scəw̓aθən məsteyəxʷ

TSAWWASSEN FIRST NATION

Tsawwassen First Nation Post Season Fisheries Report, 2019

FINAL

May 2020

blank page

EA3113

Tsawwassen First Nation
Post-Season Fisheries Report, 2019

Final Report

Prepared by:

A.C. Blakley[1], K.K. English[1], and K. Lockert[2]

LGL Limited[1]
environmental research associates
9768 Second Street, Sidney, BC V8L 3Y8

and

Tsawwassen Natural Resource Department[2]
1926 Tsawwassen Drive, Tsawwassen, BC V4M 4G2

Prepared for:

Tsawwassen First Nation
1926 Tsawwassen Drive
Tsawwassen, BC V4M 4G2

May 2020

ACKNOWLEDGMENTS

It is often forgotten that the final products depend ultimately on the diligence and dedication of the individuals who collect the data in the field. With this in mind, we would like to thank the following Tsawwassen First Nation Natural Resource Department staff for their contributions in conducting the field program: Kyle Flindt (Natural Resource Enforcement Officer), Brad Larsen, Liana Williams, and Peter Grann, all of whom worked with diligence and enthusiasm in conducting the interviews, on-water patrols, and processing of data that produced the primary data for the study. As well, we thank Mike Baird for his advice and guidance during the fishing season. Special gratitude goes to Laura Cassidy, who retired in June 2019 from the Natural Resource Manager position, for her contributions and guidance over the years. We would also like to thank the many Tsawwassen First Nation fishers who provided their catch and effort information to Tsawwassen First Nation Natural Resource Department staff.

From Fisheries and Oceans Canada, we thank Terri Bonnet, Brian Matts, Matthew Parslow, Marisa Keefe, Brittany Jenewein, Karen Burnett, and Chris Wilmot for their assistance with the many tasks required to implement TFN fisheries and prepare this report. From the BC Ministry of Forest, Lands, Natural Resource Operations and Rural Development, we thank Colin Schwindt for facilitating communication with provincial government ministries.

Photo (top to bottom; left to right): Mike Baird (TFN); Krystal Lockert (TFN); Liana Williams (TFN); Brad Larsen and Kyle Flindt (TFN).

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS

The following acronyms are used in the TFN Annual Fishery reports:

BC	British Columbia
CCTAC	Canadian Commercial Total Allowable Catch
CPE	catch per effort
CTAC	Canadian Total Allowable Catch
CWT	coded wire tag
DFO	Fisheries and Oceans Canada
EO	Economic Opportunity
FLNRORD	[Ministry of] Forest, Lands, Natural Resource Operations and Rural Development
FOG	Fisheries Operational Guidelines
FSC	Food, Social, and Ceremonial
HD	Harvest Document(s)
IFMP	Integrated Fisheries Management Plan
IFR	Interior Fraser River
JFC	Joint Fisheries Committee
JTC	Joint Technical Committee
LAER	Low Abundance Exploitation Rate
LP	limited participation
SARA	Species at Risk Act
TAC	Total Allowable Catch
TAFP	Tsawwassen Annual Fishing Plan
TCC	Terminal Commercial Catch
TFA	Tsawwassen Final Agreement
TFN	Tsawwassen First Nation
THA	Tsawwassen Harvest Agreement
TNRD	Tsawwassen Natural Resource Department
TOTC	Treaty Obligation Tracking Centre

blank page

1 INTRODUCTION

1.1 Tsawwassen Final Agreement

Tsawwassen First Nation has the right to harvest for domestic purposes:

a) Fish and aquatic plants in the Tsawwassen Fishing Area; and

b) Intertidal bivalves in the Tsawwassen Intertidal Bivalve Fishing Area,

as outlined in the Tsawwassen Final Agreement (TFA; TFA 2007; Chapter 9). Starting on the Treaty Effective Date (3 April 2009), all Tsawwassen fisheries must be conducted in a manner that is consistent with the Tsawwassen Final Agreement, Tsawwassen Harvest Agreement (THA; THA 2009), Harvest Documents (HDs), Tsawwassen Fisheries Operational Guidelines (FOG; FOG 2013) document, Tsawwassen law, and applicable federal and provincial government laws. As indicated in the TFA, Tsawwassen fisheries must be conducted within the Tsawwassen Fishing Area or Tsawwassen Intertidal Bivalve Fishing Area (see Figure 1.1 and Figure 1.3) unless otherwise permitted in HDs or licences issued by Fisheries and Oceans Canada (DFO). Figure 1.2 identifies the boundaries of the Gulf Islands National Park Reserve territory of which some of the territory lies within Tsawwassen's Intertidal Bivalve Fishing Area (Figure 1.1).

1.2 Joint Fisheries Committee

On the Treaty Effective Date, a Joint Fisheries Committee (JFC) was formed to facilitate the planning and management of the Tsawwassen First Nation (TFN) fishing rights consistent with the content of the TFA (Chapter 9). The JFC consists of one representative from Canada, the Province, and Tsawwassen First Nation; although, additional individuals may participate in meetings to assist the designated representatives. The JFC will meet a minimum of twice yearly: first, to review the Tsawwassen Annual Fishing Plan (TAFP) and second, to conduct a post-season review of TFN's fisheries. The JFC will also discuss other relevant matters associated with the implementation of the TFA Fisheries Chapter. For a more detailed list of functions and responsibilities of the JFC, refer to the TFA (Chapter 9) or section 8 and Appendix C of the FOG document.

A further extension of the JFC is the Joint Technical Committee (JTC) which is formed and directed by the JFC. The JTC is responsible for technical fisheries issues as set out by the JFC. The JTC operates on a consensus basis, thus, if a matter cannot be resolved it is deferred to the JFC. For more detailed list of functions and responsibilities for the JTC, refer to the FOG document.

Tsawwassen First Nation has produced comprehensive post-season fisheries reports summarizing the details of the 2009–2018 Food, Social, and Ceremonial (FSC) and THA fisheries (Blakley et al. 2010–2019). The JTC and JFC have reviewed these reports and they are now publicly circulated.

1.3 Domestic Fisheries Allocations

Tsawwassen Domestic Allocations for Fish and Aquatic Plants are calculated using formulas described in the TFA (Appendix J-2). Information used to calculate the Tsawwassen FSC allocation for Sockeye salmon (*Oncorhynchus nerka*) is based on the Canadian Total Allowable Catch (CTAC). For example:

TFN FSC Sockeye salmon allocation = 1% × CTAC for CTAC < 500,000

Data collected throughout the fishing season may cause changes to the CTAC; thereby modifying the TFN allocation for Sockeye salmon. Any changes that may affect the FSC allocations are to be communicated to all parties involved through the JFC. Modifications to FSC allocations may occur pre-, in-, and final in-season for an individual species.

1.4 Tsawwassen Harvest Agreement and Commercial Allocation

The Tsawwassen Harvest Agreement came into effect on 3 April 2009 for the purposes of increasing the commercial fishing capacity of the TFN (TFA 2007; Chapter 9). Tsawwassen commercial allocation for salmon is described in Clause 11 of the THA. Each year, DFO will issue HDs for the Tsawwassen commercial allocation of Sockeye, Chum (*O. keta*), and Pink salmon (*O. gorbuscha*; odd years only). Tsawwassen's commercial allocations vary with the size of the Canadian Commercial Total Allowable Catch (CCTAC) for Sockeye and Pink salmon and the Terminal Commercial Catch (TCC) for Chum salmon.

In addition, the THA allows for the commercial harvesting of crab in Management Areas I and J (see Figure 1.4). Tsawwassen First Nation may not relinquish more than five commercial crab licences on an annual basis. Crab fishers must comply with the regulations and requirements set out in the THA and any licence issued by DFO.

2 FISHERIES MANAGEMENT

2.1 Fisheries Operational Guidelines

As indicated in the TFA, "the Tsawwassen Fisheries Operational Guidelines set out the operational principles, procedures, and guidelines to assist the Parties (TFN, Canada, and British Columbia) in implementing the Fisheries chapter of the TFA." The FOG document (FOG 2013) describes current fisheries management goals and procedures for harvestable fish stocks that reside or migrate through the Tsawwassen Fishing Area. The goals and procedures outlined in the FOG document are essential for ensuring the TFA is being implemented properly. In addition, it should be acknowledged that these goals and procedures will evolve over time, and it will be the role of the JFC to review the FOG document as needed on an annual basis to incorporate any new information (e.g., updates on escapement targets, new fisheries management policies, stock trends) that may apply to TFN fisheries management. The 2009 FOG document was revised, and revisions were approved on 24 September 2013. The 2013 FOG document is accessible via the Treaty Obligation Tracking Centre (TOTC)

website.[1] However, the JTC are currently discussing the use of a more accessible platform for a wider range of users.

2.2 Tsawwassen Annual Fishing Plan

Every year, TFN develops a Tsawwassen Annual Fishing Plan that may be submitted for comment and feedback to the JTC before it is submitted to the JFC where it is reviewed to assist in the planning for Tsawwassen's fisheries and the issuance of HD. In 2019, the effective date of the TAFP was 1 April 2019 and carries through to 31 March 2020. Tsawwassen's Annual Fishing Plan provides the JTC and the JFC with proposed harvest plans and harvest expectations for each species (i.e., salmon, crab, bivalves, groundfish, and aquatic plants) based on pre-season forecasts. The TAFP also notifies the JTC and JFC of TFN's harvest levels, preferred harvest times, and fishing areas and methods for each species or species-group. Conservation measures for each species are also highlighted in the TAFP. Due to timing of the pre-season run size forecasts Eulachon (*Thaleichthys pacificus*), Chinook salmon (*O. tshawytscha*), Steelhead (*O. mykiss*) and White Sturgeon (*Acipenser transmontanus*), and Marine Aquatic Plants were prepared in a separate document. Refer to Appendix A for the 2019 TAFPs.

2.3 Harvest Documents

Fisheries and Oceans Canada is responsible for issuing HD for all TFN fisheries for salmon, groundfish, intertidal bivalves, crab, and other marine fish species. The Parks Canada Agency is responsible for issuing HD for TFN bivalve fisheries occurring within national park intertidal areas. The BC Ministry of Agriculture is responsible for issuing HD for aquatic plants and the BC Ministry of Forest, Lands, Natural Resource Operations and Rural Development (FLNRORD) is responsible for issuing HD for, provincially managed species, where applicable. Tsawwassen HD will be consistent with what is outlined in the TFA and FOG document. Tsawwassen First Nation is obligated to inform TFN fishers prior to a fishery opening of their fishing rights and any provisions outlined in the HD. Appendix B provides examples of HD issued to TFN in 2019 for the various species and fisheries (i.e., Chinook salmon FSC, Crab FSC, Eulachon Ceremonial, Groundfish FSC, and Aquatic plants FSC). For further clarification of HD, refer to the TFA and FOG documents.

2.4 Catch Monitoring Procedures

As outlined in Appendix D of the FOG document: "the overall goal of the catch monitoring program is to ensure accurate information is gathered to aid all Parties in the management of the fishery and implementation of the TFA."

In order to accurately estimate FSC salmon harvest for TFN, the following data must be collected:

1. Tsawwassen First Nation FSC salmon fishers are required to report their harvest and fishing effort information after a day's fishing to the Tsawwassen Natural Resource Department (TNRD). Reporting of catch and effort can be provided via phone or on-site interview

[1] https://nrm.sp.gov.bc.ca/sites/irrcs/totc/layouts/15/start.aspx#/ (access and login required).

conducted by a staff member of the TNRD staff (interviewers). Interviews will record catch (kept and released), effort (hours fished), and gear type (number and type of nets used) information on the "TFN Salmon Fisheries Interview Dataform" (see Appendix C). An attempt is made to contact active fishers via the phone after an FSC opening period (one or more consecutive days of fishing) to confirm complete catch and effort data.

2. Each TFN harvester will be required to maintain a daily fishing log using the "TFN Salmon Fisheries Log Dataform" (see Appendix C). It is mandatory for TFN fishers to submit salmon fishing logs after each FSC fishery, preferably at the landing site, to allow verification of the hailed catch. However, validation can also occur on-the-water or at a fishers' residence. In previous years, catch calendars were also available to record the days when fishing occurred for each species of salmon; however, since 2013 catch calendars have not been produced due to budget constraints.
3. Tsawwassen Natural Resource Department staff will conduct random inspections of TFN FSC fishing vessels, during a fishery, to validate salmon catch. Counting a vessel's catch or validation will either occur during an on-water interview or at landing site. The JTC proposed validation coverage be 20% or more for each fishery.
4. Within 24 hours of the close of a fishery, TNRD will provide a preliminary report to DFO that includes the number of vessels participating, the type of gear used, fishing effort (in hours), and the catch by species. Preliminary catch reports will be finalized within 48 hours of the close of a fishery.

To accurately estimate the crab and non-salmon FSC harvest for TFN, the following data must be collected:

1. Similar to the FSC salmon data collection requirements, TFN fishers are required to report any retention of FSC crab or non-salmon species. Catch and fishing effort can be reported directly to TNRD or by on-site interview conducted by a TNRD staff member. Interviewers will record catch and effort information for crab fishing on the "TFN Crab Fishing Interview Dataform" and other non-salmon species on the "TFN Other Fisheries Interview Dataform" (see Appendix C).
2. Tsawwassen First Nation fishers will be required to maintain daily fishing logs for crab fishing efforts using the "TFN Crab Fisheries Log Dataform" and all fishing efforts directed at other fish species should be recorded on the "TFN Other Fisheries Log Dataform" (see Appendix C). Tsawwassen Natural Resource Department staff will compare the logs to the on-water interviews for an accurate account of total catch and effort.
3. Food, Social, and Ceremonial fishing targeting crab and other non-salmon species will be validated like the salmon fisheries. To achieve the 20% validation coverage goal, validation will occur after a completed fishing trip, either at the landing site, on-the-water, or at the TNRD office when crabs are dropped off for distribution. Validation ensures accuracy of the information recorded on the daily fishing logs.

4. Within 72 hours of the end of each month, TNRD staff will provide a catch and effort report for FSC crab and other non-salmon species (i.e., groundfish). Tsawwassen Natural Resource Department staff will follow-up with any fishers that did not comply with the reporting requirements.
5. Tsawwassen First Nation fishers are required to identify and record harvested plants by group in the Tsawwassen First Nation Aquatic Plant Harvest Log (see Appendix C). Tsawwassen Natural Resource Department staff will submit the aggregate harvesting values to the Joint Fisheries Committee and to the Ministry of Forest, Lands, Natural Resource Operations and Rural Development at the conclusion of the Harvest Period defined in this Harvest document.

See Appendix D of the FOG document for further detailed information on TFN catch monitoring procedures.

3 SALMON FSC FISHERIES

3.1 Allocations

Table 3.1 summarizes TFN's FSC salmon fishery allocations for 2019 based on pre-, in-, and final in-season estimates. Tsawwassen First Nation's FSC salmon allocations for Chinook, Sockeye, Pink, Coho (*O. kisutch*), and Chum salmon were 625, 15,226, 2,500, 500, and 2,576, respectively. The Chinook, Pink, and Coho salmon allocations remained constant throughout the 2019 fishing season.

The allocation for Sockeye salmon is determined using an abundance-based formula that is driven by the CTAC. As indicated in the FOG document, when the CTAC is greater than or equal to 3 million Sockeye salmon, TFN's FSC allocation is fixed at 15,226 Sockeye salmon. However, based on escapement plan options outlined in the final 2019 Southern Salmon Integrated Fisheries Management Plan (IFMP) and the pre-season (50% probability) run size forecast, the CTAC was estimated to be below 3 million Sockeye salmon. Therefore, the expected harvest level for the 2019 TFN FSC Sockeye salmon fisheries would not reach the FSC maximum amount of 15,226 as set out in the TFA (Appendix J-2) and the FOG document (section 9.3.1; Table 9.1). In-season the run-size drastically changed, due to unexpectedly low numbers of Sockeye salmon returning to the Fraser River in 2019. DFO's update (emailed 15 July – Appendix D) indicated there was no TAC available because all Sockeye salmon management groups were tracking below forecast (p25) and no fisheries were recommended. Sockeye salmon fisheries remained closed for the entire season.

An in-season update from DFO (23 October – Appendix D) indicated that catch in the Albion Chum salmon net through October 22 totaled 1,258, which was near historic lows. Combining this data with the historical information in a Bayesian non-linear regression model resulted in a median estimate for the terminal Fraser River Chum Salmon return of 518,000 Chum (see Appendix D), with a 50% migration date of October 22. There was an 80% probability that the run would be between 407,000 and 661,000, and a 1% probability that the run will exceed the escapement goal of 800,000.

The estimated run size was not sufficient to allow for recreational or commercial opportunities (including First Nations Economic Opportunities [EO]) in the Fraser River. Opportunities to harvest Chum salmon for First Nations Food, Social, and Ceremonial purposes were also constrained by management objectives for Interior Fraser River (IFR) Steelhead, which is a stock of concern that co-migrates with Chum salmon in the Fraser River.

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

> TS = Terminal Run Size (518,000) – Minimum Escapement Target (500,000) – TEST (2,500) = 15,500
>
> Tsawwassen Allocation FSC = 2.58% * Terminal Surplus (TS) to a maximum of 2,576 Chum salmon (15,500 *2.58% = 400).

Tsawwassen's Chum salmon allocation remained at 400 throughout the season.

For a comparison of TFN's 2019 salmon harvest to final in-season allocations, refer to section 3.5 (Overages and Underages).

3.2 Fishery Openings and Target Species

Table 3.2 summarizes TFN's FSC salmon fishery openings for 2019, listed by week-ending date. The FSC directed Chinook salmon fisheries began the week ending 16 June and continued through to the week ending 1 September (Table 3.2). Of the 5 directed FSC openings for Chinook salmon, there was one FSC directed Chinook opening which included incidental harvest of Pink, Chum, and hatchery-marked Coho salmon (HD-423). Food, Social, and Ceremonial fisheries directed at Chum salmon with incidental harvest of Chinook, Pink and hatchery-marked Coho salmon occurred the week ending 27 October.

There were no directed fisheries for Sockeye, Pink, or Coho salmon in 2019.

Table 3.2 typically includes a list of the THA salmon fishery openings; however, in 2019 no THA fisheries occurred. Further details on the THA salmon openings will be discussed in section 4.2.

3.3 Catch and Effort

Catch and effort for each salmon species was estimated from on-water and shore-based interviews by simply summing the catch and effort for all interviews. All fishers were contacted via phone after an FSC opening to confirm complete catch and effort data. This also allowed technicians to log catch and effort from fishers that were not encountered on the water. In addition, records were kept to indicate those interviews for which the catch was verified by the interviewer.

The total reported FSC harvest and effort of each salmon species is shown in Table 3.3. Total FSC Chinook salmon harvest was reported at 611 with the peak (347 Chinook salmon) occurring during the week ending 25 August. The total Chum salmon harvest in the FSC fisheries was 333 and occurred during the week ending (27 October; Table 3.3).

There were no directed TFN FSC fishery openings for Sockeye salmon, Pink salmon, Coho salmon, or Steelhead. However, one Sockeye salmon and one Pink salmon were harvested incidentally in the FSC Chinook salmon fisheries (HD-LP-410 and HD-423, respectively). In addition, 12 Coho salmon were kept because they were caught incidentally during the FSC Chum salmon fisheries It is unknown if the Coho salmon harvested in HD-435 were marked or unmarked (Table 3.3).

Table 3.3 shows fishing effort (defined as the number of hours that nets were in the water fishing) by week. Total fishing effort for the FSC salmon fishery openings was reported as 428 hours. The highest fishing effort (122 hours) was recorded the week ending 25 August during the last FSC Chinook salmon opening (HD-423).

Table 3.4 summarizes Tsawwassen's FSC salmon catch and effort for interviews only. Typically, Table 3.4 has been categorized by "interview" data versus "validated" interview data. However, 2019 there was no "interview" data just "validated" interview data. "Validated" interview data includes those interviews where every fish was individually "counted" either on the water or at the landing site. In some cases, this included watching a fisher remove the fish from the entire set. Similarly, "interview" data includes those interviews conducted on the water; however, it was not possible to count every fish (some partially counted) because the fisher's net was currently fishing, or the catch had been processed and stored in the hull. An interview would be classified as a "hail" if it was not conducted on the water nor landing site (i.e., via phone) and the fish were not observed at all. The JTC proposed that at least 20% of the salmon catch be "validated" or "counted" through interview process. Overall, the "validated" interviews represented 72% of the total fishing effort for salmon (Table 3.4). The percentages of validated interviews were broken down by species: the 20% goal was achieved for Chinook, Sockeye, Pink, Coho, and Chum salmon, 92%, 100%, 100%, 33%, and 27%, respectively (Table 3.4). There was no recorded harvest of Steelhead so no validation percentage could be calculated.

Table 3.4 also compares the catch per effort (CPE) by species for "validated" interview data versus non-interviewed data. The average CPE for Chinook salmon was higher for the "validated" interview data (1.83 Chinook/h) than the non-interviewed data (0.41 Chinook/h). Similarly, the average Chum salmon CPE for the "validated" interviewed fishers during the October Chum salmon fisheries (6.54 Chum/h, n = 89) was higher than that for non-interviewed fishers (2.44 Chum/h). The most likely reason for the higher catch rates for the Chinook and Chum salmon "validated" interview data is that surveyors are more likely to encounter the best fishers because they tend to fish more than the other fishers.

Sample sizes for Sockeye, Pink, Coho salmon, and Steelhead CPE were too small to make any meaningful comparisons between the interview and non-interview data.

3.4 Released Catch

Table 3.5 summarizes the fish released from nets during the Tsawwassen FSC salmon fisheries in 2019. Total release catch for sturgeon, Steelhead, flounder, Pink, Coho, Sockeye, Chinook, and Chum salmon were 11, 0, 0, 105, 0, 4, 0, and 0, respectively. Over 45% (5) of the sturgeon releases were caught the week ending 27 October during the directed Chum salmon FSC fishery.

Table 3.6 further details Tsawwassen FSC releases of sturgeon by fishing location. There was a total of 11 sturgeon released from June to October, with the highest number (4) of sturgeon caught in one location during the week ending 11 August in the Steveston-Pattullo location (T4; Statistical Area 29-13).

3.5 Overages and Underages

It is expected that the number of salmon harvested in TFN fisheries will not precisely match the TFN allocations for each species each year. Therefore, the TFA (TFA 2007; Appendix J) outlines the calculation process if there is a difference between what was caught and what was allocated (termed "overages" and "underages"), by species.

An overage occurs when Tsawwassen harvest exceeds the defined Tsawwassen allocation whereas; an underage occurs when Tsawwassen harvests less than the defined Tsawwassen allocation. Underages can occur because another group harvested more, or because there was uncertainty in the management process for that species (e.g., late season increases in the Total Allowable Catch (TAC) or uncertainty regarding the amount of fishing time required to harvest the allocation). The amount of the overage or underage will be documented in a multi-year accounting process summarized in a table in this post-season report.

Table 3.7 summarizes the Tsawwassen FSC salmon catch, allocation, balance (overages and underages), and carry forward amounts for each salmon species. Tsawwassen harvested less than the defined allocation by 14, 2,499, 488, and 67 for Chinook, Pink, Coho, and Chum salmon, respectively. No carry forward is proposed for these since Tsawwassen fishing efforts were less than that required to harvest the TFN allocation for these species.

There was no TAC available for Sockeye salmon because all management groups were tracking below forecast (p25) and no fisheries were recommended. Sockeye salmon fisheries remained closed for the entire season thus no FSC allocation was calculated. Tsawwassen did harvest one Sockeye salmon incidentally in the directed Chinook fishery, but no overages are expected (Table 3.7).

3.6 Correspondence and Consultation

Chinook Conservation Measures

Department of Fisheries and Oceans distributed a letter on 5 February 2019 titled "2019 Fraser River Chinook Conservation Measures" (Appendix E). The intention of the letter was to communicate the Department's approach for developing fisheries management actions to address conservation concerns for Fraser River Chinook in 2019. The Department requested feedback on the letter prior to 1 March 2019. TFN responded to this letter on 25 February 2019 (Appendix E). Tsawwassen First Nation requested that further consultation occur at the next JTC meeting scheduled for 19 March 2019. At the March JTC meeting, DFO indicated TFN's response/comments were being taken into account. Further management decisions would be made by the Minister in early April 2019. Meanwhile, DFO would start with restrictions/actions similar to 2018 (Zone 1 management). Further consultation occurred at the 29 April 2019 JFC meeting. The Minister decided that limited ceremonial opportunities

would be allowable until 15 July. Based stricter management actions being implemented in 2019, TFN was asked to revise their early-timed fishing plan.

Big Bar Landslide

In late June 2019, TFN received reports from DFO of a landslide in a remote, rugged canyon along the Fraser River north of Lillooet, BC, on the traditional territory of the Secwepemc Nation. Huge pieces of rock and significant debris had sheared off a 125-metre cliff and crashed into the river, narrowing the river, and creating a 5 m high waterfall. Based on the magnitude of the obstruction, salmon migrating upstream were impeded from proceeding beyond the landslide. Withing 5 days of an initial report a 3G (government-to-government-to-government) unified command incident management team had been established. It included expert and specialists from the Government of Canada, the Province of BC, and First Nations. Krystal Lockert was involved in the initial 3G discussions and Mike Baird took a helicopter reconnaissance of the site. The incident transitioned to a project in December 2019. In addition, two technical working groups of experts from governments, stakeholders, non-profit organizations, and academia, will help inform comprehensive contingency and remediation plans for alternate fish passage methods and conservation-based enhancement. Additional options for safe fish passage are being developed in case the height or water velocity presents a barrier to certain salmon populations during the early part of the 2020 migration season. Informational bulletins and updates are shared with TFN and can be found (https://frafs.ca/node/75).

Results of the Thompson-Chilcoltin Emergency SARA listing

DFO consulted with TFN on the potential listing of Thompson River and Chilcotin River Steelhead Trout in 2018 and TFN responded (Blakley et al. 2019). TFN was updated at the 11 July 2019 JFC meeting and further updated via email on 12 July that the Governor in Council had decided not to list Thompson River and Chilcoltin River Steelhead Trout under the *Species at Risk Act*.

On 11 July 2019, the Governments of Canada and British Columbia announced a comprehensive Steelhead Action Plan containing new conservation measures that will: reduce mortality and increase survival of Thompson and Chilcotin Steelhead returning to rivers to spawn; improve freshwater conditions through habitat protection and restoration; and, increase science and monitoring activities. Our respective governments will move forward in close collaboration with Indigenous groups and stakeholders to implement measures that will work to restore these populations.

For further information, the decision can be found at DFO's news release, Action Plan backgrounder, and on the Species at Risk Public Registry.

3.7 Recommendations

The following are recommendations for the 2020 FSC fishing season:

- Prior to the weekly planning calls for Fraser salmon fisheries, TFN and DFO representatives should continue to meet, via phone or otherwise to discuss:
    - Potential conservation issues;
    - Remaining allocation balances of all salmon species;
    - Potential projected TFN fishing effort;
    - Catch monitoring and enforcement strategies that will aid in formulating options for TFN fisheries with the ultimate goal of reaching the salmon allocations as set out in the TFN Final Agreement.
- Continue to improve the completeness of catch reporting by filing reports to DFO within 24 to 48 hours, as outlined in the HD and the TFN FOG.
- Continue to improve the landing validation program. Technicians should differentiate on their datasheets and the database if a harvest was counted, estimated, hailed, or not observed. Maintain the 20% sampling goal for all salmon fisheries. In 2019, all salmon FSC fisheries recorded over a 20% validation rate.
- Continue to improve coded wire tag (CWT) sampling protocol for Chinook and Coho salmon. No adipose-clipped Chinook salmon were recorded as harvested in 2019.
- Fisheries and Oceans Canada should provide TFN with weekly updates to the TFN FSC allocations for Sockeye salmon at least two days before a potential TFN fishery where FSC Sockeye salmon could be harvested (i.e., Fraser River Panel meets Tuesday's and Friday's and the Fraser River Technical Committee meets Thursday afternoon).

4 SALMON THA FISHERIES

4.1 Allocations

Like the FSC fisheries, the THA fisheries are subject to conservation needs and to agreed-upon monitoring, enforcement, and management regimes. There were no THA HDs issued to TFN for Sockeye, Chum, or Pink salmon in 2019.

4.2 Fishery Openings and Target Species

There were no THA HDs issued to TFN for Sockeye, Chum, or Pink salmon in 2019.

Refer to section 4.3 for recommendations going forward.

4.3 Recommendations

The following are recommendations for the 2020 THA fisheries:

- Prior to the start of the THA fisheries, DFO, and TNRD staff should stress the importance of fishers recording all of the bycatch and released catch as well as identifying hatchery-marked Coho and Chinook salmon.

5 CRAB FISHERIES

5.1 FSC Openings, Catch, and Effort

There were four HDs issued for TFN FSC crab harvest which spanned the time period from 1 January to 31 December 2019, targeting Dungeness (*Metacarcinus magister*)[2], Graceful (*M. gracilis*)[3], and Red rock crab (*Cancer productus*) species (Table 5.1). However, TFN fishers only kept Dungeness crab, which were all harvested using traps. No crabs were harvested by TFN members using hand picking, dip net, or ring net methods in 2019.

Table 5.2 summarizes the FSC crab catch and effort by licence. Overall, there were a total of 57,154 Dungeness crab kept, 34,966 Dungeness crab released, 10 Red rock crabs released was released under the four HDs. Approximately 75% (42,664) of the total Dungeness crab were harvested under the HD-408 licence from April to June. In addition, this licence, HD-408 (April to June) recorded the highest amount of fishing 59,316 trap-days. In contrast, fishers active during the October to December period (HD-429) harvested 2,418 Dungeness crab and reported 26,081 trap-days of fishing effort.

For another perspective, Table 5.3 breaks down the total Dungeness, Red rock harvest, releases and effort by month rather than licence. The month of May recorded the highest Dungeness crab harvest (20,690), whereas December had the lowest recorded harvest (502). July was the month where Red rock crabs (10) were harvested and subsequently released. No Graceful crabs were harvested in 2019. Soft-shell crab would account for a high portion of the releases in April–June. Most of the releases in other months were crabs smaller than the minimum size limit or females.

The crab sampling plan outlines a sampling validation goal of 20% similar to salmon. In addition to comparing the Dungeness crab harvest by month, Table 5.3 summarizes the validation rate by month and fishery. An overall, validation rate of 25% was achieved for Dungeness crab.

Table 5.4 summarizes by month, the number of crab surveys conducted from January to December 2019. On average, the TFN Fisheries Department staff completed 334 vehicular surveys from January to December. Generally, TNRD staff conducted 1–3 crab patrols per day depending on the timing. The vehicular surveys involved driving along the Tsawwassen shoreline and confirming, by using

[2] *Metacarcinus magister*, formally *Cancer magister*, is accepted as the current taxonomic name for Dungeness Crab (Davie 2015b; Schram and Ng 2012).

[3] *Metacarcinus gracilis*, formally *Cancer gracilis*, is accepted as the current taxonomic name for Graceful Crab (Davie 2015a).

binoculars, if crabbers were fishing. In addition, during the peak months of crab fishing (March–November) 29 on-water crab surveys were conducted.

In 2010, TFN Fisheries Department constructed a live tank which can hold crab until they are distributed to TFN members. In 2019, the live tank continued to be operational allowing for distribution of crab throughout the year. The live tank enabled TFN to hold more crab for longer, well in advance of larger events, such as Aboriginal Day or Elder Gatherings. Effective May 2013, the TFN Crab Distribution Policy was approved. This policy is intended to provide a framework for the distribution of FSC crab to eligible TFN members.

5.2 Commercial Openings, Catch, and Effort

In 2019, there were commercial crab openings in the Fraser River areas (Statistical Areas 28 and 29). The first opening occurred in Area I from 15 June to 30 November and the second opening occurred in Area J from 15 July to 30 November (Figure 1.4). The commercial crab openings ran concurrently with the FSC crab fisheries openings, which potentially limits the FSC TFN crab harvest because of the proximity of the commercial harvest and additional impact to the crab stocks. There are TFN FSC crab fishers who also commercially harvest crab. As a condition of the commercial licence, these fishers are required to submit their commercial harvest logs to the DFO Shellfish Data Unit at the Pacific Biological Station in Nanaimo on a monthly basis.

5.3 Recommendations

The following are recommendations for the 2020 FSC crab fishing season:

- Stress the importance to the FSC crab operators about limiting crab fishing to daylight hours only.
- Stress the importance to the FSC crab operators about marking crab traps. This may deter theft of traps since unmarked traps are deemed to be illegal gear and may be removed by people who find them.
- Stress the importance to the FSC crab operators of limiting their crab fishing efforts during the soft-shell period from April to mid-June (May to mid-July in Boundary Bay).
- Continue to document the distribution of the crabs for TFN members or other First Nation communities. Fisher distribution forms should be filled in monthly along with the logs and returned to the TNRD office.
- Continue to improve the completeness and timeliness of catch reporting to DFO.
- Continue to conduct on-water and vehicular surveys at regular interval (day and night time) during the FSC crab fishery to verify catch and effort reports.
- Continue to target 20% sampling validation goal similar to salmon as outlined in the crab sampling plan.

- An enforcement committee has been established to facilitate efforts to improve compliance with harvesting requirements for FSC crab fisheries as set out in the HD for these fisheries. The TFN Enforcement Committee should continue to meet regularly in 2020 and forward any pertinent issues to the JTC.

6 OTHER FISHERIES

6.1 Eulachon

The IFMP for Eulachon indicates: "Due to stock strength and conservation concerns, only very limited Fraser River FSC fisheries for Eulachon will be considered on a case by case basis by Lower Fraser DFO area office for 2019." The 2019 Tsawwassen Eulachon share (of estimated TAC) was approximately 700 lb. Four Eulachon ceremonial HDs were issued (week endings: 28 April thru 12 May) and all were 48 hours or less in duration (Table 6.1). Table 6.2 indicates a total of 199.0 lb of Eulachon were harvested during the four ceremonial openings in April. The total combined fishing effort spanning the four Eulachon openings was just under 4 hours. Eighteen sculpins and 1 chub were also caught and released as bycatch during the Eulachon fisheries (Table 6.2).

6.2 Recommendations

The following are recommendations for the 2020 FSC Eulachon fishing season:

- Due to the lack of stock assessment information for Eulachon, TFN has initiated and Eulachon study in 2020. The migration timing, movement patterns and spawning habitat preferences of Fraser River Estuary Eulachon will be assessed by live sampling adult eulachon in the estuary, implanting acoustic tags in a sub-sample of fish throughout the spawning run, tracking fish movements using a combination of strategically placed stationary receivers and active mobile tracking, and identifying and characterizing spawning habitat. Field work will take place from February to July 2020.
- TFN staff would like to stress the importance of the Eulachon fishery as the current allocation does not meet TFN's FSC needs.
- TFN would like to secure funding to participate in the 2020 Eulachon Assessment Survey.

6.3 Intertidal Bivalves

Intertidal bivalves may be harvested for FSC purposes in the Intertidal Bivalve Fishing Area by any designated TFN fishermen at the times and locations defined in the Tsawwassen HD. Additionally, where the Tsawwassen Intertidal Bivalve Fishing Area overlaps with a National Park Reserve, TFN fishermen are subject to terms and conditions developed following consultation with Parks Canada. While the JTC is continuing to work on an Intertidal Bivalve HD, no HD was requested in 2019 by TFN; therefore, no harvest of bivalves took place. Tsawwassen First Nation is continuing their consultations with, the Hul'qumi'num Treaty Group and other First Nations to discuss terms and

conditions governing the harvest of intertidal bivalves where the Tsawwassen Intertidal Bivalve Fishing Area overlaps the traditional territories for other First Nations.

6.4 Shrimp and Prawns

Shrimp and prawns may be harvested for FSC purposes by TFN fishermen as outlined in a Tsawwassen HD. There was no recorded harvest of shrimp or prawns by TFN fishers in 2019 because no HD was requested.

6.5 Rockfish, Lingcod, Halibut, Dogfish, and Sole (Groundfish)

Rockfish, Lingcod, halibut, dogfish, and sole may be harvested for FSC purposes by TFN fishermen as defined in a Tsawwassen HD. There were four HDs issued for groundfish in 2019 (HD-407, HD-411, HD-418, and HD-440) starting 1 January 2019 using longline and rod and reel gear (Table 6.2). The groundfish fishery was limited to the harvest of halibut and an incidental harvest of sablefish, dogfish, Lingcod, flatfish, and rockfish.

Table 6.2 indicates that no effort or catch were recorded under any of the HDs. Tsawwassen First Nation fishers did not participate in groundfish fishery due to fisher availability.

6.6 Marine Aquatic Plants

The harvest of aquatic plants (including attached and detached kelps and seaweeds) within the Province of British Columbia is managed by the Ministry of Forests, Lands, Natural Resource Operations and Rural Development and housed in the Aquaculture program. The authority for aquatic plant licencing decisions was transferred from Seafood Safety and Quality Unit of the BC Ministry of Agriculture in July 2018. An Aquatic Marine Plant HD was issued to TFN in 2019 (Tsawwassen-04) for the period 1 April 2019 to 31 March 2020. Harvest of marine aquatic plants was limited to the Tsawwassen Fishing Area. For the full list of aquatic marine plants harvestable for domestic purposes, see the Aquatic Marine Plant HD (Appendix B). As outlined in the Aquatic Marine Plant HD, TFN harvesters are required to identify harvested plants by group and record harvest on the TFN Aquatic Plant harvest log (Appendix C). Tsawwassen First Nation fishers did not participate in this fishery (zero effort and harvest were recorded).

7 MULTI-YEAR SUMMARY

7.1 FSC Salmon Harvest and Allocations

Table 7.1 summarizes the FSC salmon harvest, maximum allocations, and the final allocation balances for each year since 2009. Tsawwassen First Nation's allocation as outlined in the TFA differs from the maximum allocation as defined in Table 7.1 as the maximum TFN harvest for a particular salmon species in a given year including overages or underages.

Over this eight-year period, the total FSC harvest for Chinook salmon ranged from 86 to 995 (2016 and 2009, respectively). Tsawwassen First Nation's FSC Chinook salmon "maximum" allocation remained

constant at 625, except in 2009 when DFO approved a "special circumstances" and increased the allocation to 900 fish. There were 95 Chinook salmon harvested above the permitted allocation for 2009. However, this was balanced off by the substantial underage in 2010, with no carry forward permitted in 2010 and 2011. Fisheries and Oceans Canada approved a portion of the total TFN Chinook salmon allocation not harvested in 2012 (125) as an underage to be carried forward due to DFO management uncertainty (Blakley et al. 2013; section 3.5). The majority of the carry-over was used in 2013 with a balance of 21 Chinook salmon to be included in the 2014 "maximum allocation" (Blakley et al. 2014; Table 7.1). Of the 646 Chinook salmon allocated to Tsawwassen in 2014, only 392 were harvested. As well in 2014, TFN harvested 919 more Chum salmon than their defined allocation (2,576; Table 7.1). After detailed JTC and JFC discussions related to the issue of the TFN 2014 Chinook and Chum salmon fishery outcomes, DFO agreed with the proposal made by TFN to zero out the 2014 post-season TFN balances for both Chinook and Chum salmon (Blakley et al. 2015; section 3.5). In 2015, the only post-season balance that carried forward is the Chum salmon overage of 78 fish (Blakley et al. 2016; Table 7.1). The approved 2015 overage of 78 Chum salmon was paid back in 2016 with 81 less fish harvested from TFN's full allocation of 2,576.

For FSC Chinook salmon, TFN harvested 539 less fish than their defined allocation of 625 in 2016 (Table 3.7, Table 7.1). Tsawwassen First Nation sent a letter to DFO on 6 January and requested a Chinook salmon underage of 539 for 2016. Fisheries and Oceans Canada sent a response letter to TFN on 22 March (Blakley et al. 2017). Fisheries and Oceans Canada disagreed with TFN's underage request. Further discussion occurred at the 29 May 2017 JFC meeting held via conference call. JFC members concluded the requested Chinook salmon underage is not applied to future Chinook salmon allocations. JFC also discussed using selective gear (i.e., 8-inch gill net) to target Chinook salmon during times when there are co-migrating Sockeye salmon stocks.

In-season information indicated that the implementation of the Low Abundance Exploitation Rate (LAER) management approach was necessary for all Sockeye salmon run timing groups in 2017. Since there was no TAC available for Sockeye all directed FSC Sockeye salmon fisheries were halted and only incidental catch of Sockeye was permitted during the FSC Chinook salmon fisheries. No carry forward was proposed.

For FSC Chinook and Chum salmon, TFN harvested 68 and 30 more fish than their respective defined allocations (Table 3.7, Table 7.1) in 2017. No carry forward is anticipated with Chinook or Chum salmon due to the decrease availability of Sockeye salmon in 2017. In addition, this is the first year that TFN has been able to catch their full Chinook allocation since 2009.

In 2018, Tsawwassen harvested less than the defined FSC allocation by 312, 846, 461, and 70 for Chinook, Sockeye, Pink, and Coho salmon, respectively. No carry forward is proposed since Tsawwassen fishing efforts were less than that required to harvest the TFN allocation for these species.

In 2019, Tsawwassen harvested less than the defined FSC allocation by 14, 2,499, 488, and 67 for Chinook, Pink, Coho, and Chum salmon, respectively. No carry forward is proposed since Tsawwassen fishing efforts were less than that required to harvest the TFN allocation for these species.

Similar to 2017, there was no available TAC for Sockeye salmon in 2019 because all management groups were tracking below forecast (p25). All directed FSC Sockeye salmon fisheries were halted, and no incidental catch of Sockeye was permitted during the FSC directed Chinook salmon fisheries. No carry forward or was proposed. Refer to section 3.5 for the 2019 Chum salmon allocation change, previous to this Tsawwassen's Chum allocation has remained constant.

Since 2009, the total FSC harvest for Sockeye salmon ranged from 1 to 15,226 (2019 and 2010, respectively; Table 7.1). The Sockeye salmon FSC allocation varies depending on run size, averaging 6,677 over the last eleven years. Other salmon in the FSC fisheries harvested from 2009 to 2019 ranged from 1 to 84 (Pink salmon), 3 to 220 (Coho salmon), and 333 to 3,495 (Chum salmon). The allocations for Pink and Coho salmon remained constant over the eleven-year period, except on even year returns of Fraser Pink salmon when the run size is typically too small to warrant any directed harvest of these stocks.

7.2 FSC Crab Harvest

The total average FSC Dungeness crab harvest over the nine-year period (2009–2019) was 42,307 and ranged from 20,327 in 2011 to 79,059 in 2016 (Table 7.2). The increase in crab catch over the years is due an increase in the number of active crab fishers from 5 to 24. The number of Dungeness crab released due to size, sex, or soft-shell has increased since 2009, averaging approximately 28,383 crabs per year. In addition, Red rock and Graceful crabs have also been caught during FSC fisheries, but have subsequently been released; except in 2010, when two Red rock crabs were recorded as kept.

7.3 THA Salmon Harvest

Table 7.3 compares the annual Tsawwassen Harvest Agreement catch and allocation from 2009 to 2018. Sockeye salmon THA fisheries occurred in 2010, 2011, 2014, and 2018 with the allocations ranging from 7,262 in 2011 to 97,981 in 2010. TFN did not harvest their full allocations in 2010, 2011, or 2014; however, in 2018 TFN harvested 3,773 more Sockeye salmon than allocated. No Sockeye salmon THA fishery occurred in 2019 due to limited run size.

Pink salmon THA fisheries occurred in 2011, 2013, and 2015 (odd years only) with allocations ranging from 3,700 in 2015 to 103,500 in 2013. No Pink salmon THA fisheries occurred in 2009, 2017, and 2019 due to limited run size. In 2015, the entire THA Pink harvest was obtained upstream as part of the allocation transfer fisheries (Table 7.3). TFN did not harvest their full Pink salmon allocation in 2011, 2013, and 2015.

Chum salmon THA fisheries occurred in eight of the last eleven years (2009, 2011, 2012, 2013, 2014, 2015, 2016, and 2017). No Chum salmon THA fisheries occurred in 2010, 2018, and 2019 due to limited run size. Allocations ranged from 12,029 in 2012 to 4,220 in 2011. TFN only harvested their full allocation of THA Chum salmon in three of the eight years that the fisheries occurred (2013, 2015, 2016). However, in 2012, 2013, and 2015 the remaining Chum salmon allocations were harvested upstream in the transfer fisheries (Table 7.3).

7.4 Eulachon Harvest

The total average FSC Eulachon harvest over the eleven-year period (2009–2019) was 126 lb and ranged from 39.3 in 2011 to 446.2 in 2018 (Table 7.2). The increase in Eulachon catch over the years is due an increase in the annual share of the estimated TAC from 50 to 700 lb.

8 REFERENCES

Blakley, A.C., K.K. English, and L. Cassidy. 2010. Tsawwassen First Nation Post-Season Fisheries Report, 2009. Prepared by LGL Limited, Sidney, BC, and Tsawwassen Fisheries Department, Tsawwassen, BC.

Blakley, A.C., K.K. English, and L. Cassidy. 2011. Tsawwassen First Nation Post-Season Fisheries Report, 2010. Prepared by LGL Limited, Sidney, BC, and Tsawwassen Fisheries Department, Tsawwassen, BC.

Blakley, A.C., K.K. English, and L. Cassidy. 2012. Tsawwassen First Nation Post-Season Fisheries Report, 2011. Prepared by LGL Limited, Sidney, BC, and Tsawwassen Fisheries Department, Tsawwassen, BC.

Blakley, A.C., K.K. English, and L. Cassidy. 2013. Tsawwassen First Nation Post-Season Fisheries Report, 2012. Prepared by LGL Limited, Sidney, BC, and Tsawwassen Fisheries Department, Tsawwassen, BC.

Blakley, A.C., K.K. English, and L. Cassidy. 2014. Tsawwassen First Nation Post-Season Fisheries Report, 2013. Prepared by LGL Limited, Sidney, BC, and Tsawwassen Fisheries Department, Tsawwassen, BC.

Blakley, A.C., K.K. English, and L. Cassidy. 2015. Tsawwassen First Nation Post-Season Fisheries Report, 2014. Prepared by LGL Limited, Sidney, BC, and Tsawwassen Fisheries Department, Tsawwassen, BC.

Blakley, A.C., K.K. English, and L. Cassidy. 2016. Tsawwassen First Nation Post-Season Fisheries Report, 2015. Prepared by LGL Limited, Sidney, BC, and Tsawwassen Fisheries Department, Tsawwassen, BC.

Blakley, A.C., K.K. English, and L. Cassidy. 2017. Tsawwassen First Nation Post-Season Fisheries Report, 2016. Prepared by LGL Limited, Sidney, BC, and Tsawwassen Fisheries Department, Tsawwassen, BC.

Blakley, A.C., K.K. English, and L. Cassidy. 2018. Tsawwassen First Nation Post-Season Fisheries Report, 2017. Prepared by LGL Limited, Sidney, BC, and Tsawwassen Fisheries Department, Tsawwassen, BC.

Blakley, A.C., K.K. English, and L. Cassidy. 2019. Tsawwassen First Nation Post-Season Fisheries Report, 2018. Prepared by LGL Limited, Sidney, BC, and Tsawwassen Fisheries Department, Tsawwassen, BC.

Davie, P. 2015a. World Register of Marine Species: *Cancer gracilis* Dana, 1852. Available: http://www.marinespecies.org/aphia.php?p=taxdetails&id=452220 (accessed 31 July 2015).

Davie, P. 2015b. World Register of Marine Species: *Cancer magister* Dana, 1852. Available: http://www.marinespecies.org/aphia.php?p=taxdetails&id=452271 (accessed 31 July 2015).

FOG. 2009. Tsawwassen Fisheries Operational Guidelines approved by Canada, British Columbia and the Tsawwassen First Nation on the Effective Date (3 April 2009). 57 p. plus appendices.

FOG. 2013. Tsawwassen Fisheries Operational Guidelines approved by Canada, British Columbia and the Tsawwassen First Nation on the Effective Date (3 April 2009; updated 24 September 2013). 57 p. plus appendices.

Schram, F.R., and P.K.L. Ng. 2012. What is Cancer? Journal of Crustacean Biology 32(4):665–672.

TFA. 2007. Tsawwassen First Nation Final Agreement signed by Canada, British Columbia and the Tsawwassen First Nation in December 2007. 214 p. plus appendices.

THA. 2009. Tsawwassen First Nation Harvest Agreement signed by Canada, British Columbia and the Tsawwassen First Nation in December 2009. 12 p.

blank page

TABLES

blank page

Table 3.1. Tsawwassen FSC salmon fishery allocations (in pieces), 2019.

Season	Chinook	Sockeye[a,b,c]	Pink	Coho	Chum[a]
Pre-season	625	< 15,226	2,500	500	2,576
In-season	625	-	2,500	500	400
Final in-season	625	-	2,500	500	400

[a] See Appendix D for Fraser River Status Reports.

[b] The final in-season based on update email from DFO and PSC sent 17 Sep 2019.

[c] No TAC available because all management groups tracking below forecast (p25); therefore no fisheries were recommended.

Table 3.2. Tsawwassen FSC salmon fishery openings by date, gear type, and target species, 2019.

Weekend date	Licence #	Fishery type	Target species	Opening Date and time	Closing Date and time	Gear type(s)
16-Jun-19	LFA-19-HD-LP-409	FSC - Communal	Chinook salmon[a]	15-Jun 12:00	16-Jun 12:00	Drift net, set net
07-Jul-19	LFA-19-HD-LP-410	FSC - Communal	Chinook salmon[a]	06-Jul 08:00	07-Jul 08:00	Drift net, set net
11-Aug-19	LFA-19-HD-416	FSC - Communal	Chinook salmon	10-Aug 10:00	10-Aug 22:00	Drift net, set net
18-Aug-19	LFA-19-HD-420	FSC - Communal	Chinook salmon	17-Aug 14:00	17-Aug 22:00	Drift net, set net
25-Aug-19	LFA-19-HD-423	FSC - Communal	Chinook salmon with incidental harvest of Pink, Chum, hatchery-marked Coho salmon	25-Aug 10:00	25-Aug 23:59	Drift net, set net
01-Sep-19	LFA-19-HD-423	FSC - Communal	Chinook salmon with incidental harvest of Pink, Chum, hatchery-marked Coho salmon	26-Aug 00:00	26-Aug 10:00	Drift net, set net
27-Oct-19	LFA-19-HD-435	FSC - Communal	Chum salmon with incidental harvest of Chinook, Pink, hatchery-marked Coho salmon	26-Oct 10:00	27-Oct 10:00	Drift net, set net

[a] HD-LP-409 and HD-LP-410 were limited to 3 Chinook salmon per licence.

Table 3.3. Summary of Tsawwassen FSC salmon catch and effort, 2019.

			Tsawwassen catch (kept)						
Weekend date	**Licence #**	**Vessel (h)**	**Chinook**	**Adipose-clipped Chinook**	**Sockeye**	**Pink**	**Coho**	**Adipose-clipped Coho**	**Chum**
16-Jun-19	LFA-19-HD-LP-409	1.3	0	0	0	0	0	0	0
07-Jul-19	LFA-19-HD-LP-410	5.0	3	0	1	0	0	0	0
11-Aug-19	LFA-19-HD-416	118.8	124	0	0	0	0	0	0
18-Aug-19	LFA-19-HD-420	63.5	97	0	0	0	0	0	0
25-Aug-19	LFA-19-HD-423	121.5	347	0	0	1	0	0	0
01-Sep-19	LFA-19-HD-423	17.5	29	0	0	0	0	0	0
27-Oct-19	LFA-19-HD-435	99.9	11	0	0	0	12	0	333
Totals		**427.5**	**611**	**0**	**1**	**1**	**12**	**0**	**333**
Maximum allocation			625		-	2,500	500		2,576
Remaining			**14**		**-**	**2,499**	**488**		**2,243**

[1] It is unknown if the Coho salmon harvested in HD-435 were marked or unmarked.

Table 3.4. Summary of Tsawwassen FSC salmon catch and effort (vessel-hours) for interviews only and comparison of catch-per-effort estimates for fishers interviewed while fishing (interviewed) and those reporting after the fishery (non-interviewed).

			Tsawwassen catch (kept)							
Weekend date[a]	**Licence #**	**Vessel (h)**	**Chinook**	**Adipose-clipped Chinook**	**Sockeye**	**Pink**	**Coho**	**Adipose-clipped Coho**	**Chum**	**Steelhead**
16-Jun-19	LFA-19-HD-LP-409	0	0	0	0	0	0	0	0	0
07-Jul-19	LFA-19-HD-LP-410	5.0	3	0	1	0	0	0	0	0
11-Aug-19	LFA-19-HD-416	101.8	114	0	0	0	0	0	0	0
18-Aug-19	LFA-19-HD-420	63.5	97	0	0	0	0	0	0	0
25-Aug-19	LFA-19-HD-423	106.5	319	0	0	1	0	0	0	0
01-Sep-19	LFA-19-HD-423	17.5	29	0	0	0	0	0	0	0
27-Oct-19	LFA-19-HD-435	13.6	0	0	0	0	4	0	89	0
Total (validated interviews)[b]		307.9	562	0	1	1	4	0	89	0
Total (non-interviews)		119.6	49	0	0	0	8	0	244	0
Grand total		427.5	611	0	1	1	12	0	333	0
Total catch validated		72%	92%	0%	100%	100%	33%	0%	27%	N/A
Catch-per-effort (CPE) for validated interview data										
Validated data only[b]			1.83	0.00	0.003	0.003	0.01	0.00	6.54	0.00
Non-validated data only			0.41	0.00	0.000	0.000	0.07	0.00	2.44	0.00

[a] Chum salmon CPE calculated using October fisheries only.

[b] Interviews where every fish was counted.

Table 3.5. Tsawwassen bycatch from the FSC salmon fisheries, 2019.

			Released[a]							
Weekend date	**Licence #**	**Vessel (h)**	**Sturgeon**	**Steelhead**	**Flounder**	**Pink**	**Coho**	**Sockeye**	**Chinook**	**Chum**
16-Jun-19	LFA-19-HD-LP-409	1.3	0	0	0	0	0	0	0	0
07-Jul-19	LFA-19-HD-LP-410	5.0	0	0	0	0	0	0	0	0
11-Aug-19	LFA-19-HD-416	118.8	4	0	0	0	0	0	0	0
18-Aug-19	LFA-19-HD-420	63.5	0	0	0	0	0	0	0	0
25-Aug-19	LFA-19-HD-423	121.5	2	0	0	85	0	4	0	0
01-Sep-19	LFA-19-HD-423	17.5	0	0	0	20	0	0	0	0
27-Oct-19	LFA-19-HD-435	99.9	5	0	0	0	0	0	0	0
Totals		**427.5**	**11**	**0**	**0**	**105**	**0**	**4**	**0**	**0**

[a] All fish were released alive.

Table 3.6. Tsawwassen FSC releases of sturgeon (bycatch) by date and location, 2019.

Weekend date	Locations[a]					Totals
	T1	T2	T3	T4	T5	
16-Jun-19	-	-	-	-	-	0
07-Jul-19	-	-	-	-	-	0
11-Aug-19	-	-	-	4	-	4
18-Aug-19	-	-	-	-	-	0
25-Aug-19	-	-	-	2	-	2
01-Sep-19	-	-	-	-	-	0
27-Oct-19	-	-	3	2	-	5
Totals[b]	**0**	**0**	**3**	**8**	**0**	**11**

[a] T1 = Roberts Bank (29-6, 29-7), T2 = Sandheads (29-9, 29-10), T3 = Canoe Pass to Deas (29-14), T4 = Steveston-Pattullo (29-13), T5 = Pattullo-Port Mann (29-17), T6 = North Arm (29-12).

[b] All sturgeon were released alive.

Table 3.7. Tsawwassen FSC salmon overages and underages based on 2019 allocation.

	Chinook[a]	Sockeye	Pink	Coho[a]	Chum[a]
Annual allocations	625	-	2,500	500	400
Previous carry forward	-	-	-	-	-
Total allocation:	625	0	2,500	500	400
Total catch	611	1	1	12	333
Fish provided to TFN	-	-	-	-	-
Total catch:	611	1	1	12	333
Balance:	14	-1	2,499	488	67
Carry forward:	-	-	-	-	-

[a] Underage not carried forward due to limited Tsawwassen harvesting effort.

Table 5.1. Tsawwassen FSC crab fishery openings by target species, date, and gear type, 2019.

			Opening	Closing	
Licence #	**Fishery type**	**Target species[a]**	**Date and time**	**Date and time**	**Gear type(s)**
LFA-19-HD-400	FSC - Communal	Crab	01-Jan 00:01	31-Mar 23:59	Handpicking, dip net, ring net, traps
LFA-19-HD-408	FSC - Communal	Crab	01-Apr 00:01	30-Jun 23:59	Handpicking, dip net, ring net, traps
LFA-19-HD-412	FSC - Communal	Crab	01-Jul 00:01	30-Sep 23:59	Handpicking, dip net, ring net, traps
LFA-19-HD-429	FSC - Communal	Crab	01-Oct 00:01	31-Dec 23:59	Handpicking, dip net, ring net, traps

[a] Crab species include Dungeness, Graceful, and Red rock crabs.

Table 5.2. Tsawwassen FSC Dungeness and Red rock crab catch and effort by licence, 2019.

		Dungeness crab		Red rock crab			
Licence #	**Date**	**Kept**	**Released**	**Kept**	**Released**	**Effort (h)**	**Trap-days**
LFA-19-HD-400	01 Jan - 31 Mar	3,025	3,606	0	0	17,466	30,259
LFA-19-HD-408	01 Apr - 30 Jun	42,664	22,266	0	0	32,166	59,316
LFA-19-HD-412	01 Jul - 30 Sep	9,047	7,023	0	10	28,743	46,720
LFA-19-HD-429	01 Oct - 31 Dec	2,418	2,071	0	0	14,976	26,081
Totals		**57,154**	**34,966**	**0**	**10**	**93,351**	**162,376**

Table 5.3. Tsawwassen FSC Dungeness and Red rock crab catch and effort by month, 2019.

		Dungeness crab		Red rock crab				Validated Dungeness crab	
Licence #	**Month**	**Kept**	**Released**	**Kept**	**Released**	**Effort (h)**	**Trap-days**	**Kept[a]**	**% counted**
LFA-19-HD-400	January	1,074	1,120	0	0	5,706	9,297	267	25
	February	732	929	0	0	4,248	7,092	80	11
	March	1,219	1,557	0	0	7,512	13,870	352	29
LFA-19-HD-408	April	9,342	7,998	0	0	8,664	17,100	3,720	40
	May	20,690	8,154	0	0	10,735	19,236	4,010	19
	June	12,632	6,114	0	0	12,767	22,980	3,306	26
LFA-19-HD-412	July	5,110	3,803	0	10	15,735	22,766	1,116	22
	August	2,394	1,804	0	0	7,248	14,502	450	19
	September	1,543	1,416	0	0	5,760	9,452	90	6
LFA-19-HD-429	October	1,123	1,087	0	0	3,576	6,000	490	44
	November	793	487	0	0	7,896	13,281	197	25
	December	502	497	0	0	3,504	6,800	60	12
Totals		**57,154**	**34,966**	**0**	**10**	**93,351**	**162,376**	**14,138**	**25**

[a] The total number of validated crab kept were counted 100%.

Table 5.4. Summary of crab patrol surveys conducted in 2019.

	Survey type (# of days/month)	
Month	**Vehicular[a]**	**On-water (boat)[b]**
January	30	0
February	25	0
March	34	2
April	40	3
May	24	4
June	24	7
July	24	4
August	15	0
September	28	4
October	36	4
November	39	1
December	15	0
Totals	**334**	**29**

[a] Includes three joint patrols with DFO in July and August.

[b] Includes one joint patrol with DFO in July.

Table 6.1. Tsawwassen FSC Eulachon fishery openings by target species, date, and gear type, 2019.

Weekend date	Licence #	Fishery type	Target species	Daily opening Date and time	Daily closing Date and time	Gear type(s)
21-Apr-19	LFA-19-HD-LP-404	FSC - Communal	Eulachon	20-Apr 12:00	21-Apr 23:59	Drift net
28-Apr-19	LFA-19-HD-LP-404	FSC - Communal	Eulachon	22-Apr 00:00	24-Apr 12:00	Drift net
28-Apr-19	LFA-19-HD-LP-405	FSC - Communal	Eulachon	24-Apr 12:00	26-Apr 12:00	Drift net
28-Apr-19	LFA-19-HD-LP-407	FSC - Communal	Eulachon	27-Apr 09:00	28-Apr 23:59	Drift net
05-May-19	LFA-19-HD-LP-407	FSC - Communal	Eulachon	29-Apr 00:00	30-Apr 09:00	Drift net
05-May-19	LFA-19-HD-LP-408	FSC - Communal	Eulachon	04-May 08:00	05-May 23:59	Drift net
12-May-19	LFA-19-HD-LP-408	FSC - Communal	Eulachon	06-May 00:00	06-May 08:00	Drift net

Table 6.2. Tsawwassen First Nation catch summary for ceremonial Eulachon fisheries, 2019.

Weekend date	Licence #	Effort (h)	Pounds[a]	Released Sturgeon	Chubs	Suckers	Flounder	Eulachon	Other
28-Apr-19	LFA-19-HD-LP-404			No TFN participation					
28-Apr-19	LFA-19-HD-LP-405	0.33	30.0	0	1	0	0	0	0
28-Apr-19	LFA-19-HD-LP-407	0.84	150.0	0	0	0	0	0	18
05-May-19	LFA-19-HD-LP-407	1.33	8.0	0	0	0	0	0	0
05-May-19	LFA-19-HD-LP-408	1.32	11.0	0	0	0	0	0	0
Totals		**3.82**	**199.0**	**0**	**1**	**0**	**0**	**0**	**18**

a Catch monitors weighed Eulachon on board vessel (13 pieces = 1 pound). Note Tsawassen's estimated share of TAC was 700 lb.

[b] Other released for HD-LP-407 = 18 sculpin.

Table 6.3. Tsawwassen FSC groundfish fishery openings by target species, date, and gear type, 2019.

			Opening	Closing	
Licence #	**Fishery type**	**Target species[a]**	**Date and time**	**Date and time**	**Gear type(s)**
LFA-19-HD-407	FSC - Communal	Halibut	07-Jan 15:01	31-Mar 23:59	Longline, rod and reel
LFA-19-HD-411	FSC - Communal	Halibut	17-Apr 16:01	30-Jun 23:59	Longline, rod and reel
LFA-19-HD-418	FSC - Communal	Halibut	12-Aug 16:00	30-Sep 23:59	Longline, rod and reel
LFA-19-HD-440	FSC - Communal	Halibut	12-Nov 09:00	31-Dec 23:59	Longline, rod and reel

[a] Includes incidental catches of sablefish, dogfish, lingcod, flatfish, and rockfish.

Table 6.4. Tsawwassen First Nation catch summary for FSC groundfish fisheries, 2019.

			Tsawwassen catch (kept)							Released			
Licence #[a]	**Vessel (h)**	**Count of vessels**	**Halibut**	**Dogfish**	**Lingcod**	**Flounder**	**Sturgeon**	**Sablefish**	**Shark**	**Sturgeon**	**Dogfish**	**Shark**	**Skate**
LFA-19-HD-407	0.0	0	0	0	0	0	0	0	0	0	0	0	0
LFA-19-HD-411	0.0	0	0	0	0	0	0	0	0	0	0	0	0
LFA-19-HD-418	0.0	0	0	0	0	0	0	0	0	0	0	0	0
LFA-19-HD-440	0.0	0	0	0	0	0	0	0	0	0	0	0	0
Totals	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

[a] No effort nor catch was recorded in 2019.

Table 7.1. Comparison of annual FSC salmon catch and allocation from 2009 to 2019.

Year[a]		Chinook[d,e,f]	Sockeye	Pink	Coho	Chum
2009	Total catch[b]	995	1,132	72	57	1,320
	Maximum allocation[c]	900	1,132	2,500	500	2,576
	Final allocation balance	-95	0	0	0	0
2010	Total catch[g]	338	15,226	2	3	2,019
	Maximum allocation	530	15,226	N/A	500	2,576
	Final allocation balance	0	0	0	0	0
2011	Total catch	583	9,995	84	43	2,414
	Maximum allocation	625	10,894	2,500	500	2,576
	Final allocation balance	0	0	0	0	0
2012	Total catch	440	6,649	2	22	2,577
	Maximum allocation	625	7,047	N/A	500	2,576
	Final allocation balance[h]	125	0	0	0	-1
2013	Total catch	729	5,120	74	220	2,574
	Maximum allocation	750	5,120	2,500	500	2,576
	Final allocation balance	21	0	0	0	0
2014	Total catch	392	14,878	3	159	3,495
	Maximum allocation	646	15,226	N/A	500	2,576
	Final allocation balance[i]	0	0	0	0	0
2015	Total catch	598	2,851	20	11	2,654
	Maximum allocation	625	2,920	2,500	500	2,576
	Final allocation balance[j]	0	0	0	0	-78
2016	Total catch	86	2,978	0	64	2,495
	Maximum allocation[k]	625	6,427	N/A	500	2,498
	Final allocation balance[l]	0	0	0	0	0
2017	Total catch	693	233	35	87	2,606
	Maximum allocation	625	No TAC	2,500	500	2,576
	Final allocation balance[m]	-68	0	0	0	-30
2018	Total catch	313	14,380	0	39	2,506
	Maximum allocation	625	15,226	N/A	500	2,576
	Final allocation balance	0	0	0	0	0
2019	Total catch	611	1	1	12	333
	Maximum allocation	625	No TAC	2,500	500	400
	Final allocation balance	0	0	0	0	0

[a] Majority of underages not carried forward due to limited Tsawwassen harvesting effort.

[b] Fish caught on 25 Oct in HD-482 were harvested as by-catch in the EO Chum salmon fishery and taken home. The take home by-catch was classifed by Fisheries and Oceans Canada as FSC harvest.

[c] Maximum allocation is defined as the maximum TFN harvest for a particular salmon species in a given year including underages and overages.

[d] DFO approved a "special circumstance" increase in the TFN Chinook salmon allocation to 900 fish for 2009.

[e] Twenty percent of total allocation carried forward due to management uncertainty.

[f] In 2014, maximum allocation includes 21 carryover from 2012.

[g] Tsawwassen First Nation over harvested during the last THA fishery (9/10 Sep) due to a miscommunication between TFN and the seiner crew; the seiner continued fishing after the allocation had been reached. 1,946 Sockeye were transferred to "top-up" the FSC allocation (included in the sockeye total).

[h] In 2013, maximum allocation includes 125 carryover from 2012.

[i] The remaining Chinook salmon allocation from 2012 (21) plus 233 balance from 2014 was used to offset the 2014 Chum salmon overage of 919 and set the final balance for Chinook and Chum salmon to zero.

[j] Seventy-eight Chum salmon overage.

[k] Sockeye salmon allocation in this table reflects the inseason CTAC estimate prior to the last Sockeye salmon fishery. On 10 Aug, a revised allocation of 1,079 was calculated based on updated CTAC estimates; however, TFN had already exceeded this catch allocation so fishing was halted and subsequently there is no carry forward.

[l] The 2015 overage of 78 Chum salmon was paid back in 2016 with 81 less Chum harvested from TFN's full allocation of 2,576.

[m] No carry forward anticipated with Chinook and Chum salmon due to the decrease availability of Sockeye salmon in 2017. This is the first year since 2009 that TFN has been able to catch their full Chinook allocation.

Table 7.2. Comparison of annual FSC Dungeness and Red rock crab catch from 2009 to 2019.

	Dungeness crab		Red rock crab		Graceful crab	
Year	**Kept**	**Released**	**Kept**	**Released**	**Kept**	**Released**
2009	24,712	13,760	0	0	0	0
2010	21,558	11,775	2	23	0	0
2011	20,327	12,170	0	8	0	0
2012	24,441	14,350	0	2	0	0
2013	42,439	25,531	0	4	0	0
2014	41,563	19,829	0	5	0	0
2015	56,423	45,721	0	35	0	0
2016	79,059	62,540	0	26	0	0
2017	45,131	32,615	0	63	0	1
2018	52,569	38,956	0	4	0	0
2019	57,154	34,966	0	10	0	0

Table 7.3 Comparison of annual Tsawwassen Harvest Agreement (THA) fisheries catch and allocation from 2009 to 2019.

Year		Sockeye	Pink	Chum
2009	Total catch	-	-	3,416
	Allocation	-	-	8,113
2010[b]	Total catch	98,315	-	-
	Allocation	97,981	-	-
2011	Total catch	5,337	45,098	2,243
	Allocation	7,262	64,780	4,220
2012[c,d]	Total catch	-	-	11,832
	Allocation	-	-	12,029
2013[e]	Total catch	-	103,146	8,998
	Allocation	-	103,500	8,998
2014	Total catch	79,574	-	4,967
	Allocation	75,581	-	7,508
2015[f]	Total catch	-	3,516	9,714
	Allocation	-	3,700	9,714
2016	Total catch	-	-	13,672
	Allocation	-	-	10,780
2017	Total catch	-	-	4,815
	Allocation	-	-	7,694
2018	Total catch	37,368	-	-
	Allocation	33,595	-	-
2019[g]	Total catch	-	-	-
	Allocation	-	-	-

[a] By-catch totals not included in summary tables (see annual fisheries reports for details).

[b] Due to miscommunication between TFN and seiner crew, the seiner continued fishing after the allocation was reached. Catch from the seine opening was distributed as follows: 40,156 TFN EO, 1,946 as TFN FSC, and 11,200 Sockeye salmon were shared with neighouring First Nations' towards their FSC and EO harvests.

[c] Missing landing slip in 2019 was found and an additional 381 Chum were sold as part of HD-475, thus the catch number will be different than previous reports.

[d] 9,731 Chum salmon were harvested upstream (allocation transfer fisheries).

[e] 3,064 Chum salmon and 87,418 Pink salmon were harvested upstream (allocation transfer fisheries).

[f] 3,516 Pink salmon and 1,922 Chum salmon were harvested upstream (allocation transfer fisheries).

[g] There were no THA HDs issued to TFN for Sockeye, Chum, nor Pink salmon in 2019.

Table 7.4 Comparison of annual Eulachon catch and allocation from 2009 to 2019.

Eulachon (lb)	2009	2010	2011	2012[a]	2013	2014	2015	2016	2017	2018	2019
Total catch	49.0	41.0	39.3	50.0	95.7	59.2	61.0	160.6	185.0	446.2	199.0
Allocation	50.0	50.0	50.0	50.0	100.0	100.0	217.0	288.0	485.0	518.0	700.0

[a] Due to over harvest by upstream First Nations, Tsawwassen did not harvest their share of TAC. Eulachon was harvested by Katzie First Nation.

blank page

FIGURES

blank page

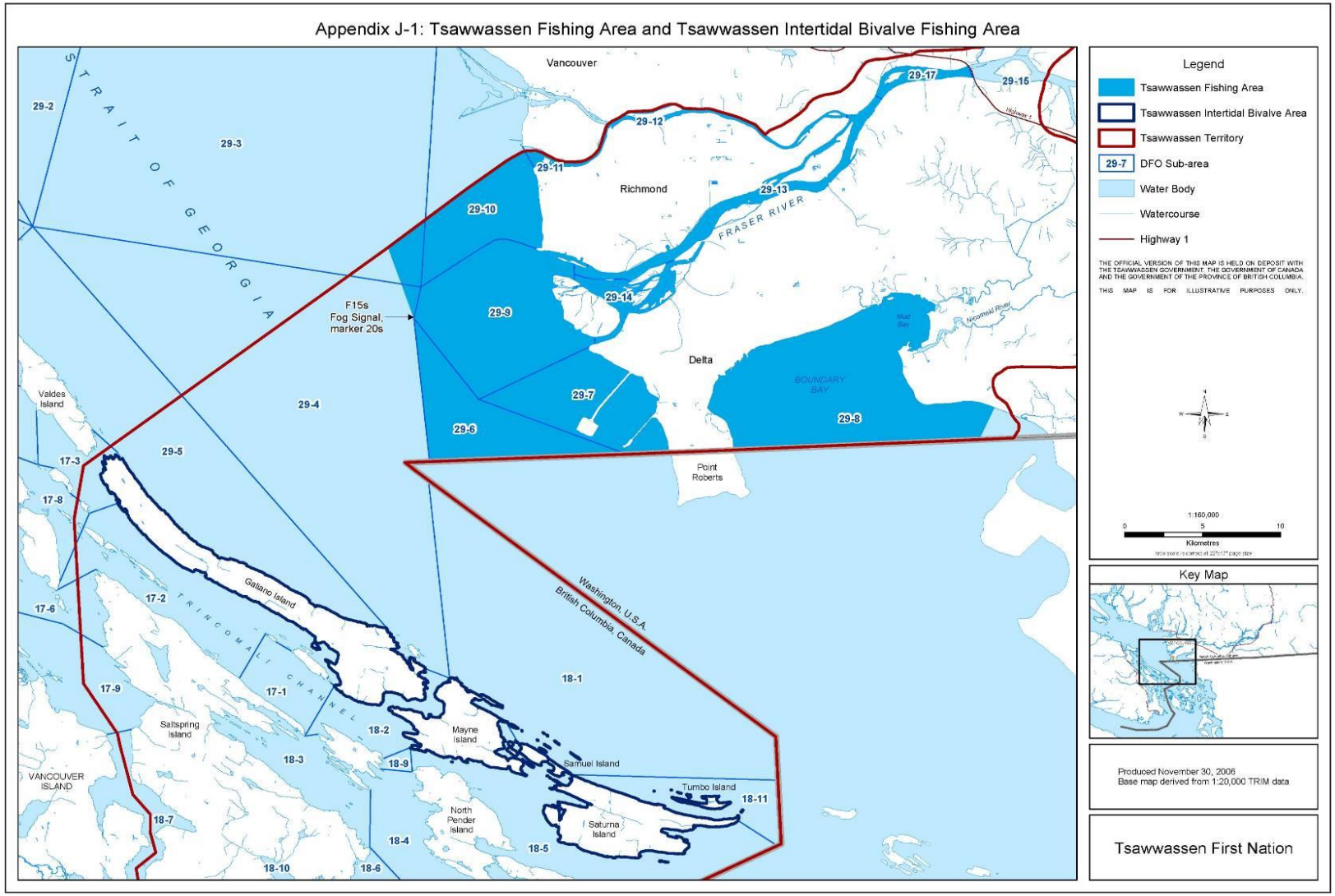


Figure 1.1. Tsawwassen Fishing Area and Tsawwassen Intertidal Bivalve Fishing Area.

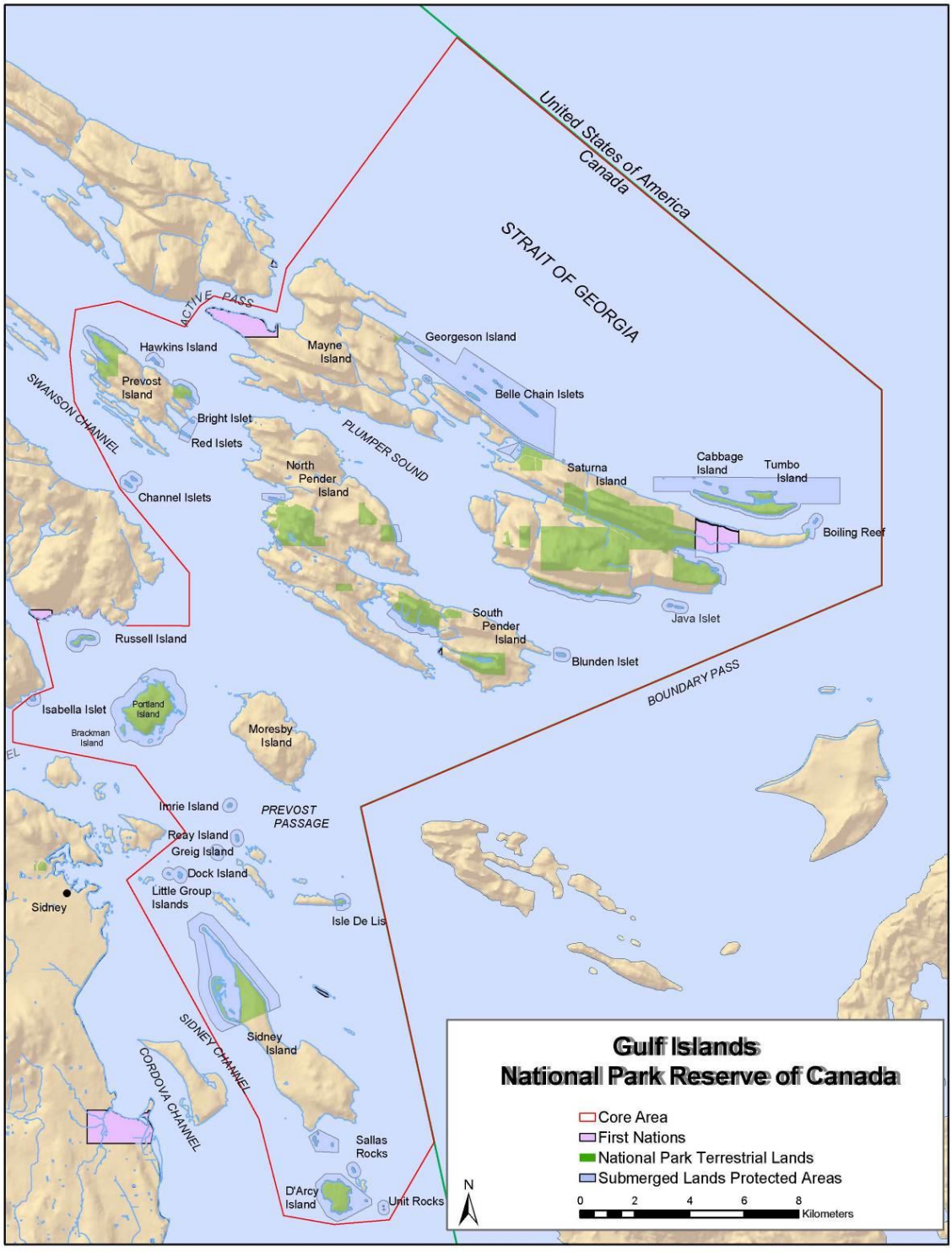


Figure 1.2. Identification of Gulf Islands National Park Reserve of Canada.

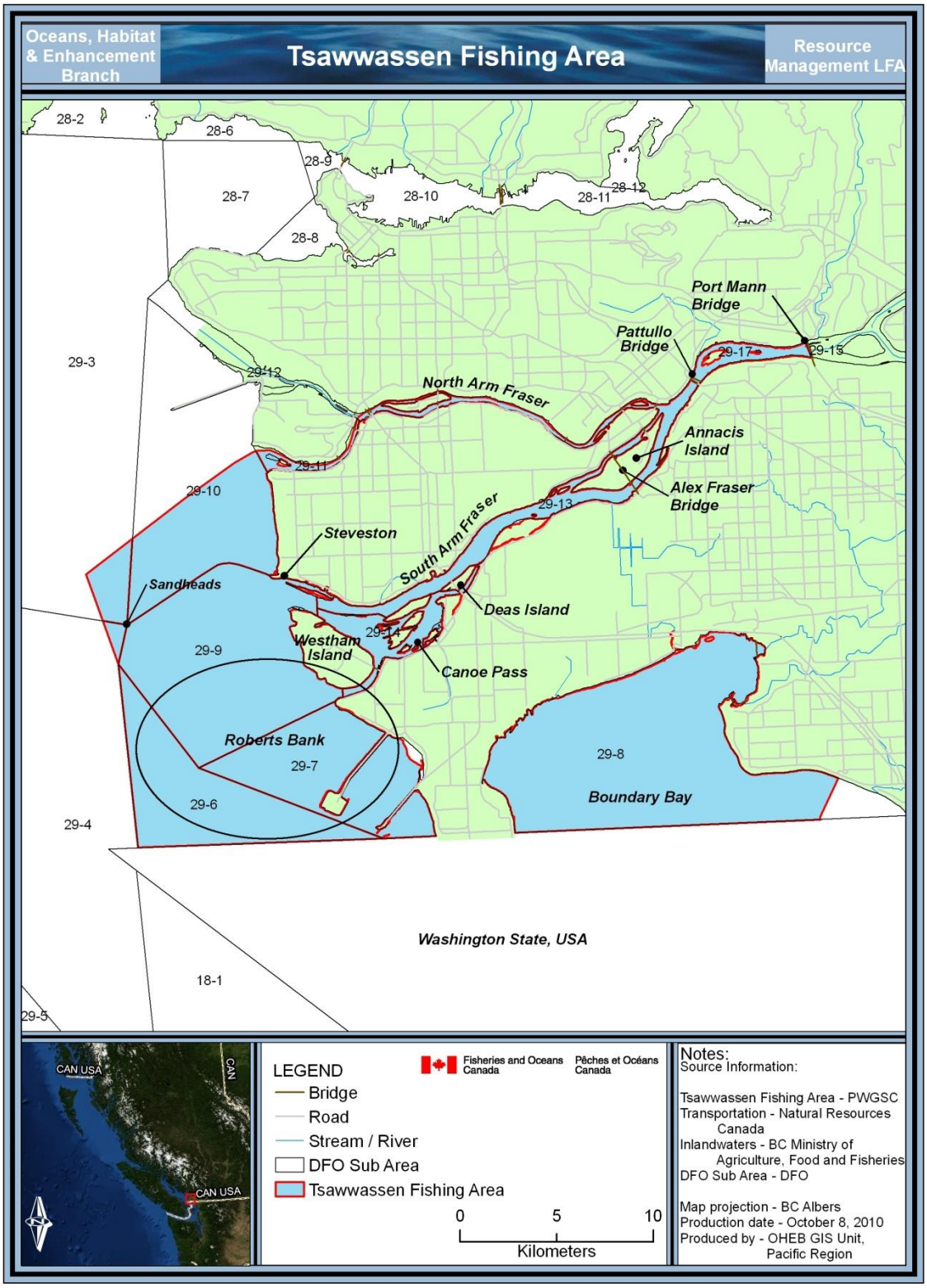


Figure 1.3. Tsawwassen Fishing Area (enlarged map with location names).

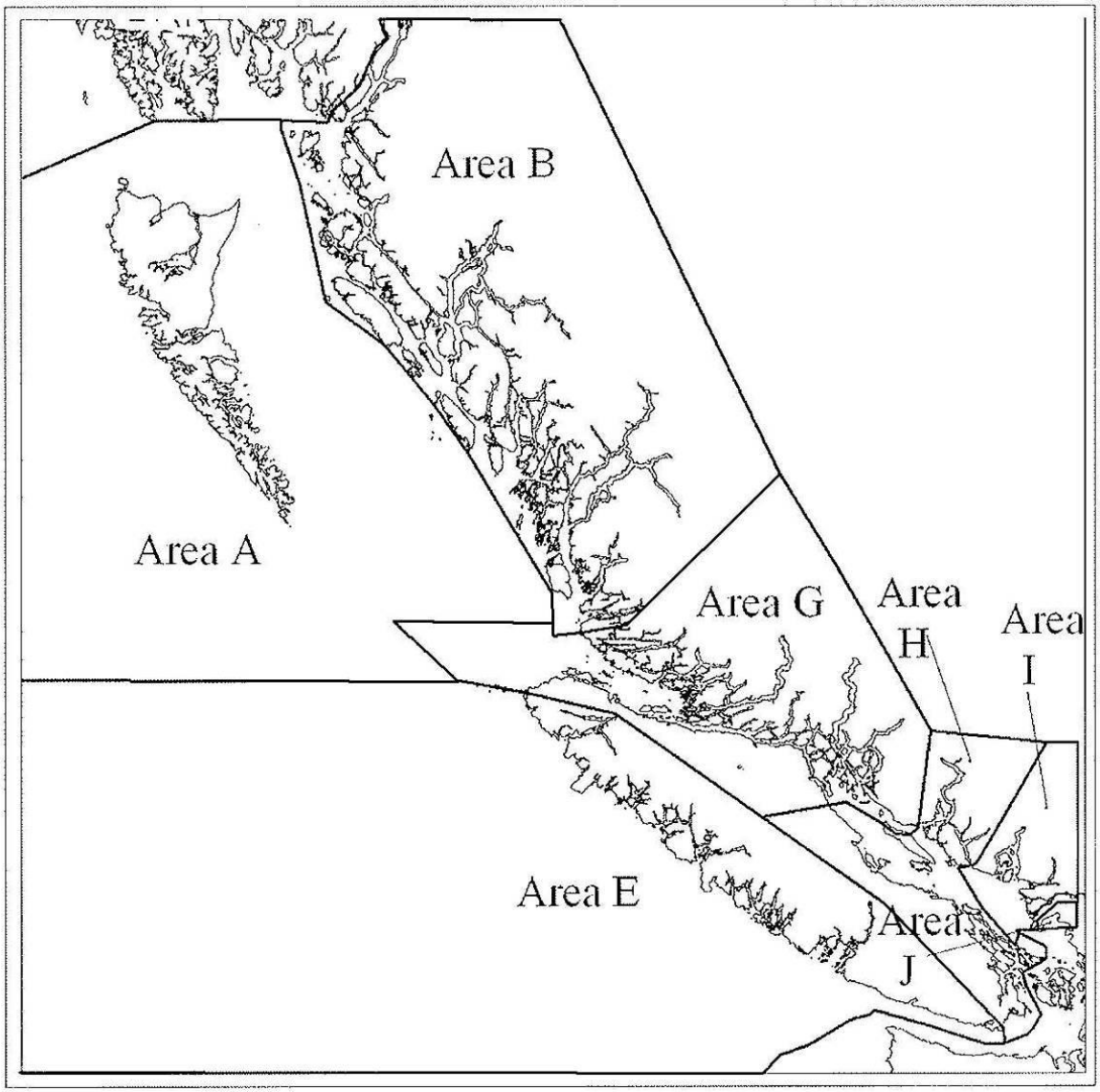


Figure 1.4. Map of Commercial Crab Management Areas.

APPENDICES

blank page

APPENDIX A
Tsawwassen Fishing Plans 2019

blank page

scəw̓aθən məsteyəxʷ

TSAWWASSEN FIRST NATION

Fisheries Department
FINAL

TSAWWASSEN ANNUAL FISHING PLAN EULACHON AND CHINOOK – FINAL JULY 2019

This fishing plan has been prepared by Tsawwassen First Nation (TFN) for submission to the Joint Fisheries Committee to assist in the planning for Tsawwassen fisheries to be conducted between 1 April 2019 and 31 March 2020. A list of TFN's designated fishers and their designation numbers is provided to Fisheries and Oceans Canada annually.

The following sections provide the proposed harvest plans and harvest expectations for each salmon species, based on pre-season run size forecasts, to ensure that the Department of Fisheries and Oceans (DFO) is aware of potential TFN's harvest levels and preferred harvest times, areas, and methods for each species or species group. However, the Tsawwassen Annual Fishing Plan (TAFP) is subject to identified and documented conservation concerns.

General

Tsawwassen fisheries will be conducted in a manner consistent with the Tsawwassen First Nation Final Agreement, Tsawwassen First Nation Harvest Agreement, Harvest Documents, Tsawwassen Fisheries Operational Guidelines (FOG) document, Tsawwassen Law, Federal Laws and British Columbia Law. As indicated in the Tsawwassen Final Agreement, Tsawwassen fisheries will be conducted within the Tsawwassen Fishing Area (TFA) or Tsawwassen Intertidal Bivalve Fishing Area, unless otherwise permitted in Harvest Documents or licences issued by DFO. The specific catch monitoring requirements and plans for each species are defined in the Tsawwassen FOG document. The following species-specific plans summarize the conservation issues and provide details on Tsawwassen proposed fishing times, gear, and size restrictions for each species. Where conservation concerns have been identified licence conditions will identify those species that should be released alive and unharmed.

Eulachon

Conservation: The Final IFMP for Eulachon indicates that: "the decline of the species and limited or lack of recovery in river systems coast wide is an ongoing concern. Maintaining harvest at low levels should increase the probability of rebuilding Fraser River Eulachon stocks. DFO continues to take an approach to managing the fishery that emphasizes conservation and sustainable use."

Fishery: An increased allocation of 9,652 lb of FSC harvest of Eulachon is proposed for First Nations in the lower Fraser River in 2019. Eulachon may be harvested for FSC purposes by specifically designated TFN fishers at the times and locations in a Tsawwassen Harvest Document. The Fraser River Eulachon IFMP for 1 January 2019 to 31 December 2019 limits the length of fishing time to 20-minute soak times to a maximum of 12 hours per day.

Timing: From 15 March 2019 through mid-May 2019, TFN's proposed Eulachon fishing should be permitted for time periods equivalent to that permitted for other First Nation's fishing in the TFA and the weekly timing for these fisheries will be determined in consultations with DFO.

In addition, TFN proposes Eulachon fisheries for ceremonial purposes from 1 March through 31 March 2019, or similar timing equivalent to that permitted for other First Nation's fishing in the TFA. The TFN 2020 Eulachon fishery will be covered by Fraser River Eulachon IFMP for 2020.

Gear: Each fisher may fish using one drift net up to a maximum soak time of 20 minutes. Drift nets shall be no more than 100 m in length and shall have a mesh size of no less than 25 mm and no greater than 50 mm.

Size: There are currently no size restrictions for FSC harvests of Eulachon.

Expectation: The expected harvest level for TFN in 2019 is 700 lb. TFN is willing to assist other Lower Fraser First Nations with their FSC Eulachon harvest.

Chinook Salmon

Conservation: In 2010, the Nicola Tribal Association identified some serious conservation concerns for "early-timed" Chinook salmon and requested that all Fraser First Nations "hold off on any fishing" for these stocks. Most "early-timed" Chinook salmon stocks are Spring 4_2 and Spring 5_2 fish. These concerns are still relevant in 2019 Spring 4_2, Spring 5_2, and Summer 5_2 Chinook salmon stocks have been classified as stocks of concern while the Summer 4_1 and Fall 4_1 Chinook salmon have been categorized as Category 2 (low abundance); 2019 Draft Southern Salmon IFMP and 2019 Preliminary Salmon Outlook. In addition, the 2019 – 2020 Draft Southern Salmon IFMP and the Chinook salmon conservation measures letter, dated 5 February 2019, includes proposed management measures implemented to conserve all four Fraser Chinook salmon

management units. Two fishery scenarios, Scenario A and B, outlined in the Chinook salmon conservation measures letter provide potential management actions that would be required for Fraser Spring 4_2, Spring 5_2, and Summer 5_2 Chinook to achieve less than 5% Canadian fishery mortalities (Scenario A) or less than 10% Canadian fishery mortalities (Scenario B). The Chinook salmon conservation measures letter indicates these scenarios were drafted for discussion purposes and alternate fishery scenarios and or management actions will be considered based on feedback received. Minister of Fisheries released a new release on 16 April 2019 addressing Fraser River Chinook decline and discussing management measures for 2019 that will support the recovery of the at-risk Fraser River Chinook. The final Southern Salmon IFMP and TFAP will be updated to reflect approved measures.

The measures are planned in addition to existing fishery management measures already in place. Fishery reductions will likely need to be considered in the following fisheries:

Fraser River – specific measures in terminal areas will include no directed commercial Chinook fisheries and Chinook non-retention during commercial fisheries for other species; **substantially reduced or closed recreational fisheries; and restrictions for First Nation FSC harvest.**

TFN Fishery: Chinook salmon may be harvested for FSC purposes by any designated TFN fisher at the times and locations defined in a Tsawwassen Harvest Document. TFN fishers and the TFN Fisheries Department will endeavor to minimize the encounter rate and harvest for non-target species (i.e., species without directed fishing effort during the Chinook salmon fishing periods).

Timing[1]: From 1 April through 14 July 2019, TFN will put forward requests for up to 25 Chinook salmon which will be limited to ceremonial fisheries for planned community events (TFN first fish ceremony, graduation ceremony, Aboriginal Day, and funerals).

After 14 July, additional opportunities will be managed for their impacts on co-migrating stock (Early Stuart, Early Summer Sockeye, Spring and Summer 5_2 Chinook, and late-run Sockeye) as well as taking in account in-season information including stock mix, environmental conditions, run size and run-timing information. TFN is proposing to conduct weekly 36-hour fisheries with full TFN vessel fleet. These weekly fisheries will start on Friday at a time that will be determined in weekly consultations with DFO on the Wednesday prior. Minimal encounters with Early Stuart Sockeye are expected due to the change in drift net mesh size (minimum mesh

[1] Timing for ceremonial fishing (1 April–14 July) which overlaps with the three-week Early Stuart closure dates (27 June–26 July).

size of 20 cm/8.0 in, a maximum length of 50 fathoms, and a maximum depth of 60 meshes. Discussions will occur with DFO prior to the start of the salmon fisheries.

From late July through to the end of August 2019, TFN's proposed Chinook salmon fishing plan is a minimum 48 hours per week or time equivalent to that permitted for other First Nation's fishing in the TFA. These weekly fisheries will start on Friday at a time that will be determined in weekly consultations with DFO on the Wednesday prior. If the Chinook salmon allocation has not been met by 31 August 2019, TFN will request further selective harvest opportunities for Chinook salmon into the September Interior Fraser River (IFR) Coho salmon window closure (3 September – 4 October). The options for selective harvest opportunities will be discussed at a later date. TFN understands that these additional Chinook salmon harvest opportunities (post-Labour Day) will be dependent upon the Coho salmon exploitation rate and meeting conservation objectives.

From 1 March through 31 March 2020, TFN's proposed Chinook salmon fisheries for ceremonial purposes is a minimum of 12 hours per week or time equivalent to that permitted for other First Nation's fishing in the TFA; and these weekly fisheries will start on Friday or Saturday at a time that will be determined in weekly consultations with DFO on the Wednesday prior.

Gear: Approved selective fishing methods may be used during any fishing period, if identified on the harvest documents.

Drift nets with a minimum mesh size of 12 cm/4.8 in, a maximum length of 50 fathoms, and a maximum depth of 60 meshes may be used, except during period when larger mesh size is required to minimize the catch of Early Stuart or Late-run Sockeye salmon stocks (see below). Drift Nets with a minimum mesh size of 20 cm/8.0 in, a maximum length of 50 fathoms, and a maximum depth of 60 meshes may be used during the period when Early Stuart Sockeye salmon are migrating through the TFN fishing areas (approximately 27 June–26 July 2019) or during other periods when there are conservation concerns for Fraser Sockeye stocks.

Size: No Chinook salmon with less than 30 cm/12 in in nose-fork length will be harvested, other than as bycatch after all efforts have been made to release salmon unharmed have been taken.

Expectation: The expected harvest level for 2019 is 625 Chinook salmon.

Sturgeon and Steelhead

Conservation: Conservation concerns have been identified for Fraser River White Sturgeon and Steelhead in the TFA. TFN will be consulted on any updated conservation measures for Steelhead prior to the start of the salmon fisheries.

TFN Fishery: All live White Sturgeon and wild Steelhead caught in TFN FSC fisheries will be immediately released. No TFN fisheries will target White Sturgeon or Steelhead (wild or hatchery-marked) in 2019. Currently, harvest documents for FSC salmon read "All efforts and attempts shall be made to return all non-target species including Steelhead and sturgeon alive and unharmed. Steelhead and Sturgeon must not be retained." However, in the event a White Sturgeon or Wild Steelhead caught in a TFN fishery is dead or a mortal wound is obvious, TFN's preference is to retain the fish as per the generally agreed upon practice for other Fraser River First Nation FSC fisheries and TFN would like to further discuss with the JFC (either via letter/in person). No bycatch of Steelhead or Sturgeon would be retained in TFN commercial fisheries.

Timing: NA

Gear: NA

Size: NA

Marine Aquatic Plants

Conservation: No conservation concerns have been identified for marine aquatic plants in the TFA.

TFN Fishery: Tsawwassen members may harvest marine aquatic plants for FSC purposes (from the 9 classified groups) in the TFA as outlined in the harvest document.

Tsawwassen First Nation will submit an aquatic plant commercial harvesting application before the submission deadline (1 October 2019) for the 2020 commercial harvest season to the Ministry of Forest, Lands and Natural Resource Operations (FLNRO).

Timing: From 1 April 2019 through 31 March 2020, 24 hours per day, every day.

Gear: TFN members propose to use hand picking methods, using a sharp cutting instrument, to harvest marine aquatic plants for FSC purposes.

Expectation: In 2016–2018, BC Minister issued the Harvest Document without a harvest limit. The Province of BC will revisit the necessity of a harvest limit at some point in the future, should the need arise. The same exception will hold for 2019.

Note: *Sockeye salmon, Pink salmon, Chum salmon, Coho salmon, crab, intertidal bivalves, shrimp, and prawns, and groundfish will be updated at a later date.*

scəw̓aθən məsteyəxʷ

TSAWWASSEN FIRST NATION

Fisheries Department
FINAL

TSAWWASSEN ANNUAL FISHING PLAN – FINAL SEPTEMBER 2019

This fishing plan has been prepared by Tsawwassen First Nation (TFN) for submission to the Joint Fisheries Committee to assist in the planning for Tsawwassen fisheries to be conducted after the Effective Date (between 1 April 2019 and 31 March 2020). A list of TFN's designated fishers and their designation numbers is provided to Fisheries and Oceans Canada (DFO) annually.

The following sections provide the proposed harvest plans and harvest expectations for each salmon species, based on pre-season run size forecasts, to ensure that the DFO is aware of potential TFN's harvest levels and preferred harvest times, areas, and methods for each species or species group. However, the Tsawwassen Annual Fishing Plan (TAFP) is subject to identified and documented conservation concerns. *This document does not include sections related to Eulachon, Chinook salmon, Marine Plants, Steelhead, and sturgeon because they were previously finalized in a separate document.*

General

Tsawwassen fisheries will be conducted in a manner consistent with the Tsawwassen First Nation Final Agreement, Tsawwassen First Nation Harvest Agreement (THA), Harvest Documents (HD), Tsawwassen Fisheries Operational Guidelines (FOG) document, Tsawwassen Law, Federal Laws, and British Columbia Law. As indicated in the Tsawwassen Final Agreement, Tsawwassen fisheries will be conducted within the Tsawwassen Fishing Area (TFA) or Tsawwassen Intertidal Bivalve Fishing Area, unless otherwise permitted in HD or licences issued by DFO. The specific catch monitoring requirements and plans for each species are defined in the Tsawwassen FOG document. The following species-specific plans summarize the conservation issues and provide details on Tsawwassen proposed fishing times, gear, and size restrictions for each species. Where conservation concerns have been identified licence conditions will identify those species that should be released alive and unharmed.

Sockeye Salmon

Conservation[2]: Conservation concerns are anticipated for several of the components of the 2019 Sockeye salmon return to the Fraser River: the Early Stuart stock, some Early Summer stocks, and some the Late-run stocks (e.g., Cultus Lake stock). The status of weak stocks is not expected to improve in 2019 given recent trends. The majority of the 2019 return will likely be Summer run sockeye, and there will likely be considerable overlap between the different Sockeye run timing groups as well as Pinks. The forecast also projects a near cycle average return but below overall average return for Fraser sockeye at the P50 level. Recent Fraser Sockeye returns have generally been below the P50 forecast level.

The final IFMP indicates that there will be a 4-week Early Stuart and early-timed Early Summer Sockeye salmon closure in Area 29 from 27 June until noon on 26 July. For 2019, as in other recent years, there is concern regarding the return strength of the early-timed component of the Early Summer run, and a one-week extension to the Early Stuart closure window will be implemented to protect these stocks. The window closure dates may also change in-season depending on additional information on stock mix, environmental conditions, run size, run timing, etc. Depending on in-season information, this approach or other actions may be considered to support meeting management objectives for this stock group. If, however, the in-season information indicates above average run size, warranting directed fisheries on the Early Stuart stock, then TFN intends to fish.

From late July 2019 through mid-August 2019, most of the Sockeye salmon migrating through the TFN salmon fishing area are expected to be originating from the Summer and Early Summer stocks. After early to mid-August 2019, the Late-run stocks (including Cultus Lake) could begin to enter the Fraser River depending on the extent to which these fish delay in the lower Georgia Strait. The midpoint (P50) pre-season forecasts for the total return of Fraser Sockeye salmon in 2019 is 4,795,000 (41,000 Early Stuart, 465,000 Early Summers, 3,930,000 Summers, and 359,000 Lates). These estimates represent the 50% probability level for each timing group (i.e., there is a 50% probability that the run could be lower than these estimates).

TFN Fishery: Sockeye salmon may be harvested for FSC purposes by any designated TFN fishers at the times and locations defined in a Tsawwassen HD. Once the first in-season Canadian Commercial Total Allowable Catch (CCTAC) has been determined for Fraser Sockeye salmon, TFN will be issued licences by DFO for the Tsawwassen commercial allocation for Fraser River Sockeye salmon, as defined in the TFN Harvest Agreement. TFN will work with DFO to determine the timing, location and other details related to TFN commercial harvest opportunities. TFN fishers and the TFN Fisheries Department will

[2] The run timing for the various Fraser Sockeye salmon stock timing groups are not final (based on the final IFMP).

endeavor to minimize the encounter rate and harvest for non-target species (i.e., species without directed fishing effort during the Sockeye salmon fishing periods). A portion of the TFN FSC Sockeye salmon allocation may be retained to be taken as bycatch in TFN FSC fisheries conducted in August to harvest the TFN allocation for Chinook salmon.

Timing: If any inter-First Nation FSC sharing arrangement fisheries are permitted to target Early Stuart Sockeye salmon, TFN expects that its members will be provided an opportunity to harvest some Sockeye salmon during the period when Early Stuart Sockeye salmon are migrating through the TFA. These fisheries would typically start on Friday. The duration and timing of these fisheries will be determined in weekly consultations with DFO, typically on the Wednesday prior.

From 26 July through 7 August 2019, the TFN's proposed Sockeye salmon fishing is 48 hours per week, subject to conservation; and these weekly fisheries will start on Friday at a time that will be determined in weekly consultations with DFO on the Wednesday prior.

From 8 August through 2 September 2019, the TFN's proposed Sockeye salmon fishing is 48 hours per week (subject to conservation), if required to achieve the TFN Sockeye salmon allocation. These weekly fisheries will start on Friday or Saturday at a time that will be determined in weekly consultations with DFO on the Wednesday prior. Note the end dates for Sockeye salmon fisheries depend on the timing of Interior Fraser River (IFR) Coho window closures currently scheduled for 3 September to 4 October 2019.

Gear: Approved selective fishing methods may be used during any fishing period, if identified on the HD. Any selective harvest methods not already identified will be approved prior to fishing.

Drift nets with a minimum mesh size of 10 cm/4 in, to a maximum of 15 cm/5-7/8 in, a maximum length of 50 fathoms, and a maximum depth of 60 meshes may be used.

Size: No Sockeye salmon less than 30 cm/12 in in nose-fork length will be harvested, other than bycatch after all efforts have been made to release salmon unharmed have been taken.

Expectation: Based on escapement plan options outlined in the final IFMP and the pre-season (50% probability) run size forecast, the Canadian Total Allowable Catch (CTAC) is estimated to be below 3 million Sockeye salmon. Therefore, the expected harvest level for the 2019 TFN FSC Sockeye salmon fisheries will be will not reach the FSC maximum amount of 15,226. Pre-season sockeye allocation to be determined closer to fishing period. TFN's commercial allocation for Sockeye salmon is 0.78% of the Canadian Commercial Total Allowable Catch (CCTAC) of Fraser River Sockeye salmon. The harvest level for the 2019 TFN commercial Sockeye salmon fisheries will be determined as soon as the CCTAC has been defined for Fraser River Sockeye salmon.

Both the TFN FSC and commercial allocations may change during the fishing season with changes in the returning abundance of Fraser River Sockeye salmon.

Pink Salmon

Conservation: For 2019, which is a Pink year, the forecast return at the median (P50) level is lower than the long-term average, and the brood year (2017) fry abundance was also lower than average. Limited fishing opportunities are expected in 2019. The escapement strategy for Fraser Pink salmon continues to be based on an interim escapement goal of 6M Fraser River Pink salmon.

Conservation concerns related to some Late-Summer Fraser Sockeye salmon stocks, Fraser Steelhead, lower Fraser Coho salmon, and Interior Fraser River Coho salmon could affect the timing and fishing methods permitted for commercial fisheries that target Fraser Pink salmon stocks. Harvest of Fraser Pink salmon in 2019 may be constrained by the management objectives for Fraser Sockeye and for stocks of concern, particularly Interior Fraser River Coho salmon and Steelhead.

In some cases, full harvest targets may not be harvestable due to conservation concerns and management considerations that are identified in-season.

TFN Fishery: Pink salmon may be harvested for FSC purposes by designated TFN fishers at the times and locations defined in a Tsawwassen HD for fisheries that target Fraser Sockeye salmon. Once the first in-season Canadian Commercial Total Allowable Catch has been determined for Fraser Pink salmon, TFN will be issued licences by DFO for the Tsawwassen commercial allocation for Fraser River Pink salmon, as defined in the TFN Harvest Agreement. TFN will work with DFO to determine the timing, location, and other details, related to TFN commercial harvest opportunities. TFN fishers and the TFN Natural Resource Department staff will endeavor to minimize the encounter rate for non-target species (i.e., Steelhead, sturgeon, Lower Fraser Coho salmon, and Interior Fraser River Coho salmon).

Timing: TFN harvests of Pink salmon for FSC purposes will occur during Sockeye salmon FSC fisheries as defined above. TFN commercial harvest of Fraser Pink Salmon is anticipated to occur between 1 August and 20 September depending on the run timing, and outside of the IFR Steelhead 42-day commercial closure window (21 September – 1 November). The precise timing for these fisheries will be determined in weekly consultations with DFO during this period.

Gear: FSC fisheries will be planned to maximize the use of selective gear types (i.e., fishwheels) and reduce bycatch where possible. Any selective harvest methods not already identified will be approved prior to fishing.

Size: No Pink salmon less than 30 cm/12 in in nose-fork length will be harvested other than as bycatch when a mortal wound is obvious.

Expectation: Based on the pre-season (50% probability) run size forecast, the expected FSC harvest for 2019 is up to 2,500 Pink salmon as incidental catch in the TFN Sockeye salmon fisheries. TFN's commercial allocation for Pink salmon is 0.78% of the CCTAC of Fraser River Pink salmon. The harvest level for the 2019 TFN commercial Pink salmon fisheries will be determined as soon as the CCTAC has been defined for Fraser River Pink salmon. The TFN commercial allocations may change during the fishing season with changes in the returning abundance of Fraser River Pink salmon.

Chum Salmon

Conservation: Formal quantitative forecasts are not prepared for Fraser River Chum, but the qualitative Salmon Outlook for 2019 is "near target". However, conservation concerns related to Interior Fraser Steelhead, Lower Fraser Coho salmon, and Interior Fraser River Coho salmon could affect the timing and fishing methods permitted for commercial fisheries that target Fraser Chum salmon stocks. The IFMP defines the decision guidelines for fisheries that target Fraser River Chum salmon stocks. TFN recommends that no commercial fisheries be permitted to harvest Fraser Chum salmon until a TAC has been determined. The first in-season estimate of the return and terminal TAC for Fraser Chum salmon should be available mid-October 2019.

TFN Fishery: Chum salmon may be harvested for FSC purposes by any designated TFN fishers at the times and locations defined in a Tsawwassen HD. Once the first in-season Canadian Commercial Total Allowable Catch has been determined for Fraser Chum salmon, TFN will be issued a HD by DFO for the Tsawwassen commercial allocation for Fraser River Chum salmon, as defined in the TFN Harvest Agreement. TFN will work with DFO to determine the timing, location and other details related to TFN commercial harvest opportunities. TFN fishers and the TFN Natural Resource Department will endeavor to minimize the encounter rate for non-target species (e.g., Steelhead, sturgeon, Lower Fraser Coho salmon, Interior Fraser River Coho salmon).

Timing:[3] From late October through 30 November 2019, based on the proposed IFR Coho salmon window closure (3 September – 4 October) and IFR Steelhead closure (28 September – 24 October). Starting 25 October, TFN's proposes a 48-hour Chum salmon fishery and thereafter, timing will be determined in consultation with DFO.

If TFN has a commercial Chum salmon allocation in 2019, TFN proposes to use their standard Chum salmon drift nets during similar time periods when Area E and other Fraser First Nations are permitted to conduct commercial fisheries that target Fraser Chum salmon (should they sign Economic Access Agreements with the Department) and to conduct an experimental selective fishery to harvest the portion of their commercial Chum salmon allocation that was not harvested using their standard Chum

[3] Timing dates for FSC Chum salmon fisheries based on final salmon IFMP.

salmon drift nets. The timing for these commercial fisheries is expected to begin after the 42-day window closure (commercial gill net, purse seine, beach seine, and shallow seine fisheries and Fraser River recreational fisheries – 21 September – 1 November). TFN proposes 48-hour Economic Opportunity fisheries starting 2 November. All fishery time frames are estimates and final dates will be determined according to in-season migration timing information.

Gear: Previously approved selective fishing methods may be used during any fishing period, if identified in the HD.

Drift nets with a minimum mesh size of 15.8 cm/6-1/4 in, a maximum length of 50 fathoms, and a maximum depth of 60 meshes may be used during the period of approximately early October through 30 November 2019. Revival boxes will be present on vessels greater than thirty feet – representing about 19% of TFN's fleet.

Size: No Chum salmon less than 30 cm/12 in in nose-fork length will be harvested other than as bycatch when a mortal wound is obvious.

Expectation: TFN Chum salmon allocation for FSC fisheries would be 2,576 Chum salmon assuming Terminal Surplus is greater than 100,000 in 2019.

TFN's commercial allocation for Chum salmon is 3.27% of the Terminal Commercial Catch (TCC) of Fraser River Chum salmon.

Coho Salmon

Conservation: Conservation concerns have been identified for Interior Fraser River Coho salmon and Lower Fraser Coho salmon. The preliminary outlook for 2019 is for continued low abundance due to low parental escapement and the current generally unfavorable marine conditions. Sustained improvement in marine conditions will be required to improve outlook and rebuild abundance. A formal forecast will be presented in late spring 2019 in the final Salmon IFMP. All Lower Fraser Coho and Interior Fraser River Coho stocks are in Outlook Category 1 (Stock of Concern) for 2019. Therefore, regardless of the exploitation rate selected for the 2019 fishing season, First Nations fisheries both off the mouth of, and in, the Fraser River will likely continue be affected to some degree during IFR Coho window closures and IFR Steelhead closures currently scheduled for 3 September to 24 October 2019.

TFN Fishery: Coho salmon may be harvested for FSC purposes, consistent with relevant provisions laid out in the IFMP, by any designated TFN fishers at the times and locations defined in a Tsawwassen HD. TFN fishers and the TFN Fisheries Department will endeavor to minimize the encounter rate for non-target species. As indicated in the Tsawwassen HD all efforts and attempts shall be made to return all non-target species including sockeye, wild Coho salmon, steelhead salmon and sturgeon, to the water alive and unharmed.

After all efforts and attempts to return all non-target species to the water alive and unharmed have been made, wild Coho salmon may be retained.

Timing:[4] From approximately late October through 30 November 2019, TFN may harvest Coho salmon captured in their Chum salmon FSC fisheries up to a pre-determined maximum of 500 pieces. The Department will work with TFN to provide access to Coho salmon in times and areas with minimal impact on stocks of concern, and consistent with the overall 2019 IFR Coho salmon and Steelhead management approach.

Gear: Approved selective fishing methods may be used during any fishing period, if identified in the harvest documents.

Drift nets with a minimum mesh size of 15.8 cm/6-1/4 in, a maximum length of 50 fathoms, and a maximum depth of 60 meshes may be used during the period of early October through 30 November 2019.

Size: No Coho salmon less than 30 cm/12 in in nose-fork length will be harvested other than as bycatch when a mortal wound is obvious.

Expectation: As outlined in Appendix J-2 of the TFA, TFN's Coho salmon allocation for FSC fisheries will be **500 Coho salmon** (hatchery-marked) in 2019. The harvest may take place in the following manner:

a. Incidentally in FSC fisheries that target other species; or

b. Using selective harvesting techniques to capture specific Coho salmon stocks.

If, in the future, Fraser River wild Coho salmon stocks rebuild to levels that allow harvest for FSC purposes TFN expects DFO will permit TFN members to harvest the TFN Coho salmon allocation in a manner consistent with other Fraser First Nation FSC fisheries.

Crab

Conservation: The following conservation issues have been identified by DFO:

- There is a concern that undersized, female, and soft-shell crab are being removed through either illegal harvests or incidental mortality due to intensive fishing. Due to increased injury and mortality, the capture and handling of undersized, female, and soft-shell crab is a conservation concern.
- Illegal crab trap gear continues to be a conservation concern. Crab traps having undersized, missing, or closed escape rings contribute to higher undersized, female,

[4] Timing dates for harvesting FSC Coho salmon are based on final salmon IFMP.

and soft-shell mortalities. If lost, these traps can continue to fish until they structurally deteriorate or become buried in the substrate.[5]

- All harvesters (Commercial, First Nation, and Recreational) should have the same minimum size limit for conservation of male crab.
- Commercial and recreational harvesters must release all females regardless of size. Tsawwassen First Nation crab harvesters will be required to release all female crabs. Mandatory release of female crabs will be included as a condition in the harvest document.
- 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 female and undersized crabs. At this time First Nation harvesting for domestic purposes is allowed during the commercial closed period for soft shell (December to mid-June in Areas 28 and 29, and December to mid-July in Boundary Bay).
- It is recommended that TFN crab harvesters reduce fishing effort during the soft-shell period to reduce mortalities of undersized crabs. In Areas 28 and 29, the soft-shell or moulting period is from April to mid-June (May to mid-July in Boundary Bay).

TFN Fishery: Crab may be harvested for FSC purposes by any designated TFN fisher at the times and locations defined in a Tsawwassen Harvest Document. TFN fishers and the TFN Fisheries Department will endeavor to minimize the encounter rate and harvest for non-target species. TFN has communal commercial access to crab, however the commercial fishery is subject to separate licence conditions and is not discussed in this document.

Timing: From 1 April 2019 through 31 March 2020, 24 hours per day, every day.

Location: The fishing area listed in the harvest document is as follows: The waters of the Strait of Georgia bounded by a line commencing at 49° 11′ 3.1524″ N latitude and 123° 12′ 26.08868″ W longitude then to 49° 7′ 48.216″ N latitude and 123° 19′ 50.4228″ W longitude then to 49° 5′ 15.6948″ N latitude and 123° 18′ 36.8958″ W longitude then to 49° 0′ 8.0028″ N latitude and 123° 18′ 5.1156″ W longitude then to 49° 0′ 7.5564″ N latitude and 123° 5′ 27.528″ W longitude and the waters of Boundary Bay bounded by a line commencing at 49° 0′ 7.5198″ N latitude and 123° 2′ 6.5898″ W longitude then to 49° 0′ 7.5414″ N latitude and 122° 49′ 10.8552″ W longitude then to 49° 1′ 15.2256″ N latitude and 122° 48′ 20.7858″ W longitude. Portions of DFO Management Subareas 29-6, 29-7, 29-8, 29-9, 29-10.

As noted in the Tsawwassen FOG document, crab buoys are not permitted in the portion of the TFA defined as the "Navigational No Float Zone". TFN fishers are

[5] Integrated Fisheries Management Plan, Crab by Trap 2019.

permitted to fish for crab in this zone, but any buoys associated with crab traps must remain outside this zone.

Gear: Each TFN vessel may use up to a maximum of 50 traps to harvest crab for FSC purposes. The following requirements apply to all traps used to catch crabs:

- Biodegradable escapement mechanisms are required on each trap in the form of a rot cord (untreated cotton twine no greater than No. 120), 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 two escape holes (at least 105 mm in diameter) that are not more than 100 mm below the top of the frame.
- Unique plastic trap tags will be applied to each TFN each crab trap used in the FSC fishery to facilitate the identification of TFN traps and enforcement of fisheries regulations. Each harvester will also receive 10 extra tags in case they lose some of the 50 tags that can be fished per vessel. The trap tags will be replaced on a two-year basis.
- If a harvester loses 10 or more plastic trap tags, the harvester should contact the TFN Natural Resource Enforcement officer to obtain a replacement set of trap tags (marked specifically as replacement tags). The regular tags must be removed from the traps, returned to the TFN Natural Resource Enforcement officer, and replaced with the new replacement set.
- TFN will provide DFO will a list of the plastic trap tags numbers have been distributed to which harvesters, as well as the vessels designated to fish crab. The list will be updated as needed, for example when additional harvesters request crab tags, when new vessels enter the fishery, when harvesters received replacement tags, or when new tags are issued each year. Updated lists will be sent to DFO as they are updated or on a monthly basis.
- Traps set individually will attach a floating buoy legibly marked with Tsawwassen First Nation, participant's name and the identification number for the vessel used. Multiple traps set in a string will have a floating buoy legibly marked with Tsawwassen First Nation, participant's name and the identification number for the vessel used attached to both ends of each string. The floats must be large enough so that they will not go underwater with tide or current changes.

Size: The minimum size for Dungeness crab is 16.5 cm/6-1/2 in and for Red rock crab are 11.5 cm/4-1/2 in, both measured in a straight line across the widest part of the carapace, or shell. All crab less than the minimum size limit shall be immediately released to the area of capture.

Intertidal Bivalves

Conservation: No conservation concerns have been identified for intertidal bivalves in the Tsawwassen Intertidal Bivalve Fishing Area.

TFN Fishery: TFN currently does not have a harvest document for bivalves, but is working with Federal and Provincial government agencies, the Canadian Shellfish Sanitation Program (CSSP) and South Coast First Nations to establish harvesting locations within the Tsawwassen Intertidal Bivalve Harvest Area (Southern Gulf Islands). Once locations have been determined and South Coast First Nations have been contacted, intertidal bivalves may be harvested for FSC purposes by any designated TFN fishers at the times and locations defined in a Tsawwassen Harvest Document.

Timing: To be determined.

Location: As described in the Tsawwassen FOG document:

- 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.

Sanitary and Biotoxin Closures:

- Collection of bivalves from areas in closed status for sanitary contamination under the Management of Contaminated Fisheries Regulations is not authorized. All clam harvesters are advised to check for both bivalve shellfish biotoxin (PSP/Redtide, ASP, DSP) sanitary (emergency, annual, seasonal) contamination closures, prior to any harvest or consumption. Information on in-season closures due to biotoxins and on annual sanitary (human and animal waste) contamination closures is available at local DFO offices, by calling the toll-free information line at 1-866-431-3474, or on the Internet at www.pac.dfo-mpo.gc.ca/psp.

Gear: TFN members propose to use typical hand pick harvesting techniques (shoves, rakes, and buckets) to harvest intertidal bivalves for FSC purposes.

Size: There are currently no size restrictions for FSC harvests of intertidal bivalves.

Shrimp and Prawns

Conservation: No conservation concerns have been identified for shrimp and prawns in the TFA.

TFN Fishery: TFN currently does not hold a harvest document for Shrimp and Prawns. Upon request by TFN, shrimp and prawns may be harvested for FSC purposes by any designated TFN fishers at the times and locations defined in a Tsawwassen Harvest Document. TFN fishers and the TFN Fisheries Department will endeavor to minimize the encounter rate and harvest for non-target species.

Timing: From a date that is established in a Tsawwassen Harvest Document through 31 March 2020, 24 hours per day, every day.

Location: As noted in the Tsawwassen FOG document, buoys are not permitted in the portion of the TFA defined as the "Navigational No Float Zone". As indicated for crab, when a harvest document for shrimp and prawns is issued, TFN fishers will be permitted to fish for shrimp and prawns in this zone, but buoys for their shrimp and prawn traps must remain outside this zone.

Gear: TFN fishers propose to use standard shrimp and prawn traps to harvest shrimp and prawns for FSC purposes. Number of traps will be determined.

Size: There are currently no size restrictions for FSC shrimp and prawn harvests.

Rockfish, Lingcod, Halibut, Dogfish, and Sole

Conservation: Monitoring and research programs have indicated that inshore rockfish stocks (Yelloweye, Quillback, Copper, China, and Tiger) and Lingcod in the Strait of Georgia are at low levels of abundance. The management objective for inshore rockfish species (which include Yelloweye, Quillback, Copper, China, and Tiger) is to continue conservation strategies that will ensure stock rebuilding over time. However, at this time, FSC fishing for rockfish and Lingcod will continue to be permitted. There are currently no conservation concerns for halibut, dogfish, or sole in the TFN fishing area.

TFN Fishery: Rockfish, lingcod, halibut, dogfish, sablefish, and flatfish may be harvested for FSC purposes by any designated TFN fishers at the times and locations defined in a Tsawwassen Harvest Document. TFN fishers and the Tsawwassen Natural Resource Department will endeavor to minimize the encounter rate and harvest for non-target species.

Timing: From 1 April 2019 through 31 March 2020, 24 hours per day, every day.

Gear: TFN members will use long line gear and rod and reel to harvest rockfish, Lingcod, halibut, dogfish, and sole for FSC purposes.

Size: There are currently no size restrictions for FSC harvests of rockfish, Lingcod, halibut, dogfish, and sole.

Expectation: Fisheries and Oceans Canada has been asked to provide information on the status of groundfish species found in the TFA and any closures for groundfish species in the TFA.

APPENDIX B
Examples of Harvest Documents

blank page

Fisheries and Oceans Canada | Pêches et Océans Canada

Licence Number: XHD 17 2019
File Number: LFA-19-HD 420/TSAWWASSEN
Valid From: 17-Aug-2019
Expiry Date: 17-Aug-2019

This licence and/or permit is issued under the authority of SECTION 4 OF THE ABORIGINAL COMMUNAL FISHING LICENCES REGULATIONS.

This licence and/or permit authorizes the person(s) listed below, subject to the following terms and conditions, to collect the species and quantity of fish identified below for: Food, Social, and Ceremonial purposes. Non-compliance with any condition of this licence and/or permit may result in the cancellation of this licence and/or permit.

Licence/Permit Activity Description:
HARVEST DOCUMENT FOR TSAWWASSEN FIRST NATION FOR SALMON

Whereas a final agreement with Tsawwassen First Nation is now in effect;
And whereas the final agreement describes a fishing right and provides for the issuance of harvest documents for the fishing right.
And whereas, under the final agreement, a harvest document may be, among other things, a licence or other document, or amendment thereto, issued by the Minister under Federal Law or Provincial Law in respect of the fishing right;
Now therefore, this harvest document is issued under the authority of section 7 of the Fisheries Act and section 4 of the Aboriginal Communal Fishing Licences Regulations.
This harvest document is issued to Tsawwassen First Nation in accordance with the final agreement and confers, subject to the Fisheries Act and regulations thereunder, the authority to fish for the following purposes: Food, Social and Ceremonial.

Period of Activity:
Subject to amendments to the conditions of this harvest document and subject to close times as may be varied by the Director General, Pacific Region, DFO in accordance with the Fishery (General) Regulations, species of fish set out in this harvest document may be harvested under this licence. Subject to closures and other terms and conditions of this licence, the authority to fish under this licence will expire on August 17, 2019 or earlier if DFO, after consultation with Tsawwassen First Nation has determined there is a conservation concern.

Licence Holder:
FIN: 108234 TSAWWASSEN FIRST NATION

Allowable Fishing Times:
Fishing periods defined for a species supersede all periods defined in this section.

Start: Saturday, August 17, 2019 at 14:00 **End:** Saturday, August 17, 2019 at 22:00

Species, Quantity of Fish, Area(s) and Gear:

Species:	CHINOOK SALMON (Oncorhynchus tshawytscha)	
Allowable Fishing Times:	Start:	Saturday, August 17, 2019 at 14:00
	End:	Saturday, August 17, 2019 at 22:00
Gear:	Gillnet, Drift Gillnet, Set, Anchored	
Licence Area:	TSAWWASSEN TREATY FISHING AREA	

Additional Information:

Additional Information:

Drift Nets on condition that:

i. Nets do not exceed a maximum of 50 fathoms or 300 feet in length and a maximum depth of 60 meshes with a minimum mesh size of eight (8") inches with 3:1 hang ratio.

ii. Each Participant fishes only one net.

iii. Only one net is fished from any vessel.

iv. Each net is attended at all times by the Participant who is fishing the net.

v. No vessel fishing under the authority of this harvest document has on board, in a hung condition, any net that does not meet the conditions in (i) above, and vi. Spare nets on board a vessel actively fishing are kept in a stowed condition.

Set Nets on condition that:

i. Nets do not exceed a maximum of 10 fathoms or 60 feet and a maximum depth of 60 meshes with a minimum mesh size of eight (8") inches with 3:1 hang ratio.

ii. All Set Nets are identified by a floating buoy prominently displaying the Participant's designation number, and the Participant's designation number is the only number displayed on the buoy; and,

iii. All Set Nets fished from poles have buoys attached to the end of the net farthest from the beach by means of a tag line of sufficient length to allow the buoys to be on the surface of the water and clearly visible for inspection at all times.

AREA: Fishing is permitted in the following area:

Those waters of the main arm of the Fraser River westerly of the power lines immediately downstream of the Port Mann Bridge, the waters of the North Arm of the Fraser River from the junction of the main arm downstream to the Arthur Laing Bridge, the waters of the Middle arm of the Fraser River, the waters of the Strait of Georgia bounded by a line commencing at 49° 11' 3.1524" N latitude and 123° 12' 26.08868" W longitude then to 49° 7' 48.216" N latitude and 123° 19' 50.4228" W longitude then to 49° 5' 15.6948" N latitude and 123° 18' 36.8958" W longitude then to 49° 0' 8.0028" N latitude and 123° 18' 5.1156" W longitude then to 49° 0' 7.5564" N latitude and 123° 5' 27.528" W longitude and the waters of Boundary Bay bounded by a line commencing at 49° 0' 7.5198" N latitude and 123° 2' 6.5898" W longitude then to 49° 0' 7.5414" N latitude and 122° 49' 10.8552" W longitude then to 49° 1' 15.2256" N latitude and 122° 48' 20.7858" W longitude. Portions of DFO Management Subareas 29-6, 29-7, 29-8, 29-9, 29-10, 29-11, 29-12, 29-13, 29-14, 29-17.

Terms and Conditions:

Definitions

“Drift Net” means a gillnet free floating in the water, not attached in any manner to the shore, operated from a boat.
“DFO” means the Department of Fisheries and Oceans.
“Fishery” means fishing under the authority of this harvest document.
“Identification Number” in respect of a vessel means
(a) in the case of a registered commercial fishing vessel, the vessel registration number, and
(b) in the case of a vessel that is not a registered commercial fishing vessel, the number of the vessel identification decal issued by Tsawwassen First Nation.
“Observer” means an observer designated under section 39 of the Fishery (General) Regulations.
“Participant” means an individual carrying on fishing or any related activity, including transporting fish caught under the authority of this harvest document.
“Set Net” means a gillnet that is either tied to shore at one end and anchored in the river at the other end, or anchored

in the river at both ends, or tied to the shore at one end and tied to a net pole at the other end.
“TFN” means Tsawwassen First Nation
“TFD” means Tsawwassen Fishing Department located at 1926 Tsawwassen Drive, V4M 4G2 604-943-2112.

Species and Quantity

The Fishery is limited to a harvest of chinook salmon.

All efforts and attempts shall be made to return all non-target species including sockeye salmon, steelhead and sturgeon to the water alive and unharmed.

Sockeye salmon, steelhead and sturgeon must not be retained.

Use of Fish

Fish caught under this licence are for food, social and ceremonial purposes. Without prejudice to future agreements or regulations, sale of Fish caught under this licence is **not** permitted.

Designation of Individuals and Vessels

Tsawwassen First Nation may not designate individuals who are not Tsawwassen Members to harvest salmon. Where Tsawwassen First Nation designates an individual; a Tsawwassen fishing licence will be issued. An individual fishing under this harvest document must carry their Tsawwassen fishing licence at all times while participating in the Fishery or while transporting fish harvested in the Fishery and must presented it to any DFO Fishery Officer, DFO Fishery Guardian or Aboriginal Fishery Officer upon request.

A vessel used in the Fishery must be identified by affixing a vessel identification decal issued by Tsawwassen First Nation. The decal must be affixed to the vessel so that the decal is legible and unobstructed when viewed from another vessel or from shore. Where the vessel is not a registered commercal vessel, the decal must be uniquely numbered. Where the vessel is a registered commercal vessel, the decal must not be numbered.
Prior to each fishing period, the Tsawwassen First Nation will provide to DFO a list of Tsawwassen First Nation members and vessels designated to fish under this Harvest Document and, in the case of a vessel, the vessel’s Identity Number, and will immediately inform DFO of any changes to the list.

Catch Monitoring and Harvest Reporting

1.1 Participant and Interview Data
Participants are required to notify the TFD of their intentions to harvest fish prior to their participation in each fishing period and report their catch and fishing effort information to the TFD after completion of each fishing period. 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”.

1.2 Daily Fishing Logs
Each Participant will maintain a daily fishing log using the “TFN Salmon Fisheries Log Data Form”. Upon completion of each fishing period, each Participant will submit logs to monitors at landing sites or directly to the TFD office.

1.3 Validation

TFN will conduct on-water catch monitoring surveys or TFN fisheries officer patrols at least once every day during fishing period and, will record vessels participating in the Fishery. TFN will compare these records with the list of vessels designated to fish under this harvest document, will observe catches and compare it with catch reported orally to the TFD or recorded in daily logs.

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

1.4 Reporting

Within 24 hours of the close of a fishing period, TFN will provide a preliminary catch report to DFO, including the names and the Vessel Identification Numbers 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 Identification Numbers, gear type, hours fished, number and species of Salmon and other species kept and number and species of Salmon and other species released. TFN will contact Participants who did not report after the Fishing period 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 Fishing period.

Compliance with the Fisheries Act

Pursuant to subsection 22(6) of the Fishery (General) Regulations, compliance with the Fisheries Act and the regulations made under the Act is a condition of this licence.

Licence Issued: 16 August 2019

Licence Printed: 16 August 2019
Licence Issued By: BRIAN MATTS, Fisheries and Oceans Canada

Fisheries and Oceans Canada | Pêches et Océans Canada

Licence Number: XHD 1 2019
File Number: LFA-19-HD400/TSAWWASSEN
Valid From: 01-Jan-2019
Expiry Date: 31-Mar-2019

HARVEST DOCUMENT FOR TSAWWASSEN FIRST NATION FOR CRAB

Whereas a final agreement with Tsawwassen First Nation is now in effect;
And whereas the final agreement describes a fishing right and provides for the issuance of harvest documents for the fishing right.
And whereas, under the final agreement, a harvest document may be, among other things, a licence or other document, or amendment thereto, issued by the Minister under Federal Law or Provincial Law in respect of the fishing right;
Now therefore, this harvest document is issued under the authority of section 7 of the Fisheries Act and section 4 of the Aboriginal Communal Fishing Licences Regulations.
This harvest document is issued to Tsawwassen First Nation in accordance with the final agreement and confers, subject to the Fisheries Act and regulations thereunder, the authority to fish for the following purposes: Food, Social and Ceremonial.

Period of Activity:
Subject to amendments to the conditions of this harvest document and subject to close times as may be varied by the Director General, Pacific Region, DFO in accordance with the Fishery (General) Regulations, species of fish set out in this licence may be harvested under this licence. Subject to closures and other terms and conditions of this licence, the authority to fish under this licence will expire on March 31, 2019 or earlier if DFO, after consultation with the First Nation has determined that the maximum quantity has been reached.

Licence Holder:
FIN: 108234
1926 TSAWWASSEN DRIVE
TSAWWASSEN BC V4M 4G2

TSAWWASSEN FIRST NATION

Contact Number: 604-943-4199
Fax Number: 604-943-9226

Allowable Fishing Times:
Fishing periods defined for a species supersede all periods defined in this section.

Start: Tuesday, January 1, 2019 at 00:01 **End:** Sunday, March 31, 2019 at 23:59

Individuals or groups assisting with the authorized activity:

Tsawwassen First Nation may not designate individuals who are not Tsawwassen Members to harvest crab.

Where Tsawwassen First Nation designates an individual, a Tsawwassen fishing licence will be issued. The Tsawwassen fishing licence must be carried at all times while participating in the Fishery or while transporting fish harvested in the Fishery and must be presented to any DFO Fishery Officer, DFO Fishery Guardian or Aboriginal Fishery Officer upon request.

A vessel used in the Fishery must be identified by affixing a vessel identification decal issued by Tsawwassen First Nation. The decal must be affixed to the vessel so that the decal is legible and unobstructed when viewed from another vessel or from shore. Where the vessel is not a registered commercial vessel, the decal must be uniquely numbered. Where the vessel is a registered commercial vessel, the decal must not be numbered.

Before the Fishery commences, Tsawwassen First Nation will provide to DFO a list of Tsawwassen First Nation members and vessels designated to fish under this Harvest Document and, in the case of a vessel, the vessel's Identity Number, and will immediately inform DFO of any changes to the list.

Licence Number: XHD 1 2019
File Number: LFA-19-HD400/TSAWWASSEN
Valid From: 01-Jan-2019
Expiry Date: 31-Mar-2019

Species, Quantity of Fish, Area(s) and Gear:

Species: DUNGENESS CRAB (Metacarcinus magister); GRACEFUL CRAB (Cancer gracilis); RED ROCK CRAB (Cancer productus);

Gear: Hand Picking
Trap, Crab
Trap, Hoop or Ring Net
Dip Net

Licence Area: See Additional Description

Additional Descriptions:

Fishing is permitted in the following area(s): The waters of the Strait of Georgia bounded by a line commencing at 49° 11' 3.1524" N latitude and 123° 12' 26.08868" W longitude then to 49° 7' 48.216" N latitude and 123°19' 50.4228" W longitude then to 49° 5' 15.6948" N latitude and 123° 18' 36.8958" W longitude then to 49° 0' 8.0028" N latitude and 123° 18' 5.1156" W longitude then to 49°0' 7.5564" N latitude and 123° 5' 27.528" W longitude and the waters of Boundary Bay bounded by a line commencing at 49° 0' 7.5198" N latitude and 123° 2' 6.5898" W longitude then to 49° 0' 7.5414" N latitude and 122° 49' 10.8552" W longitude then to 49° 1' 15.2256" N latitude and 122° 48' 20.7858" W longitude. Portions of DFO Management Subareas 29-6, 29-7, 29-8, 29-9, 29-10.

Species and Quantity:

The Fishery is limited to a harvest of: Dungeness Crab, Graceful Crab and Red Rock Crab.

The minimum size for Dungeness Crab is 165 mm and for Red Rock Crab is 115 mm, both measured in a straight line across the widest part of the carapace, or shell.

All female crabs and crabs less than the minimum size limit shall be immediately released to the area of capture in a manner that causes least harm. No female or undersized crabs shall be retained.

Soft-Shell Periods: Fishers are reminded that there is increased mortality during the crab soft-shell periods and are encouraged to carry out their fishing activity, as much as possible, during other time periods. The legal-sized male crab soft-shell periods are April to mid-June in the Fraser River estuary and May to mid-July in Boundary Bay.

The following gear is permitted to be used:
Hand-picking, Dip Net, Ring Net, and Traps, on condition that:

(i) Traps set individually each have attached a floating buoy legibly marked with the name of the First Nation and Participant and with the Identification Number for the vessel used; and multiple traps set in a string have a floating buoy legibly marked with the name of the First Nation and Participant and with the Identification Number for the vessel used attached to both ends of each string. All submerged fishing gear must have a float of sufficient size such that it will not submerge with tidal or current change.

(ii) All buoy lines must be of a non-floating material so that the lines remain below the surface of the water while fishing, in order to minimize navigational hazards.

(iii) All crab traps must be fitted with at least one escape hole (ring) that is at least 100mm

in diameter and that is not more than 100 mm below the top of the frame.

(iv) All traps have a section in the top or side that has been secured by a length of untreated cotton twine no greater than No. 120. On deterioration this must produce a rectangular opening with a minimum size of 7 cm x 20 cm, or a square opening with a minimum size of 11 cm x 11 cm.

(v) A maximum of 50 traps may be fished per vessel.

(vi) Each trap shall have a plastic trap tag attached to it. Each fisherman is issued 50 trap tags and 10 extra trap tags (in case some traps are lost).

(vii) If a harvester loses 10 or more plastic trap tags, the harvester should contact the Tsawwassen fisheries department to obtain a replacement set of trap tags (marked specifically as replacement tags). The regular tags must be removed from the traps, returned to the Tsawwassen fisheries department, and replaced with the new replacement set.

(viii) Floating buoys must remain at all times outside of the Navigational No Float Zone shown on the map in Schedule A to this harvest document. Any floating buoys placed in the Navigational No Float Zone are subject to removal under authority of the Navigable Waters Protection Act.

Additional Information:

Commercial Fishing Vessels

Any commercial fishing vessels participating in the Tsawwassen FSC crab fishery must be available for inspection prior to engaging in the Area I or Area J commercial fisheries. No fish harvested under the authority of this licence may be on board a vessel engaged in commercial fishing operations. Commercial and FSC crab fishing trips must be conducted separately.

Terms and Conditions:

Definitions

"Commercial Fishing Gear" means power assisted gear commonly used in the commercial fishery including, but not limited to, hydraulic gurdies and trap haulers, powered drums, blocks or live rollers.

“Commercial Fishing Vessel” means a vessel that is registered according to the Pacific Fishery Regulations, 1993 and is used to fish for a species of fish which is authorized by a commercial fishing licence (including a “communal commercial fishing licence” issued under the Aboriginal Communal Fishing Licences Regulations). This does not include vessels without commercial fishing licences fishing for food, social and ceremonial (“FSC”) purposes.

“DFO” means the Department of Fisheries and Oceans.

“First Nation” means the Tsawwassen First Nation.

“Fish” means those species of fish listed in Parts I & II of Schedule I of the Pacific Fishery Regulations, 1993, including herring spawn.

“Fishery” means fishing under the authority of this harvest document.

“Identification Number” in respect of a vessel means
(a) in the case of a registered commercial fishing vessel, the vessel registration number, and
(b) in the case of a vessel that is not a registered commercial fishing vessel, the number of the vessel identification decal issue by Tsawwassen First Nation.

"Management Area" means a management area as defined in the Pacific Fishery Management Area Regulations.

“Observer” means an observer designated under section 39 of the Fishery (General) Regulations.

“Participant” means an individual carrying on fishing or any related activity, including transporting fish, caught under the authority of this harvest document.

"Subarea" means a Subarea as defined in the Pacific Fishery Management Area Regulations.

“Vessel Master” means the individual embarked on the vessel and responsible for the operation of the vessel and the fishing activities carried out under authority of this licence.

Use of Fish

Fish caught under this licence are for food, social and ceremonial purposes. Without prejudice to future agreements or regulations, sale of Fish caught under this licence is **not** permitted.

Catch Monitoring and Harvest Reporting

Participants will notify the Tsawwassen fisheries department before they initiate fishing efforts and will report their catch and fishing effort information after each fishing trip. These notifications and reports may be reported directly to the Tsawwassen fishing department or by interview to an on-duty member of the Tsawwassen fisheries department catch monitoring crew. The Tsawwassen fisheries department will record catch and effort information on the “TFN Crab Fishery Interview Data Form”.

Within 72 hours of the end of each month, Tsawwassen First Nation will provide DFO with a list of all Participants and vessels that participated in the Fishery and a preliminary estimate of the total catch by species for that month.

Each Participant will maintain a daily fishing log for crab fishing efforts using the “TFN Crab Fisheries Log Data Form”.

Validation

Tsawwassen First Nation will conduct on-water catch monitoring surveys or Tsawwassen First Nation’s fisheries officer patrols at random intervals during the Fishery and will record Fishery participants and observe catches for comparison with reported list of Fishery participants and the catch reported in daily logs. Tsawwassen First Nation will conduct interviewers, after completed fishing trips of fishers to obtain data that to validate the information recorded in the harvest logs.

Reporting

Within 72 hours of the end of each month, Tsawwassen First Nation will provide to Karen Burnett, DFO Management Biologist (telephone: 604 666-4819, fax:604-666-7112) a summary table showing the number of Participants interviewed after a fishing trip, the catch and effort observed and the catch and effort reported directly to Tsawwassen fisheries department and recorded in the daily fishing logs.

Key Contacts for this Licence

Contact Information for Fisheries and Oceans Canada (DFO) staffed positions identified within this licence are provided

below:

"**DFO Resource Manager**" Marisa Keefe, Phone: 604-666-6390, and Email: Marisa.Keefe@dfo-mpo.gc.ca.

"**DFO Conservation and Protection Office - Steveston**" Phone: 604-664-9250, Fax: 604-664-9255

"**DFO Conservation and Protection Office - Langley**" Phone: 604-607-4150, Fax: 604-607-4199

"**DFO Management Biologist, Catch Monitoring**" Karen Burnett, Phone: 604-666-4819,
Fax: 604-666-7112, and Email: Karen.Burnett@dfo-mpo.gc.ca.

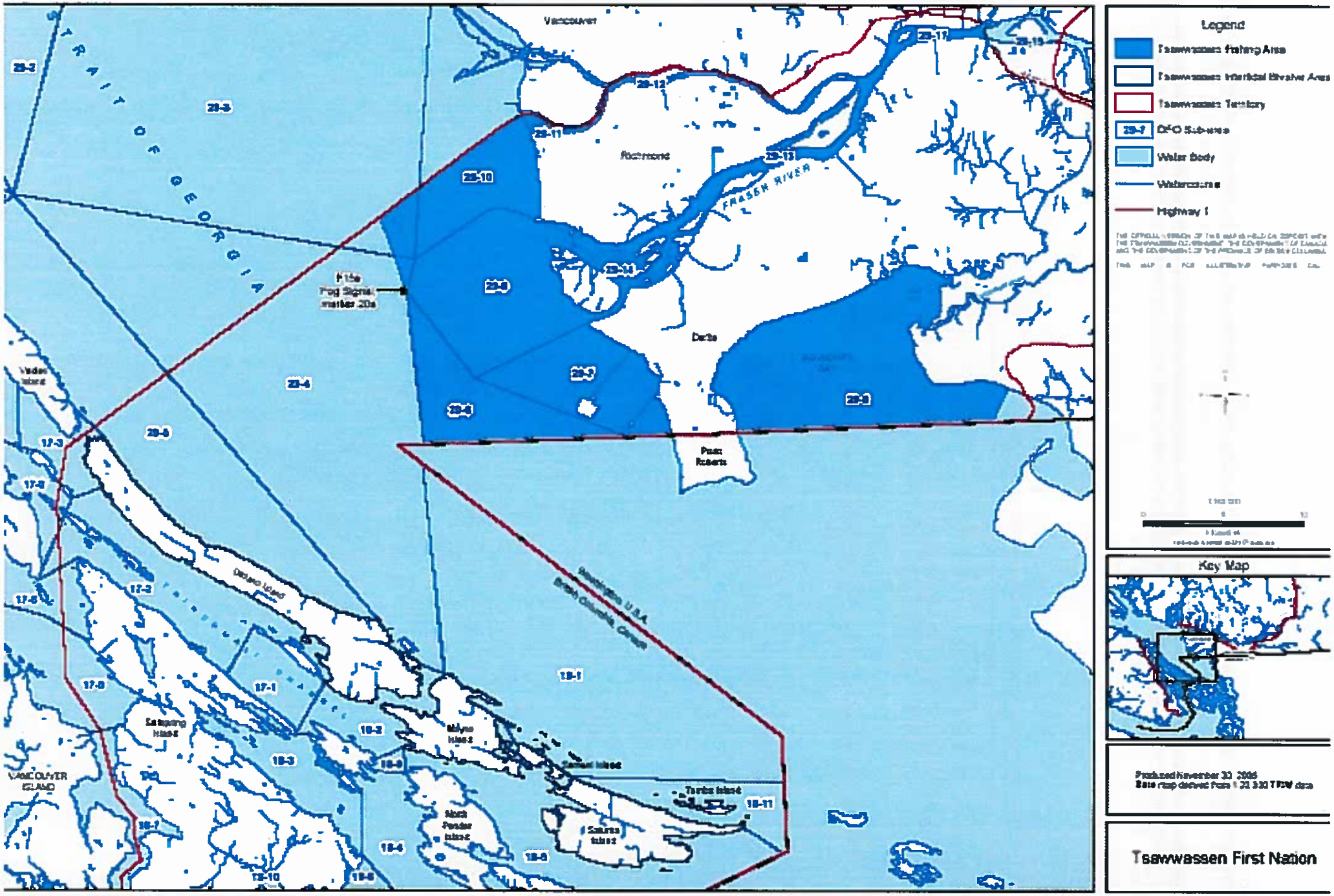
Compliance with the Fisheries Act

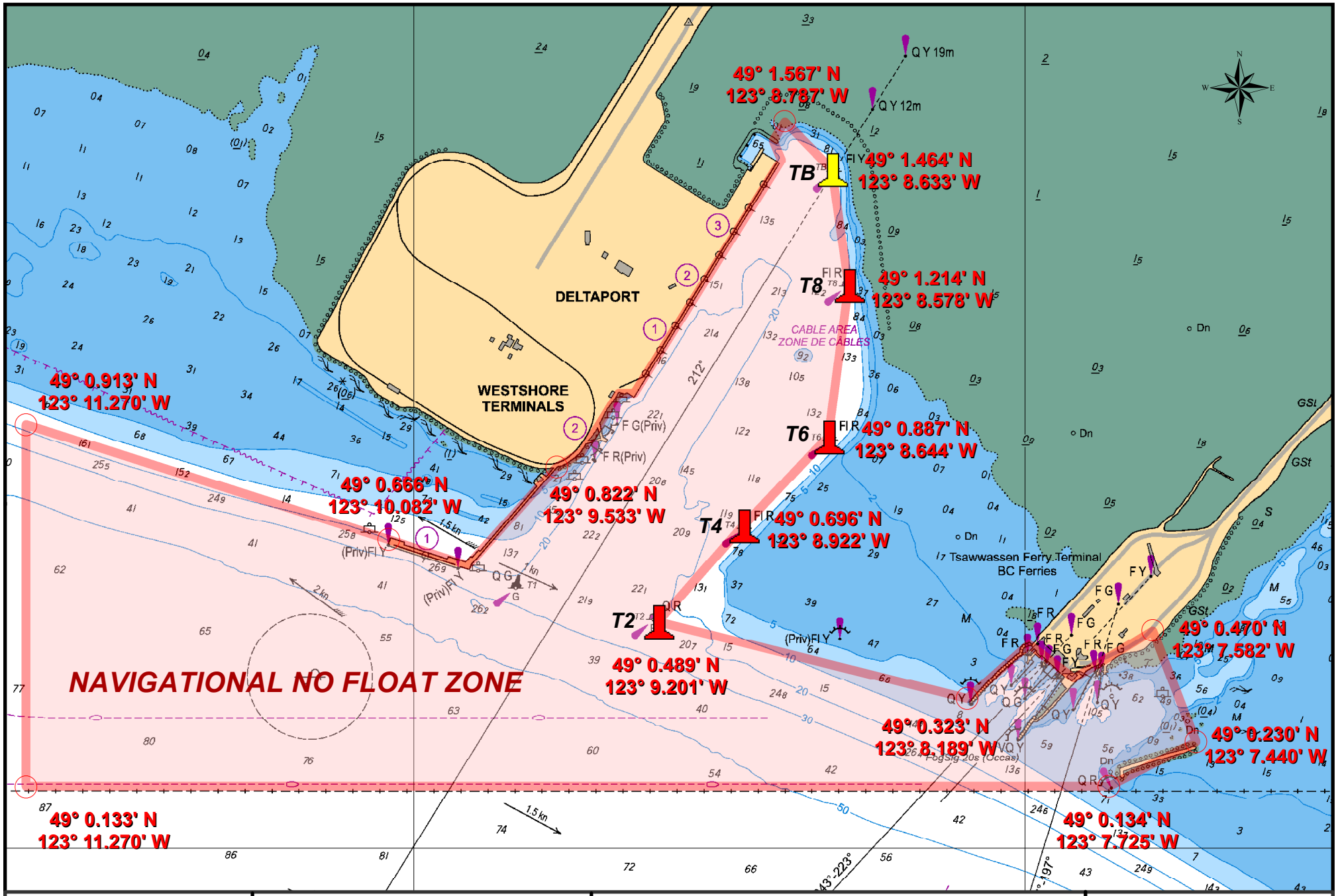
Pursuant to subsection 22(6) of the Fishery (General) Regulations, compliance with the Fisheries Act and the regulations made under the Act is a condition of this licence.

Licence Issued: 12 December 2018

Licence Printed: 12 December 2018
Licence Issued By: MARISA KEEFE, Fisheries and Oceans Canada

Appendix J-1: Tsawwassen Fishing Area and Tsawwassen Intertidal Bivalve Fishing Area





PORT of vancouver

Fisheries and Oceans Canada | Pêches et Océans Canada

ROBERTS BANK

NAVIGATIONAL NO FLOAT ZONE FIRST NATIONS

0 250 500 1,000 1,500 Meters

Mercator Projection, Latitude of True Scale at 49°

Scale 1:20,000

No Float Zone

Map created on January 08, 2018.

Fisheries and Oceans Canada | Pêches et Océans Canada

Licence Number: XHD 6 2019 - Amendment 1
File Number: LFA-19-HD-LP 404/TSAWWASSEN
Valid From: 20-Apr-2019
Expiry Date: 24-Apr-2019

This licence and/or permit is issued under the authority of SECTION 4 OF THE ABORIGINAL COMMUNAL FISHING LICENCES REGULATIONS.

This licence and/or permit authorizes the person(s) listed below, subject to the following terms and conditions, to collect the species and quantity of fish identified below for: Food, Social, and Ceremonial purposes. Non-compliance with any condition of this licence and/or permit may result in the cancellation of this licence and/or permit.

Licence/Permit Activity Description:
HARVEST DOCUMENT FOR TSAWWASSEN FIRST NATION FOR EULACHON

Whereas a final agreement with Tsawwassen First Nation is now in effect;
And whereas the final agreement describes a fishing right and provides for the issuance of harvest documents for the fishing right.
And whereas, under the final agreement, a harvest document may be, among other things, a licence or other document, or amendment thereto, issued by the Minister under Federal Law or Provincial Law in respect of the fishing right;
Now therefore, this harvest document is issued under the authority of section 7 of the Fisheries Act and section 4 of the Aboriginal Communal Fishing Licences Regulations.
This harvest document is issued to Tsawwassen First Nation in accordance with the final agreement and confers, subject to the Fisheries Act and regulations thereunder, the authority to fish for the following purposes: Food, Social and Ceremonial.

Period of Activity:
Subject to amendments to the conditions of this harvest document and subject to close times as may be varied by the Director General, Pacific Region, DFO in accordance with the Fishery (General) Regulations, species of fish set out in this harvest document may be harvested under this licence. Subject to closures and other terms and conditions of this licence, the authority to fish under this licence will expire on April 24, 2019 or earlier if DFO, after consultation with Tsawwassen First Nation has determined there is a conservation concern.

Licence Holder:
FIN: 108234 TSAWWASSEN FIRST NATION

Allowable Fishing Times:
Fishing periods defined for a species supersede all periods defined in this section.

Start: Saturday, April 20, 2019 at 12:00 **End:** Wednesday, April 24, 2019 at 12:00

Individuals or groups assisting with the authorized activity:

TFN has designated the following individuals to participate in this fishery:

M/V-'Raven Lynn' Skipper- Nathan Wilson

M/V-'Way Too Tall' Skipper- Jason Morgan

Designations are personal and non-transferable. Participants who fish under this licence shall carry their Designation or Band Card to establish their membership in the First Nation while participating in the Fishery and while transporting fish harvested in the Fishery and will present such documentation on request by any fishery officer or fishery guardian.

Licence Number: XHD 6 2019 - Amendment 1
File Number: LFA-19-HD-LP 404/TSAWWASSEN
Valid From: 20-Apr-2019
Expiry Date: 24-Apr-2019

Species, Quantity of Fish, Area(s) and Gear:

Species:	EULACHON (Thaleichthys pacificus)	
Allowable Fishing Times:	Start:	Saturday, April 20, 2019 at 12:00
	End:	Wednesday, April 24, 2019 at 12:00
Gear:	Gillnet, Drift	
Licence Area:	TSAWWASSEN TREATY FISHING AREA	
To be Retained:	700 Pounds	

Additional Information:

Drift Nets on condition that:

i. Each Participant may fish using one drift net.

ii.Drift nets shall be no more than one hundred (100) metres in length and shall have a mesh size of no less than twenty-five (25) millimetres and no greater than fifty (50) millimetres.

iii. This fishery will be monitored by TFN Enforcement staff.

AREA:

Drift fishing is permitted in the following area: Those waters of the main arm of the Fraser River westerly of the power lines immediately downstream of the Port Mann Bridge, the waters of the North Arm of the Fraser River from the junction of the main arm downstream to the Arthur Laing Bridge, the waters of the Middle arm of the Fraser River, the waters of the Strait of Georgia bounded by a line commencing at 49° 11' 3.1524" N latitude and 123° 12' 26.08868" W longitude then to 49° 7' 48.216" N latitude and 123° 19' 50.4228" W longitude then to 49° 5' 15.6948" N latitude and 123° 18' 36.8958" W longitude then to 49° 0' 8.0028" N latitude and 123° 18' 5.1156" W longitude then to 49° 0' 7.5564" N latitude and 123° 5' 27.528" W longitude and the waters of Boundary Bay bounded by a line commencing at 49° 0' 7.5198" N latitude and 123° 2' 6.5898" W longitude then to 49° 0' 7.5414" N latitude and 122° 49' 10.8552" W longitude then to 49° 1' 15.2256" N latitude and 122° 48' 20.7858" W longitude. Portions of DFO Management Sub-areas 29-6, 29-7, 29-8, 29-9, 29-10, 29-11, 29-12, 29-13, 29-14, 29-17.

Terms and Conditions:

Definitions

“Drift Net” means a gillnet free floating in the water, not attached in any manner to the shore, operated from a boat.
“DFO” means the Department of Fisheries and Oceans.
"Eulachon" means Thaleichthys pacificus
“Fishery” means fishing under the authority of this harvest document.
“Identification Number” in respect of a vessel means
(a) in the case of a registered commercial fishing vessel, the vessel registration number, and
(b) in the case of a vessel that is not a registered commercial fishing vessel, the number of the vessel identification decal issued by Tsawwassen First Nation.
“Observer” means an observer designated under section 39 of the Fishery (General) Regulations.
“Participant” means an individual carrying on fishing or any related activity, including transporting fish caught under the authority of this harvest document.
“TFN” means Tsawwassen First Nation

"TFD" means Tsawwassen Fishing Department located at 1926 Tsawwassen Drive, V4M 4G2 604-943-2112.

Species and Quantity

The Fishery is limited to the harvest of 700 lbs Eulachon (Thaleichthys pacificus).

All efforts and attempts shall be made to return all non-target species including Chinook salmon, Steelhead salmon and Sturgeon to the water alive and unharmed.

Chinook salmon, Steelhead salmon and Sturgeon must not be retained.

Use of Fish

Fish caught under this licence are for food, social and ceremonial purposes. Without prejudice to future agreements or regulations, sale of Fish caught under this licence is not permitted.

Designation of Individuals and Vessels

Tsawwassen First Nation may not designate individuals who are not Tsawwassen Members to harvest Eulachon.

Where Tsawwassen First Nation designates an individual; a Tsawwassen fishing licence will be issued. An individual fishing under this harvest document must carry their Tsawwassen fishing licence at all times while participating in the Fishery or while transporting fish harvested in the Fishery and must presented it to any DFO Fishery Officer, DFO Fishery Guardian or Aboriginal Fishery Officer upon request.

A vessel used in the Fishery must be identified by affixing a vessel identification decal issued by Tsawwassen First Nation. The decal must be affixed to the vessel so that the decal is legible and unobstructed when viewed from another vessel or from shore. Where the vessel is not a registered commercal vessel, the decal must be uniquely numbered. Where the vessel is a registered commercal vessel, the decal must not be numbered.

Catch Monitoring and Harvest Reporting

1.0 Participant and Interview Data

Participants are required to notify the TFD of their intentions to harvest fish prior to their participation in each fishing period and report their catch and fishing effort information to the TFD after completion of each fishing period. 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 Eulachon catch and effort information on the "TFN Eulachon Fisheries Interview Data Form".

1.1 Reporting

Within 24 hours of the close of a fishing period, TFN will provide a preliminary catch report to DFO, including the names and the Vessel Identification Numbers that participated in the Fishery, the gear used, hours fished, status of the report (final or preliminary), number of Eulachon retained, and the number of other species released. Along with reported catch information, The preliminary catch report will be finalized within 48 hours of the close of the Fishing period.

Compliance with the Fisheries Act

Pursuant to subsection 22(6) of the Fishery (General) Regulations, compliance with the Fisheries Act and the regulations made under the Act is a condition of this licence.

Replaced due to For Licence Amendment Purposes Only

Licence Issued: 16 April 2019

Licence Printed: 16 April 2019
Licence Issued By: BRIAN MATTS, Fisheries and Oceans Canada

Fisheries and Oceans Canada | Pêches et Océans Canada

Licence Number: XHD 2 2019
File Number: LFA-19-HD 407/TSAWWASSEN
Valid From: 07-Jan-2019
Expiry Date: 31-Mar-2019

This licence and/or permit is issued under the authority of SECTION 4 OF THE ABORIGINAL COMMUNAL FISHING LICENCES REGULATIONS.

This licence and/or permit authorizes the person(s) listed below, subject to the following terms and conditions, to collect the species and quantity of fish identified below for: Food, Social, and Ceremonial purposes. Non-compliance with any condition of this licence and/or permit may result in the cancellation of this licence and/or permit.

Licence/Permit Activity Description:
HARVEST DOCUMENT FOR TSAWWASSEN FIRST NATION FOR GROUNDFISH

Whereas a final agreement with Tsawwassen First Nation is now in effect;
And whereas the final agreement describes a fishing right and provides for the issuance of harvest documents for the fishing right.
And whereas, under the final agreement, a harvest document may be, among other things, a licence or other document, or amendment thereto, issued by the Minister under Federal Law or Provincial Law in respect of the fishing right;
Now therefore, this harvest document is issued under the authority of section 7 of the Fisheries Act and section 4 of the Aboriginal Communal Fishing Licences Regulations.
This harvest document is issued to Tsawwassen First Nation in accordance with the final agreement and confers, subject to the Fisheries Act and regulations thereunder, the authority to fish for the following purposes:Food, Social and Ceremonial.

Period of Activity:
Subject to amendments to the conditions of this harvest document and subject to close times as may be varied by the Director General, Pacific Region, DFO in accordance with the Fishery (General) Regulations, species of fish set out in this licence may be harvested under this licence. Subject to closures and other terms and conditions of this licence, the authority to fish under this licence will expire on March 31, 2019 or earlier if DFO, after consultation with the First Nation has determined that the maximum quantity has been reached.

Licence Holder:
FIN: 108234
1926 TSAWWASSEN DRIVE
TSAWWASSEN BC V4M 4G2

TSAWWASSEN FIRST NATION

Contact Number: 604-943-4199
Fax Number: 604-943-9226

Allowable Fishing Times:
Fishing periods defined for a species supersede all periods defined in this section.

Start: Monday, January 7, 2019 at 15:01 **End:** Sunday, March 31, 2019 at 23:59

Individuals or groups assisting with the authorized activity:

Tsawwassen First Nation may not designate individuals who are not Tsawwassen Members to harvest groundfish.

Where Tsawwassen First Nation designates an individual; a Tsawwassen fishing licence will be issued. The Tsawwassen fishing licence must be carried at all times while participating in the Fishery or while transporting fish harvested in the Fishery and must be presented to any DFO Fishery Officer, DFO Fishery Guardian or Aboriginal Fishery Officer upon request.

A vessel used in the Fishery must be identified by affixing a vessel identification decal issued by Tsawwassen First Nation. The decal must be affixed to the vessel so that the decal is legible and unobstructed when viewed from another vessel or from shore. Where the vessel is not a registered commercial vessel, the decal must be uniquely numbered. Where the vessel is a registered commercial vessel, the decal must not be numbered.

Before the Fishery commences, Tsawwassen First Nation will provide to DFO a list of Tsawwassen First Nation members and vessels designated to fish under this Harvest Document and, in the case of a vessel, the vessel's Identity Number, and will immediately inform DFO of any changes to the list.

Species, Quantity of Fish, Area(s) and Gear:

Species:	PACIFIC HALIBUT (Hippoglossus stenolepis); SABLEFISH (Anoplopoma fimbria); DOGFISH SHARKS (Squalidae); LINGCOD (Ophiodon elongatus); FLATFISH; ROCKFISH;
Gear:	Rod & Reel - Jigging Longline (unspecified)
Licence Area:	Tsawwassen First Nation fishing area in PFMA 29
Additional Descriptions:	**The following gear is permitted to be used:**

1. Rod and Reel - Jigging
   - Participants will notify the Tsawwassen fisheries department before they initiate fishing efforts and will record fishing effort and fish retained and released by species on the TFN monthly calendar. This calendar will be submitted to TFN at the end of each calendar month. These notifications and reports may be reported directly to the Tsawwassen fishing department or by interview to an on-duty member of the Tsawwassen fisheries department catch monitoring crew. The Tsawwassen fisheries department will record catch and effort information on the "TFN Other Fishery Interview Data Form".
   - Each Participant will maintain a daily fishing log for groundfish fishing efforts using the "TFN Other Fisheries Log Data Form".

2. Longline Gear:
   - Each vessel will be equipped with long lines from one to three miles (1.6-5km) long.
   - The number of lines per vessel will not be limited; however, the number of hooks will not exceed 500/vessel.
   - Each line will be baited then set and marked with floats,the lines will be checked at regular intervals.
   - Prior to the fishery commencing the TFN will provide DFO with a list of TFN members and vessels (maximum 4 vessels) designated to fish under his Harvest Document and the vessels identity number.TFN will immediately inform DFO of any changes to the list.
   - All members designated to fish will be informed that only one vessel is able to participate per day with a crew of up to four designated fishers.

Additional Information:

Fishing is permitted in the following area(s):

The waters of the Strait of Georgia bounded by a line commencing at 49°11' 3.1524" N latitude and 123° 12' 26.08868" W longitude then to 49° 7' 48.216" N latitude and 123°19' 50.4228" W longitude then to 49° 5' 15.6948" N latitude and 123° 18' 36.8958" W longitude then to 49° 0' 8.0028" N latitude and 123° 18' 5.1156" W longitude then to 49°0' 7.5564" N latitude and 123° 5' 27.528" W longitude and the waters of Boundary Bay bounded by a line commencing at 49 0' 7.519" N latitude and 123 2' 6.5898 W longitude then to 49 0' 7.5414 N latitude and 122 49' 10.8552" W longitude then to 49 1' 15.2256" N latitude and 122 48' 20.7858" W longitude. Portions of DFO Management Subareas 29-6, 29-7, 29-8, 29-9, 29-10.

Terms and Conditions:

Definitions

“DFO” means the Department of Fisheries and Oceans.
“First Nation” means the Tsawwassen First Nation.
“Fishery” means fishing under the authority of this harvest document.
“Identification Number” in respect of a vessel means:

- in the case of a registered commercial fishing vessel, the vessel registration number, and
- in the case of a vessel that is not a registered commercial fishing vessel, the number of the vessel identification decal issued by Tsawwassen First Nation.

"Longline" means a fishing technique that uses a longline, called the mainline, with baited hooks attached at intervals by means of branch lines called snoods (or gangions). A snood is a short length of line, attached to the main line by a clip or swivel, wit the hook atthe other end.
“Observer” means an observer designated under section 39 of the Fishery (General) regulations.
“Participant” means an individual carrying on fishing or any related activity, including transporting fish caught, under the authority of this harvest document.
"Rod and Reel - Jigging" means the practice of fishing with a jig, a type of fishing lure. Jigs are intended to create a jerky, vertical motion.

Species and Quantity
The Fishery is limited to the harvest of halibut, sablefish, dogfish, lingcod, flatfish, and rockfish.

All efforts and attempts shall be made to return all non-target species to the water alive and unharmed.

Use of Fish
Fish caught under this licence are for food, social and ceremonial purposes. Without prejudice to future agreements or regulations, sale of fish caught under this licence is **not** permitted.

Catch Monitoring and Harvest Reporting

Rod and Reel:

Participants will notify the Tsawwassen fisheries department before they initiate fishing efforts and will record fishing effort and fish retained and released by species on the TFN monthly calendar. This calendar will be submitted to TFN at the end of each calendar month. These notifications and reports may be reported directly to the Tsawwassen

fishing department or by interview to an on-duty member of the Tsawwassen fisheries department catch monitoring crew. The Tsawwassen fisheries department will record catch and effort information on the “TFN Other Fishery Interview Data Form”.

Each Participant will maintain a daily fishing log for groundfish fishing efforts using the “TFN Other Fisheries Log Data Form”.

Longline:

All vessels participating in this fishery will have a TFN monitor trained in groundfish identification onboard during all fishing activity. Participants will notify the Tsawwassen Fisheries Department (TFD) before they initiate fishing efforts to ensure an on-board monitor is present. Fishing times and locations will be provided to DFO prior to each fishing period so DFO monitoring or audits of fishing can occur.

The on-board TFN monitor will collect information on hours fished, location fished (PFMA subarea), number and species of groundfish and other species retained and released. The monitor will record this information on the “TFN Groundfish Fishery Interview Data Form”.

Within 72 hours of the end of each month, Tsawwassen First Nation will provide to Karen Burnett (DFO Management Biologist : t 604-666-4819; fax 604-666-7112) a summary table showing the number of participants, catch and effort obsrved by and reported directly to the TFD staff (including patrol logs and daily fishing logs).

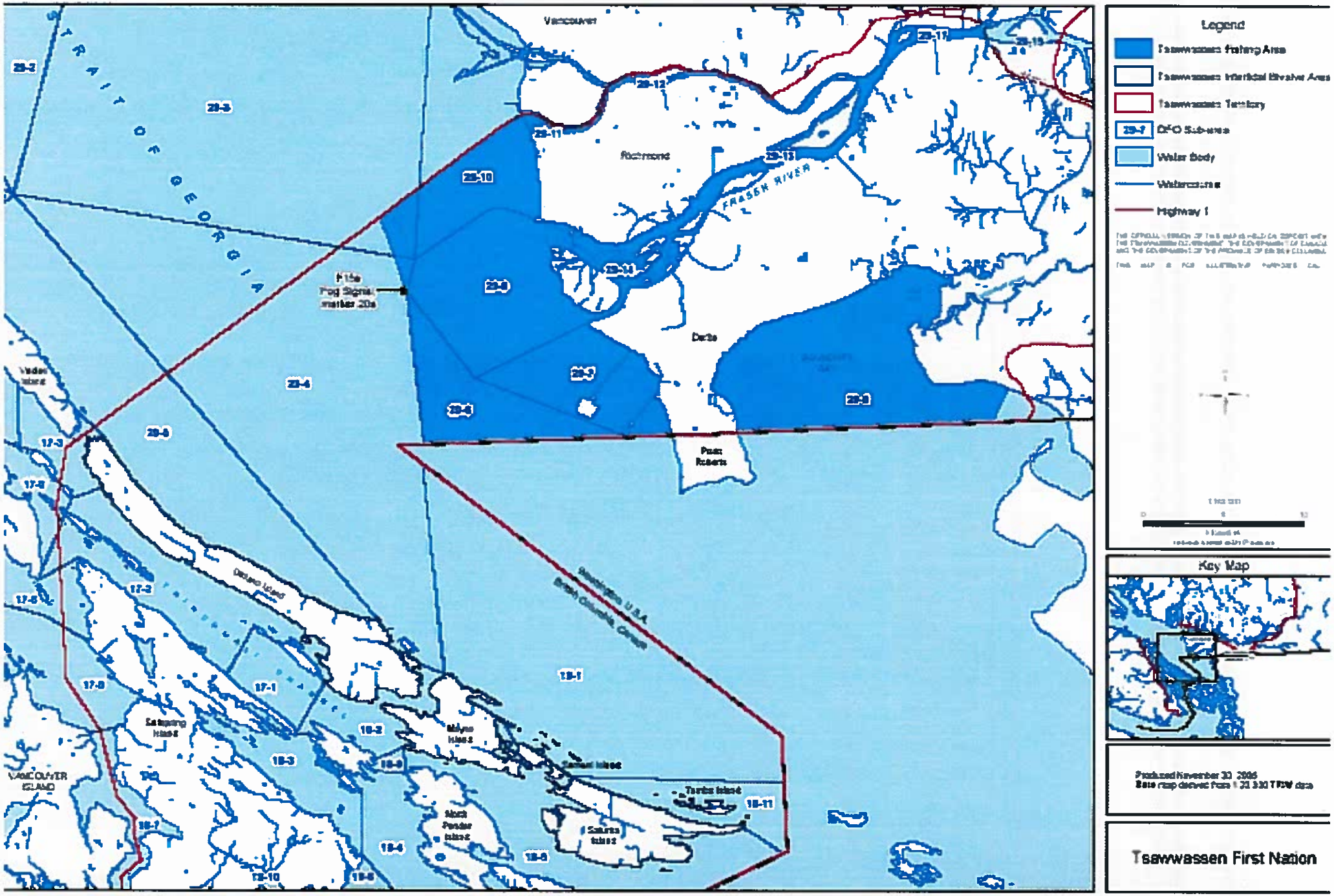
Compliance with the Fisheries Act

Pursuant to subsection 22(6) of the Fishery (General) Regulations, compliance with the Fisheries Act and the regulations made under the Act is a condition of this licence.

Licence Issued: 07 January 2019

Licence Printed: 07 January 2019
Licence Issued By: BRIAN MATTS, Fisheries and Oceans Canada

Appendix J-1: Tsawwassen Fishing Area and Tsawwassen Intertidal Bivalve Fishing Area



Ministry of Forests, Lands, Natural Resource Operations and Rural Development

Aquatic Plant Harvest Document for Tsawwassen First Nation

File No.: 20560-20-HD Tsawwassen
Harvest Document No.: Tsawwassen -04

Issued To: Attention: Hegus, Tsawwassen First Nation
Tsawwassen First Nation
1926 Tsawwassen Drive
Tsawwassen BC V4M 4G2

This Harvest Document is issued under the authority of Section 14 of the *Tsawwassen First Nation Final Agreement Act* and clauses 59 to 64 of Chapter 9 [Fisheries] of the *Tsawwassen First Nation Final Agreement*, for Aquatic Plant species managed by the Province of British Columbia. All terms used in this document have the same meaning as that contained in the *Tsawwassen First Nation Final Agreement* and applicable legislation.

Accordingly, this Harvest Document authorizes Tsawwassen First Nation to exercise their Tsawwassen Fishing Right to harvest Aquatic Plants for Domestic Purposes, in accordance with the following conditions:

Harvest Period: April 1, 2019 to March 31, 2020

Harvest Location: Tsawwassen Fishing Area

Harvestable Aquatic Plant Species:

Group 1: Giant kelp (*Macrocystis integrifolia*) / Bull kelp (*Nereocystis luetkeana*)

Group 2: Sugar kelp (*Saccharina* spp.) / Ribbon kelp (*Alaria* spp.) / Feather Boa kelp (*Egregia menziesii*) /*Eisenia arborea* / *Costaria costata* / *Agarum* spp. / Sea Cabbage (*Hedophyllum sessile*) / Three Ribbed kelp (*Cymathere triplicatei*) / *Pterygophora califronica*

Group 3: *Gracilaria* spp. / *Gracilariopsis sjoestedtii* / *Gelidium* spp. / *Gymnogrongus* spp *Ahnfeltia* spp. / Red Weed (*Agardhiella tenera*) / Endocladia *muricata* / *Gloiopeltis furcata*

Group 4: *Iridaea* spp. / Little Turkish Towel (*Gigartina* spp.)

Group 5: Rockweed *(Fucus* spp.) / *Sargassum muticum* / Chain Bladder (*Cystoseira geminata*)

Group 6: Nori (*Porphyra* spp.) / *Rhodymenia* spp. / Sea Lettuce (*Ulva* spp.) / Gut Weed (*Enteromorpha* spp.) / *Monostroma* spp.

Group 7: Eelgrass (*Zostera marina*) / Surfgrass (*Phyllospadix* spp.)

Group 8: Sea Asparagus (*Salicornia* spp.)

Group 9: Other marine plants not referenced above.

Monitoring & Reporting: As per the Tsawwassen Fisheries Operation Guidelines, and for greater clarity, Tsawwassen First Nation Harvesters are required to identify harvested plants by group in the Tsawwassen First Nation Aquatic Plant Harvest Log. Tsawwassen First Nation will submit the aggregate harvesting values to the Joint Fisheries Committee and CC. FLNRORD at the conclusion of the Harvest Period defined in this Harvest document.

These conditions may be amended in accordance with Paragraph 63 and 64 of the Fisheries Chapter of the *Tsawwassen First Nation Final Agreement*.

Issued By:

Lesley Fettes

Lesley Fettes
Section Head, Aquaculture
Minister of Forests, Lands, Natural Resource Operations and Rural Development

Issue Date: March 20, 2019

APPENDIX C
Dataforms

blank page

TSAWWASSEN FIRST NATION - SALMON FISHERIES INTERVIEW DATA FORM

Monitor's Name : _____

SET NET / DRIFT NET
Put Set and Drift Net Catch on Separate Sheets Even from the Same Fisher.

Date : _____ Sheet ID : _____

Site Location : _____

Fishing Area (Zone) _____

#	Name of Fisher	No.	Fishing Area	Mesh Size	Count or Hail?	# Drifts	Interview Time		Net Set (Start of Fishing)		Net Picked (End of Fishing)		Fish Kept						Fish Released				Still Fish'n
							Date	Time	Date	Time	Date	Time	Sock	Chin	Pink	Coho	Chum	Other	Sturg	FL	Sthd	Other	(Y/N)
1					C / H																		
2					C / H																		
3					C / H																		
4					C / H																		
5					C / H																		
6					C / H																		
7					C / H																		
8					C / H																		
9					C / H																		
10					C / H																		
11					C / H																		
12					C / H																		
13					C / H																		
14					C / H																		
15					C / H																		
16					C / H																		
17					C / H																		
Fishing Areas	* T1 = Roberts Bank (29-6,29-7), T2 = Sandheads (29-9, 29-10), T3 = Canoe Pass to Deas (29-14), T4 = Steveston-Pattullo (29-13), T5 = Pattullo-Port Mann (29-17), T6 = North Arm (29-12).										TOTALS												

Comments:

USE ONE DATA COLLECTION FORM FOR EACH SET NET FISHER OR FISHING GROUP.
PLEASE REMEMBER TO TOTAL UP ALL OF THE CATCH, AND HOURS FISHED, ON EACH OF YOUR PAGES.

TSAWWASSEN FIRST NATION - SALMON FISHERIES LOG DATA FORM

Fisher Name/No. _____ **Vessel Name/No:** _____ **Sheet ID :** _____

#	Fishing Location	Location Code	Net Length (feet)	Mesh Size (inches)	# of drifts	Data Recorded		Net Set (Start of Fishing)		Net Picked (End of Fishing)		Fishing Effort	Fish Kept							Fish Released	Hailed in
						Date	Time	Date	Time	Date	Time	Hours	Sock	Chin	Pink	Coho	Chum	Steelhd	Other	(species & #)	Y/N
	Canoe Pass	T3	300	4.5	3	Apr. 4	2100	Apr. 4	0900	Apr. 4	2000	11		3						1 Sturgeon	Y
1																					
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					
16																					
Fishing Areas	* T1 = Roberts Bank (29-6,29-7), T2 = Sandheads (29-9, 29-10), T3 = Canoe Pass to Deas (29-14), T4 = Steveston-Pattullo (29-13), T5 = Pattullo-Port Mann (29-17), T6 = North Arm (29-12).									**TOTALS**											

Comments:

AN EXAMPLE OF THE INFORMATION TO RECORD IS PROVIDED IN THE FIRST SHADED LINE. PLEASE RECORD YOUR DATA BY DAY OR BY SET.

Filename: 2010_TFN Catch Data_31May2010.xls

TSAWWASSEN FIRST NATION - CRAB FISHING INTERVIEW DATA FORM

Sheet ID: _____

Monitor's Name: _____ **Location:** _____ **Date:** _____

#	TFN FISHER		FISHING METHOD	STAT. AREA	HAULED		SOAK TIME	DEPTH	SPECIES	CATCH INFO.		Number of Traps Pulled	REMARKS OR COMMENTS
	NAME	No.	(GL/SL)	(Area-Sub)	Date	Time	Hours	Meters	(DU/RR)	Number Kept	Number Released		
1													
2													
3													
4													
5													
6													
7													
8													
9													
10													
11													
12													
13													
14													
15													
16													
17													
18													
19													
20													

Methods: GL = Ground Line, SL= Single Lines

Species: DU= Dungeness, RR=Red Rock, G=Graceful

TSAWWASSEN FIRST NATION - CRAB FISHING LOG DATA FORM

Sheet ID: _____

Fisher Name/No. _____ **Vessel Name/No.** _____

#	FISHING METHOD	STAT. AREA	HAULED		SOAK TIME	DEPTH	SPECIES	CATCH INFO.		Number of Traps Pulled	REMARKS OR COMMENTS
	(GL/SL)	(Area-Sub)	Date	Time	Hours	Feet	(DU/RR)	Number Kept	Number Released		
	SL	29-6	Apr 20	1800	48	50	DU	8	2	2	2 female crab released
1											
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17											
18											
19											
20											

Methods: GL = Ground Line, SL= Single Lines

Species: DU= Dungeness, RR=Red Rock, G=Graceful

TSAWWASSEN FIRST NATION - OTHER FISHERIES INTERVIEW DATA FORM

Sheet ID: _____

Monitor's Name: **Location:** _____ **Date:** _____

#	TFN FISHER		SPECIES	FISHING METHOD	STAT. AREA	LANDING		FISHING TIME	DEPTH	CATCH INFO.		Units	Number of Traps Pulled	REMARKS OR COMMENTS
	NAME	No.	(Code)	(Code)	(Area-Sub)	Date	Time	Hours	Meters	Number Kept	Number Released	(Code)		
1														
2														
3														
4														
5														
6														
7														
8														
9														
10														
11														
12														
13														
14														
15														
16														
17														
18														
19														
20														
21														
22														
23														
24														
25														

Species: RF= Rockfish, LC = Lingcod, HB=Halibut, DF=Dogfish, C=Clams, O= Oysters, P=Prawns, S=Shrimp
Methods: HL= Hook & Line, LL=Long-line, HP= Hand pick, T=Trap
Units: P = Pieces, KG=kilograms, LB=pounds, B=5 gallon bucket

TSAWWASSEN FIRST NATION - OTHER FISHERIES LOG DATA FORM

Sheet ID: _____

Fisher Name/No. _____ **Vessel Name/No.** _____

#	SPECIES	FISHING METHOD	STAT. AREA	LANDING		FISHING TIME	DEPTH	CATCH INFO.		Units	Number of Traps Pulled	REMARKS OR COMMENTS
	(Name)	(Code)	(Area-Sub)	Date	Time	Hours	Meters	Number Kept	Number Released	(Code)		
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												

Species: RF= Rockfish, LC = Lingcod, HB=Halibut, DF=Dogfish, FS=flounder/sole, C=Clams, O= Oysters, P=Prawns, S=Shrimp
Methods: RR=Rod & Reel, LL=Long-line, HP= Hand pick, T=Trap
Units: P = Pieces, KG=kilograms, LB=pounds, B=5 gallon bucket

Tsawwassen First Nation Aquatic Plant Harvest Log

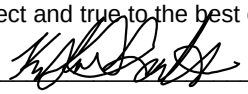
Tsawwassen First Nation Harvester Number: Tsawwassen First Nation

Harvest Document #: Tsawwassen-04

Date Harvested (yyyy/mm/dd)	DFO Stat Area and Subarea	Specific Area Description	Species Harvested	Quantity Harvested (Kg wet weight)
April 1 2019 - March 31 2020	N/A	TFA	N/A	Zero

Total Weight [Kilograms (Kg)] for this log sheet: Zero

I declare this harvest log to be correct and true to the best of my knowledge

Signature of Harvester: 

Print Name: Krystal Lockert

Date: March 19th 2020

Return this form to:
Tsawwassen First Nation
1926 Tsawwassen Drive
Tsawwassen BC V4M 4G2

blank page

APPENDIX D
2019 Fraser River Sockeye and Chum In-season Status Reports

blank page

File: 71007

DRAFT AGENDA
PACIFIC SALMON COMMISSION
FRASER RIVER PANEL
Tuesday July 9, 2019 at 11:00 am.
Via Teleconference
1-888-299-2873 CANADA
1-888-585-9008 United States
Conference Room 287-053-397

1) Roll Call (Panel and Tech members, others please email Julie, ehrmantraut@psc.org)

2) Agenda

3) Total catches, Escapements and accounted-to-date relative to pre-season forecasts and in-season adopted run sizes — PSC Staff

4) In-season data flow for updating objectives — PSC staff
   a) Test fishing catches, acoustics, and schedule for data flow to come
   b) Stock proportions
   c) Environmental conditions
   d) Big Bar rock slide impacts on Fraser River sockeye and pink salmon — DFO/PSC staff
   e) Observations from the watershed — DFO

5) Reports from other areas — Panel

6) Other Business — Panel
   a) Final agreed Principles and Constraints
   b) First Weekly Report (July 12, will be sent out for review prior, confirm reviewers)
   c) Small group meeting (Wednesday July 10, time to be determined)
   d) FRP Post-season meeting (Option 1: Farewell Canyon, Option 2: Chilko enumeration program)

7) Next FRP Meeting, Friday July 12, 11:00 a.m. via Teleconference — Panel

   Next Technical Committee meeting, Thursday July 18, 1:30 p.m. via GoToMeeting — TC

2019 Run status of Fraser sockeye salmon

Date: Jul. 9, 2019

Week of: Jul. 7 - Jul. 13, 2019	Sockeye					Pink
	Management Group				Total	Total
	E.Stuart	E.Summer	Summer	Late	Fraser	Fraser
Mission passage (inclds Pitt, Alouette, Coquitlam)	14,300	2,900	0	0	17,200	0
Catch downstream of Mission	0	0	0	0	0	0
Accounted Run To Date	14,300	2,900	0	0	17,200	0
Run size adopted in-season [1]	**na**	**na**	**na**	**na**	**na**	**na**
Run size forecasted pre-season	41,000	465,000	3,930,000	359,000	4,795,000	5,018,600
Area 20 timing adopted in-season	**na**	**na**	**na**	**na**	**na**	**na**
Area 20 timing expected pre-season	5-Jul	30-Jul	10-Aug	18-Aug	9-Aug	28-Aug
Johnstone Str. Diversion Rate			Annual average to date		**na**	**na**
			Preseason forecast of annual rate:		69%	50%

1 Run sizes are usually not adopted until after the peak of the run has passed through marine test fishery areas in Juan de Fuca and Johnstone Straits.

	Median preseason forecast	Proportion of the run impacted by the Big Bar rock slide, i.e. requiring passage past the rock slide to reach spawning grounds
Total Fraser Sockeye salmon	**4,795,000**	**77%**
Early Stuart	41,000	100%
Early Summer run	465,000	32%
Summer run	3,930,000	89%
Late run	359,000	0%
Total Fraser Pink salmon	**5,019,000**	**<5%** [a]

[a] Estimate based on the sites in the Fraser river system for which Pink salmon escapement estimates were generated by IPSFC, 1957-1985 and DFO, 1987-1991 (Grant et al. 2014. Fraser River Pink Salmon (*Oncorhynchus gorbuscha*) data review: inputs for biological status and escapement goals. Southern Boundary Restoration and Enhancement Fund report, Vancouver.

2019 Fraser Sockeye Test Fishing & Escapement Summary

	Fraser River						
Area/Gear	**A29D GN**	**Whon CPUE**	**Qualark**		**Mission Hydroacoustics**		**Hell's Gate**
Location	Whonnock	Estimate	GN Catch[1]	Estimate[2]	Estimate[3]	Method[4]	Estimates[5]
From A20	(+6 days)	(+6 days)	(+8 days)		(+6 days)		(+10 days)
23-Jun							
24-Jun	0	0.00			0	W	
25-Jun	0	0.00			0	W	
26-Jun	0	0.00			0	W	
27-Jun	0	0.00			0	W	
28-Jun	0	0.00			0	W	
29-Jun	0	0.00			0	W	
30-Jun	0	0.00			0	W	
1-Jul	1	0.09		306	600	W	
2-Jul	0	0.00	1	455	900	Interp	
3-Jul	2	0.20	2	937	1,300	W	0
4-Jul	0	0.00	0	0	2,900	S1+M	0
5-Jul	0	0.00	0	0	6,500	S1+M	0
6-Jul	0	0.00	4	831	1,600	S1+M	0
7-Jul	0	0.00	1	188	2,100	S1+M	0
8-Jul	0	0.00			1,200	S1+M	0
9-Jul							
10-Jul							

[1] *After July 2nd, Qualark ceased fishing evening sets*

[2] *Qualark escapement estimate - does not include Chilliwack, Pitt, Harrison, Birkenhead, Big Silver, Weaver, and Cultus*

[3] *Upstream escapement estimate - does not include Pitt*

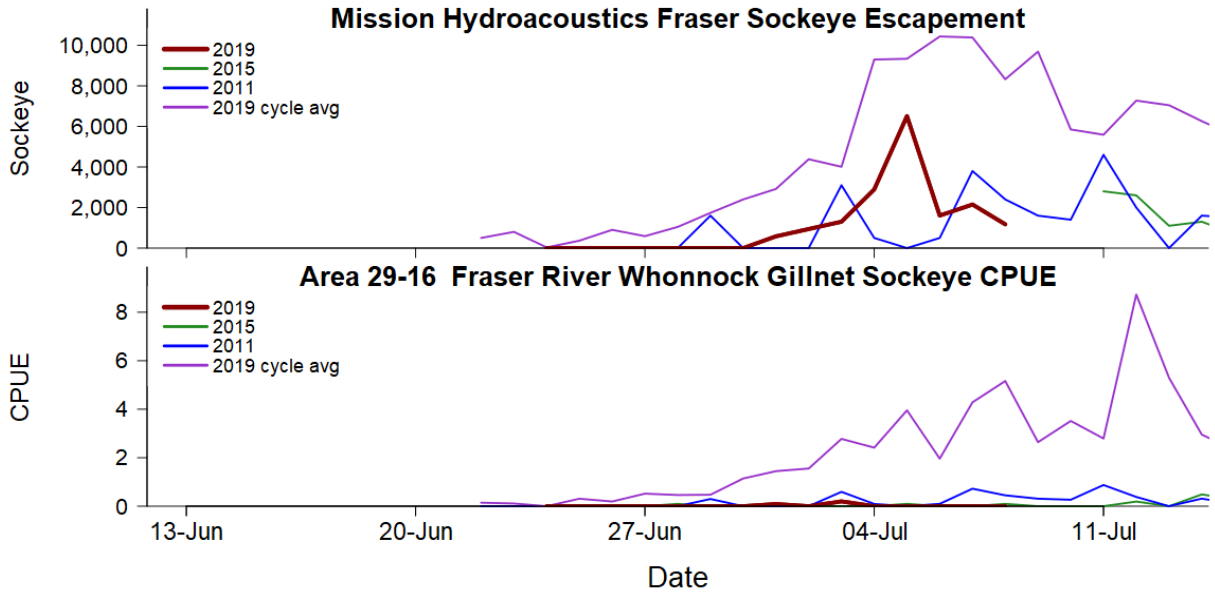
[4] *Mission Source:*

W = Whonnock sockeye CPUE x Expansion Line (6,600 expansion line)

Interp = Passage estimated from surrounding known estimates

S1+M = Left-bank split-beam (S1) + Mobile split-beam (M)

[5] *Daily Hell's Gate abundance estimate; actual daily count has been multiplied by 2.*



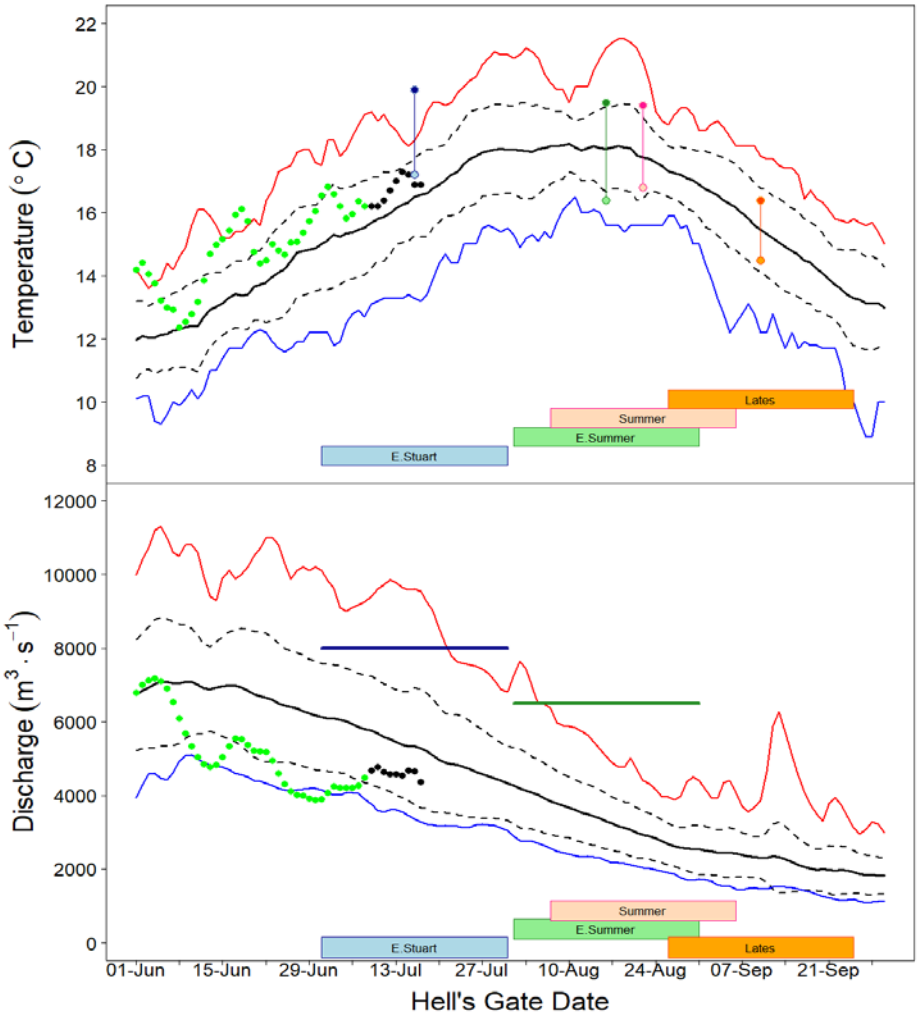
Fraser River Environmental Report for July 08, 2019

Observed Fraser River Temperature at Qualark for 08-Jul	16.2°C
Average (1981-2010) Historical Temperature on this day	15.5°C
Deviation from Average	0.7°C
Forecast Temperature for 14-Jul-19	17.3°C

The forecast in Kamloops is for below average air temperature and minimal precipitation. The forecast in Prince George is for above average air temperature with some precipitation.

Observed Fraser River Discharge at Hope for 08-Jul	4473 $m^3 \cdot s^{-1}$
Average (1981-2010) Historical Discharge on this day	5799 $m^3 \cdot s^{-1}$
% above or below Historical Discharge	-23%
Forecast Discharge for 14-Jul-19	4544 $m^3 \cdot s^{-1}$

Due to the forecast for rainfall in the Fraser River watershed there is some variation in the discharge forecast.



Temperature Legend

- Mean Temp (1981-2010)
- +/- sd
- Min Temp (1981-2010)
- Max Temp (1981-2010)
- Current Temp
- Forecast Temp
- Opt. T of stock group*
- Upper T range of stock group**

Discharge Legend

- Mean Dis (1981-2010)
- +/- sd
- Min Dis (1981-2010)
- Max Dis (1981-2010)
- Current Dis
- Forecast Dis
- E.Stuart Threshold ($m^3 \cdot s^{-1}$)[i]
- E.Summer Threshold ($m^3 \cdot s^{-1}$)[ii]

Run timing bars represent a 31 day spread of the run centered around the Hell's Gate date. Hell's gate timing is 5 days from Mission for Early Stuart and Lates; and 4 days from Mission for Early Summer and Summer run.'pMA is the proportional increase to spawning escapement targets to help ensure targets are achieved."%DBE is %difference betweeen estimates of potential spawning escapement and spawning escapement.*This is the optimum temp for aerobic swimming - T_{opt} (Eliason et al. (2011). Science 332: 109-112)**This is the upper range of the optimum temp for aerobic swimming - T_{pejus}. [i]Discharge threshold of 8000cms for Early Stuart from Macdonald (2000). Can. Tech. Rep. Fish. Aquat. Sci. 2315: 120p. [ii]Discharge threshold of 6500cms for Early Summer from Macdonald et al. (2011). Trans. Am. Fish. Soc. 139: 768-782. 19 days of T & Q data are required to calculate a pMA - 15 days before the Hell's Gate Date and 3 days after. MA estimates can be calculated 4 days after the Area 20 date.

2019 Big Bar rock slide and it's impact on Fraser River sockeye

- A large rock slide occurred on 23 June 2019 in a narrow portion of the Fraser River near Big Bar, creating a blockage and five meter waterfall in this section of the river.
- Daily acoustic fish counting reports are collected both above and below the rock slide.
- Mark-recapture methods are also used to estimate the quantity of fish travelling through the site.

For the latest updates on the Rock, visit:
https://www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery/emergency-response-and-recovery/incident-summaries/big-bar-landslide-incident

INCIDENT NAME	INCIDENT LOCATION	DATE PREPARED
Big Bar Landslide	North of Big Bar on the Fraser River	July 9 2019

Fisheries and Oceans Canada
Pêches et Océans Canada
British Columbia

UPDATES

- The Unified Command Incident Management Team continues to work together to create options for action on the Big Bar Landslide Incident.
- Work is underway to ensure site safety and to prepare for potential operations. Unstable weather conditions are challenging field personnel logistically. However, personnel safety and field work has not been impeded.
- As a result of high water levels in the Chilcotin River, water levels on site are also rising. This has brought debris and additional turbulence to the slide site.
- Sluicing using helicopter buckets to remove unstable and loose rock is complete at this time.
- Field personnel have lightly brushed the landscape to create a helipad landing site that can be used for emergency extraction. This is a precautionary measure to ensure the safe removal of personnel, should they be exposed to unforeseen hazardous elements.
- Hydroacoustic fish monitoring stations have been established upstream and downstream from the slide site to allow for quantification of the number of fish being obstructed by the slide. However, due to rising water levels, data was not collected yesterday. Fish catch and tag methods to track the quantity of fish traveling through the slide site are also being evaluated. Once data is gathered it will be used by the Environmental Unit for future recommendations.
- Honourable Jonathan Wilkinson, Minister of Fisheries, Oceans, and the Canadian Coast Guard, Honourable Doug Donaldson, Minister of Forests, Lands, Natural Resource Operations and Rural Development, and Jati Sidhu, Member of Parliament for Mission-Matsqui-Fraser Canyon, will be visiting the Incident Command Post today. The ministers will meet with personnel from the Unified Command Incident Management Team for a technical briefing and take a helicopter tour of the landslide area.

Log debris piles up at the slide site.

A helicopter awaiting transportation objectives for the day.

CONTACT INFORMATION

Information Officers: Jody Lucius or Leri Davies

250.318.7456 or 604.612.6837

Incident Webpage **BC River Forecast**

2019 Big Bar rock slide and impact on Fraser River sockeye and pink salmon

- It takes about 10 days (9-11 days) to migrate from Mission to the Big Bar site.
- Assuming the 50% marine migration date for Early Stuart is 5 July, the peak migration of Early Stuart at the Big Bar site is around 21 July.
- Currently, options are explored to improve fish passage through the area:
  - Options to remove or remediate the rock obstruction itself, and
  - Physically move fish upstream from the obstruction.
- Continuous monitoring of the fish will continue to evaluate the impact on fish passage.

Management and stock group	2019 Fraser Sockeye and Pink Forecasts			Proportion of the run impacted by the rock slide at Big Bar
	FOUR YEAR OLDS median forecast[a]	FIVE YEAR OLDS median forecast[a]	TOTAL median forecast[a]	
Early Stuart	**27,000**	**14,000**	**41,000**	**100%**
Early Summer	**271,000**	**194,000**	**465,000**	**32%**
Bowron	9,000	6000	15,000	100%
Upper Barriere	8,000	2,000	10,000	0%
Gates	34,000	7,000	41,000	0%
Nadina	83,000	46,000	129,000	100%
Pitt	9,000	25,000	34,000	0%
Scotch	15,000	4,000	19,000	0%
Seymour	25,000	4,000	29,000	0%
Misc (EShu)	63,000	93,000	156,000	0%
Misc (Taseko)	3000	0	3,000	100%
Misc (Chilliwack)	14,000	3,000	17,000	0%
Misc (Nahatlatch)	8,000	4,000	12,000	0%
Summer	**3,189,400**	**740,600**	**3,930,000**	**89%**
Chilko	2,426,000	324,000	2,750,000	100%
Late Stuart	30,000	9,000	39,000	100%
Quesnel	207,000	126,000	333,000	100%
Stellako	194,000	174,000	368,000	100%
Harrison[b]	234,000	59,000	293,000	0%
Raft	31,000	21,000	52,000	0%
Misc (N. Thomp. Tribs)	3,000	2,000	5,000	0%
Misc (N. Thomp River)	64,000	25,000	89,000	0%
Misc (Widgeon)	400	600	1,000	0%
Late	**203,000**	**156,000**	**359,000**	**0%**
Cultus	1,000	0	1,000	0%
Late Shuswap	20,000	41000	61,000	0%
Portage	0	2000	2,000	0%
Weaver	11,000	16,000	27,000	0%
Birkenhead	144,000	85,000	229,000	0%
Misc (Non-Shuswap)	27,000	12,000	39,000	0%
Total Fraser Sockeye	**3,690,400**	**1,104,600**	**4,795,000**	**77%**
Total Fraser Pink salmon			**5,019,000**	**<5%** [c]

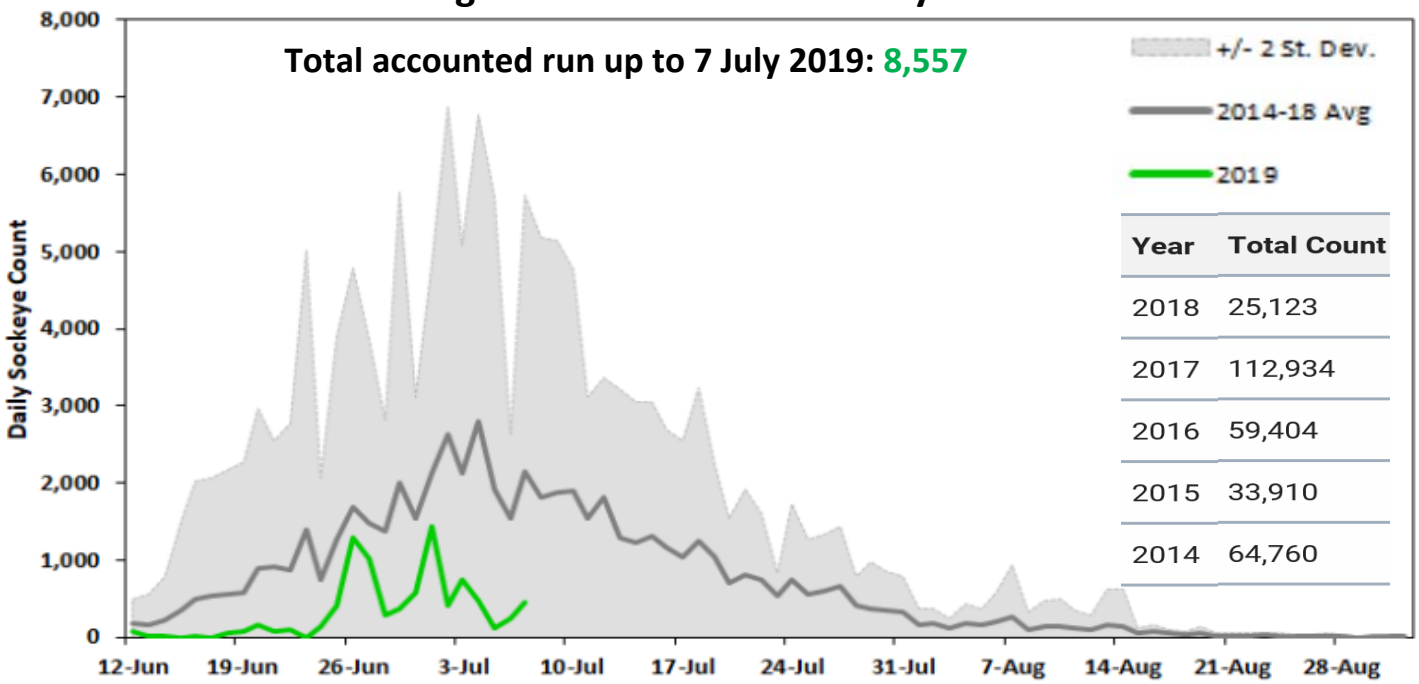
a. There is a 50% probability that actual return will be at or below specified run size

b. Harrison are four (in four year old columns) and three (in five year old columns) year old forecasts

c. Estimate based on the sites in the Fraser river system for which Pink salmon escapement estimates were generated by IPSFC, 1957-1985 and DFO, 1987-1991 (Grant et al. 2014. Fraser River Pink Salmon (*Oncorhynchus gorbuscha*) data review: inputs for biological status and escapement goals. Southern Boundary Restoration and Enhancement Fund report, Vancouver).

2019 Reports from other areas

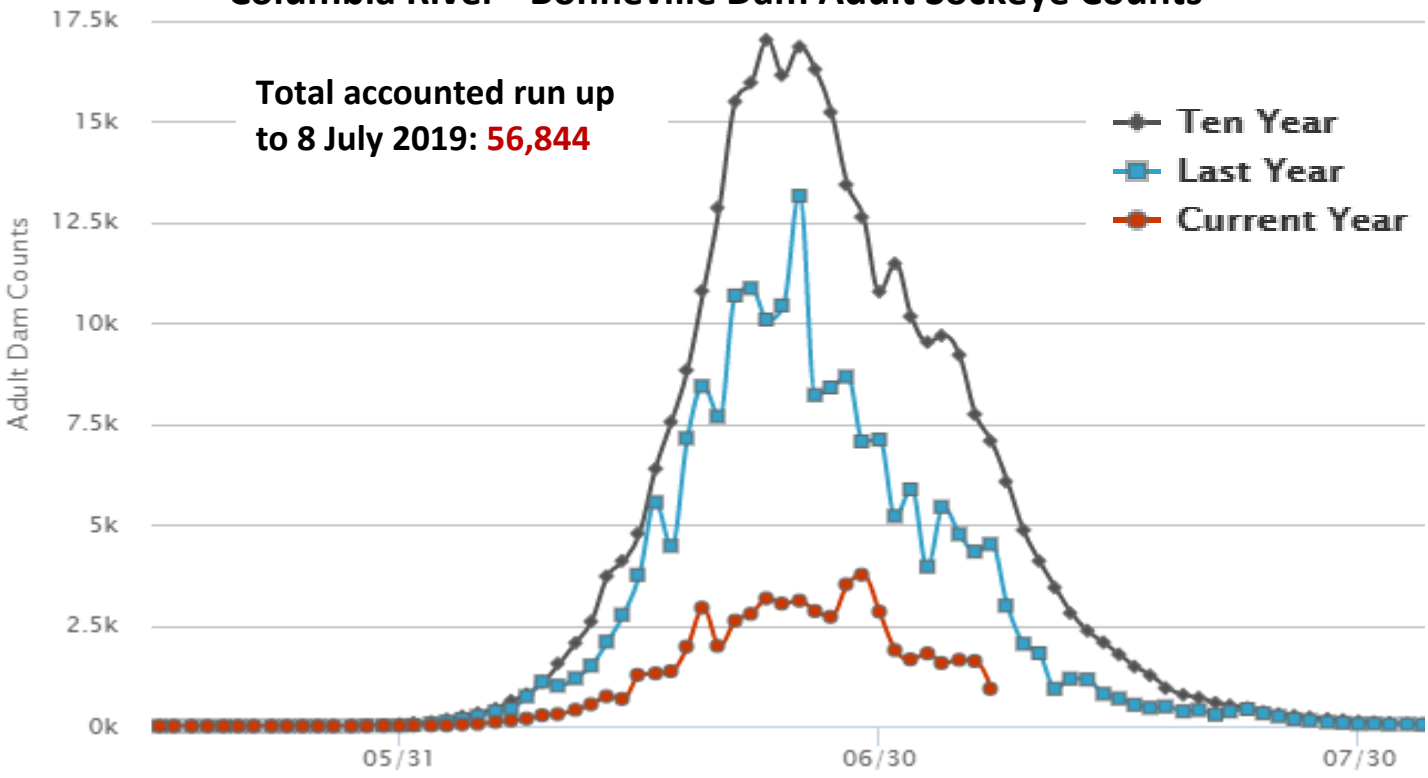
Lake Washington - Ballard Locks Sockeye Counts



Year	Total Count
2018	25,123
2017	112,934
2016	59,404
2015	33,910
2014	64,760

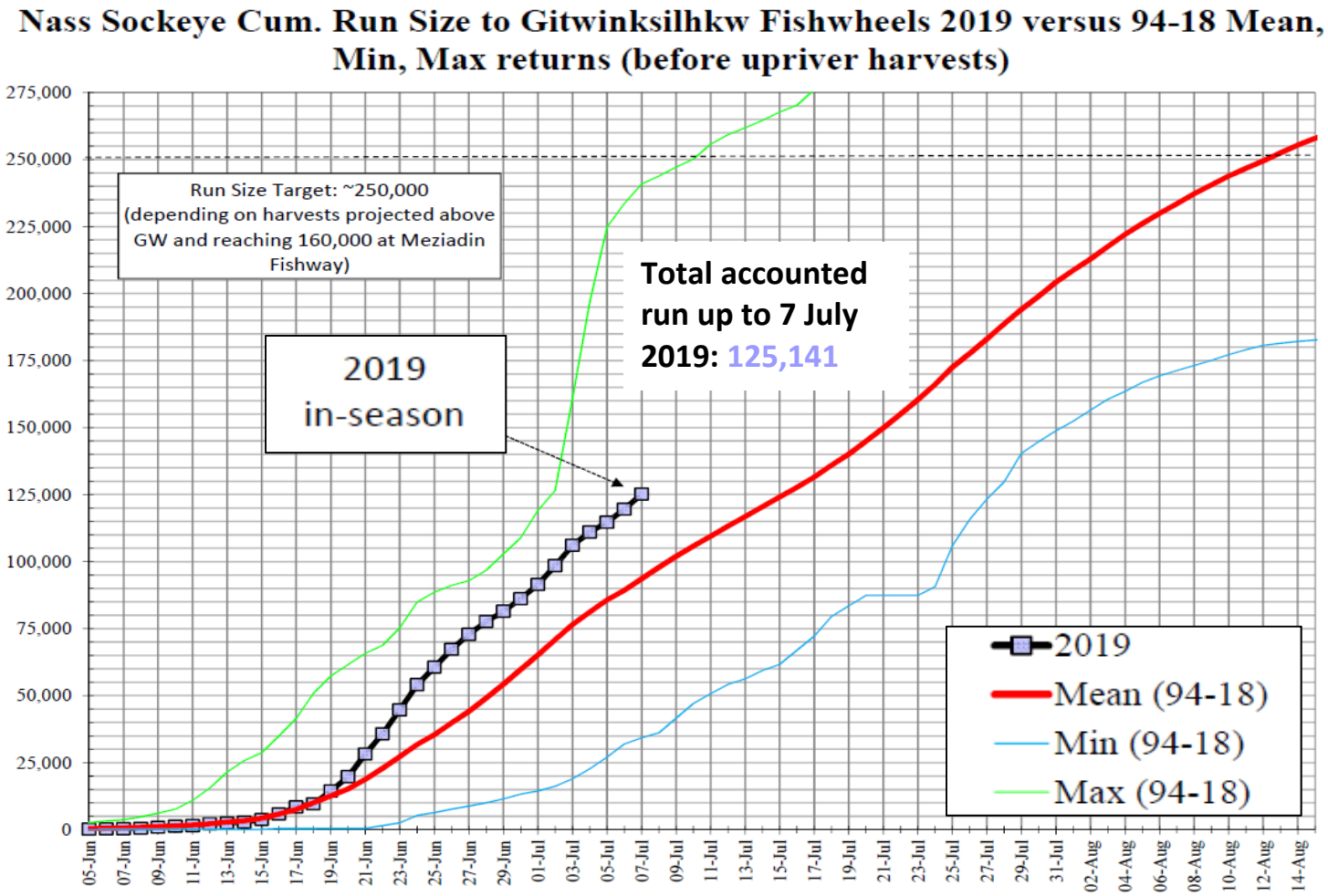
https://wdfw.wa.gov/fishing/reports/counts/lake-washington#counts

Columbia River - Bonneville Dam Adult Sockeye Counts



http://www.fpc.org/web/apps/adultsalmon/Q_dailyadultcountsgraph.php

2019 Reports from other areas



ftp://ftp.lgl.com//Nass Stock Assessment Updates

2019 Fraser River Panel Management Plan

Principles and Constraints

Agreed July ??,2019

1. Fisheries and Oceans Canada (DFO) has provided the Panel with run-size forecasts for Fraser River sockeye and pink salmon. It is broadly understood that the sockeye and pink run-size forecasts are uncertain due to high variability in annual salmon productivity (e.g. the number of returning recruits per spawner, the number of returning recruits per outmigrating fry) and observation error in the associated data. The median forecast for the total Fraser sockeye return is 4,795,000 fish, and there is a one in four chance that the actual number of returning sockeye will be at or below 2,891,000 fish and there is a one in four chance that the actual number of returning sockeye will be at or larger than 8,676,000 fish. The median forecasts for the four different management groups are 41,000 Early Stuart, 465,000 Early Summer-run, 3,930,000 Summer-run, and 359,000 Late-run sockeye. Of note, the Chilko sockeye represent 57% of the total Fraser sockeye return and 70 % of the Summer-run return at the median forecast, further adding to the uncertainty. The median forecast for Fraser River pink salmon is 5,018,600 fish, and there is a one in four chance that the actual number of returning pink salmon will be below 3,577,000, and a one in four chance that the return will be larger than 7,513,000. The median or 50% probability level forecasts for Fraser River sockeye and pink salmon were used for pre-season planning purposes. When sufficient information is available in-season, the Panel will update run size estimates of Fraser River sockeye and pink salmon, as appropriate.
2. The Panel's first priority is to attain spawning escapement goals by management group. A coordinated approach to management has been developed that reflects both Parties sharing the burden of conservation. The US anticipates harvesting their full total allowable catch (TAC) for Fraser River sockeye salmon. Canadian fisheries are constrained by the total allowable exploitation rate of Early Summer and Late Run which limits Canada's ability to harvest their sockeye salmon TAC. However, depending upon sockeye and coho constraints, both Canada and the United States anticipate harvesting the full pink salmon TAC if Fraser River pink salmon returns in 2019 correspond to the median forecast.
3. TAC and international shares are calculated according to the 2014 revised Annex IV, Chapter 4, of the Pacific Salmon Treaty, which limits the United States harvest (in Washington State) to 16.5% of the international TAC of Fraser River sockeye salmon and 25.7% of the international TAC of Fraser River pink salmon. For 2019, the Fraser River Panel agreed to pre-season Fraser River Aboriginal Exemptions as determined by the process outlined in paragraph 3d for the purposes of computing Fraser River sockeye TAC by management group. The Panel will implement low abundance exploitation rates (LAER) for a management group when the allowable harvest for that group, according to Total Allowable Mortality rules as defined in Canada's escapement plan, is less than the LAER, in order to allow access to available TAC for other co-migrating Fraser River sockeye salmon management groups. At the median forecasts, the LAERs are set at 10% for Early Stuart, 20% for Early Summer, Summer-run sockeye and Late-run sockeye. LAER's are not intended to create directed harvest opportunities in mixed stock areas, do not contribute to International TAC's, and represent maximum allowable fishing-related impacts (including test fisheries and release mortalities). Calculated International TAC's that fall below the LAER amount will contribute to the International share.

4. The Panel has adopted a similar management approach for Late-run sockeye that presumes that similar to recent years, Late-run sockeye will enter the Fraser River earlier than the long-term average, and some proportion will not survive to spawn.
5. Given pre-season assumptions about Late-run sockeye marine migration timing and recent delay behavior, the Panel has agreed to use a proportional Management Adjustment (pMA) factor for Late-run sockeye of 0.56. If in-season information suggests the upstream timing of Late-run, excluding Birkenhead-Big Silver, is later than September 8th, the Panel will consider adjusting the pMA based on predictions from the timing model fit to all years. At the median forecast, no directed harvest of Late-run sockeye is planned. However, some limited by-catch of Late-run sockeye may occur in fisheries directed at other co-migrating Fraser River sockeye management groups with harvestable surpluses and Fraser River pink salmon.

Regulations

i) If in-season conditions are consistent with pre-season expectations, low impact fisheries would be expected to commence in late-July in Panel Waters. The actual start dates and duration of fisheries will depend on in-season estimates of timing, abundance, diversion, and agreed management adjustments.

ii) The Parties' conservation concerns for other species and stocks will be taken into account throughout the 2019 management season.

File: 71007

DRAFT AGENDA
PACIFIC SALMON COMMISSION
FRASER RIVER PANEL
Friday July 12, 2019 at 11:00 am.
Via Teleconference
1-888-299-2873 CANADA
1-888-585-9008 United States
Conference Room 287-053-397

1) Roll Call (Panel and Tech members, others please email Julie, ehrmantraut@psc.org)

2) Agenda

3) Total catches, Escapements and runs accounted-to-date relative to pre-season forecasts and in-season adopted run sizes — PSC Staff

4) In-season data flow for updating objectives — PSC staff
   a) Test fishing catches, acoustics, and schedule for data flow to come
   b) Stock proportions
   c) Environmental conditions and predicted DBE for Early Stuart sockeye
   d) Big Bar rock slide impacts on Fraser River sockeye and pink salmon — DFO/PSC staff
   e) Observations from the watershed — DFO

5) Assessments and recommendations — PSC staff

6) Other Business — Panel
   a) Final agreed Principles and Constraints
   b) Final agreed bilateral response to Brian Riddell's Memo on Hydroacoustic Technical Summary Review
   c) Sign off on revised cover letter for Hydroacoustic Technical Summary Review
   d) First Weekly Report (July 12, sent out for review prior to meeting)
   e) FRP Post-season meeting (Option 1: Farwell Canyon, Option 2: Chilko enumeration program)

7) Next FRP Meeting, Tuesday July 16, 11:00 a.m. via Teleconference — Panel

2019 Run status of Fraser sockeye and pink salmon

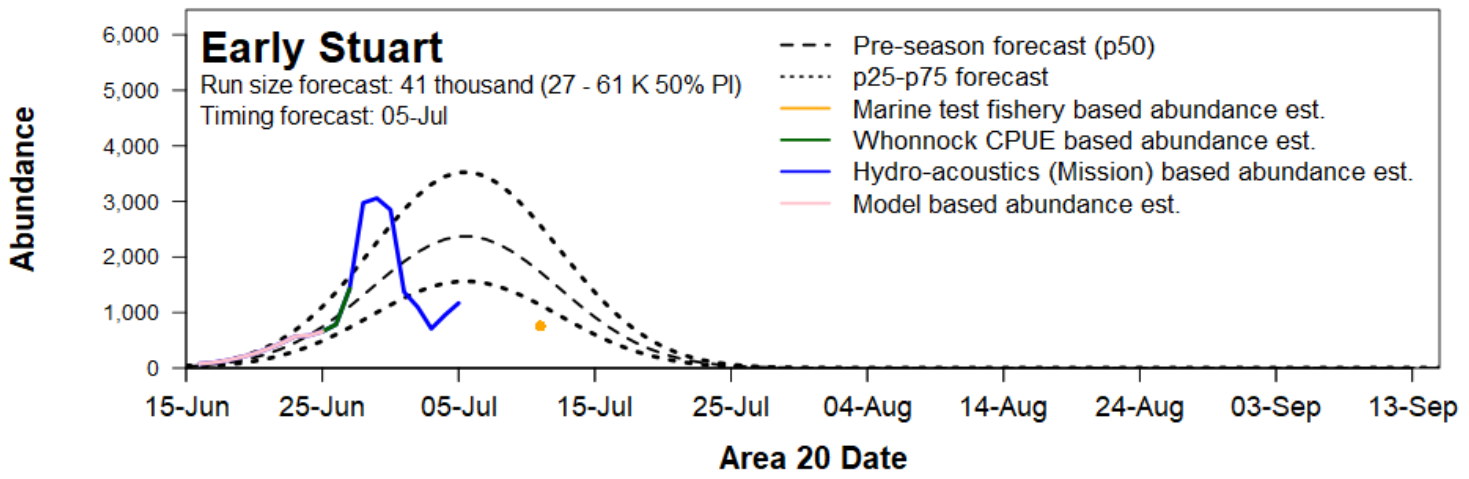
Date: Jul. 12, 2019

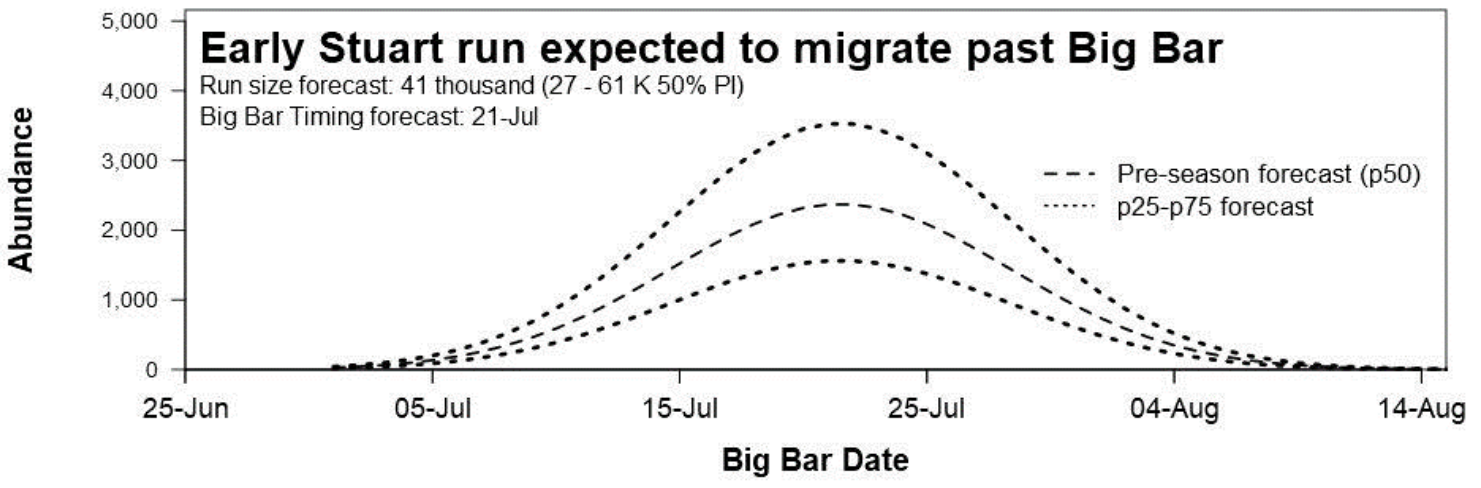
Week of: Jul. 7 - Jul. 13, 2019	Sockeye					Pink
	Management Group				Total	Total
	E.Stuart	E.Summer	Summer	Late	Fraser	Fraser
Mission passage (inclds Pitt, Alouette, Coquitlam) [1]	20,000	3,400	0	0	23,400	0
Catch downstream of Mission	0	0	0	0	0	0
Accounted Run To Date	20,000	3,400	0	0	23,400	0
Run size adopted in-season [2]	**na**	**na**	**na**	**na**	**na**	**na**
Run size forecasted pre-season	41,000	465,000	3,930,000	359,000	4,795,000	5,018,600
Area 20 timing adopted in-season	**na**	**na**	**na**	**na**	**na**	**na**
Area 20 timing expected pre-season	5-Jul	30-Jul	10-Aug	18-Aug	9-Aug	28-Aug
Johnstone Str. Diversion Rate [3]				Annual average to date	**na**	**na**
				Preseason forecast of annual rate:	69%	50%

[1] *Mission passage inlcudes 2844 Early Stuart run assumed to have migrated past Mission prior to the start of the Whonnock test fishery.*

[2] *Run sizes are usually not adopted until after the peak of the run has passed through marine test fishery areas in Juan de Fuca and Johnstone straits.*

[3] *Insufficient information in Area 12 to derive diversion rate*





2019 Fraser Sockeye Test Fishing & Escapement Summary

Area/Gear	Johnstone Strait	Juan de Fuca Strait	Fraser River						
	A12 GN	A20 GN*	A29D GN	Whon CPUE	Qualark		Mission Hydroacoustics		Hell's Gate
Location	Round Is	Port Renfrew	Whonnock	Estimate	GN Catch[1]	Estimate[2]	Estimate[3]	Method[4]	Estimates[5]
From A20	(-2 days)	(0 days)	(+6 days)	(+6 days)	(+8 days)		(+6 days)		(+10 days)
21-Jun							50	Mod-Est	
22-Jun							70	Mod-Est	
23-Jun							100	Mod-Est	
24-Jun			0	0.00			140	Mod-Est	
25-Jun			0	0.00			190	Mod-Est	
26-Jun			0	0.00			260	Mod-Est	
27-Jun			0	0.00			340	Mod-Est	
28-Jun			0	0.00			440	Mod-Est	
29-Jun			0	0.00			570	Mod-Est	
30-Jun			0	0.00			710	Mod-Est	
1-Jul			1	0.09		306	600	W	
2-Jul			0	0.00	1	455	900	Interp	
3-Jul			2	0.20	2	937	1,300	W	0
4-Jul			0	0.00	0	0	2,900	S1+M	0
5-Jul			0	0.00	0	0	6,500	S1+M	0
6-Jul			0	0.00	4	831	1,600	S1+M	0
7-Jul			0	0.00	1	188	2,100	S1+M	0
8-Jul			0	0.00	0	0	1,200	S1+M	0
9-Jul			0	0.00	1	60	600	S1+M	0
10-Jul		0	0	0.00	0	81	800	S1+M	0
11-Jul	9	20	0	0.00			2,100	S1+M	0
12-Jul									
13-Jul									

[1] *After July 2nd, Qualark ceased fishing evening sets*

[2] *Qualark escapement estimate - does not include Chilliwack, Pitt, Harrison, Birkenhead, Big Silver, Weaver, and Cultus*

[3] *Upstream escapement estimate - does not include Pitt*

[4] *Mission Source:*

Mod-Est = Run size model estimate

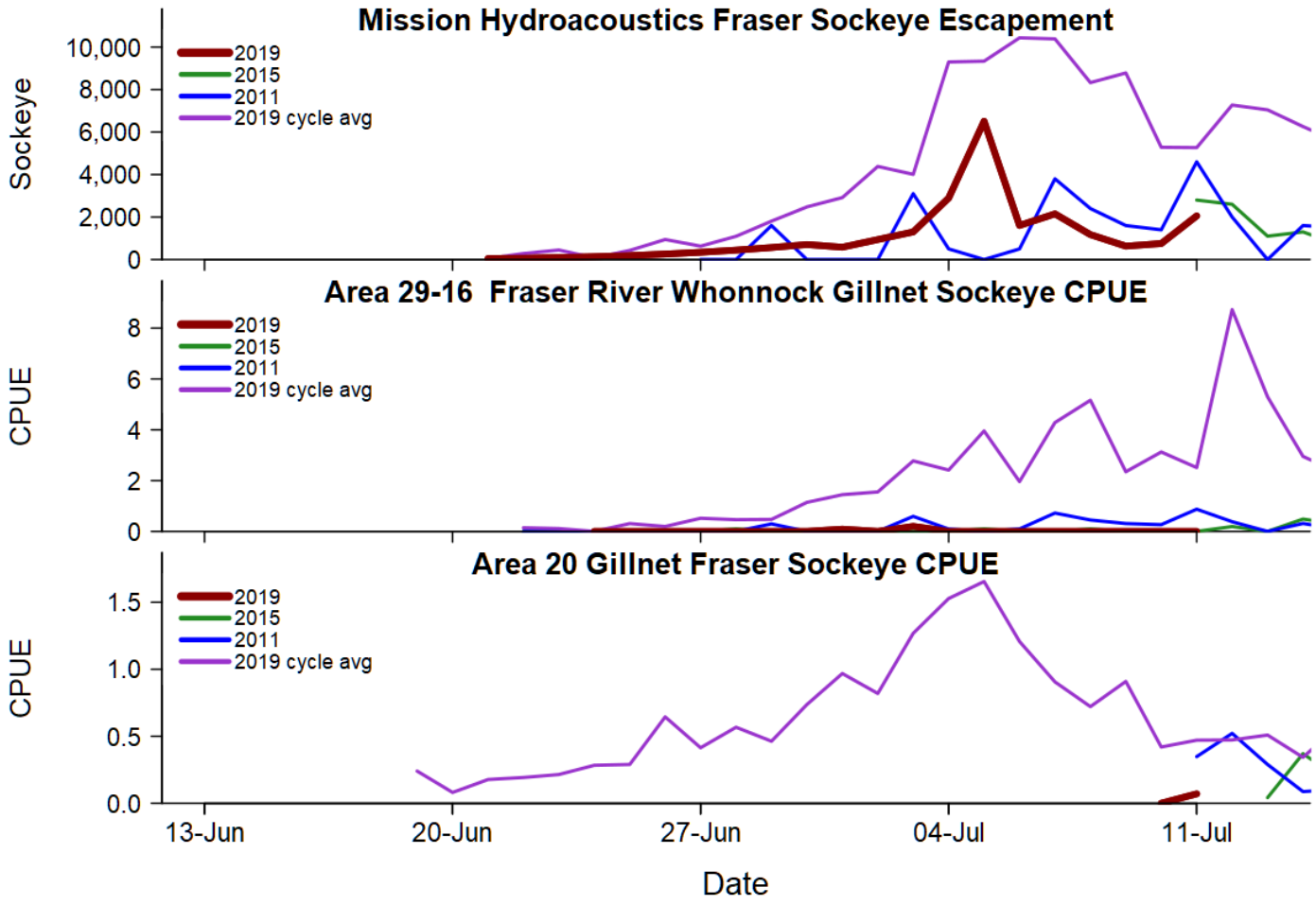
W = Whonnock sockeye CPUE x Expansion Line (6,600 expansion line)

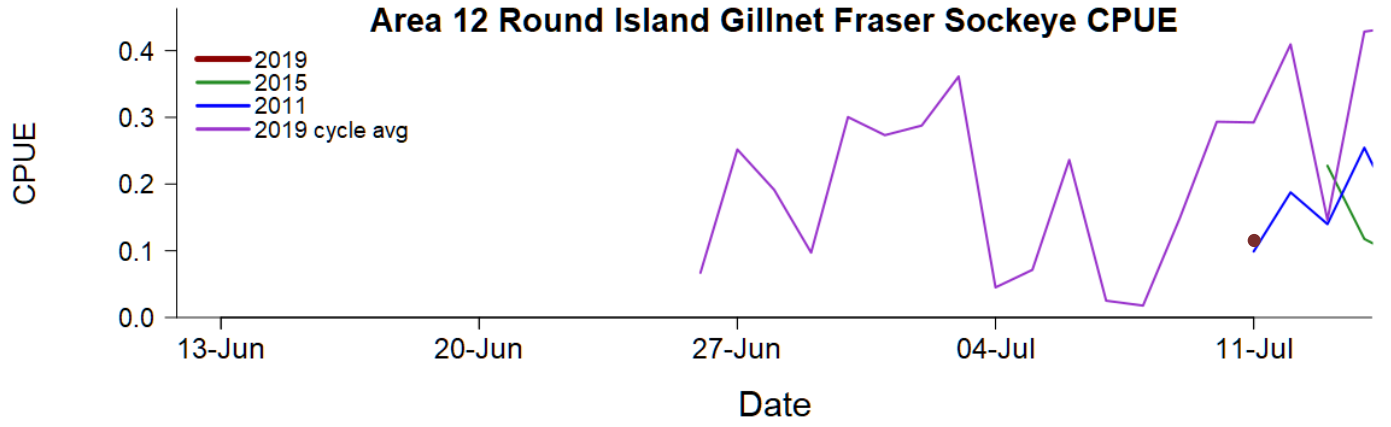
Interp = Passage estimated from surrounding known estimates

S1+M = Left-bank split-beam (S1) + Mobile split-beam (M)

[5] *Daily Hell's Gate abundance estimate; actual daily count has been multiplied by 2.*

* *Area 20 Gillnet - two boats fishing each day*

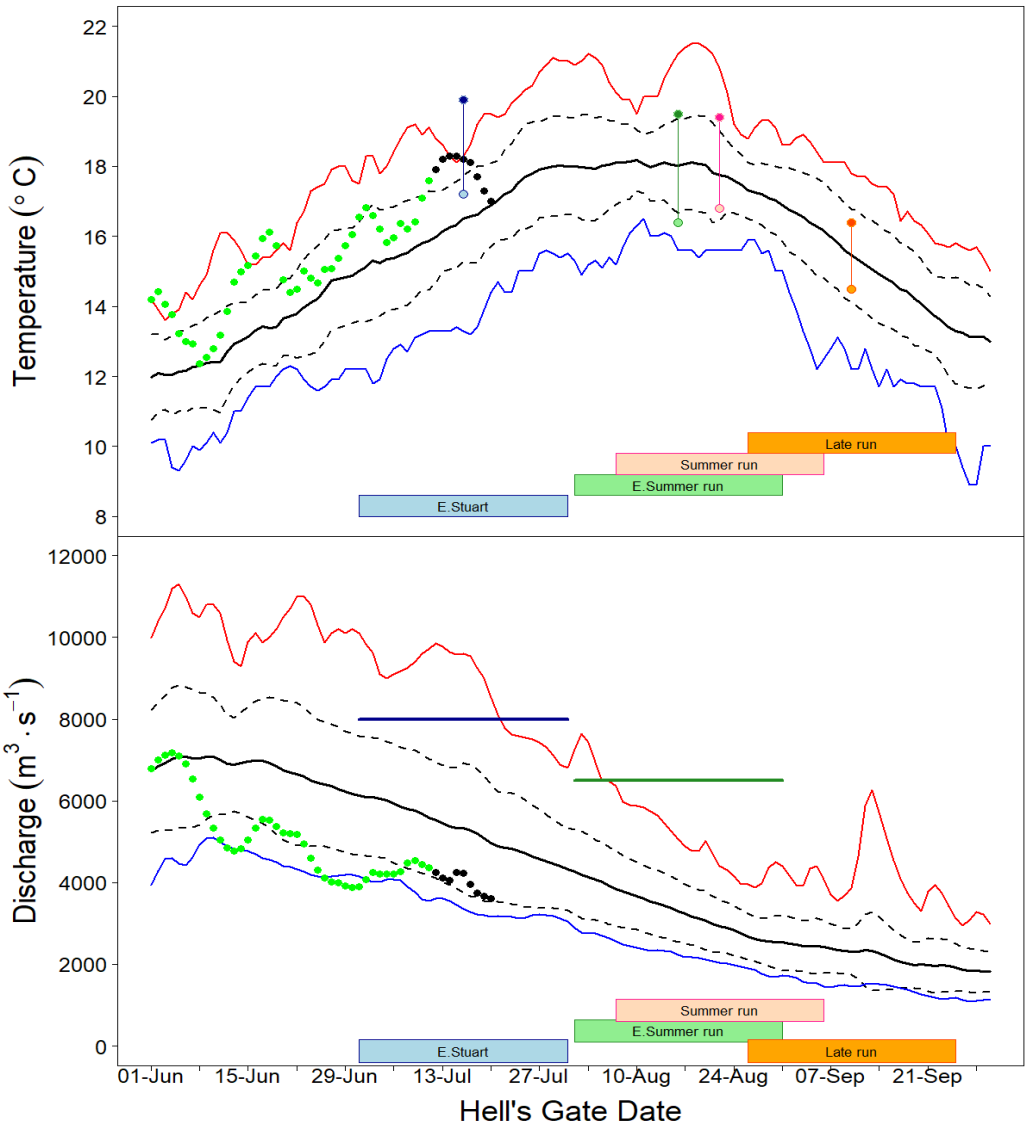

Mission Hydroacoustics Fraser Sockeye Escapement
Sockeye
10,000
8,000
6,000
4,000
2,000
0
2019
2015
2011
2019 cycle avg
Area 29-16 Fraser River Whonnock Gillnet Sockeye CPUE
CPUE
8
6
4
2
0
2019
2015
2011
2019 cycle avg
Area 20 Gillnet Fraser Sockeye CPUE
CPUE
1.5
1.0
0.5
0.0
2019
2015
2011
2019 cycle avg
13-Jun
20-Jun
27-Jun
04-Jul
11-Jul
Date


Area 12 Round Island Gillnet Fraser Sockeye CPUE
CPUE
0.4
0.3
0.2
0.1
0.0
2019
2015
2011
2019 cycle avg
13-Jun
20-Jun
27-Jun
04-Jul
11-Jul
Date

Fraser River Environmental Report for July 11, 2019

Observed Fraser River Temperature at Qualark for 11-Jul	17.6°C
Average (1981-2010) Historical Temperature on this day	15.9°C
Deviation from Average	1.7°C
Forecast Temperature for 17-Jul-19	18.1°C
The forecast in Kamloops is for below average air temperature and minimal precipitation. The forecast in Prince George is for above average air temperature with minimal precipitation.	

Observed Fraser River Discharge at Hope for 11-Jul	4371 $m^3 \cdot s^{-1}$
Average (1981-2010) Historical Discharge on this day	5594 $m^3 \cdot s^{-1}$
% above or below Historical Discharge	-22%
Forecast Discharge for 17-Jul-19	3961 $m^3 \cdot s^{-1}$
Due to the forecast for rainfall in the Fraser River watershed there is some variation in the discharge forecast.	



Temperature Legend

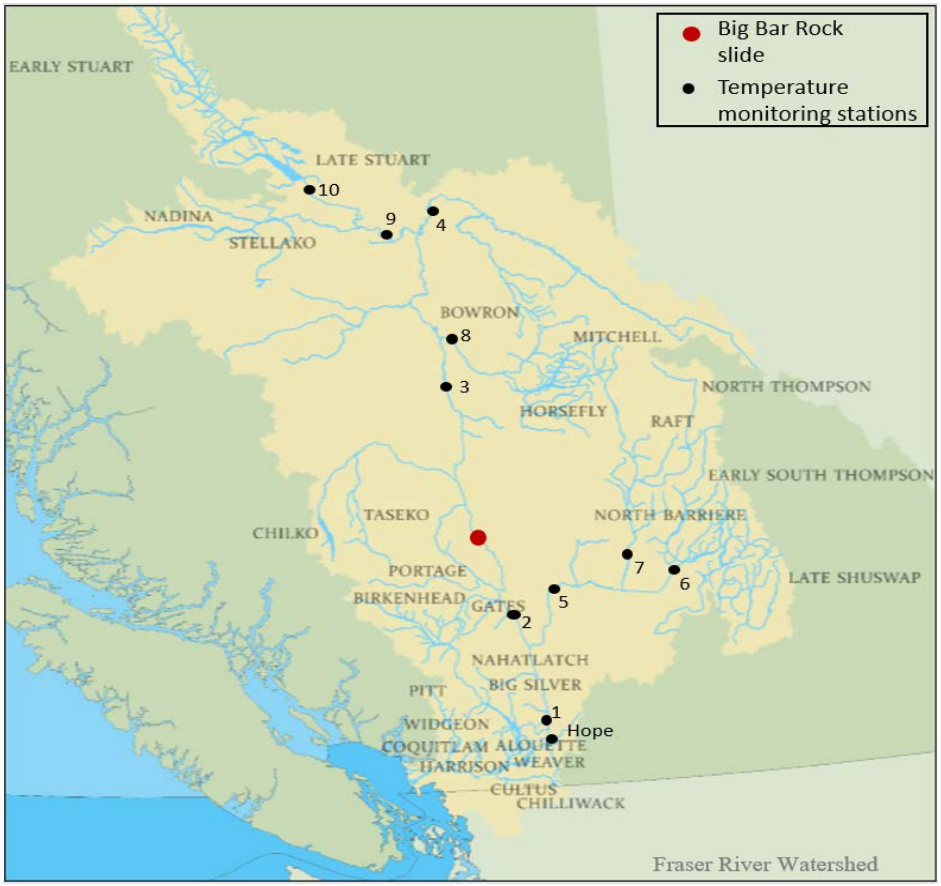
- Mean Temp (1981-2010)
- +/- sd
- Min Temp (1981-2010)
- Max Temp (1981-2010)
- Current Temp
- Forecast Temp
- Opt. T of stock group*
- Upper T range of stock group**

Discharge Legend

- Mean Dis (1981-2010)
- +/- sd
- Min Dis (1981-2010)
- Max Dis (1981-2010)
- Current Dis
- Forecast Dis
- E.Stuart Threshold ($m^3 \cdot s^{-1}$)[i]
- E.Summer Threshold ($m^3 \cdot s^{-1}$)[ii]

Run timing bars represent a 31 day spread of the run centered around the Hell's Gate date. Hell's gate timing is 5 days from Mission for Early Stuart and Late run; and 4 days from Mission for Early Summer and Summer run.'pMA is the proportional increase to spawning escapement targets to help ensure targets are achieved."%DBE is %difference betweeen estimates of potential spawning escapement and spawning escapement.*This is the optimum temp for aerobic swimming - T_{opt} (Eliason et al. (2011). Science 332: 109-112)**This is the upper range of the optimum temp for aerobic swimming - T_{pejus}. [i]Discharge threshold of 8000cms for Early Stuart from Macdonald (2000). Can. Tech. Rep. Fish. Aquat. Sci. 2315: 120p. [ii]Discharge threshold of 6500cms for Early Summer run from Macdonald et al. (2011). Trans. Am. Fish. Soc. 139: 768-782. 19 days of T & Q data are required to calculate a pMA - 15 days before the Hell's Gate Date and 3 days after. MA estimates can be calculated 4 days after the Area 20 date.

Upriver of Slide	Map #	Current Temperatures 10-Jul	Daily Mean	Historic Median	Deviation from Historical Median	Historic Year Range
		Fraser River Mainstem				
	1	Fraser River @ Qualark	**17.1**	**15.8**	**1.3**	**1981-2010**
	2	Fraser River @ Texas Creek	**16.6**	**16.4**	**0.2**	**2006-2016**
▶	3	Fraser @ Marguerite	**NA**	**NA**	**NA**	
▶	4	Upper Fraser @ Shelley	**13.0**	**13.4**	**-0.4**	**1994-2016**
		Fraser River Tributaries				
	5	Thompson R. @ Ashcroft	**17.3**	**15.2**	**2.1**	**1995-2016**
	6	South Thompson @ Chase	**18.7**	**16.2**	**2.5**	**1994-2016**
	7	North Thompson @ McLure	**15.7**	**12.4**	**3.3**	**2008-2016**
▶	8	Quesnel R. @ Quesnel	**16.2**	**13.7**	**2.5**	**2000-2016**
▶	9	Nechako R. @ Isle Pierre	**19.5**	**18.1**	**1.4**	**2006-2016**
▶	10	Stuart R. @ Ft. St. James	**17.1**	**17.0**	**0.1**	**2000-2016**

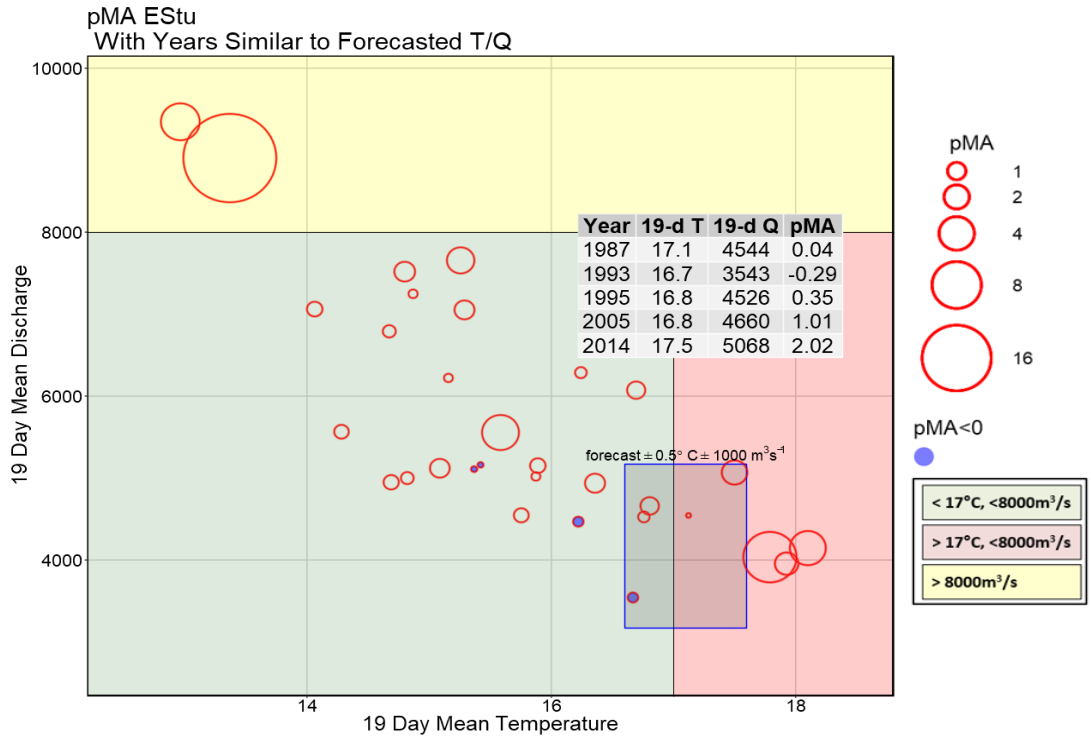


Early Stuart

19-day Model Predictions of Expected Difference Between Estimates (%DBE) and Implied Proportional MA (pMA) for July 12, 2019

	Area 20 Date	Hells Gate Date	Average Temperate °C (19 days)	Average Discharge m^3/s (19 days)	Number of obs. days	Number of forec. days	Predicted % DBE median	Predicted % DBE 80% PI 10%	Predicted % DBE 80% PI 90%	Implied Proportional MA (pMA) median	Implied Proportional MA (pMA) 80% PI 10%	Implied Proportional MA (pMA) 80% PI 90%
Pre-Season Values												
							-41			0.69		
Current model predictions												
	02-Jul	13-Jul	16.8	4192	14	5	-37	45	-73	0.59	-0.31	2.70
	03-Jul	14-Jul	17.0	4190	13	6	-43	32	-76	0.75	-0.24	3.17
	04-Jul	15-Jul	17.1	4181	12	7	-47	23	-77	0.89	-0.19	3.35
*	05-Jul	16-Jul	17.1	4169	11	8	-49	17	-78	0.96	-0.15	3.55
	06-Jul	17-Jul	17.2	4154	10	9	-50	16	-79	1.00	-0.14	3.76

* currently adopted timing with updated forecast information



Supplemental Management Adjustment Approach

Environmental Conditions	Historical Median pDBE	Sample Size	80% PI 10%	80% PI 90%
< 17°C, <8000m^3/s	-0.38	24	0.40	-0.82
> 17°C, <8000m^3/s	-0.67	5	-0.04	-0.81
> 8000m^3/s	-0.90	2	-0.83	-0.97

INCIDENT NAME	INCIDENT LOCATION	DATE PREPARED
Big Bar Landslide	North of Big Bar on the Fraser River	July 11 2019

Fisheries and Oceans Canada
Pêches et Océans Canada
BRITISH COLUMBIA

UPDATES

- The Unified Command Incident Management Team continues to work together to create options for action on the Big Bar Landslide.
- A significant build up of debris from the Chilcotin River continues to affect the Fraser River. No data was collected yesterday from acoustic counting because water was not clean enough for sonar operations. Staff continue to be on standby until it is safe to proceed with this work.
- Yesterday, scalers made good progress in removing loose rock from the site without the use of sluicing operations. These operations will be available and used when necessary in the future.
- Alongside incident liaisons, First Nations leaders continue to provide input on the options being considered. Their feedback is a critical part of the decision-making process.
- Experts will continue to use light imaging, detection and ranging (LIDAR) survey equipment today. This is instrumental in ensuring site safety through monitoring for changes at the slide site.
- Fish catch and tag methods to track the quantity of fish traveling through the slide site are scheduled to begin as soon as possible. Once data is gathered and analyzed it will be used by the Environmental Unit for future recommendations.

The eddy immediately downstream of the slide site continues to host large amounts of debris.

LIDAR technology is instrumental to site safety.

CONTACT INFORMATION

Information Officers: Jody Lucius or Leri Davies

250.318.7456 or 604.612.6837

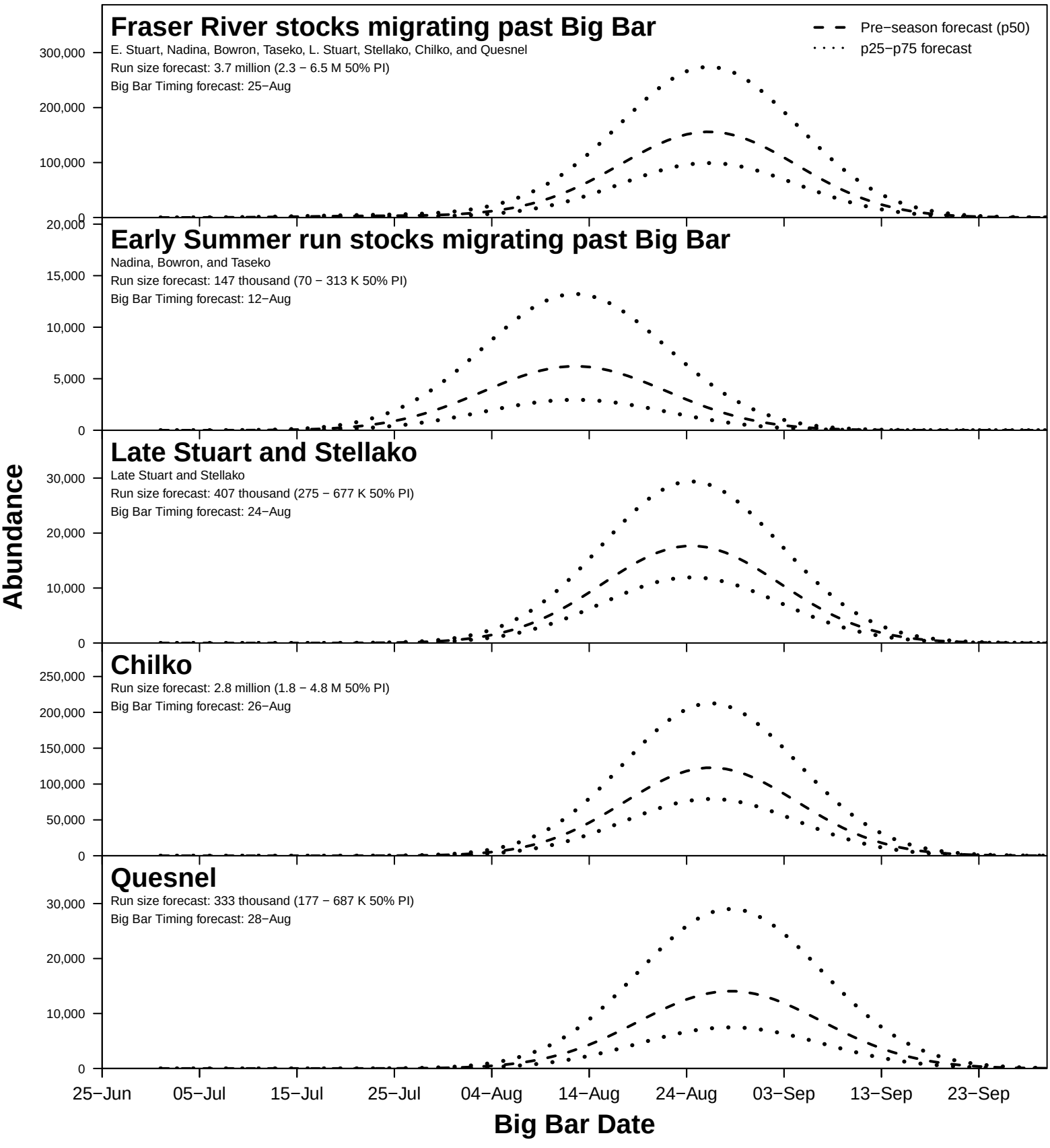
Incident Webpage **BC River Forecast**

2019 Expected migration timing and run size of stocks migrating past the Big Bar rock slide

Stock and Management Groups	50% migration dates			Run size	Percentage of Management Group
	A20 Timing	Mission Timing (+6d)	Expected Big Bar Timing (+16d)	Preseason forecast p50 abundance (p25-p75)	
Early Stuart run	05-Jul	11-Jul	21-Jul	41,000 (27 - 61 K 50% PI)	*100%*
Early Summer run					*32%*
Bowron	27-Jul	02-Aug	12-Aug	15,000 (9 - 24 K 50% PI)	3%
Nadina	27-Jul	02-Aug	12-Aug	129,000 (59 - 283 K 50% PI)	28%
Taseko*	30-Jul	05-Aug	15-Aug	3,000 (2 - 6 K 50% PI)	1%
Summer run					*89%*
Late Stuart	08-Aug	14-Aug	24-Aug	39,000 (14 - 105 K 50% PI)	1%
Stellako	08-Aug	14-Aug	24-Aug	368,000 (261 - 572 K 50% PI)	9%
Chilko	10-Aug	16-Aug	26-Aug	2,750,000 (1.8 - 4.8 M 50% PI)	70%
Quesnel	12-Aug	18-Aug	28-Aug	333,000 (177 - 687 K 50% PI)	8%
Total Impacted	**08-Aug**	**14-Aug**	**24-Aug**	**3,678,000 (2.3 - 6.5 M 50% PI)**	**77%**

* note: Taseko timing = timing for Early Summer run aggregate

2019 Expected daily sockeye abundance at the Big Bar rock slide site



Date: 2019−07−11, Time: 11:28 JG

2019 Fraser River run size and timing estimates

Preseason forecasts, inseason estimates, and official estimates of run size and associated timing

	Run Size						Run size components			Run Timing[1]					
	Inseason Adopted	Preseason Forecast	Inseason estimate	Inseason 80% PIs[2] 10% PI	Inseason 80% PIs[2] 90% PI	Method	Catch + Escapement	6-day Projection[3]	Seaward Abundance	Inseason Adopted	Preseason Forecast	Inseason estimate	Inseason 80% PIs[2] 10% PI	Inseason 80% PIs[2] 90% PI	Method
Total Fraser sockeye															
Early Stuart Run	**NA**	**41,000**	**31,000**	***19,000***	***49,000***	**Model**	**20,000**	**8,000**	**3,000**	**NA**	**05-Jul**	**03-Jul**	***29-Jun***	***08-Jul***	**Model**

[1] Run timing refers to the date when 50% of the run migrated past the Area 20 reference point.

[2] 80% Probability Interval: there exists an 80% chance that the true abundance lies within this interval

[3] Normally based on test fishery data. Based on Model if Method = Recon(2).

Methods for run size & timing estimation

Model Run size assessment model (median)

File: 71007

DRAFT AGENDA
PACIFIC SALMON COMMISSION
FRASER RIVER PANEL
Friday September 17, 2019 at 11:00 am.
Via Teleconference
1-888-299-2873 CANADA
1-888-585-9008 United States
Conference Room 287-053-397

1) Roll Call (Panel and Tech members, others please email Julie, ehrmantraut@psc.org)

2) Agenda

3) Total catches, Escapements and runs accounted-to-date relative to pre-season forecasts and in-season adopted run sizes — PSC Staff

4) In-season data flow for updating objectives — PSC staff
   a) Test fishing catches, acoustics
   b) Stock proportions
   c) Environmental conditions; 31 day Summer run DBE
   d) Big Bar landslide update — PSC/DFO
   e) Observations from the watershed — DFO

5) Assessments and recommendations — PSC Staff
   a) Migration graphs, escapement projections, run-size assessment
   b) Recommendations

6) Review and decisions on staff recommendations — Panel

7) Fishery recommendations — Panel
   a) Secretariat staff evaluation of fisheries recommendations — PSC Staff
   b) Panel decisions on fishery recommendations — Panel

8) Other Business — Panel
   a) Cottonwood Test fishery
   b) Mission hydroacoustics end date
   c) Next FRTC Meeting?
   d) Next FRP Meeting?
   e) Small group meeting Friday (SEF proposals)
   f) Post-season FRP Meeting (Start time, Additional people for dinner Tuesday evening?, itinerary for next week)
   g) Weekly Report

9) Next FRP Meeting, Friday September 20, 11:00 a.m via Teleconference Panel

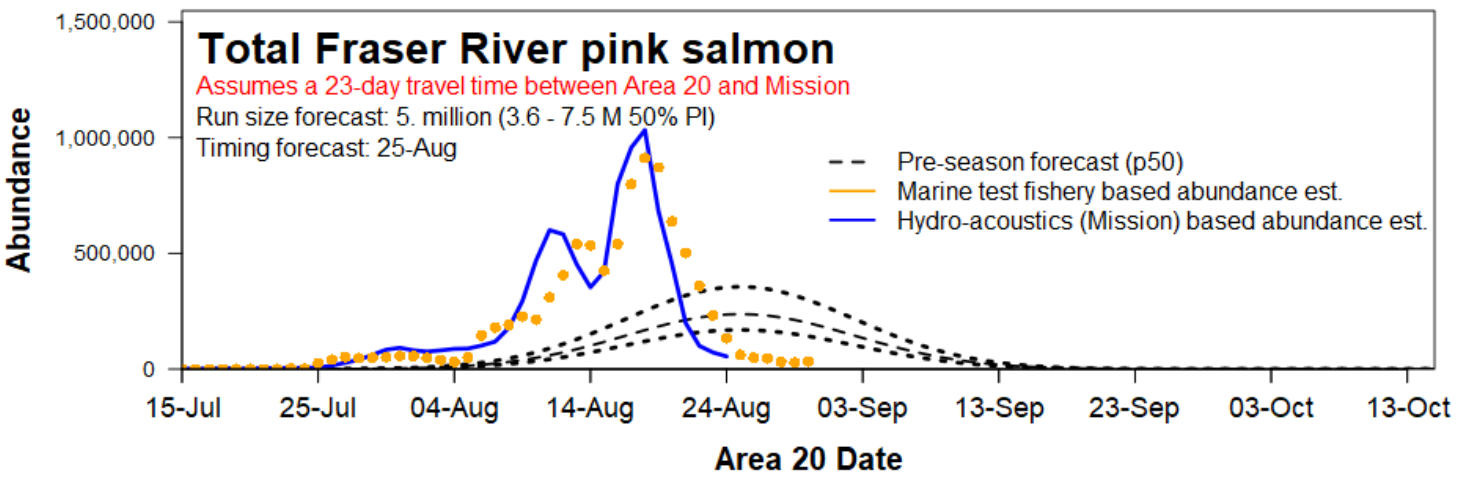
2019 Run status of Fraser sockeye and pink salmon

Date: Sep. 17, 2019

Week of: Sep. 15 - Sep. 21, 2019	Sockeye					Pink
	Management Group				Total	Total
	E.Stuart	E.Summer	Summer	Late	Fraser	Fraser
Mission passage (inclds Pitt, Alouette, Coquitlam) [1]	25,900	92,500	338,600	21,700	478,700	8,375,000
Catch downstream of Mission	0	1,000	5,000	300	6,300	263,300
Accounted Run To Date	25,900	93,500	343,600	22,000	485,000	8,638,300
Run size adopted in-season [2]	**26,000**	**94,000**	**360,000**	**20,000**	**500,000**	**8,900,000**
Run size forecasted pre-season	41,000	465,000	3,930,000	359,000	4,795,000	5,018,600
Area 20 timing adopted in-season	**8/Jul**	**29/Jul**	**19/Aug**	**19/Aug**	**na**	**17/Aug**
Area 20 timing expected pre-season	5/Jul	30/Jul	10/Aug	18/Aug	9/Aug	28/Aug
Johnstone Str. Diversion Rate [3]				Annual average to date	**84%**	**11%**
				Preseason forecast of annual rate:	69%	50%

[1] *Mission passage inlcudes 1700 Early Stuart run assumed to have migrated past Mission prior to the start of the Whonnock test fishery.*

[2] *Run sizes are usually not adopted until after the peak of the run has passed through marine test fishery areas in Juan de Fuca and Johnstone straits.*



.

2019 Catch-to-date by fishery

Date: Sep. 17, 2019

Week of: Sep. 15 - Sep. 21, 2019	Sockeye		Pink	
	Total	Fraser	Total	Fraser
Canada	**8,730**	**8,730**	**15,240**	**13,010**
Commercial	**0**	**0**	**0**	**0**
B Purse Seine	0	0	0	0
D Gillnet	0	0	0	0
E Gillnet	0	0	0	0
G Troll	0	0	0	0
H Troll	0	0	0	0
First Nations	**8,650**	**8,650**	**14,530**	**12,300**
Food, Social & Ceremonial (FSC)	8,650	8,650	14,530	12,300
Marine	0	0	7,520	5,290
Fraser R.	8,650	8,650	7,010	7,010
Lower Fraser (LFA)	520	520	6,770	6,770
BC Interior (BCI)	8,130	8,130	250	250
Economic Opportunity (EO) & Demonstration (Demo)	0	0	0	0
Marine	0	0	0	0
Fraser R.	0	0	0	0
Lower Fraser (LFA)	0	0	0	0
BC Interior (BCI)	0	0	0	0
Escapement Surplus to Spawning Requirements (ESSR)	**0**	**0**	**0**	**0**
Recreational	**0**	**0**	**0**	**0**
Marine	0	0	0	0
Fraser R.	0	0	0	0
Charter (Albion & A12 Chum test fishery)	**80**	**80**	**710**	**710**
United States	**470**	**470**	**303,110**	**235,030**
Commercial	**0**	**0**	**303,110**	**235,030**
Treaty Indian (TI)	0	0	212,780	160,890
Areas 4B, 5, 6C	0	0	0	0
Areas 6, 7, 7A	0	0	212,780	160,890
All Citizen (AC)	0	0	90,340	74,140
Purse Seine (PS)	0	0	52,960	43,270
Gillnet (GN)	0	0	0	0
Reefnet (RN)	0	0	37,380	30,880
Treaty Indian Ceremonial & Subsistence (C&S)	**470**	**470**	**0**	**0**
Areas 4B, 5, 6C	0	0	0	0
Areas 6, 7, 7A	470	470	0	0
All Citizen Recreational	**0**	**0**	**0**	**0**
Alaska *	**na**	**na**	**na**	**na**
Panel-approved Test Fisheries	**6,710**	**6,400**	**22,380**	**17,090**
Panel Waters	**2,060**	**2,010**	**17,950**	**14,840**
Canada	2,060	2,010	17,690	14,650
U.S.	0	0	260	190
Non-Panel Waters	**4,650**	**4,390**	**4,430**	**2,250**
Total	**15,900**	**15,590**	**340,730**	**265,130**
Catch Seaward of Mission **	6,750	6,440	338,880	263,280
Catch Upstream of Mission	9,160	9,160	1,850	1,850

** Alaska data are processed post-season and so are unavailable in-season.*

*** All catches in marine areas and in the Fraser River downstream of Mission.*

2019 Fraser River sockeye and pink salmon: TAC and catch balance

Week of: Sep. 15 - Sep. 21, 2019 Date: Sep. 17, 2019

		Fraser Sockeye					Fraser Pinks	
		Early Stuart	Early Summer	Summer	Lates	Total		Total
RUN STATUS, ESCAPEMENT NEEDS & AVAILABLE SURPLUS								
Pre-season or Adopted In-season Run Size		**26,000**	**94,000**	**360,000**	**20,000**	**500,000**		**8,900,000**
Adult Spawning Escapement Target (SET)		**26,000**	**94,000**	**360,000**	**20,000**	**500,000**		**6,000,000**
%SET from TAM rules		100%	100%	100%	100%			67%
Management Adjustment (MA)*		**17,940**	**42,300**	**32,400**	**11,200**	**103,840**		0
Proportional MA (pMA)*		0.69	0.45	0.09	0.56			0.00
Adjusted Spawning Escapement Target (SET) **		26,000	94,000	360,000	20,000	500,000		6,000,000
Test Fishing (TF)		**100**	**1,100**	**5,000**	**500**	**6,700**		**23,500**
Surplus above Adjusted SET & Test fishing		0	0	0	0	0		2,876,500
DEDUCTIONS & TAC FOR INTERNATIONAL SHARING								
Aboriginal Fishery Exemption (AFE)		**2,500**	**8,300**	**31,000**	**1,500**	**43,300**		**0**
Total Deductions (Adj. SET + TF + Available AFE)		28,600	103,400	396,000	22,000	550,000		6,023,500
Available TAC for International Sharing		**0**	**0**	**0**	**0**	**0**		**2,876,500**
UNITED STATES (Washington) TAC								
Proportionally Distributed TAC ***	16.5%	0	0	0	0	0	25.7%	739,260
U.S. Payback ***	0.0%	0	0	0	0	0		0
Proportionally Distributed TAC + Payback		**0**	**0**	**0**	**0**	**0**		**739,260**
Treaty Indian Share **	67.7%	0	0	0	0	0	50.0%	369,630
All Citizen Share	32.3%	0	0	0	0	0	50.0%	369,630
CANADA TAC								
Aboriginal Fishery Exemption (AFE)		2,500	8,300	31,000	1,500	43,300		0
Canadian TAC + AFE		**2,500**	**8,300**	**31,000**	**1,500**	**43,300**		**2,137,240**
CATCH-TO-DATE								
Test		**80**	**1,080**	**4,980**	**260**	**6,400**		**17,090**
Treaty Indian (Wash.) / Ceremonial (TI)		0	50	330	90	470		160,890
All Citizen (Wash.)		0	0	0	0	0		74,140
Recreational								
Washington		**0**	**50**	**330**	**90**	**470**		**235,030**
First Nations Catch (including AFE)		100	1,420	7,100	20	8,650		12,300
Planned Charter & Recreational Shares		0	10	70	0	82	0	710
Total Commercial (including FN EO/Demo****)		0	0	0	0	0	0	0
Canada		**100**	**1,430**	**7,170**	**20**	**8,730**		**13,010**
Total Catch in All Fisheries		**180**	**2,560**	**12,480**	**370**	**15,590**		**265,130**
Exploitation Rate (catch-to-date / run size)		0.7%	2.7%	3.5%	1.9%	3.1%		3.0%
Exploit. Rate with fishery-induced mortality included		0.7%	3.1%	4.0%	2.1%	3.6%		
CATCH REMAINING (BALANCE)								
Washington		**0**	**-50**	**-330**	**-90**	**-470**		**504,230**
Canada		**2,400**	**6,870**	**23,830**	**1,480**	**34,580**		**2,124,230**
Balance Remaining [below share / -above share]		2,400	6,820	23,500	1,390	34,110		2,628,460

* Given the 2019 pre-season forecasts of abundances, fisheries decisions that could impact Early Stuart run sockeye management group will be based on Low Abundance Exploitation Rate (LAER) limit of 10%. The intent of LAER is to allow for limited fisheries directed on co-migrating stocks or species, but also may permit limited harvest in some cases. The application of the LAER obviates the need for management adjustments for this group.

** The adjusted SET is the lesser of the run size or the sum of the MA + TAM - defined SET.

*** Washington sockeye and pink shares according to Annex IV of the Pacific Salmon Treaty.
Sockeye: 16.5% of the TAC - payback (maximum of 5% of share).
Pink: 25.7% of the TAC - payback (maximum of 5% of share)

**** EO = FN Economic Opportunity fisheries; Demo = FN Demonstration fisheries.

2019 Fraser Sockeye Test Fishing & Escapement Summary

Area/Gear	Fraser River							
	A29B GN	A29D GN	Whon CPUE	Qualark		Mission Hydroacoustics		Hell's Gate
Location	Cottonwood	Whonnock	Estimate	GN Catch[1]	Estimate[2]	Estimate[3]	Method[4]	Estimates[5]
From A20	(+5 days)	(+6 days)	(+6 days)	(+8 days)		(+6 days)		(+10 days)
26-Aug	26	20	1.43	30	32,397	22,400	CPUE-Wh-Avg	3,060
27-Aug	14	38	2.85	21	31,460	24,000	CPUE-Wh-Avg	2,730
28-Aug	4	31	2.38	27	33,205	24,600	CPUE-Wh-Avg	1,630
29-Aug	8	21	1.61	23	24,600	17,300	CPUE-Wh-Avg	No Count
30-Aug	6	11	0.83	27	25,480	11,200	CPUE-Wh-Avg	2,190
31-Aug	4	9	0.68	12	25,648	10,100	CPUE-Wh-Avg	2,010
1-Sep	8	17	1.31	8	36,813	8,800	CPUE-Wh-Avg	No Count
2-Sep	9	6	0.45	14	23,928	8,200	CPUE-Wh-Avg	2,310
3-Sep	5	7	0.53	1	3,331	4,300	CPUE-Wh-Avg	2,710
4-Sep	3	3	0.23	5	12,300	3,500	CPUE-Wh-Avg	1,960
5-Sep	3	3	0.23	2	6,025	1,900	CPUE-Wh-Avg	2,550
6-Sep	2	1	0.08	7	33,609	1,600	CPUE-Wh-Avg	4,670
7-Sep	2	2	0.15	10	50,459	2,900	CPUE-Wh-Avg	10,840
8-Sep	1	8	0.59	1	12,607	4,300	CPUE-Wh-Avg	No Count
9-Sep	3	6	0.46	0	0	4,900	CPUE-Wh-Avg	2,980
10-Sep	12	4	0.30	2	5,578	5,400	CPUE-Wh-Avg	1,410
11-Sep	2	10	0.75	6	11,859	6,200	CPUE-Wh-Avg	1,740
12-Sep	0	9	0.68	4	19,866	6,200	CPUE-Wh-Avg	1,690
13-Sep	5	4	0.31	5	21,870	3,500	CPUE-Wh-Avg	1,730
14-Sep	1	0	0.00	2	12,360	1,100	CPUE-Wh-Avg	1,780
15-Sep	0	0	0.00	1	2,536	300	CPUE-Wh-Avg	1,490
16-Sep	0	1	0.09			900	CPUE-Wh	No Count
17-Sep								

[1] *After July 2nd, Qualark ceased fishing evening sets*

[2] *Qualark escapement estimate - does not include Chilliwack, Pitt, Harrison, Birkenhead, Big Silver, Weaver, and Cultus*

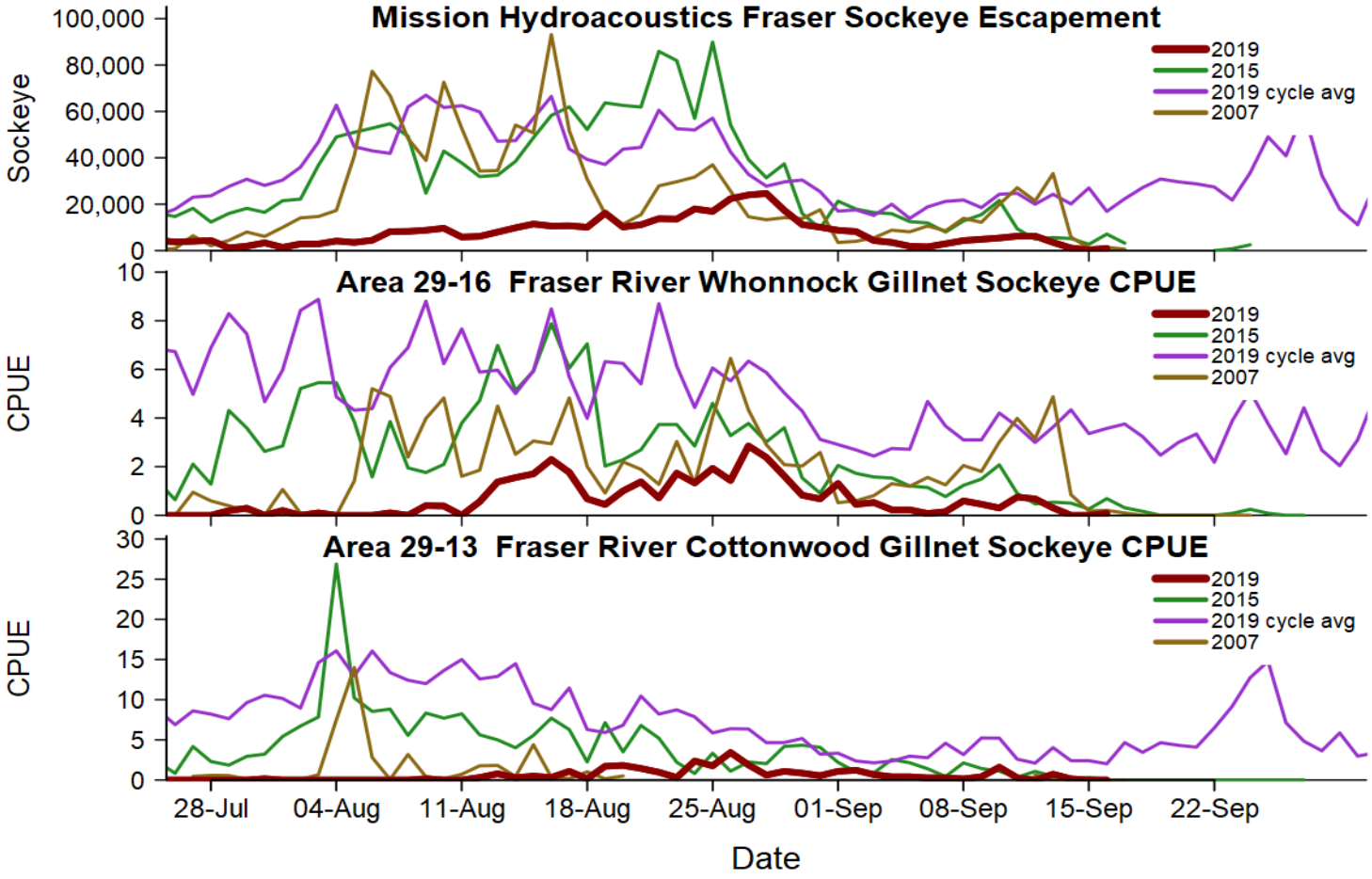
[3] *Upstream escapement estimate - does not include Pitt*

[4] *Mission Source:*

CPUE-Wh-Avg = 3 day average CPUE x Expansion Line

CPUE-Wh = Whonnock sockeye CPUE x Expansion Line

[5] *Daily Hell's Gate abundance estimate; actual daily count has been multiplied by 2.*


Mission Hydroacoustics Fraser Sockeye Escapement
Sockeye
100,000
80,000
60,000
40,000
20,000
0
2019
2015
2019 cycle avg
2007
Area 29-16 Fraser River Whonnock Gillnet Sockeye CPUE
CPUE
10
8
6
4
2
0
2019
2015
2019 cycle avg
2007
Area 29-13 Fraser River Cottonwood Gillnet Sockeye CPUE
CPUE
30
25
20
15
10
5
0
2019
2015
2019 cycle avg
2007
28-Jul
04-Aug
11-Aug
18-Aug
25-Aug
01-Sep
08-Sep
15-Sep
22-Sep
Date

2019 Fraser Pink Test Fishing & Escapement Summary

Area/Gear	Fraser River							
	A29B GN	A29D GN	Whon CPUE	Qualark		Mission Hydroacoustics		Hell's Gate
Location	Cottonwood	Whonnock	Estimate	GN Catch[1]	Estimate	Estimate	Method[2]	Estimates[3]
From A20	(+5 days)	(+6 days)	(+6 days)	(+8 days)		(+6 days)		(+10 days)
26-Aug	78	37	2.64	13	14,039	36,180	S1+M+A2	9,130
27-Aug	76	71	5.33	13	19,475	59,890	A1+S1+M+A2	19,680
28-Aug	41	24	1.84	9	11,068	66,500	A1+S1+M+A2	10,040
29-Aug	132	50	3.82	9	9,626	76,970	A1+S1+M+A2	No Count
30-Aug	75	173	12.98	13	12,268	95,710	A1+S1+M+A2	21,380
31-Aug	113	174	13.05	17	36,335	125,070	A1+S1+M+A2	25,960
1-Sep	362	81	6.15	3	13,805	131,920	A1+S1+M+A2	No Count
2-Sep	219	134	10.05	22	37,601	273,190	A1+S1+M+A2	32,380
3-Sep	318	190	14.25	15	49,964	472,540	A1+S1+M+A2	47,240
4-Sep	220	395	29.63	34	83,642	656,040	A1+S1+M+A2	55,280
5-Sep	165	737	55.28	30	93,393	670,050	A1+S1+M+A2	54,550
6-Sep	213	603	45.23	14	67,217	418,180	A1+S1+M+A2	153,080
7-Sep	328	171	12.83	39	196,790	264,940	A1+S1+M+A2	159,550
8-Sep	92	392	29.29	19	239,526	373,440	A1+S1+M+A2	No Count
9-Sep	115	676	50.78	18	86,892	616,830	A1+S1+M+A2	253,240
10-Sep	70	418	31.35	20	55,783	1,402,040	A1+S1+M+A2	62,630
11-Sep	63	261	19.58	38	75,105	844,430	A1+S1+M+A2	122,250
12-Sep	55	229	17.18	12	59,599	849,340	A1+S1+M+A2	121,050
13-Sep	23	62	4.70	23	100,602	348,800	A1+S1+M+A2	108,610
14-Sep	12	76	5.65	16	98,876	157,040	A1+S1+M+A2	104,950
15-Sep	3	71	5.56	45	114,138	88,910	A1+S1+M+A2	104,530
16-Sep	3	12	1.04			54,800	A1+S1+M+A2	No Count
17-Sep								

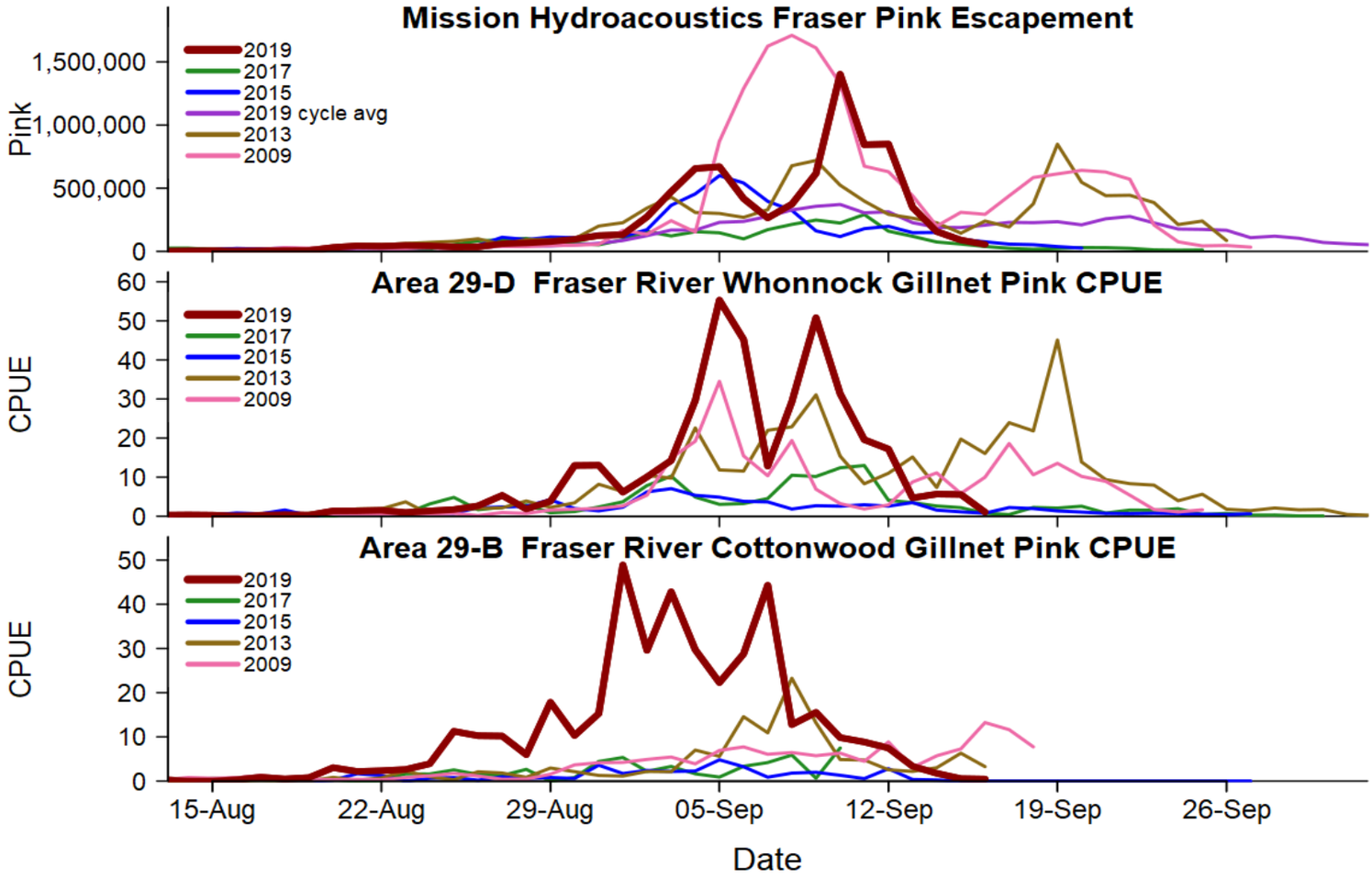
[1] *After July 2nd, Qualark ceased fishing evening sets*

[2] *Mission Source:*

S1+M+A2 = Left bank split-beam (S1) + Mobile split-beam (M) + Right bank ARIS (A2)

A1+S1+M+A2 = Left bank ARIS (A1) + Left bank split-beam (S1) + Mobile split-beam (M) + Right bank ARIS (A2)

[3] *Daily Hell's Gate abundance estimate; actual daily count has been multiplied by 2.*


Mission Hydroacoustics Fraser Pink Escapement
Pink
1,500,000
1,000,000
500,000
0
2019
2017
2015
2019 cycle avg
2013
2009
Area 29-D Fraser River Whonnock Gillnet Pink CPUE
CPUE
60
50
40
30
20
10
0
2019
2017
2015
2013
2009
Area 29-B Fraser River Cottonwood Gillnet Pink CPUE
CPUE
50
40
30
20
10
0
2019
2017
2015
2013
2009
15-Aug
22-Aug
29-Aug
05-Sep
12-Sep
19-Sep
26-Sep
Date

2019 Fraser River Sockeye Salmon Stock identification Review

Recent stock composition estimates for sockeye salmon

Fishing				Sample		Fraser-only Stock Proportions by Reporting Group[4] (%)													Age (%)
						Early Stuart	Early Summer						Summer						Late						Overall Stocks
Area/Gear[1]	Sector[2]	Date	Type[3]	Size (n)	%Fraser	Early Stuart	Chilli-wack	Pitt	Alouette	Coquit-lam	Nadina	Bowron	Gates	Nahat-latch	Early Thomp-son	Early Summer sub-total	Harri-son	Widg-eon	Late Stuart	Stellako	Chilko	Ques-nel	Raft	North Thomp-son	Summer sub-total	Birken-head	Big Silver	Late Shuswap	Portage	Weaver	Cultus	Late sub-total	Age-4$_2$
Johnstone Strait & Queen Charlotte Strait																															
Juan de Fuca Strait & Washington & Other																															
In-river																															
BB gn	tf	Sep9-11	DNA	17	100%	**0%**									**0%**	23%				37%			**61%**			28%		12%	**40%**	21%
BB gn	tf	Sep13-14	DNA	5	100%	**0%**									**0%**					80%			**80%**			20%			**20%**	50%
AB gn	tf	Sep9-11	DNA	19	100%	**0%**									**0%**	47%				21%			**68%**			26%		5%	**32%**	12%
AB gn	tf	Sep12-13	DNA	13	100%	**0%**				4%					**4%**	46%				26%			**73%**			23%			**23%**	30%

2019 Fraser River Pink Salmon Stock identification Review

Recent stock composition estimates for pink salmon

Fishing				Sample	DNA % Estimates by Group		
							Canada
Area/Gear[1]	Sector[2]	Date	Type[3]	Size (n)	Fraser River	Washington	South Coast
Johnstone Strait							
A12 PS	TF	Aug23	DNA	96	70%	12%	18%
A12 PS	TF	Aug30	DNA	96	76%	18%	6%
A12		Sep18	Prediction	1	92%	5%	3%
Juan de Fuca Strait							
A20 PS	TF	Aug24	DNA	96	64%	31%	5%
A20 PS	TF	Aug30	DNA	96	84%	12%	3%
A20		Sep18	Prediction	1	90%	9%	1%
Washington							
A7 PS	CM	Aug24-25	DNA	96	82%	18%	0%
A7 RN	CM	Aug25	DNA	96	92%	3%	5%
A7		Sep18	Prediction	1	93%	6%	1%
A7A		Sep18	Prediction	1	92%	6%	2%

Notes for sockeye and pink tables:

[1] GU TR=29_1-6, BB GN=29_13 (Cottonwood), AB GN=29_16 (Whonnock), MI GN=Mission test fishery, QU GN=Qualark

[2] TF=sample from test fishery catch, CM=sample from commercial catch, C&S=ceremonial & subsistence catch, FSC=food, social, & ceremonial catch

[3] Predictions for sockeye are multinomial extrapolations of current year data to 5 days after the last observation; Predictions for pink salmon are projections of stock compositions based on historic and current data

[4] Further information relating stock group descriptions to spawning ground locations and population definitions can be found at

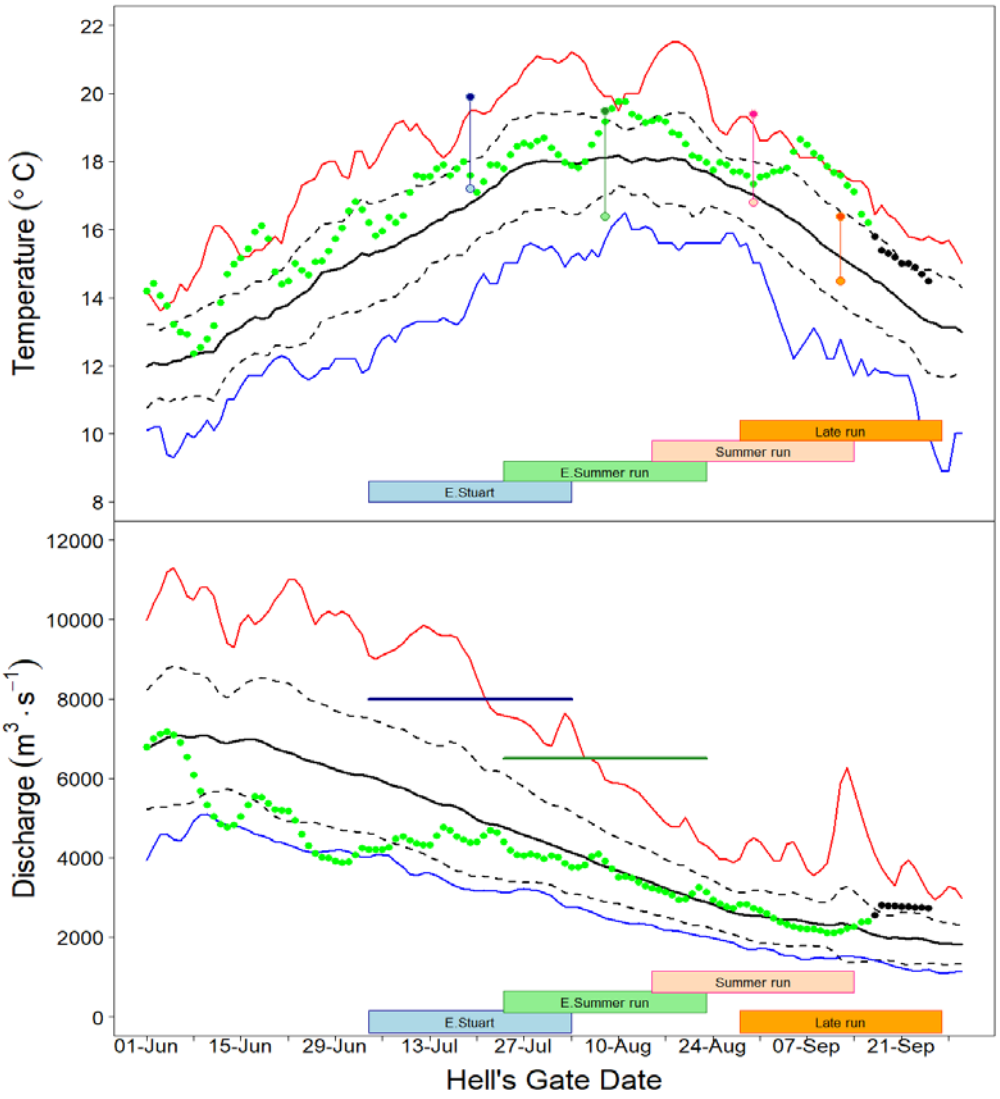
http://www.psc.org/StockGroupDef/

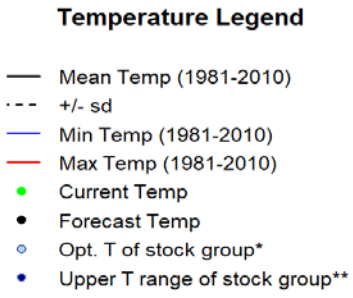
Results in grey text have been presented to the Panel previously

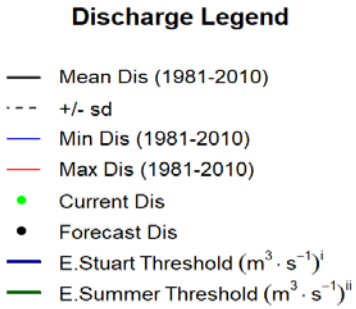
Fraser River Environmental Report for September 16, 2019

Observed Fraser River Temperature at Qualark for 16-Sep	16.2°C
Average (1981-2010) Historical Temperature on this day	14.7°C
Deviation from Average	1.5°C
Forecast Temperature for 22-Sep-19	15°C
The forecast in Kamloops is for below average air temperatures and minimal precipitation. The forecast for Prince George is for above average air temperatures and minimal precipitation.	

Observed Fraser River Discharge at Hope for 16-Sep	2411 $m^3 \cdot s^{-1}$
Average (1981-2010) Historical Discharge on this day	2115 $m^3 \cdot s^{-1}$
% above or below Historical Discharge	14%
Forecast Discharge for 22-Sep-19	2768 $m^3 \cdot s^{-1}$

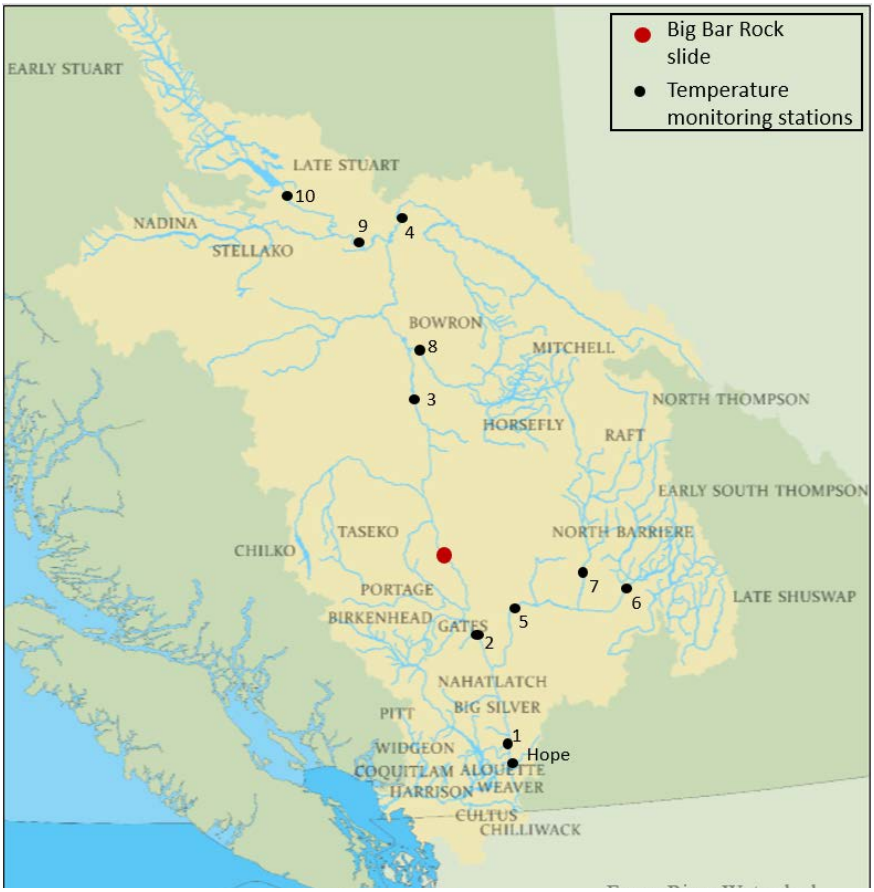






Run timing bars represent a 31 day spread of the run centered around the Hell's Gate date. Hell's gate timing is 5 days from Mission for Early Stuart and Late run; and 4 days from Mission for Early Summer and Summer run.'pMA is the proportional increase to spawning escapement targets to help ensure targets are achieved."%DBE is %difference betweeen estimates of potential spawning escapement and spawning escapement.*This is the optimum temp for aerobic swimming - T_{opt} (Eliason et al. (2011). Science 332: 109-112)**This is the upper range of the optimum temp for aerobic swimming - T_{pejus}. [i]Discharge threshold of 8000cms for Early Stuart from Macdonald (2000). Can. Tech. Rep. Fish. Aquat. Sci. 2315: 120p. [ii]Discharge threshold of 6500cms for Early Summer run from Macdonald et al. (2011). Trans. Am. Fish. Soc. 139: 768-782. 19 days of T & Q data are required to calculate a pMA - 15 days before the Hell's Gate Date and 3 days after. MA estimates can be calculated 4 days after the Area 20 date.

Upriver of Slide	Map #	Current Temperatures 15-Sep	Daily Mean	Historic Median	Deviation from Historical Median	Historic Year Range
		Fraser River Mainstem				
	1	Fraser River @ Qualark	**16.5**	**14.8**	**1.7**	**1981-2010**
	2	Fraser River @ Texas Creek	**15.3**	**14.5**	**0.8**	**2006-2016**
►	3	Fraser @ Marguerite	**14.3**	**NA**	**NA**	
►	4	Upper Fraser @ Shelley	**12.1**	**11.5**	**0.6**	**1994-2016**
		Fraser River Tributaries				
	5	Thompson R. @ Ashcroft	**17.9**	**16.7**	**1.2**	**1995-2016**
	6	South Thompson @ Chase	**19.0**	**17.5**	**1.5**	**1994-2016**
	7	North Thompson @ McLure	**13.8**	**12.6**	**1.2**	**2008-2016**
►	8	Quesnel R. @ Quesnel	**15.4**	**14.2**	**1.2**	**2000-2016**
►	9	Nechako R. @ Isle Pierre	**16.5**	**14.7**	**1.8**	**2006-2016**
►	10	Stuart R. @ Ft. St. James	**14.6**	**14.4**	**0.2**	**2000-2016**

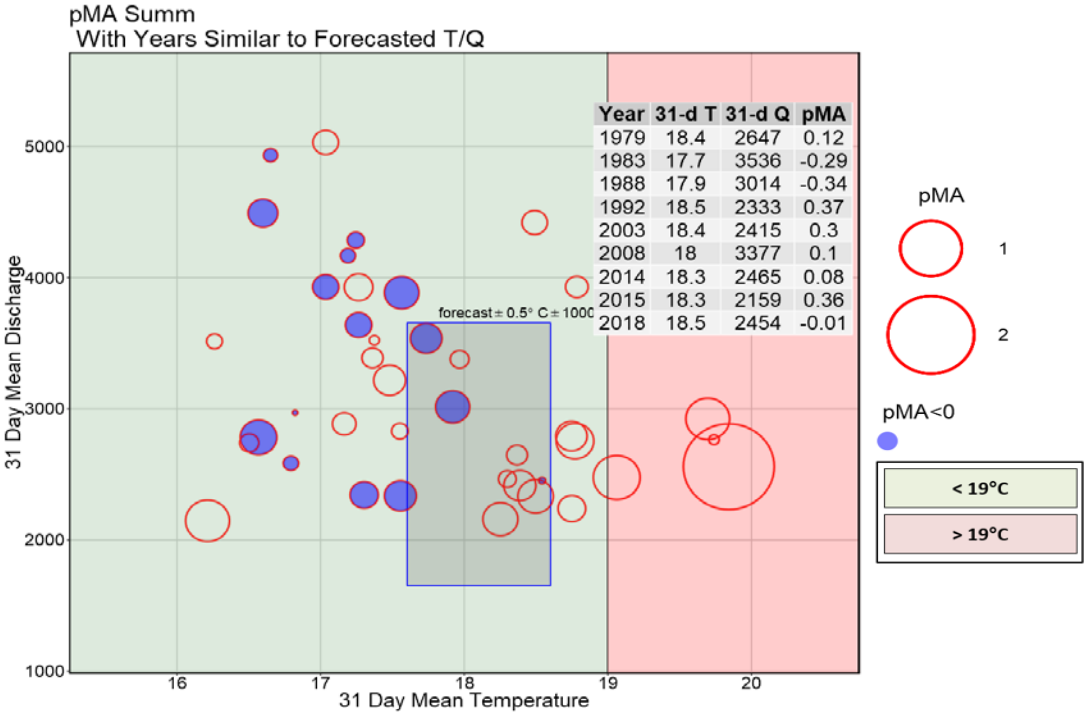


Summer run

31-day Model Predictions of Expected Difference Between Estimates (%DBE) and Implied Proportional MA (pMA) September 17, 2019

Area 20 Date	Hells Gate Date	Average Temperate °C (31 days)	Average Discharge m^3/s (31 days)	Number of obs. days	Number of forec. days	Predicted % DBE median	Predicted % DBE 80% PI 10%	Predicted % DBE 80% PI 90%	Implied Proportional MA (pMA) median	Implied Proportional MA (pMA) 80% PI 10%	Implied Proportional MA (pMA) 80% PI 90%
Pre-Season Values											
						-8			0.09		
Current model predictions											
16-Aug	27-Aug	18.2	2769	31	0	-5	34	-32	0.05	-0.25	0.47
17-Aug	28-Aug	18.2	2726	31	0	-5	35	-32	0.05	-0.26	0.47
18-Aug	29-Aug	18.1	2688	31	0	-4	36	-32	0.04	-0.26	0.47
19-Aug	**30-Aug**	**18.1**	**2655**	**31**	**0**	**-3**	**37**	**-31**	**0.03**	**-0.27**	**0.45**
20-Aug	31-Aug	18.0	2627	31	0	-2	38	-30	0.02	-0.28	0.43
21-Aug	01-Sep	17.9	2602	31	0	-1	40	-30	0.01	-0.29	0.43
22-Aug	02-Sep	17.8	2583	30	1	0	41	-29	0.00	-0.29	0.41

* currently adopted timing with updated forecast information



Supplemental Management Adjustment Approach

Environmental Conditions	Historical Median pDBE	Sample Size	80% PI 10%	80% PI 90%
< 19°C	0%	28	52%	0%
>19°C	-25%	12	-19%	-72%

BIG BAR LANDSLIDE UPDATE

SEPTEMBER 15, 2019

Incident Webpage BC River Forecast

- The Big Bar Landslide remains a government-to-government-to-government response, as envisioned and implemented from the beginning of the incident. This includes First Nations, Provincial and Federal representatives. Just over 80 personnel continue to work on site at the Incident Command Post in Lillooet.
- Fish transport operations remain on hold as Chinook, Sockeye, Pink and Coho salmon all continue to achieve natural passage. Over the weekend, due to weather conditions, rock scaling and sluicing operations will be limited. Responder safety remains the top priority.

Chinook, Sockeye, Pink and Coho salmon continue to achieve natural passage through the Big Bag Landslide. Photo by Gina Anderson @gina-gerl imaging.

Quotes from the Incident Command Post

"A Unified Command Incident Management Team is like an arrow. The people in the field are the arrowhead, the office personnel are the shaft, and the Joint Executive Steering Committee are the feathers that guide the direction of the arrow."
- Greg Witzky, Incident Commander

"The overall experience has been challenging yet gratifying, while our focus is to save the salmon, this is out of the box, we have created a structure and process that First Nations leadership have endorsed as a requirement for reconciliation. The Incident Command structure continues to evolve to accommodate this unique process and will be a template for future responses in our changing climate as well as supporting government to government relationship building."
- Gord Sterritt, Joint Executive Steering Committee

"The magnitude of this incident has required an unprecedented level of response and cooperation from everyone involved. However, we have a strong partnership in place with the federal and provincial governments and First Nations. We are all working together and focusing on our primary objective and that is improving the safe passage for salmon."
- Al Magnan, Environnemental Unit Lead

FISH SWIMMING PAST THE LANDSLIDE (estimated)

Latest daily total: 5,000 **Total to date: 181,500**

BRITISH COLUMBIA Canada

Migration passage at Big Bar (September 16)

Mike Hawkshaw, DFO

There is restricted access through the slide area for Chinook, sockeye and pink salmon.

Natural upstream passage

- A total 204,254 salmon made it past the rock slide using the natural fish passage as of September 14.
- At least 233,977 salmon have been counted past Churn Creek. This is a mix of migrating and transported salmon.

Radio tagging

Table 1: Radio tagging results for tagging events on September 4 and 5, 2019.

	Tags applied	Tags observed	Passage estimate Median	Passage estimate 80% PI
Sockeye	50	45	89%	83% - 94%
Pink salmon	42	28	66%	57% - 75%

Table 2: Radio tagging results for tagging events on September 11, 2019 (as of September 13).

	Tags applied	Tags observed	Passage estimate Median	Passage estimate 80% PI
Sockeye	45	24	53%	44% - 62%
Pink salmon	36	13	36%	27% - 46%

On the ground observations

- Some of the pink salmon captured at the Big Bar beach seine site have been observed to be in advanced reproductive state (e.g. loose eggs, ripe males).
- Advanced maturation status challenges the idea that all pink salmon want to migrate past the slide.

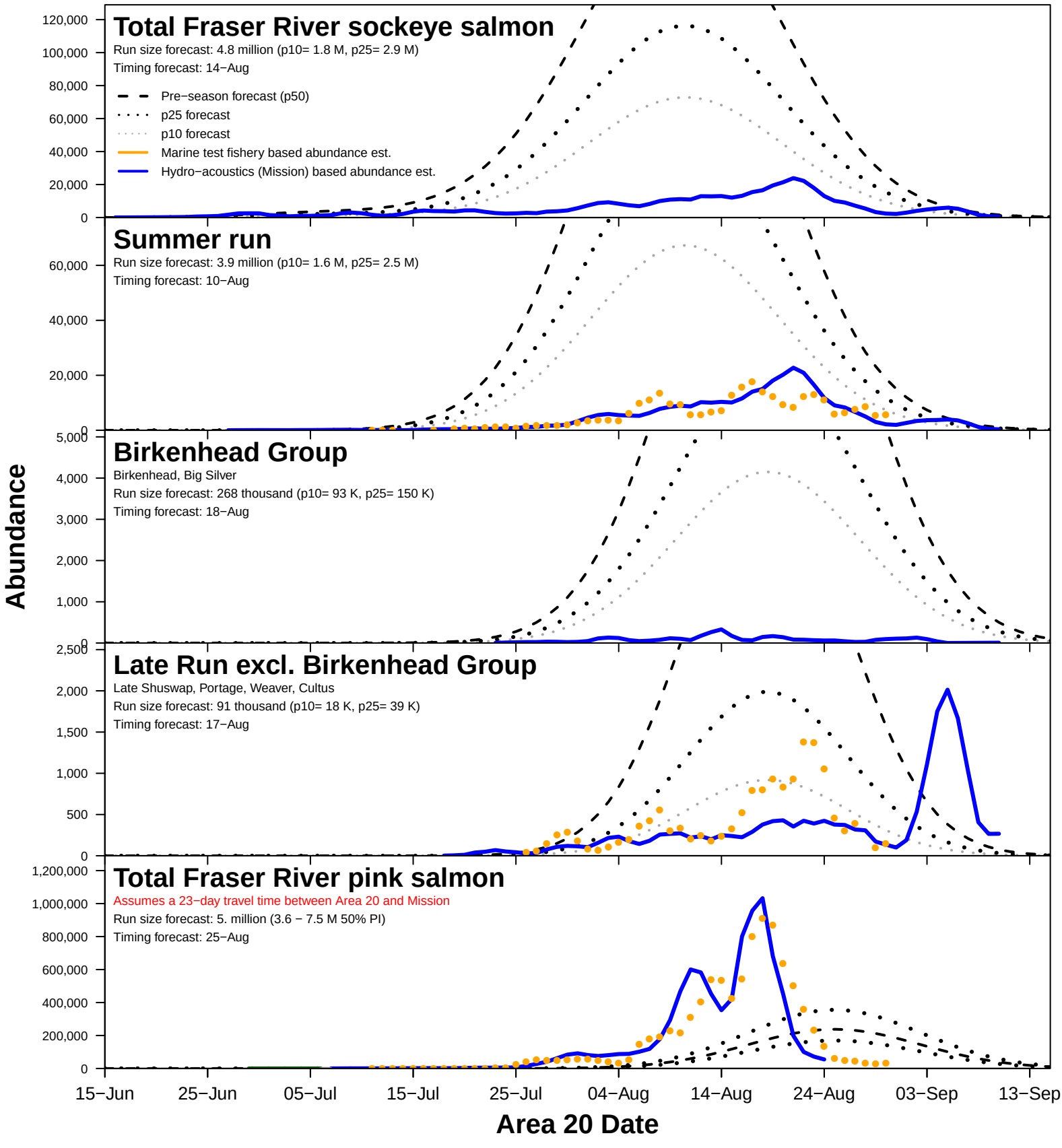
Hydroacoustic observations

- Sonar operators at the Big Bar site have observed smaller salmon digging in the river bottom on the sonar video files.

Table 3. Summary of the number of fish transported by helicopter, estimated to have migrated past the slide naturally, and counts at the Churn Creek hydroacoustic site. Data prior to August 1 have been omitted from this table but are reflected in the totals.

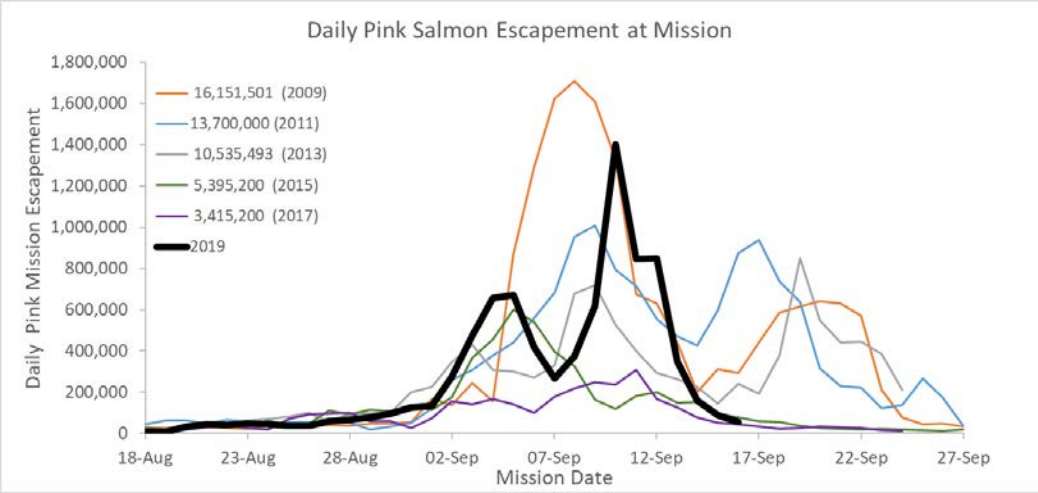
Fish Date	Helicopter Transport	Natural Upstream Passage	Churn Creek Hydroacoustics
8/1/2019	745	0	225
8/2/2019	462	0	180
8/3/2019	797	0	334
8/4/2019	403	391	603
8/5/2019	556	0	182
8/6/2019	573	0	216
8/7/2019	839	0	393
8/8/2019	742	230	621
8/9/2019	1046	0	468
8/10/2019	1431	0	330
8/11/2019	1387	0	384
8/12/2019	1049	0	420
8/13/2019	865	363	819
8/14/2019	1190	309	936
8/15/2019	1532	429	1236
8/16/2019	1417	705	1452
8/17/2019	1947	1311	2337
8/18/2019	1529	3052	3858
8/19/2019	2612	2013	3390
8/20/2019	2972	519	2085
8/21/2019	2379	557	1811
8/22/2019	2796	623	2096
8/23/2019	2691	1108	2526
8/24/2019	1841	929	1899
8/25/2019	2500	1062	2379
8/26/2019	3027	1399	2994
8/27/2019	2429	1525	2805
8/28/2019	3066	93	1709
8/29/2019	2320	2752	3975
8/30/2019	2443	8259	9546
8/31/2019	2491	13945	15258
9/1/2019	2638	30485	31875
9/2/2019	1574	30557	31386
9/3/2019	1473	15077	15853
9/4/2019	0	11826	11946
9/5/2019	0	8514	8514
9/6/2019	0	8433	8433
9/7/2019	0	7062	7062
9/8/2019	0	5907	5907
9/9/2019	0	5824	5824
9/10/2019	0	4089	4089
9/11/2019	0	5970	5970
9/12/2019	0	5088	5088
9/13/2019	0	5694	5694
9/14/2019	0	17004	17004
Total	60119	204254	233977

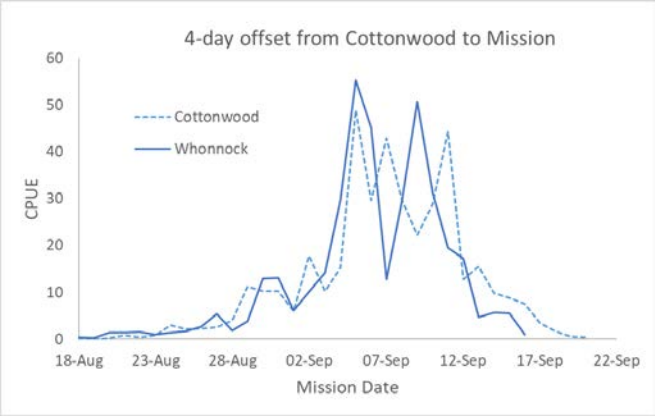
2019 Fraser River sockeye salmon daily migration

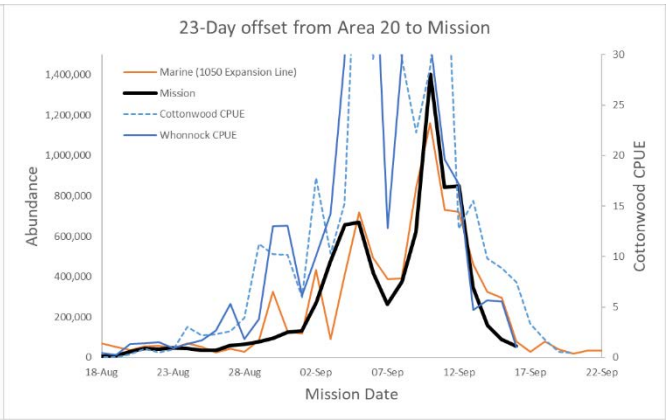


Date: 2019−09−17, Time: 09:55 JG

Fraser Pink Escapement Update
September 17, 2019







2019 Fraser River run size and timing estimates

Preseason forecasts, inseason estimates, and official estimates of run size and associated timing

	Run Size						Run size components			Run Timing[1]					
	Inseason Adopted	Preseason Forecast	Inseason estimate	Inseason 80% PIs[2] 10% PI	Inseason 80% PIs[2] 90% PI	Method	Catch + Escapement	6-day Projection[3]	Seaward Abundance	Inseason Adopted	Preseason Forecast	Inseason estimate	Inseason 80% PIs[2] 10% PI	Inseason 80% PIs[2] 90% PI	Method
Total Fraser sockeye		**4,795,000**	**485,000**				**485,000**	**0**	**0**		**09-Aug**	**15-Aug**			
Early Stuart Run	**26,000**	**41,000**	**26,000**	***26,000***	***26,000***	**Recon**	**26,000**	**0**	**0**	**08-Jul**	**05-Jul**	**08-Jul**	***08-Jul***	***08-Jul***	**Recon**
Early Summer Run	**94,000**	**465,000**	**94,000**	***94,000***	***94,000***	**Sum**	**94,000**	**0**	**0**	**29-Jul**	**30-Jul**	**29-Jul**	***29-Jul***	***29-Jul***	**Recon**
Chilliwack		17,000	6,000	6,000	6,000	Recon	6,000	0	0		12-Jul	02-Jul	02-Jul	02-Jul	Recon
Pitt/Nadina Group[4]		234,000	77,000	*77,000*	*77,000*	Recon	77,000	0	0		28-Jul	29-Jul	*29-Jul*	*29-Jul*	Recon
Early Thompson[5]		214,000	11,000	*11,000*	*11,000*	Recon	11,000	0	0		02-Aug	07-Aug	*07-Aug*	*07-Aug*	Recon
Summer Run	**360,000**	**3,930,000**	**343,000**	***343,000***	***343,000***	**Sum**	**343,000**	**0**	**0**	**19-Aug**	**10-Aug**	**19-Aug**	***19-Aug***	***19-Aug***	**Recon**
Harrison / Widgeon		294,000	31,000	*31,000*	*31,000*	Recon	31,000	0	0		07-Aug	02-Aug	*02-Aug*	*02-Aug*	Recon
Late Stuart / Stellako		407,000	65,000	*65,000*	*65,000*	Recon	65,000	0	0		08-Aug	11-Aug	*11-Aug*	*11-Aug*	Recon
Chilko		2,750,000	205,000	*205,000*	*205,000*	Recon	205,000	0	0		10-Aug	20-Aug	*20-Aug*	*20-Aug*	Recon
Quesnel		333,000	40,000	*40,000*	*40,000*	Recon	40,000	0	0		12-Aug	18-Aug	*18-Aug*	*18-Aug*	Recon
Raft / North Thompson		146,000	2,000	*2,000*	*2,000*	Recon	2,000	0	0		18-Aug	15-Aug	*15-Aug*	*15-Aug*	Recon
Late Run	**20,000**	**359,000**	**22,000**	***22,000***	***22,000***	**Sum**	**22,000**	**0**	**0**	**19-Aug**	**18-Aug**	**19-Aug**	***19-Aug***	***19-Aug***	**Recon**
Birkenhead Group		268,000	4,000	*4,000*	*4,000*	Recon	4,000	0	0		18-Aug	15-Aug	*15-Aug*	*15-Aug*	Recon
L.Shuswap / Weaver Gr.		91,000	18,000	*18,000*	*18,000*	Recon	18,000	0	0		17-Aug	19-Aug	*19-Aug*	*19-Aug*	Recon
Fraser Pink salmon	**8,900,000**	**5,018,000**	**8,900,000**	***8,794,000***	***9,007,000***	**Marine Recon**	**8,638,000**	**0**	**256,000**	**17-Aug**	**25-Aug**	**17-Aug**	***17-Aug***	***17-Aug***	**Recon**

[1] Run timing refers to the date when 50% of the run migrated past the Area 20 reference point.

[2] 80% Probability Interval: there exists an 80% chance that the true abundance lies within this interval

[3] Normally based on test fishery data. Based on Model if Method = Recon(2).

[4] Pitt / Alouette / Coquitlam / Nadina / Bowron / Gates / Nahatlatch / Taseko

[0] Early South Thompson / North Barriere.

Methods for run size & timing estimation

Recon	Catch + escapement + 6-day test fish projection + model seaward projection
Sum	Sum of individual groups
Marine Recon	Reconstruction of CPUE-based marine abundances

Category(s):
ABORIGINAL - Salmon: Economic Opportunities,
COMMERCIAL - Salmon: Gill Net,
COMMERCIAL - Salmon: Seine,
COMMERCIAL - Salmon: Troll,
RECREATIONAL - Salmon

Fishery Notice - Fisheries and Oceans Canada

Subject: FN1097-Salmon - Chum - Area 29 - Fraser River - October 23, 2019 Update

In-season estimates of return-to-the-mouth ("terminal") abundance for Fraser River Chum Salmon are based on historical information on the probable range of
run size, timing, expansion line, and duration, combined with the current year's catch information provided by the Albion test fishery. The Chum-directed
test fishing Gill Net (6.75" mesh) is fished every other day from September 1 to October 20, then daily through November 10, then every other day until November 23. More details of the Albion test fishery can be found on the DFO website:
http://www.pac.dfo-mpo.gc.ca/fm-gp/fraser/index-eng.html

Catch in the Chum net through October 22 totals 1,258, which is near historic lows. Combining this data with the historical information in a Bayesian non-linear regression model results in a median estimate for the terminal Fraser River Chum Salmon return of 518,000 Chum, with a 50% migration date of October
22. There is an 80% probability that the run is between 407,000 and 661,000, and a 1% probability that the run will exceed the escapement goal of 800,000.

The current run size is not sufficient to allow for recreational or commercial
opportunities (including First Nations Economic Opportunities) in the Fraser River.

Opportunities to harvest Chum Salmon for First Nations Food, Social, and Ceremonial purposes will be constrained by management objectives for Interior Fraser Steelhead, which is a stock of concern presently co-migrating in the Fraser River. Moving window closures are in place for all salmon fisheries located along the migratory route of Thompson and Chilcotin River Steelhead, including Southern BC marine waters and the Fraser River and tributaries downstream of Thompson and Chilcotin River Steelhead spawning areas, as outlined in the 2019/2020 South Coast Salmon Integrated Fisheries Management Plan (IFMP). Harvest opportunities in all fisheries will be planned in line with these management measures. Fishers are required to take every measure possible to ensure that their fishing activities avoid impacts on Steelhead. Any Steelhead encountered must be released with the least possible harm.

While no additional in-season updates are planned at this time, we will continue to closely monitor Chum Salmon catch at the Albion test fishery over the coming days. Should new data indicate the need to update the current run size and timing estimate, additional updates will be provided.

FOR MORE INFORMATION:

Contact the nearest Fisheries and Oceans Canada office or visit our website at
http://www.pac.dfo-mpo.gc.ca.

Fisheries and Oceans Canada Operations Center - FN1097
Sent October 23, 2019 at 11:59
Visit us on the Web at http://www.pac.dfo-mpo.gc.ca

If you would like to unsubscribe, please submit your request at: http://www-ops2.pac.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?pg=manage_subscription

If you have any questions, please contact us via e-mail to:
DFO.OpsCentreFisheryPacific-CentreOpsPechePacifique.MPO@canada.ca

APPENDIX E
Correspondence

blank page

Fisheries and Oceans Canada
Pêches et Océans Canada

Pacific Region
Suite 200 – 401 Burrard Street
Vancouver, British Columbia
V6C 3S4

Région du Pacifique
Piece 200 – 401 rue Burrard
Vancouver (C-B.)
V6C 3S4

February 5, 2019

To First Nations and Stakeholders,

Re: 2019 Fraser River Chinook Conservation Measures

This letter is intended to communicate the Department's approach for developing fisheries management actions to address conservation concerns for Fraser River Chinook in 2019. Additional information is outlined below on the conservation concerns for these stocks, proposed management approaches for consideration, and timelines for decision making. The Department will be seeking feedback on the proposed management approaches in February to inform possible adjustments to early season fisheries beginning in April 2019.

Conservation concerns

In November 2018, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) released the results for an assessment of 16 southern BC Chinook designatable units (DUs). Of these units, 13 DUs originate in the Fraser River with 7 DUs assessed as *endangered*, 4 *threatened* and 1 *special concern;* Southern Thompson Ocean Summer Chinook were deemed *not at risk*. For the other 3 DUs outside the Fraser River, 1 DU (East Vancouver Island Stream Spring; Nanaimo River) was assessed as *endangered* and 2 Southern Mainland DUs were data deficient. Status information is summarized in Appendix 1 and at (https://www.canada.ca/en/environment-climate-change/services/committee-status-endangered-wildlife/assessments/wildlife-species-assessment-summary-nov-2018.html. COSEWIC is expected to submit these assessments to the Government of Canada via the annual report which is anticipated in the Fall 2019. This annual report will initiate the formal process to consider whether or not to these DUs will be listed under the *Species at Risk Act* (SARA). COSEWIC assessment of the remaining southern BC Chinook populations is also planned for 2019 with an expected report on the status of these DUs in Fall 2020.

In 2018, spawner abundances of Fraser Chinook salmon declined substantially compared with the parental brood year abundance for 4 of 5 management units (Table 1). In addition, productivity of many of these populations was likely further impacted by observations of smaller size at age, reduced fecundity, and lower proportions of females in spawner surveys. These observations are consistent with broad coast-wide declines in Chinook survival, size at age, and fecundity that have been documented for many populations (see http://www.dfo-mpo.gc.ca/csas-sccs/Publications/ScR-RS/2018/2018_035-eng.html.)

Table 1: 2018 Spawner Abundance Relative to the Parental Brood Year and Recent Recruits per Spawner (R/S).

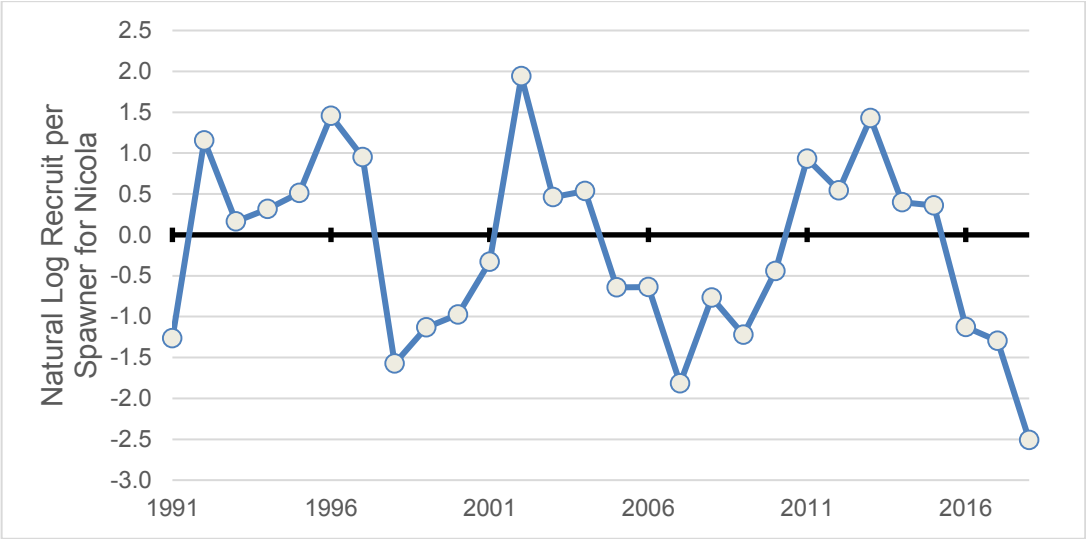
Management Unit	2018 Spawners	Brood Year (2013 or 2014) Spawners	% Change	Projected Recruits per Spawner (R/S) [C]
Spring 4_2	2,100	24,867	-92%	0.04-0.08[A]
Spring 5_2	8,399	15,947	-47%	0.6-0.9[A]
Summer 5_2	5,443	12,604	-57%	0.5-0.8[A]
Summer 4_1	46,543	84,700	-45%	0.85-0.93[A]
Fall 4_1 (Harrison)	46,094	44,686	3%	0.98[B]

[A]Several assumptions were used to project recruits to account for missing age data, missing age-specific exploitation rates, infilling for incomplete escapements, and missing information to determine total hatchery-origin escapement.
[B]Recruits and spawners reconstructed by cohort (brood year) using escapement goal methodology (Brown et al. 2001)
[C]Recruits represent the total number of adult offspring surviving to enter the fishery (i.e. pre-fishery abundance). Recruits are determined as catch plus spawners for the current year.

These declines in spawner abundance occurred even with additional fishery management actions implemented beginning in June of 2018 with the aim of reducing fishery mortality rates on Fraser Chinook salmon by 25-35%. An assessment of Coded-Wire Tag (CWT) data to determine fishery mortalities by fishery and location will be required to assess whether the target fishery reductions were achieved. This will take place when CWT data becomes available (March 2019).

The most serious declines in productivity have occurred for Spring 4_2 Chinook where projected R/S has declined to 0.04 to 0.08 R/S and the lowest on record since 1991. For every 100 parental spawners, between 4 and 8 adult recruits are projected to have returned before fishery removals (Table 1; Figure 1). When R/S is less than 1, populations will not replace themselves even in the absence of fishing mortality and spawner abundance will continue to decline; additional fishing mortality will increase declines in spawner abundance.

Figure 1: Time series of pre-fishery recruits per spawner for Spring 4_2 Chinook (Information for the Nicola River CWT indicator population).



Index values use a natural log scale where 0 equates to 1 recruit per spawner. Points below the x-axis (values less than 0) represent R/S less than 1 and will result in declining spawner abundance.

Recruits per spawner have also declined below 1 R/S for the Spring 5_2, Summer 5_2, Summer 4_1 and Fall 4_1 indicator populations; (see Appendix 2).

Southern Resident Killer Whales (SRKW) also continue to face threats to their survival and recovery and the Government is planning additional measures to strengthen protection of the species in 2019, these measures may have further implications for salmon fisheries. The seasonal distribution and movement patterns of SRKW are strongly associated with the availability of their preferred prey, Chinook salmon. The Department is working with a Technical Working Group to identify recommended approaches to support increased Chinook prey availability for SRKW.

Proposed Management Approaches

To address conservation concerns for Fraser River Chinook, the Department is proposing additional precautionary reductions in Canadian fishery mortalities. Proposed management objectives for each management unit are identified below

Table 2: Summary of Proposed Management Objectives

Management Unit	Management Objective	Considerations	Proposed CDN Fishery Mortality Range
Spring 4_2 Spring 5_2 Summer 5_2	Maximize the number of returning Chinook reaching spawning grounds by reducing Canadian fishery mortalities to the greatest extent possible.	Substantial reductions in fishery mortalities are required for Spring 4_2, Spring 5_2 and Summer 5_2 Chinook given their poor stock status, extremely poor productivity and expectations for continued declines in spawner abundance. Any fishery mortalities will worsen spawner declines unless productivity improves. New measures are anticipated to affect commercial, recreational and FSC fisheries.	The magnitude of reductions in CDN fishery mortalities will depend on the management measures implemented. Two scenarios are proposed that would aim to reduce total CDN fishery mortalities to less than 5% (see Scenario A below) or less than 10% (see Scenario B below). Recent CDN fishery mortalities averaged 14.5% (2013-2016) based on Spring 4_2 (Nicola) CWT indicator. Reducing fishery mortalities below 5% would require an overall 65% reduction.
Summer 4_1	Precautionary reduction in fishery mortalities similar to 2018 to protect co-migrating Fraser Chinook stocks of concern.	South Thompson Chinook were designated by COSEWIC as *Not At Risk*; however, productivity (R/S <1) and fecundity has declined for this group since 2015 and there are concerns for the Maria Slough conservation unit given that fewer than 20 spawners returned in 2018. In addition, the migration of Summer 4_1 Chinook overlaps with other Fraser Chinook stocks of conservation concern, particularly Summer 5_2 chinook. Additional reductions in commercial and recreational fishery harvest opportunities will also need to be considered to support priority access for FN FSC fisheries in the Fraser River given expectations for very limited FSC fishery opportunities in 2019.	Reducing CDN fishery mortalities to 20% or less is proposed. Recent fishery mortalities average 27.5% (2013-2016) based on the Lower Shuswap CWT indicator. Reducing fishery mortalities to 20% or less would require a 25% or greater reduction.

Fall 4_1	Fraser Fall 4_1 (Harrison) Chinook is the only Fraser management unit with an approved management objective. The management objective is to achieve the spawning escapement goal range of 75,100 to 98,500 spawners. A precautionary reduction in CDN fishery mortalities is proposed, similar to 2018.	Since 2012, the escapement goal has not been achieved, with the exception of 2015, and the COSEWIC stock status is *threatened*. Given declines in productivity (R/S < 1) and recent average fishery mortalities, spawner abundance may not reach the lower bound of the escapement goal range in 2019. Additional reductions in commercial and recreational impacts will need to be considered.	Reducing CDN fishery mortalities to 13% or less is proposed. Current fishery mortalities average 17% (2013-2016) based on the Harrison CWT indicator. Reducing fishery mortalities to 13% or less would require a 25% or greater reduction.

Note: Projected Canadian fishery mortalities used in **Table 2** are based on the average fishery mortalities for all Canadian fisheries from 2013 to 2016. **Appendix 3** shows where Fraser Chinook CWT indicator stocks have been encountered in BC fisheries and the corresponding average fishery mortalities (%) for the 2013-16 period.

Potential Fishery Scenarios

Achieving the proposed management objectives will require additional reductions in fisheries impacts in times and areas where Fraser Chinook are encountered in Northern and Southern BC, including commercial, recreational and First Nations fisheries. Fraser Spring 4_2 and Spring 5_2 Chinook return to spawn from early March through late July, with migration peaks in June through the lower Fraser River. Summer 5_2 Chinook have later timing and return to the Fraser River to spawn from late June to August with a peak in late July.

Two potential fishery scenarios are outlined below that provide examples of potential management actions that would be required for Fraser Spring 4_2, Spring 5_2 and Summer 5_2 Chinook to achieve less than 5% Canadian fishery mortalities (Scenario A) or less than 10% Canadian fishery mortalities (Scenario B). **These are initial scenarios for discussion purposes; alternative fishery scenarios and/or management actions contained within a scenario may be considered based on feedback received.**

Scenario A – This approach would target a high degree of protection for Fraser Spring 4_2, Spring 5_2 and Summer 5_2 Chinook, to permit as many fish as possible to pass through fisheries to spawning areas. This approach would aim to reduce total Canadian fishery mortalities to less than 5%. This would require commercial troll fisheries in Northern BC (Area F) and the West Coast of Vancouver Island (Area G) to remain closed through July (Area G) and to July 17 (Area F). Marine recreational Chinook fisheries along migration corridors in southern BC would be Chinook non-retention. Recreational fisheries in the Fraser River would remain closed to fishing for salmon into August, followed by no fishing for Chinook if there are openings for other species. First Nations FSC fisheries opportunities would be restricted to unplanned events or very limited communal fisheries. For fisheries following the Summer 5_2 migration, fishery measures would target reductions similar to 2018 for Summer 4_1 and Fall 4_1 Chinook with possible measures including:

- Measures to reduce removals in marine recreational fisheries (e.g. reduced daily/possession limit, hatchery-marked Chinook retention, size limit adjustments).
- Closures to salmon fishing or non-retention of Chinook salmon in Fraser River recreational fisheries.
- Possible reduction in harvest allocations in commercial troll fisheries.
- Consideration of retention of Chinook by-catch and/or limited Chinook-directed opportunities for FSC fisheries.

Scenario B – This approach would aim to reduce Canadian fishery mortalities to 10% or less for Fraser Spring 4_2, Spring 5_2 and Summer 5_2 Chinook. This would require commercial troll fisheries in Northern BC (Area F) and the West Coast of Vancouver Island (Area G) to remain closed through July (Area G) and to July 10 (Area F). Southern BC marine recreational Chinook fisheries would have reduced daily limits and/or hatchery-marked retention depending on time/location. Recreational fisheries in the Fraser River would remain closed to fishing for salmon through July until August 23. First Nations FSC fisheries would have management actions similar to 2018. For fisheries following the Summer 5_2 migration, fishery measures would target reductions similar to 2018 for Summer 4_1 and Fall 4_1.

Table 3: Summary Table of proposed management actions for Scenario A and B

Fishery	Scenario A	Scenario B
Commercial		
NBC AABM (Area F) Troll	Closed to July 17	Closed to July 10
WCVI AABM (Area G) Troll	Closed to August 1	Closed to August 1
Kamloops Lake Chinook Demonstration Fishery	Closed	Closed
Recreational		
NBC AABM	*No measures proposed for Fraser chinook*	*No measures proposed for Fraser chinook*
NBC ISBM	*No measures proposed for Fraser chinook*	*No measures proposed for Fraser chinook*
WCVI AABM (Areas 121 to 127)	a) Apr 1 to July 31, Chinook non-retention; b) Aug 1 to Dec 31, 2 Chinook/day.	*No measures proposed for Fraser chinook*
WCVI ISBM	*No measures proposed for Fraser chinook*	*No measures proposed for Fraser chinook*
Johnstone Strait (Area 12)	c) Apr 1 to July 31, Chinook non-retention; d) Aug 1 to Aug 29, 1 Chinook/day (with option for terminal fisheries); e) Aug 30 to Dec 31, 2 Chinook/day.	a) Apr 1 to August 29, 1 Chinook/day (with option for terminal fisheries). b) Aug 30 to Dec 31, 2 Chinook/day.
Strait of Georgia – North Areas 13 to 17, 28, portion of 29 (29-1 and 29-2)	a) Apr 1 to July 31, Chinook non-retention; b) Aug 1 to Aug 29, 1 Chinook/day (with option for terminal fisheries); c) Aug 30 to Dec 31, 2 Chinook/day.	d) Apr 1 to August 29, 1 Chinook/day (with option for terminal fisheries). e) Aug 30 to Dec 31, 2 Chinook/day.
Strait of Georgia – South and Juan de Fuca Areas 18 to 20, portions of Area 29 (29-3 to 29-5)	a) Apr 1 to July 31, Chinook non-retention; b) Aug 1 to Aug 29, 1 Chinook/day (with option for terminal fisheries); c) Aug 30 to Dec 31, 2 Chinook/day.	a) Apr 1 to July 31, 1 chinook/day; <u>hatchery marked only</u> b) Aug 1 to Aug 29, 1 Chinook/day (with option for terminal fisheries) c) Aug 30 to Dec 31, 2 Chinook/day.
Fraser River Tidal and Non Tidal and Sub area 29-6 to 29-10	a) Jan. 1 to August 23 , No fishing for salmon. Aug. 23 to Dec. 31, Chinook non-retention	a) Jan. 1 to August 23 , No fishing for salmon. b) Aug. Aug 23 to December 31, 1 Chinook/day
Freshwater Regions 3,5,7 &8	b) closed to fishing for salmon except in some areas where fisheries on other stocks or species may take place.	c) closed to fishing for salmon except in some areas where fisheries on other stocks or species may take place.

First Nations		
South Coast	a) Fishing to FSC communal allocations as in previous years; marine FSC Chinook fisheries are largely terminal and directed at local Chinook stocks. No measures proposed for SCA First Nations chinook fisheries.	A) Fishing to FSC communal allocations as in previous years; marine FSC Chinook fisheries are largely terminal and directed at local Chinook stocks. No measures proposed for SCA First Nations chinook fisheries.
Lower Fraser	a) Jan. 1 to Aug 10, very limited impacts on chinook in FSC fisheries b) After Aug. 10, targeted chinook fishing or bycatch during sockeye-directed opportunities.	a) Jan. 1 to Aug 10, limited chinook directed FSC fisheries with effort limitations extended to Aug. 10 or bycatch during sockeye-directed opportunities b) After Aug. 10, targeted chinook fishing or bycatch during sockeye-directed opportunities.
BC Interior - d/s of Thompson Confluence	a) Jan 1 to Aug 10, very limited impacts on chinook in communal FSC fisheries. Time or gear restrictions. b) After Aug. 10 limited selective chinook fishing or bycatch during sockeye-directed opportunities until. Later in August, targeted chinook fishing or by-catch during sockeye directed fishing. Low impact terminal harvests.	a) Jan 1 to Aug 10 limited communal FSC fisheries. Time or gear restrictions. b) After Aug 10, Directed chinook fishing or bycatch during sockeye-directed opportunities.
BC Interior - u/s of Thompson Confluence Note: the only chinook in the area are Spring 5_2 and Summer 5_2 chinook.	Fisheries in the area constrained by preferred gear type or fishing times. Discussion required to reduce overall catch.	Fisheries in the area constrained by preferred gear type or fishing times.

Appendix 4 outlines the specific fishery management measures that were implemented in 2018.

Process

The Department is seeking feedback from First Nations and stakeholders on the proposed fishery scenarios, or effective alternatives, and on the associated fishery management actions that best achieve the management objectives. The Department will consider feedback and evaluate expected outcomes for consistency with proposed management objectives, conservation and allocation priorities, support for effective implementation and fostering compliance, and consider potential impacts on fishery monitoring and stock assessment programs (e.g. CWT data). Any proposed measures will also be evaluated for compliance with new fishery reductions identified for Canadian and US Chinook indicator populations under the renewed provisions of the Pacific Salmon Treaty. The revised versions of Annex IV, Chapters 1, 2, 3, 5, and 6 (plus current text for Chapters 4, 7, and 8) have been posted at

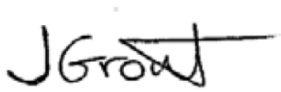
https://www.psc.org/publications/pacific-salmon-treaty/. Please note that Chapters 1, 2, 3, 5, and 6 are not yet formally in force, but the Parties have agreed to provisionally apply them as of January 1, 2019.

Given the early run timing of Fraser Chinook and potential importance of these stocks to SRKW in the early spring, the Department is considering adjustments to early season fisheries that occur between April and June 2019. Department staff will meet with First Nations and stakeholders through the **end of February** to discuss potential management scenarios and supporting information on consequences of potential early season actions to support decision making.

Fishery management measures later in the season (i.e. July 2019 and onward) will be considered as part of the process to develop the 2019/2020 Salmon Integrated Fisheries Management Plans. Further discussion with First Nations and advisory groups will take place during the consultation process to develop the 2019/20 salmon IFMPs.

If you wish to provide feedback, please do so in writing, by **March 1, 2019** to the DFO Pacific Salmon Management Team at DFO.PacificSalmonRMT-EGRSaumonduPacifique.MPO@dfo-mpo.gc.ca. Feedback received will be summarized by the Department and any recommendations on harvest planning will be provided to First Nations and the Departments advisory committees, including the Sport Fishing Advisory Board (SFAB), Commercial Salmon Advisory Board (SFAB), Marine Conservation Caucus (MCC) and Integrated Harvest Planning Committee (IHPC) for further consideration.

Yours sincerely,



Jeff Grout
Regional Resource Manager, Salmon

Appendices (4):

1. Summary of Stock Status of Fraser River BC Chinook Designatable Units.
2. Trends in productivity (R/S) for Fraser Chinook management units.
3. Graphical representation of average Canadian total fishing mortalities for Fraser River Chinook CWT indicator populations for the 2013-2016 period.
4. Summary of 2018 fishery management measures.

Appendix 1: Stock Status of Fraser River BC Chinook Designatable Units.

Fishery Management Unit	Designatable Unit	*COSEWIC Assessment*	CU and WSP Status no colour = TBD gray = Data Deficient orange = red/amber	Spawning Locations
Spring 4₂ Chinook	DU14 BC South Thompson Stream Summer	*Endangered*	CK-16 STh Bessette Creek	Bessette Creek, Creighton Creek; Duteau Creek; Harris Creek
	DU15 BC Lower Thompson Stream Spring	*Not assessed*	CK-17 Lower Thompson Spring	Bonaparte River; Coldwater River; Deadman River; Louis Creek; Nicola River; Spius Creek
Spring 5₂ Chinook	DU3 BC Lower Fraser River Stream Spring	*Special Concern*	CK-04 LFR Spring	Birkenhead
	DU4 BC Lower Fraser River Stream Summer (Upper Pitt)	*Endangered*	CK-05 LFR Upper Pitt	Pitt River-Upper
	DU7 BC Middle Fraser River Stream Spring	*Endangered*	CK-08 FR Canyon-Nahatlatch	Anderson, Nahatlatch
	DU9 BC Middle Fraser River Stream Spring	*Threatened*	CK-10 MFR Spring	Cariboo River-upper; Chilako River; Chilcotin River upper; Chilcotin River-lower; Cottonwood River; Horsefly River; Narcosli Creek; Naver Creek; West Road River and others
	DU11 BC Upper Fraser River Stream Spring	*Endangered*	CK-12 UFR Spring	Bowron River; Dome Creek; East Twin Creek; Fraser River-above Tete Jaune; Forgetmenot Creek; Goat River; Holliday Creek; Holmes River; Horsey Creek; Humbug Creek; Kenneth Creek; McGregor River; McKale River; Morkill River; Nevin Creek; Ptarmigan Creek; Slim Creek; Small Creek; Snowshoe Creek; Swift Creek; Torpy River; Walker Creek; Wansa Creek; West Twin Creek; Willow River; and others
	DU16 BC North Thompson Stream Spring	*Endangered*	CK-18 NTHOM Spring	Albreda River; Blue River; Finn Creek; Lyon Creek; Mad River

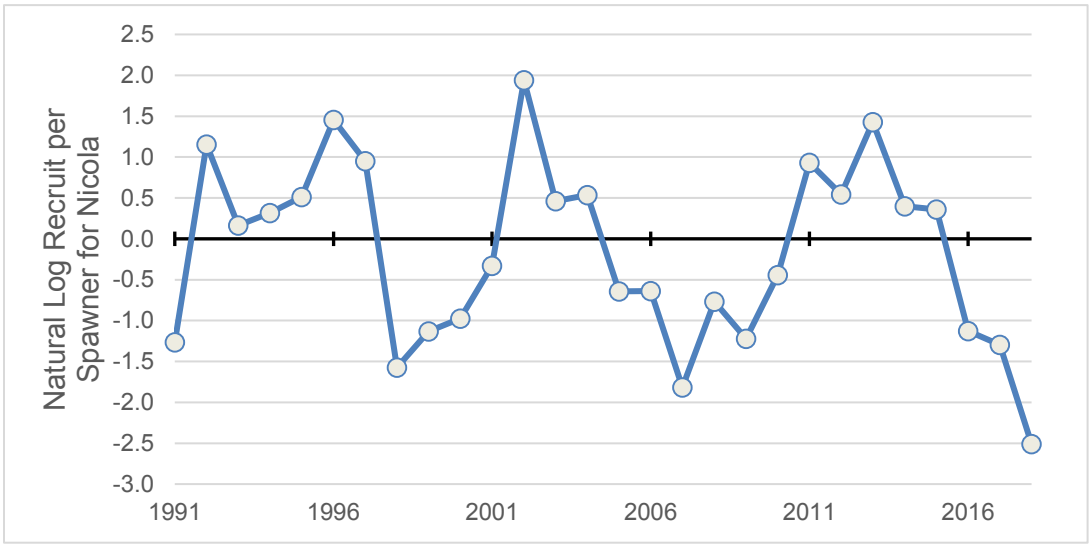
Summer 5$_2$ Chinook	DU5 BC Lower Fraser River Stream Summer	*Threatened*	**CK-06 LFR Summer**	Big Silver Creek; Chilliwack/Vedder River; Cogburn Creek; Douglas Creek; Green River; Lillooet River; Sloquet Creek; Tipella Cr.
	DU8BC Middle Fraser River Stream Fall	*Endangered*	CK-09 MFR Portage	Portage
	DU10 BC Middle Fraser River Stream Summer	*Threatened*	CK-11 MFR Summer	Bridge River; Cariboo River lower; Chilko River; Endako River; Kazchek Creek; Kuzkwa River; Nechako River; Quesnel River; Seton River; Stellako River; Stuart River; and others
	DU13 BC South Thompson Stream Summer	*Not assessed*	CK-14 STh Summer age 5$_2$	Eagle River; Salmon River
	DU17 BC North Thompson Stream Summer	*Endangered*	CK-19 NTHOM Summer	Barriere River; Clearwater River; Lemieux Creek; Mahood River; Mann Creek; North Thompson River; Raft River
Summer 41 Chinook	DU6 BC Lower Fraser River Ocean Summer	*Not assessed*	CK-07 Maria Slough Summer	Maria Slough
	DU12 BC South Thompson Ocean Summer	*Not At Risk*	CK-13 STh Summer age 4$_1$	Adams River; Little River; South Thompson River; Lower Thompson River; Lower Shuswap, Middle Shuswap
			CK-15 Shuswap River Summer	
Fraser Fall 4$_1$ Chinook	DU2 BC Lower Fraser River Ocean Fall	*Threatened*	CK-03 LFR Fall	Harrison
ECVI and Mainland Chinook	DU19 BC East Vancouver Island Stream Spring	*Endangered*	CK-23 East Vancouver Island – Nanaimo Spring	Nanaimo River - Upper

Appendix 2: Trends in productivity (R/S) for Fraser Chinook management units.

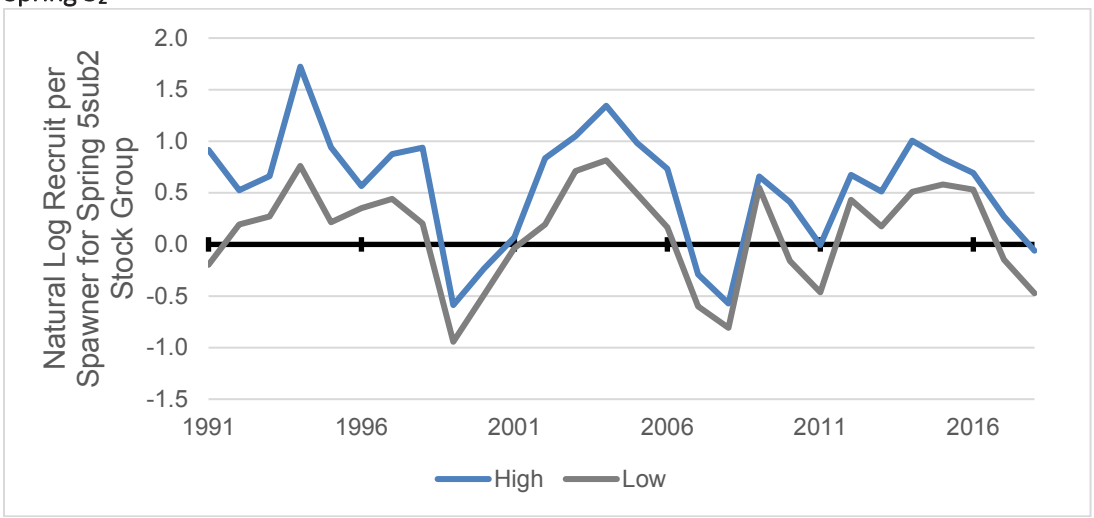
Notes:

1. For the Spring 4_2 and Summer 4_1 stocks, R/S estimates are shown for the CWT indicator stock, Nicola and Lower Shuswap, respectively.
2. For the Spring 5_2 and Summer 5_2 stocks, R/S series were generated using the CWT CYER data from Nicola and from Lower Shuswap to provide a range of R/S. This provides an index of recruitment but not a direct measure given assumptions (e.g. missing age data, missing age-specific exploitation rates, infilling for escapement, inability to measure total hatchery-origin escapement).
3. For the Fall 4_1, the R/S series was based on recruits and spawners reconstructed by cohort (brood year) using the established escapement goal methodology (Brown et al. 2001)

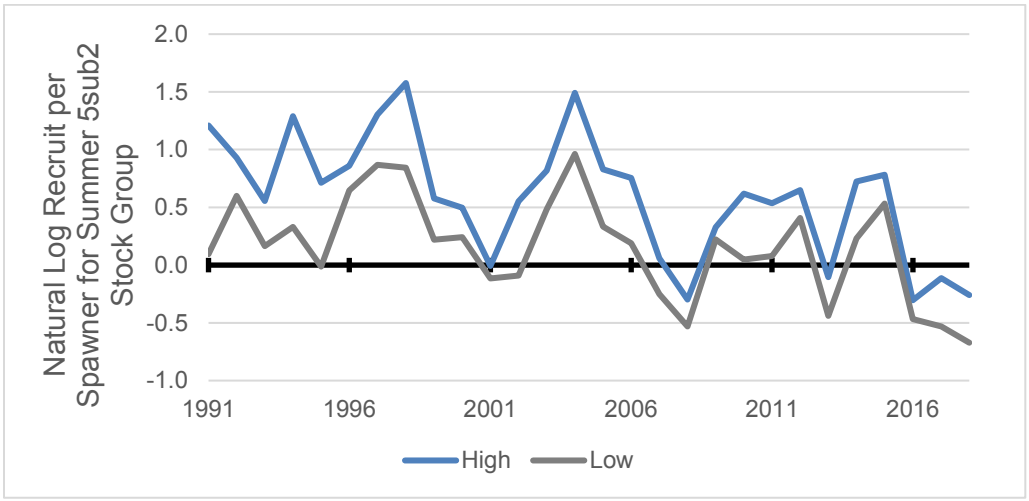
Spring 4_2 (Nicola Indicator)



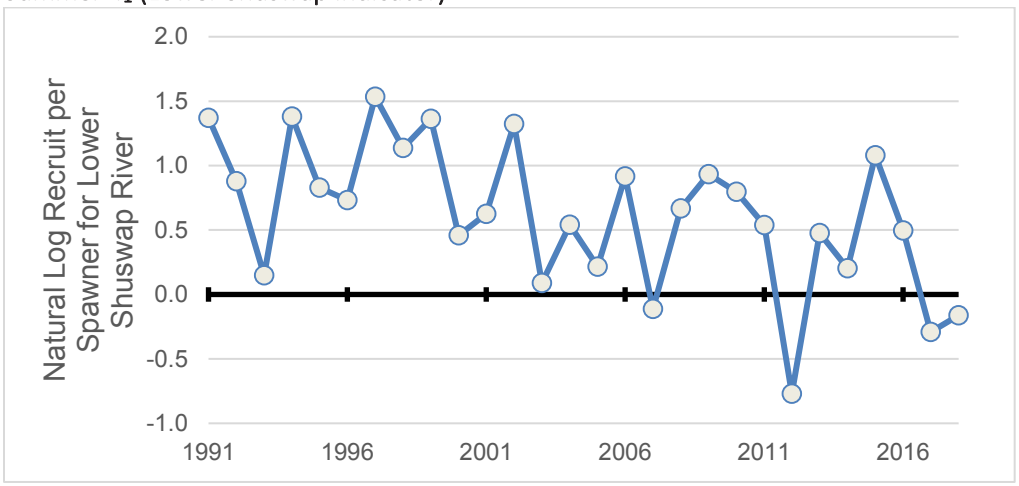
Spring 5_2



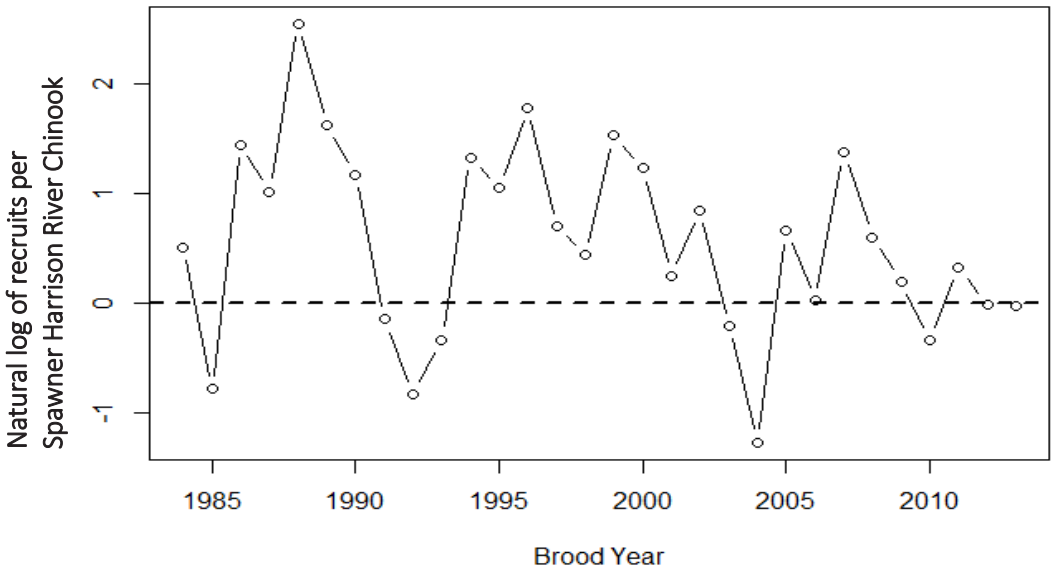
Summer 5_2



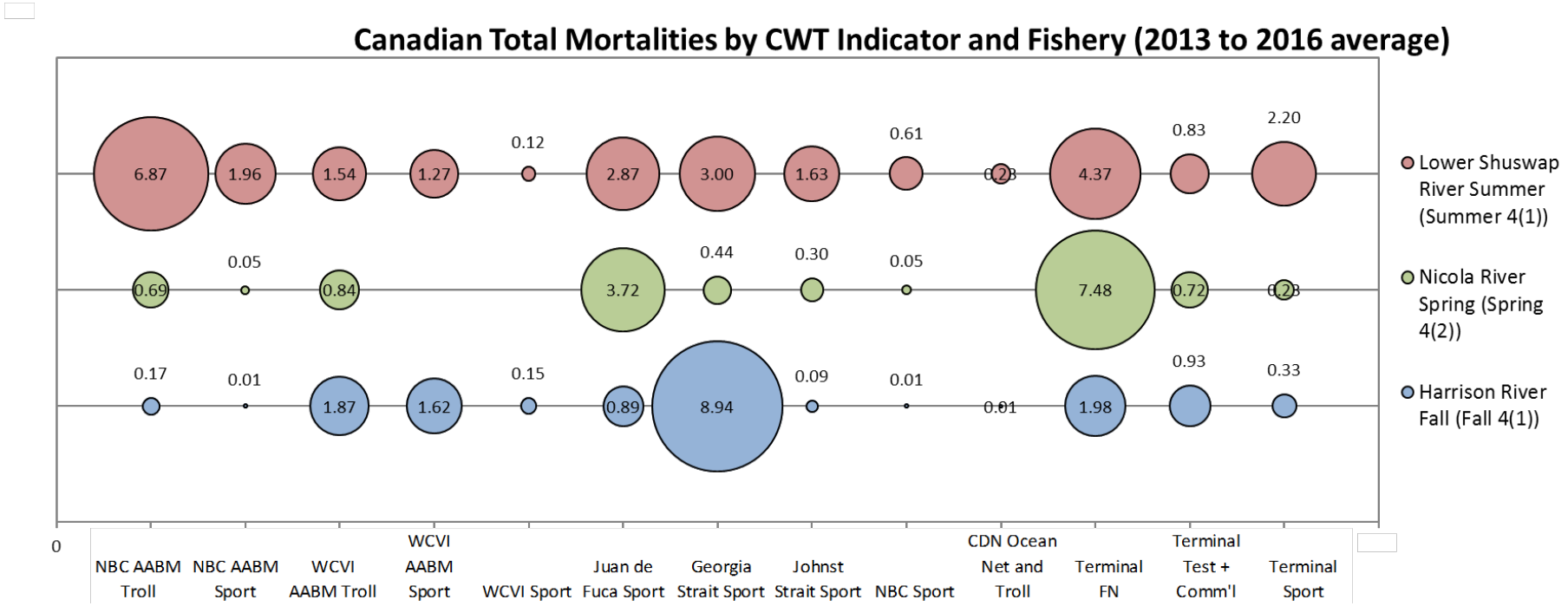
Summer 4_1 (Lower Shuswap indicator)



Fall 4_1 (Harrison indicator)



Appendix 3: Graphical representation of average Canadian total fishing mortalities for Fraser River Chinook CWT indicator populations for the 2013-2016 period.



Numbers in bubbles represent average number of Chinook fishery mortalities per 100 Chinook in the total run based on the hatchery CWT indicator stock. For example, CDN fishery mortalities for Nicola Chinook total 14.5% (sum of grey bubbles/100) and with US removals of 2.3% (not shown in figure); total fishery mortalities are 16.9% with remaining 83.1% of run going to spawning grounds

Canada

Appendix 4: Summary of 2018 fishery management measures.

FN0428-Conservation Measures for Northern and Southern BC Chinook Salmon and Southern Resident Killer Whales
(https://notices.dfo-mpo.gc.ca/fns-sap/index-eng.cfm?pg=view_notice&DOC_ID=208486&ID=all)

This notice provides information on planned conservation measures for Northern and Southern BC Chinook Salmon and Southern Resident Killer Whales that will be implemented beginning June 1, 2018.

Chinook Conservation Measures
To address Chinook conservation concerns, DFO is implementing a precautionary 25-35% reduction in exploitation rates for Chinook stocks of concern to support conservation and promote rebuilding. These additional reductions are planned to address conservation concerns for Nass River, Skeena River and many small wild Chinook populations in Northern BC; and, all Fraser River Chinook populations (including Spring 4(2), Spring 5(2), Summer 5(2), Summer 4(1) and Fall 4(1) populations) in Southern BC.

Additional Northern BC Chinook management measures are outlined below, followed by additional Southern BC Chinook management measures.

Northern Commercial Fisheries

Area F Troll - opening of AABM Chinook fishery delay to July 10 in addition to boundary changes. Refer to the subsequent Fishery Notice for details.

Northern Recreational Fisheries

Please note that possession limits for Chinook Salmon are twice the daily limit.

The recreational daily limits of Chinook Salmon are being reduced in North Coast tidal waters as follows:

Haida Gwaii:

Effective June 1, 2018 to July 9, 2018, the daily limit is one (1) Chinook per day in Areas 1, 2, 142, and that portion of Area 101 west of 131 degrees 40.0 minutes West longitude

North Coast:

Effective June 1, 2018 to June 15, 2018, the daily limit is one (1) Chinook per day in Areas 3 to 5, 103 to 105, Subarea 102-1, and that portion of Area 101 east of 131 degrees 40.0 minutes West longitude
Effective June 16, 2018 to July 9, 2018, there is zero (0) retention of Chinook Salmon in Areas 3 to 5, 103 to 105, Subarea 102-1, and that portion of Area 101 east of 131 degrees 40.0 minutes West longitude

Effective July 10, 2018 to July 31, 2018, the daily limit is one (1) Chinook per day in Areas 3 to 5, 103 to 105, Subarea 102-1, and that portion of Area 101 east of 131 degrees 40.0 minutes West longitude

Effective June 1, 2018 to July 31, 2018 the daily limit is one (1) Chinook per day in Areas 6 and 106

Variation Order Number: 2018-RFQ-0307

Management measures for northern BC non-tidal waters were previously announced in FN0372 issued May 8, 2018.

Southern BC Commercial Fisheries

Area G Troll:
There is no commercial fishery for AABM Chinook in June or July.

Area B Seine and Area H Troll:
Effective June 1 to September 30, 2018, there is no commercial salmon fishing in Subareas 20-3, 20-4 and that portion of Subarea 20-5 that lies west of 123 degrees 49.30 minutes west longitude (Otter Point).

Area B Seine and Area H Troll:
Effective June 1 to September 30, 2018 there is no commercial salmon fishing in Subareas 18-2, 18-4, 18-5 and 18-9.

Southern BC Recreational Fisheries:

Southern BC Inside Waters

Areas 13 to 18, 28 and 29 and Subareas 19-1 to 19-6 (except those portions listed below):

Effective June 1, 2018 until September 30, 2018, the daily limit for Chinook Salmon is one (1) per day in in Areas 13 to 17, 28 and 29 with the exception of those four areas listed below under the headings Strait of Georgia, Pender Island, Juan de Fuca and Fraser River mouth. Terminal fishing opportunities at full limits for Chinook may be considered in-season if abundance permits.

Effective October 1, 2018 until further notice, the daily limit for Chinook Salmon is two (2) per day in in Areas 13 to 19, 28 and 29.

Exceptions:

Strait of Georgia:
Note: this measure came into effect on May 7, 2018 as previously announced in FN0370 issued May 7, 2018.

Effective immediately until June 28, 2018 the daily limit for Chinook salmon is two (2) per day, of which only one may be greater than 67 cm in Subareas 18-1, 18-3, 18-6, 18-11, and 19-5.

Effective June 29, 2018 to July 31, 2018 the daily limit is two (2) Chinook salmon per day between both of which must be less than 85 cm in Subareas 18-1, 18-3, 18-6, 18-11, and 19-5.

Chinook salmon retained in these waters must have a fork length of at least 62cm.

Pender Island:
Effective June 1 to September 30, 2018 there is no fishing for finfish in Subareas 18-2, 18-4, 18-5 and 18-9.

Juan de Fuca (Subareas 19-1 to 19-4 and Area 20):
Effective June 1, 2018 to September 30, 2018 there is no fishing for finfish in Subareas 20-3, 20-4 and that portion of Subarea 20-5 that lies west of 123 degrees 49.30 minutes west longitude (Otter Point)

Effective June 1, 2018 until June 28, 2018 the daily limit for Chinook salmon is two (2) per day which may be wild or hatchery marked between 45 and 67 cm fork length or hatchery marked greater than 67 cm in Subareas 19-1 to 19-4 and 20-6 and 20-7 and that portion of Subarea 20-5 that lies east of 123 degrees 49.30 minutes west longitude (Otter Point).

Effective June 29, 2018 until July 31, 2018, the daily limit for Chinook salmon is two (2) Chinook per day which may be wild or hatchery marked between 45 and 85 cm or hatchery marked greater than 85 cm in Subareas 19-1 to 19-4 and 20-6 and 20-7 and that portion of Subarea 20-5 that lies east of 123 degrees 49.30 minutes west longitude (Otter Point).

Fraser River Mouth (Subareas 29-6, 29-7, 29-9 and 29-10):
Effective June 1, 2018 to September 30, 2018, there is no fishing for salmon in Subareas 29-7, 29-9 and 29-10.

Effective June 1, 2018 to July 31, 2018, there is no fishing for salmon in Subarea 29-6.

Effective August 1, 2018 to September 30, 2018, there is no retention of Chinook Salmon in Subarea 29-6.

Variation Order Number: 2018-RFQ-0307; 2018-RCT-0321

TSAWWASSEN FIRST NATION
sc̓əwaθən məsteyəxʷ

27 February 2019

DFO Pacific Salmon Management Team
Fisheries and Oceans Canada| Government of Canada
DFO.PacificSalmonRMT-EGRSaumonduPacifique.MPO@dfo-mpo.gc.ca

RE: 2019 Fraser River Chinook Conservation Measures

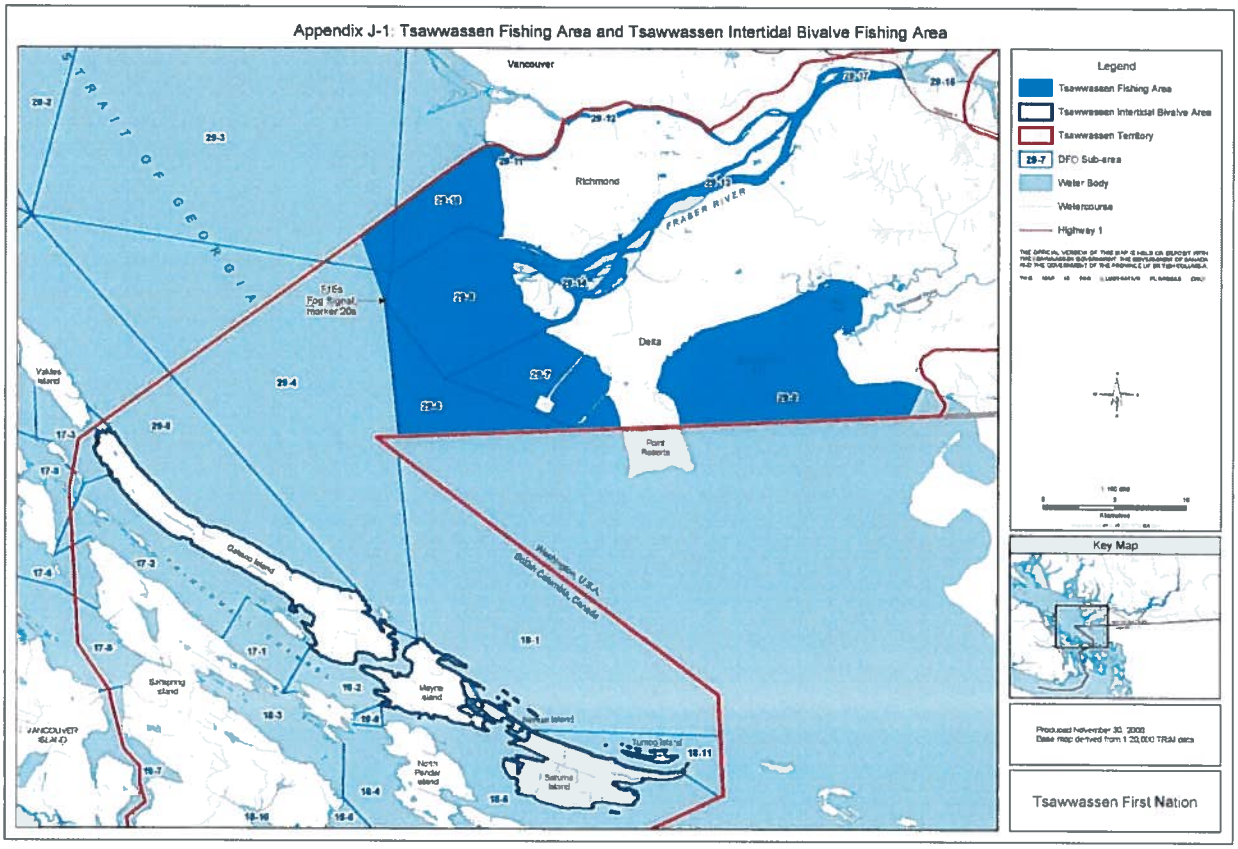
We write to in response to your letter of 5 February 2019 regarding the *Proposed 2019 Chinook Conservation Measures.*

In this letter we articulate Tsawwassen First Nation's specific concerns regarding the interaction between your proposal and our treaty rights under the Final Agreement.

As you are aware, the Tsawwassen First Nation have constitutionally protected Treaty Rights to fish domestically within the Tsawwassen First Nations Fishing Area (TFA). These must be taken into consideration when proposing management measures for fishing within the TFA or outside the TFA to the extent such measures could affect the Tsawwassen Fishing Rights. The proposed Chinook measures include fishing restrictions within the DFO PFMAs 29-6, 29-7, 29-8, 29-9, 29-10 (see map insert) plus the Fraser River downstream of Mission (29-11, 29-12, 29-13, 29-14 and 29-17) and have the potential to impact our treaty fisheries for Chinook and Sockeye salmon and potential non-salmon finfish depending on the specific management measures.

With respect to the specific measures being considered we have the following comments:

1. The proposed Chinook management scenarios indicate that marine recreational fishing would continue in the Juan de Fuca (Area 29-3 to 5) while the Tsawwassen domestic fisheries would be limited/restricted. There is evidence that this Juan de Fuca recreational fishery captures some early-timed Fraser Chinook salmon stocks which may be subjected to fishery mortality. Tsawwassen First Nation recommends that no recreational fishing for salmon, including catch and release, from April 1 to June 30 in Juan de Fuca Strait and the Strait of Georgia to reduce the number of Chinook caught and released during this period when there are very few other salmon species to catch. Anglers would be permitted to fish for Halibut and other groundfish from April 1 to June 30 with restrictions to gear type to limit by-catch of salmon, and permitted to fish for salmon from July 1 to October 31; but not target or retain any Chinook. We consider these measures have the potential to meet the DFO's exploitation rate goals for rebuilding Fraser Chinook stocks while not substantially impacting our domestic fisheries.



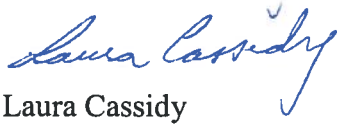
2. The Tsawwassen First Nation requests Coded-Wire Tag (CWT) data for Fraser Chinook (once it becomes available in March) to review the fishery mortalities by fishery and location in order to determine if the proposed DFO management measures would reduce Chinook mortalities.

3. If the proposed scenarios proceed, Tsawwassen First Nation has concerns with the potential overlap of our FSC Sockeye/Chinook and any economic fisheries for Chum, that would occur after the 10 August 2019. We are concerned about fish availability, any potential scheduling conflicts between these fisheries and meeting our Chinook allocation (625) in 2019.

4. If the bulk of the targeted Chinook salmon fisheries occur after 10 August, Tsawwassen First Nation is concerned about the increased fishing pressure that will occur on the Summer 4_1 stock which has run timing through the Fraser River from mid-July to mid-September. The Summer 4_1 stock is defined as a Category 2 (draft Southern Salmon IFMP), meaning the return level is well below target and significant fishing pressure could jeopardize the future state of this stock.

In conclusion, Tsawwassen First Nation has significant concerns with respect to these management measures. Tsawwassen First Nation is entitled to be meaningfully consulted before DFO makes decisions that may affect our Treaty Rights and recommend that these issues be addressed at the next JTC meeting scheduled for 19 March 2019.

Kind Regards,



Laura Cassidy
Manager, Natural Resources
Tsawwassen First Nation

CC:
Marla Maxwell
Matthew Parslow
Brian Matts