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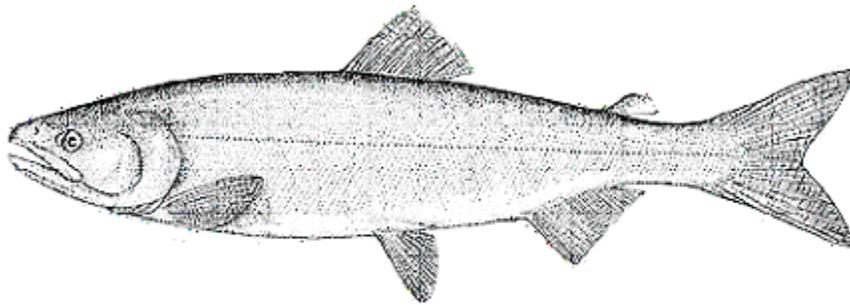
Pêches et Océans  
Canada

Southern Pacific Salmon Integrated Fisheries Management Plan Summary

*Genus Oncorhynchus*

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

As of 2013



The purpose of this Integrated Fisheries Management Plan (IFMP) summary is to provide a brief overview of the information found in the full IFMP. This document also serves to communicate the basic information on the fishery and its management to DFO staff, legislated co-management boards and other stakeholders. This IFMP provides a common understanding of the basic “rules” for the sustainable management of the fisheries resource. The full IFMP is available on request.

This IFMP summary is not a legally binding instrument which 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*.

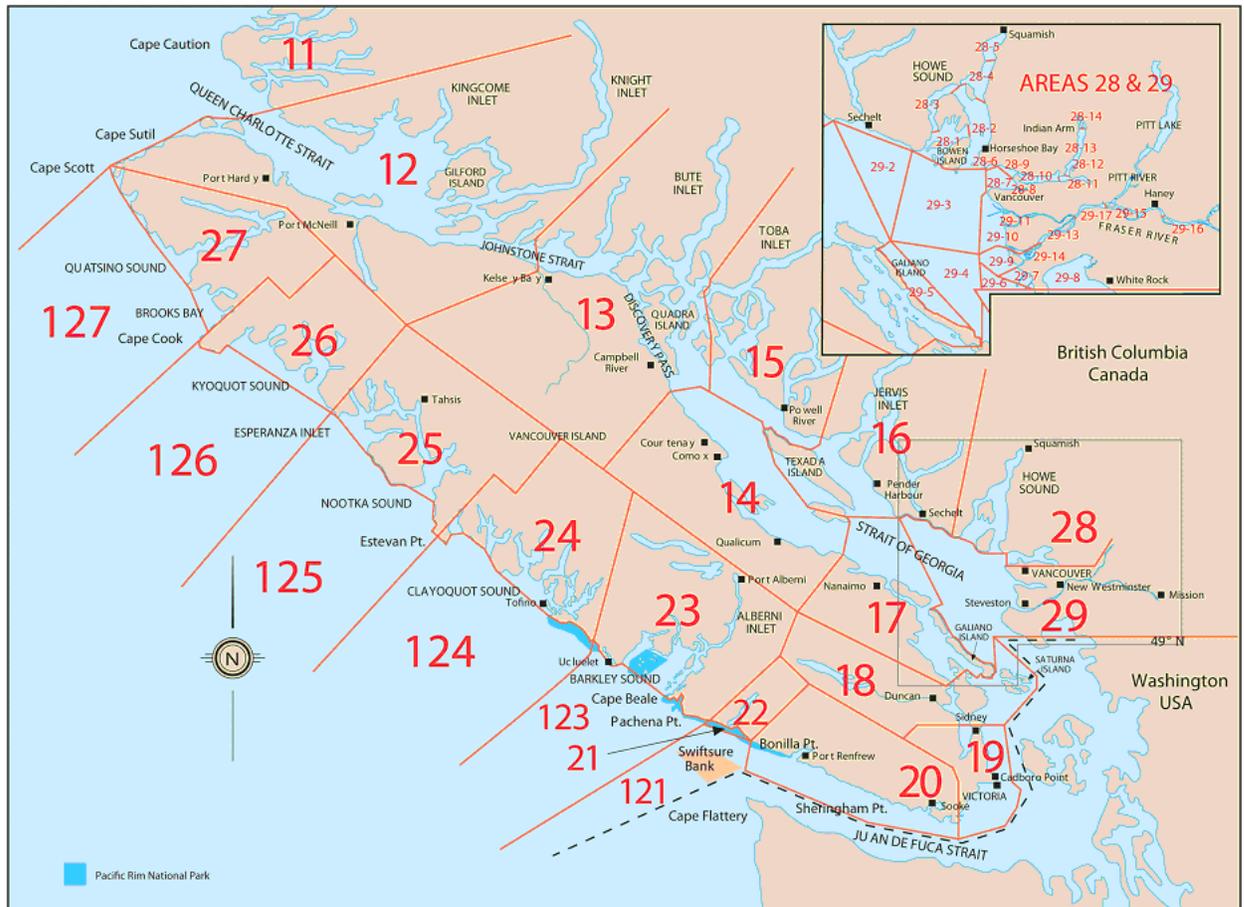
Where DFO is responsible for implementing obligations under land claims agreements, the IFMP will be implemented in a manner consistent with these obligations. In the event that an IFMP is inconsistent with obligations under land claims agreements, the provisions of the land claims agreements will prevail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

## General Overview/Introduction, including map

This 2013/2014 Southern B.C. Salmon Integrated Fisheries Management Plan (IFMP) covers the period June 1, 2013 to May 31, 2014.

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.

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).



## Stock Assessment, Science & Traditional Knowledge

### Biology

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 accounts for about 75% of the total salmon numbers.

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.

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 freshwater. Chinook mature at age three to seven years. Jacks, defined as 2-year-old sexually mature adults 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 3 to 6 years. Sockeye that live exclusively in fresh water are called kokanee.

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 the 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 B.C. 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.

#### Aboriginal Traditional Knowledge (ATK)/Traditional Ecological Knowledge (TEK)

Both Traditional Ecological Knowledge (TEK) and Aboriginal Traditional Knowledge, cumulative knowledge gathered over generations and encompasses regional, local and spiritual connections to ecosystems and all forms of plant and animal life. ATK is knowledge held by Aboriginal communities while TEK is local knowledge held by Non-Aboriginal communities, including industry, academia, and public sectors. While qualitatively different both are cumulative knowledge that may be gathered over generations and are regionally and locally specific. Both forms of knowledge can often be utilized to improve the management process. The growing awareness of the value of TEK/ATK is reflected in the increasing requirements for it to be included in environmental assessments, co-management arrangements, species at risk recovery plans, and all coastal management decision-making processes. Both 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 acknowledges the need to access

and consider ATK/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.

In 2008, the Department established the National Centre of Expertise—Traditional Ecological Knowledge (CETEK). Its mandate is to provide the Department with leadership and guidance on the use of TEK for integrated ocean and coastal management. CETEK defines TEK as the knowledge, practices and beliefs acquired through long term observations and experiences, and the wisdom to apply and adapt the observations and experiences to a dynamic environment. Objectives of CETEK include development of a National Strategy to guide the way the Department gathers and uses TEK and a guidebook on how to acquire TEK, integrate with scientific data, and make recommendations on how best to engage Aboriginal and community knowledge holders in the planning and implementation of ocean and coastal management.

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

### 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.

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. Please see the following link for details: <http://www.pac.dfo-mpo.gc.ca/fm-gp/species-especes/salmon-saumon/wsp-pss/index-eng.htm>.

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/sci/psarc/Default.htm>)

### **Economic, Social, 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 Aboriginal communal commercial fishery, the recreational and commercial fishing sectors, 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.

#### Aboriginal Participation

First Nations have a communally-held right to fish for food, social and ceremonial (FSC) purposes. In addition to this right, there is a strong interest in the economic opportunities offered by fisheries.

#### *Food, Social and Ceremonial:*

In the 1990 Supreme Court of Canada decision in *R. vs. Sparrow*, the Court held that after conservation and other valid legislative objectives, Aboriginal rights to fish for food, social and ceremonial purposes have priority over all other uses of the fishery. 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 the Aboriginal right to food, social and ceremonial harvest of fish and describe the role for First Nations in fisheries management.<sup>1</sup>

Fisheries and Oceans Canada consults with First Nations, stakeholders and Canadians on matters of interest and concern to them. Consulting is an important part of good governance, sound policy development and decision-making. In addition to good governance objectives, Canada has statutory, contractual and common law obligations to consult with Aboriginal groups.

Consultation and engagement with First Nations includes participation on a number of levels and in a variety of ways. These exchanges and involvement may include bilateral consultations, advisory processes, management boards, technical groups and other roundtable forums.

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 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.

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, there are 87 AFS agreements that contain provisions relating to salmon management, 44 of which are in the South Coast and Lower Fraser areas, with an additional 19 agreements in the BC Interior. In addition to AFS, the Aboriginal Aquatic Resources and Oceans Management Program (AAROM) provides funding to qualifying Aboriginal groups to form aquatic resource and oceans management organizations capable of hiring or contracting skilled personnel to allow them to participate effectively in decision-making and

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<sup>1</sup> 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 B.C. Treaty Commission website at [www.bctreaty.net](http://www.bctreaty.net).

advisory processes. For 2013-2014, there are 19 AAROM agreements in the Pacific Region, 3 of which are in the South Coast, 1 in the Lower Fraser, and 5 in the BC Interior.

*Commercial:*

Aboriginal commercial harvest opportunities are managed on the same priority as the commercial fishery. The landings and value attributable to Aboriginal commercial harvest are included in the values reported for the commercial sector below. 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). 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 are held communally and allow Aboriginal communities to designate vessels and individual fishers 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 2012. Of the 477 F licences allocated in 2012, 287 are for the South Coast.

In addition, 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.

In the 2012 season, 155 communal commercial salmon licence eligibilities were issued to First Nations under the AFS and ATP, 45 were issued under PICFI, 256 were used to offset First Nations Inland Demonstration Fisheries projects and Economic Opportunity Fishery arrangements with First Nations in the lower Fraser and Somass Rivers, and 21 were used for treaties or other contingencies. ).

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

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 2010 Survey of Recreational Fishing in Canada, 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.

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 2005 survey, 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 2007/2008 and 2008/09 season. Licence data show that the number of non-resident licences sold annually has declined almost continuously since 1999, dropping by 50% over the past 13 years, though the number of licences sold has been relatively stable over the past 3 years. The number of PSF Stamps also declined from 2008/09 to 2009/10, but has since made a partial recovery. .

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 B.C. were the second largest recreational fisheries in Canada in terms of direct and package 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, however, as it only includes expenditures directly

attributable to their fishing experience<sup>2</sup>. Fishing opportunities in B.C.'s tidal waters draw Canadian and international tourists to the province: of 47,269 non-resident anglers surveyed in 2010, 40% reported that they would not have come to British Columbia at all if there had been no opportunities for tidal water angling<sup>3</sup>. A further 19% would have shortened their stay in the province.

**Figure 2. Recreational Fishing Direct and Package Expenditures and Investments,**

|                      | 2000                  |                       |                      |                       |
|----------------------|-----------------------|-----------------------|----------------------|-----------------------|
|                      | Direct Expenses       | Packages              | Investments          | Total                 |
| Resident             | \$ 19,513,617         | \$ 20,829,900         | \$233,407,011        | \$ 383,750,528        |
| Canadian nonresident | \$ 28,293,594         | \$ 24,237,348         | \$ 28,830,187        | \$ 81,361,130         |
| Other nonresident    | \$ 61,154,508         | \$ 50,223,031         | \$ 14,438,282        | \$ 125,815,820        |
| <b>Total</b>         | <b>\$ 218,961,718</b> | <b>\$ 95,290,279</b>  | <b>\$276,675,480</b> | <b>\$ 590,927,478</b> |
|                      | 2005                  |                       |                      |                       |
|                      | Direct Expenses       | Packages              | Investments          | Total                 |
| Resident             | \$ 153,780,700        | \$ 43,304,153         | \$267,848,852        | \$ 464,933,705        |
| Canadian nonresident | \$ 34,623,490         | \$ 40,512,949         | \$ 12,728,288        | \$ 87,864,726         |
| Other nonresident    | \$ 49,623,447         | \$ 66,637,576         | \$ 8,315,313         | \$ 124,576,335        |
| <b>Total</b>         | <b>\$ 238,027,636</b> | <b>\$ 150,454,678</b> | <b>\$288,892,453</b> | <b>\$ 677,374,766</b> |
|                      | 2010                  |                       |                      |                       |
|                      | Direct Expenses       | Packages              | Investments          | Total                 |
| Resident             | \$ 193,406,654        | \$ 48,990,029         | \$307,528,573        | \$ 549,925,257        |
| Canadian nonresident | \$ 32,092,869         | \$ 24,373,167         | \$ 18,113,242        | \$ 74,579,277         |
| Other nonresident    | \$ 32,249,672         | \$ 28,065,161         | \$ 4,878,434         | \$ 65,193,267         |
| <b>Total</b>         | <b>\$ 257,749,195</b> | <b>\$ 101,428,357</b> | <b>\$330,520,249</b> | <b>\$ 689,697,801</b> |

Source: Survey of Recreational Fishing in Canada, multiple years

Figure 2 (above) shows the expenditures by resident and non-resident anglers from 2000 to 2010, adjusted to reflect constant 2009 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 1.82% from 2005 to 2010. This slowdown is due mainly to a drop in visits (and therefore expenditures) to BC by non-resident anglers, particularly other (i.e. international) non-resident anglers whose total expenditures in BC dropped by 47% between 2005 and 2010. Expenditure on fishing packages by resident anglers has increased considerably over the past decade; in real terms, it increased by over 135% between 2000 and 2010 and BC residents are now the primary consumers of fishing trip packages in the province.

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/fm-gp/rec/docs/rec-vision-eng.pdf>)

<sup>2</sup> British Columbia's Fisheries and Aquaculture Sector (2007) reports that non-resident participants in recreational tidal water fishing also spend money on, for example, shopping, cultural events and attractions (such as museums and the theatre), and sightseeing at locations other than where they go fishing.

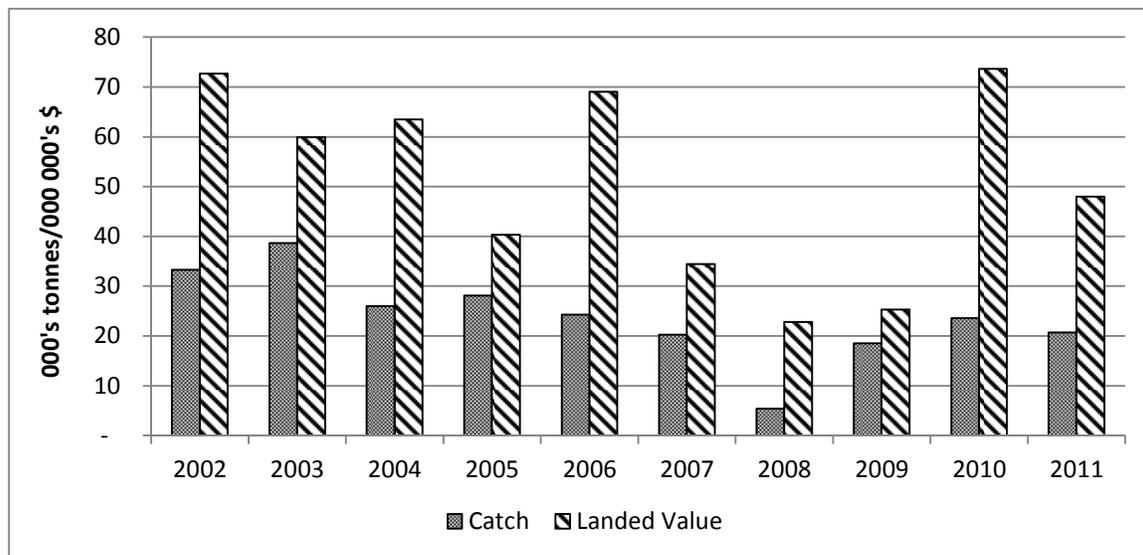
<sup>3</sup> This can be further broken down into Canadian non-residents and international non-residents. Opportunities for tidal water recreational fishing are more important to international visitors: 47% of them reported they would not have come to BC had there not been tidal water fishing opportunities,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

### Commercial Sector

In B.C., the salmon fishery is a limited access, competitive fishery<sup>4</sup>; however, several parts of the fishery have operated under individual quotas during the past five years. Since 2005, five areas using seine, troll or gillnet 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 in inland areas. Commercially-harvested salmon supports BC's seafood processing sector, much of which is ultimately exported, bringing new money into the province.

During the last decade, salmon contributed an average of 12.7% of the landed value and 11.7% of the volume of B.C. wild caught seafood. In 2011 dollars, the value ranged from a high of \$73.6 million in 2010 to a low of almost \$22 million in 2008 (Figure 3, below). On average, sockeye was the most important species in terms of landed value, followed by chinook and then chum.

**Figure 3: Pacific Region salmon harvest and landed value (2011 dollars)**

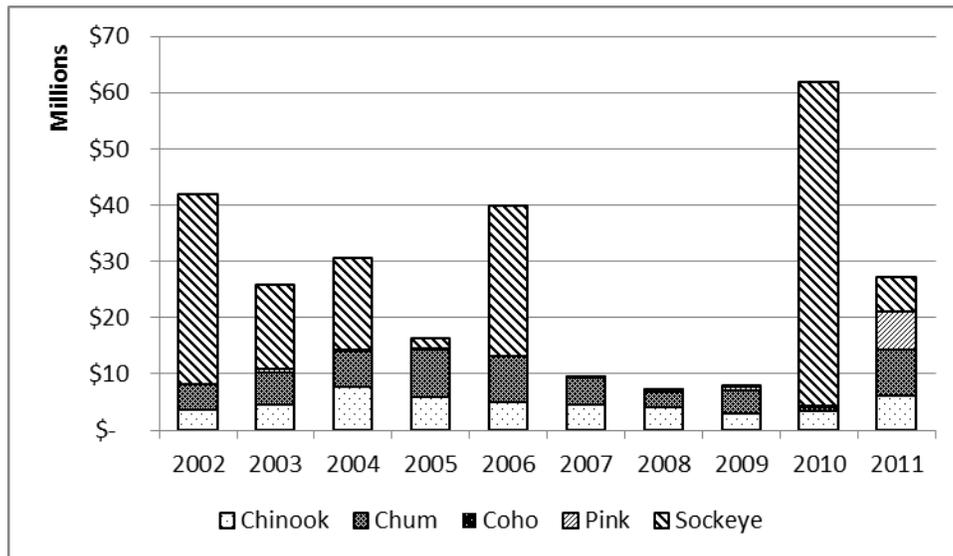


In the decade preceding 2010, the South Coast fishery was responsible for an average of 35% of the volume of salmon landings and 40% of the landed value. However, the record Fraser River sockeye run in 2010 meant that the South Coast accounted for 84% of the landed value in that year<sup>5</sup>. Like landings, the landed value of the South Coast salmon harvest has been variable and does not have an overall trend up or down (Figure 4, below). The most significant impact is due to the collapse of the Fraser sockeye harvest in 2007 to 2009.

<sup>4</sup> Other names for this style of fishery include derby and Olympic style fishery.

<sup>5</sup> Consequently, the new 10-year average (2001-2010) has the South Coast accounting for 40% and 49% of landed volume and value, respectively.

**Figure 1: South Coast salmon value by species, 2002-2011 (2011 dollars)**



Source: DFO Pacific, Regional Data Unit.

Salmon licence values have declined steadily from 2005-2010, reflecting poor returns to the fleet.<sup>6</sup> Licence values increased in 2011 due to improved outlook for the sockeye fishery (including a record run in 2010) and higher prices for pink and chum salmon<sup>7</sup>. A 2007 snap shot of the financial performance of the fleet indicated negative overall returns for gillnet and seine fleets in the absence of diversification into other fisheries,<sup>8</sup> this was reiterated in the 2009 financial snapshot<sup>9</sup>. 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 than the BC average and does not generate positive earnings from its salmon harvest<sup>10</sup>. 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 (gillnet, seine and troll) are available within both documents (Nelson, 2009 & 2011), and are available by licence area in Gislason, 2011.

### Processing Sector

Since 2000, salmon accounted for an average of 25% of the total wholesale value from seafood processing in B.C.<sup>11</sup>. Processing wild caught salmon provided about 1,394 positions in 2011, or about 30% of the B.C.

<sup>6</sup> Nelson, Stuart. 2010. West Coast Fishing Fleet: Analysis of Commercial Fishing Licence, Quota, and Vessel Values as of March 31, 2010. <http://www.dfo-mpo.gc.ca/Library/342459.pdf>

<sup>7</sup> Nelson, Stuart. 2011. West Coast Fishing Fleet: Analysis of Commercial Fishing Licence, Quota, and Vessel Values as of March 31, 2011.

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

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

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

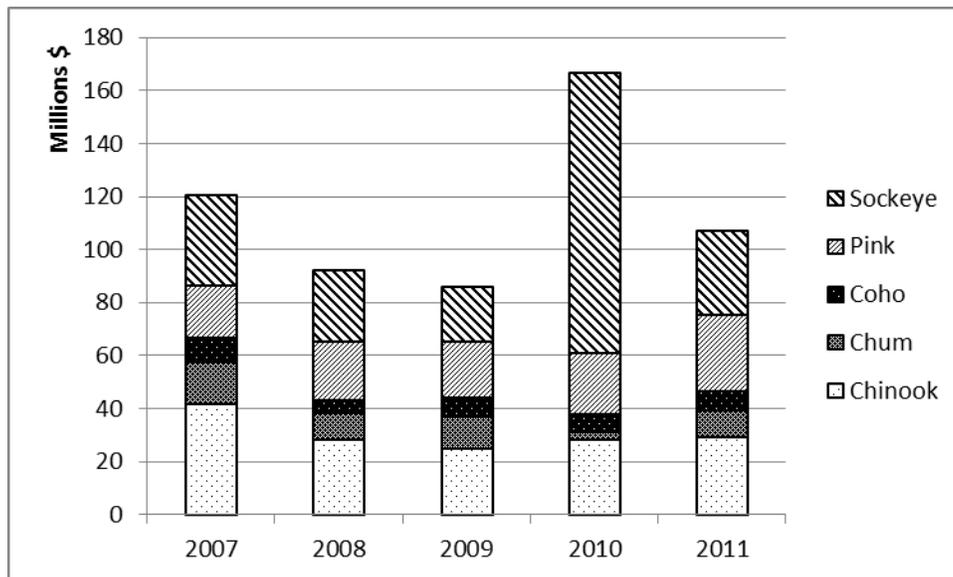
<sup>11</sup> British Columbia Seafood Industry Year in Review. Various years. BC Ministry of Environment. <http://www.env.gov.bc.ca/omfd/index.html>

total<sup>12</sup>. A 2008 report estimates approximately 80% of this employment was to process domestic landings, with processing occurring primarily in the Greater Vancouver (47%) and the Skeena-Queen Charlotte (38%) regional districts.<sup>13</sup> 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.

### Export Market

British Columbia benefits from a strong seafood exports sector, valued at \$957M<sup>14</sup> in 2010, which is supplied by the domestic wild harvest, aquaculture, and raw imports. Abundant sockeye in 2010 led to over \$100M in exports, more than 10% of the value of all BC seafood exports, and the highest-value wild-harvested species exported from the province. Over the five-year period from 2007 to 2011, B.C. exported wild salmon to some 58 countries. On average over this period, the United States accounted for 36% of the export value (\$41 million in 2011 dollars), followed by Japan (19% and \$22 million) and the the United Kingdom (17% and \$19 million). (see Figure 5, below).

**Figure 2: Salmon Export Value by Species, 2007-11 (2011 dollars)**



Source: Statistics Canada. January 2012.

Salmon export value declined by approximately 49% between 2005 and 2009, followed by a lucrative year fuelled by abundant sockeye. While all other species experienced an overall decline between 2005 and 2010, it was not uniform. The values for coho and pink salmon have been least affected, with declines of 14% and 16% respectively. In contrast, the export values for chinook and chum have declined by 54% and 91%, respectively. Exports to Japan are closely correlated to sockeye landings. From 2005 to 2009 average salmon exports to Japan were \$9.3 million, but in 2010 were valued at \$58 million during a time of record sockeye landings.

<sup>12</sup> BC Ministry of Environment. 2011. 2008 British Columbia Seafood Processing Employment Survey Results. <http://www.env.gov.bc.ca/omfd/fishstats/proc/employ-05.html>

<sup>13</sup> Fraser and Associates. 2008. Linkages Between the Primary Fish Production and Fish Processing Sectors in British Columbia.

<sup>14</sup> British Columbia Seafood Industry Year in Review. (2010).

## 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.<sup>15</sup> In the context of fisheries management, stewardship is often considered in terms of "shared stewardship", whereby First Nations, fishery participants and other interests are effectively involved in fisheries management decision-making processes at appropriate levels, contributing specialized knowledge and experience, and sharing in accountability for outcomes.

Moving toward shared stewardship is a strategic priority for DFO. This is reflected in a number of policies and initiatives, including the Wild Salmon Policy (WSP), the Resource Management Sustainable Fisheries Framework (SFF), 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 First Nations, commercial and recreational harvesters, and environmental interests to review and provide input on the draft IFMP, as well as coordinate 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.

Consultation and engagement with First Nations is central to DFO's approach to fisheries management (including development of the IFMP) and fulfilling the Department's mandate. 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 food, social and ceremonial (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. Engagement between DFO and First Nations also

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<sup>15</sup> As defined in the Atlantic Fisheries Policy Review (AFPR): [http://www.dfo-mpo.gc.ca/afpr-rppa/home\\_e.htm](http://www.dfo-mpo.gc.ca/afpr-rppa/home_e.htm)

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.

### Governance Process

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 there is general support.

Please see the salmon consultation website for more information:

<http://www.pac.dfo-mpo.gc.ca/consultation/fisheries-peche/smon/index-eng.htm>

### Access and Allocations

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

#### International

Details can be found at the Pacific Salmon Commission (PSC) website at: <http://www.psc.org/Index.htm>.

#### Allocation Guidelines

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

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

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

Figure 7 below describes a generalized framework by which fishing opportunities are allocated to different fishing sectors at different abundance levels.

Figure 7: Allocation guidelines

|                              | Low Abundance             |                       | High Abundance        |                       |          |
|------------------------------|---------------------------|-----------------------|-----------------------|-----------------------|----------|
| <b>First Nations<br/>FSC</b> | Non-retention /<br>closed | By-catch<br>Retention | Directed              | Directed              | Directed |
| <b>Recreational</b>          | Non-retention /<br>closed | Non-retention         | By-catch<br>Retention | Directed              | Directed |
| <b>Commercial</b>            | Non-retention /<br>closed | Non-retention         | By-catch<br>Retention | By-catch<br>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 directed fisheries on a species. The application of the *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 generally 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. Please see website: <http://www.dfo-mpo.gc.ca/Library/240366.pdf> for more details.

#### First Nations - Food, Social and Ceremonial (FSC)

The *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.

#### Recreational Fisheries

Under the Department's *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.

#### Commercial Fisheries

The *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.

Specific sector target allocations are: seine 40%, gill net 38%, and troll 22% expressed on a sockeye equivalent basis. The ability to achieve these targets 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.

#### 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, inaccurate 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.

#### 2013 Commercial Allocation

This section describes anticipated commercial licence area allocations for each gear type and for each species of salmon. These anticipated licence area allocations 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 including all conservation measures currently in effect. Where appropriate the potential harvest identified is a range that reflects the most recent approved forecasts for each stock grouping. In other cases, the potential harvest represents the informed point estimate of fisheries managers based upon historic average return rates and/or available analysis.

Although best efforts will be made to achieve these coast-wide allocation targets, no guarantees are offered that target allocations will actually be achieved in any given year. The achievement of these targets will depend upon the ability to fish selectively and the conservation needs of the resource. In the event that target allocations are not achieved, no compensatory adjustments will be made to future allocations. "Catch up/make up" adjustments to future target allocations will not be considered in the event that a gear type does not meet its target allocation.

The following operational guidelines also apply:

- Individual licence holders and groups of licence holders will not be permitted to make their own allocation transfer arrangements unless agreed to by DFO under Demonstration Fisheries arrangements.
- As in recent 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).
- Harvest from commercial assessment fisheries intended to obtain information that will benefit a specific fleet will be considered part of the allocation of the fleet conducting the fishery.
- The target allocations for gill net D and gill net E area licences will attempt to equalize the relative average catch per licence in sockeye equivalents.

- The target allocations for troll G and troll H area licences will attempt to equalize the relative average catch per licence in sockeye equivalents.
- If after spawning escapement objectives are met, and despite best efforts, it becomes apparent that an area licence group is unable to achieve its target allocation, subject to conservation requirements, uncaught balances will be given first to the same gear type in a different licence area and, second to different gear types in a manner that reflects their relative target allocations.

It is noted that these are not fixed entitlements but are a projection of available fishing opportunities given present forecasts of stock abundance and best efforts to achieve coast-wide target allocations by gear type. These represent the intentions of fisheries management if abundance is as expected and all other things are equal. However, in many cases in-season adjustments will be necessary to address conservation concerns or other unforeseen events.

#### South Coast Sockeye

| Areas                | Potential Harvest (Pieces) | Seine B | Gill Net D | Gill Net E | Troll G | Troll H |
|----------------------|----------------------------|---------|------------|------------|---------|---------|
| Area 23              | 19K                        | 60%     | 40%        | 0%         | 0%      | 0%      |
| Fraser River Sockeye | 0 K                        | 48.5%   | 22%        | 25.5%      | 0%      | 4%      |

Notes on sockeye allocations:

Fraser River sockeye: The potential harvest for Fraser River sockeye is based on pre-season p50 forecast information. Measures will be implemented to address uncertainty about returns, environmental conditions as well as conservation concerns for Sakinaw Lake, Cultus Lake and Late Run sockeye. These factors could substantially reduce opportunities to harvest the full TAC. The Fraser River sockeye TAC will be established based on in-season information

Barkley sockeye: The current estimate of potential harvest is based on a pre-season estimate of a 350K return. Sockeye abundance will be reforecast in-season and as a result actual catch available could change.

#### South Coast Pink

| Areas                 | Potential Harvest (Pieces) | Seine B | Gill Net D | Gill Net E | Troll G | Troll H |
|-----------------------|----------------------------|---------|------------|------------|---------|---------|
| Fraser River          | 2,000K                     | 69%     | 11%        | 11.5%      | 0%      | 8.5%    |
| Mainland Inlets (A12) | 5K                         | 73%     | 9%         | 0%         | 0%      | 18%     |

Notes on pink allocations:

2013 is a dominant cycle year for Fraser River pink salmon; the potential harvest is based on pre-season p50 forecast information. Fisheries will be planned and managed consistent with Fraser River sockeye, Interior Fraser coho, Fraser River steelhead, and Fraser River pink management objectives.

Potential harvests of Mainland Pinks will be determined in season.

#### South Coast Chum

| Areas              | Potential Harvest (Pieces) | Seine B | Gill Net D | Gill Net E | Troll G | Troll H |
|--------------------|----------------------------|---------|------------|------------|---------|---------|
| 11 to 19, 28 to 29 | 685K                       | 63%     | 19%        | 12%        | 0%      | 6%      |
| 21 to 22           | 0.2K                       | 70%     |            | 29%        | 1%      |         |
| 23 to 27           | 10.5K                      | 0%      | 98%        | 0%         | 2%      | 0%      |

Notes on chum allocations:

Anticipated catch in Johnstone Strait is approximately 600K with an additional 85K estimated in the Strait of Georgia and the Fraser River. There will be minimal opportunities for chum fishing in Area 23 and 24 and no fishing opportunities anticipated for Area 25.

For Fraser River chum, harvest opportunities will be constrained by conservation concerns for Interior Fraser River steelhead.

#### South Coast Coho

| Areas                     | Potential Harvest (Pieces) | Seine B | Gill Net D | Gill Net E | Troll G | Troll H |
|---------------------------|----------------------------|---------|------------|------------|---------|---------|
| 11 to 20, 29              | 0K                         | 55%     | 15%        | 15%        | 0%      | 15%     |
| 21 to 27, 121, 123 to 127 | 0500K                      | 0%      | 0%         | 0%         | 100%    | 0%      |

Notes on coho allocations:

WCVI coho - It is anticipated that retention of adipose clipped coho will be permitted in offshore troll fisheries in the latter half of September.

#### South Coast Chinook

| Areas                | Harvest Forecast (Pieces) | Seine B | Gill Net D | Gill Net E | Troll G | Troll H |
|----------------------|---------------------------|---------|------------|------------|---------|---------|
| 11 to 20, 29         | 0K                        | 0%      | 0%         | 100 %      | 0%      | 0%      |
| 21 to 27, 121 to 127 | 48,0008K                  | 0%      | 3.1%       | 0%         | 96.9%   | 0%      |

Notes on chinook allocations:

AABM Chinook - WCVI area includes G WCVI AABM harvest of 46.5K and 1.5 Area D harvest in Area 25. A poor forecast will likely preclude seine or gill net fisheries for Somass (Robertson Creek) chinook in 2013. Area B and D allocations were updated to reflect expectation for Area D harvest only in Area 25. Allocations used for planning purposes for 2013 only are 3.1% Area D (1.5K/48K) and 96.9% Area G (46.5K/48K). Somass sharing between Area B and D in a year of commercial TAC would be 33% SN: 67% GN.

The Area G WCVI AABM TAC is for planning purposes only and may be adjusted in-season if observed First Nation and recreational catches differ from anticipated levels. In addition, conservation concerns for other stocks the expected harvest may be less than this level. 3

**Compliance Plan**

In 2013, 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 by intelligence to target priority fisheries and compliance issues.

Salmon fishery compliance continues to be a priority for C&P for 2013. There are, however, other competing priorities such as habitat management, the Canadian Shellfish Sanitation Program, and the protection of Species at Risk.

In order to balance multiple program demands, C&P applies a risk-based integrated work planning process at the Regional and Area levels. This process ensures that resources are allocated appropriately. Resource utilization is dependent on availability of program funding.

For additional information on this IFMP Summary or to request an electronic version of the full IFMP, please contact the Salmon Officer via email at: [Kelly.Binning@dfo-mpo.gc.ca](mailto:Kelly.Binning@dfo-mpo.gc.ca) or at 604-666-3935.

## Management of the Fishery

| # | Management Issue                              | Objectives   | Management Measure   |
|---|---|--|--|
| 1 | Lower Strait of Georgia (LGS) chinook         | <p>- Reduce fishery exploitation in known areas of significant impact.</p>   | <p>Chinook escapements to many Lower Strait of Georgia (LGS) systems generally continue to be at low levels, due in large part to poor marine survival. The Cowichan River is the primary indicator of marine survival and exploitation for the LGS fall chinook. Natural spawning chinook have been well below the goal of 6,500 spawners for the Cowichan River since 1998 and well below goal since 2002. However, in 2010, 2011 and 2012 there was an improvement in the escapement to the Cowichan River. In 2010, 2,419 natural adult spawners, 1,786 jack spawners and 376 adults and jacks were collected for broodstock. In 2011, the escapement was 2,786 natural adult spawners and 1,688 jack spawners and 728 adults and jacks collected for broodstock. In 2012, the preliminary escapement estimate is 2,668 natural adult spawners, 1,062 jack spawners with 693 adults and jacks collected for broodstock.</p> <p>LGS chinook are impacted by terminal First Nations fisheries, and mixed stock chinook harvest in 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 and in the Strait of Georgia. Restrictions introduced in recent years (including PST reductions to the WCVI allowable harvest) are reducing WCVI commercial troll TAC. Restrictions and closures in the terminal and approach areas for recreational harvesters and First Nations will continue.</p> <p>Over the next year, the Department will also be consulting on a longer term, comprehensive management framework for all southern BC chinook populations that considers the effects of fishery related impacts, enhancement activities, and habitat and ecosystem status on these populations. Revisions to management actions may be considered based on development of the southern BC chinook management framework.</p> |
| 2 | West Coast of Vancouver Island (WCVI) chinook | <p>- Manage Canadian ocean fisheries (specified below) to an exploitation rate of 10%.</p> <p>- For North Coast chinook the objective 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%.</p>   | <p>For the past several years WCVI wild chinook have experienced poor marine survival rates and low spawner levels and are a stock of concern.</p> <p>Management actions will continue to be required in 2012 consistent with the exploitation rate objective. For purposes of calculating the WCVI allowance for north coast chinook fisheries, all WCVI chinook caught and kept in Canadian fisheries are assumed to be returning in the present year. Fisheries that this limit applies to are the northern troll, Queen Charlotte Islands sport, WCVI troll and WCVI sport. 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.</p> <p>DFO will continue to manage commercial troll fisheries in the North Coast to a WCVI catch ceiling. The allowance for mortalities of WCVI chinook in the Area F troll fishery is calculated based on 3.2% of the total WCVI return to Canada as an inseason proxy for exploitation rate. DNA analysis and fishery impact models will be used in season to assess this objective.</p>  |
| 3 | Fraser Spring 4 <sub>2</sub> chinook          | <p>- Conserve these populations by continuing to minimize incidental harvests in Canadian ocean fisheries.</p> <p>- For directed fisheries in the Fraser River, the objective is to minimize directed harvests of Spring 4<sub>2</sub> chinook until July 15<sup>th</sup>.</p> <p>- Fisheries beginning July 15<sup>th</sup> will be managed consistent with the</p> | <p>In the 2013 Salmon Outlook, Spring 4<sub>2</sub> chinook has been classified as <i>stock of concern</i> given poor survival rates and very poor spawning escapements in recent years.</p> <p>Fraser Spring 4<sub>2</sub> 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 areas including three populations previously referred to as Early-timed chinook. Spring 4<sub>2</sub> chinook return to spawn from early March through late July and migration peaks in June in the lower Fraser River. These populations primarily mature as adults at age-4 (90%) with lower numbers maturing at age-5 (7%) and occasionally at age-3 (3%).</p> <p>Coded wire tagged (CWT) Nicola River chinook released from the Spius Creek hatchery are the PST exploitation rate indicator stock used to assess survival and exploitation rates of Spring 4<sub>2</sub> chinook in Canadian and US fisheries. Based on CWT recoveries from fisheries, Fraser Spring 4<sub>2</sub> chinook have historically been encountered in Fraser River First Nation 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.</p> <p>There is a high potential for very low abundances of Spring 4<sub>2</sub> chinook in 2013 and subsequent years if poor survival rates persist, given very low spawner abundances in the parental generations. Returns of Spring 4<sub>2</sub> chinook in 2013 will come primarily from a parent generation of</p>   |

|                 |   | <p><b>management zone identified for Spring 5<sub>2</sub> and Summer 5<sub>2</sub> Fraser Chinook described below) given timing overlaps between these populations for much of the adult migration period.</b></p> | <p>approximately 844 spawners in 2009. Additional consultations will occur beginning in the Fall 2013 if changes are contemplated on fishery plans for First Nations, recreational and commercial harvesters for the Spring of 2014.</p>   |      |                                      |         |   |   |  |
|-----------------|---|--|--|------|--------------------------------------|---------|---|---|--|
| <p><b>4</b></p> | <p><b>Fraser Spring and Summer (age 5<sub>2</sub>) chinook</b></p>  | <p><b>- Conserve these populations consistent with the management zones outlined below.</b></p>  | <p>In the 2013 Salmon Outlook, Spring 5<sub>2</sub> and Summer 5<sub>2</sub> chinook stocks have been classified as <i>stock of concern</i> given poor survival rates and declines in spawning escapements compared to the parental generation in recent years. The parental brood year (2008) escapement for these stocks was approximately 32,000 spawners.</p> <p>The Fraser Spring 5<sub>2</sub> and Summer 5<sub>2</sub> 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<sub>2</sub> chinook return to the Fraser River to spawn from early March through late July and migration peaks in late June in the lower Fraser. Summer 5<sub>2</sub> chinook 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.</p> <p>Given the poor pre-season outlook, the Department is planning to begin the season with management actions based on returns being less than 45,000 (zone 1). The Department will use the relationship between the cumulative Catch per Unit Effort (CPUE) of chinook caught in the Albion test fishery from May 5<sup>th</sup> through June 15<sup>th</sup> to provide an in-season estimate of returns of Spring 5<sub>2</sub> and Summer 5<sub>2</sub> chinook to the mouth of the Fraser River. Updates of the predicted return for informational purposes are tentatively planned for May 21<sup>st</sup> and June 3<sup>rd</sup>, with a final in-season update by June 17<sup>th</sup>. The management zone may be updated based on this in-season assessment.</p> <p><b>Spring 5<sub>2</sub> and Summer 5<sub>2</sub> Fraser Chinook Management Zone Approach</b></p> <table border="1" data-bbox="695 959 1925 1219"> <thead> <tr> <th data-bbox="695 959 806 1040">Zone</th> <th data-bbox="806 959 1211 1040">Predicted Return to the Fraser River</th> <th data-bbox="1211 959 1925 1040">Actions</th> </tr> </thead> <tbody> <tr> <td data-bbox="695 1040 806 1219">3</td> <td data-bbox="806 1040 1211 1219">                     Greater than 85,000<br/> <b>Rationale:</b> Populations rebuilding towards maximum sustained yield (MSY) levels.                 </td> <td data-bbox="1211 1040 1925 1219">                     First Nations directed fisheries.<br/>                     Directed recreational and commercial fisheries consistent with Allocation policy.                 </td> </tr> </tbody> </table> | Zone | Predicted Return to the Fraser River | Actions | 3 | Greater than 85,000<br><b>Rationale:</b> Populations rebuilding towards maximum sustained yield (MSY) levels. | First Nations directed fisheries.<br>Directed recreational and commercial fisheries consistent with Allocation policy. |
| Zone            | Predicted Return to the Fraser River  | Actions  |  |      |                                      |         |   |   |  |
| 3               | Greater than 85,000<br><b>Rationale:</b> Populations rebuilding towards maximum sustained yield (MSY) levels. | First Nations directed fisheries.<br>Directed recreational and commercial fisheries consistent with Allocation policy.   |  |      |                                      |         |   |   |  |

|   |  |   |  |   |   |   |   |  |   |
|---|--|---|--|---|---|---|---|--|---|
|   |  |   | <table border="1"> <tr> <td>2</td> <td>45,000 to 85,000<br/><b>Rationale:</b> Caution required to avoid population declines. Populations well below MSY levels.</td> <td>Limited directed fisheries.<br/>First Nations directed fisheries subject to abundance.<br/>By-catch retention/ limited directed Fraser recreational fisheries may be initiated.<br/>Management actions to reduce by-catch or incidental harvest in commercial fisheries.</td> </tr> <tr> <td>1</td> <td>Below or equal to 45,000<br/><b>Rationale:</b> Significant conservation concerns. Very high risk of extremely low spawning populations.</td> <td>Directed fisheries minimized.<br/>By-catch retention /limited directed First Nations fisheries.<br/>Non-retention/closed recreational and commercial chinook fisheries in the Fraser River and tributaries<br/>Management actions to reduce by-catch or incidental harvest in other recreational and commercial fisheries.</td> </tr> </table> <p>Additional management actions for zone 1 have been identified in five primary areas where these stocks have been most impacted by fisheries: 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 food, social and ceremonial fisheries.</p>  | 2 | 45,000 to 85,000<br><b>Rationale:</b> Caution required to avoid population declines. Populations well below MSY levels. | Limited directed fisheries.<br>First Nations directed fisheries subject to abundance.<br>By-catch retention/ limited directed Fraser recreational fisheries may be initiated.<br>Management actions to reduce by-catch or incidental harvest in commercial fisheries. | 1 | Below or equal to 45,000<br><b>Rationale:</b> Significant conservation concerns. Very high risk of extremely low spawning populations. | Directed fisheries minimized.<br>By-catch retention /limited directed First Nations fisheries.<br>Non-retention/closed recreational and commercial chinook fisheries in the Fraser River and tributaries<br>Management actions to reduce by-catch or incidental harvest in other recreational and commercial fisheries. |
| 2 | 45,000 to 85,000<br><b>Rationale:</b> Caution required to avoid population declines. Populations well below MSY levels.                | Limited directed fisheries.<br>First Nations directed fisheries subject to abundance.<br>By-catch retention/ limited directed Fraser recreational fisheries may be initiated.<br>Management actions to reduce by-catch or incidental harvest in commercial fisheries.   |  |   |   |   |   |  |   |
| 1 | Below or equal to 45,000<br><b>Rationale:</b> Significant conservation concerns. Very high risk of extremely low spawning populations. | Directed fisheries minimized.<br>By-catch retention /limited directed First Nations fisheries.<br>Non-retention/closed recreational and commercial chinook fisheries in the Fraser River and tributaries<br>Management actions to reduce by-catch or incidental harvest in other recreational and commercial fisheries. |  |   |   |   |   |  |   |
| 5 | Interior Fraser River coho (including Thompson River coho)   | -Limit the Canadian exploitation rate to 3% (not including terminal harvest on systems experiencing strong escapements).  | <p>Conservation measures with the objective of reducing harvest related impacts to Interior Fraser coho were first implemented in 1998. Since then, the conservation objective has been clarified to limit the exploitation rate to 3% or less.</p> <p>Returns in 2013 will be from the 2010 brood year escapement of 36,000 fish and the forecast total return to the Interior Fraser watershed is 42,729 coho with a 50% confidence interval of 27,091 to 67,393 based on a 3 year average model. However, considerable interannual variation and uncertainty remains about the trend in productivity with 4 of the last 10 years below replacement levels. During May through September, when Interior Fraser coho, Lower Fraser coho and Strait of Georgia coho are encountered in southern BC waters, management actions will range from non-retention to time and area closures. The following areas and fisheries are affected:</p> <ul style="list-style-type: none"> <li>• West Coast Vancouver Island (WCVI) troll and recreational fisheries in offshore areas from late May until early September;</li> <li>• Commercial net and recreational fisheries in the Straits of Juan de Fuca from June until early October;</li> <li>• Commercial, recreational and First Nations fisheries in Johnstone and Queen Charlotte Straits from early June until late August;</li> <li>• Commercial, recreational and First Nations fisheries in the Strait of Georgia from June until early October, and</li> <li>• Commercial, recreational and First Nations fisheries in the Fraser River from early September until mid-October.</li> </ul> |   |   |   |   |  |   |
| 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 exploitation rate floor identified for Late Run  | <p>Cultus Lake sockeye is a component of the Late Run Fraser River sockeye aggregate which is typically harvested in southern B.C. waters in August and September.</p> <p>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 have been implemented to reduce fishery exploitation levels on this stock. Enhancement measures have included fry and smolt releases as well as a captive brood program. 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 current status of Cultus Sockeye can be found in the <i>Status of Cultus Lake Sockeye Salmon</i> (Bradford et al., 2010), available on-line at: <a href="http://www.dfo-mpo.gc.ca/CSAS/Csas/publications/resdocs-docrech/2010/2010_123_e.pdf">http://www.dfo-mpo.gc.ca/CSAS/Csas/publications/resdocs-docrech/2010/2010_123_e.pdf</a></p> <p>The recovery objectives as outlined in the <i>National Conservation Strategy for Cultus Lake Sockeye Salmon (Oncorhynchus nerka)</i> (Cultus</p>   |   |   |   |   |  |   |

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|   | <p><b>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.</b></p> <p><b>- The exploitation rate on Cultus Lake Sockeye is intended to allow for fisheries on more abundant co-migrating stocks.</b></p> <p><b>- Late Run sockeye, management will be based on an abundance-based Total Allowable Mortality</b></p> | <p>Sockeye Recovery Team, 2009) are as follows:</p> <p><b>Objective 1</b> - Ensure the genetic integrity of the population by exceeding a four-year arithmetic mean of 1,000 successful adult spawners with no fewer than 500 successful adult spawners on any one cycle. This objective secures genetic variability.</p> <p><b>Objective 2</b> - Ensure growth of the successful adult spawner population for each generation (that is, across four years relative to the previous four years), and on each cycle (relative to its brood year) for not less than three out of four consecutive years. This objective ensures the population is growing.</p> <p><b>Objective 3</b> - Rebuild the population to the level of abundance at which it can be delisted (designated Not at Risk) by COSEWIC.</p> <p><b>Objective 4</b> - Rebuild the population to a level of abundance (beyond that of Objective 3) that will support ecosystem function and sustainable use. This long term objective proposes candidate benchmarks for Cultus sockeye that correspond to our current understanding of the dynamics of Cultus sockeye.</p> <p>The conservation strategy can be found online at: <a href="http://www.dfo-mpo.gc.ca/Library/337479.pdf">http://www.dfo-mpo.gc.ca/Library/337479.pdf</a></p> <p>All Canadian fisheries that could harvest Cultus Lake sockeye will be impacted by the need to limit exploitation on this stock. This includes:</p> <ul style="list-style-type: none"> <li>• Closures in all fisheries with the possibility of impacting Cultus or Late Run fish when harvest limits for this stock group have been reached.</li> <li>• 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.</li> <li>• Restrictions to recreational salmon fisheries in southern BC. This will include sockeye non-retention in specific locations when Cultus Lake sockeye are present and allowable harvest limits have been reached.</li> <li>• 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 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.</li> </ul> <p>Work is underway to promote rebuilding of the Cultus Lake population. Predator control measures will be continued and studies to increase the understanding of threats to freshwater habitats will be done. Since 2012, the Department will no longer be collecting eggs for the captive brood program (where a small segment of the population is held until maturity); however, progeny from previously collected captive brood stock will continue to be released. In addition, enhancement activities to supplement juvenile production will continue. Release targets for the enhancement program are approximately 50,000 smolts into Sweltzer Creek, 150,000 fed fry released in the spring and 550,000 fed fry released in the fall, into Cultus Lake itself.</p> <p>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.</p> |
| 7 | <p><b>Sakinaw Lake sockeye</b></p> <p><b>- To stop their decline and re-establish a self-sustaining, naturally spawning population.</b></p>   | <p>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.</p> <p>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.</p> <p>Sakinaw Lake is located in the Strait of Georgia near Sechelt, BC. Migration timing data on Sakinaw Lake sockeye are extremely limited. Some 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 historical timing pattern, Sakinaw Lake sockeye are most vulnerable to harvest directed at Fraser River sockeye stocks in July extending into mid August.</p>   |

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|  |  |   | <p>As with Cultus Lake sockeye harvest related measures to ensure protection for this stock are to continue.</p> <p>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:</p> <ul style="list-style-type: none"> <li>• Restrictions in First Nations FSC fisheries prior to the last week of July.</li> <li>• Recreational fisheries in Queen Charlotte Strait, Johnstone Strait, and upper Strait of Georgia will be closed to sockeye retention prior to the last week of July. 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 early to mid August at which time sockeye retention opportunities are expected to be available in Sabine Channel.</li> <li>• Commercial fisheries in Queen Charlotte Strait and Johnstone Strait will be closed prior to the last week of July, and upper Strait of Georgia (including Sabine Channel) until early to mid August.</li> </ul> <p>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. After several years of zero or one sockeye returning to Sakinaw, the recovery efforts were rewarded with 550 sockeye observed in 2011 and 244 in 2012. These fish were able to find the historic spawning beaches which had been cleaned and cleared of small debris in preparation for their arrival. These fish were second generation from a captive brood program at Rosewall Hatchery and came from a fry release of 420,000 in 2008 and 726,000 in 2009.</p> |
|  | <b>Canadian fisheries</b>              | <b>Minimize the impact of Canadian fisheries.</b>                                     | <p>Nimkish 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 are implemented until late July in marine areas above Lewis Point.</p>  |
|  | <b>Interior Fraser River steelhead</b> | <b>- Minimize the impact of Canadian fisheries and to increase spawner abundance.</b> | <p>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.</p> <p>There are ongoing discussions between DFO and the Province about potential fisheries for harvesting Fraser River chum consistent with the Interior Fraser steelhead management objective. Selective commercial fisheries will be considered consistent with <i>Policy for Selective Fishing in Canada's Pacific Fisheries</i>. 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.</p> <p>For Fraser River commercial gill net fisheries, the strategy is to protect 80% of the Interior Fraser River steelhead run with a 90% certainty. The Department is currently reviewing this strategy with the Province.</p>   |