

TSAWWASSEN FISHERIES OPERATIONAL GUIDELINES

Effective Date: April 3, 2009

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1.0 LIST OF ACRONYMS

- “**AE**” means aboriginal exemption;
- “**CCTAC**” means Canadian Commercial Total Allowable Catch;
- “**CDC**” means British Columbia Conservation Data Centre;
- “**COSEWIC**” means Committee on the Status of Endangered Wildlife in Canada;
- “**CPUE**” means catch-per-unit-effort;
- “**CTAC**” means Canadian Total Allowable Catch;
- “**CTC**” means Canadian Total Catch;
- “**CU**” means Conservation Unit;
- “**DFO**” means Department of Fisheries and Oceans;
- “**FOG**” means Tsawwassen Fisheries Operational Guidelines;
- “**FRSCS**” means Fraser River Sturgeon Conservation Society;
- “**FRSSI**” means Fraser River Sockeye Spawning Initiative;
- “**FSC**” means food, social and ceremonial;
- “**IFMP**” means Integrated Fisheries Management Plan;
- “**JFC**” means Joint Fisheries Committee;
- “**JTC**” means Joint Technical Committee;
- “**MA**” means Management Adjustment;
- “**MOE**” means the British Columbia Ministry of Environment;
- “**PSARC**” means Pacific Stock Assessment Review Committee;
- “**PSC**” means Pacific Salmon Commission;
- “**PST**” means Pacific Salmon Treaty;
- “**SARA**” means *Species at Risk Act*;
- “**TAC**” means Total Allowable Catch;
- “**TAFP**” means Tsawwassen Annual Fishing Plan;
- “**TAM**” means Total Allowable Mortality;
- “**TFA**” means Tsawwassen First Nation Final Agreement;
- “**TFD**” means Tsawwassen Fisheries Department;
- “**TFN**” means Tsawwassen First Nation;
- “**TS**” means Terminal Surplus;
- “**TT**” means Tsawwassen Territory;
- “**US**” means United States of America;

“USTAC” means US Total Allowable Catch; and
“WSP” means Wild Salmon Policy.

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3.0 DEFINITIONS

In this document,

“**Aquatic Plants**” includes all benthic and detached algae, brown algae, red algae, green algae, golden algae and phytoplankton, and all marine and freshwater flowering plants, ferns and mosses, growing in water or soils that are saturated during most of the growing season;

“**Area I**” means Commercial Crab Licence Area I, as described in the Pacific Region Integrated Fisheries Management Plan for Crab as established by the Minister, from time to time;

“**Area J**” means Commercial Crab Licence Area J, as described in the Pacific Region Integrated Fisheries Management Plan for Crab as established by the Minister, from time to time;

“**Canadian Commercial Total Allowable Catch**” or “**CCTAC**” in respect of a stock or species of Fish, means the amount of the stock or species that the Minister determines is available for harvest in any commercial, experimental and demonstration fisheries in Canadian waters, but excludes harvests in test fisheries and food, social and ceremonial fisheries;

“**Canadian Total Allowable Catch**” or “**CTAC**” means, in respect of a stock or species of Fish, the amount of the stock or species that the Minister determines is available for harvest or is harvested in Canadian waters in aboriginal, commercial and recreational fisheries;

“**Canadian Total Catch**” or “**CTC**” means, in respect of a stock or species of Fish, the amount of the stock or species that the Minister determines is harvested in Canadian waters in aboriginal, commercial and recreational fisheries;

“**Commercial Crab Licence**” means a Category R licence issued under the *Pacific Fishery Regulations, 1993*;

“**Crab**” means those species of crab that the Minister authorizes to be harvested by a Commercial Crab Licence for Area I or Area J;

“**Domestic Purposes**” means food, social or ceremonial purposes;

“**Effective Date**” means the date upon which the Tsawwassen First Nation Final Agreement takes effect;

“**Enhancement Initiative**” means an initiative that is intended to result in an increase in the abundance or variety of a stock or species of Fish through:

- a. the creation of or improvement to Fish habitat; or
- b. the application of Fish culture technology;

“**Federal Law**” includes federal statutes, regulations, ordinances, orders-in-council, and the common law;

“**Federal or Provincial Law**” means a Federal Law or a Provincial Law;

“**Fish**” means:

- a. fish, Intertidal Bivalves and other shellfish, crustaceans and marine animals, excluding cetaceans;
- b. the parts of fish, Intertidal Bivalves and other shellfish, crustaceans, and marine animals, excluding cetaceans; and

- c. the eggs, sperm, spawn, larvae, spat, juvenile stages and adult stages of fish, Intertidal Bivalves and other shellfish, crustaceans and marine animals, excluding cetaceans;

“Fraser River Chum Salmon” means chum salmon that return to the Fraser River drainage system;

“Fraser River Pink Salmon” means pink salmon that return to the Fraser River drainage system;

“Fraser River Sockeye Salmon” means sockeye salmon that return to the Fraser River drainage system, but does not include kokanee salmon;

“Gulf Islands National Park Reserve” means the federal Crown lands and waters named and described as Gulf Islands National Park Reserve in the schedules to the *Canada National Parks Act*;

“Intertidal Bivalves” means manila clams, littleneck clams, butter clams, horse clams, soft-shell clams, varnish clams, blue mussels, cockles and oysters;

“Joint Fisheries Committee” or **“JFC”** means the Joint Fisheries Committee as provided for in the Tsawwassen First Nation Final Agreement;

“Minister” means, in respect of a matter, the Minister of Her Majesty the Queen in right of Canada, or in right of British Columbia, as the case may be, having the responsibility, from time to time, for the exercise of powers in respect of the matter in question and includes a person appointed to serve in the department over which the Minister presides, in a capacity appropriate to the exercise of those powers;

“National Marine Conservation Area” includes a national marine conservation area reserve and means the lands and waters named and described in the schedules to the *Canada National Marine Conservation Areas Act* and administered under Federal Law that lie within Tsawwassen Territory;

“Non-Allocated Species” means a species of Fish or Aquatic Plant for which a Tsawwassen Allocation has not been established under this Agreement;

“Pacific Fishery Management Area” means a management area as defined in section 2 of the *Pacific Fishery Management Area Regulations, 2007*;

“Parties” means Tsawwassen First Nation, Canada and British Columbia, and **“Party”** means any one of them;

“Provincial Law” includes provincial statutes, regulations, orders-in-council and the common law;

“Salmon” means sockeye salmon, pink salmon, chinook salmon, coho salmon and chum salmon;

“Stewardship Activity” means an activity conducted for the assessment, monitoring, protection or management of Fish or Fish habitat;

“Terminal Commercial Catch” or **“TCC”** in respect of Fraser River Chum Salmon means the amount of Fraser River Chum Salmon that the Minister determines is available for harvest in any commercial, experimental and demonstration fisheries in Pacific Fishery Management Area 29

and within the Fraser River, but excludes harvests in test fisheries and food, social and ceremonial fisheries;

“Terminal Surplus” or **“TS”** means, in respect of Fraser River Chum Salmon, the amount that the Minister determines is available for harvest or is harvested in Pacific Fishery Management Area 29 or within the Fraser River by aboriginal, recreational and commercial fisheries;

“Tsawwassen Allocation” means, in respect of Fish and Aquatic Plants:

- a. a defined harvest quantity or quota;
- b. a harvest quantity or quota determined by the use of a formula;
- c. a harvest quantity or quota determined by the use of a formula with respect to a defined harvest area, within the Tsawwassen Fishing Area; or
- d. any other definition of quantity or opportunity as the Parties may agree;

“Tsawwassen Annual Fishing Plan” or **“TAFP”** means a Tsawwassen Annual Fishing Plan referred to in clause 65 of the Fisheries Chapter of the Tsawwassen First Nation Final Agreement;

“Tsawwassen Commercial Allocation” means the Tsawwassen Commercial Allocation described in clause 11 of the Tsawwassen First Nation Harvest Agreement;

“Tsawwassen First Nation” or **“TFN”** means the collectivity that comprises all Tsawwassen Individuals;

“Tsawwassen First Nation Final Agreement” or **“TFA”** means the Final Agreement among Canada, British Columbia and Tsawwassen First Nation;

“Tsawwassen First Nation Harvest Agreement” means the Tsawwassen First Nation Harvest Agreement referred to in clause 102 of the Fisheries Chapter of the Tsawwassen First Nation Final Agreement.

“Tsawwassen Fishing Area” means the Tsawwassen Fishing Area shown in Appendix J-1 of the Tsawwassen First Nation Final Agreement and APPENDIX E Map E 2 of the FOG;

“Tsawwassen Fishing Right” means the right to harvest Fish and Aquatic Plants in the Tsawwassen Fishing Area and Intertidal Bivalves in the Tsawwassen Intertidal Bivalve Fishing Area under the Tsawwassen First Nation Final Agreement;

“Tsawwassen Harvest Documents” means licences, permits, documents, or amendments thereto, that are issued by the Minister under Federal or Provincial Law in respect of the Tsawwassen Fishing Right;

“Tsawwassen Individual” means an individual who is eligible to be enrolled under the Tsawwassen First Nation Final Agreement in accordance with the Eligibility and Enrolment Chapter of the Tsawwassen First Nation Final Agreement;

“Tsawwassen Intertidal Bivalve Fishing Area” means the Tsawwassen Intertidal Bivalve Fishing Area shown in Appendix J-1 of the Tsawwassen First Nation Final Agreement and APPENDIX E Map E 2 of the FOG;

“Tsawwassen TAC” for a species of Fish for a year is the Tsawwassen Allocation, as defined in the Tsawwassen First Nation Final Agreement, for the species for that year with any agreed adjustments for that year for past overages and underages; and

“Tsawwassen Territory” or **“TT”** means the area of land that Tsawwassen First Nation identified in its Statement of Intent to the British Columbia Treaty Commission, as shown in Appendix A of the Tsawwassen First Nation Final Agreement.

4.0 INTERPRETATION

This document is the Tsawwassen Fisheries Operational Guidelines (FOG) that the Parties, by clause 79 of the Fisheries Chapter of the Tsawwassen First Nation Final Agreement (TFA), agreed to establish and maintain.

For ease of reference, some clauses of the TFA are repeated herein. If there is any inconsistency between the TFA and this document, the TFA prevails.

The Parties recognize that the historical data contained herein is subject to change as new information becomes available or new analysis techniques are used.

In this document, “best available data”, for a Party, means the best existing data that the Party has at the time.

The Tsawwassen Fisheries Operational Guidelines (FOG) do not create a legal obligation for any of the Parties to the TFA.

5.0 INTRODUCTION

Clauses 79 to 80 of the Fisheries Chapter of the TFA state:

79. *“The Tsawwassen Fisheries Operational Guidelines document sets out the operational principles, procedures and guidelines to assist the Parties to implement this chapter.”*
80. *“The Parties will update and maintain the Tsawwassen Fisheries Operational Guidelines document as required.”*

The preparation of this document was guided by the following three fundamental principles:

- a. the compilation of fisheries information for the implementation of the TFA will involve all Parties and be facilitated by the Joint Fisheries Committee (JFC);
- b. the procedures outlined in this document are based on current understanding of Fish stocks, resources and fisheries management policies as they apply to TFN fisheries, and all Parties recognize that these procedures may change over time; and
- c. the JFC should review on an annual basis key information, such as the escapement targets for Fraser River Sockeye stocks, so that new information and trends are incorporated into the TFN fishery planning and implementation process.

In this document the Parties describe some of the background information and joint understanding of the Parties on the current fisheries management goals and procedures for the Fish stocks that reside in and migrate through the Tsawwassen Territory (TT). The development of a joint understanding of these goals and procedures play an important role in implementing the TFA. All Parties acknowledge that these goals and procedures may evolve over time. It is the Parties' intention that the TFA and this document will assist the Parties to maintain a positive working relationship.

6.0 AMENDMENT

If a Party proposes to amend this document, the Parties will review and comment on the proposal as soon as practicable and, as part the review, may seek recommendations from the JFC.

If the Parties agree to amend this document, the Parties will make best efforts to agree on the wording of such an amendment as soon as practicable.

Amendment of this document requires the consent of all three Parties documented by the JFC.

An amendment to this document takes effect on a date agreed to by the Parties, but if no date is agreed to, on the date that the last Party consents to the amendment.

7.0 MANAGEMENT OBJECTIVES AND GOALS

7.1 Management Objectives and Goals

Currently, DFO's Pacific Region Integrated Fisheries Management Plan (IFMP) for a fishery usually describes management objectives and goals for the fishery (see the following link http://www.pac.dfo-mpo.gc.ca/ops/fm/fishmgmt_e.htm)

TFN goals and objectives with regard to implementing fisheries under the TFA are as follows:

- a. To provide for conservation and protection of Fish stocks and their habitat through the application of scientific management principles applied in a risk averse and precautionary manner based on the best scientific advice available.
- b. To develop sustainable fisheries for TFN through a cooperative joint management process and to ensure that the management of fishery resources in the Tsawwassen Territory is consistent with the TFA.
- c. To develop Tsawwassen Annual Fishing Plans and cooperative research programs, which will contribute to improving the knowledge base and understanding of the resource.
- d. To consider the goals of each Party with respect to social, cultural, and economic values of the fishery.
- e. To consider health and safety in the development and implementation of management plans, fishery openings and closures.
- f. To consider opportunities for TFN to participate in new emerging fisheries and aquaculture.

7.2 Establishment of Salmon Spawning Escapement Targets

The TFA describes the Tsawwassen Allocation for Salmon as:

- a. an annual average harvest amount that will vary from year to year with changes in abundance;
- b. a part of the Canadian Total Allowable Catch (CTAC);
- c. a part of Terminal Surplus (TS); or
- d. a defined maximum incidental harvest depending on the species of Fraser Salmon.

Consequently, information on returning run size, spawning escapement targets, management adjustments and catches for Fraser River Salmon stocks will be used to determine the annual Tsawwassen Allocation for Salmon for TFN fisheries.

Currently, where the Minister provides spawning escapement plans or targets for Fraser Salmon stocks in the Integrated Fisheries Management Plan (IFMP) for Southern BC Salmon for a year, those spawning escapement plans or targets will be used in the estimation of the Tsawwassen Allocation for Salmon. Otherwise, these plans or targets will be provided by the Minister. Escapement plans or targets defined in the IFMP or provided by the Minister may be interim and may be modified by the Minister as additional information becomes available. Canada's Policy for the Conservation of Wild Salmon (WSP) describes the Minister's approach to establishing

conservation units (CUs) and assessing the state of the CUs relative to benchmarks. Spawning escapement plans and targets for Fraser stocks will be discussed at the JFC.

8.0 JOINT FISHERIES COMMITTEE

8.1 General

The Joint Fisheries Committee (JFC) will be established by the Parties on the Effective Date of the TFA. The JFC has a number of activities and functions described in the TFA. Some of the more important activities and functions are described in clause 68 of the Fisheries Chapter of the TFA.

“On the Effective Date, the Parties will establish a Joint Fisheries Committee to facilitate cooperative assessment, planning, and management of:

- a. the exercise of the Tsawwassen Fishing Right;*
- b. Enhancement Initiatives and Stewardship Activities by Tsawwassen First Nation;*
- c. monitoring and enforcement activities in respect of Tsawwassen First Nation fisheries; and*
- d. other matters as the Parties may agree.”*

8.2 Participants

Clauses 70 to 72 of the Fisheries Chapter of the TFA state:

- 70. “The Joint Fisheries Committee will consist of one representative from each Party, but additional individuals may participate in meetings to support or assist a representative.”*
- 71. “Canada may choose not to attend Joint Fisheries Committee meetings on fisheries matters managed by British Columbia.”*
- 72. “British Columbia may choose not to attend Joint Fisheries Committee meetings on fisheries matters managed by Canada.”*

The JFC may provide recommendations as provided for by the Fisheries Chapter of the TFA. The Parties will appoint their representatives as provided for in the TFA. Each Party will provide written notification to the other Parties when it changes its representative. Any Party may invite individuals to support or assist its representative. Where the Parties agree, observers may be invited to provide information, comments and advice on any topic.

8.3 Joint Technical Committee

As soon as practicable after the Effective Date of the TFA, the JFC will establish a Joint Technical Committee (JTC), and will maintain Terms of Reference for the JTC (see APPENDIX C).

8.4 Activities and Functions of the Joint Fisheries Committee (JFC)

Clause 73 of the Fisheries Chapter of the TFA states:

“In facilitating cooperation activities and functions under clause 68, the Joint Fisheries Committee may:

- a. *discuss publicly available information for proposed new emerging commercial fisheries and other fisheries that may be conducted in Tsawwassen Territory or that could significantly affect the Tsawwassen Fishing Right;*
- b. *discuss publicly available information that is related to measures necessary for conservation, public health or public safety that could significantly affect the Tsawwassen Fishing Right;*
- c. *discuss publicly available information related to proposed Enhancement Initiatives in the Tsawwassen Fishing Area or Tsawwassen Intertidal Bivalve Fishing Area;*
- d. *arrange for collection and exchange of publicly available data on fisheries;*
- e. *discuss possible provisions for a Tsawwassen Annual Fishing Plan or Tsawwassen Harvest Documents before Tsawwassen First Nation develops a Tsawwassen Annual Fishing Plan;*
- f. *review Tsawwassen Annual Fishing Plans;*
- g. *review proposals by Tsawwassen First Nation for Enhancement Initiatives;*
- h. *communicate with other advisory bodies in respect of matter of mutual interest;*
- i. *exchange available information on issues related to international arrangements that could significantly affect the Tsawwassen Fishing Right; and*
- j. *carry out other functions and activities as the Parties may agree.”*

8.4.1 Provision and Discussion of Publicly Available Information

Publicly available information will be provided by the Parties to each other in accordance with clause 69 of the Fisheries Chapter of the TFA

“Subject to federal and provincial access to information and privacy legislation, the Parties will provide each other with access to publicly available information necessary to enable the Joint Fisheries Committee to carry out its functions and activities.”

This publicly available information may be with respect to:

- a. proposed new emerging fisheries and other fisheries;
- b. measures necessary for conservation;
- c. proposed Enhancement Initiatives;
- d. issues related to international arrangements; and
- e. other matters.

The JFC will discuss what publicly available information will be exchanged routinely and establish schedules for the exchange of such information as outlined in clause 73 of the Fisheries

Chapter of the TFA (see Section 8.4). Requests for other publicly available information will be dealt with as agreed to by the representatives of the JFC. Publicly available information on conservation, public health or public safety is to be exchanged in a timely manner because it could affect the exercise of the Tsawwassen Fishing Right. Proposed dates for DFO and BC to provide TFN with the information for the preparation of the TAFP are provided in Section 8.7.

8.4.2 Collection and Exchange of Publicly Available Fisheries-related Data

Specific projects and activities may assist the Parties in the successful implementation of the TFA. These may be one time or ongoing projects and activities, analysis of the results and utilization of the results in the implementation of the provisions of the TFA and are primarily technical processes that may be carried out by the JTC under the direction of the JFC. The JTC is a subcommittee of the JFC and the exchange of information is covered by the TFA. Information obtained from the projects and activities might be released under federal and provincial access to information legislation or otherwise as law allows. With agreement of all the JFC, the JFC may arrange for the publication and distribution of project data and results.

Clause 22 of the Fisheries Chapter of the TFA states:

“Tsawwassen First Nation will provide catch data and other information related to Fish and Aquatic Plants harvested under the Tsawwassen Fishing Right as required by Tsawwassen Harvest Documents or Federal or Provincial Law.”

Among other things, this information could include information with respect to:

- a. catch data such as
 - i. daily harvest estimates or complete counts by species;
 - ii. daily fishing effort by gear type;
 - iii. the information described in the Tsawwassen Fiscal Financing Agreement (TFFA);
- b. the individuals and vessels designated to harvest Fish and Aquatic Plants under the Tsawwassen Fishing Right

In accordance with clause 69 of the Fisheries Chapter of the TFA, DFO will seek to provide to the JFC or JTC:

- a. information needed to estimate the pre-season Tsawwassen Allocation for Salmon and to prepare the TAFP consistent with the annual schedule (see Section 8.7).
- b. in-season data used to update the Tsawwassen Allocation for Salmon due to changes in run size, management adjustments, and escapement targets, each week during the fishing seasons for those Salmon species where this is available. It is anticipated that the data provided will be similar to that typically available to all harvesters in-season through a variety of sources (e.g. e-mail, conference calls, DFO and PSC websites); and
- c. post-season information used to determine overages and underages, as described in Section 9.0 of the FOG will be provide on or before the end of January following the fishing season each year.

8.4.3 Tsawwassen Annual Fishing Plan

TFN may review the TAFP with the JTC and consider the JTC comments before preparing a TAFP for presentation to the JFC. A TAFP for chinook salmon, eulachon and crab should be prepared and given to the JFC by February 21st each year. The TAFP for other allocated and unallocated species should be prepared and given to the JFC by April 30th each year. The TAFP may include specific recommendations for provisions to be included in Tsawwassen Harvest Documents.

8.4.4 Review of Tsawwassen Annual Fishing Plans

The JFC may review the TAFP and provide the Minister with recommendations in respect of the provisions for a Tsawwassen Harvest Document. Recommendations may be made on any aspects of the TAFP and coordination of the TFN fisheries as well as any other fisheries within the Tsawwassen Territory in respect to such matters as: fishing methods and timing, locations of harvest, catch monitoring, enforcement, etc. Where the JFC provides recommendations in regards to a TAFP, it should provide the recommendations for chinook salmon, eulachon and crab by March 1st and all other species by May 31st of each year.

8.4.5 Review Tsawwassen First Nation Proposals for Enhancement Initiatives

The JFC may review enhancement proposals made by TFN and provide recommendations to TFN and the Minister with regard to these proposals.

8.4.6 Communicating with Other Advisory Boards

The JFC in seeking to integrate the TAFP or otherwise facilitate the implementation of the TFA will coordinate procedures for communicating with other fisheries advisory bodies.

8.4.7 Carrying Out Other Responsibilities as the Parties May Agree

The Parties agree that the JFC's functions may include the following:

- a. direct the preparation and compilation of annual reports on harvests and other activities and functions related to harvesting under the Tsawwassen Fishing Right during the year;
- b. establish a secretariat in the most cost-effective way possible in order to facilitate the organization of meetings, recording minutes and action items, records of recommendations and responses, records of all correspondence and communications of the JFC, and facilitation of information sharing; and
- c. review the FOG and recommend amendments to the Parties.

8.5 Joint Fisheries Committee (JFC) Recommendations

Clause 74 of the Fisheries Chapter of the TFA states:

"The Joint Fisheries Committee may discuss and make recommendations to the Parties in respect of:

- a. *Tsawwassen First Nation fisheries for Non-Allocated Species and Tsawwassen Allocations;*

- b. *the management and harvesting of Fish in the Tsawwassen Fishing Area and the Tsawwassen Intertidal Bivalve Fishing Area;*
- c. *the management and harvesting of Fish outside the Tsawwassen Fishing Area and the Tsawwassen Intertidal Bivalve Fishing Area that could significantly affect harvesting under the Tsawwassen Fishing Right;*
- d. *the management and protection of Fish habitat;*
- e. *Enhancement Initiatives and Stewardship Activities conducted by Tsawwassen First Nation in Tsawwassen Territory;*
- f. *overages and underages;*
- g. *in-season amendments to Tsawwassen Harvest Documents;*
- h. *the provisions for Tsawwassen Harvest Documents, taking into account, among other things, provisions related to:*
 - i. *matters set out in a Tsawwassen Annual Fishing Plan, where Tsawwassen First Nation gives the Tsawwassen Annual Fishing Plan to the Joint Fisheries Committee in a timely way;*
 - ii. *measures for establishing harvest amounts for a Non-Allocated Species in any given year;*
 - iii. *access to a specific stock; and*
 - iv. *other measures for the harvest and management of Fish;*
- i. *procedures for the identification of surplus Salmon and terms and conditions for harvests of surplus Salmon;*
- j. *the size and disposition of surplus Salmon;*
- k. *the harvest of surplus Salmon; and*
- l. *other matters that could significantly affect harvesting under the Tsawwassen Fishing Right.”*

JFC recommendations should be provided in a timely manner. Any recommendations of the JFC must be consistent with the TFA.

The JFC may discuss management implications of other fisheries within the Tsawwassen Fishing Area. The JFC will also consider the activities that the TFN propose to carry out related to fisheries management, harvesting techniques and Fish habitat environmental protection for the Tsawwassen Fishing Area.

8.5.1 Overage and Underage Recommendations

See section 9.0 for a description of the process for the calculation of overage and underage and for a description of the JFC recommendations used in that process. The JFC may discuss in-season adjustments to run estimates or other variables that affect the TAFP. The JTC may provide information and technical support to the JFC in accordance with the JTC Terms of Reference.

8.5.2 Tsawwassen Harvest Document Recommendations

The procedures for communicating JFC recommendations regarding provisions for Tsawwassen Harvest Documents to the Minister and responding to modifications to Tsawwassen Harvest Documents will be consistent with clauses 59 to 64 of the Fisheries Chapter of the TFA.

8.5.3 Surplus Salmon Recommendations

The JFC may discuss and make recommendations to the Parties regarding the procedures for the identification of a surplus of Salmon and the conditions for harvesting a surplus of Salmon (see sub-clauses 74. i, j and k of the Fisheries Chapter of the TFA).

The Minister determines whether there is a surplus of a species of Salmon in the Tsawwassen Fishing Area. The JFC may discuss the procedures used to seasonally estimate the surplus, the risks associated with implementing fisheries to harvest the surplus, techniques for selective harvesting and other technical considerations in the development of plans for harvesting the surplus.

8.6 Special Circumstances

Clause 78 of the Fisheries Chapter of the TFA states:

“If special circumstances make it impracticable for the Minister to receive recommendations from the Joint Fisheries Committee, the Minister:

- a. may make the decision or take the action that the Minister considers necessary, without receiving recommendations from the Joint Fisheries Committee; and*
- b. for the matters described in the Tsawwassen Fisheries Operational Guidelines, will provide written reasons to the Joint Fisheries Committee, as soon as practicable, of the special circumstances and the decision made or action taken.”*

The matters for which the Minister will provide written reasons in accordance with sub-clause 78.b. of the Fisheries Chapter of the TFA are the decisions made and actions taken regarding the matters contemplated in sub-clauses 74. a, c, e, f, g and h of the Fisheries Chapter of the TFA.

8.7 Proposed Annual Schedule

The JFC will determine its own meeting schedule taking into consideration the annual fisheries management and stock assessment requirements for each species. The proposed annual schedule for completion of various activities related to the JFC are:

- a. January – March
 - i. Post-season information exchanged and recommendations to the Parties on all species regarding post-season accounting and any other fisheries issues;
 - ii. Information exchange for TFN to prepare the TAFP for chinook salmon, eulachon and crab;

- iii. JFC to review the TAFP for chinook salmon, eulachon and crab and provide recommendations to the Parties regarding this component of the TAFP;
- iv. Minister issues Tsawwassen Harvest Documents for chinook salmon, eulachon and crab as required;
- b. April – June:
 - i. Information exchange for TFN to prepare the TAFP for other species;
 - ii. JFC to review the TAFP for other species and provide recommendations to the Parties regarding this component of the TAFP;
 - iii. Minister issue Tsawwassen Harvest Documents for all species described in the TAFP as required;
- c. June – December:
 - i. In-season information provided to JTC and JFC conference calls, as required; and
 - ii. Minister issue Tsawwassen Harvest Documents for all species described in the TAFP as required.

8.8 Location of Meeting

The JFC will determine the appropriate location for each meeting given the issues to be addressed.

8.9 Procedures

As defined in clause 75 of the Fisheries Chapter of the TFA, the JFC will establish its own rules of procedure. An initial draft of these procedures is provided in APPENDIX D.

8.10 Interaction with Regional Fisheries Committee

Clause 81 of the Fisheries Chapter of the TFA states that:

“Where a regional fisheries committee is proposed or established for aboriginal fisheries in an area that includes all or part of the Tsawwassen Fishing Area or Tsawwassen Intertidal Bivalve Fishing Area and that committee has functions and activities similar to those of the Joint Fisheries Committee, the Parties will determine which functions or activities of the Joint Fisheries Committee can be addressed more effectively by a regional fisheries committee, and will discuss the mechanism for participation by Tsawwassen First Nation in the regional fisheries committee.”

It is anticipated that the JFC may be asked to provide recommendations regarding:

- a. functions and activities of the JFC that can be more effectively addressed by a regional fisheries committee; and
- b. functions and activities that have been transferred to the regional fisheries committee that should be resumed by the JFC.

9.0 ESTIMATION OF SALMON STOCK ABUNDANCE AND ALLOCATIONS

This section describes the general procedures, information, and principles currently being used for the estimation of stock abundance of Pacific Salmon. It then provides specific descriptions of how abundance is estimated for various Salmon species throughout the annual management cycle. Because of the nature of Salmon fisheries management, and the variability in biology among Fraser River Salmon stocks, as well as the requirements outlined in the Tsawwassen Allocation, different approaches to stock abundance estimation are used for different species and at different times of the management cycle (e.g., pre-season versus in-season or post-season).

9.1 Historical Stock Size Estimates

Table A 1 of Appendix A provides a summary of catch, escapement, stock size and harvest rates estimates for Fraser River Sockeye Salmon for 1985-2003. Table A 2 of Appendix A provides the available estimates of catch, escapement, and terminal run size for Fraser River Chum Salmon and Table A 3 of Appendix A provides escapement indices for Fraser River chinook salmon. Current estimates for sockeye and chum salmon were obtained from DFO and PSC records. This information may be used to help understand effects of harvesting on stock status. The Parties recognize that the information in Table A 1, Table A 2 and Table A 3 may change as new information becomes available or new analysis techniques are used.

9.2 Harvest Monitoring Procedures

Currently, the methods used to produce catch estimates for Canadian fisheries that harvest Fraser River Sockeye Salmon are described in Ryall and Ionson (2005). Commercial catch estimates are derived from information obtained from charter patrol vessels, phone-in/logbook reporting, on-board observers, and fishing company reports. Phone-in/logbook data are weighted the most in deriving a final in-season catch estimate (Ryall and Ionson 2005). The methods used to compute catch estimates for south coast recreational fisheries are described in separate reports for the Strait of Georgia and Juan de Fuca Strait (English et al. 2002); Johnstone Strait (Hardie et al. 2000); and lower Fraser River (Palermo and Thompson 1999). A brief description of the methods used in 2004 to estimate the number of Fraser River Sockeye Salmon harvested in all First Nation fisheries along the south coast and within the Fraser River is provided in Ryall and Ionson (2005). Harvest monitoring procedures in all Canadian fisheries are expected to evolve through time to improve accuracy, precision and timeliness of catch data.

9.3 Sockeye Salmon

From 1987 to 2004, target exploitation rates and escapement targets set for Fraser River Sockeye Salmon stocks were based loosely on the draft 1987 Rebuilding Strategy and revised annually. Since 2002, DFO has been working with representatives from aboriginal groups, commercial harvesters, recreational harvesters and external technical expertise to review and revise the goal setting approach outlined in the 1987 Rebuilding Strategy. This process is currently called the Fraser River Sockeye Spawning Initiative (FRSSI).

9.3.1 Pre-season Assessments

Prior to each fishing season, decisions are made about spawning escapements targets, harvest rates, management priorities and identification of conservation constraints. Pre-season forecasts of run size, timing, stock composition, other technical information and input from various consultative processes are used in the fisheries management process (see Cass 2002, Cass et al. 2004; annual IFMP). Guidelines used for determining fishing opportunities are described in the current IFMP for Southern BC Salmon ("<http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/MPLANS/archive.htm>).

Currently pre-season run size forecasts for Fraser River Sockeye Salmon are made annually using either brood year escapement or juvenile (fry or smolt) numbers as predictor variables (Cass et al. 2006). Numerous biological models and naïve models have been compared to forecast Fraser River Sockeye Salmon returns. The best performing models, based on retrospective analysis, varies depending on the stock and is presented in annual Canadian Science Advisory Reports (CSAS) for Fraser River Sockeye Salmon forecasts (Cass et al. 2006; Grant and Cass 2009).

Table 9.1 of this document provides an example of the information used to calculate pre-season estimates to determine the Tsawwassen Allocation for Fraser River Sockeye Salmon. The key inputs are the pre-season forecasts for each run-timing aggregate, the Total Allowable Mortality (TAM) rate and Management Adjustment (MA) percentages used to calculate the pre-season total escapement targets, adjusted escapement targets and Total Allowable Catch (TAC) for each run-timing group for Fraser River Sockeye Salmon. In the pre-season example in Table 9.1, the 50% probability forecast return of Early Stuart sockeye salmon is greater than the 75,000 minimum escapement level and the forecast returns for Early Summer, Summers and Birkenhead sockeye salmon stocks are sufficient to define a positive TAC for these run-timing groups. In contrast, the pre-season TAC is set to zero for Late Summer sockeye salmon stocks because the total TAM rate was set at 20% and the expected in-river losses (MA=65%) exceed the amount that is available for harvest. The TAM values used to define the pre-season escapement targets in Table 9.1 were 57% for Early Stuart sockeye salmon stocks and 60% for Early Summer, Summers and Birkenhead sockeye salmon stocks. The pre-season MA for these run-timing groups was set at: 69% for Early Stuart sockeye salmon stocks, 41% for Early Summer sockeye salmon stocks, 5% for Summer sockeye salmon stocks, and 0% for Birkenhead sockeye salmon stocks. The Total Escapement Target for each run timing group is a number set by DFO and is usually estimated using the following equation:

$$\text{Total Escapement Target} = \text{Forecast Return} * (1.0 - \text{TAM}) \quad (1)$$

where TAM is Total Allowable Mortality rate as set by DFO through consultations with First Nations and other groups.

The Total Allowable Catch for all Canadian and US fisheries, excluding test fisheries, is:

$$\text{TAC} = \text{Forecast Return} - \text{TEST} - \text{Total Escapement Target} - \text{MA} \quad (2)$$

where

- a. TEST is the number of Fraser River Sockeye Salmon harvested in all test fisheries;
- and

- b. “MA ” means the management adjustment for each Fraser River Sockeye Salmon run timing group.

The Pacific Salmon Treaty identifies a Fraser River Aboriginal Exemption amount of up to 400,000 sockeye salmon annually for Canadian in-river and marine aboriginal fisheries, of which up to 20% can be applied to the Early Stuart run-timing component. Given the estimated TAC of less than 68,000 for Early Stuart sockeye salmon stocks and zero TAC for Late Summer sockeye salmon stocks in 2009, the US TAC for these run-timing components were set to zero. The remainder of the Aboriginal Exemption was applied to the three run-timing groups with a TAC and the percentage US share are used in the following equation to calculate the pre-season US TAC:

$$\text{USTAC} = \text{PST \%} * (\text{TAC} - \text{Aboriginal Exemption}) \quad (3)$$

where

- a. PST% is a fixed percentage of the TAC allocated to US fisheries (currently set at 16.5% for each cycle year) as defined by the Pacific Salmon Treaty (PST); and
- b. the Aboriginal Exemption (AE) is a fixed amount of 400,000 sockeye salmon set aside for Canadian aboriginal fisheries, as defined in the PST.

The portion of the total AE assigned to the different run-timing groups is initially set using the historical average distribution of the First Nations harvests for the past 3 cycle years. The values set for each run-timing group may be adjusted where necessary to address conservation concerns, respond to major changes in run size for a specific run-timing group, or where the Parties otherwise agree. In the Table 9.1 example, the AE for Early Summer sockeye salmon, Summer sockeye salmon and Birkenhead sockeye salmon run-timing groups are distributed proportionally to the average First Nation catch for the past 3 cycle years for each run-timing group.

$$\text{CTAC} = \text{TAC} - \text{USTAC} \quad (4)$$

$$\text{CCTAC} = \text{CTAC} - \text{Planned FN FSC Catch} - \text{Planned Recreational Catch} \quad (5)$$

where:

- a. CTAC is the Canadian TAC;
- b. CCTAC is the Canadian Commercial TAC;
- c. Planned FN FSC Catch is the number of sockeye salmon that managers set aside for harvest in First Nations FSC fisheries; and
- d. Planned Recreational Catch is the number of sockeye salmon expected to be harvested in recreational fisheries.

The distribution of the FN FSC Catch among the run-timing groups is proportional to the CTAC for each group. However, adjustment to the initial distribution could occur for the reasons outlined above and these adjustments may be different from those defined for the AE.

The Tsawwassen Allocation for sockeye salmon FSC fisheries will be calculated using the formula defined in Appendix J-2 of the TFA.

For CTAC 500,000 or less of Fraser River Sockeye Salmon:

$$\text{Tsawwassen Allocation FSC} = 1.0\% * \text{CTAC} \quad (6)$$

For CTAC greater than 500,000 and less than 3,000,000 Fraser River Sockeye Salmon:

$$\text{Tsawwassen Allocation FSC} = 5,000 + 0.40904\% * (\text{CTAC} - 500,000) \quad (7)$$

For CTAC equal or greater than 3,000,000 sockeye salmon, the Tsawwassen Allocation is fixed at 15,226 Fraser River Sockeye Salmon.

The Tsawwassen Commercial Allocation for Fraser River Sockeye Salmon as provided for in clause 11.a. of the Tsawwassen First Nation Harvest Agreement is calculated as using the following formula:

$$\text{Tsawwassen Commercial Allocation} = 0.78\% * \text{CCTAC} \quad (8)$$

Once the size of the Tsawwassen Allocation of Fraser River Sockeye Salmon has been calculated, TFN fishery managers should work with the JFC representatives on how TFN harvesting efforts should be distributed across the various run-timing groups. In general, the TAFP should be designed to distribute harvesting effort evenly across the target stock(s) where CTAC is identified for Fraser River Sockeye Salmon that are available in the Tsawwassen Fishing Area. In Table 9.1, it is assumed that TFN harvesting effort would be distributed proportionally across the run-timing groups such that the largest catches would be from the run-timing group with the largest CTAC. However, it is recognized that there may be circumstances where TFN might focus all their harvesting efforts on a single run-timing group in order to facilitate higher abundances of sockeye salmon stocks in First Nation areas located on the middle and upper portions of the Fraser River Watershed.

9.3.2 In-season Assessments

The Tsawwassen Allocation and Tsawwassen Commercial Allocation are as provided in the TFA and the Tsawwassen First Nation Harvest Agreement, respectively. The methods that the Minister currently uses to determine TAC, CTAC and CCTAC are similar to those described above. Any changes to these methods will be communicated to the Parties through the JFC. These calculations are updated in-season. Table 9.2 to this document provides an example of the in-season estimate of the information used to calculate the Tsawwassen Allocation of Fraser River Sockeye Salmon.

Table 9.1: Example of potential pre-season estimates used to determine the initial 2009 Tsawwassen Allocation and develop management plans for Fraser Sockeye Salmon.

Pre-Season	Early Stuart	E. Summers	Summers	Birkenhead	L. Summers	Total
Forecast Return	254,000	739,000	8,677,000	334,000	573,000	10,577,000 50% probability forecast
Total Allowable Mortality (TAM) Rate		60%	60%	60%	20%	Based on DFO pre-season plan
Pre-season Total Escapement Target	108,000	295,600	3,470,800	133,600	458,400	4,466,400 Esc. Target = Total Run * (1-TAM)
Pre-season Management Adjustment*	63,720	124,152	242,956	0		430,828 MA = %MA * Total Escapement Target
Adjusted Escapement Target	171,720	419,752	3,713,756	133,600	458,400	4,897,228 Escapement Target + MA
Projected Test Fishery Catches	3,000	9,000	45,000	4,000	7,000	68,000 Very preliminary estimate of test fishing catch distribution
Aboriginal Exemption	79,280	25,227	329,183	1,058	11,190	400,000 AE=TAC for Estu and distribute rest based on past 3 cycle catch
Total Allowable Catch (TAC)	79,280	310,248	4,918,244	196,400	107,600	5,611,772 TAC = Total Run - Esc. Target - Test - MA
US Total Allowable Catch	0	47,028	757,195	32,231	15,908	852,363 USTAC = 16.5% of (TAC-Aboriginal Exemption)
Canadian Total Allowable Catch (CTAC)	79,280	263,220	4,161,049	164,169	91,692	4,759,409 CTAC = TAC - USTAC
Planned First Nations FSC Catch	79,280	55,803	882,147	34,804	19,439	1,009,000 E.Stu = AE, rest distributed proportional to CTAC
Planned Recreational Catch	0	5,624	88,909	3,508	1,959	100,000 E.Stu = 0, rest distributed proportional to CTAC
Canadian Commercial TAC (CCTAC)	0	201,793	3,189,993	125,857	70,294	3,587,937 CCTAC = CTAC-FSC-Rec
Accessible CCTAC		201,793	1,500,000	125,857	70,294	1,897,944 estimate constrained by ESum & Late TAC
TFN Allocation FSC	254	842	13,312	525	293	15,226 Distributed proportional to CTAC for fishery timing purposes
TFN Harvest Agreement Allocation	0	1,574	24,882	982	548	14,804 Distributed proportional to CCTAC for fishery timing purposes
*Percent Management Adjustment	59%	42%	7%	0%	n/a	

Table 9.2: Example of potential in-season estimates used to determine the 2009 Tsawwassen Allocation and implement management plans for Fraser Sockeye Salmon.

Pre-Season	Early Stuart	E. Summers	Summers	Birkenhead	L. Summers	Total
In-Season Run Size Estimate	165,000	443,000	4,914,000	194,000	323,000	6,039,000 75% probability forecast
Total Allowable Mortality (TAM) Rate		56%	60%	60%	20%	Based on DFO pre-season plan
In-season Total Escapement Target	108,000	194,920	1,965,600	77,600	258,400	2,604,520 Esc. Target = Total Run * (1-TAM)
In-season Management Adjustment*	57,000	81,866	137,592	0		276,458 MA = %MA * Total Escapement Target
Adjusted Escapement Target	165,000	276,786	2,103,192	77,600	258,400	2,880,978 Escapement Target + MA
Projected Test Fishery Catches	2,100	6,300	31,500	2,800	4,900	47,600 Assumed 70% of pre-season test fishery estimate
Aboriginal Exemption	0	31,463	323,705	1,140	11,188	400,000 AE=TAC for Estu and distribute rest based on past 3 cycle catch
Total Allowable Catch (TAC)	0	159,914	2,779,308	113,600	59,700	3,112,522 TAC = Total Run - Esc. Target - Test - MA
US Total Allowable Catch	0	21,194	405,174	18,556	8,005	452,929 USTAC = 16.5% of (TAC-Aboriginal Exemption)
Canadian Total Allowable Catch (CTAC)	0	138,719	2,374,134	95,044	51,695	2,659,592 CTAC = TAC - USTAC
Planned First Nations FSC Catch	0	52,628	900,702	36,058	19,612	1,009,000 E.Stu = AE, rest distributed proportional to CTAC
Planned Recreational Catch	0	3,129	53,560	2,144	1,166	60,000 E.Stu = 0, rest distributed proportional to CTAC
Canadian Commercial TAC (CCTAC)	0	82,962	1,419,871	56,842	30,917	1,590,592 CCTAC = CTAC-FSC-Rec
Accessible CCTAC		82,962	1,200,000	56,842	30,917	1,370,721 estimate constrained by ESum & Late TAC
TFN Allocation FSC	0	722	12,349	494	269	13,834 Distributed proportional to CTAC for fishery timing purposes
TFN Harvest Agreement Allocation	0	647	11,075	443	241	10,692 Distributed proportional to CCTAC for fishery timing purposes
*Percent Management Adjustment	59%	42%	7%	0%	n/a	

Table 9.3 Example of potential post-season estimates to determine the 2009 final Tsawwassen Allocation and assess overages and underages for Fraser River Sockeye Salmon.

Post-season	Early Stuart	E. Summers	Summers	Birkenhead	L. Summers	Total
Post-Season Run Size Estimate	209,500	591,000	6,795,500	264,000	448,000	8,308,000 Average run size for 50% and 75% probability forecast.
Total Allowable Mortality (TAM) Rate	48%	60%	60%	60%	20%	TAMs for run sizes above
Post-season Total Escapement Target	108,000	236,400	2,718,200	105,600	358,400	3,526,600 Esc. Target = Total Run * (1-TAM)
Post-season Management Adjustment*	63,720	153,660	190,274	0		407,654 Calculated using a % of the Total Escapement Target
Adjusted Escapement Target	171,720	390,060	2,908,474	105,600	358,400	3,934,254 Escapement Target + MA
Test Fishery Catches	2,550	7,650	38,250	3,400	5,950	57,800 averaged pre & in season examples from amb tables
Aboriginal Exemption	35,230	29,502	329,444	5,603	10,520	400,000 AE=TAC for Estu and distribute rest based on past 3 cycle catch
Total Allowable Catch (TAC)	35,230	193,290	3,848,776	155,000	83,650	4,315,946 TAC = Total Run - Esc. Target - Test - MA
US Total Allowable Catch	0	27,025	580,690	24,650	12,066	644,432 USTAC = 16.5% of (TAC-Aboriginal Exemption)
Canadian Total Catch (CTC)	30,000	260,000	3,000,000	100,000	30,000	3,420,000 Example of "Actual" Total Canadian Catch
Canadian Total Allowable Catch (CTAC)	35,230	166,265	3,268,086	130,350	71,584	3,671,514 CTAC = TAC - USTAC
First Nations FSC Catch	30,000	75,000	850,000	36,000	20,000	1,011,000 Example of "Actual" First Nations Catch
Recreational Catch	0	3,000	70,000	3,000	2,000	78,000 Example of "Actual" Recreational Catch
Canadian Commercial TAC (CCTAC)	5,230	88,265	2,348,086	91,350	49,584	2,582,514 CCTAC = CTAC-FSC-Rec
Actual Commercial Catch (CCTAC)	0	182,000	2,080,000	61,000	8,000	2,331,000 Example of "Actual" Commercial Catch
Accessible CCTAC	0	88,265	1,350,000	91,350	49,584	1,579,198 estimate constrained by ESum & Late TAC
TFN Allocation FSC						15,226 Final FSC Allocation
TFN Harvest Agreement Allocation						18,182 Final Commercial Allocation
*Percent Management Adjustment	59%	65%	7%	0%	n/a	

Information from test fisheries, catches during fishery openings and assessment fisheries, and in-season estimates of spawner abundance are used in the in-season estimates of the Fraser River Sockeye Salmon stocks.

As new information becomes available over the course of the Fraser River Sockeye Salmon migration, run size estimates, spawning escapement targets, the TAC and other calculations are updated as described in the IFMP. The ability of harvesters to access the TAC will be affected by a number of factors, including in-river migration conditions and conservation requirements for other co-migrating stocks or species of Fish. 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 DFO and PSC. (Currently, information on open and closed times for commercial fisheries can be found at http://www.pac.dfo-mpo.gc.ca/ops/fm/fishmgmt_e.htm and www.psc.org).

The IFMP described the current practice with respect to in-season management adjustments. In addition to in-season assessments of Fraser River conditions, management adjustments may also result from run size, timing or spawning escapement target modifications.

In the future, other sources of in-season information may be available. This information may also form the basis for determining sockeye salmon run size and associated TACs.

9.3.3 Post-season Assessments

The Tsawwassen Allocation and Tsawwassen Commercial Allocation are as provided in the TFA and the Tsawwassen First Nation Harvest Agreement, respectively. TAC, CTAC, and CCTAC are currently determined based on estimates. Where CTC exceeds CTAC for Fraser River Sockeye Salmon, the current method used to manage Fraser River Sockeye Salmon fisheries would typically result in the post-season estimate of CTAC being equal to CTC. The Minister uses the best data that DFO has to update run size, management adjustments and escapement targets for each run-timing group. Additional information used for the post-season assessment of overages and underages may include: the post-season escapement estimate, the post-season total catch estimates for US and Canadian fisheries including First Nation (Table 9.3).

The post-season run size estimates for each run-timing group are typically calculated by summing the spawning ground escapement estimates, test fishery catches, catch estimates for all commercial, sport and First Nation fisheries and assessing the differences between Mission and spawning ground estimate.

The current enumeration of sockeye salmon escapements in the Fraser River watershed is conducted annually by DFO as spawning ground surveys (PSC 2003a). Survey methods include: intensive mark-recapture studies for stocks where escapements are expected to exceed 75,000 sockeye salmon; visual surveys for streams with 10,000 to 75,000 sockeye salmon; and counting fences deployed in some systems.

9.3.4 Biological/Harvesting Considerations

Though Total Allowable Catch for Fraser River Sockeye Salmon is identified in most years, certain conservation and management constraints can affect harvesting opportunities (DFO 2004). Currently, Fraser River Sockeye Salmon harvest plans are contained in the IFMP for Southern BC Salmon and take into consideration conservation objectives for other stocks and species of Fish. Examples of stocks with conservation concerns in recent years include: Interior

Fraser River coho salmon, Cultus and Sakinaw sockeye salmon, Nimpkish sockeye salmon, and other small sockeye salmon stocks in Johnstone and Georgia Straits and Mainland Inlet pink salmon. Committee on the Status of Endangered Wildlife in Canada (COSEWIC) has designated Interior Fraser River coho salmon (IFCRT 2004) and Cultus Lake sockeye salmon (DFO 2004) as “endangered”. Concerns regarding these stocks have impacted fishing opportunities for Fraser River Sockeye Salmon.

9.4 Chum Salmon

Since 1985, Southern B.C. and Washington State chum salmon have been managed according to Annex IV, Chapter 6, of the Pacific Salmon Treaty (PST) (PSC, 2004). The management framework described in the 1985 PST was based, in part, on the Johnstone Strait Clockwork management strategy (described in Ryall, 1999). The provisions of this chapter expired on December 31, 2008.

On January 1, 2009, following ratification by the US and Canada, the Pacific Salmon Commission implemented new amendments to Annex IV of the PST. Chapter 6 of the new Annex includes a substantially modified management approach for chum salmon. Among the modifications to the chum salmon chapter is an obligation on Canada to provide an in-season update of the Terminal Run Size of Fraser River Chum Salmon, and to identify to the US when this run size falls below 900,000. This update is currently provided using the Albion test fishery model.

Domestic harvest plans for Fraser River Chum Salmon are contained in the annual Southern Salmon IFMP, and are summarized in the table below. The current escapement goal for Fraser River Chum Salmon, as described in the 2008 IFMP, is 800,000. Harvest management plans for Fraser River Chum Salmon are structured to provide minimal FSC harvest opportunities (<10% harvest rate) if the Terminal Run Size of Fraser River Chum Salmon is below this level.

Table 9.4: Key decision points for Fraser River Chum Salmon.

Run Size	Harvest Plan	First Nations	Commercial	Recreational
<800,000 in Fraser River	<10%	Limited (Reduced hours and days/week fishing).	Closed	Restricted openings
800,000 - 916,000 in Fraser River	Catch not to exceed 81,000 (72,000 First Nations and 9,000 test fishing)	Normal (72,000)	Closed	Tributary openings
916,000 - 1,050,000 in Fraser River	Commercial catch not to exceed 10% for chum salmon	Normal (72,000)	Open (35,000 - 105,000)	Open
>1,050,000 in Fraser River	Commercial catch not to exceed 15% for chum salmon	Normal (72,000)	Open	Open

9.4.1 Tsawwassen Allocation for Chum Salmon

In any year, the Tsawwassen Allocation for chum salmon FSC fisheries will be calculated using the formula defined in Appendix J-2 in the TFA:

$$\text{Tsawwassen Allocation FSC} = 2.58\% * \text{Terminal Surplus (TS)} \quad (9)$$

to a maximum of 2,576 chum salmon

The Terminal Surplus (TS) of Fraser River Chum Salmon is determined by the Minister, and is currently calculated using the following formula:

$$\text{TS} = \text{Terminal Run Size} - \text{Minimum Escapement Target} - \text{TEST} \quad (10)$$

where:

- a. "Terminal Run Size" is the number of Fraser River Chum Salmon entering the Tsawwassen Fishing Area (i.e., sum of escapement plus all Area 29 and in-river harvests);
- b. "Minimum Escapement Target" is the escapement level below which no terminal fisheries would be allowed to target Fraser River Chum Salmon stocks; and
- c. "TEST" is the number of chum salmon caught in the lower Fraser River test fisheries.

Currently the Minimum Escapement Target has not been developed, but it is expected that it will be developed in the near future as the Wild Salmon Policy (WSP) is implemented. For the purposes of implementing the TFA, DFO will use 500,000 chum salmon as the interim Minimum Escapement Target for Fraser River Chum Salmon.

The Tsawwassen Commercial Allocation for Fraser River Chum Salmon as provided for in clause 11.b. of the Tsawwassen First Nation Harvest Agreement is calculated as using the following formula:

$$\text{Tsawwassen Commercial Allocation} = 3.27\% * \text{TCC} \quad (11)$$

where TCC is the Terminal Commercial Catch of Fraser River Chum Salmon and is the amount of Fraser River Chum Salmon that the Minister determines is available for harvest in any commercial, experimental or demonstration fisheries in Pacific Fishery Management Area 29 or within the Fraser River, but excludes harvests in test fisheries and food, social and ceremonial fisheries.

9.4.2 Pre-season Assessments

There are currently no quantitative pre-season forecasts developed for Fraser River Chum Salmon stocks. However, the Science Branch of DFO does prepare a qualitative assessment of expectations for the upcoming year called the Salmon Outlook. The Salmon Outlook assigns a categorical value between one and four to the various Salmon stocks. The category reflects interpretation of available quantitative and qualitative information as well as expert opinion of status.

Table 9.5: Salmon Outlook categories and criteria.

Status Category	Category Definition	Criteria
1	Stock of Concern	Stock is (or is forecast to be) less than 25% of target or is declining rapidly
2	Low	Stock is (or is forecast to be) well below target or below target and declining
3	Near Target	Stock is (or is forecast to be) within 25% of target and stable or increasing.
4	Abundant	Stock is (or is forecast to be) well above target.

Details of the Salmon Outlook for the current year are provided on the DFO website:

<http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/salmon/webdocs/SalmonStockOutlook2009.htm>

9.4.3 In-season Assessments

In order to evaluate either the Terminal Surplus of Fraser River Chum Salmon or the Terminal Commercial Catch of Fraser River Chum Salmon, managers require an in-season estimate of the Terminal Run Size of Fraser River Chum Salmon. This estimate is currently provided using the Albion test fishery.

The Albion test fishery has operated on the Fraser River since 1978 to provide an estimate of chum salmon abundance returning to the river. In 2000, a Bayesian model was developed that incorporated pre-season knowledge of run size and migration timing, with in-season information on chum salmon CPUE from the Albion test fishery, to estimate the run size of Fraser River Chum Salmon at Albion (Gazey and Palermo 2000). Based on a retrospective analysis of 1979-1998 data, the Bayesian procedure was judged to be superior to the classical test fisheries approach of using a simple predictive regression of cumulative CPUE on run size. The new Bayesian model for estimating in-season Fraser River Chum Salmon run size has been in use since the 2000 fishing season.

The first in-season estimate of the total escapement of Fraser River Chum Salmon is typically provided on October 15th. Limited FSC fisheries for Fraser River Chum Salmon may be permitted prior to this date, unless a conservation concern has been identified.

9.4.4 Post-season Assessments

Currently the Fraser River Chum Salmon that escape the commercial, test, sampling, and First Nations' fisheries form the spawning escapement estimates to the Fraser River. This spawning escapement estimate consists of chum salmon that spawn in wild areas, those which are spawned in enhancement facilities, and those which are surplus to facility requirements and are removed from the spawning areas. Spawning escapement estimates are used in reconstruction of the terminal run size in a given year (PSC 2003b). The information used to derive terminal run size can be found in Table A 2.

9.4.5 Biological/Harvesting Considerations

The TAFP will take into account any general and conservation constraints identified by the DFO. The recent general constraints of harvesting chum salmon have been documented in DFO's annual Integrated Fisheries Management Plans (IFMPs).

9.5 Chinook Salmon

Appendix J-2 of the TFA states:

“In any year, the Tsawwassen Fishing Right Allocation for chinook salmon will be determined by an abundance based formula, based on Canadian Total Allowable Catch that produces an average annual harvest of 625 Fraser River chinook salmon based on Fraser River chinook salmon returns for the 1982 to 2004 time period”

The DFO is currently developing the management and analytical tools required to fully implement an abundance-based approach for Fraser River chinook salmon. Until these tools are available, the interim Tsawwassen Allocation for chinook salmon will be an annual harvest of a maximum of 625 chinook salmon per year subject to conservation requirements.

The following conditions apply:

- a. TFN and Canada will manage all of the TFN Salmon fisheries to not exceed an annual harvest of 625 chinook salmon unless otherwise agreed to by DFO and TFN;
- b. TFN will not conduct any fisheries that target Fraser River chinook salmon stocks if other Fraser River First Nation fisheries (excluding authorized test fisheries) that target the same Fraser River chinook salmon stocks are not permitted;
- c. TFN harvesting for Fraser River chinook salmon will generally occur when other Fraser River First Nation fisheries in the lower Fraser River are open, subject to the annual harvest amount. Fishing effort will be distributed proportionally across the Fraser River chinook salmon run-timing groups such that the largest catches would be from the run-timing groups with the largest abundances. However, it is recognized that there may be circumstances where TFN may focus all their harvesting efforts on a single run-timing group in order to help ensure conservation objectives for weaker populations or to provide First Nations located on the middle and upper portions of the Fraser River Watershed with higher abundances of chinook salmon stocks destined for their territories; and
- d. DFO will discuss with TFN any proposed new abundance-based approaches for managing Fraser River chinook salmon stocks. Consultations regarding the implementation of a new abundance-based regime will also take place with other sectors, through the DFO's existing consultation mechanisms.

9.5.1 Pre-season Assessments

Forecasts of the next year's pre-fishery ocean abundance and expected escapement of Fraser River fall-run chinook salmon (Harrison and Chilliwack Rivers) are developed annually by DFO. This is the only stock group in the Fraser River, and only one of two Canadian chinook salmon stocks, for which a formal forecast is currently prepared. Although quantitative forecasts

are not done for other Fraser River chinook salmon stocks, the Science Branch of DFO annually prepares a qualitative assessment of expectations for the upcoming year. This assessment is called the Salmon Outlook and is available in a draft format by mid-November each year. The Salmon Outlook assigns a categorical value between one and four, associated with varying levels of stock status, to the various Salmon stocks. The category reflects DFO's interpretation of available quantitative and qualitative information and forecasts, as well as expert opinion of status. Status categories used in the Outlooks are outlined in section 9.3.2.

9.5.2 In-season Assessments

Currently a gillnet test fishery at Albion BC is used to provide an in-season index of the abundance of chinook salmon migrating through the lower Fraser River. The Albion test fishery was initiated in 1981 and represents the longest continuous chinook salmon abundance index in BC. A detailed description of this test fishery is provided in Dempson et al. (1998). Although the Albion test fishery provides a relative index of annual abundance, it has thus far had limited use in formal in-season update models. In 2008, the DFO developed a model that forecasts the spawning abundance of Spring and Summer stream-type chinook salmon using Albion CPUE data. The utility of the Albion data for use in forecasting other chinook salmon stocks will continue to be explored in the future. It is anticipated that benchmarks for in-season fisheries management decisions regarding the timing of TFN chinook salmon fisheries would be based on the Albion test fishery index.

9.5.3 Post-season Assessments

Post-season estimates of the total return of chinook salmon to the mouth of the Fraser River and total abundance of adult Fraser River chinook salmon available to Canadian fisheries (CTAC) can be computed using the run reconstruction techniques described in English et al. (2006). The current version of the run reconstruction model includes 61 stocks and all major in-river fisheries (13 fisheries along the mainstem Fraser River, 5 fishing areas within the Thompson Watershed and 3 other major tributaries). In general, these fisheries harvest multiple stocks and stock composition estimates are not available for these fisheries. Consequently, run reconstruction analysis is used to distribute the reported weekly catches between the stocks vulnerable to each fishery. The model also includes First Nation and recreational catches from locations where only a single stock is affected. Estimates of the annual harvests from these fisheries are compiled by stock and added to the annual escapement estimates for each stock. Further details on model inputs, assumptions and results for 1982-2004 can be found in English et al. (2007).

9.5.4 Biological/Harvesting Considerations

Stock aggregates of Fraser River chinook salmon identified as "stocks of concern" during pre-season planning, or through in-season run-size updates, may limit fishing opportunities for other Salmon stocks in those times and areas where the limiting stock has been identified. The Southern BC Salmon IFMP will provide direction on harvesting considerations and fishery planning on an annual basis. Stocks of concern in recent years include the "early-timed spring chinook salmon", which include both lower Fraser River (e.g., Birkenhead) as well as interior stocks (e.g., Spius, Louis, Coldwater, upper Chilcotin, Chilako and Cottonwood). Management actions that may be taken to limit impacts on stocks of concern include area and time

restrictions, gear restrictions, and effort or catch limits in fisheries where these stocks have been shown to occur. DFO is considering the implementation of new abundance based approaches for managing Fraser River chinook salmon stocks. The DFO will discuss with TFN any proposed changes to the management approach for Fraser River chinook salmon stocks. Consultations regarding the implementation of a new abundance-based regime will also take place with other sectors, through the DFO's existing consultation mechanisms.

9.6 Pink Salmon

The current escapement target used by DFO is based on an interim escapement goal of 6 million spawners (plus an additional 30% of the run at run sizes above 20 million) with an exploitation rate cap of 70%.

9.6.1 Pre-season Assessments

Currently, pre-season run size forecasts for Fraser River Pink Salmon are made for odd year returns using juvenile (fry) numbers that out-migrated in the previous year as a predictor variable (Cass et al. 2006). Returns of pink salmon on the Fraser River are negligible in even years and, since they are not actively managed in fisheries, no forecasts are produced for Fraser River Pink Salmon in these years. Several biological models and naïve models have been compared to forecast Fraser River Pink Salmon returns. Based on retrospective analysis the best performing model in recent year's has been a power model that uses the average sea surface salinity (measured at Amphitrite Point and Race Rocks from July to September) during the fry ocean entry year as a covariate (Cass et al. 2002, 2006).

In any year, the Tsawwassen Allocation for pink salmon is described in Appendix J-2 of the TFA as:

“In any year, the Tsawwassen Fishing Right Allocation for pink salmon will be that number of fish caught incidentally in the harvest of Tsawwassen Allocation for sockeye salmon, up to a maximum of 2,500 Fraser River pink salmon.”

The Tsawwassen Commercial Allocation for Fraser River Pink Salmon as provided for in clause 11.c. of the Tsawwassen First Nation Harvest Agreement is calculated as using the following formula:

$$\text{TFN Economic Opportunity} = 0.78\% * \text{CCTAC} \quad (12)$$

9.6.2 In-season Assessments

Information from test fisheries and catches during fishery openings are used in the in-season estimates of the Fraser River pinks.

As new information becomes available over the course of the Fraser River Pink Salmon migration, run size estimates, spawning escapement targets, the TAC and other calculations are updated as described in the IFMP. The ability of harvesters to access the TAC will be affected by a number of factors, including conservation requirements for other co-migrating stocks or species such as late run and Cultus Lake sockeye salmon, Interior Fraser coho salmon and Interior Fraser steelhead. 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 DFO and PSC. Currently, information on open and closed times for commercial fisheries can be found at; http://www.pac.dfo-mpo.gc.ca/ops/fm/fishmgmt_e.htm and www.psc.org.

9.6.3 Post-season Assessments

A variety of methods have been used to estimate Fraser River Pink Salmon escapements and returns for odd-number years (Ward 1959, Vernon et al. 1964, Schubert et al. 1997).

From 1957 to 1992, the major tributary populations (Chilliwack, Harrison, Seton, and Thompson) were estimated using individual tributary mark-recapture studies and the Fraser River mainstem population was estimated using a system mark-recapture study, with pink salmon tagged in the lower Fraser River and carcasses recovered throughout the watershed. The Fraser River mainstem population was calculated by subtracting the sum of the tributary estimates from the system estimate, as derived from the Lower Fraser River tag application and total recoveries (Ward 1959; Vernon et al. 1964). The majority of the smaller tributary populations throughout the watershed were systematically assessed using a variety of stock-specific visual estimation methods. This escapement estimation system was used by the IPSFC from 1957 to 1985 and adopted by DFO in 1987 when the responsibility for conducting spawning ground assessments was transferred to DFO.

In 1993, concerns regarding reduced project funding, a forecast record escapement, and the optimal allocation of sampling effort across Salmon species prompted the first major review of the Fraser River Pink Salmon escapement estimation system in over 30 years (Cass and Whitehouse 1993). This review resulted in two fundamental changes to the Fraser River Pink Salmon escapement estimation system:

- a. the termination of all stock-specific tributary mark-recapture studies; and
- b. the implementation of a system capture-live recapture program in the lower Fraser River with the objective of estimating system-wide escapement with 95% confidence limits of +/- 25%.

These changes were implemented starting in 1993, and the system-wide survey was further modified in 1995 as documented in Schubert et al. (1997). Fraser River Pink Salmon were captured at Duncan Bar near Mission, tagged and released. Tagging started as pink salmon first enter the river and continued daily (8 hrs/day) for the duration of the run. A second capture site was located 22 km upstream from Mission at Strawberry Island where samples of pink salmon were captured, assessed for marks, and released alive. Sampling at Strawberry Island was conducted over a 24 hour period, starting on the same date and extending several days past the last day of tagging at Duncan Bar. Both capture sites are below spawning areas and above the major commercial net fisheries. The system-wide survey was discontinued in 2001 given large returns, heavily curtailed fisheries, and assessment priorities on the Fraser River across all Salmon species.

From 1957-2001, the final estimate of total run of Fraser River Pink Salmon was based on the sum of total catch and total spawning escapement. However, with the discontinuation of spawning escapement estimation programs on Fraser River Pink Salmon post-2001, the in-

season estimates by default became the final estimates of total return. Since 2003, spawning escapement is estimated as total run minus total catch.

9.6.4 Biological/Harvesting considerations

The Southern BC Salmon IFMP will provide direction on harvesting considerations on an annual basis. COSEWIC has designated two Salmon stocks as “endangered” that will impact TFN fishing opportunities for Fraser River Pink Salmon. These include Interior Fraser River (including Thompson River) coho salmon (IFCRT 2004) and Cultus Lake sockeye salmon (DFO 2004).

9.7 Coho Salmon

The Tsawwassen Allocation for coho salmon is as described in the Appendix J-2 of the TFA:

“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 catch specific coho salmon stocks.”*

No assessments of the annual abundance of Fraser River coho salmon are used to determine the annual Tsawwassen Allocation for coho salmon; however, TFN will not conduct any directed fisheries for Fraser River coho salmon in those years when no other Fraser River First Nations are permitted to conduct directed fisheries (excluding terminal areas) for Fraser River coho salmon. It is anticipated that harvesting techniques to capture specific coho salmon stocks would likely include mark-only fisheries where:

- a. target stocks (e.g. Chilliwack Hatchery coho salmon) can be distinguished from non-target stocks;
- b. target stocks in the Tsawwassen Fishing Area are abundant relative to non-target stocks;
- c. non-target stocks can be released alive;
- d. the post-release mortality rate is estimated to be less than 10%;
- e. the selective harvesting techniques that may be used include beach seine and fish wheel, recognizing that proper procedures and monitoring must accompany the application of these techniques; and
- f. the JFC will review Tsawwassen Annual Fishing Plans and determine whether the other harvesting techniques meet the above conditions related to the harvest of target coho salmon stocks.

9.7.1 Biological/Harvesting considerations

The Southern BC Salmon IFMP will provide direction on harvesting considerations on an annual basis. COSEWIC has designated two Salmon stocks as “endangered” that will impact fishing opportunities for TFN to harvest Fraser River coho salmon. These include Interior Fraser River (including Thompson River) coho salmon (IFCRT 2004), and Cultus Lake sockeye salmon

(DFO 2004). Each year, the DFO consults on a window closure to protect Interior Fraser River coho salmon during which time only selective fisheries for other species may be permitted. Cultus Lake sockeye salmon harvest has been limited by a fixed exploitation rate in recent years and fisheries are managed according to available impacts remaining on this population.

10.0 TSAWWASSEN ANNUAL FISHING PLAN

10.1 Protocol and Procedures

The TFA describes the process for the review of a Tsawwassen Annual Fishing Plan and the issuance of Tsawwassen Harvest Documents. Section 8.7 includes target dates for various parts of the process. That process is described in TFA Fisheries Chapter clauses 59 to 67 and 73 to 74.

10.1.1 Management Goals and Objectives

Currently, DFO describes its management goals and objectives in its IFMPs.

The TFN may wish to describe its management goals and objectives and considerations taken into account in the development of the TAFP. Three categories of goals, objectives and biological considerations related to management and harvesting are envisioned by TFN:

- a. general;
- b. TFN specific; and
- c. year specific.

The TFN have indicated that TAFPs should include:

- a. a clear statement indicating that the top priority for all fisheries managers is conservation;
- b. after conservation, the top priority for harvest opportunities are First Nations with TFA or Section 35 fishing rights;
- c. general species management goals, where they have been defined, such as:
 - i. minimum escapement level where required in any year;
 - ii. escapement targets;
 - iii. harvest rate targets; and
 - iv. stock rebuilding goals (e.g., timetable for achieving escapement targets);
- d. general fisheries management objectives, such as:
 - i. to promote the efficient and effective harvesting of the fishery resources; and
 - ii. to ensure that the fishery resources are utilized for the benefit of all Canadians;
- e. general biological considerations, such as:
 - i. to distribute harvests over the time period when each species return to the Fraser River and in proportion to that abundance;
 - ii. to minimize harvests of non-target species (bycatch); and
 - iii. to minimize harvest pressure on weak stocks;

TFN has indicated that examples of TFN specific goals, objectives and other considerations related to management and harvesting are:

- a. to enable the TFN to harvest their Tsawwassen Allocation using reasonable efforts;

- b. to maximize the value of the TFN harvest entitlement, bearing in mind the need for the efficient management of the overall fisheries; and
- c. to take into account the unique geography of the Fraser River, which provides unique opportunities for harvesting, including selective fishing techniques.

TFN has indicated that examples of year-specific goals, objectives and biological considerations related to management and harvesting are:

- a. reduce the harvest rate on a specific stock;
- b. adjust the species mix for the TFN fishery, in a manner consistent with the TFA, to help balance past overages and underages; and
- c. revised goals for fisheries management and stock assessment programs.

10.1.2 Tsawwassen Annual Fishing Plans

Clause 65 of the TFA Fisheries Chapter states:

“Every year, Tsawwassen First Nation will develop a Tsawwassen Annual Fishing Plan for the harvest under the Tsawwassen Fishing Right of Non-Allocated Species of Fish and Aquatic Plants, and species for which there is a Tsawwassen Allocation.”

Clause 66 of the TFA Fisheries Chapter states:

“A Tsawwassen Annual Fishing Plan will include, as appropriate, Tsawwassen First Nation preferences as to:

- a. *the stocks or species of Fish and Aquatic Plants to be harvested and, where appropriate, the amounts;*
- b. *a description of the Fish and Aquatic Plants to be harvested;*
- c. *the species, locations and timing of the harvest of Intertidal Bivalves;*
- d. *the location and timing of harvests;*
- e. *access to specific run timing groups;*
- f. *the method of harvest, the size, type, identification, marking, and quantity of fishing gear and the manner in which it may be used;*
- g. *the monitoring of harvests, including notification, catch monitoring, identification and reporting of harvest;*
- h. *the distribution and transportation of Fish and Aquatic Plants harvested under the Tsawwassen Fishing Right;*
- i. *Tsawwassen First Nation enforcement activities;*
- j. *other matters as may be required for Tsawwassen Harvest Documents; and*
- k. *other matters in respect of Tsawwassen fisheries.”*

As appropriate, specific fisheries (times, areas, gears) will be described in sufficient detail to facilitate their integration into plans for non-TFN fisheries.

10.1.3 Harvest Monitoring

Clause 22 of the Fisheries Chapter of the TFA states that:

“Tsawwassen First Nation will provide catch data and other information related to Fish and Aquatic Plants harvested under the Tsawwassen Fishing Right as required by Tsawwassen Harvest Documents or Federal or Provincial Law.”

TFN will propose in the Tsawwassen Annual Fishing Plan a harvest monitoring program to cover all TFN fisheries. The accurate monitoring and reporting of harvests is critical to management of the TFN fishery and post-season calculation of adjustments. Harvest monitoring/reporting is important to build an information base that can contribute to the various Fish stock management decision-making processes. These programs will provide timely harvest estimates that will be used to track harvests in-season and redirect or close specific fisheries when species specific allocations have been reached. Such harvest monitoring programs will be reviewed by the JFC and approved by the Minister.

The catch monitoring and reporting requirements (referenced in clause 22 of the Fisheries Chapter of the TFA) may be specified in:

- a. a Tsawwassen Harvest Document; or
- b. Federal or Provincial Law.

The TFN fishery monitoring and reporting requirement will be consistent with DFO regional catch monitoring and stock assessment standards and may include, among other things:

- a. where, when and how frequently to submit reports;
- b. catch enumeration for allocated and Non-Allocated Species including marine mammals and birds, type of data, level of accuracy, amount retained by species, amount released by species, incidental mortality by species;
- c. fishing effort and location (e.g. number of harvesters, times and duration of fishing, fishing locations, total effort, catch per unit effort);
- d. biological sampling (e.g. weights, lengths, external marks, scales, otoliths, coded wire tags); and
- e. cooperative participation in DFO audit functions (e.g. third party confirmation of data for accuracy and procedural consistency across geographical areas)

Examples of typical reports may be included as an Appendix to this document.

10.1.4 Designation and Documentation

Designation and documentation for individuals and vessels participating in TFN fisheries will be consistent with clauses 55 to 58 of the Fisheries Chapter of the TFA.

The Tsawwassen Harvest Document might provide for TFN:

- a. to provide to the Minister the names and other information concerning the individuals and vessels designated; and
- b. to mark designated vessels.

Clause 57 of the Fisheries Chapter of the TFA provides that:

“Where Tsawwassen First Nation designates an individual or a vessel, Tsawwassen First Nation will issue written documentation to the individual or vessel to evidence the designation.”

For an individual who is designated to harvest Fish under the Tsawwassen Fishing Right, the written documentation will be uniquely numbered and will set out the name and address and a photograph of the individual who is designated. For a vessel designated to harvest Fish under the Tsawwassen Fishing Right, the documentation will be uniquely numbered and will set out the name (if any) of the vessel, the vessel registration number (if any) of the vessel, the name and address of the owner of the vessel, and a description of the vessel in sufficient detail to identify the specific vessel that was designated.

Documentation will be issued to an individual or vessel and will be non-transferable. The Parties acknowledge that designation and documentation of harvesters and vessels is important for the orderly implementation and enforcement of the TFN fishery.

10.1.5 Enforcement

TFN may propose an initial enforcement plan that identifies the coordination procedures and level of effort to be implemented for the Tsawwassen Annual Fishing Plan (open and closed fisheries, monitor closed areas, enforce gear restrictions, ensure fishing is done only by authorized harvesters, enforce Tsawwassen Harvest Document conditions, etc.). Individuals responsible for these activities, coordination with other enforcement agencies and reporting requirements will be determined through discussions facilitated by the JFC. Such plans need to be consistent with any negotiated TFN Enforcement Agreement, reviewed by the JFC and approved by the Minister.

10.1.6 Escapement Monitoring

The JFC (supported by the JTC) may identify areas where TFN can assist DFO and the PSC with the implementation of escapement monitoring plans for Fraser River Salmon stocks.

11.0 GENERAL ACCOUNTING PRINCIPLES AND PROCEDURES

A measure of the successful management of the Fisheries Chapter of the TFA will be the ongoing achievement of the defined Tsawwassen Allocations. The Parties acknowledge that the precise achievement of these Tsawwassen Allocations on a seasonal basis is not consistently possible. The TFA contemplates that the disparity between what was caught by species and Tsawwassen Allocations by species will be addressed through overages and underages as defined in Appendix J-3 of the TFA, which states:

“The procedures for calculating overages and underages for each Salmon species will be consistent with the following principles:

- a. where a Tsawwassen harvest exceeded the defined Tsawwassen Allocation for a Salmon species in a year, an overage has occurred for that species and the amount of that overage will be accounted for in the multi-year accounting process;*
- b. where a Tsawwassen harvest was less than the defined Tsawwassen Allocation for a Salmon species in a year because another group harvested more than their harvest share for that species, an underage has occurred for that species and the amount of that underage will be accounted for in the multi-year accounting process;*
- c. where a Tsawwassen harvest was less than the defined Tsawwassen Allocation for a Salmon species in a year due to uncertainty in the management process for that species, an underage has occurred for that species and a defined portion of that underage will be accounted for in the multi-year accounting process;*
- d. where a Tsawwassen harvest was less than the defined Tsawwassen Allocation for a Salmon species in a year due to a lack of harvesting effort on the part of Tsawwassen, no underage has occurred for that species in that year; and*
- e. where Tsawwassen and Canada agree on an amount to be accounted [f]or in the multi-year accounting process for overages and underages for a Salmon species, Tsawwassen and Canada will use that amount in the multi-year accounting process.”*

Clause 2 of the Fisheries Chapter of the TFA states:

“The Tsawwassen Fishing Right is limited by measures necessary for conservation, public health or public safety.”

The effect of measures necessary for conservation, public health or public safety on the ability of TFN to harvest their Tsawwassen Allocations for Salmon will be taken into account in the annual assessments of overages and underages.

11.1 Role of the JFC

At the end of each fishing season and under the advice and direction of the JFC, the JTC will determine the annual TFN account for each Salmon species. The JTC will make

recommendations to the JFC on options for minimizing overages and underages in the annual TFN account. The target date for the JTC to provide recommendations regarding overages and underages to the JFC is February 20th each year. The JFC will review the JTC assessment of the annual and cumulative TFN account and provide recommendations to the Parties regarding any changes to the post-season catch accounting procedures and adjustments to future TFN harvest levels by March 1st each year.

11.2 General Comments

The determination overage or underage if applicable for a given year will be guided by the above principles. JTC may discuss the in-season determination of run size and the target harvest levels for each Salmon species. Most in-season adjustments to the pre-season run size estimates may also be discussed and agreed upon, although the Minister has the final authority for setting such estimates. The limited ability of management systems to accurately estimate run size and available harvest in-season is recognized and accepted. The overall goal of the accounting process is to provide that over time TFN harvests are consistent with the Tsawwassen Allocations described in the TFA.

TFN and Canada will endeavour to balance overages and underages over time by adjusting subsequent years' allowable catch. TFN and Canada may agree upon transfers between species of Salmon using adjustments in the Tsawwassen Allocation of another species of Salmon.

Canada has informed the Parties that it is reviewing various models for overage/underage and, in the future, may propose a new model that considers the efficiencies of calculations across numerous treaty First Nations and provides effective protection of the resource.

11.3 General Accounting Procedures

11.3.1 Cumulative Tsawwassen Account

On the Effective Date, the opening balance of the Cumulative Tsawwassen Account for each allocated species will be zero.

Each year, post-season, the Cumulative Tsawwassen Account for each species will be revised by adding or deducting, as appropriate, that year's Tsawwassen Account for that species, to the Cumulative Tsawwassen Account for that species.

In any year, the Tsawwassen TAC for a species includes agreed adjustments for that year for past overages and underages. These adjustments are made pre-season. TFN will not be required to make more than a 5% adjustment in a year for past overages and underages. The Minister and TFN may agree to make larger adjustments where the Cumulative Tsawwassen Account exceeds 5% of the Tsawwassen Allocation for the species. The Cumulative Tsawwassen Account will be revised by adding or deducting, as appropriate that year's adjustment to the Tsawwassen TAC for the species.

11.3.2 Discussion of General Accounting Protocols

The accounting for the total production of Salmon from the Fraser River has numerous components. In general, the procedures operate on two time frames, in-season and, most critically, post-season. Post-season, the TFN and Canada will evaluate the management regime

used to provide for the TFN fisheries and associated Tsawwassen Allocations and will calculate overages and underages as needed.

11.3.3 In-Season Accounting

To complete in-season accounting of TFN's harvest of sockeye salmon, chinook salmon and Fraser River Chum Salmon, DFO and the Joint Technical Committee (JTC) assessments of the CTC, CTAC, and CCTAC for sockeye salmon and chinook salmon, TS for Fraser River Chum Salmon, and estimated escapement for each species, as appropriate, are used.

The procedures or protocols used in-season to compute stock specific catch estimates should be noted for post-season scrutiny. In addition, any in-seasonal adjustment from the pre-season estimated CTC, CTAC, CCTAC, and TS will alter the determination of the Tsawwassen Allocations. The determination of any updated Tsawwassen Allocations should be noted along with management changes that may result. It is understood that a key component to the management of Fraser River Sockeye Salmon and Fraser River Chum Salmon is the identification of the catch of Fraser River stocks in the mixed stock total harvest in all areas to the extent possible.

In summary, it is important that TFN and Canada provide timely and accurate catch data in-season to determine the Tsawwassen Allocations.

11.3.4 Post-Season Accounting

The best available data will be used in the post-season accounting process. The in-season record of harvesting, run size knowledge and effort identified by specific time frames may be used to help resolve disputes between TFN and Canada. The JTC will use, where applicable, the following post-season estimates for sockeye salmon, chinook salmon and chum salmon:

- a. the Canadian Total Catch (CTC) or Canadian Total Allowable Catch (CTAC) for Fraser River Sockeye Salmon and chinook salmon;
- b. the Terminal Surplus (TS) for Fraser River Chum Salmon;
- c. the escapement estimates for each applicable Fraser River Salmon species (the "Post-Season Escapement Estimate");
- d. the Post-Season Escapement Target for Fraser River Salmon;
- e. the Post-Season Total Management Adjustment is the sum of the management adjustments for each run timing group as defined at that point in the fishing season when the final run size is agreed upon by the Fraser Panel;
- f. the "Tsawwassen TAC"; and
- g. the total number of Fish of that species caught under the Tsawwassen Fishing Right (the "Tsawwassen Catch").

The JTC should determine the above post-season estimates and determine the Tsawwassen Account's overages and underages under the direction of the JFC and in accordance with the procedures described below. TFN and Canada may wish to do those calculations independently. Each year, the JTC will provide to the JFC its recommendations for overages and underages, and

the Cumulative Tsawwassen Accounts and potential adjustments for consideration in pre-season planning.

The following formula describe how the accounting principles in Appendix J-3 of the TFA will be applied under the various scenarios for TFN harvests to determine the Tsawwassen Account for each Salmon species in each year:

1. Consistent with accounting principle (a), if the Tsawwassen Catch is more than the Tsawwassen TAC, the Tsawwassen Account is:

$$\text{Tsawwassen Account} = \text{Tsawwassen Catch} - \text{Tsawwassen TAC}$$

2. Consistent with accounting principle (b), if the Tsawwassen Catch is less than the Tsawwassen TAC because another group harvested more than their share for that species, the Tsawwassen Account is:

$$\text{Tsawwassen Account} = \text{Tsawwassen Catch} - \text{Tsawwassen TAC}$$

3. Consistent with accounting principle (c), if the Tsawwassen Catch is less than the Tsawwassen TAC, the Tsawwassen Account is the smaller absolute value of the following two underages:

$$\text{Tsawwassen Account} = \text{Tsawwassen Catch} - \text{Tsawwassen TAC}$$

and

$$\text{Tsawwassen Account} = \% \text{ Mgt. Uncertainty} * \text{Tsawwassen TAC} * - 1$$

where

% Mgt. Uncertainty is the percentage that the Parties agree reflects the level of uncertainty in the management process for that species. The current levels of uncertainty with regard to the management of Fraser River Salmon stocks are consistent with the following species specific percentages (10% for sockeye, 20% for chum, 20% for chinook).

4. Consistent with accounting principle (d), and not withstanding conditions 2 and 3, if the Tsawwassen Catch is less than the Tsawwassen TAC due to a lack of harvesting effort on a part of TFN and the Minister has provided reasonable opportunities for harvest of the Tsawwassen TAC, the Tsawwassen Account is zero.

In each year, the Cumulative Tsawwassen Account for each species will be calculated by adding that year's Tsawwassen Account for that species, to the previous year's Cumulative Tsawwassen Account for that species.

12.0 ENHANCEMENT AND RESTORATION ACTIVITIES

12.1 Tsawwassen First Nation Proposals for Enhancement Initiatives

TFN may seek advice of the JFC with respect to proposals they intend to make under clause 94 of the Fisheries Chapter of the TFA.

Where TFN seeks approval of a Salmon Enhancement Initiative TFN may provide the Minister with information on:

- a. location and detailed description of the enhancement activity including brood stock availability, water supply details, assessment plans, site selection and required pilot studies;
- b. information on the Salmon stock to be enhanced, including stock status, run timing and harvest by sector (First Nation, sport, commercial and US fisheries); and
- c. other relevant matters.

12.2 Joint Fisheries Committee (JFC) Recommendations

The JFC recommendations to the Minister and TFN, in respect of TFN Enhancement Initiatives, should consider:

- a. the level of risk to the enhanced stock(s) or to other stocks that may result from the enhancement activities or their discontinuation;
- b. the effect of the proposed enhancement activities on the management of other fisheries; and
- c. other matters identified by the JFC.

13.0 REQUIREMENTS FOR ANNUAL REPORTING

The JFC is responsible for defining the reports and level of detail required in annual reports related to the implementation of fisheries provisions of the TFA.

The JTC, under the direction of the JFC, should complete, as practicable, an annual report that summarizes the data, analyses and procedures used to implement provisions of the TFA. This report will provide details of catch, effort and a chronology of the management decisions and management actions for the season.

14.0 CRAB

14.1 Conservation Goals and Objectives

DFO's Pacific Region Integrated Fisheries Management Plan (IFMP) for the crab fishery describes the current management goals and objectives. Please refer to the following website for the current Crab IFMP:

<http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/MPLANS/MPlans.htm>

The Joint Fisheries Committee (JFC) should review these conservation issues and may identify additional conservation issues and bring these to the attention of the Minister and the Parties. As appropriate, the JFC may identify research opportunities or management measures to address specific conservation issues.

- a. All harvesters (Commercial, First Nation, and Recreational) should have the same minimum size limit for conservation of female crab. Commercial and recreational harvesters must release all females regardless of size. First Nation harvesting for Domestic Purposes are encouraged to release all female crabs captured.
- b. Crab harvesting during "soft shell" periods is not authorized for commercial harvesters for conservation reasons. Crabs with soft shells are susceptible to significant mortality during the fishing and handling process required for release of undersized crabs. At this time, First Nation harvesting for Domestic Purposes is allowed during the commercial closed period for soft shell.
- c. It is recommended that TFN crab harvesters reduce fishing effort during the soft-shell period to reduce mortalities of undersized crabs. In Pacific Fishery Management Areas 28 and 29, the soft-shell or moulting period is from April to mid-June (April to mid-July in Boundary Bay). The commercial Crab season is closed from December to mid-June in Pacific Fishery Management Areas 28 and 29 (December to mid-July in Boundary Bay).

14.2 Management Goals and Objectives

DFO's Pacific Region Integrated Fisheries Management Plan (IFMP) for the crab fishery describes the current management goals and objectives. Please refer to the following website for the current Crab IFMP:

<http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/MPLANS/MPlans.htm>.

Crab is not currently allocated in the TFA; however, specific TFA language is provided:

Clause 31 of the Fisheries Chapter of the TFA states:

"Any Tsawwassen Harvest Document for Tsawwassen First Nation to harvest crab under the Tsawwassen Fishing Right will authorize the harvest to be carried out using the number of traps proposed by Tsawwassen First Nation in the Tsawwassen Annual Fishing Plan for the harvest if:

- a. *the number of traps does not exceed 50 traps per vessel;*
- b. *the traps meet the requirements for traps for harvesting crab as set out in the Tsawwassen Fisheries Operational Guidelines; and*

- c. *a Tsawwassen Allocation for crab has not been established under this Agreement.”*

14.3 Trap Requirements

Biodegradable escapement mechanisms are required on each trap in the form of either a rot cord, rot panel or rot panel alternative. These mechanisms are designed to minimize the effects of ghost fishing by traps.

All crab traps must be fitted with at least one escape hole (at least 100 mm in diameter) that is not more than 100 mm below the top of the frame. The commercial fishery requires at least two escape holes, one of which must be at least 105 mm in diameter.

14.4 Public Safety

Starting in 2009, Transport Canada and Port Metro Vancouver has initiated an expanded navigational closure in the Deltaport/BC Ferries area through the Navigable Waters Protection Act. The area surrounding the Deltaport terminal and BC ferry terminal identified as the “Navigational No Float Zone” is a navigational closure. This area is restricted to ensure and maintain a safe approach for deep sea vessels, ferries, and tugs transiting in and out of the area. First Nations are permitted to harvest Fish in the area described on the attached map with the requirement that the crab buoys remain out of the area highlighted. No commercial or recreational crab fishing is permitted in this area (see APPENDIX E).

14.5 Catch Monitoring and Report Goals and Objectives

The accurate monitoring and reporting of crab harvests is important to the management of the TFN crab fishery.

The harvest numbers are used to provide information that contribute to the crab management and decision making processes.

In addition, the harvest data collected will help to form the Tsawwassen Allocation for crab.

Catch reporting details are described in APPENDIX D.

14.6 Harvest Study to Determine Tsawwassen Allocation for Crab

The TFA describes a process to determine a Tsawwassen Allocation for a Non-Allocated Species in clauses 32 to 49 of the Fisheries Chapter. Specifically, in clause 35 of the Fisheries Chapter, the TFA provides direction on crab:

The Minister and Tsawwassen First Nation will propose the establishment of a Tsawwassen Allocation for crab under clause 34 in the twelfth year after the Effective Date or such other date as the Minister and Tsawwassen First Nation may agree.

15.0 EULACHON

TFN has the right to harvest eulachon for Domestic Purposes as a Non-Allocated Species, which right is limited by measures necessary for conservation, public health and public safety.

There is limited biological information available to guide management decisions regarding Fraser River eulachon. A 2003 PSARC paper (2003/051) provided direction for using this limited information. The PSARC paper recommended a management approach using three (3) pre-season indicators.

The three pre-season indicators are:

- a. spawning stock biomass from the previous two years;
- b. offshore biomass index from the previous year; and
- c. same year Columbia River catches.

The Fraser River eulachon stock has exhibited a declining trend since 2004, suggesting that eulachon stocks have collapsed and remain at a precariously low level.

As of 2009 there are no in-season Fraser River eulachon assessment programs in operation.

Since 1995, post-season assessment programs have been conducted to estimate spawning stock biomass (SSB). An intensive sampling process takes place in the Fraser River during the seven to eight weeks following spawning (April/May). This estimate is generally produced in the summer following spawning.

15.1 Biological Harvesting Considerations

The Fraser River eulachon stock has collapsed and remains at a precariously low level; assessment indicators have signalled conservation concerns for the previous two years. COSEWIC has called for a status report on eulachon in British Columbia to be addressed in 2010. Stock rebuilding will continue to be a priority for 2009 and longer, until there are indications of increased abundance levels. The annual IFMP for eulachon provides direction on annual harvesting and can be found at:

<http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/MPLANS/MPlans.htm>.

16.0 INTERTIDAL BIVALVES

16.1 Conservation Goals and Objectives

DFO's Pacific Region Integrated Fisheries Management Plan (IFMP) for the intertidal clam fishery describes the current management goals and objectives. Please refer to the following website for the current intertidal Clam IFMP:

<http://www-ops2.pac.dfo-mpo.gc.ca/xnet/content/MPLANS/MPlans.htm>

The Joint Fisheries Committee (JFC) should review these conservation issues and may identify additional conservation issues and bring these to the attention of the Minister and the Parties. As appropriate, the JFC may identify research opportunities or management measures to address specific conservation issues.

16.2 Management Goals and Objectives

All clam harvesters are advised to check before they harvest that the area is not closed because of marine biotoxin or sanitary contamination.

Where the Tsawwassen Intertidal Bivalve Fishing Area overlaps with a National Park Reserve or a National Marine Conservation Area, terms and conditions governing harvest will be developed following consultations with Parks Canada.

16.3 Catch Monitoring and Reporting Goals and Objectives

The accurate monitoring of reporting of intertidal clam harvests is important to the management of the TFN clam fishery. The harvest numbers are required to provide additional information that will contribute to the intertidal clam management and decision making processes.

The TFN Fiscal Financing Agreement outlines the requirements for catch reporting for their intertidal clam fishery. The catch report will be provided in-season on a weekly basis and will summarize the following catch data using the appropriate reporting time period, area and numbers for the intertidal clams harvested:

- a. species of bivalves harvested;
- b. number of pounds of each species retained;
- c. number of hours fished;
- d. area where each species was harvested; and
- e. other data as determined by the Joint Fisheries Committee

17.0 STEELHEAD

Steelhead are indigenous to British Columbia and the Lower Mainland Region. They are a sea-run form of rainbow trout and highly valued as a sport fish. Steelhead conservation and recovery is a management priority for MOE.

Most stocks in the Greater Georgia Basin (Juan de Fuca Strait north to Johnstone Strait) are facing a major conservation issue due to reduced freshwater habitat productivity; reduced ocean survival; and climate change. Middle Fraser River steelhead stocks, those that spawn upstream of Hell's Gate, are facing the same crisis situation.

Freshwater habitat improvement projects are being implemented in many watersheds in an attempt to increase freshwater production. Project types include both physical habitat creation and stream fertilization. Sport fishing for steelhead is heavily regulated with no fishing closures on some systems (i.e. Coquihalla, Thompson). There is a mandatory release for all steelhead caught in commercial Salmon fisheries in British Columbia.

Steelhead presence in the Lower Fraser River is potentially year round due to the presence of both summer run (May-December) and winter run (December-April) stocks.

The following table identifies Lower Fraser steelhead stocks, run timing and stock status.

Table 17.1: Lower Fraser Steelhead Stock Status by Watershed

Watershed	Run timing	Stock Status
Little Campbell	Winter	Conservation concern
Coquitlam	Winter	Conservation concern
Upper Pitt	Winter	Extreme conservation concern
Alouette	Winter	Routine management
Kanaka	Winter	Extreme conservation concern
Stave	Winter	No wild - hatchery system
Salmon	Winter	Special concern
Chehalis	Winter	Routine management
	Summer	Hatchery summer run
Big Silver	Winter	Special concern
Norrish	Winter	Special concern
Chilliwack	Winter	Routine management
Silverhope	Winter	Special concern
	Summer	Conservation concern/Routine management
Coquihalla	Winter	Special concern
	Summer	Conservation concern/Routine management

Watershed	Run timing	Stock Status
Thompson	Summer	Extreme conservation concern

Stock Status Definitions

Routine management – stocks at least 30% of habitat capacity

Conservation concern – stocks are 10% to 30% of habitat capacity

Extreme conservation concern - stocks less than 10% of habitat capacity

Special Concern – stocks are not well documented but believed to be very low

The Greater Georgia Basin Steelhead Recovery Action Plan (www.bccf.com/steelhead/) sets the direction for the recovery of Lower Mainland and Vancouver Island steelhead stocks (Lill 2002).

18.0 WHITE STURGEON

White sturgeon are indigenous to the Fraser River of British Columbia. They spawn in freshwater and are known to migrate into tidal and marine habitats. White sturgeon conservation and recovery is an MOE priority.

The Fraser River watershed contains 5 distinct stock groupings of white sturgeon based on current genetic and management information. The Lower Fraser River group (upstream to Hope, B.C.) is designated as SG-1. COSEWIC (www.cosewic.gc.ca) classified Fraser River white sturgeon as endangered; however, the Lower Fraser group is not included for protection under the Species at Risk Act (SARA). Listing under SARA would have potential serious consequences to First Nations' rights and the sport fishing sector.

The provincial Conservation Data Centre (CDC) (www.env.gov.bc.ca/cdc) designates white sturgeon as Red-List. Species included under this designation are indigenous and considered to be endangered or threatened in British Columbia. Threats include habitat loss and degradation; poaching and incidental catch; and poor growth. The provincial conservation status of Lower Fraser white sturgeon is S2 (imperilled).

The Fraser River Sturgeon Conservation Society (FRSCS) (www.frasersturgeon.com) is a strong supporter of lower Fraser River white sturgeon. Their most recent assessment efforts suggest a 26.4% decrease in the population of white sturgeon in the 40-260cm forklength category from the period January 2003 to 2007, with the greatest decline in white sturgeon measuring less than 100cm forklength (Nelson et al, 2008).

The Fraser River White Sturgeon Conservation Plan sets the direction for mainstem Fraser River white sturgeon recovery in the province (Hatfield, 2005).

19.0 COASTAL CUTTHROAT, DOLLY VARDEN AND BULL TROUT

Coastal cutthroat, Dolly Varden and bull trout are indigenous to British Columbia and the Lower Mainland Region. All are members of the Family Salmonidae; however, cutthroat are related to Salmon and trout (genus *Oncorhynchus*); whereas Dolly Varden and bull trout are species of char (genus *Salvelinus*). Cutthroat and char conservation is a priority for MOE. All three species are classified as Blue-List by the province's CDC. Species in this category are of special concern and are particularly sensitive to human activities and events.

Coastal cutthroat, Dolly Varden and bull trout exhibit many life history strategies including adfluvial (lake resident spawning in freshwater streams); fluvial (river resident); and anadromous (sea-run spawning in freshwater) stocks. Little is known of the life history and migration patterns of sea-run stocks; however, all three species have high probability of occurrence within those sections of the lower Fraser River under tidal influence, including estuary and near shore marine habitats. Most life history information for anadromous bull trout is from studies undertaken in Washington State. Population sizes for all three species are unknown but suspected to be low.

20.0 OYSTER HARVEST

The harvest of oysters in the Province of British Columbia is managed by the Aquaculture Operations Branch of the BC Ministry of Agriculture and Lands. Currently, there are no restrictions on the harvest of Pacific oysters (*Crassostrea gigas*) for domestic, food, social and/or ceremonial use by First Nations. All oyster harvesters are advised to check before they harvest that the area is not closed because of marine biotoxin or sanitary contamination.

The Ministry does not issue commercial permits for the harvest of Olympia oyster (*Ostrea conchaphila*). While there is no restriction on harvesting for domestic, food, social and/or ceremonial use by First Nations, it should be noted that this species is listed as a species of “special concern” under the federal *Species at Risk Act* and harvesters should review the Management Plan for the Olympia oyster in Canada prior to harvest.

For further information on the harvest of oysters in the Province of British Columbia please contact:

Aquaculture Operations Branch
BC Ministry of Agriculture and Lands
2500 Cliffe Avenue
Courtenay, BC V9N 5M6
250-897-7540

21.0 AQUATIC PLANTS

The harvest of Aquatic Plants, which includes attached and detached kelps and seaweeds, in the Province of British Columbia is managed by the Aquaculture Operations Branch of the BC Ministry of Agriculture and Lands. Currently, there are no restrictions on the harvest of Aquatic Plants for domestic, food, social and/or ceremonial use by First Nations.

For further information on the harvest of Aquatic Plants in the Province of British Columbia please contact:

Aquaculture Operations Branch
BC Ministry of Agriculture and Lands
2500 Cliffe Avenue
Courtenay, BC V9N 5M6
250-897-7540

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Appendix A – Historical Abundance Estimates for Fraser Salmon**Table A 1: Annual Canadian harvest of Fraser River Sockeye Salmon, 1985-2003.**

Year	Canadian Harvests of Fraser Sockeye ¹					Total	Escapement	Total Return to Canada
	Commercial	FN Marine	FN Fraser	Sport	Test Fishing			
1985	8,309,000	18,000	424,000	2,000	53,000	8,806,000	2,077,686	10,883,686
1986	8,819,000	19,000	534,000	1,000	67,000	9,440,000	3,657,732	13,097,732
1987	3,259,000	39,000	468,000	9,000	50,000	3,825,000	1,900,709	5,725,709
1988	1,196,000	6,000	416,000	16,000	39,000	1,673,000	1,370,339	3,043,339
1989	12,402,000	34,000	572,000	13,000	50,000	13,071,000	3,060,183	16,131,183
1990	12,451,000	114,000	808,000	31,000	64,000	13,468,000	6,064,285	19,532,285
1991	6,321,000	91,000	607,000	26,000	133,000	7,178,000	3,306,272	10,484,272
1992	3,477,000	50,000	672,000	14,000	22,000	4,235,000	1,068,805	5,303,805
1993	13,820,000	203,000	853,000	8,000	91,000	14,975,000	5,754,095	20,729,095
1994	10,094,000	171,000	928,000	14,000	80,000	11,287,000	3,128,543	14,415,543
1995	817,000	30,000	892,000	12,000	81,000	1,832,000	1,731,233	3,563,233
1996	955,000	76,000	755,000	15,000	75,000	1,876,000	2,061,447	3,937,447
1997	8,435,000	121,000	1,075,000	75,000	156,000	9,862,000	4,251,535	14,113,535
1998	1,278,000	200,000	743,000	18,000	107,000	2,346,000	4,418,998	6,764,998
1999	49,000	95,000	257,000	16,000	103,000	520,000	1,832,759	2,352,759
2000	968,000	91,000	745,000	30,000	102,000	1,936,000	2,352,930	4,288,930
2001	295,000	174,000	657,000	75,000	135,000	1,336,000	5,329,923	6,665,923
2002	2,183,000	264,000	871,000	128,000	162,000	3,608,000	10,201,057	13,809,057
2003	1,032,223	217,546	543,779	65,198	107,575	1,966,321	1,977,872	3,944,193
Average								
1985-03	5,061,064	105,976	674,778	29,905	88,293	5,960,017		
1992-03	3,616,935	141,046	749,315	39,183	101,798	4,648,277		

¹ Canadian harvests 1985-1999 from Pacific Salmon Commission records (FR_sockeye.xls, Jim Gable, 20 March 2000, 1996-2003 estimates are preliminary)

The Parties recognize that the historical information in Table A 1 is subject to change as new information becomes available or new analysis techniques are used.

Table A 2: Terminal run size, in-river harvest, net escapement and Terminal Surplus for Fraser River Chum Salmon, 1985-2007.

Year	In-river Harvest						Index Escapement ⁷	Terminal Run Size ⁸	Terminal Surplus ⁹	
	First Nation		Sport ³		Test Fishing ⁴	Commercial ⁵				All Fraser River Harvest ⁶
	Sales ^{1,2}	FSC ²	Fraser	Chilliwack						
1985		5,859	C	10	7,862	47,243	60,974	1,055,763	1,116,737	608,875
1986		16,711	C	N/A	6,665	87,737	111,113	689,766	800,879	294,214
1987		26,312	C	N/A	6,432	not open	32,744	246,362	279,106	0
1988		19,143	C	18	5,168	75,000	99,329	381,824	481,153	0
1989		12,785	C	N/A	6,327	13,300	32,412	479,613	512,025	5,698
1990		13,833	C	N/A	11,608	96,000	121,441	738,475	859,916	348,308
1991		15,799	C	N/A	8,854	50,200	74,853	1,043,541	1,118,394	609,540
1992		17,213	C	N/A	7,103	41,800	66,116	1,014,534	1,080,650	573,547
1993	7,638	18,255	C	N/A	6,037	74,600	106,530	887,357	993,887	487,850
1994	34,128	505	C	N/A	11,636	130,777	177,046	1,624,676	1,801,722	1,290,086
1995	18,243	15,018	C	N/A	10,454	52,976	96,691	1,626,394	1,723,085	1,212,631
1996	4,142	5,154	C	N/A	6,852	21,875	38,023	815,831	853,854	347,002
1997	7,590	4,418	C	N/A	5,440	20,233	37,681	1,119,815	1,157,496	652,056
1998	3,972	12,456	N/A	4,327	13,888	18,818	53,461	3,561,042	3,614,503	3,100,615
1999	12,982	32,197	N/A	6,915	10,772	21,000	83,866	2,985,452	3,069,318	2,558,546
2000	16,601	5,515	N/A	N/A	7,280	16,091	45,487	699,976	745,463	238,183
2001	27,538	36,737	1371	3,414	14,624	28,351	112,035	3,151,893	3,263,928	2,749,304
2002	49,636	12,842	2761	4,150	16,780	43,500	129,669	2,302,295	2,431,964	1,915,184
2003	29,190	26,570	728	2,503	9,531	46,016	114,538	1,494,491	1,609,029	1,099,498
2004	50,668	20,618	N/A	4,384	15,179	69,955	160,804	2,716,274	2,877,078	2,361,899
2005	95,550	7,267	39	1,624	12,919	56,500	173,899	1,331,719	1,505,618	992,699
2006	114,708	15,150	900	5,375	16,942	162,100	315,175	1,971,454	2,286,629	1,769,687
2007	77,490	13,344	3007	1,553	7,650	56,600	159,644	1,057,207	1,216,851	709,201
Average										
1985-07	36,672	15,378	1,468	3,116	9,826	55,940	104,501	1,434,598	1,539,099	1,040,201
1992-07	36,672	15,204	1,468	3,805	10,818	53,825	116,917	1,772,526	1,889,442	1,378,624

Minimum Escapement Target: 500,000

¹ DFO records for First Nations Pilot Sales Fisheries 1992-2003, FOS data from 2004-2007² FSC and Pilot Sales data (source: DFO First Nations catch tables (Eamon Miyagi - contact) and FOS database).³ Sport Fishing Catches - from DFO database (pre-2004 data: Fraser1985to2003.xls and Chilliwack1985to2003.xls; 2004-2007 data contact Joe Tadey)⁴ Albion test fishing harvest from DFO database (pre-2004: totalannualcatchver2.xls; 2004-2007 data FOS database)⁵ Area 29 (pre-2004 catches from Annual PSC Reports, 2004-2007 data contact Barbara Mueller).⁶ Includes commercial, test, sport, and native harvest⁷ Escapement based on index stocks (Harrison, Stave, Chilliwack, Inch Creek, Weaver Creek, Chehalis), plus a varying number of smaller streams in a given year. No expansion to these estimates is done for unassessed populations, with the exception of the Chilliwack mainstem, which has not been assessed since 2001. Escapement data is being reviewed and may be updated in the future.⁸ Terminal Run Size= Sum of escapement plus all in-river harvests⁹ Terminal Surplus = Terminal Run Size - Minimum Escapement Goal (500k) - Test Fishing Catch

N/A - not assessed

C - closed above Mission

The Parties recognize that the historical information in Table A 2 is subject to change as new information becomes available or new analysis techniques are used.

Table A 3: Annual total mortality estimates for Fraser chinook salmon in Canadian marine fisheries from Coastwide Chinook Model and Total Return to Canada estimates based on Fraser River run reconstruction estimates (from English et al. 2006)

Year	Reconstructed Run to Fraser Mouth						Canadian Marine Total Mortality		Total Return to Canada (TRTC)					
	Spring 5.2	Summer 5.2	Spring 4.2	Summer 4.1	Fall	Total	Early	Late	Spring 5.2	Summer 5.2	Spring 4.2	Summer 4.1	Fall	Total
1982	24,932	36,392	9,128	17,124	138,773	226,349	44.3%	68.3%	44,768	65,345	16,390	30,748	437,618	594,868
1983	33,711	26,875	4,396	16,364	139,008	220,354	44.5%	66.5%	60,755	48,435	7,923	29,492	414,491	561,095
1984	39,449	27,290	8,713	33,306	137,246	246,004	44.7%	80.9%	71,344	49,354	15,758	60,234	717,776	914,467
1985	52,431	34,895	12,406	34,927	181,834	316,493	46.5%	48.4%	98,009	65,229	23,191	65,289	352,344	604,062
1986	56,944	50,175	13,714	33,100	186,582	340,515	39.3%	49.0%	93,789	82,640	22,587	54,517	365,811	619,345
1987	60,399	39,707	7,462	31,466	101,231	240,265	32.9%	52.6%	90,054	59,202	11,126	46,915	213,347	420,644
1988	53,400	46,334	5,972	37,697	56,256	199,659	29.3%	51.8%	75,570	65,570	8,451	53,348	116,828	319,767
1989	43,080	26,207	9,211	35,817	81,073	195,388	45.4%	47.2%	78,887	47,989	16,867	65,587	153,515	362,845
1990	51,307	55,475	5,144	37,326	184,420	333,672	32.9%	44.1%	76,489	82,702	7,669	55,646	330,035	552,540
1991	40,361	41,028	8,735	34,706	106,982	231,812	37.5%	50.9%	64,559	65,626	13,972	55,514	217,953	417,623
1992	43,701	48,820	11,049	37,510	175,887	316,967	35.7%	51.1%	67,939	75,897	17,177	58,314	359,790	579,117
1993	49,646	32,680	15,392	21,735	144,529	263,982	37.2%	61.3%	79,037	52,027	24,504	34,602	373,103	563,273
1994	65,943	34,881	21,705	37,438	110,979	270,946	41.4%	45.2%	112,596	59,558	37,061	63,924	202,387	475,527
1995	56,438	45,291	20,030	33,555	62,346	217,660	20.4%	36.8%	70,894	56,892	25,160	42,150	98,639	293,735
1996	49,669	64,829	33,656	63,258	65,232	276,644	11.3%	30.9%	56,011	73,107	37,953	71,335	94,402	332,809
1997	56,622	67,087	29,149	79,346	159,187	391,391	16.2%	22.8%	67,566	80,053	34,783	94,682	206,070	483,153
1998	56,810	55,888	9,130	79,667	279,966	481,461	16.4%	7.1%	67,985	66,881	10,926	95,338	301,207	542,337
1999	30,206	39,965	16,892	66,090	192,889	346,042	12.6%	19.0%	34,569	45,738	19,332	75,637	237,988	413,264
2000	38,295	39,243	29,183	58,971	127,047	292,739	6.6%	16.9%	40,992	42,007	31,238	63,125	152,921	330,284
2001	44,098	49,841	30,143	96,471	152,913	373,466	7.1%	17.4%	47,446	53,625	32,432	103,796	185,187	422,487
2002	51,636	53,737	33,536	120,210	177,558	436,677	13.5%	21.0%	59,693	62,122	38,769	138,968	224,771	524,324
2003	63,037	77,181	42,328	99,310	313,021	594,877	13.7%	20.0%	73,016	89,399	49,029	115,031	391,438	717,913
2004	47,644	68,259	35,485	80,920	204,804	437,112	19.3%	28.6%	59,044	84,592	43,976	100,283	286,700	574,595
2005	30,905	36,261	14,767	114,477	132,078	328,488	19.0%	26.7%	38,176	44,792	18,241	141,408	180,065	422,682
2006	31,054	37,707	17,859	197,114	122,842	406,576	19.9%	26.6%	38,756	47,059	22,288	246,002	167,323	521,429
Mean	46,869	45,442	17,807	59,916	149,387	319,422	27.5%	39.6%	66,718	62,634	23,472	78,475	271,268	502,567

The Parties recognize that the historical information in Table A 3 is subject to change as new information becomes available or new analysis techniques are used.

APPENDIX B – Fraser River Sockeye Spawning Initiative

The 1987 Rebuilding Strategy

In 1987, DFO formed a task force with a mandate to develop a plan for increasing the average run size of Fraser River Sockeye Salmon. The task force evaluated historical catches since 1894, spawner-recruit relationships, spawning capacity, and lake-rearing capacity. Like the current initiative, their work involved extensive computer modeling to evaluate alternative rebuilding strategies. The Task Force's key findings and recommendations were:

- a. Fraser River Sockeye Salmon production could be increased substantially on all stocks and cycle lines;
- b. Rebuilding would require reductions in harvest rates to 65-70% within four years or 10-15% percentage points less than historical levels of greater about 80%;
- c. It was too risky and impractical to manage for the same level of production on all cycle lines of a stock. However, additional reduction in harvest rates for some stocks on two of the four cycles should be used to learn about the mechanisms that may cause cyclic dominance;
- d. Departures from the projected long-term rebuilding schedule might be expected to reflect variability in marine and freshwater survival. Some stocks would proceed ahead of schedule and others would lag behind. Keeping all co-migrating stocks on a similar rebuilding trajectory would be a major management objective;
- e. Rebuilding should take 12-16 years with an adjustable escapement schedule that varies with run size. This approach would ensure sharing of the burden of rebuilding between users and the resource. In poor return years, escapement targets and catch should be lowered proportionately. In good years, the escapement targets and catch should increase. Occasional very large runs might allow placing more spawners on the grounds than provided for in the interim goal.

Based on these recommendations, an implementation plan for escapement management was developed and formed the basis for Fraser River Sockeye Salmon management from 1987 to 2004. Using pre-season forecasts of adult returns, annual escapement plans were set between lower limits based on abundance of spawners (Early Summer, Summer and Late Run aggregates), and an upper limit based on a maximum exploitation rate of 65%. One important concept in the implementation of the 1987 Rebuilding Plan was to set annual escapement targets that were equal to the brood year escapement or increased above this level where there were opportunities to do so.

Performance of the 1987 Rebuilding Strategy

The rebuilding strategy coincided with increasing stock productivity up to 1990, followed by declining productivity for the remainder of the time period. Greater benefits could likely have been realized if there had been stable productivity. However, if management had maintained pre-1987 exploitation patterns, spawner levels would have been much lower in abundance for many of the Fraser River Sockeye Salmon stocks.

Escapement and catches of Fraser River Sockeye Salmon have been affected by many different factors over the 16 years since the 1987 Rebuilding Strategy was implemented. Changes in marine productivity, concerns for weak stocks and unforeseen issues such as high pre-spawn mortality in the Late Run aggregate have all contributed to the patterns of fishing and escapement that we see now. Some aggregates (e.g. the Summer Run) have increased considerably, but some individual stocks, like Cultus Lake, have become conservation concerns.

Over the years, the Rebuilding Strategy also faced increasing criticism from First Nations, commercial harvesters and other interested groups. Some groups disagreed with the specified long-term and interim escapement targets (too high or too low), and the prescribed rate of rebuilding was also criticized as too slow or too ambitious. Others pointed out that managing for a strictly increasing rebuilding trajectory is unrealistic under changing productivity levels. These fundamental disagreements among groups probably reflected different trade-offs between short-term and long-term benefits.

Transition from the Rebuilding Strategy to the Spawning Initiative

The new strategy will retain many fundamental aspects of the 1987 Rebuilding Strategy that are currently being followed. Target exploitation rates (and therefore target escapements) will still vary with run size, but the requirement to stay above brood year escapement will be removed due to fluctuating productivity of many stocks. This does not mean that there will be no minimum escapement requirement, but rather that the objective of increasing escapements every year will be replaced by a harvest rule that explicitly incorporates different management objectives.

Fraser River Sockeye Spawning Initiative (FRSSI)

This initiative is an on-going participatory process to develop a new set of guidelines for setting escapement targets. The Spawning Initiative has several goals:

- a. Manage spawning escapement to ensure conservation while respecting social and economic values;
- b. Improve the existing consultation processes by focusing on proactive stakeholder discussion of targets and implementation guidelines, rather than reactive, in-season decision making;
- c. Develop management reference points and a long-term strategy for managing Fraser River Sockeye Salmon escapements;
- d. Develop implementation guidelines for achieving long-term spawning objectives, including appropriate in-season adjustment mechanisms;
- e. Develop processes for reviewing and modifying the harvest rules and escapement targets.

The new strategy has so far been developed through close collaboration of a steering committee and a technical working group. The Steering Committee is currently composed of representatives from First Nations, commercial harvesters, and recreational harvesters. The technical working group includes DFO & external experts, and periodic workshops have provided review and revision. The main output of the technical working group is a simulation model that takes into account not only the biology of individual stocks, but also attempts to

quantify the societal values of Parties interested in their harvest. The simulation model thus represents a new tool for arriving at appropriate harvest policies for Fraser River Sockeye Salmon stocks. The workshops allow the technical group to present their work, obtain direction and feedback, and refine the proposed approach for managing spawning escapement before taking the initiative to broader consultation. As a result of the workshop process and feedback from the Steering Committee, the initiative has already evolved considerably.

The Spawning Initiative draws upon the discussions around the Wild Salmon Policy (WSP), the 2002 Ministerial review of Fraser River Sockeye Salmon fisheries, and the regular post-season reviews. There are clear areas of overlap with these other initiatives, and with the WSP in particular. The FRSSI team has kept the modeling framework consistent with the draft principles outlined in the WSP consultation documents. As the WSP is finalized, the Spawning Initiative will be revisited to assess compliance.

Escapement Targets

Since 1987, DFO has based its Fraser River Sockeye Salmon rebuilding strategy on a series of “interim escapement targets.” These interim goals are reviewed each year in DFO’s Pacific Region Integrated Fisheries Management Plan (IFMP). Interim spawning escapement targets have been established for the major sockeye salmon stocks based on available biological information. It is expected that the FRSSI will result in further refinement to these interim escapement targets and a systematic process for setting both short-term and long-term escapement targets for Fraser River Sockeye Salmon stocks.

The following sections provide examples of the different stock aggregate goals and harvest opportunities for Fraser River Sockeye Salmon as defined in the 2004 IFMP (DFO 2004):

Early Stuart Stock Aggregate: A minimum escapement level of 75,000 has been set for this stock aggregate in recent years. The minimum level allows only First Nations fisheries to harvest limited numbers of sockeye salmon for Domestic Purposes unless there was an expectation that this minimum level could be achieved. As en-route mortality is often an issue, run sizes must be well above the 75,000 level for harvests to occur. Priority for harvest on this run group is typically allotted to Upper Fraser First Nation groups as this is one of the few stocks that provide them fishing opportunities.

Early Summer Stock Aggregate: An escapement target of 200,000 was set for low abundances in the 2004 cycle year returns of this aggregate where 0-15% exploitation rates are permissible. In recent years, time-window closures and other fishing restrictions have been necessary in commercial, recreational and First Nation fisheries to allow escapement objectives to be met.

Summer Stock Aggregate: An escapement target of 1,424,000 has been set for 2004 cycle year returns of this aggregate where 0-30% exploitation rates are permissible. This aggregate typically provides the greatest potential for harvest and fishery openings in dominant year cycles. Access to this run group in mixed stock fisheries is often limited by concerns for weaker co-migrating stocks and stock aggregates. In recent years, Late Stuart sockeye salmon have experienced lower than average survival that may limit fishing opportunities.

Late Stock Aggregate: An escapement target of approximately 85,000 has been set for 2004 cycle year returns of this aggregate where 0-15% exploitation rates are permissible. For Cultus sockeye salmon, exploitation rate limits have been 10-12%. The unexplained early entry and

associated high en-route and pre-spawning mortality of Late run stocks into the Fraser River since 1995 remains an ongoing conservation and management concern.

The above minimum escapement level and escapement targets are those defined for the 2004 sockeye salmon return under the 1987 Rebuilding Strategy process. The FRSSI is currently assessing the long-term implications of different minimum escapement levels and will hopefully result in a clear definition of the minimum escapement levels for each stock-cycle year combination. Once these have been defined they will be appended to the FOG.

Under the FRSSI, there is a fundamental difference in how minimum escapement levels and escapement targets are being incorporated into the decision making process. The current approach evaluates alternative harvest rules based on minimum escapement levels defined for each stock, whereas annual escapement targets are defined for each run-timing group or stock aggregate (i.e., not stock specific). It is anticipated that these minimum escapement levels will be required to implement the provisions of the WSP and explicitly address annual concerns related to en-route and pre-spawning mortality due to annual variability in water temperature, flow and stock-specific river entry timing.

APPENDIX C – Procedures for the Tsawwassen Joint Fisheries Committee and Joint Technical Committee

Joint Fisheries Committee (JFC)

Purpose

The purpose of this appendix is to set out the rules of procedure for the operation of the JFC. A description of the duties and responsibilities of the JFC is provided in section 8.0 of the Tsawwassen Fisheries Operational Guidelines (FOG) document.

Secretariat

Secretariat responsibilities will be rotated between the Parties on an annual basis. TFN will act as the secretariat for calendar year 2009, Canada for 2010 and British Columbia for 2011.

Chair for 2009: Laura Cassidy, Resource Manager for TFN

Definition of responsibilities of secretariat:

- call meetings, organize meeting rooms and other logistics;
- appoint alternate chair if unavailable;
- accurately reflect the views of the JFC membership in summary minutes, develop records of decision and record of action items, co-ordinate transmittal/receipt of responses to advice and recommendations provided to the Minister and TFN

Administrative costs: to be covered by the appointed secretariat

Membership of JFC

The following individuals are members of the JFC:

Name	Title	Term
Tsawwassen First Nation		
Laura Cassidy	Resource Manager, TFN Fisheries	Indefinite
Canada		
Diana Trager	Area Director, Lower Fraser, DFO	Indefinite
Province of British Columbia		
Duane Jesson	Fish Biologist, Fish and Wildlife	Indefinite

Any Party may invite individuals to support or assist its representative. Observers are permitted, however if the individual is unknown or unexpected by the other Parties, the consensus of the other Parties will be sought.

Meeting Schedule

The JFC will meet at a minimum twice yearly (once to exchange Tsawwassen Annual Fishing Plan, and once to conduct a post season review).

Meeting locations will be determined by the secretariat, unless agreed to by the Parties.

Meetings must be set 4 weeks in advance or earlier, unless otherwise agreed by the Parties.

Joint Technical Committee (JTC)

Appointment of JTC

The Joint Technical Committee is a subcommittee of the JFC. Participants will be selected by each JFC member submitting names from their organization.

Membership of JTC

Current members of the JTC are listed below:

Name	Title	Term
Tsawwassen First Nation		
Laura Cassidy	Resource Manager, TFN Fisheries	Indefinite
Karl English	Fisheries Advisor, TFN Fisheries	Indefinite
Tony Jacobs	Fisheries Negotiator	Indefinite
Ruth Kenny	Natural Resources Technician	Indefinite
Canada		
Adrian Wall	Area Chief Fisheries Management, LFA - DFO	Indefinite
Terri Bonnet	Resource Manager, Aboriginal Fisheries, LFA - DFO	
Anne-Marie Huang	Management Biologist - Pink/Sockeye, LFA - DFO	
Marla Maxwell	Management Biologist - Chinook, Coho, and Chum, LFA - DFO	
Bridget Ennevor	Management Biologist - Shellfish and Sturgeon, LFA - DFO	
Barb Mueller	Resource Manager – Eulachon, LFA - DFO	
Matthew Parslow	Management Biologist, Catch Monitoring, LFA - DFO	
Greg Mallette	Treaty Implementation Coordinator - LFA - DFO	

Name	Title	Term
Ken Green	C&P Supervisor - Conservation and Protection Branch - DFO	Indefinite
Sue Grant	Assessment Biologist, Stock Assessment Branch – DFO	
Rob Walker	Manager, Resource Conservation Gulf Islands National Park Reserve - Parks Canada	Indefinite
Province of British Columbia		
Duane Jesson	Fish Biologist, Fish and Wildlife	Indefinite

Administrative arrangements:

- a. JTC meetings and responsibilities will be directed by 3 co-chairs (one from each Party);
- b. each Party pays own travel costs;
- c. JFC secretariat duties pays room rental, minor hospitality, and any information distribution costs (e.g. minutes);
- d. the JTC will meet as required and at least 4 times per year;
- e. meeting locations will be as agreed by the 3 Parties;
- f. meetings must be set 2 weeks in advance or earlier, unless otherwise agreed by the Parties; and
- g. the JTC will keep minutes for each meeting that provide a record of decisions, questions, action items and subjects discussed.

Draft Terms of Reference for the Joint Technical Committee are provided below.

Decision Making

The operational principles, procedures and guidelines set out in the Tsawwassen Fisheries Operational Guidelines (FOG) will be used to assist the JFC members in carrying out their responsibilities related to Fish and Aquatic Plants under the TFA and the Tsawwassen First Nation Harvest Agreement, including the preparation and recommendation of Tsawwassen Annual Fishing Plan. The JFC will review the FOG document on the request of a Party to amend the document and the Parties will amend the FOG document as required as improved fisheries management procedures are developed. Any revisions to the FOG document must be reviewed by the JFC and approved by each Party.

Decision-making is described as follows:

The members of the JFC representing TFN and Canada are responsible for formulating recommendations or advice for functions in respect of fisheries managed by Canada. The members of the JFC representing TFN and British Columbia are responsible for formulating recommendations or advice for functions in respect of fisheries managed by British Columbia. Members of the JFC representing each Party are collectively responsible for formulating

recommendations or advice for those fisheries managed jointly by Canada and British Columbia.

Where there is consensus between TFN and the Party or Parties that manage a fishery, the JFC will submit its recommendations or advice to the appropriate Minister or Ministers. If there is no consensus, the JFC will submit the recommendations or advice of each Party's representative.

In the case where the JFC is unable to practically consider an issue, each Party's representative may submit their own recommendation or advice.

Specific responsibilities regarding decision making (e.g. recommendations of provisions for the Tsawwassen Harvest Documents) will be as set out in the TFA.

A quorum for the JFC is a minimum of one person per Party unless otherwise defined in the FOG document.

The secretariat will circulate minutes for all meetings and the JFC may prepare an annual report of activities.

Joint Technical Committee Terms of Reference

Principles

1. The JTC is a committee directed by and subordinate to the JFC.
2. The JTC will operate on a consensus basis, but if agreement cannot be reached the matter will be referred to the JFC.
3. The JTC will deal with technical fisheries matters as directed by the JFC.
4. The cost of participating in the JTC will be borne by each Party on whose behalf the JTC member is participating.
5. The JTC can, upon agreement of the members, provide recommendations to the JFC on changes to the JTC's Terms of Reference.

Participants

Participants on the JTC will be selected by each of the JFC members providing the names of the appropriate individual(s) from their own organization. Where agreed upon by the JTC members, representatives or observers may be invited to attend specific meetings, as appropriate.

Duties/Responsibilities

The JTC may:

1. Meet in person as directed by the JFC, likely three times per year. Additional meetings may be conducted by conference call or in person, as appropriate;
2. Compile relevant existing data and information to support the activities of the JFC.

3. Recommend to the JFC appropriate stock assessment and other activities for collection of needed information and data.
4. Analyze data and information, and make recommendations to the JFC concerning the management of Fish, Fish habitat, and Fish harvests in the TFA.
5. Provide technical advice to the JFC concerning any planned fisheries on Fish species or stocks that could affect or be affected by the TAFP.
6. Provide recommendations to the JFC concerning provisions of the TAFP.
7. Provide advice to the JFC concerning the availability of a surplus of Salmon and the coordination of proposed harvest plans for a surplus of Salmon.
8. Provide advice to the JFC on any other components of the Fisheries Chapter of the TFA, including the setting of Tsawwassen Allocations and adjustments.

APPENDIX D – Catch Monitoring and Reporting

Overview

The overall goal of the catch monitoring and reporting program is to ensure that accurate information is gathered to aid all Parties in the management of the fishery and implementation of the TFA.

There are three components required for accurate estimation of FSC Salmon catch by the Tsawwassen First Nation (TFN). These include:

- a. fishing effort (how many vessels are participating);
- b. the related catch for each participant; and
- c. some form of random and representative validation. The TFN has developed and implemented a catch monitoring program for their FSC Salmon fisheries in previous years that, with some minor modifications, will provide the timely and accurate catch information required by both TFN and DFO.

There are three components required for accurate accounting of FSC crab and other non-salmon species. These include:

- a. reporting of catch to the Tsawwassen Fisheries Department (TFD) directly or by interview to an on-duty member of the TFN catch monitoring crew;
- b. daily completion of a fishing harvest log using the “TFN Crab Fisheries Log Data Form” or “TFN Other Fisheries Log Data Form”; and
- c. random validation conducted by TFN fisheries officer patrols.

Salmon

Harvester Participation and Interview Data

TFN harvesters will be required to notify the TFD of their intentions to harvest Fish prior to their participation in each TFN fishery and report their catch and fishing effort information to the TFD after completion of each day’s fishing. These notifications and reports can be provided by phone to the TFD or by interview to an on-duty member of the TFN catch monitoring crew.

Interviewers will record Salmon catch and effort information on the “TFN Salmon Fisheries Interview Data Form”.

Prior to each fishing period, the TFD will provide DFO with a list of all TFN vessels that have indicated they will participate in the fishery. If changes to this list occur over the course of the fishery, TFN will provide an updated list to DFO. Timely provision of these lists is critical to ensure that all monitoring and enforcement staff have the same information.

Daily Fishing Logs

Each TFN harvester will be required to maintain a daily fishing log using the “TFN Salmon Fisheries Log Data Form”. The use of a log will allow harvesters to keep an accurate record of time fished and catch and releases for each opening, thereby simplifying the provision of final

hails. Upon completion of each fishery, TFN harvesters will be requested to submit logs to monitors at landing sites or directly to the TFD, office giving the TFD the ability to verify any discrepancies in hailed catches.

Validation

TFN on-water catch monitoring surveys or TFN fisheries officer patrols will be conducted once every day during a Salmon fishery to record vessels participating in the fishery for comparison with list of vessels that have indicated they will be fishing and to observe catches for comparison with catch reported verbally to the TFD or recorded in daily logs. Information from on-water interviews could be used in preliminary catch reports in situations where the final catch report has not yet been received from a vessel. These on-water surveys and patrols may also be able to provide some validation of releases of non-retention species through observing net hauls. This may be beneficial in cases where fisheries are restricted to a given level of encounters with non-target species.

Catch per vessel data will be verified through a random and representative sampling of a percentage of vessel landings by TFN shore based monitors. In order to ensure a representative sample, efforts should be made to ensure that variation of vessel types, fishing locations and gear observed in the fishery are captured by these validation activities. During landing validation TFN monitors will interview the harvester to obtain hours fished, number and species of Salmon and other species released and perform a count the vessel's catch. The percentage of vessels needing validation will vary dependent on the type of fishery and could be discussed at JTC meetings or in season as needed but it is proposed that coverage should be in the range of 20%.

Reporting

Within 24 hours of the close of a fishery TFN will provide a preliminary catch report to DFO, including the names and/or number of vessels that participated in the fishery, the gear used, hours fished, status of the report (final or preliminary), number and species of Salmon and other species retained, and number and species of Salmon and other species released. Along with reported catch information, TFN will submit a report of validations conducted during the opening, including vessel number, gear type, hours fished, number and species of Salmon and other species kept and number and species of Salmon and other species released. Harvesters that indicated their intention to participate in a fishery but did not report after the fishery will be contacted to determine whether they did participate, and if so, collect the requisite information. The preliminary catch report will be finalized within 48 hours of the close of the fishery.

Non-Salmon Species

Harvester Participation and Interview Data

TFN harvesters will be required to notify the TFD prior to initiating fishing efforts for crab and other non-salmon species and report their catch and fishing effort information after each fishing trip. These notifications and reports can be reported directly to the TFD or by interview to an on-duty member of the TFN catch monitoring crew. Interviewers will record catch and effort

information for crab fishing on the “TFN Crab Fishery Interview Data Form” and other fishing on the “TFN Other Fisheries Interview Data Form”.

Prior to the defined fishing period for each non-salmon species and once every month during these fishing periods, the TFD will provide DFO with a list of all Tsawwassen licensed harvesters and registered fishing vessels that are permitted to harvest Fish in the anticipated TFN fishery. Within 72 hours of the end of each month, TFN will provide DFO with a list of all the harvesters and vessels that participated in a TFN fishery and a preliminary estimate of the total catch by species for that month.

Daily Fishing Logs

Each TFN harvester will be required to maintain a daily fishing log for crab fishing efforts using the “TFN Crab Fisheries Log Data Form” and all fishing efforts directed at other Fish species should be recorded on the “TFN Other Fisheries Log Data Form”. The use of these logs will create a permanent record of catch that can be compared with the information collected by TFN catch monitoring crews to determine the degree to which these logs provide an accurate record of the total harvests for each species.

Validation

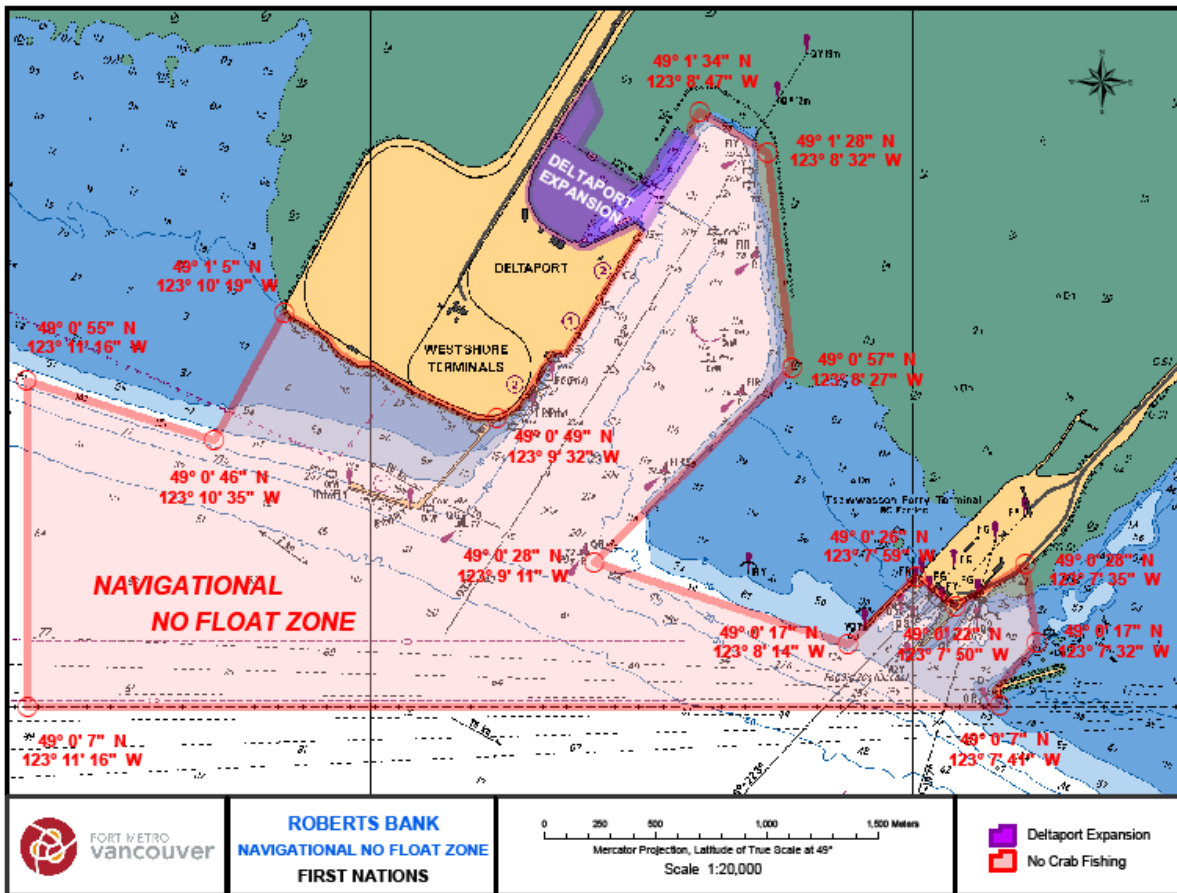
TFN on-water catch monitoring surveys or TFN fisheries officer patrols will be conducted at random intervals during the FSC crab fishery to record fishery participants and observe catches for comparison with the reported list of fishery participants and the catch reported in daily logs. TFN fisheries management staff will conduct interviews after completed fishing trips of harvesters that target crab and other non-salmon species to obtain data that can be used to validate the information recorded in the harvest logs.

Reporting

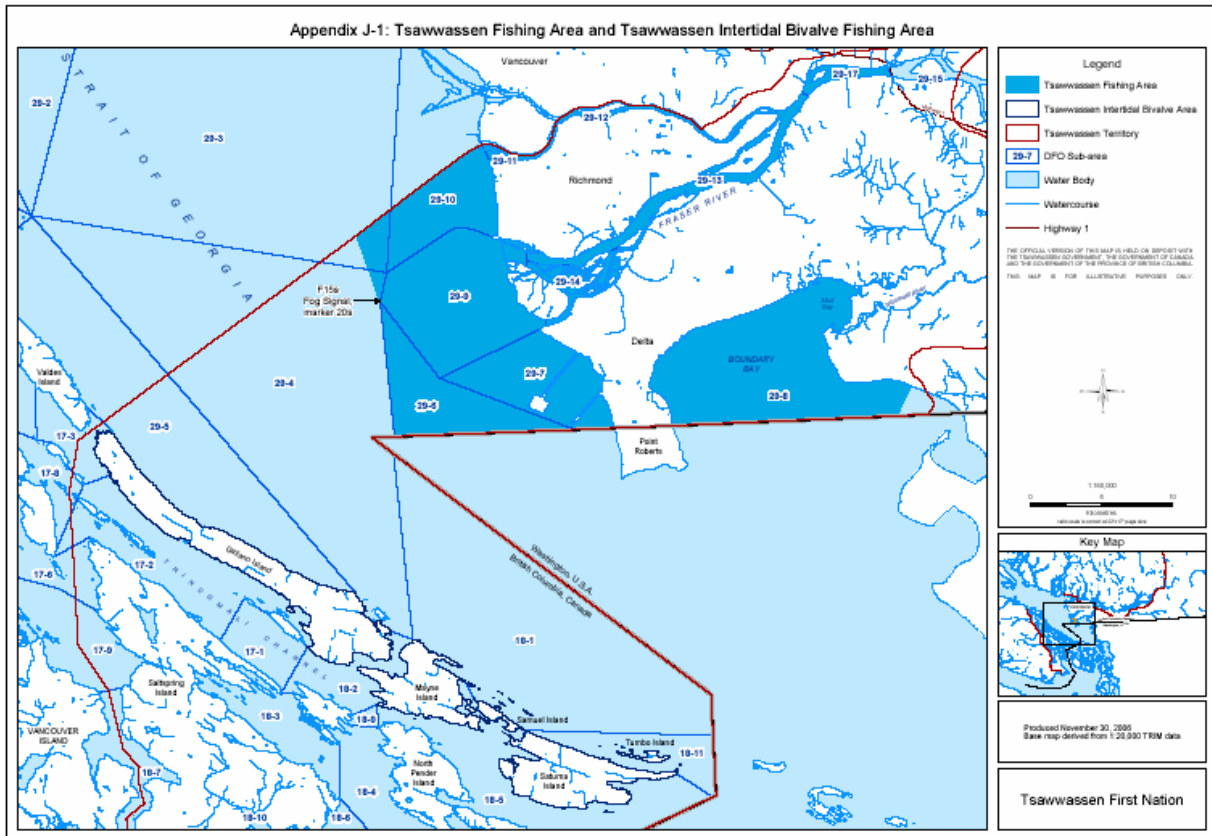
Within 72 hours of the end of each month, TFN will provide the monthly catch report for FSC crab and other non-salmon species. TFN will also provide a summary table showing the number of harvesters interviewed after a fishing trip, the catch and effort observed and the catch and effort reported directly to TFD and recorded in the daily fishing log. Harvesters that indicated their intention to harvest non-salmon species but did not report the results of these fishing efforts will be contacted to determine if the fishing did occur, and if so, TFD will collect the requisite information.

APPENDIX E – Maps

Map E 1: Roberts Bank Navigational No-Float Zone



Map created on October 10, 2008.

Map E 2: Tsawwassen Fishing Area and Tsawwassen Intertidal Bivalve Fishing Area

The Tsawwassen Fishing Area and Tsawwassen Intertidal Bivalve Fishing Area are identified in Appendix J-1 of the TFA.

Description of the Tsawwassen Fishing Area:

Those waters of Boundary Bay and Georgia Strait as identified in Appendix J-1 of the TFA, which includes: portions of Pacific Fishery Management Areas 29-3, 29-4, 29-8, 29-10 and all of Pacific Fishery Management Areas 29-6, 29-7, 29-9. Those waters of the Fraser River as identified by Pacific Fishery Management Areas that are westerly of the Port Mann Bridge: 29-11, 29-13, 29-14, and 29-17.

For clarity, the Tsawwassen Fishing Area does not include freshwater streams.

Description of the Tsawwassen Intertidal Bivalve Fishing Area:

Those waters of Georgia Strait as identified in Appendix J-1 of TFA, which includes the intertidal foreshore of the identified islands located within portions of Pacific Fishery Management Areas 17-1, 17-2, 17-3, 18-1, 18-2, 18-5, 18-9, 18-11, 29-4 and 29-5.