Barkley	23	17,000	5,000 - 67,000	45,000	150,000
Clayoquot	24	33,000	5,000 - 52,000	20,000	70,000
Conuma (Tlupana Inlet)	25	11,000	4,000 - 19,000	To be determined	
Nootka	25	25,000	10,000 - 40,000	15,000	55,000
Esperanza	25	30,000	20,000 - 40,000	15,000	55,000
Kyuquot	26	50,000	26,000 - 80,000	20,000	75,000

7.18.4 Issues

- Chum spawner enumeration effort has been reduced in recent years
- Very poor escapements observed in Area 25 have prevented Conuma River Hatchery from reaching its egg targets for many years
- Limited effort fisheries have produced minimal assessment information

7.18.5 Prospects

For WCVI chum the current stock status is considered poor. Over the last three brood cycles, naturally spawning populations have been below target abundance in many years despite the precautionary harvest regime. In addition, hatchery production levels have declined in recent years partially as a result of low abundance (i.e. hatcheries have not been able to achieve brood-stock targets in some years.) Therefore, in recent years overall catches have declined relative to historic levels.

2015 Forecasts: see Table 7-26. For most WCVI areas, forecasts for 2015 are continued low abundance of chum populations. In most areas the forecast abundance remains below or only modestly above lower fishery reference points. For those areas with forecasts above the fishery reference point, the available surplus is allocated for First

Nation FSC/treaty fisheries except for a very small surplus in Area 25. A limited effort gillnet fishery is being considered in Area 25 subject to discussions with Area D and Area 25 First Nations.

7.19 Fraser River Pink Decision Guidelines

7.19.1 Background

Fraser pink salmon return to the Fraser system on a two year cycle, with returns almost entirely in odd calendar years only. Minimal numbers of Fraser River pink salmon return in even years and no directed harvest occurs in these years.

7.19.2 Constraints

It is expected that conservation constraints for co-migrating stocks of concern such as Late Run and Cultus Lake sockeye, Interior Fraser River coho and Interior Fraser River steelhead will likely constrain the ability to harvest all available Fraser River Pink TAC identified in-season.

7.19.3 Decision Guidelines

The 2015 forecast return for Fraser River pink salmon at the various probability levels is shown in Table 7-23. There is a one in ten chance that the return of Fraser River pink salmon will be at or below 7.66 M (i.e. lower 10% forecast range) and a nine in ten chance that it will be at or below 27.78 M (i.e. upper 90% of forecast range). The mid-point of the forecast is 14.46 M (there is a one in two chance the return will be below this specified run size). Due to changes in assessment methods of adult returns over time, the 2015 pink forecast is highly uncertain.

For further details refer to the Canadian Science Advisory Secretariat Science Response document: Pre-season run size forecasts for Fraser River Sockeye (*Oncorhynchus nerka*) and Pink (*O. gorbuscha*) salmon in 2015 (DFO 2015).

Table 7-23: Forecast Return for Fraser River Pink Salmon at Various Probability Levels in 2015.

mean run size:	13,400,000			
fry in 2013 brood year:	609,000,000			
Probability that Return will be at/or Below Specified Run Size				
10%	25%	50%	75%	90%
7,661,000	10,385,000	14,455,000	20,450,000	27,776,000

The escapement strategy for Fraser pink salmon continues to be based on an interim escapement goal of 6M Fraser River pink salmon. At run sizes above 20 M, the escapement target is 30% of the total return, with an exploitation rate cap of 70%. Escapement targets and exploitation rates are outlined in the escapement plan in Table 7-24 and in Figure 7-2.

Table 7-24: Fraser River Pink Salmon Escapement Plan for 2015.

7,059,000	Lower Fishery Reference Point
20,000,000	Upper Fishery Reference Point
70%	Maximum Exploitation Rate

	Pre-season Forecast Return				
	p10	p25	**p50**	p75	p90
forecast	7,661,000	10,385,000	14,455,000	20,450,000	27,776,000
escapement target	6,000,000	6,000,000	6,000,000	6,135,000	8,333,000
allowable ER	22%	42%	58%	70%	70%

Preseason fishing plans are developed based on the 50 percent probability level forecast. In-season run size estimates form the basis for management once these estimates are available.

Figure 7-2: 2015 Pink EscapementTarget and Exploitation Rate versus Run-Size

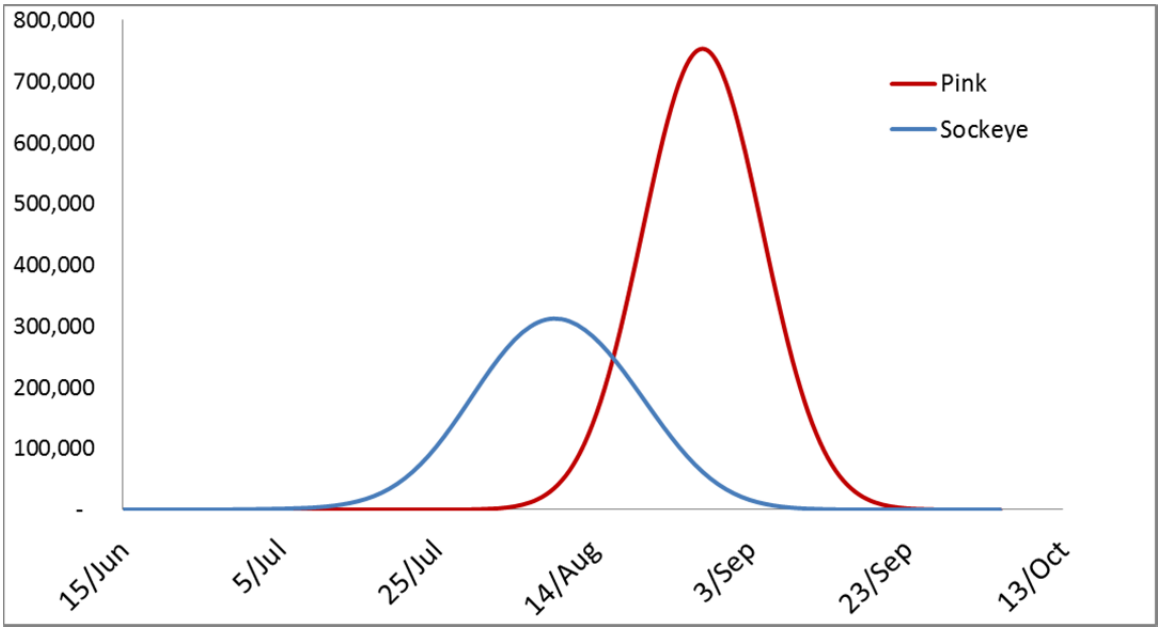


Figure 7-3: Pre-season Run Timing Curves for 2015 Fraser Sockeye and Pink Salmon

7.19.4 Issues

- 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.
- The Department will be establishing an integrated approach to decision rules for allowable sockeye impacts and/or for stocks of concern during directed fisheries on Fraser pinks.
- The Department will be working with the Area B Seine and Area H harvest committees to develop a demonstration individual transferable quota (ITQ) fishery for Fraser pink salmon (similar to the fishery in 2013).

7.19.5 Prospects

There will likely be TAC available for fisheries directed on Fraser pink salmon at returns at or above the p10 level of abundance subject to constraints on co-migrating stocks and species.

7.20 North Vancouver Island and Mainland Inlet Pink Decision Guidelines

7.20.1 Background

Northern Vancouver Island and Mainland Inlet pink salmon return on both even and odd year cycles, although typically the dominant cycle is the even-year cycle. The key pink systems on Northern Vancouver Island and in the Mainland Inlets include: Adam/Eve, Salmon, Cluxewe, Quinsam/Campbell, Quatse, Amor de Cosmos, Kakweiken, Glendale, Ahnuhati, Ahta, Lull, Embley, Kingcome, Wakeman and Phillips. These stocks are mainly harvested in mixed-stock Johnstone Strait Fraser River sockeye and pink directed fisheries. Some terminal areas, such as the Kakweiken and Glendale, provide opportunities for all three commercial gear types, although in the past seines caught the majority of fish. 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. Limited participation fisheries in the terminal areas can be used as a tool for in-season assessment in years when good returns are expected. Fleet size during these fisheries is highly variable and depends on other fisheries occurring during the same time period (e.g. Fraser River sockeye fisheries) as well as market prices. Over-flights may also be used to assist in estimating abundance in the terminal areas, as well as to provide in-season river escapement estimates.

Normal recreational fishery opportunities are available. The majority of recreational effort is in terminal areas and effort has increased in recent years.

First Nations FSC fishing opportunities on these stocks are also provided. An ESSR fishery at the Quinsam Hatchery will be considered in years when abundance indicates that an ESSR fishery may be warranted.

7.20.2 Constraints

Managed to meet escapement targets; once surpluses identified terminal fisheries are considered.

Directed commercial Mainland Inlet pink fisheries are restricted to terminal areas.

Daylight fishing only.

Fishing boundaries are established to minimize encounters of chinook, coho, sockeye and chum, and to ensure escapement targets are reached.

Upper Knight Inlet boundary is implemented to conserve weaker pink stocks.

Kakweiken, Glendale and Phillips pink stocks are managed separately in terminal areas.

In 2015 a cautious approach to managing these stocks will continue based on uncertainty in returns.

Limited participation commercial fisheries directed at pinks may occur in 2015 and will be confirmed in-season based on assessment information.

7.20.3 Decision Guidelines

In-season Decisions

Commercial representatives are consulted in-season through area harvest committee advisory bodies. Weekly assessments to determine abundance and potential fishing opportunities are based on over-flights, on-grounds surveys of the terminal areas and in some years, limited effort seine, gill net, and troll assessment fisheries.

The following considerations will guide 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.

7.20.4 Issues

The funding for in-season assessment of mainland inlet pink stocks is currently uncertain; fisheries directed on mainland inlet pink stocks are contingent on in-season assessment information.

The commercial industry may have marketing and quality concerns during a protracted fishery in years when a significant surplus is available.

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.

7.20.5 Prospects

These systems typically have both odd and even year returns. Returns in 2013 demonstrated an increase in abundance for this cycle line over the brood year in 2011. Strong pink returns in 2014 indicate improved marine conditions, however, anomalously warm ocean conditions may have an impact on 2015 returns. There has been a steadily improving trend in abundance for the odd year cycle line since 2003 with a slight drop in the 2011 return and a strong resurgence in 2013. Based on strong survivals seen in 2014 and the improved brood year returns in 2013, expectations are for near target in 2015. Historically pink returns to this area have been highly variable and expectations are highly uncertain.

8 SHARED STEWARDSHIP ARRANGEMENTS

Stewardship refers to the care, supervision or management of something, especially the careful and responsible management of something entrusted to one's care.[15] In the

[15] 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

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), Fisheries Reform, Aboriginal Aquatic Resource and Oceans Management (AAROM) Program, and the Aboriginal Fisheries Strategy (AFS).

Also referred to as "co-management," 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) brings together several First Nations, commercial and recreational harvesters, and environmental interests to review and provide input on the draft 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.

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 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 identify 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 economic 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 officially consults with the Marine Conservation Caucus, an umbrella group representing eight core environment groups.

9 COMPLIANCE PLAN

9.1 Compliance Management Objectives

Conservation and Protection Program Description

The Conservation and Protection (C&P) program promotes and maintains compliance with legislation, regulations and management measures implemented to achieve the conservation and sustainable use of Canada's aquatic resources, and the protection of species at risk, fish habitat and oceans.

The program is delivered through a balanced regulatory management and enforcement approach including:

- promotion of compliance through education and shared stewardship;
- monitoring, control and surveillance activities;
- Management of major cases /special investigations in relation to complex compliance issues.

In carrying out activities associated with the management of Pacific salmon as outlined in this management plan, C&P will utilize principle-based approaches and practices which are consistent with the National Compliance Framework and the DFO Compliance Model.

9.2 Regional Compliance Program Delivery

For the salmon fisheries in the Pacific Region, C&P will be utilizing a broad scope of tools and approaches to manage compliance towards achieving conservation and sustainability objectives, including:

- Maintain and develop relationships with First Nations communities, recreational groups and commercial interests through dialogue, education and shared stewardship.
- Intelligence-led investigations may specifically target repeat and more serious offenders for increased effectiveness of enforcement effort. Illegal sales of salmon will continue to be a regional priority.
- Prioritize enforcement efforts on measures directed towards conservation objectives.
- Fish habitat protection remains a key focus of fishery officer efforts coordinated regionally by the Fisheries Protection Program.
- Utilize 'Integrated Risk Management' to ensure fishery officer efforts are focused and directed at problems of highest risk.
- Continue high profile fishery officer presence through patrols by vehicle, vessel and aircraft to detect and deter violators.
- Monitor and support at-sea observers and dockside monitors to ensure accurate catch monitoring and reporting.
- Support traceability initiatives within the salmon fishery to enhance accountability. Monitor and verify catches and offloads of salmon to ensure accurate and timely catch reporting and accounting, including coverage of Dual Fishing opportunities.
- Priorities and direct compliance efforts where there is a risk to salmon stocks of concern.
- Use of enhanced surveillance techniques, and new available technology as well as covert surveillance techniques as a means to detect violations and gather evidence in fisheries of concern.
- Patrols during open timed fisheries to increase intelligence gathering, build relationships with stake holders and ensure compliance to licence conditions.
- Inspect fish processors, cold storage facilities, restaurants and retail outlets for compliant product.
- Maintain a violation reporting 24-hour hotline to facilitate the reporting of violations.
- Continue to promote 'Restorative Justice' principles in all fisheries.

9.3 Consultation

C&P works closely within the Fisheries and Aquaculture Management sector and the Fisheries Protection Program to ensure that fishery management plans are enforceable and implemented in a controlled, fair manner and that habitat is protected. C&P has a multi-faceted role as educator, referee, mediator and law enforcer.

C&P participates on a regular basis in consultations with the fishing community and general public. Education, information and shared stewardship are a foundation of C&P

efforts. C&P participates in all levels of the advisory process. The importance of local field level fishery officer input to these programs has proven invaluable and will continue.

C&P will continue meeting at the local level with individual First Nations, through the fishery officer First Nation Liaison Program and with First Nations planning committee meetings that involve many First Nations' communities at one time.

C&P officers participate in local fishery management 'roundtables' and sport fishery recreational advisory committees in their respective areas and participate at Sport Fishery Advisory Board meetings.

Fishery officers are viewed as the public face of the department. During their day-to-day activities, the fishing community and general public provide comment and input that is promptly communicated to C&P managers, fisheries managers and habitat management staff. This public feedback is critical in identifying issues of concern and providing accurate feedback on emerging issues.

9.4 Compliance Strategy

In 2015, specific objectives for the salmon fishery will be to focus compliance management efforts on:

- Support 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 using intelligence to target priority fisheries and compliance issues.
- Work with stakeholders to improve regulatory compliance.

Salmon fishery compliance continues to be a priority for C&P for 2015. There are, however, other competing priorities such as supporting the Fisheries Protection Program in protecting habitat, the Canadian Shellfish Sanitation Program, and the protection of Species at Risk. These priorities often occur during the same periods as the salmon fisheries.

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 ensures that resources are allocated appropriately. Resource utilization is dependent on availability of program funding.

10 PERFORMANCE/EVALUATION CRITERIA

This section is intended to outline measurable indicators to determine whether or not those management issues outlined in IFMP Section 4 are being addressed and those objectives outlined in IFMP Section 5 are being achieved. 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; Wild Salmon Policy 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.

1 APPENDIX 1: ADVISORY BOARD MEMBERSHIPS

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

Integrated Harvest Planning Committee - North Coast Subcommittee Members

Recreational (Three) Members	
Urs Thomas	info@goldenspruce.ca
Tom Protheroe	tjprotheroe@hotmail.com
John McCulloch	John.mcculloch@langara.com
Alternates	
Ken Franzen	kenfranzen@hotmail.com
Gord Wolfe	
Rupert Gale	ruperta@telus.net
Commercial (Four) Members – The commercial representatives of the IHPC may change as a result of the Area Harvest Committee elections held in the spring of 2015. The most current membership list can be found on the DFO website at: http://www.pac.dfo-mpo.gc.ca/consultation/smon/ihpc-cpip/membs-eng.html	
Rick Haugan - Area A	chaugan@citytel.net
Mabel Mazurek - Area C	nnfc@citytel.net
Ron Fowler – Area F	rwfowler@telus.net
Rob Morley – processor	rob.morley@canfisco.com
Alternates	
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Joy Thorkelson – Area C	ufawupr@citytel.net
John Hughes – Area F	vegaenterprisesfl@gmail.com
Marine Conservation Caucus (Two) Members	
Greg Knox	gregk@skeenawild.org
Misty MacDuffee	misty@raincoast.org

First Nations (Four) Members	
Bill Gladstone - Heiltsuk Band	williamggladstonesr@gmail.com
Harry Nyce - Nisga'a Lisims Government	harryn@nisgaa.net
Robert Davis - Council of the Haida Nation	Robert.Davis@haidanation.ca
Stu Barnes - Skeena Fisheries Commission	stu_barnes@skeenafisheries.ca
Alternates	
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Russ Jones – Council of Haida Nation	russ.jones@haidanation.net
Walter Joseph – Wet'suwet'en First Nation	walter.joseph@wetsuweten.com
Province (ex-officio) (One)	
Vacant	Vacant

Integrated Harvest Planning Committee - South Coast Subcommittee Members

Recreational (Three) Members	
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Laurie Milligan	lmilligan@shaw.ca
Marilyn Scanlan	murphymar@shaw.ca
Alternates	
Rupert Gale	ruperta@telus.net
John Pew	
Jeremy Maynard	jmaynard@island.net
Commercial (Six) Members – The commercial representatives of the IHPC may change as a result of the Area Harvest Committee elections held in the spring of 2015. The most current membership list can 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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Richard Nomura – Area E	richardnomura@dccnet.com
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Alternates	
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Aaron Hill	hillfish@telus.net
Alternate	
First Nations (Four) Members	
Vacant	
Vacant	
Vacant	
Vacant	
Alternate	
Province (ex-officio) (One) Member	
Vacant	

2 APPENDIX 2: FISHING VESSEL SAFETY

2.1 Overview – Fishing Vessel Safety

Vessel owners and masters have a duty to ensure the safety of their crew and vessel. Adherence to safety regulations and good practices by owners, masters and crew of fishing vessels will help save lives, prevent vessel damage and protect the environment. All fishing vessels must be in a seaworthy condition and maintained as required by Transport Canada (TC), WorkSafeBC, and other applicable agencies. Vessels subject to inspection should ensure that the certificate of inspection is valid for the area of intended operation.

In the federal government, responsibility for shipping, navigation, and vessel safety regulations and inspections lies with Transport Canada (TC); emergency response with the Canadian Coast Guard (CCG) and DFO has responsibility for management of the fisheries resources. In B.C., 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
Fish Safe – Safe on the Wheel Course
Fish Safe – Safest Catch Program
First Aid
Radio Operators Course
Fishing Masters Certificates
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 Quik

For further information see: www.tc.gc.ca/eng/marinesafety/menu.htm
www.fishsafebc.com
www.worksafebc.com

2.2 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.

2.2.1 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 will 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 vessel capsizings, 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 and M12W0062 - Pacific Siren.

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 Gina McKay at Fish Safe for a copy of the program materials they developed to address safety and vessel stability in these fisheries. Gina McKay - Phone: 604-261-9700 - Email: fishsafe@fishsafebc.com

2.2.2 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.

2.2.3 Cold Water Immersion

Drowning is the number one cause of death in B.C.'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 WorkSafe

Bulletin Cold Water Immersion (available from the WorkSafeBC website at www.worksafebc.com), where the need to don PFD's while working in or near the water during fishing operations is clearly emphasized.

2.2.4 Other Issues

2.2.4.1 Weather

Vessel owners and masters are reminded of the importance of paying close attention to current weather treads and forecasts during the voyage. Marine weather information and forecasts can be obtained on VHF channels 21B, Wx1, Wx2, Wx3, or Wx4. Weather information is also available from Environment Canada website at: http://www.weatheroffice.gc.ca/marine/index_e.html

2.2.4.2 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 20 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: www.ccg-gcc.gc.ca/e0003901 or go directly to the Industry Canada web page: www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf01032.html.

A DSC radio that is connected to a GPS unit will also automatically include your vessel's current position in the distress message. More detailed information on 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: www.ccg-gcc.gc.ca/Pacific.

2.2.4.3 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/e0003901.

2.2.4.4 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.

2.3 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: www.worksafebc.com

For further information, contact an Occupational Safety Officer:

Bruce Logan	Lower Mainland	(604) 244-6477
Wayne Tracey	Lower Mainland	(604) 232-1960
Pat Olsen	Courtenay	(250) 334-8777
Mark Lunny	Courtenay	(250) 334-8732
Jessie Kunce	Victoria	(250) 881-3461

or the Manager of Interest for Marine and Fishing, Mike Ross (250) 881-3419.

For information on projects related to commercial fishing contact Ellen Hanson (604) 233-4008 or Toll Free 1-888-621-7233 ext. 4008 or by email: Ellen.Hanson@worksafebc.com.

2.4 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, is available to all fishermen who want to improve their understanding of stability and find practical application to their vessel's operation. The 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 Gina McKay, Project Coordinator John Krgovich, Program Assistant, Connor Radil, and 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:

Gina McKay
Program Manager
Fish Safe
#100, 12051 Horseshoe Way
Richmond, BC V7A 4V4

Phone: 604-261-9700
Cell: 604-339-3969
Fax: 604-275-7140
Email: fishsafe@fishsafebc.com
www.fishsafebc.com

2.5 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 2012, the TSB released the results of a three-year investigation into fishing safety in Canada. This report identifies 10 key factors and makes several suggestions to address the problems that persist throughout the industry. In 2013 the TSB released investigation reports on two prawn fishing vessels the Jessie G and the Pacific Siren. In 2014 the TSB released the investigation report on the collision between fishing vessel Viking Storm and US fishing vessel Maverick.

For more information about the TSB, visit it's website at www.tsb.gc.ca. For information about the TSB's investigation into fishing safety, or to view a brief video, visit

http://www.tsb.gc.ca/eng/medias-media/videos/marine/m09z0001/index.asp.

To view 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 - 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

3 APPENDIX 3: ROCKFISH CONSERVATION AREAS

A total of 164 Rockfish Conservation Areas (RCAs) have been implemented coast wide to protect inshore rockfish species (which include yelloweye, quillback, copper, china and tiger).

Descriptions including maps of the RCAs can be found online at:
Website: http://www.pac.dfo-mpo.gc.ca/fm-gp/maps-cartes/rca-acs/index-eng.htm

Or; check with your local Fisheries and Oceans Canada office for more information.

Permitted Fishing Activity in Rockfish Conservation Areas

The following fishing activities **will be permitted** in RCAs:

RECREATIONAL	COMMERCIAL
Invertebrates by hand picking or dive	Invertebrates by hand picking or dive
Crab by trap	Crab by trap
Prawn by trap	Prawn by trap
Smelt by gill net	Scallops by trawl
	Salmon by seine or gill net
	Herring by gill net, seine and spawn-on-kelp
	Sardine by gill net, seine and trap
	Smelt by gill net
	Euphausid (krill) by mid-water trawl
	Opal Squid by seine
	Groundfish by mid-water trawl

Recreational and commercial fishing activities not listed in the tables above are not permitted.

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.

4 APPENDIX 4: POST SEASON REVIEW 2014

4.1 Conservations / Sustainability Objectives

NOTE: The objectives shown in bold below is the wording from the 2014/15 Integrated Fisheries Management Plan.

4.1.1 Lower Strait of Georgia Chinook

The objective for Lower Strait of Georgia (LGS) chinook is 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 2014, the naturally spawning component of the adult escapement is estimated at 4,185 which remains below the target of 6,500 and has been below the goal since 1986 and less than half of the target between 2002 and 2012. Since the low escapement in 2009 (540 adult natural spawners and 245 adults spawned at the hatchery) there has been an increasing number of chinook returning to the Cowichan River. Spawner levels have seen improvements since historic lows in 2009, and returns in 2013 and 2014 were very similar and slightly higher than the previous year's suggesting that the rebuilding seen recently is continuing.

The overall exploitation rate estimated for 2013 was 54.8%, of which 44.9% was in Canadian and 9.8% in United States fisheries. The average exploitation rate across all Canadian fisheries was 54.2% from 1999 to 2013. It should be noted that estimates of exploitation rate in 2012 and 2013 were better than previous estimates due to an increase in the number of coded wire tags applied to fish released from Cowichan Hatchery. The 2014 exploitation rate estimates will not be available until June 2015.

4.1.2 West Coast of Vancouver Island (WCVI) Chinook

The objective for West Coast of Vancouver Island (WCVI) chinook is to manage Canadian ocean fisheries (specifically northern troll, Haida Gwaii sport, WCVI troll and WCVI sport) to an exploitation rate of 10%. The objective for North Coast chinook is 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 2014 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.

DNA sampling of the Area F troll Chinook catch continued in 2014 with 2,155 samples analyzed from a total seasonal catch of 172,001 Chinook. The major stocks contributing to the catch were: Upper Columbia Summer/Fall (44%), Southern Thompson (15%), Coastal Washington (10%) and North/Central Oregon (8%). The total catch of WCVI Chinook for 2014 was estimated to be 6,562 chinook (with a standard deviation of 422). The post season exploitation rate on WCVI chinook by the NBC troll fishery was 2.7% measured using CWT's.

The North Coast recreational fishery exploitation rate includes the impacts by the Haida Gwaii sport fishery (Area 1 and 2W) and Central Coast recreational fisheries.

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. Additionally, the fishery was closed from June until late July and again from August 9 until September 7.

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. Additional conservation measures included the '2 chinook per day under 77 cm maximum size limit', imposed within the 1-mile surfline corridor of the near-shore WCVI to protect the large female WCVI origin chinook. 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.

2014 escapement estimates for extensively surveyed WCVI streams are not completed yet. However, in-season observations indicate a decline in spawner abundance in most index systems; particularly those that are not enhanced.

Since 2001, the exploitation rate by the Northern troll fishery has averaged 2.6%. Exploitation in other non-terminal Canadian ocean fisheries was 23.3% in 2014 and has averaged 12% since 2001.

4.1.3 Fraser River Spring 4_2 Chinook

The objective for Fraser Spring 4_2 chinook is to conserve these populations by continuing to minimize incidental harvests in Canadian ocean fisheries. For directed fisheries in the Fraser River, the objective is to minimize directed harvests of Spring 4_2 chinook until July 15th. Fisheries beginning July 15th will be managed consistent with the management zone identified for Fraser Spring 5_2 and Summer 5_2 chinook given timing overlaps between these populations for much of the adult migration period.

In 2014 specific fishery management actions were implemented to protect the Spring 4_2 chinook management unit. The evaluation of these actions is based, in part, on the exploitation rate analysis provided by fishery for CTC indicator stocks. This annual analysis uses coded-wire tag (CWT) recoveries from indicator stocks to represent the impacts on all stocks within the management unit. The CWT indicator stock for the Spring 4_2 management unit is Nicola River.

For 2014, the total fishing mortality for the Nicola indicator stock is 16%.

The spawner abundance for the aggregate (excluding Bonaparte) was approximately 9,300 chinook compared with 6,400 in the brood year. The escapement estimate for the Nicola indicator stock was 6,900 based on aerial over flights.

4.1.4 Fraser Spring 5_2 and Summer 5_2 Chinook

The objective for Fraser Spring 5_2 and Summer (age 5_2) chinook is to conserve these populations consistent with the management zones.

The abundance of Spring and Summer 5_2 chinook returning to the Fraser River is estimated in-season based on chinook catch observed in the Albion test fishery. In 2014, the combined Spring and Summer 5_2 aggregate terminal run size was estimated at 47,550 chinook (95% PI: 33,000 to 69,000). This estimate, provided on June 16th, resulted in a Zone 2 management approach. The post-season terminal run size estimate (based on outputs from the Fraser River Run Reconstruction model) is not yet available.

The preliminary 2014 spawning escapement, as enumerated using various stock assessment techniques, was approximately 55,000 chinook; an increase from the 2009 brood year spawning escapement of 46,300. 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.

4.1.5 Interior Fraser River Coho

The objective for Interior Fraser River coho (including Thompson River coho) is to limit the Canadian exploitation rate to 16% or less for the 2014 season only.

The final in-season exploitation rate estimate for the total Canadian exploitation in southern BC fisheries on Interior Fraser coho for 2014 is uncertain; post-season estimates indicated a range from 10.1% to 19.4% depending on method used. The spawning escapement estimate of Interior Fraser River coho salmon for 2014 is 18,530, much lower than the escapement levels seen in the last three years, and lower than pre-season expectations. An estimate of total returns for 2014 is not yet available, but preliminary evaluations indicate a range of 23 to 26 thousand based on post-season exploitation rates and observed spawner abundance.

4.1.6 Cultus Lake Sockeye

Cultus Lake Sockeye will be managed within the constraints of the exploitation rate identified by 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. For Late Run sockeye, management will be based on an abundance-based Total Allowable Mortality as outlined in the Fraser sockeye escapement plan.

In 2014 Cultus Lake Sockeye were managed within the constraints of the exploitation rate identified for the Late Run aggregate. The maximum allowable exploitation rate for Cultus Lake Sockeye would be the greater of a) the low abundance exploitation rate identified for Late Run Sockeye 20% at the p50 forecast with consideration to move up to 30% for returns at or above the p75 forecast), 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.

The preliminary 2014 post-season exploitation rate estimate for Cultus Lake sockeye is 56%. This estimate may change dependent on post season run size assessment evaluations. The preliminary escapement estimate to the Sweltzer fence of 4,591 Cultus Lake sockeye (4,366 through the fence plus 250 kept for broodstock) was less than half of the brood year escapement of 10,654 (including broodstock).

4.1.7 Sakinaw Lake Sockeye

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

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

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 4.1. 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 4.1 Recent year escapements, hatchery fry releases and smolts counted leaving Sakinaw Lake, by brood year.

Brood year	Adult escapement	Hatchery fry releases (brood year +1, X1000)	Smolts leaving the lake (brood year +2)		Predominant return year (brood year +4)
			Hatchery origin	Natural origin	
2010	29	1,374	162,900	included in hatchery total	2014
2011	550	963	224,600	28,000	2015
2012	243	856	121,500	4,400	2016
2013	114	320			2017
2014	452				2018

4.1.8 Nimpkish Sockeye

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

In 2014, DFO worked with the Namgis First Nation on the development of an in-river assessment fishery for Nimpkish sockeye. This fishery was conducted by beach seine in the lower reach of the Nimpkish River to initiate the development of an early indicator on the strength of the return. A small number of sockeye (less than 600 fish) were retained during the assessment fishery for biological sampling which were then used by the Namgis First Nation for FSC purposes. There are plans to continue the development of this assessment fishery into the future.

In 2014, there were directed First Nations, commercial, and recreational Fraser River sockeye fisheries in Johnstone Strait and Queen Charlotte Strait. 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 and commercial and recreational fisheries did not begin until the beginning of August. By the end of July, most Nimpkish River sockeye have migrated through the marine approach waters and have entered the Nimpkish River system.

In 2014, the Nimpkish sockeye return continued to show better than average escapements with an estimated return to the river at approximately 112,000 sockeye.

4.1.9 Interior Fraser River Steelhead

The objective for Interior Fraser River steelhead is to minimize the impact of Canadian fisheries and to increase spawner abundance.

Returns of chum to Southern BC were somewhat variable in 2014. Commercial chum fisheries occurred in Johnstone Strait, and in some terminal areas on Vancouver Island. Moderate returns of chum were observed within the Fraser River, triggering FSC, commercial and recreational chum fisheries. Sockeye returns to the Fraser River were strong in 2014, with FSC, recreational and commercial opportunities for all gear types from mid-July through late September. The increased exploitation rate limits for IFR coho in 2014 allowed for gillnet fishing in the Fraser into mid-September, roughly two-weeks longer than has been allowed in recent years. A comprehensive evaluation of the impacts of these fisheries on Interior Fraser Steelhead is not available at this time.

The most recent escapement information available for Interior Fraser Steelhead is shown in Figure 4-1. In-season information provided on October 30th, 2014 indicated there was a 50% chance that the target escapement to the Thompson steelhead group of more than 850 fish would be met for the 2014 return (2015 spawning year).

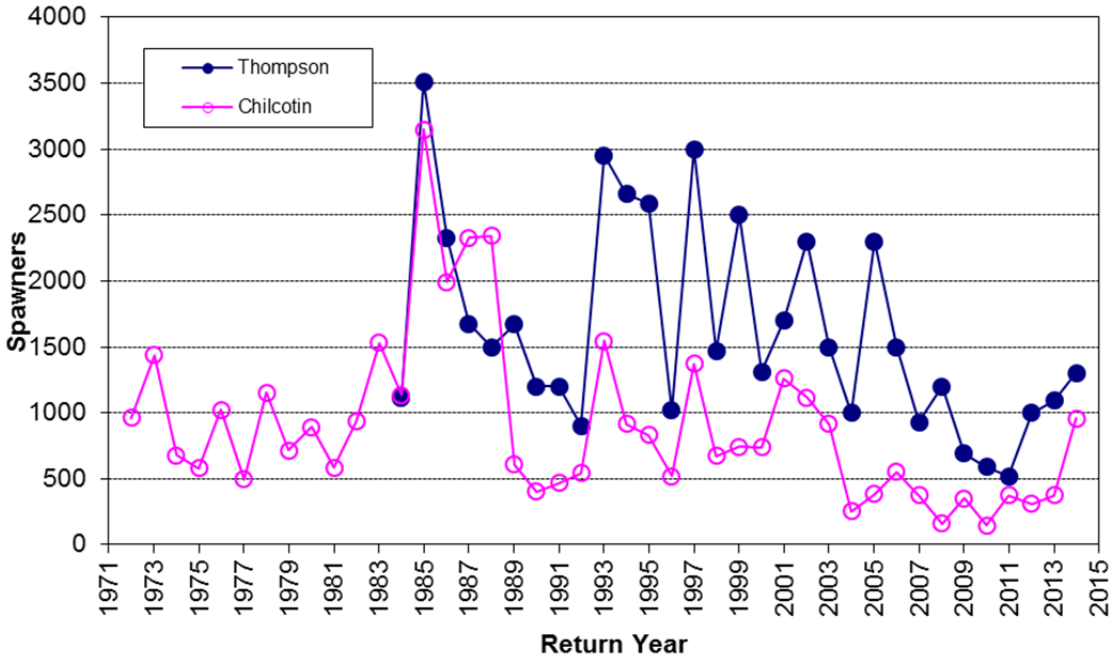

Figure 4-1: Historic trend of Interior Fraser Steelhead spawner abundance

4.1.10 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. A fishing mortality rate of less than 2.0 percent (all Pacific Region fisheries) will be required to achieve this objective.

To ensure stock rebuilding over time, Rockfish Conservation Areas (RCA's, no fishing zones for gear that impact on rockfish), 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.

4.2 First Nation 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 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 2014, salmon demonstration fisheries were conducted in the T'aaq-wiihak fishing area on the West Coast of Vancouver Island for AABM chinook, Burman (Area 25) chinook and Fraser sockeye with some incidental retention of other species.

Harvest opportunities for First Nations FSC fisheries in the South Coast and Fraser River in 2014 met expectations and were only affected by conservation measures that restricted opportunities for Early Stuart sockeye. As in recent years, restrictions were implemented to protect 90% of the Early Stuart component of the Fraser River sockeye return through a series of window closures. 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.

4.3 Recreational and Commercial Objectives

The objective is 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, the objective to improve the economic performance of fisheries so that they can reach their full potential, to provide certainty to participants, and to optimize harvest opportunities was achieved due to generally higher than forecast levels on some stocks.

4.4 International Objectives

The objective is 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

4.5 Domestic Allocation Objectives

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. The pre-season commercial salmon allocation plan for 2014 resulted in projected coast-wide salmon shares as follows: 40% seine; gill net 39% and 21% troll. A final analysis in 2014 has not been completed at this time.

4.6 Compliance Management Objectives

Inspections are carried out on vessels, buying stations, processors, transporters, cold storage facilities and brokers. The results of the inspections and the effort consumed are recorded in a database. This information is reviewed to evaluate whether compliance objectives have been met and if the compliance strategies were effective. Narrative information is also collected and shared. Compliance rates are calculated for each area and fishery but it must be recognized that these are subjective. Using the information collected in-season and during post-season activities, priorities are revalidated and adjustments made as necessary.

4.7 Enhancement Objectives

The Salmonid Enhancement Program (SEP) enhances chinook, chum, coho, pink, and sockeye salmon at the population level throughout the Pacific Region by responding to local, regional and international production objectives that aim to recover or rebuild populations or provide targeted harvest opportunities.

Refer to the link below for information regarding 2013 brood (i.e. 2014 releases, and #'s on hand for 2015 release) enhancement production:

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

5 APPENDIX 5: SOUTHERN BC / FRASER RIVER FIRST NATIONS FISHING PLAN

5.1 Catch Monitoring and Reporting Initiatives

The Strategic Framework for Fisheries Monitoring and Catch Reporting in the Pacific Fisheries (see Section 1.6.4) is being applied in First Nation FSC fisheries across the region including First Nation FSC fisheries. Work towards this includes assessing current monitoring practices, programs and gaps. 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 Nation Band offices.

5.1.1 First Nations Electronic Reporting 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. The electronic 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 ultimate goal of this initiative is to improve the efficiency and accuracy of reporting FSC catch and other fishing information to the Department.

Since its beginnings as a Microsoft Access program, the database has expanded to other interested First Nations group within the Pacific Region, including the BC Interior area, South Coast and the Central Coast. Approximately 34 First Nations groups have employed this software application. In 2010, work started on compiling all aspects of the approximate 34 current MS Access databases into one (1) system that would be customizable for each Nation's needs. Work on the new system is ongoing and the expected completion date is early 2016.

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

5.1.2 Chinook and Coho Coded Wire Tag (CWT Sampling) – Salmon Head Recovery Program

CWT target sample rates are established by the Department to meet bilateral Pacific Salmon Treaty standards. In 2015, 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. In 2015 where needed, the Department will:

1. Sample the entire catch and collect all heads that contain CWTs from 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 individual submissions of chinook or coho heads to catch monitors or to First Nations Salmon Head Depots. Sample rates are 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. All hatchery-marked chinook and coho do not 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, one label may be placed in a sealed bag with multiple heads.
3. Provision of catch information (# 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 a federal government contractor or by Department employees. Catch information will be provided to individuals and First Nations when CWT dissection results are available.

In 2015, DFO will be focusing efforts on CWT sampling on:

1. Improvements to communication of the requirement to collect CWT samples
2. Improvements to integration of CWT sampling in First Nations catch monitoring programs
3. Expansion and improvements to servicing requirements of First Nations Salmon Head Depots, as needed
4. Improvements in efficiency and timeliness of communications to anglers about their catch using email communications.

For additional information or locations of First Nations Salmon Head Depots,
PHONE: Salmon Head Recovery Program 1-866-483-9994 (toll-free)

5.2 Specific Conservation Measures

5.2.1 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 Nation communities, and

include processes such as the Cowichan Fisheries Roundtable prior to development of fishing plans.

5.2.2 West Coast of Vancouver Island Chinook

Protective measures may be considered in terminal areas, particularly Area 24, to reduce harvest impacts. Potential measures will be the subject of discussion with First Nation communities prior to development of the fishing plan.

5.2.3 Interior Fraser River Coho

Historical coded wire tag (CWT) data and DNA sampling indicate that Thompson and upper Fraser River coho are present in the lower Fraser River from late-August until mid-October. For fisheries in late-August and early September, fishing opportunities will be considered based on in season information including selectivity of fishing gear, expected release mortalities, and information on overall Interior Fraser River coho impacts relative to the Interior Fraser coho management objective. The window closure dates identified below will be used to guide fishery planning including fishery closures and/or very limited, selective and experimental fisheries will be implemented in portions of the Fraser River to protect Thompson and upper Fraser River coho.

Subareas 29-6, 29-7, 29-9 and 29-10	September 8 to October 9
Fraser River - Below Mission	September 8 to October 9
Fraser River - Mission to Hope	September 10 to October 12
Fraser River - Hope to Sawmill Creek	September 12 to October 17
Fraser River - Sawmill Creek to Lytton	September 16 to December 31
Fraser River - Lytton to Williams Lake River	September 23 to December 31
Fraser River - Upstream of Williams Lake River	October 1 to December 31

Thompson River –

Downstream of the confluence of the North and South Thompson Rivers	September 23 to December 31
Upstream of the confluence of the North and South Thompson Rivers	October 1 to December 31

5.2.4 Early Stuart Sockeye

Based on the pre-season forecast, median management adjustments, and the escapement plan TAM rule used in recent years, there is unlikely to be any opportunities for directed FSC harvest on Early Stuart sockeye, except for limited harvest in terminal areas in 2015. Fishery implementation will depend upon the in-season assessment of run size, in-river temperature and discharge conditions, the conservation and harvest plan (developed through pre-season consultations) and the available TAC for this stock group.

In past years when there has been no TAC identified either pre-season or in-season based on updates to the run size and/or the management adjustment, Early Stuart sockeye have

been managed to avoid directed fisheries on 90% of the run using a closure window. During the closure window, directed fisheries for sockeye would not be permitted except for limited First Nation ceremonial licences for unplanned events and small FSC harvest opportunities in terminal areas. In this scenario all harvest impacts will be constrained by the Low Abundance Exploitation Rate (LAER) identified in the escapement plan.

5.2.5 Cultus Lake and Late Run Sockeye

There may be restrictions and closures for fisheries that impact Fraser River sockeye stocks throughout southern BC in order to afford protection to 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 that are used as proxies for the less abundant Cultus Lake sockeye. Specific plans will be confirmed as more information is made available.

5.2.6 Sakinaw Lake Sockeye

Harvest related measures to ensure protection of Sakinaw Lake sockeye will continue in 2015. 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.

5.2.7 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 Nation, 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, & 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 Nation 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 Nation 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 Nation FSC harvest plan. If in-season abundance permits, some First Nations FSC harvest may also occur in the Nimpkish River.

5.2.8 Fraser River Chinook

In the 2015 Salmon Outlook, Spring 4_2, Spring 5_2, Summer 5_2 chinook have been classified as *low* abundance. For Fraser Summer 4_1 chinook, the Outlook is *near target* and will permit directed fisheries. The forecast estimate of the terminal spawner abundance (e.g. after all ocean fisheries removals) for Fraser Fall 4_1 (Harrison) chinook is provided in Section 7.3.3.

Management actions implemented since 2010 to protect and conserve Fraser Spring 4_2 chinook in the Fraser River are planned to continue in 2015. These actions will include limited fisheries prior to mid-June and reduced fishing times for communal fisheries beginning mid-June. For the lower Fraser River, the management actions for Fraser

Spring 4_2 chinook will be in place until July 15th. Management actions for Fraser Spring 4_2 chinook also provide additional protection for the Fraser Spring 5_2 and Summer 5_2 chinook as their migration timing overlaps significantly.

For Fraser Spring 5_2 and Summer 5_2 chinook, please refer to Section 5.1.4 for information on the management zone that will be used to determine management actions. The management zone may be updated in mid-June based on an in-season estimate of the return of Fraser Spring 5_2 and Summer 5_2 chinook to the mouth of the Fraser. Zone 1 management actions are intended to further reduce overall exploitation rates by 50% or more from the exploitation rate levels seen in the early 2000's on Spring 5_2 chinook while also providing additional protection to later timed Summer 5_2 chinook. Zone 1 management actions will include:

- Limited First Nations fisheries considered. Expected exploitation rates on Fraser Spring 5_2 and Summer 5_2 chinook reduced by at least 45% compared with the 2000 to 2006 period. Harvests of Spring 5_2 and Summer 5_2 chinook may occur during chinook-directed fisheries or as by-catch in sockeye-directed fisheries.
- Any commercial (including economic opportunity) net fisheries for Fraser sockeye are proposed to have chinook non-retention during the migration timing of these stocks.
- For additional details on recreational and commercial fishery measures please refer to Appendix 6 and 7, respectively.

For 2015, the Department is continuing to consult with First Nations on specific fishing plans for FSC fisheries.

5.2.9 Inshore Rockfish

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

5.3 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.

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 5-1 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 arrangement, 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 5-1: Communal Licence Harvest Target Amounts

	South Coast First Nations	Lower Fraser Area First Nations * #	Mid/Upper Fraser First Nations	Total
Sockeye:				
· Fraser River	276,800	434,000	300,000	1,010,800
· Non-Fraser River	15600**	0	20,000	35,600
Coho	By-catch or incidental retention during fisheries for abundant species or stocks. Directed harvest may be permitted in specific areas or terminal systems where abundance permits based on in season assessment			
Pink	60,000	124,800	500	185,300
Chum	155,000	91,300	500	246,800
Chinook	34,000	25,300	18,000	77,300
Total Salmon	541,400	675,400	339,000	1,555,800

*Note: Tsawwassen Treaty domestic fishery allocations are not included here. Please refer to Tsawwassen Fisheries (Domestic) in Appendix 5, section 5.7.1

#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.

5.4 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, 479 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 similar rules to 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 economic opportunities for First Nations and allow for experimentation and testing of inland fisheries are on-going with First Nations and stakeholders. For 2015, 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 similar rules as the commercial fishery and fish harvested will be off-set with licences voluntarily relinquished from the commercial fishery.

5.5 Demonstration Fisheries

The Department is considering the following commercial demonstration fisheries for 2015.

Additional discussions are planned to develop the detailed plans for these fisheries.

5.5.1 2015/16 T'aaq-wiihak First Nations (*Ahousaht et al* Plaintiffs) Salmon Fishery

DFO acknowledges that in *Ahousaht Indian Band et al. v. Canada and British Columbia*, the courts found that five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht – have aboriginal rights to fish for any species of fish within their Fishing Territories and to sell that fish, with the exception of geoduck. The Department is actively working with the First Nations to accommodate their rights without jeopardizing Canada's legislative objectives and societal interests in regulating the fishery.

The First Nations and the Department are currently considering opportunities for the 2015-2016 seasons. The scope of these deliberations have not precluded the potential to include any or all salmon species available with the T'aaq-wiihak First Nations' Fishing Territories as described by the courts. Where the Department and the T'aaq-wiihak reach agreement on the approach for 2015-2016, if necessary, the Department will amend this IFMP such that the IFMP is consistent with the agreed to approach for the T'aaq-wiihak fishery.

Region: West Coast of Vancouver Island, Areas 24/124, 25/125, and portions of 26/126

The salmon demonstration fishery will access the same salmon species as the general commercial Area G salmon troll and Area D salmon gillnet fleets access of the West Coast of Vancouver Island. Retention of ling cod and rockfish by-catch in the salmon demonstration fishery will be based on equivalence to the Area G troll fishery, consistent with the provisions of the 2013 and 2014 demonstration fisheries.

Ongoing negotiations with respect to dual fishing and multi-species fishing in the context of the salmon demonstration fishery may result in further actions to accommodate T'aaq-wiihak First Nations fishing rights in 2015 or 2016, depending on the outcome of negotiations.

Location Of Fisheries: Exact locations for all species are subject to ongoing negotiations in 2015 based on in-season migration and abundance information, but generally will be located as per below.

Permissible retention of bycatch for sale and FSC fisheries may change in-season subject to the negotiation process.

Gear Type: Primarily focused on troll gear (e.g. hook and line); potential for consideration of other gears (e.g. gill net and/or seine) in terminal areas.

Time Frame - Dates will be determined according to in-season migration timing and abundance information for each species.

Allocation: For all Species: Allocation is subject to ongoing negotiations in 2015, but generally will be expressed as a percentage (%) share of Commercial Total Allowable Catch (CTAC) for the relevant species. For example,

1. Chinook AABM fishery - Allocation to be determined but will be expressed as a percentage (%) share of Commercial Total Allowable Catch (CTAC) of WCVI AABM Chinook
2. Chinook ISBM fishery - Allocation to be determined but will be expressed as a percentage (%) share of Commercial Total Allowable Catch (CTAC) of terminal Conuma and Burman Chinook.

Monitoring Plan:
All T'aaq-wiihak salmon fisheries will be monitored using dockside monitors for all landings, landings at specific times and designated landing sites, logbooks and/or electronic log book system (ELOG), and, as necessary, 3rd party validation of catch at landing site. Also, CWT and other biological samples collection requirements will be determined in consultation.

Contacts:
DFO: Peter Hall, DFO WCVI Fisheries Manager
Phone: 250- 720-4445 Email: Peter.Hall@dfo-mpo.gc.ca

T'aaq-wiihak: Alex Gagne, T'aaq-wiihak Fisheries Coordinator
Phone: 250-266-1071, Email: Taaqwiihak@gmail.com

5.5.2 RWS RiverFresh Wild Salmon Ltd – In-River Sockeye, Pink 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. For 2015 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.

The 2015 SFC demonstration fisheries expectations are similar to 2012 and 2013; preseason forecasts for Early Summer and Late run sockeye stocks in the Secwepemc fishing area are uncertain. Fishery expectations are to target South Thompson 4-1 chinook and pink salmon with any available sockeye allocations to be taken as by-catch.

SFC will build on previous year's experiences and expand their knowledge and abilities participating in larger scale fisheries.

REGION - BC Interior

PARTICIPANTS – SFC, Adams lake Indian Band and other partners to be determined

LOCATION OF FISHERIES -

1. Chinook fishery – Kamloops Lake and Little Shuswap Lake

2. Sockeye fishery – Kamloops Lake, Thompson River (at Steelhead Park), Little Shuswap lake and potentially locations further upstream dependant on fish quality
3. Pink Fishery – Kamloops lake, Thompson River and potentially other suitable locations

GEAR TYPE –

1. Chinook fishery – 8" mesh set gill net
2. Sockeye fishery – purse seine and set gill net
3. Pink Fishery – Purse seine, set gill net and beach seine

TIME FRAME - NOTE: All fishery time frames are estimates and final dates will be determined according to in-season migration timing information

1. Chinook fishery – fishery will target on late summer South Thompson (4_1); potential start date is August 22 ending Sept. 23 or when the coho closure comes into force.
2. Sockeye fishery – fishery will potentially target Early Summer, Summer and Late Run Thompson sockeye; potential start date of Aug 15 for a six week fishery ending Sept. 23 depending on gear type.
3. Pink fishery - fishery will target Fraser Pinks, potential start date is August 25 ending Sept. 23 depending on gear type.

ALLOCATION –

1. Chinook fishery – the initial chinook allocation for 2015 will be expressed as a percentage (%) share of Commercial Total Allowable Catch (CCTAC) of Fraser chinook in the Area F troll fishery for salmon, as determined pre-season, with potential changes based on the in-season stock id information if it is available.
2. Sockeye Fishery - sockeye allocation will be expressed as a percentage (%) share of Commercial Total Allowable Catch (CCTAC) of Fraser sockeye in-season.
3. Pink Fishery - allocation will be expressed as a percentage (%) share of Commercial Total Allowable Catch (CCTAC) of Fraser pink in-season.

MONITORING PLAN –

1. Chinook fishery – will be monitored using designated landing sites, electronic log book system (ELOG) and Independent validation of catch at the processing plant.
2. Sockeye fishery – will be monitored using designated landing sites, electronic log book system (ELOG) and validation of catch at the landing site and independent validation at the processing plant.
3. Pink Fishery - will be monitored using designated landing sites, electronic log book system (ELOG) and validation of catch at the landing site and Independent validation at the processing plant.

CONTACTS – DFO: Dale Michie, BC Interior PICFI Coordinator
Phone: 250-851-4946, Email: Dale.Michie@dfo-mpo.gc.ca

SFC: Murray Ross, Director of Fisheries, Secwepemc Fisheries Commission
Phone: 778-471-8200, Email: mross@shuswapnation.org

5.5.3 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 in 2015. The 2015 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.

REGION - BC Interior

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 Nation (LTFN)

North Shuswap Tribal Council

Location: Quesnel River, Quesnel Lake, Chilcotin River and main stem 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 and Fraser pink salmon. Potential start date is August 16 for a six week fishery

1. **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 and Fraser pink salmon. Potential start date is August 16 for a three to four week fishery

2. **Carrier Sekani Tribal Council and Lheidli T'enneh First Nation**

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 and potentially Fraser pink salmon. 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 and Fraser pink salmon stocks in the area.

MONITORING PLAN – All

Fishery will be monitored using designated landing sites, electronic log book system (ELOG) and validation of catch at either landing site or plant.

CONTACTS – DFO: Dale Michie, BC Interior PICFI Coordinator
Phone: 250-851-4853, Email: Dale.Michie@dfo-mpo.gc.ca

NSTC: Ernest Kroeker, Fisheries Resource Manager, Northern Shuswap Tribal Council
Phone: 250-392-7361, Email: e.kroeker@nstq.org

TNG: Paul Grinder, Fisheries Program Coordinator, Tsilhqot'in National Government
Phone: 250-392-3918, Email: paul@tsilhqotin.ca

UFFCA: Gord Sterritt, Executive Director, Upper Fraser Fisheries Conservation Alliance
Phone: 250-305-5224-7513, Email: executivedirector@upperfraser.ca

5.5.4 Okanagan Nation Alliance - Terminal Sockeye Fishery

The Okanagan Nation Alliance (ONA) has submitted a demonstration fishery proposal for 2015. ONA will be working towards sustaining economic sales of Okanagan sockeye in addition to working with strategic allies for increasing sales and trade from other inland commercial fisheries. The 2015 fishery will 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 Nation, Penticton Indian Band, Osoyoos Indian Band, Upper Nicola Indian Band Lower and Upper Similkameen Indian bands.

LOCATION OF FISHERY – Osoyoos Lake, Okanagan River and potentially Skaha Lake depending on abundance.

GEAR TYPE – Purse seine(s), fish way trap, 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 there may be opportunity for economic fisheries in 2015. Opportunities will be identified based on in- season information of passage thru Wells Dam on the Columbia River therefore, there is potential for FSC, economic and recreational harvests in 2015. Commercial and recreational harvesting will only be conducted if the Wells Dam counts are sufficient to meet spawning escapement and FSC requirements, and experimental pilot initiatives into Okanagan Lake objectives for Okanagan sockeye. 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 log book 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.

CONTACTS – DFO: Dale Michie, BC Interior PICFI Coordinator
Phone: 250-851-4853, Email: Dale.Michie@dfo-mpo.gc.ca

ONA: Howie Wright, Fisheries Program Manager
Phone: 250-707-0095, Email: hwright@syilx.org

5.5.5 2015 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 –Sockeye: Set nets, drift nets or beach seines, Pink: 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, 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 – Sockeye: To be determined but will be expressed as a percentage (%) share of Canadian Commercial Total Allowable Catch (CCTAC). Pink: To be determined but will be expressed as a percentage (%) share of Canadian Commercial Total Allowable Catch (CCTAC). Chum: To be determined but will be expressed as a percentage (%) share of the Fraser River Terminal Commercial Total Allowable Catch (FRTCTAC)

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 late August or early September.

Pink: Early September to Late September

Chum: Mid–October to mid-November

Fraser chinook: A fishery for Fraser chinook may be considered concurrently with any sockeye fishery.

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.

CONTACTS - DFO - Sheldon Evers: Unit #3-100 Annacis Parkway, Delta, BC Phone 604-666-8049

Kim Charlie at Sts'ailes band office Phone: 604-796-2116

5.6 Special Projects or Initiatives

5.6.1 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 was initiated in 2009 and in subsequent years with the aim of furthering discussions on management principles and approaches for Fraser salmon. Meetings took place in December (2014), January, March and April 2015. A series of similar meetings is expected to occur in January, March and April 2016. A 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 Nation 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.

5.7 Treaty Fisheries

Tsawwassen and Maa-nulth First Nation Treaties came into effect on April 3, 2009 and April 1, 2011, respectively. Yale and Tla/amin First Nation Treaties are to come into effect in April, 2016. Under the Treaties, Fisheries Operation Guidelines (FOG) set out the operational principles, procedures and guidelines needed to assist Canada, BC, Tsawwassen, Maa-nulth, Yale 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, make 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: http://www.BCtreaty.net/

5.7.1 Tsawwassen Fisheries (Domestic)

As per the Tsawwassen Fisheries Operation Guidelines (TFOG), each year the Tsawwassen First Nation (TFN) will develop a Tsawwassen Annual Fishing Plan (TAFP) for the harvest of salmon as per the Tsawwassen First Nation 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 Nation. 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 salmon under the Tsawwassen First Nations Final Agreement is as follows:

Sockeye salmon

In any year, the Tsawwassen Fishing Right Allocation for sockeye salmon will be:

a) 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;
b) 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
c) 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.

Chum salmon

In any year, the Tsawwassen Fishing Right Allocation for chum salmon will be 2.58% of the Terminal Surplus of Fraser River chum salmon to a maximum of 2,576 Fraser River chum salmon.

Pink salmon

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.

Chinook salmon

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.

Coho salmon

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.

5.7.2 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 Nation 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 Nation 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 Nation. The JFC set up by the Tsawwassen Final Agreement will conduct a post season review.

Salmon allocation under the Harvest Agreement:

- **Sockeye:** 0.78% of the Commercial Allowable Catch for Fraser River Sockeye Salmon for that year.
- **Chum:** 3.27% of the Commercial Allowable Catch for Fraser River Chum Salmon for that year.
- **Pink:** 0.78% of the Commercial Allowable Catch for Fraser River Pink Salmon for that year.

5.7.3 Maa-nulth Fisheries

The Maa-nulth First Nations fishery for domestic purposes (food, social and ceremonial), subject to conservation, public health or public safety, under the Maa-nulth First Nations Final Agreement (Treaty) came into effect on April 1, 2011. The Maa-nulth First Nations comprise five individual First Nations; Huu-ay-aht First Nations, Ka:'yu:'k't'h'/Che:k'tles7et'h' First Nations, Toquaht Nation, Uchucklesaht Tribe and the Yuułuʔiłʔatḥ First Nation on the west coast of Vancouver Island.

The Maa-nulth Fisheries Operational Guidelines (FOG) sets out the operational principles, procedures and guidelines to assist Canada, BC and Maa-nulth in implementing the Fisheries Chapter of the Treaty. The FOG provides guidance on the Maa-nulth fishery incorporating biological, harvesting, catch monitoring and reporting considerations, and other matters of the Treaty. A companion document, the FOG Supporting Document, further defines and clarifies fisheries activities and operations.

Each year, the Maa-nulth First Nations prepare an Annual Fishing Plan that describes the various fisheries to be undertaken. The Joint Fisheries Committee (JFC), constituted under the Treaty, will make recommendations to the Minister on the issuance of a Harvest Document and amend in-season Harvest Documents to authorize harvesting for domestic purposes. The in-season management will vary depending upon the species, the coordination of other fisheries, including the Maa-nulth domestic treaty fishery in-season species abundance levels, total allowable catch levels, or available quotas for harvest as set by the Minister.

More information on the Treaty can be found at: http://www.BCtreaty.net/

5.7.3.1 Maa-nulth Fisheries (Domestic)

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:

a. An amount of Somass sockeye salmon equal to:
    i. When the Somass Sockeye Canadian Total Allowable Catch is 50,000 or less, 20% of the Somass Sockeye Canadian Total Allowable Catch;
    ii. 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;
    iii. 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
    iv. When the Somass Sockeye Canadian Total Allowable Catch is greater than 412,421, then 22,886;
b. An amount of Fraser River sockeye salmon equal to 0.13366% of the Fraser River Sockeye Salmon Canadian Total Allowable Catch;
c. 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;
d. An amount of Terminal Jansen Lake Sockeye Salmon equal to 50% of the amount of Terminal Jansen Lake Sockeye Salmon that the Minister determines is available for harvest; and
e. An amount of Terminal Power Lake Sockeye Salmon equal to 50% of the amount of Terminal Power Lake Sockeye Salmon that the Minister determines is available for harvest.

Chum salmon

Each year, the Maa-nulth Fish Allocation for chum salmon is:

a. 3,000 pieces, when the return of Terminal Chum Salmon is critical;
b. 6,500 pieces, when the return of Terminal Chum Salmon is low;
c. 10,000 pieces, when the return of Terminal Chum Salmon is moderate;

d. 14,000 pieces, when the return of Terminal Chum Salmon is abundant;
e. 17,500 pieces, when the return of Terminal Chum Salmon is very abundant.

Pink salmon

In the first two year period following the Effective Date, and in each subsequent two year period, the Maa-nulth Fish Allocation for pink salmon is 7,250 pieces.

Chinook salmon

Each year, the Maa-nulth Fish Allocation for chinook salmon is:

a. An amount of Ocean Chinook Salmon equal to 1,875 pieces plus 1.78% of the Ocean Chinook Salmon Canadian Total Allowable Catch; and
b. An amount of Terminal Chinook Salmon equal to:
    i. 200 pieces, when the return of Terminal Chinook Salmon is critical;
    ii. 1,500 pieces, when the return of Terminal Chinook Salmon is low;
    iii. 2,000 pieces, when the return of Terminal Chinook Salmon is moderate; and
    iv. 2,600 pieces, when the return of Terminal Chinook Salmon is abundant

Coho salmon

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:
    i. 1,200 pieces, when the return of Terminal Coho Salmon is critical;
    ii. 1,850 pieces, when the return of Terminal Coho Salmon is low;
    iii. 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.

5.7.3.2 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 Nation Harvest Agreement". The allocations in the Harvest Agreement (HA) do not affirm aboriginal or Treaty rights. Fishing under the HA will be managed to the same priority level as a regular commercial fishery. Maa-nulth prepares a HA Fishing Plan which is provided to the JFC for review prior to the season's commencement. Each year that the Minister authorizes commercial fishery in the Maa-nulth fishing area, the Minister will issue a communal commercial fishing licence for the Maa-nulth First Nations. The JFC set up by the Maa-nulth Final Agreement will conduct a post season review.

Salmon allocation under the Harvest Agreement:

Henderson Lake Sockeye Salmon: in a portion of Area 23, will be for 20% of the Terminal Commercial Total Allowable Catch following the removal of the Maa-nulth Domestic harvest allocation from the total CTAC.

6 APPENDIX 6: SOUTHERN BC / FRASER RIVER RECREATIONAL FISHING PLAN

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.*

Detailed information on tidal and freshwater salmon sport fishing regulations is found online (bcsportfishingguide.ca).

To sign up to have recreational fishery notices sent directly to your email, please visit our website (bcsportfishingguide.ca), 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

6.1 Changes to Recreation Fisheries for 2015/2016

The following represents a list of changes to recreational fisheries in the upcoming year. This information is subject to change in-season if additional conservation concerns arise or if additional recreational opportunities become available. Changes will be communicated through Fishery Notices, media reports, telephone information lines and/or postings on the Pacific Region Fisheries and Oceans Canada website at: http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.html

6.1.1 Tidal Waters

Areas 11 and 12: Wild coho opportunities will be permitted in these Areas; changes to fishery management actions will be announced by Fishery Notice.

Areas 23 to 27: Wild coho retention opportunities in inshore WCVI areas are planned for local WCVI coho; boundary adjustments may also be considered. See Appendix 6, section 6.4.2.

Area 25: There are changes to chinook retention limits in portions of Esperanza Inlet based on the results of 2014 DNA sampling. DNA sampling programs are continuing in 2015 and the Department will be reviewing and assessing these data and will consult with the SFAB on any potential future changes. See Appendix 6, section 6.3.2.

6.1.2 Non-Tidal Waters

Region 2:

- **Fraser River** –The daily limit for pink salmon is planned to start at four per day; the opening date will be confirmed in-season.

- **Chilliwack River, Harrison River and Stave River** – The daily limit for pink salmon is planned to start at four per day.
- **Squamish, Mamquam and Cheakamus Rivers** – The daily limit for pink salmon is planned to be two per day from July 1 to December 31.
- **Squamish River** – The daily limit for chum salmon is planned to be one per day from November 1 to November 30th.

Region 3: A possible increase in the waters opened to recreational fishing near Lillooet when sockeye and/or pink fisheries are permitted is being considered. Consultations with First Nations and stakeholders are ongoing.

Region 5A: A pink salmon fishery is being considered on the mainstem Fraser River in the vicinity of Williams Lake and on the Quesnel River downstream of the Johnston Subdivision Bridge. The opening dates for this fishery would be from August 30th to mid-September if zone 2 management is in effect for chinook salmon.

6.2 Catch Monitoring and Reporting Initiatives

The SFAB has been working with DFO on initiatives to strengthen fishing monitoring and catch reporting in the recreational fishery for a number of years and has developed a plan to meet the objectives of the Strategic Framework for Fishery Monitoring and Catch Reporting in the Pacific Fisheries (see sec. 1.6.4).

Recreational harvesters may be requested by a Fishery Officer or designated DFO representative, such as a creel interviewer, to provide important catch and effort information or biological samples either on the water or at the dock. Catch and Effort information is used to estimate recreational harvest of finfish in marine waters and salmon in fresh waters throughout B.C. A recreational mail survey is conducted nationally by DFO every 5 years to collect recreational fishing information. The Department has also been conducting a monthly Internet Recreational Effort and Catch (iREC) survey since July 2012 with the aim of eventually using it to provide monthly estimates of effort and catch from all methods of recreational fishing, including angling, trapping, beach collecting, and diving for all sport caught species. Because the iREC survey is a new method, it is undergoing a scientific review in 2015 through the Canadian Science Advisory Secretariat (CSAS) prior to the results being incorporated and released publically.

Information on the internet recreational survey is available at: http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/irec/index-eng.html

Since 2013 recreational harvesters have been required, as a condition of the Tidal Waters Sport Fishing Licence, to 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.

In addition to the monthly iREC survey, a separate online survey conducted annually requests catch records of 20,000 licence holders. These licence holders were asked to provide the catch records as written on their licences for halibut in 2014 and for chinook,

lingcod and halibut for 2015. Information on the Annual Recreational Catch (iARC) survey is available at: http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/irec/iarc-eng.html

6.2.1 Chinook and Coho Wire Tag (CWT) Sampling – Recreational Fisheries Salmon Head Recovery Program

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, all hatchery-marked chinook and coho do not 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, one label may be placed in a sealed bag with multiple heads.
- Provision of catch information (# 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. In 2015, 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. Catch information 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.

In 2015, DFO will be modernizing its approach to CWT sampling in recreational fisheries, focusing on:

1. Improvements to communication of the on-going requirement to collect CWT samples,
2. Improvements to servicing requirements at Salmon Head Depots, and
3. Improvements in efficiency and timeliness of communications to anglers about their catch using email communications.

The Department-delivered prize draw will not be continuing in 2015.

For additional information or locations of Salmon Head Depots:
PHONE: Salmon Head Recovery Program 1-866-483-9994 (toll-free)
SEARCH: DFO Salmon Head Recovery

6.2.2 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 Advisory Board 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. Depending on your location, 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 etc.). 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.

In 2015, the Department will continue to collaborate with the Sport Fishing Institute and the local Sport Fishing Advisory Boards to develop an electronic solution for fishery monitoring and catch reporting.

6.3 Chinook

Conservation concerns persist for wild chinook originating from WCVI systems, Lower Strait of Georgia (in particular the Cowichan River chinook) stocks and the Fraser River Spring 4_2, Spring 5_2 and Summer 5_2 stocks.

6.3.1 Lower Strait of Georgia

Conservation concerns for Lower Strait of Georgia (LGS) chinook stocks will guide fisheries planning in 2015. The Cowichan River chinook stock is an indicator stock of the LGS chinook aggregate. Escapement trends have shown improvements in recent years but the escapements are still below target. Management actions instituted in 2011 will continue in 2015 and will include a number of chinook non-retention areas and closed areas.

6.3.2 West Coast Vancouver Island

Since 1999, a recreational fishery "chinook management corridor", extending one nautical mile offshore from the surfline has been in place along the West Coast of Vancouver Island in order to lower the exploitation rate on adult female chinook that are travelling along the shoreline back to their natal streams. The surfline is defined in Schedule 1 of the *Pacific Fishery Management Area Regulations, 2007*.

Management actions for 2015 in the WCVI Chinook management corridor will remain the same in most areas as in 2014, with the exception of Area 23 and 25. In Area 23, chinook retention will change to 2<77 cm inshore of the surfline Aug 1 – October 15. Although the pre-season Somass terminal return forecast is for 33,000 chinook, over half of this return is predicted to be small males (<77cm) and all large females (>77cm) will be required to achieve the desired egg targets. In Area 25, the chinook management corridor in Esperanza Inlet will be extended one mile inshore of the surfline to provide additional protection for wild WCVI chinook stocks migrating through these areas during the main recreational fishing period. Consultations with Area 25 First Nations on wild WCVI chinook concerns are on-going.

Opportunities will be provided in the WCVI to keep one or two chinook > 77cm in terminal areas where surplus enhanced chinook are prevalent. Surpluses are anticipated for Conuma, Burman and Nitnat enhanced stocks in 2015.

6.3.3 Fraser River Chinook

In the 2015 Salmon Outlook, Spring 4_2, Spring 5_2, Summer 5_2 chinook have been classified as *low abundance*. For Fraser Summer 4_1 chinook, the outlook is near target. The 2015 preliminary estimate of the terminal spawner abundance (e.g. after all ocean fisheries removals) for Fall 4_1 Harrison chinook is provided in Section 7.3.3.

Management actions implemented since 2010 to protect and conserve Fraser Spring 4_2 chinook for portions of Areas 18, 19, 20, 29 and in the Fraser River are planned to continue in 2015 as outlined below. For Fraser Spring 5_2 and Summer 5_2 chinook, please refer to Section 5.1.4 for information on the management zone that will be used to determine management actions. The management zone may be updated in mid-June based on an in-season estimate of abundance of chinook caught in the Albion test fishery.

Environmental conditions and associated uncertainties may require additional adjustments to the fisheries management approaches depending upon in-season conditions.

Management actions are presented by area below. Actions for all zones are presented for your reference. A fishery notice will be released in mid-June confirming what zone will be used for 2015 as well as the management actions in effect.

Juan de Fuca recreational fishery: Subareas 19-1 to 19-4 and Subarea 20-5.

- March 1 through June 12th, 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 20-5.

- Zone 1: June 13th through July 17th, 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 13th through July 17th, two chinook per day of which only one may be greater than 67 cm. (This measure is to protect Spring 4_2 chinook.)

Strait of Georgia recreational fishery: Subareas 18-1 to 18-6, 18-9, 18-11, 19-5, and portions of Subareas 29-4 and 29-5.

- Zone 1: Commences the Monday following the first Saturday of May each year through June 12th, 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_2 chinook.) June 13th to July 17th, two chinook per day between 62 cm and 85 cm.
- Zone 2 and 3: May 4th through July 17th, 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_2 chinook.)

Strait of Georgia recreational fishery: Subareas 29-6, 29-7, 29-9 and 29-10.

- May 1 through July 15, no retention of chinook.
- Zone 1: July 16 through July 27, no retention of chinook. July 28 to December 31, two chinook per day with a minimum size limit of 62 cm.
- Zone 2: July 16 through July 27, two chinook between 62 cm and 77 cm. July 28 to December 31, two chinook with a minimum size limit of 62 cm.
- Zone 3: July 16 to December 31, two chinook per day with a minimum size limit of 62 cm.

Fraser River tidal waters and non-tidal waters of Region 2:

- January 1 through July 15, no fishing for salmon
- Zone 1: July 16 through July 27, no fishing for salmon. July 28 to Aug. 31, four chinook per day, only one over 50 cm. September 1 to December 31, four chinook per day only one over 62 cm.
- Zone 2: July 16 through July 27, one chinook per day between 30 cm and 77 cm. July 28 to Aug. 31, four chinook per day, only one over 50 cm. September 1 to December 31, four chinook per day, only one over 62 cm.
- Zone 3: July 16 to August 31, four chinook per day, only one over 50 cm. September 1 to December 31, four chinook per day, only one over 62 cm.

Fraser River, Regions 3 and 8
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 22nd to September 16th: four chinook per day, none over 50 cm.
- Zone 2 and 3: July 16 to September 16, four chinook per day, none over 50cm. (This fishery is targeting Summer 4_1 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 21st.
    - Bridge River, Clearwater and North Thompson Rivers: No fishing for salmon.
    - South Thompson River: No fishing for salmon to August 15th.
- Zone 2:
    - Thompson River from Kamloops Lake downstream to the confluence of the Fraser River, July 16th to August 21st, 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 1st to August 21st, one chinook per day.
    - Bridge River/ Fraser River near Bridge River – approx. June 17 – July 3rd Sun to Thurs each week, one chinook per day.
    - South Thompson River: No fishing for salmon to August 15th.
- Zone 3:
    - Thompson River from Kamloops Lake downstream to the confluence of the Fraser River, July 16th to August 21st, 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 1st to August 31st, four chinook per day, only two over 50 cm
    - Bridge River/ Fraser River near Bridge River – approx. June 17 – July 15 Sun to Thurs; weekly, four chinook per day only one over 50 cm.
    - South Thompson River: No fishing for salmon to August 5th

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 30th on the mainstem Fraser 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

- 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 at (http://www.pac.dfo-mpo.gc.ca/fm-gp/rec/index-eng.htm) for the exact descriptions of these opportunities.

6.4 Coho

6.4.1 Interior Fraser River Coho

Conservation measures to protect coho will be in place in a number of areas and times, however, additional retention opportunities for wild coho are under consideration for inshore areas of the WCVI in 2015 to target WCVI coho populations.

Selective hatchery marked coho fishing opportunities will be reviewed in 2015 and may provide additional retention opportunities to the recreational fishery. Currently, you may retain two hatchery marked coho per day from June 1 to December 31 in most South Coast tidal waters. Any increased opportunities for the recreational fishery on hatchery marked coho will be determined in-season and announced through a Fishery Notice. A hatchery marked coho is defined as one that has a healed scar in place of an adipose fin.

Historical coded wire tag (CWT) data and DNA sampling indicate that Thompson and upper Fraser River coho are present in the lower Fraser River from late-August until mid-October. Selective fishery measures will be implemented until late September/early October in portions of the Fraser River. These measures include no fishing for coho and a bait ban which will be place in the portion of the river and during the times listed below:

Subareas 29-6, 29-7, 29 -9 & 29-10	September 8 to October 9
Fraser River - Below Mission	September 8 to October 9
Fraser River - Mission to Hope	September 10 to October 12
Fraser River - Hope to Sawmill Creek	September 12 to October 17
Fraser River - Sawmill Creek to Lytton	September 16 to December 31
Fraser River - Lytton to Williams Lake River	September 23 to December 31
Fraser River - Upstream of Williams Lake River	October 1 to December 31

Thompson River –

Downstream of the confluence of the North and South Thompson Rivers	September 23 to December 31
Upstream of the confluence of the North and South Thompson Rivers	October 1 to December 31

Opportunities for hatchery marked coho, with a daily limit of one, will be provided after the closure dates noted above. In the BC Interior (Fraser River upstream of Sawmill Creek and the Thompson River) 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.

Decisions with respect to management actions deemed necessary to address conservation concerns will be made in consideration of the objectives listed in Section 4 of this plan.

6.4.2 West Coast Vancouver Island Coho

The 2015 Salmon Outlook indicates that the status of WCVI coho is near target. Terminal opportunities will be provided to harvest WCVI wild coho stocks. A review of coho stock composition from DNA samples collected from the 2014 recreational fishery will help guide management decisions for wild coho retention opportunities in mixed-stock areas.

6.5 Sockeye

Measures are required in order to meet conservation objectives for stocks of concern such as the Fraser River Early Stuart, Cultus Lake, Sakinaw Lake and Nimpkish River sockeye stocks.

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. For example, in inside waters (Johnstone Strait, Strait of Georgia, Strait of Juan de Fuca) sockeye retention is unlikely to be permitted until late July or early August when more abundant stocks are migrating through the area. 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. For 2015, if abundance permits opportunities can be anticipated to begin in late July in tidal waters or early August in non-tidal waters subject to identification of a total allowable catch.

The sockeye return to the Somass River is expected to provide fishing opportunities for all sectors in Area 23. The recreational fishery for sockeye in Area 23 opens May 1, 2015; the daily limit will be four sockeye. This fishery will be subject to in-season management changes dependent on abundance.

6.6 Pink

In most south coast tidal waters, the daily limit will be four pink salmon.

2015 is a dominant year for Fraser River pink salmon; Fraser River non-tidal opportunities are anticipated and will be announced in-season via the DFO Fishery Notice System.

6.7 Chum

In most south coast tidal waters the daily limit will be four chum.

7 APPENDIX 7: SOUTHERN BC / FRASER RIVER COMMERCIAL FISHING PLAN

7.1 Catch Monitoring and Reporting Initiatives

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 pilot programs were developed to address deficiencies that have been identified with the minimum requirements. These pilot programs will continue in 2015 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 pilots at this time are listed below. Competitive (full-fleet) fisheries will be expected to implement pilot 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).

7.2 Mandatory Coded Wire Tag (CWT) Sampling

Sampling for CWTs is a mandatory catch monitoring requirement for commercial chinook and coho retention fisheries that intercept CWT indicator stocks. In 2015, Fisheries and Oceans Canada will sample the entire catch and collect all heads that are contain a CWT from randomly selected vessels at fish landing stations using designated observers (federally-contracted Mark Recovery Program (MRP) CWT samplers).

CWT target sample rates are established by DFO to meet bilateral Pacific Salmon Treaty standards for statistically significant data. In 2015, the minimum required sample rate will be 20% of the estimated catch for troll and mixed stock net fisheries and 15% of the estimated catch for terminal net fisheries. 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.

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 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.

7.2.1 Retention of Freezer Troll Chinook and Coho Heads

These requirements apply to all Area G troll licences, unless the license is listed in a fisheries notice that identifies the Area G troll licenses that are exempted from retaining salmon heads during the 2015 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.

Because of the small number of vessels in Area G that freeze their catch at sea, 100% of the Area G troll fleet have been required to retain salmon heads in past fishing seasons. . In 2015, the Department may adjust this requirement by introducing exemptions to

reduce the number of vessels required to retain salmon heads while still ensuring that target sample rates are met.

For complete head retention requirements, trollers freezing their catch should refer to their conditions of license.

7.3 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 5 – 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.

In 2015, DFO will continue 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-especes/salmon-saumon/pol/index-eng.html

See Section 7.15 for further details for 2015 projects.

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.

7.4 Commercial Salmon Allocation Implementation Plan

This section describes the commercial salmon allocation implementation plan. Approved updates based on recommendations received are included in this plan. An overview of the process to update the CSAF as well as further detail on recommendations approved and items for further discussion are outlined in Appendix 8 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 Nation 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 areas have been approved 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%[a]	20%[b]	*
Rivers/Smiths Inlets	9 to 10	5%	95%	[c]

Notes on sockeye allocation (north):
*by-catch provisions
[a]share reflects current sockeye by-catch during pink directed fisheries
[b]potential for re-negotiation of sharing arrangements in event of a future directed sockeye fishery
[c]potential for future re-negotiation

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

Notes on sockeye allocation (south):
[c]potential for future re-negotiation
[d]a 1% share to occur in large Fraser River return years only. A 1% reduction will be proportionately applied across other fleets in those years.

PINK

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

Notes on pink allocations (north):
*by-catch provision
[a]Skeena sharing 75% seine: 25% gillnet
[b]potential for future re-negotiation

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

Notes on pink allocations (south):
*pink by-catch provision required for fisheries on more abundant species
[C]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
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%[a]
North	3 to 5	55.0%[b]	45.0% [b]	*
Central	6 to 10	45.0%[c]	55.0%	*

Notes on chum allocations (north):
[b]recent chum non-retention; fishery allows by-catch of chum only
[C]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%[d]	98.0%	0.0%	2.0%	0.0%

Notes on chum allocations (south):
*by-catch provision
[d]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%[b]	0.0%

Notes on coho allocations (south):
[TBD]currently no directed fisheries in this area. Will be reviewed should future directed opportunity develop. Principles to be drafted regarding how to distribute impacts.
[b]coho taken primarily in offshore fisheries

CHINOOK

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

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

North-Inside	3 to 5	*	100.0%[d]	*

Notes on chinook allocations (north):
*by-catch provisions
[a]Northern BC AABM chinook harvest
[b]near-terminal fisheries (primarily hatchery origin)
[c]review potential re-entry of troll into Production Areas 6 + 7. By-catch provisions
[d]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%[e]	3.0%	90.0%[f]	0.0%	6.0%
South - WCVI AABM Chinook	21, 23 to 27, 121 to 127	*	*	0.0%	100.0%[g]	0.0%

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

South- WCVI Inside	21 to 27	5.0%[h]	75.0%[i]	5.0%[i]	15.0%[j]	0.0%

Notes on chinook allocations (south):
[e]subject review pending completion of southern BC chinook initiative
[f]directed Fraser chinook fishery
[g]this is WCVI AABM chinook fishery
[h]Area 23 sharing arrangement currently 33.3% seine: 66.7% gill net. May need to review
[i]Area 25 fishery (potential for future review. 75% fishery to D (e.g. Conuma Bay fishery); potential 5% to E if future surplus at Nitinat; otherwise default to D)
[j]winter troll fishery

7.5 Test Fishing

DFO uses a range of methodologies to determine in-season stock abundance and composition. Historically, test fisheries have played an essential role in collecting the data necessary to set user TACs and to ensure that conservation objectives are met. 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 had been a key component), $58 Million of relief funding over 5 years (2007-2012) was provided while a new legislative authority was established. In 2012, an amendment to the Fisheries Act granted the Minister the authority to allocate fish for financing purposes.

DFO adopted a two track approach and will collaborate with First Nations and stakeholders to implement the new regulatory authority.

Track one includes 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.

The list below (Table 7-1) outlines the Southern B.C. salmon projects proceeding in 2015, which are the same as those in 2014. These include: Pacific Salmon Commission Secretariat-administered projects (9 Fraser Panel projects for Fraser River sockeye and pink); Albion chinook/chum gillnet; Skeena gillnet all species, Johnstone Strait chum seine; Barkley Sound sockeye seine; and Cowichan/Saanich chum seine. A change from 2014 is that the Pacific Salmon Commission Secretariat will no longer be directly administering all aspects of the Albion chinook / chum gillnet and Skeena gillnet all species and Johnstone Strait chum seine are being administered by alternative proponents as laid out in Table 7-1 below.

Table 7-1 – 2015 Planned Test Fisheries

Test Fishery	Proposed Proponent	Test Fishery Purpose	Potential dates (preliminary[a])	
			Start	End
Area 20 GN[b]	PSC Secr.	Fr Sock / Pink	20-Jun	18-Aug
Area 20 SN	PSC Secr.	Fr Sock / Pink	21-Jul	10-Sep
Cottonwood GN	PSC Secr.	Fr Sock / Pink	13-Jul	25-Sep
Whonnock GN	PSC Secr.	Fr Sock / Pink	22-Jun	30-Sep
Gull TR	PSC Secr.	Fr Sock / Pink	10-Aug	30-Sep
Area 12 SN	PSC Secr.	Fr Sock / Pink	21-Jul	10-Sep
Area 13 SN	PSC Secr.	Fr Sock / Pink	21-Jul	07-Sep
Round Island Ck GN	PSC Secr.	Fr Sock / Pink	11-Jul	15-Aug
Naka Ck GN	PSC Secr.	Fr Sock / Pink	18-Jul	31-Jul
Mission GN[c]	PSC Secr.	Fr Sock / Pink		
Qualark	PSC Secr.	Fr Sock / Pink	16-Jul	30-Sep
Albion GN	PSC Secr (transition)	Fr Chinook/Chum	26-Apr	23-Nov
Area 12 SN	Namgis/Atlegay	JS St Chum (mixed stock)	15-Sep	30-Oct
Barkley Sound SN	Hupacasath / Tseshaht	Somass Sockeye	June	July
Cowichan / Saanich	TBD	Terminal Chum	mid-Oct	Nov/Dec

[a] All dates subject to change based on in-season factors. In-season information from initial TFs important to determining timing of subsequent TFs.
[b] Likely delay in initiation of Area 20 GN to July 13th to reduce Early Stuart impacts.
[c] Not anticipated to operate in 2015

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.

7.6 Licence Application and Issuance

The 2015/2016 salmon licensing period will encompass April 1, 2015 to March 31, 2016. Licence renewal and payment of fees is mandatory on an annual basis prior to the expiry date of each fishery, in order to maintain the eligibility to be issued the licence in the future. Please note; the licence eligibility will cease if it is not renewed annually. Please see page 16 for details of the new online licensing system.

Prior to annual licence issue, vessel owners 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:

- Submission of all harvest logs or a nil report for 2014. For further information contact the Salmon Catch Monitoring Unit at (250) 756-7279 or (250) 729-8385; and
- Submission of all fish slips for 2014 (for further information contact the Regional Data Unit at (604) 666-2716).

For further licencing information see:

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

7.6.1 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.

7.7 Mandatory Log-Book and In-season Catch Reporting Program

7.7.1 Commercial Harvest Logs and Electronic Logbooks (E-logs)

There is a mandatory log-book and in-season reporting program for catch information for all commercial fisheries. Commercial salmon harvesters shall maintain a harvest log of all harvest operations. Harvest logs are a record of fishing activities and are required to be kept under commercial conditions of licence and applies to both hard copy (paper) versions and electronic (E-Log) versions unless otherwise specified. To facilitate reporting of information, harvesters may enlist the services of an approved third party service provider or as an alternative, make arrangements to participate in the Department's Electronic Logbook (E-log) program. Participants in the E-Log program will not be required to also have a log book.

DFO is now advancing an initiative to expand the current commercial e-log initiative to a national program. The vision of the project is to develop and implement, over a phased multi-year approach, a national integrated electronic catch and effort system designed to enable ongoing solutions for the fishing industry to meet their evolving data capture and traceability needs. Under a national e-log system, DFO will no longer fund regional specific software programming. DFO will develop specific standards for e-log software in partnership with the Canadian General Standards Board (CGSB) along with a certification process to ensure that all e-log software meets these standards. 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 paper logbooks or arrange to pay for any associated costs for software updates with a service provider.

7.8 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**.**

7.9 Retention of Lingcod by Salmon Troll

To help meet the conservation and sustainability objectives under groundfish integration, an individual quota (IQ) system has been established for the Lingcod fishery. Initial allocation of quota was based on catch history from 1996 to 2003 as this time period coincided with the Dockside Monitoring Program. For those who have fished Lingcod in conjunction with salmon during the qualifying years, fish slips were used to determine catch.

Implementation of a commercial groundfish integrated fishery has management implications 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. Please consult the Groundfish Integrated Fisheries Management Plan for more information.

7.10 Selective Fishing / Conservation Measures

In 2015, 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.

7.10.1 Other Conservation Measures

In 2015, 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 until 24 hours prior to any fishery opening for their respective gear type. Information on this management initiative can be obtained from Department charter patrol vessels on the grounds and from Fisheries and Oceans Canada offices.

7.10.2 Pilot Bocaccio Rebuilding Measures in Salmon Troll

Based on updated science information, the Department is pursuing bocaccio catch reductions from 2012 catch levels of approximately 137 tonnes (inclusive of trawl, groundfish hook and line, salmon troll, and recreational sectors) to 75 tonnes over the three year period of 2013/14 to 2015/16, in order to support stock rebuilding. The bocaccio mortality cap for the salmon troll fishery is 4.7 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 at: http://www.pac.dfo-mpo.gc.ca/fm-gp/mplans/2014/ground-fond/ground-fond-2014-a9-eng.pdf

7.11 Catch Monitoring Standards

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.

Catch monitoring programs initiated in 2013 (Area A Seine: sockeye/pink, Area C Gill net: sockeye/pink, Area D Gill net: sockeye (Johnstone Strait), Area E Gill net: sockeye (Fraser River), Area G Troll: chinook (WCVI)) will continue.

Details on the catch monitoring programs are being discussed with Area Harvest Committee representatives and will be communicated via Fisheries Notices and the 2015 Conditions of Licence.

7.12 South Coast Net

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 4_2 and Spring/Summer 5_2 Chinook) in areas where they are present. In 2015, Fraser River sockeye returns are expected to be variable with the Summer run management group expected to be the dominant component of this year's return.

The 2015 return is a dominant cycle year for Fraser River pink salmon and an above average return is expected. Fisheries will be planned and managed consistent with the Fraser River sockeye, Interior Fraser River coho, Interior Fraser River steelhead, and Fraser River pink management objectives.

7.12.1 Juan de Fuca Strait, Strait of Georgia and Fraser River (Areas 18, 20 and 29)

Sockeye

Subject to in-season information, Area B Seine opportunities will be considered in Juan de Fuca (Area 20), Area 18, and Area 29 off the Fraser River mouth. Opportunities and fishing locations will be confirmed based on in-season information.

In the lower Fraser River, Area B has proposed a limited effort demonstration seine fishery, similar to 2011 to explore Fraser sockeye harvest opportunities in 2015. This proposal is being considered for implementation in 2015, subject to addressing any potential gear group conflicts, in-season information and available Area B TAC. Refer to Appendix 7 section 7.15 for further details.

The Fraser River Panel in conjunction with Fisheries and Ocean Canada 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.

- 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.
- Fisheries will likely be directed at Fraser River pinks.

Mid-September – Area 29

- Fisheries to harvest sockeye off the mouth of the Fraser River and within the confines of the lower Fraser River are unlikely in mid-September as opportunities are expected to focus on harvesting Fraser River pinks.

Pink

- It is a dominant cycle year for Fraser River pink salmon and directed fisheries are anticipated.
- Fisheries to harvest Fraser pink salmon off the mouth of the Fraser River and within the confines of the lower Fraser River are likely.
- Fishing plans will be subject to available TAC, potential gear conflicts, and Cultus (Late Run) sockeye and IFR coho constraints.

Chum

Mid October to Early November - 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 return and management objectives for Interior Fraser River steelhead.
- 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.

Early November to Late November - Area 29

- Potential gill net and seine fishing opportunities will be determined in-season, based upon in-season assessment of the chum salmon return.

Coho

Historical coded wire tag (CWT) data and DNA sampling indicate that Interior Fraser River coho are present in the lower Fraser River from late-August until mid-October. Closures during the following periods will be implemented in portions of the Fraser River to protect Interior Fraser River coho:

Subareas 29-6, -7, -9 & -10	September 8 to October 9
Fraser River - Below Mission	September 8 to October 9
Fraser River - Mission to Hope	September 10 to October 12

Fraser River - Hope to Sawmill Creek	September 12 to October 17
Fraser River - Sawmill Creek to Lytton	September 16 to December 31
Fraser River - Lytton to Williams Lake River	September 23 to December 31
Fraser River - Upstream of Williams Lake River	October 1 to December 31

Thompson River –

Downstream of the confluence of the North and South Thompson Rivers
September 23 to December 31

Upstream of the confluence of the North and South Thompson Rivers
October 1 to December 31

During these times fishing will be restricted to limited selective and demonstration fisheries for all harvesters.

7.12.2 Johnstone Strait (Areas 11 to 13)

Sockeye

Early to Late July - Areas 11 to 13

- No fisheries are anticipated prior to late July in order to protect Sakinaw Lake sockeye and Fraser River Early Stuart and early-timed Early Summer Run sockeye. No fishing opportunities are available above Lewis Point prior to late July to protect returning Nimpkish River sockeye.

August to 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.

Pink

August to Mid-September - Areas 11 to 13

- Fraser River pink salmon returns are expected to be above average.
- Directed fisheries are anticipated for Fraser River pink salmon subject to available TAC and constraints for Cultus (Late Run) sockeye and Interior Fraser coho.

Late July to early September - Areas 12 and 13 (Mainland Inlets)

- Mainland Inlet pink returns are expected to be average, but historically pink returns have been highly variable and expectations are highly uncertain. There will be no fishing opportunities unless surpluses are identified in-season.

Chum

Terminal summer run chum returns are expected to be below average in 2015. There will be no fishing opportunities unless surpluses are identified in-season. Fishing opportunities will be confirmed in-season.

Early October to Late October - Areas 12 and 13 (Johnstone Strait mixed stock chum fishery)

- The 2015 chum outlook indicates near target returns in 2015 based on an average parental brood abundance in 2011. Expectations are highly uncertain given the high variability in chum returns and the significantly smaller fish size in the 2011 brood year. The fixed harvest rate strategy which was implemented starting in 2002 is planned to continue in 2015. For seines, two fisheries are anticipated and will be scheduled for before and after the peak of the migration. Area B may explore options for a share-based demonstration fishery (See Section 7.15 of Appendix 7). Gill net fisheries will be scheduled during the late September and late October time period.
- 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.

Late November to early December

- 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.

7.12.3 Strait of Georgia (Areas 14 to 19)

Sockeye and Pink

Consideration may be given in-season for Fraser River sockeye and pink fisheries in a portion of Area 16 subject to Sakinaw sockeye constraints as well as constraints for other stocks of concern.

Chum

For 2015 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:

Early October to Late-November - Area 14

- Possible Area D gill net openings starting in early October. Further gill net openings are subject to overall abundance in Area 14 and escapements in the Puntledge, Little Qualicum and Big Qualicum Rivers. Limited effort Area B seine opportunities may be available in late October dependent on escapement levels, abundance and allocation status. Full fleet opportunities may also be available.

Late-October to Mid-November - Area 16 (Jervis Inlet)

- Commercial opportunities are not anticipated due to the recent trend of poor returns; however, this will be confirmed in-season.

October to Early November - Area 17

- Possible Area E gill net opening. Openings are subject to in-season abundance estimates of Nanaimo River chum. Area B seine opportunities will depend on abundance and licence area allocation status.

Late-October to Early December - Areas 18 and 19

- Possible commercial fisheries in Satellite Channel and Saanich Inlet. Openings are subject to in-season abundance estimates for the Cowichan and Goldstream Rivers.

7.12.4 West Coast Vancouver Island (Areas 21 to 27)

All opportunities are planned based on pre-season forecasts and allocation guidelines.

Sockeye

Mid June to Late July/Early August - Area 23

- The pre-season forecast for Barkley Sound sockeye is 900,000. This is expected to support full fishing opportunities for all sectors in Area 23

Chinook

Mid-August to Early September - Area 23

- Gill net and seine opportunities in Alberni Inlet are uncertain at this time. The Preseason forecast of 33,000 precludes a commercial fishery. This is due to the poor return of 4 and 5 year old fish which are the majority of egg bearing females. Mid-August - Area 25
- Gill net opportunities in Tlupana Inlet are available as the pre-season forecast is for an abundant return of 42,000. This is expected to support full fishing opportunities for all sectors.

Chum

2015 Forecasts: For most WCVI areas, forecasts for 2015 are for continued low abundance of chum populations. In most areas the forecast abundance remains below or only modestly above lower fishery reference points. For those areas with forecasts above the fishery reference point, the available surplus is allocated for First Nation FSC and treaty fisheries with the exception of Area 25. A limited effort gillnet fishery in Area 25 is being considered subject to discussions with Area D and Area 25 First Nations.

October to November – Nitinat Area 21 and 121

- Possible gillnet assessment fishery outside the lake
- Dependent on pre-season forecast or assessment fishery. Area E gill net fishery possible for two days per week starting October 01-08 (daylight only) inside one mile boundary and north of Dare Point.
- Dependent on pre-season forecast seine fisheries possible October 01-08 inside one 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.

7.13 Area G Troll

Sockeye

Fishing opportunities on Fraser river sockeye are not planned in 2015 based on commercial allocation arrangements. No fisheries are anticipated on Area 23 sockeye stocks.

Fraser River Pink

Opportunities for Fraser pink salmon will be based on in-season stock assessments, constraints for stocks of concern, including Interior Fraser coho and allocation guidelines.

Chum-West Coast Vancouver Island

Troll opportunities will be dependent on abundance and allocation guidelines. Consultations with Area G troll may be conducted to discuss possible terminal chum opportunities in the event commercial surpluses are identified.

There may be opportunities available to Area G Troll in areas such as Nootka Sound (Area 125) and Nitinat (Areas 21 and 121). This will be determined in-season based on escapement and allocation arrangements. Terminal chum opportunities usually occur in early October.

Chum salmon may also be retained as by-catch in other directed fisheries, such as the chinook fishery in Areas 23 to 27, and 123 to 127.

Coho

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.

Any fishery that allows coho retention will occur after September 15 when Interior Fraser coho have migrated through the fishing area.

Chinook

Under the PST, WCVI chinook fisheries are based on an Aggregate Abundance Based Management (AABM) model. Fisheries occur on an aggregate of United States and Canadian chinook stocks. For management purposes, the chinook fishery year encompasses the period October to September.

For the 2014/2015 season, which ends September 30, 2015, pre-season fishing plans could be subject to change pending the results of consultations focussing on the conservation and protection of Fraser River, Lower Georgia Strait and WCVI chinook stocks. The consultation process begins in the early spring period as part of the IFMP planning process.

The WCVI AABM fishery will be managed based on the AI forecast from the PSC Chinook Technical Committee of 0.85 which translates to an allowable AABM catch of 127,278. The commercial TAC is calculated by subtracting the expected FSC catch of 5,000, the Maa-nulth treaty entitlement of 4,141 and the expected recreational catch of

60,000; the commercial TAC is 58,137. For planning purposes the expected T'aaq-wiihak share of the commercial TAC is approximately 7,267 subject to on-going negotiations and the remaining 50,870 is allocated to the Area G troll fishery. Adjustments to this harvest level may be made in-season based upon observed First Nations and recreational catches.

Within the bounds of the PST provisions, Area G troll chinook fisheries will be managed to limit impacts on domestic stocks of concern, including Fraser River Spring 4_2 chinook, Fraser River Spring 5_2 and Summer 5_2 chinook, WCVI chinook, Lower Strait of Georgia (LGS) chinook, and Interior Fraser River coho.

Fraser River Spring 4_2 chinook, Fraser River Spring 5_2 and Summer 5_2 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 5_2 and Summer 5_2 chinook, refer to Section 5.1.4 for information on the management zone that will be used to determine management actions. Zone 1 and Zone 2 management measures are presented in the attached tables.

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									

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									

The management zone may be updated in mid-June based on in-season abundance of chinook at the Albion test fishery. 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 previously developed management actions for Spring 4_2 chinook.

LGS chinook identified by coded-wire tagged Cowichan River chinook are broadly distributed in time and area in the WCVI. A number of management approaches have been utilized in previous troll fisheries to limit impacts on LGS chinook. For 2015, it is anticipated that the substantial reduction in Area G harvest rate 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 fishery 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 Area G in 2014/2015 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 (Areas 126-4 and 127) during the period when WCVI chinook return to the West Coast of the island. The 5/2 nautical mile boundary may be reduced to 1 nautical mile as the WCVI chinook migration comes to an end. If further restrictions were required for conservation purposes, zone/area and time closures could be implemented.

Anticipated Chinook Opportunities for Area G Troll

Management actions are planned to limit the annual exploitation rate on LGS chinook, Fraser River Spring 4_2 chinook, Fraser River Spring 5_2 and Summer 5_2 chinook, WCVI chinook and Interior Fraser River coho. The following fishing plan is subject to change if the status of a domestic stock passing the WCVI changes to a "stock of concern". Fishery openings are planned to distribute harvests proportionately over all fishery periods subject to constraints to protect stocks of concern.

October to March

Stock composition data indicate the majority of fish harvested during this period are US 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. The status of Fraser River Spring 4_2 chinook is stock of concern. Fraser River Spring 4_2 chinook appears 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 15 to April 18 to avoid interception of Fraser River Spring 4_2 chinook.

April 19 to June 15

Stock composition data indicate the relative abundance of Fraser and Columbia chinook in the fishery increases during this period. Many of the Fraser and Columbia origin stocks vulnerable to the fishery during this period are relatively abundant. With the exception of LGS chinook and Fraser River Spring 4_2 chinook in SWVI though early May, other Canadian chinook stocks of concern are not generally vulnerable to the fishery at this time. However, from mid-to-late June, there is increasing potential for interception of stocks of concern including Fraser River Spring 5_2 and Summer 5_2 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 while Area 123 opens May 7. These management actions are implemented in order to avoid interception of Fraser River Spring 4_2 chinook and reduce release rates for sub-legal chinook. For May 1 through May 30 the boat day cap is 1000 boat days.

Dependent on the status of Fraser River Spring 4_2 chinook, Fraser River Spring 5_2 and Summer 5_2 chinook stocks further management measures may be implemented during this fishing period including area closures. The boat day cap of 650 boat days from the June period will be moved to May, August or September.

If Zone 1 management measures are implemented the June boat day allocation may be transferred to April and May fishing periods.

June 16 to late July

Through July, stock composition data indicate the relative abundance of Fraser and US 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 5_2 and Fraser River Summer 5_2 chinook. In 2011 an impact assessment on Fraser River Spring 5_2 and Fraser River summer 5_2 chinook was undertaken to determine if troll fisheries could be scheduled in the last week of July in WCVI areas. The assessment supported troll opportunities in Areas 125-127, commencing July 24.

Late July to early August

Through August, stock composition data indicate the relative abundance of Fraser and US bound chinook (Puget Sound, Columbia, Oregon) in the fishery remains high during this period. Many of these stocks are relatively abundant. Fraser River spring 5_2 and Fraser River summer 5_2 chinook are less vulnerable to the fishery at this time. However, opportunities for harvest in August may be limited due to increasing interception of Interior Fraser River coho.

During this period, the fishery will be managed to minimize mortality on Interior Fraser River coho through: i) a maximum interception of coho and ii) the mandatory use of plugs. 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 model calendar year ends on September 30th.

The September commercial harvest level may be adjusted based on the available WCVI AABM TAC remaining after accounting for First Nation and recreational fisheries. Any harvest opportunities prior to September 15 may be managed to avoid interception of Interior Fraser River coho and WCVI chinook. Further fisheries depend on reaching escapement milestones into Nitinat Lake and indications of abundance through commercial fishing, test fishing and stream enumeration.

7.14 Area H Troll

Sockeye

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 4_2 and Spring/Summer 5_2 Chinook) in areas where they are present.

If an opportunity is available, fisheries could occur in Queen Charlotte Strait, Johnstone Strait, 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.

Fraser River Pink

The 2015 return is a dominant cycle year for Fraser River pink salmon. It is anticipated that there will be directed opportunities to harvest Fraser River pink salmon.

Mainland Inlet Pink

Even years are the dominant cycle years for most mainland inlet pink systems. Fishing opportunities in 2015 are not anticipated but will be confirmed in-season based on abundance assessments (e.g. over flights, escapement counts and possibly assessment fisheries). Boundaries will be determined in-season. Coho sensitive areas may remain closed. Fishing opportunities may be considered in mid to late August to mid-September if stocks appear to be returning in sufficient abundance. Details will be determined in-season.

Chum

Late September/Late October - Area 12 and 13

- The 2015 chum outlook indicates near target returns, based on average parental brood abundance in 2011and average to good marine survival.
- Chum fishing opportunities are anticipated to commence in the last week of September. The "mixed-stock harvest strategy" chum fishing plan will be finalized pre-season following consultations with stakeholders.

October/November – Area 14-17

- Chum fishing opportunities in terminal areas will be determined in-season and discussed through pre-season meetings and the chum advisory process.

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.

Coho

No directed coho fisheries are planned in 2015 and there will be non-retention in fisheries directed at other stocks.

Chinook

Due to concerns for Lower Strait of Georgia stocks, no directed chinook fisheries are planned for 2015 and there will be non-retention in fisheries directed at other stocks.

7.15 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.

The following proposals have been submitted by the Area Harvest Committees for review and consultation.

7.15.1 Area B Seine Fraser River Sockeye/Pink 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 and/or pink Area B TAC. The harvest from this fishery will be part of the Area B and H Fraser River sockeye/pink demonstration ITQ fishery. The quota share will be expressed as a percentage of the 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.

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AHC – Chris Ashton, Area B Seine,
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7.15.2 Area B Seine Johnstone Strait Chum Demonstration Fishery

Note: This proposal is tentative and currently under discussion between the Department and the Area B Harvest Committee.

The Area B Harvest Committee has expressed an interest in continuing to further explore options for a share based approach to the Johnstone Strait chum seine fishery.

In addition to evaluation work that was done in 2008, a thorough review was also conducted in 2012 and 2013 to explore the option of a two-tier fishery based on a full-fleet competitive opening early in October, and a subsequent quota fishery (based on the test-fishery and the competitive opening) for the remainder of October. This fishery did not take place in 2014; however there still remains some interest in this fishery option for 2015. Updated information from the 2014 derby fisheries will be required to further explore what options might be available for a full or partial effort share based approach to this fishery that can adequately meet the Johnstone Strait chum fixed harvest rate management objectives (20% harvest rate). Abundance based shares may be considered pending support for changes to the current competitive fishery.

REGION - South Coast

PARTICIPANTS - All Area B licence holders

LOCATION OF FISHERY - The fishing area that will be considered is Johnstone Strait (portions of Areas 12 and 13)

GEAR TYPE - Seine gear and selective fishing measures are mandatory and are specified by licence conditions

TIME FRAME - The fishery would occur during the October time period

ALLOCATION - Allocation would be based on the assumption that effort or individual quotas shares can be identified and managed without exceeding the fixed 20% harvest rate objective

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 is a requirement for 100% dockside validation of the catch at designated off-loading locations. Over flights will be conducted and charter patrol will monitor the fishery.

CONTACTS - DFO – Matt Mortimer, Resource Management
Phone: 250-286-5814, Email: matt.mortimer@dfo-mpo.gc.ca

AHC – Chris Ashton, Area B Seine,
Phone: 604-725-0137, Email: areab@telus.net

7.15.3 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 2014.

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 Southern Inside 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.

CONTACTS – DFO - Barbara Mueller, Resource Management
Phone: 604-666-2370, Email: Barbara.Mueller@dfo-mpo.gc.ca

AHC – Chris Ashton, Area B Seine,
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7.15.4 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 - Area 29 In-river, 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 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 Southern Inside 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.

CONTACTS – DFO - Barbara Mueller, Resource Management
Phone: 604-666-2370, Email: Barbara.Mueller@dfo-mpo.gc.ca

AHC – Chris Ashton, Area B Seine,
Phone: 604-725-0137, Email: areab@telus.net

7.15.5 Area B Seine and Area H Troll Fraser River Sockeye Individual Transferable Quota (ITQ) Demonstration Fishery

This demonstration fishery will be similar to the quota based ITQ Fraser River sockeye fishery that was planned for 2009-2014. 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 as per conditions of licence. 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 limited in boat days due to impacts on coho.

ALLOCATION - The fishery will be based on available Fraser River sockeye commercial TAC. Shares between licence areas 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 seasonal 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 if necessary following Fraser River Panel meetings (usually Tuesday and Friday) depending on abundance and stock composition.

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.

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7.15.6 Area B Seine and Area H Troll Fraser River Pink Individual Transferable Quota (ITQ) Demonstration Fishery

This demonstration fishery will be similar to the Area B and Area H quota based ITQ Fraser River pink that was planned for 2009, 2011, and 2013 and will be managed in an integrated fashion with the Fraser sockeye ITQ demonstration fishery.

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 Areas 12 and 13), portions of Areas 16 and 18, Juan de Fuca (portions of Area 20), and portions of Area 29 off the Fraser River mouth, including in depths shallower than 45m. Note that a separate demonstration fishery proposal is provided for a demonstration – experimental seine fishery in the lower Fraser River. In Area 20, additional measures will 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 and 13 additional restrictions will be identified around test-fishing locations to minimize impacts on test-fishery assessments.

GEAR TYPE – Seine and Troll gear, selective fishing measures are mandatory and are specified by licence conditions. Power skiffs permitted as per conditions of licence. 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 pink Canadian Commercial TAC is identified. It is anticipated that this fishery will take place within the time period of mid-August to mid-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 limited in boat days due to impacts on coho.

ALLOCATION - The fishery will be based on available Fraser River pink commercial TAC. Shares between licence areas will be based on the commercial allocation plan.

The Fraser River pink quota (ITQ) will be determined by DFO by dividing the respective Area B and Area H Fraser River pink allocations by the total number of licensed vessels 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 will remain fixed in-season subject to amendments for seasonal quota transactions. The TAC may be distributed over the course of the fishery in increments. The TAC will be announced by fishery notice and may be adjusted if necessary following Fraser River Panel meetings (usually Tuesday and Friday) depending on abundance.

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 pink and by-catch retention of chum is permitted (except in Area 20 retention of chum is not permitted). Sockeye retention will be subject to pre-season management decisions regarding use of available sockeye TAC. If sockeye TAC is available, individual licence holders will have the flexibility to decide how to use their available quotas (ITQs) of sockeye and pink salmon. Accounting for ITQs of Fraser River sockeye will be based on total mortalities, including retained catch and assessed release mortalities. Two examples of how sockeye mortalities are calculated are provided

below. For a detailed explanation on how sockeye total mortalities are assessed please refer to the 2015 Area B and Area H Fraser Sockeye and Pink ITQ Demonstration Fishery Guidelines. There will be non-retention of coho, chinook and steelhead.

Examples of total sockeye mortality calculations:

1) 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 pinks × 0.15 encounter rate × 0.10 release mortality = 6 sockeye mortalities

2) 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 pinks x 0.07 encounter rate = 700 expected sockeye encounters
700 expected sockeye – 400 landed sockeye = 300 releases
300 releases x 0.25 release mortality = 75 sockeye release mortalities
400 landed sockeye + 75 sockeye release mortalities = 475 total sockeye mortalities

MONITORING PLAN - Start, end, pause and daily catch reports will be required by phone-in or electronic logbook. Verification of sockeye encounter rates in this fishery is essential. Encounter rate data will be collected by third party, on-grounds observers. An observer plan will be developed pre-season to estimate the fleet-wide sockeye encounter rates, by area fished, for Area B and Area H vessels similar to the approach used in 2013. When developing a pre-season plan, the Department will determine the levels of observer coverage for Area B and Area H, based on information collected during the 2011 and 2013 fisheries. 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.

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DFO – Beth Pechter, Resource Management
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ABHC – Chris Ashton, Area B Seine,
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AHHC – Peter Sakich, Area H Troll
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7.15.7 Area D Gill Net Fraser River Sockeye Demonstration Fishery in Subarea 12-9

The marine waters off of Port Hardy, in the central portion of Queen Charlotte Strait, were historically an important part of the fishing area accessed by the gill net fleet fishing

Fraser River sockeye. This area was closed to gill net fishing from 1998 to 2013 due to non-targeted species by-catch concerns, including coho conservation concerns existing at that time. In 2014, the Area D Gill Net Harvest Committee worked with the Department to design a limited entry fishery that aimed to demonstrate that the Area D gill net fishery could conduct fisheries directed at Fraser River sockeye in these areas while maintaining acceptable levels of non-targeted species impacts and mortalities. The results from the 2014 demonstration fishery are currently under review and an analysis of the results should be available in early 2015.

A similar proposal is tentatively planned in 2015 and the specifics and feasibility of the demonstration fishery are currently under discussion between the Department and the Area D Gill Net Harvest Committee. If this demonstration fishery does take place it will likely be structured as follows:

REGION – South Coast Area

PARTICIPANTS – 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 and 10 and 15 vessels fishing on any given day.

SELECTION – The Area D Gill Net Harvest Committee 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 at-sea observer program. To be eligible for this demonstration fishery, vessels must be able to safely accommodate an observer, including having an adequate place for the observer to sleep.

LOCATION OF FISHERY – Queen Charlotte Strait (Subareas 12-9). A portion of Subarea 12-9 that is seaward (West) of the Round Island test fishery will be closed during days that test fishery is in operation. The specific coordinates of this closure will be determined by DFO pre-season and will be provided to participants when available.

GEAR TYPE – Gill Net: Minimum mesh 100 mm. Maximum depth 90 meshes. Maximum hang ratio 3:1. Corkline to web distance minimum 0 cm, maximum 1.5 m (same net used in regular Johnstone Strait sockeye fisheries).

TIME FRAME - This fishery is planned to occur in August (as soon as stocks of concern are not present and Area D TAC is identified).

ALLOCATION - This fishery will be accessing the Area D Gill Net Fraser River sockeye TAC as determined by DFO and the Pacific Salmon Commission.

DESCRIPTION OF FISHERY – 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. The level of at-sea observer coverage is still being discussed between the Department and the Area D Gill Net Harvest Committee.

SELECTIVITY – The fishery will be closed daily from 00:01 to 06:00 hours and will have maximum set times 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.

MONITORING PLAN – This fishery is subject to regular Area D Gill Net licence conditions and the fishery will be subject to the conditions of the catch monitoring pilot program that may be in place. The on-board observer program will be funded by industry.

CONTACTS – DFO - Greg Hornby, Resource Management
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Gill Net Representative on the Fraser River Panel of the Pacific Salmon Commission:
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7.15.8 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 2009-2014.

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 potential 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 2014 is under review and will be confirmed prior to the start of the 2015 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.

CONTACTS - DFO – Beth Pechter, Resource Management
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AHHC – Peter Sakich, Area H Troll,
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7.15.9 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 fleet pooled fishery would be conducted to provide an opportunity for small amounts of 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 2015 salmon licence will be eligible to register for pools. Area E licence holders will have an opportunity to voluntarily organize into pooled fisheries and identify a designated catcher vessel for each pool. Pools will be organized prior to any commercial fishing in 2015 and will apply to all Area E pooled demonstration fisheries in 2015.

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.

CONTACTS - DFO - Barbara Mueller, Resource Management
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7.15.10 Area E Gill Net Nitnat Hatchery Chinook Pooled Demonstration Fishery

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.

REGION – South Coast Area, Nitinat Lake

PARTICIPANTS – Voluntary pool concept where all Area E license holders with a valid 2015 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 2015.

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 Barkley Sound Harvest Table.

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 HC. The cost for the observer, and catch validation will be shared by the DF participants.

CONTACTS – DFO – Michael Spence, Resource Management
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AEHC – Ryan McEachern, Area E Gill Net
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7.15.11Area E Modified Net (Shallow Seine) Pink Demonstration Fishery

The objective of conducting this fishery is to test the feasibility and explore the potential benefits of accessing Fraser pink with an alternative style of net, therefore minimizing coho, steelhead and other by-catch mortalities.

REGION – South Coast Area

PARTICIPANTS – All Area E licence holders would be eligible to participate, however, demonstration will likely be for a limited number of vessels in 2015. **SELECTION** – The Area E Harvest Committee will work in concert with the DFO in selecting participants from the Area E licence holders. Participation in this Demonstration Fishery will require fishermen to support an Observer and/or Validation process.

LOCATION OF FISHERY – Fraser River and the Gulf of Georgia

GEAR TYPE – A very coarse net with a very small mesh size. The size of mesh in this net will be small enough to prevent salmon from gilling in the net. The net would be a shallow seine and would be operated by one or more vessels. The vessel setting and retrieving the shallow seine net would be an Area E licence.

TIME FRAME – This fishery is planned to occur when pink salmon stocks are available in Area E. The decision as to when to commence the demonstration fishery will be made by the Area E Harvest Committee in conjunction with the DFO.

TARGET STOCK – This fishery demonstration will target Fraser River pink.

ALLOCATION – The fishery will be based on all the available Area E Fraser pink commercial TAC. This Demonstration Fishery is not anticipated to significantly impact the length or allocation assigned to the traditional Area E Fraser River pink fisheries because Area E for many years has not been able to harvest its Pink allocation due to weak stock restraints. Uncaught allocation from Area D and other commercial groups could also be accessed in this Demonstration Fishery.

SELECTIVITY – This fishery uses various selective fishing techniques, including; mesh size restrictions, brailing and sorting, short set times, no gilling, 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. There will be one mobile observer to circulate through the participants over the duration of the fishery. The selection and coordination of the service provider will be handled by the Area E Harvest Committee. The cost for the observer, and catch validation will be shared by the Demonstration Fishery participants.

CONTACTS – DFO - Barbara Mueller, Resource Management
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7.16 Interim Guidelines for Temporary Salmon Share Transfers

The Department plans to apply the following operational guidelines for assessing requests for the temporary transfer of commercial salmon shares for 2015. Transfers of commercial salmon fleet allocations within the regular commercial fishing areas fleet (licence areas A through H) will continue to be guided by *An Allocation Policy for*

Pacific Salmon 1999 (Allocation Policy). However, see Appendix 8 for proposed changes to the Commercial Salmon Allocation Framework.

The following types of commercial salmon share "transfers" are addressed by this guidance:

- Transfer of salmon shares between any of the following groups:
  - Marine Demonstration Fishery participants
  - In-river Demonstration Fishery participants
  - First Nations with communal licences allowing sale; and/or
  - First Nations with Harvest Agreements for salmon

When there is a formal arrangement (agreed to by DFO) between the original share-holders and the recipient. Requests have involved transfer from downstream to upstream locations, and vice versa. See section B below for more information on eligibility.

- Transfers of uncaught commercial Total Allowable Catch (TAC) allocations from regular commercial fleets to First Nations who have in in-river Demonstration Fisheries, communal licences allowing sale that year, or a Harvest Agreement for salmon, or vice versa, where there is no arrangement between the original allocation holders and the recipient. In these cases, DFO would make a decision on whether to allow a requesting group to access some or all of the uncaught TAC.

DFO recognizes that approaches for utilization of uncaught commercial TAC are an area of significant discussion in the context of the Commercial Salmon Allocation Framework development process, and that there are differing views on how to address such requests.

Requests for temporary transfers of commercial salmon shares involving watershed areas upstream of regular commercial fishing areas 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 Involving In-river Areas:

1) Result in improvement of 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) Consistent with *An Allocation Policy for Pacific Salmon (1999)* in areas where the allocation policy applies, including respecting recreational priorities as identified in the policy.

7) Respect the Common property nature of the fisheries resource: access to the resource does not imply ownership of the resource or any portion of the resource.

8) Support opportunities to utilize Canadian commercial total allowable catch while respecting conservation requirements.

9) Commercial fishery arrangements for First Nation and regular commercial fisheries will be managed under common and transparent rules. For example, commercial category "F" licences will be managed in accordance with the same rules as the regular commercial fishing fleet which they are part of.

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 In-River Transfers:

- Transfers of commercial salmon allocation shares will only occur when there is a Canadian commercial Total Allowable Catch (TAC) (i.e. commercial harvestable surplus) identified for the target stock or species which is available for harvest.
- Transfers of commercial salmon shares between parties will only be considered for commercial fisheries and commercial participants with a clearly defined percentage share of the Canadian commercial total allowable catch.
- Only First Nation entities who are signatories to arrangements providing a defined percentage commercial share of salmon TAC for the given year (i.e. Economic Opportunity agreement, Harvest Agreement and/or Demonstration Fishery access) and regular commercial licence holders with a defined percentage share of TAC (i.e. via a commercial marine Demonstration Fishery) can participate in a share transfer arrangement.
- In most cases, transfers will be based on a percentage share of the available commercial TAC. Alternate TAC-based approaches for calculating transfer shares may be considered as indicated in this management plan or with approval from the RDG.
- For share transfers between regular 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. Proposed transfers arrangements from commercial fisheries and/or shareholders (whether individual or fleet-wide) will take into account Area Harvest Committee involvement and support in their development.
- DFO will not be responsible for leading or facilitating the negotiation of transfer arrangements between parties.

- For commercial salmon licences held by the Department, individual licence allocations will be based on an equal percentage allocation of the commercial TAC for all licences in that commercial licence area (i.e. Areas A to H).
- If after spawning escapement objectives are met, and despite best efforts, it becomes apparent that an existing commercial shareholder is 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 in-river First Nations already holding a clearly defined percentage share of the Canadian commercial total allowable catch, on a case by case basis.
- Transfers of commercial salmon allocations must consider shares of all stocks that will be harvested in the recipient area.
    - Allocations transferred inland will be reduced proportionately to reflect the reduced stock composition in the more terminal harvest location (e.g. Area F troll licence shares transferred to the Kamloops Lake inland demo fishery will be only for the proportion of Thompson Chinook encountered in the marine commercial troll fishery).
    - 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 co-migrating stocks 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).
    - Priority will be given to those proposals that allow shares to be harvested using fishing techniques that are more selective than the original technique, and / or allow harvesting in fishing areas that avoid stocks or management units of concern.
- Harvest of commercial salmon allocations is not guaranteed and actual harvest opportunities may be limited by constraints to protect species or stocks of concern. Commercial fishery participants that demonstrate an ability to fish selectively may be able to access a greater amount of their harvest share.
- Enhanced fisheries monitoring and catch reporting programs must be in place for participants to ensure that there is reliable accounting for both retained and released fish and that harvests do not exceed defined shares. Incremental monitoring costs will not be assumed by DFO, and will need to be covered by parties to the transfer arrangement.
- Proposals for transfer arrangement must include contingencies for situations where shares are exceeded. Parties not complying with agreed-to arrangements could face enforcement actions.

- Transfers of commercial salmon shares will not be permitted when this may adversely affect First Nations Food, Social and Ceremonial harvest opportunities in the area.
- Surpluses of salmon in terminal areas (i.e. ESSR fisheries) will continue to be managed using existing ESSR guidelines.

All decisions regarding temporary salmon share transfers are one-time only. Unless otherwise communicated by DFO at the time of the decision, all future transfer requests must undergo new process of application, review and approval from DFO.

8 APPENDIX 8 - UPDATES TO THE COMMERCIAL SALMON ALLOCATION FRAMEWORK

Introduction and Purpose

The purpose of this appendix is to make you aware of updates to the commercial salmon allocation framework (CSAF) that will be in place starting in 2015. An overview of the process to update the CSAF, as well as further detail on the recommendations approved by the Department and items for further discussion, are described below. For details on approved shares by fleet, species and fishery production area and associated principles and guidelines for harvest, please refer to the Commercial Salmon Allocation Implementation Plan in Appendix 7, Section 7.4.

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 IFMP and further feedback on these were sought in the fishery planning process. A summary of the recommendations to change the CSAF and next steps are outlined in this appendix. Additional background and detail on proposed recommendations to update the CSAF suggested by the SCC and CSAB are available through the following links.

- For background information including the Terms of Reference on the CSAF work see: http://www.pac.dfo-mpo.gc.ca/consultation/smon/saf-crrs/index-eng.html.
- Summaries of each phase of this work, including submissions from the SCC and CSAB on proposed updates can be found at the following links:
    - Phase 1 report (http://www.dfo-mpo.gc.ca/Library/353131.pdf)
    - Phase 2 report (http://www.dfo-mpo.gc.ca/Library/354370.pdf)
    - Phase 3 report (*under development; when completed this report will be available at* - http://www.pac.dfo-mpo.gc.ca/consultation/smon/saf-crrs/index-eng.html)
    - SCC and CSAB recommendations: http://www.pac.dfo-mpo.gc.ca/consultation/smon/saf-crrs/index-eng.html

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).

Prior to 2015, the CSAF was an arrangement that shared the total value of the annual commercial salmon harvest to achieve a coast-wide ratio of 40% seine (Areas A and B); 38% gillnet (Areas C, D and E); and 22% troll (Areas F, G, and H). Each of the 5 salmon species was converted into their value relative to sockeye (sockeye equivalents). The total value of all salmon species expected to be harvested each year (after making allowances for constraints, such as conservation of co-migrating populations) was determined and then divided among the A-H fleets. The intent was to achieve as close to the coast-wide gear shares (40:38:22) as possible.

Commercial salmon licences voluntarily relinquished for transfer to First Nations through DFO programs (such as PICFI or ATP) and transferred to First Nations have been and will continue to be permitted to be fished in existing Area A-H commercial fisheries. In addition, some of these commercial licences are held in the DFO inventory and used to provide economic access in First Nations fisheries.

The Department began the update process to address concerns from the CSAB and First Nations that the current CSAF was deficient: it's annual requirement for adjusting allocations was thought to be destabilizing; the coast-wide gear shares arrangement did not reflect the locally based approach to fisheries management; and, it was seen by a number of harvesters as providing a disincentive to add value to catches.

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 was 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.

What changes to the CSAF have been approved?

For simplicity, the updates to the CSAF that have been proposed by the SCC and the CSAB and considered by the Department are organized into three categories: 1. Stabilizing commercial shares; 2. Flexibility to harvest the shares; and 3. Additional elements for future discussion.

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 Appendix 7, Section 7.4 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 in that commercial licence area (i.e. Areas A to H); and
- 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 current 22 fishery production areas, three new areas have been added 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.

Further considerations on *Stabilizing Commercial Shares*

In addition to the three additional production areas which have been 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 has not been approved at this time, 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.

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 will form the basis for the incremental testing of flexibilities to harvest shares that may be piloted starting in 2016 pending development of a revised collaborative advisory process 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, 'o*ne 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 *Interim Guidelines for Temporary Commercial Salmon Share Transfers, Appendix 7, Section 7.18*);
- 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.

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, pending the development of a revised collaborative 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 prior to the Department supporting implementation of any proposed flexibilities. This will 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 work with the existing CSAB and SCC to determine next steps.

Evaluation Framework

Further work is required to define principles and operational guidelines to ensure appropriate implementation of proposed harvesting flexibilities. Prior to implementation of any proposals, the Department has noted its intention to prepare an evaluation framework for assessing requests for additional fishery flexibility and providing the objectives and criteria that would be used to consider any requests for harvest flexibilities brought forward. DFO intends to seek input from the CSAB and SCC in preparing the evaluation framework.

3. Additional Elements for Discussion:

In addition to commercial allocation arrangements within Appendix 7, Section 7.4 of the IFMP and those listed above in 2. *Flexibility to Harvest Shares*, there are a number of additional elements in the SCC and CSAB proposals where differences remained. These elements may have policy implications and required 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 which can be reviewed at: http://www.pac.dfo-mpo.gc.ca/consultation/smon/saf-crrs/index-eng.html

Further considerations on *additional elements*:

Two areas have been highlighted in the SCC and CSAB proposals 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.

In addition, there are some proposed changes that are principally matters best handled between DFO and the relevant group. 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. These matters will require further discussion with the Department.

Finally, there are several areas, such as commercial licencing rules, in-season transfer rules, and 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 subject to the approved updates to the CSAF.

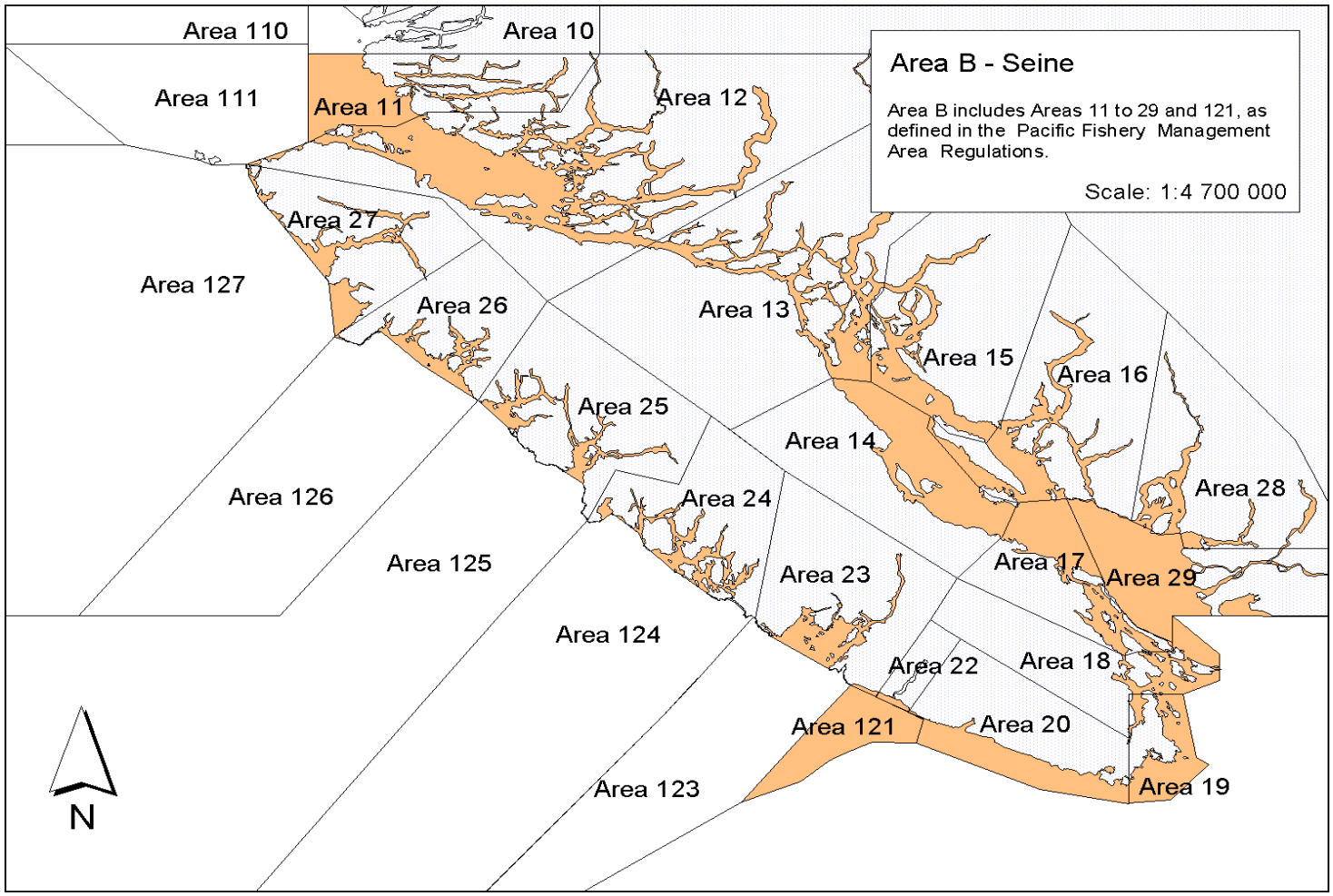
9 APPENDIX 9: COMMERCIAL SALMON LICENCE AREAS

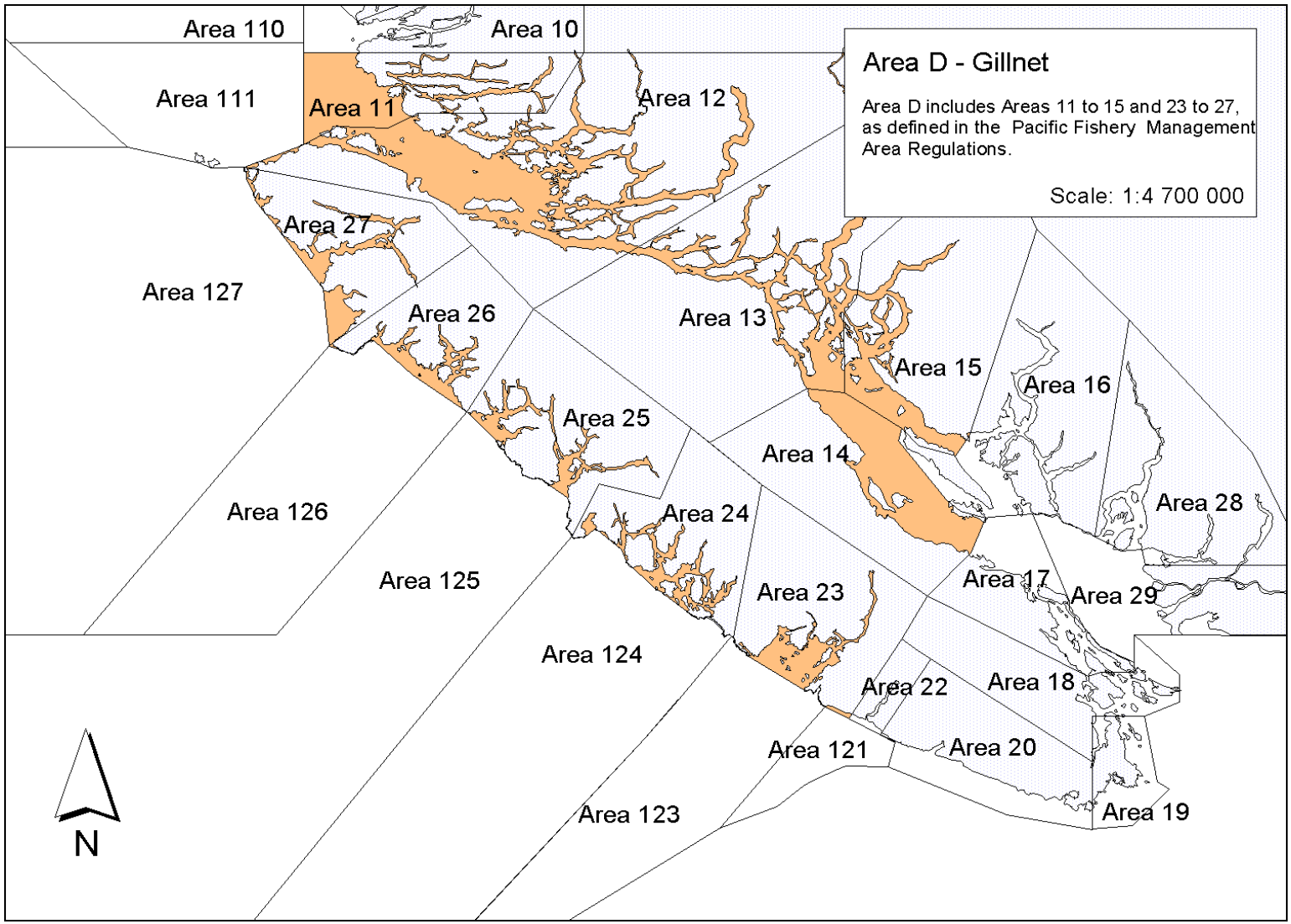
Pacific Salmon Fishing Area	Gear	Corresponding Pacific Fisheries Management Areas (PFMA)
Salmon Area A	Seine	Areas 1 to 10, Subarea 101-7
Salmon Area B	Seine	Areas 11 to 29 and 121
Salmon Area C	Gill net	Areas 1 to 10, Subarea 101-7
Salmon Area D	Gill net	Areas 11 to 15 and 23 – 27
Salmon Area E	Gill 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

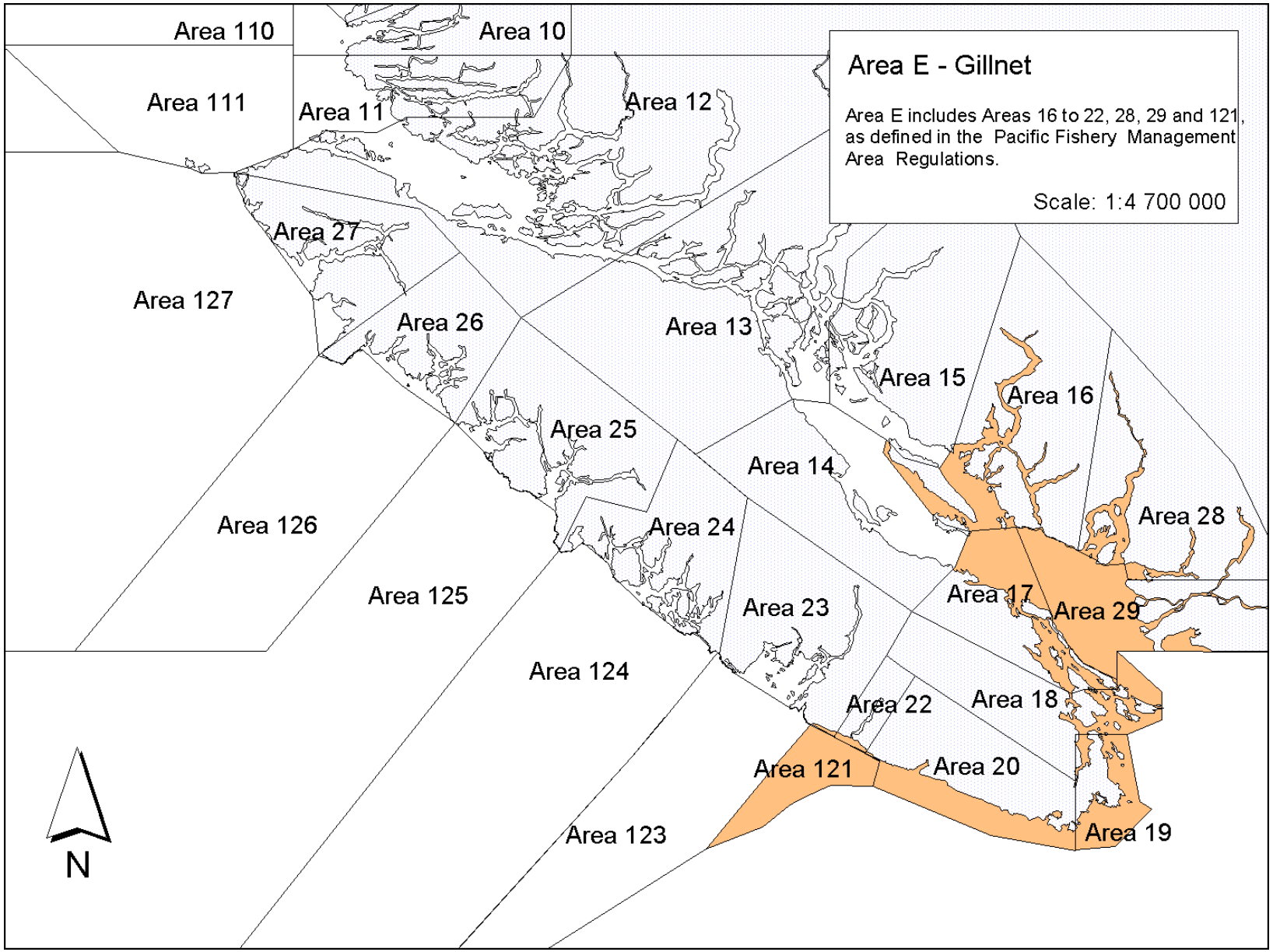
For South Coast PFMA's please see Figure 1-1 of this IFMP

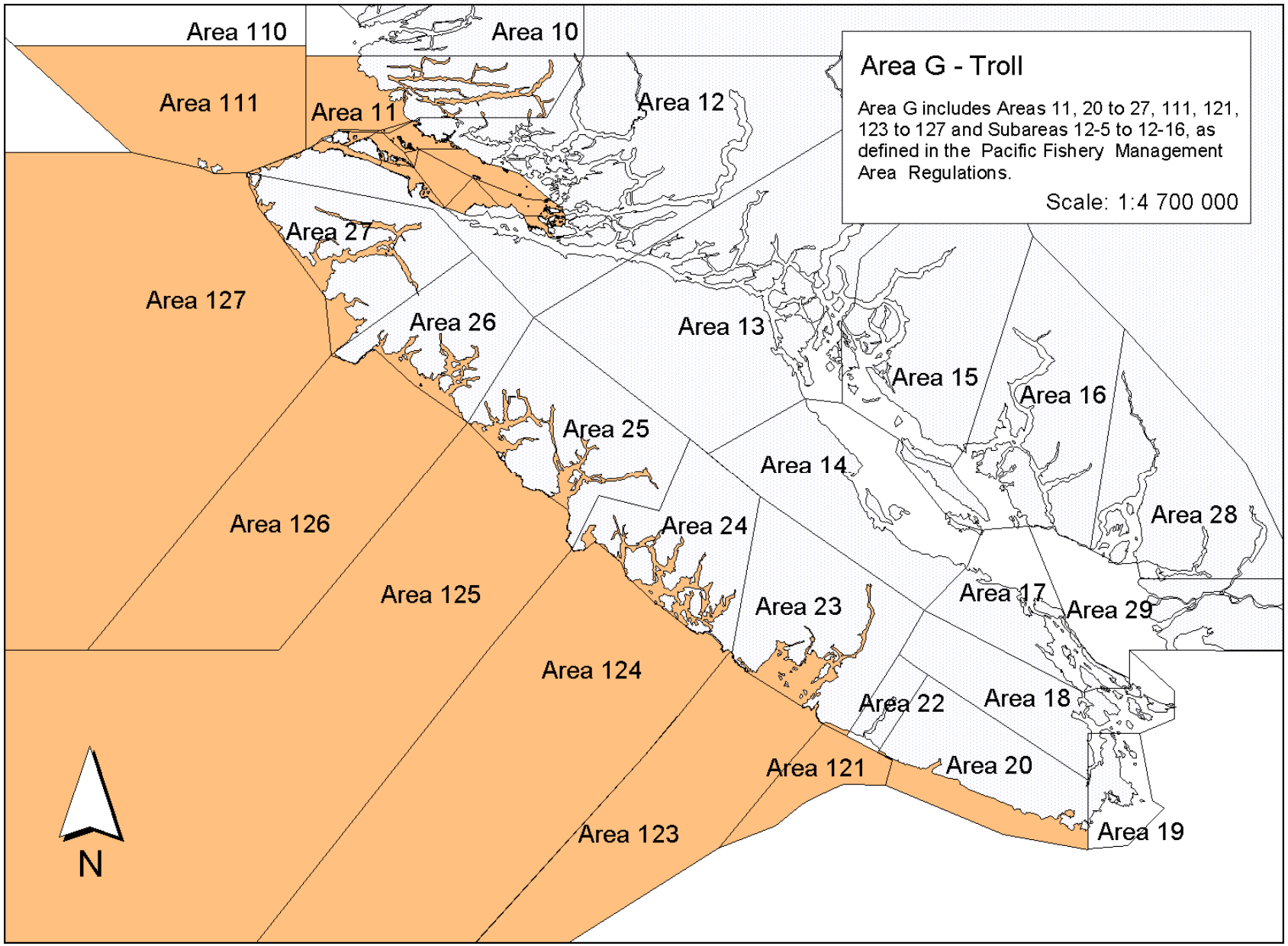
For maps of South Coast commercial licence areas, please see Appendix 10.

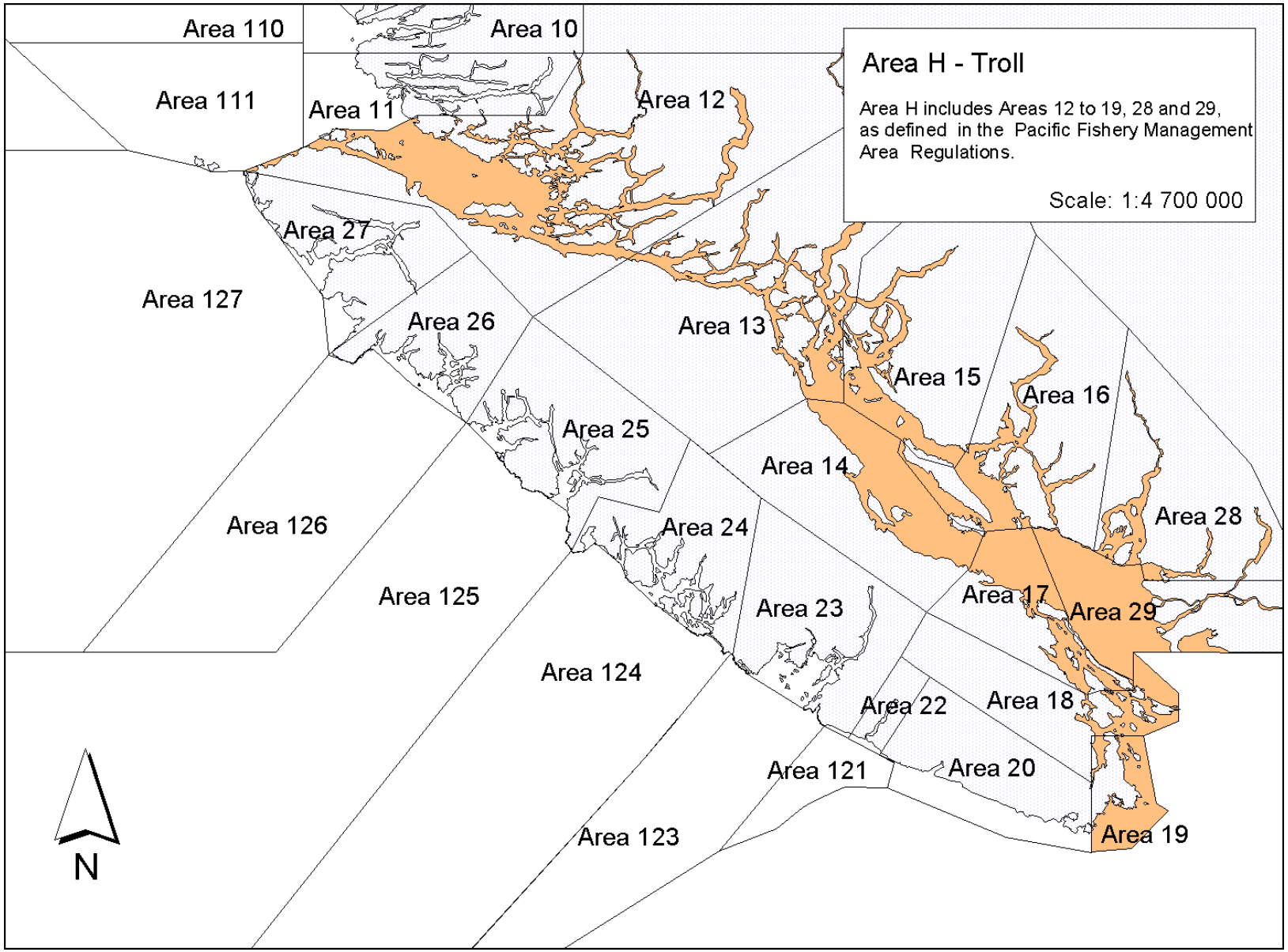
10 APPENDIX 10: MAPS OF COMMERCIAL LICENCE AREAS




Area 110
Area 10
Area 111
Area 11
Area 12
Area D - Gillnet
Area D includes Areas 11 to 15 and 23 to 27, as defined in the Pacific Fishery Management Area Regulations.
Scale: 1:4 700 000
Area 27
Area 127
Area 26
Area 13
Area 15
Area 16
Area 25
Area 14
Area 126
Area 24
Area 28
Area 125
Area 23
Area 17
Area 29
Area 124
Area 22
Area 18
Area 121
Area 20
Area 123
Area 19
N


Area 110
Area 10
Area 111
Area 11
Area 12
Area E - Gillnet
Area E includes Areas 16 to 22, 28, 29 and 121, as defined in the Pacific Fishery Management Area Regulations.
Scale: 1:4 700 000
Area 27
Area 127
Area 26
Area 13
Area 15
Area 16
Area 25
Area 14
Area 28
Area 126
Area 24
Area 17
Area 29
Area 125
Area 23
Area 124
Area 22
Area 18
Area 121
Area 20
Area 123
Area 19
N


Area 110
Area 10
Area 111
Area 11
Area 12
Area G - Troll
Area G includes Areas 11, 20 to 27, 111, 121, 123 to 127 and Subareas 12-5 to 12-16, as defined in the Pacific Fishery Management Area Regulations.
Scale: 1:4 700 000
Area 27
Area 127
Area 26
Area 13
Area 15
Area 16
Area 25
Area 14
Area 126
Area 24
Area 28
Area 125
Area 23
Area 17
Area 29
Area 124
Area 22
Area 18
Area 121
Area 20
Area 123
Area 19
N


Area 110
Area 10
Area 111
Area 11
Area 12
Area H - Troll
Area H includes Areas 12 to 19, 28 and 29, as defined in the Pacific Fishery Management Area Regulations.
Scale: 1:4 700 000
Area 27
Area 127
Area 26
Area 13
Area 15
Area 16
Area 25
Area 14
Area 126
Area 24
Area 28
Area 125
Area 23
Area 17
Area 29
Area 124
Area 22
Area 18
Area 121
Area 20
Area 123
Area 19
N

11 APPENDIX 11: LOGBOOK SAMPLES

SALMON TROLL Logbook I.D. # **T** ***SAMPLE*** **Report Catch to: 1-(888) 387-0007** Record all catch in pieces **Page #**

Vessel Name: ***Pacific Blue*** VRN (CFV #): ***12346*** Vessel Master Name: ***Dan Doe*** [1] FN: ***######***

Date Day	Date Mon	Mgmt. Area	Zone ☐ or Subarea ☒	Hours fished	Catch frozen or iced?	[2] Kept or Released	Sockeye	Coho	Pink	Chum	[3] Legal Sized Chinook	[3] Sublegal Sized Chinook	[4] Grilse	Atlantic	[5] Rockfish	[6] Other Species
15	*Jul*	*4*	*9*	*3*	(F) or I	Kept	*25*	*0*	*12*	*0*	*0*			*3*	*0*	*0*
Trip ID #:	***FOS-12345***					Rel.	*0*	*0*	*0*	*0*	*3*	*3*	*5*	*0*	*8 Yellowtail, 3 Canary, 6 Silvergrey*	*4 L, 2 D*
Comments:	***8 Hake released, lots of seals around***														DCR Confirmation # [7]	***FOS-12346***
15	*Jul*	*4*	*5*	*8½*	(F) or I	Kept	*42*	*0*	*8*	*0*	*0*			*0*	*0*	*0*
Trip ID #:	***FOS-12345***					Rel.	*0*	*0*	*0*	*0*	*2*	*5*	*1*	*0*	*3 Yelloweye, 6 unknown rockfish*	*0*
Comments:															DCR Confirmation # [7]	***FOS-12346***
16	*Jul*	*5*	*1*	*10*	F or (I)	Kept	*12*	*0*	*0*	*0*	*0*			*0*	*0*	*0*
Trip ID #:	***FOS-12345***					Rel.	*0*	*0*	*0*	*0*	*0*	*1*	*2*	*0*	*2 Chilipepper, 2 unknown rockfish*	*0*
Comments:															DCR Confirmation # [7]	***FOS-12349***
18	*Jul*	*5*	*1*	*6*	F or (I)	Kept	*0*	*0*	*0*	*0*	*8*			*0*	*0*	*0*
Trip ID #:	***FOS-12398***					Rel.	*0*	*1*	*0*	*0*	*0*	*1*	*0*	*0*	*0*	*1L*
Comments:	***1 Coho dead, 5 released in good condition***														DCR Confirmation # [7]	***FOS-12402***
18	*Jul*	*5*	*3*	*5½*	F or (I)	Kept	*0*	*0*	*0*	*0*	*12*			*0*	*0*	*0*
Trip ID #:	***FOS-12398***					Rel.	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*2D*
Comments:															DCR Confirmation # [7]	***FOS-12402***
19	*Jul*	*5*	*3*	*11*	F or (I)	Kept	*0*	*0*	*0*	*0*	*7*			*0*	*0*	*0*
Trip ID #:	***FOS-12398***					Rel.	*0*	*1*	*0*	*0*	*0*	*1*	*3*	*0*	*3 Canary*	*0*
Comments:															DCR Confirmation # [7]	***FOS-12491***

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 Confirmation #** is the confirmation number received upon completion of the Daily Catch Report.

2015

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*** [1] FIN: ***######***

Daily Catch Records

Date Day	Date Mon	Mgmt. Area	Sub-area(s)	Hours fished	# of sets	[2] Kept or Released	Sockeye	Coho	Pink	Chum	*Adult* Chinook	[3] *Jack* Chinook	Steel-head	Atlantic	[4] Other Fish	[5] 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 #: [6]		***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 #: [6]		***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 #: [6]		***FOS-12428***	

Offload Catch Records

Dates Fished First date Day	First date Month	Last date Day	Last date Mont	# Days fished	Date offloaded Day	Date offloaded Month	Sockeye ☐ Pieces ☐ Lbs ☐ Kgs	Coho ☐ Pcs ☐ Lbs ☐ Kgs	Pink ☐ Pieces ☒ Lbs ☐ Kgs	Chum ☐ Pieces ☐ Lbs ☐ Kgs	Chinook ☐ Pieces ☐ Lbs ☐ Kgs	(Other) ☐ Pcs ☒ Lbs ☐ Kgs	Complete if catch pooled with that of another vessel: Received from:	Offloaded to:	Vessel
14	*Aug*	*15*	*Aug*	*2*	*15*	*Aug*	*471*	*0*	*3958*	*0*	*0*	*42*	☐	☐	Name:
Business and port offloaded to: ***Canfisco, Pr. Rupert***								Fish slip # ***79768***			OCR Confirmation #: 6 ***FOS-12380***				VRN (CFV#):
19	*Aug*	*19*	*Aug*	*1*	*20*	*Aug*	*310*	*0*	*1692*	*0*	*0*	*0*	☐	☑	Name: ***Home Run II***
Business and port offloaded to:								Fish slip # ***79801***			OCR Confirmation #: 6 ***FOS-12482***				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.

2015

SALMON GILLNET Logbook I.D. # **G** ***SAMPLE*** **Report Catch to: 1-(888) 387-0007** Record all catch in pieces **Page #**

Vessel Name: ***Pacific Blue*** VRN (CFV#): ***12346*** Vessel Master Name: ***Dan Doe*** FIN: ~~######~~

Net Details Type[1]: ***A*** # Strands[2]: ***6*** Length: ***200*** (fathoms) Weedline Depth[3]: ***30cm*** Hang Ratio: ***3*** :1 Mesh Size[3]: ***4 7/8"*** # Meshes: ***90***

Date Da	Date Mon	Mgmt. Area	Sub-area(s)	Hours fished	# of sets	Kept or Released	Sockeye	Coho	Pink	Chum	Chinook	Steel-head	Atlantic	Dogfish	Sturg-eon	[5] Other Fish	[6] Non-fish
4	*Aug*	*12*	*12-4*	*5.5*	*5*	Kept	*4*	*0*	*23*	*127*	*0*	*0*	*0*	*0*		*0*	Yes
Trip ID #:		*FOS-12480*				Rel.	*0*	*9*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	*0*	No
Comments:		*2 birds killed in 10AM set, kept for research program. Probably surf scoters.*														DCR Confirmation #: [7] *FOS-12346*	
5	*Aug*	*12*	*12-5*	*7*	*3*	Kept	*73*	*0*	*245*	*4*	*0*	*0*	*1*	*0*		*0*	Yes
Trip ID #:		*FOS-12480*				Rel.	*0*	*2*	*0*	*0*	*0*	*0*	*0*	*2*	*0*	*2M, 1 salmon shark*	No
Comments:		*Offloaded at CANFISCO in Port Hardy on August 5 at 14:00*														DCR Confirmation #: [7] *FOS-12367*	
5	*Aug*	*12*	*12-4*	*2*	*3*	Kept	*88*	*0*	*116*	*7*	*0*	*0*	*2*	*0*		*0*	Yes
Trip ID #:		*FOS-12480*				Rel.	*0*	*0*	*0*	*0*	*0*	*1*	*0*	*0*	*0*	*11 M, 2 R*	No
Comments:		*Steelhead released in good condition. 2 sea lions released alive around 11AM.*														DCR Confirmation #: [7] *FOS-12367*	
29	*Aug*	*17*	*17-11*	*6*	*8*	Kept	*163*	*0*	*328*	*0*	*0*	*0*	*0*	*0*		*0*	Yes
Trip ID #:		*FOS-12773*				Rel.	*0*	*0*	*0*	*0*	*3*	*1*	*0*	*0*	*0*	*0*	No
Comments:																DCR Confirmation #: [7] *FOS-12521*	
29	*Aug*	*29*	*29-2*	*4*	*6*	Kept	*205*	*0*	*493*	*0*	*0*	*0*	*0*	*0*		*0*	Yes
Trip ID #:		*FOS-12773*				Rel.	*0*	*2*	*0*	*0*	*1*	*1*	*0*	*0*	*0*	*0*	No
Comments:		*Both coho put in rev. tank, one died, one released in good condition*														DCR Confirmation #: [7] *FOS-12523*	
						Kept											Yes
Trip ID #:						Rel.											No
Comments:																DCR Confirmation #: [7]	

1. **Net Types**: enter '*A*' for Alaska Twist, '*M*' for Multi Strand or 'C' for Combination.
2. Enter number of strands if net is 'Alaska Twist' type mesh.
3. Give measurement units (*in* or " = inches, *cm* = centimeters, *mm* = millimeters).
4. **Kept** are species retained on board; **Released** are species returned to the ocean.
5. **Other Fish**: M= Mackerel, L= Lingcod, H= Halibut, R= Rockfish. Give full name for other species.
6. Circle Yes or No as appropriate if any **birds, marine mammals,** or **turtles** were encountered. Give time of capture and species details in comments.
7. **DCR Confirmation #** is the confirmation number received upon completion of the Daily Catch Report.

2015

SALMON GILLNET Logbook I.D. # **G** **Report Catch to: 1-(888) 387-0007** Record all catch in pieces **Page #**

Vessel Name: VRN (CFV#): Vessel Master Name: FIN:

Offload Catch Records[1]

ates Fished				#	ate and Time			Sockeye	Coho	Pink	Chum	Chinook	Other Fish[2]
First date		Last date		Days	offloaded								
Day	Month	Day	Month	fished	Time(24hr)	Day	Month						
14	Aug	15	Aug	2	18:30	15	Aug	185	0	4	0	0	2 L
Business and port, or name and VRN of Packer offloaded to (or specify personal use): Home Run II, VRN: 12347									Fish slip or sales slip #: 79768		OCR Confirmation #:[3] FOS-12380		
14	Aug	15	Aug	2	18:30	15	Aug	10	0	0	0	0	
Business and port, or name and VRN of Packer offloaded to (or specify personal use): personal use									Fish slip or sales slip #: 79769		OCR Confirmation #:[3] FOS-12381		
Business and port, or name and VRN of Packer offloaded to (or specify personal use):									Fish slip or sales slip #:		OCR Confirmation #:[3]		
Business and port, or name and VRN of Packer offloaded to (or specify personal use):									Fish slip or sales slip #:		OCR Confirmation #:[3]		
Business and port, or name and VRN of Packer offloaded to (or specify personal use):									Fish slip or sales slip #:		OCR Confirmation #:[3]		
Business and port, or name and VRN of Packer offloaded to (or specify personal use):									Fish slip or sales slip #:		OCR Confirmation #:[3]		
Business and port, or name and VRN of Packer offloaded to (or specify personal use):									Fish slip or sales slip #:		OCR Confirmation #:[3]		
Business and port, or name and VRN of Packer offloaded to (or specify personal use):									Fish slip or sales slip #:		OCR Confirmation #:[3]		
Business and port, or name and VRN of Packer offloaded to (or specify personal use):									Fish slip or sales slip #:		OCR Confirmation #:[3]		

1. Report all offload catch records including report for take home fish (All fish caught are to be accounted for in these reports).
2. **Other Fish**: M= Mackerel, L= Lingcod, H= Halibut, D= Dogfish, R=Rockfish. Give full name for other species.
3. **OCR Confirmation #** is the Offload Catch confirmation number. A seperate OCR number should be generated for each offload location.

2015

12 APPENDIX 12: GLOSSARY AND LIST OF ACRONYMS

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:

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
ESSR	Excess Salmon to Spawning Requirements
FNFC	First Nations Fishery Council
FRP	Fraser River Panel
FSC	Food, Social and Ceremonial
ITQ	Individual Transfer Quota
IHPC	Integrated Harvest Planning Committee

ISBM	Individual Stock-Based Management
LAER	Low Abundance Exploitation Rates
LGS	Lower Strait of Georgia
LRP	Lower Reference Points
MCC	Marine Conservation Caucus
MPA	Marine Protected Area
MSY	Maximum Sustainable Yield
MVI	Mid Vancouver Island
NOLS	National On-line Licensing System
PICFI	Pacific Integrated Commercial Fisheries Initiative
PFMA	Pacific Fisheries Management Areas
PSC	Pacific Salmon Commission
PST	Pacific Salmon Treaty
RCA	Rockfish Conservation Area
SARA	Species at Risk Act
SEG	Sustainable Escapement Goal
SEP	Salmonid Enhancement Program
SFAB	Sport Fishing Advisory Board
SHMF	Selective Hatchery Mark Fishery
TAC	Total Allowable Catch
TAM	Total Allowable Mortality
WCVI	West Coast Vancouver Island
WSP	Wild Salmon Policy (*Canada's Policy for Conservation of Wild Pacific Salmon*)