Executive Secretary's Summary of Decisions
Post-Season Meeting
January 11-15, 2021
Online

The Pacific Salmon Commission held its Post-Season Meeting from January 11-15, 2021 via webinar and discussed a number of topics (see attached agenda).

The Commission AGREED:

1. The minutes from October 2020 are approved.
2. The preliminary 2020 post-season reports are adopted, noting final versions will be reviewed in October 2021.
3. The verbal report of the Chinook Interface Group (CIG) is accepted, with a written report submitted for consideration at the February annual meeting. Notably, the CIG discussed:
    a. COVID19 impacts to 2020 fisheries and assessment programs
    b. Implementation of the CYER metric
    c. General work plan progress by the CTC
    d. Membership on the MSF and CWT-R/CEII working groups
    e. Schedules for CIG/CTC meetings in summer 2021
    f. Protocol development for sharing PSC data with other organizations
    g. The proper response, if any, from the PSC regarding the Welch et al. paper
    h. The request for the Secretariat to enter into a memorandum of understanding with PICES
4. The Commission will follow up its February 2019 management entities meeting as follows:
    a. The Executive Secretary will lead a small working group to initiate work. Parties will confirm membership upon correspondence from the Executive Secretary.
    b. The working group will develop an outline of the issues discussed in February 2019 and any requiring follow up.
    c. The Commission will consider the outline in February 2021 and provide guidance as needed.
    d. The working group will engage with management entities after February and report to the Commission in October 2021, with a view to assessing progress made with the entities since 2019.
    e. The Commission will circulate a subsequent letter to the entities on progress and remaining challenges.
5. The Executive Secretary should liaise with the PICES Executive Secretary to elaborate on the possible benefits of a memorandum of understanding. At the February 2021

meeting, the Commission will consider any input received and decide on the appropriate course of action.

6. The Test Fishing Working Group will convene on January 15 and report back to the Commission at the February 2021 annual meeting.
7. The CSC will proceed to develop a 2021 work plan as described via the Steering Committee's verbal report at this meeting. The Commission will review the draft work plan at the February 2021 annual meeting.

ATTENDANCE

PACIFIC SALMON COMMISSION
POST SEASON MEETING
JANUARY 11-15, 2021
Via Webinar

COMMISSIONERS

CANADA

R. Reid (Chair)
R. Jones
J. McCulloch
B. Riddell
A. Thomson

UNITED STATES

D. Vincent-Lang (Vice Chair)
W.R. Allen
P. Anderson
W. Auger
S. MacCorkle
R. Klumph
S. Rumsey

Draft Agenda
2021 Post-Season Meeting
January 11-15, 2021
via webinar

1. Adoption of agenda
2. Approval of minutes: 2020 Fall Meeting
3. Executive Secretary's report

Chinook issues

4. CIG report
    a. COVID-19 impacts update
    b. 2020/21 work plan progress
    c. Update on progress on CYER implementation verbal report
    d. Membership of the CWT&R and CEII Fund Work group and MSF Fund Committee

Other action items pending

5. Adoption of national post-season reports
    a. Preliminary 2020 data
    b. National reports on 2020 Chinook fisheries
6. Test Fishing Work Group report
7. Update from Committee on Scientific Cooperation and CSC Steering Committee
8. Progress reports from Panels and Committees on work plans, as needed
9. CYER follow up with Management Entities
10. Public comment

Annotated agenda

January 2021 Post-Season Meeting

(Executive Secretary's annotations in *italics*)

1. Adoption of Agenda

    - *Consistent with PSC bylaws, an agenda shall be adopted by the Commission at the start of each meeting. The Commission shall not ordinarily take a decision on any item that has not been included in the draft agenda for the meeting. Where circumstances warrant, supplementary decision items may be added to the agenda with the concurrence of each National Section.*

2. Approval of minutes

    - *The Parties received draft minutes from the October 2020 Fall Meeting on November 17, 2020.*

3. Executive Secretary's Report

    - *The Executive Secretary will provide a verbal report on "housekeeping" items for the current meeting and other issues needing attention. This will include recent reviews of alternate webinar platforms and identifying any public observers expected at the current online meeting week.*

Chinook issues

4. CIG report

    - *At the October 2020 meeting, the CIG noted that it would continue to evaluate the impact of COVID-19 on national assessment programs and report its findings as appropriate.*

    - *Under current practice, the January meeting is a platform for the CIG to check in with the CTC on work plan progress and reprioritize tasks as needed.*

Other action items pending

5. Adoption of national post-season reports

    - Preliminary 2020 data: *Based on a January 2018 precedent, the Parties have agreed to review preliminary post-season reports each January with final reports/final data accepted the following October.*

    - National reports on 2020 Chinook fisheries*: Since October 2018, the Commission has agreed the Parties will present summaries of their Treaty area Chinook fisheries at each January Post-Season meeting.*

6. Test Fishing Work Group report

    - *As agreed at the October 2020 meeting, the Work Group will provide recommendations on a PSC test fishing policy and associated financial regulation changes.*

7. Update from CSC and CSC Steering Committee
    - *Effective February 2020, a CSC Steering Committee (four Commissioners) has engaged with the CSC on work planning. In the current cycle, the CSC is analyzing recent calls for a multi-species PSC forum focused on environmental change and its impacts on fisheries management. The present meeting is an opportunity to discuss and refine approaches to this project.*
8. Progress reports from Panels and Committees on work plans (as needed)
9. Public comments
    - *When appropriate, and with the concurrence of the Vice-Chair, the chair may provide time for public visitors to speak during the meeting.*

North Pacific
Marine Science
Organization

John Field
Executive Secretary
Pacific Salmon Commission
600 – 1155 Robson Street
Vancouver, B.C.
Canada V6E 1B5

November 23, 2020

Dear Mr Field,

At the PICES-2020 Annual Meeting the FIS Committee (Fishery Science Committee) discussed the possibility of a Memorandum of Understanding, or Framework for Scientific Cooperation, between the PSC and PICES. PICES has developed agreements with other Intergovernmental organisations such as the International Pacific Halibut Commission (IPHC), North Pacific Fisheries Commission (NPFC) and the North Pacific Anadromous Fisheries Commission (NPAFC) and they can be found here on the PICES website:

https://meetings.pices.int/about/MoUs

These agreements formalise the relationship and are mutually beneficial to the organisations concerned. PICES can provide access to the latest relevant ecosystem science through platforms such as workshops and topic sessions at its Annual Meetings and the RFMO can provide a policy focus and perhaps access to additional data for PICES scientists. The opportunities for collaboration would enhance the current understanding of status and trends and identify gaps in knowledge and needs that should be addressed, which contributes to the success of both organization's missions.

If the PSC is supportive of this idea then we would suggest a joint PICES/PSC Study Group be convened under the FIS Committee with terms of reference that would include drafting of the Collaboration Agreement and its time frame (open-ended or for a renewable 5 years, for example). The Study Group would expand on the following suggestions to draft the Agreement:

- Areas of joint interest/concern
  - Promoting the collection of, exchange of and access to data and information,
  - Facilitating research/assessment collaboration across member countries,
  - Improving understanding of management implications of climate change,
  - Developing capacity of collaborating agencies within the member countries.
  - Responding to requests from member countries and other organisations to provide advice on scientific issues.
  - Partnering with other organisations that share a common interest

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Internet: www.pices.int

- Means of cooperation
    - Exchange of information/models/approaches
    - Mutual invitations to our respective and relevant workshops/symposia
    - Invitations to participate as observers in respective annual meetings

A proposal for a joint Study Group would need to be presented to PICES Science Board for review, potentially at its spring Intersessional meeting (dates TBC) before submission for approval by Governing Council. This can be by correspondence so a Study Group could feasibly begin work in summer 2021 and present its report and recommendations to both organizations at their subsequent Annual meetings.

Either myself or the FIS Committee Chair/Vice-Chair would be happy to answer any questions you may have about the process,

Sincerely,

Sonia Batten

cc: FIS Committee Chair: Prof. Xianshi Jin <jin@ysfri.ac.cn>

Vice-Chair: Dr. Jackie R. King <Jackie.King@dfo-mpo.gc.ca>

POST-SEASON REPORT FOR THE 2020 CANADIAN TREATY LIMIT FISHERIES

TABLE OF CONTENTS

I INTRODUCTION

The chapters in Annex IV of the Pacific Salmon Treaty outline the joint conservation and harvest sharing arrangements between Canada and the United States of America (U.S.) for key stocks and fisheries subject to the Treaty. In August 2018, the PSC recommended new provisions, under Annex IV of the PST, to the Governments of Canada and the U.S. for review and ratification. Both governments agreed to the provisional application of the new agreements as of January 1, 2019 while the ratification process was completed. Effective May 3, 2019, the Annex IV amendments came fully into force through the exchange of diplomatic notes between Canada and the U.S., and will remain in place for 10 years. Chapter 4 (Fraser River Sockeye and Pink) expired on December 31, 2019. In February 2019, agreement-in-principle was reached and the proposed amendments were referred to the Governments of Canada and the U.S. for review and ratification. Both governments agreed to the provisional application of the amendments as of January 1, 2020 while the ratification process is completed. The new amendments came into force in Spring 2020 and will remain in place for 9 years, bringing Chapter 4 into alignment with the five other fishing Chapters under the PST.

Annex fisheries are reported in the order of the Chapters of Annex IV. Fishery summaries include expectations and management objectives, escapements (where available and appropriate) and catch results by species. The focus is on those stocks and fisheries covered by the Pacific Salmon Treaty, and not all Canadian domestic salmon fisheries are covered in this document.

Annually, DFO releases a Salmon Outlook document which is referenced in various sections of this report; this document provides a categorical indication of salmon production (using a 4 point rating scale), and associated fishing opportunities by geographic area and species stock groups called an Outlook Unit for the coming season. Pre-season quantitative forecasts are documented where they are produced.

The catch information reported in this document provides the best information available at this time. The catches are based on in-season estimates (hailed statistics); on-grounds counts by DFO, logbooks, dockside tallies, landing slips (First Nation fisheries), fish slip data (commercial troll and net), creel surveys and observers (recreational and commercial). Appendix 1 summarizes catches from years 2004 to 2020 in Canadian fisheries that have at some time been under limits imposed by the Pacific Salmon Treaty. More detailed catch data is provided for the current year for commercial, recreational, First Nations, Excess Salmon to Spawning Requirements (ESSR) and test fisheries in Appendices 2 to 7.

This is the initial draft report covering the Treaty fisheries that took place in 2020, and some information is preliminary or unavailable at this time. The final version of this report will be released in fall 2021.

2 TRANSBOUNDARY RIVERS

2.1 STIKINE RIVER

Following the 2020 pre-season meeting of the Transboundary Panel, Canada developed its fishing strategy for Stikine River salmon fisheries based on the catch sharing and management arrangements outlined in PST Annex IV, Chapter 1. Canada's intent was to achieve the following objectives: 1) to harvest 47% of the total allowable catch (TAC) of Stikine River Sockeye Salmon in existing fisheries; 2) to allow additional harvesting opportunities for Sockeye Salmon that were surplus to spawning requirements; and 3) to harvest up to 5,000 Coho Salmon through a directed fishery. The pre-season forecast of 13,400 Chinook Salmon was well-below the Chapter 1 fishery forecast run size threshold of 24,500, and did not allow for a directed Canadian Chinook Salmon fishery. The 2020 Chinook salmon pre-forecast also resulted in the cancellation of the 2020 assessment fishery.

The 2020 Canadian Stikine River commercial fishing season opened on June 23 (statistical week 26) and ended September 12 (statistical week 37). The directed Sockeye Salmon fishery occurred between statistical weeks 26 through 33 while the directed Coho Salmon fishery occurred between statistical week 35 and 37. The exception to 2020 directed fishing periods was statistical week 34, during which no directed commercial fishery opportunity was provided due to low abundance of non-Tahltan Lake origin Sockeye Salmon.

Commercial fishing gear permitted for the 2020 season was limited to one 135-metre (443 ft.) gill net per licence holder. The maximum mesh size permitted was 140 mm (5.5") through August 9, followed by a maximum mesh size of 204 mm (8") beginning August 25. The lower Stikine commercial fishing zone covered the area from the international (U.S./Canada) border upstream to near the confluence of the Porcupine and Stikine Rivers, and also included the lower 10 km (6 mi.) reach of the Iskut River.

In the upper Stikine River commercial fishery, located upstream from the Chutine River, fishing periods generally mirrored those in the lower Stikine River commercial fishery, but lagged by one week. Each commercial fishery licence holder was permitted the use of one net. As in past years, the commercial fishing area was located upstream of the Chutine River to the mouth of the Tuya River. The Canadian First Nation Food, Social and Ceremonial (FSC) fishery located near the community of Telegraph Creek, British Columbia (BC) was active from June to the first week of August, with no time or gear restrictions imposed in 2020. To facilitate Chinook Salmon conservation, efforts were implemented within the First Nation FSC to minimize Chinook Salmon catch.

Canadian recreational fishery effort was effectively absent in 2020 due to area, retention, and size restrictions for the duration of the Chinook Salmon season. Recreational fishery effort for Coho Salmon was below average as a result of COVID-19 domestic and international travel restrictions.

2.1.1 CHINOOK SALMON

The pre-season forecast of 13,400 large Chinook Salmon developed by the Transboundary Technical Committee (TTC) did not provide for a total allowable catch allocation in 2020. The current, bilaterally recognized fishery management strategy specifies that a pre-season forecast run size of <24,500 precludes either Party from administering directed Chinook Salmon fisheries. As a result, specific fishery management measures

were implemented within all Canadian fisheries to minimize the likelihood of interception of Chinook Salmon in 2020.

The 2020 total Canadian fishery catch of Chinook salmon was 389 large Chinook salmon and 642 jacks (all of which occurred exclusively within the First Nation FSC fishery). This was well below the 10-year average of 2,100 large Chinook salmon and 900 jacks. No Chinook Salmon were harvested within the 2020 recreational or commercial fisheries as retention was prohibited.

The post-season estimate of the 2020 Stikine River Chinook Salmon terminal run was approximately 11,700 large Chinook Salmon. Accounting for the total Canadian catch of Chinook Salmon, the spawning escapement was estimated at approximately 11,100 large Chinook Salmon. The Chinook Salmon escapement estimate of 11,100 is 36% below the management objective of 17,400 large Chinook Salmon and did not achieve the lower end of the escapement goal range of 14,000.

2.1.2 SOCKEYE SALMON

The forecast for Stikine River Sockeye Salmon as developed by the TTC was for a terminal run size[1] of 103,000 fish which was comprised of 64,000 Tahltan Lake origin Sockeye Salmon (30,000 wild and 34,000 enhanced) and 39,000 non-Tahltan wild Sockeye Salmon. The 2020 Stikine River Sockeye Salmon terminal run size forecast was below the 10-year average terminal run size of approximately 115,000 fish.

The total 2020 Canadian fishery harvest of Stikine River Sockeye Salmon was 11,872, well below the 10-year average of 44,000 fish. The lower Stikine River commercial fishery harvested 6,153 Sockeye Salmon while the upper Stikine River commercial and First Nation FSC fisheries harvested a total of 296 and 5,423 Sockeye Salmon respectively. The estimated portion of Canadian fishery Sockeye Salmon harvest originating from the Stikine Enhancement Production Program was approximately 6,000 fish (or 51% of the total harvest). The Sockeye Salmon assessment fishery accounted for an additional 1,497 Sockeye Salmon harvested.

A total of 11,158 Sockeye Salmon returned to Tahltan Lake in 2020. The Tahltan Lake Sockeye Salmon escapement goal range is 18,000 to 30,000 while the most recent 10-year average return is 26,500. An estimated 6,200 (56%) of Sockeye Salmon returning to Tahltan Lake in 2020 originated from the Stikine Enhancement Production Program. A total of 384 adult Sockeye Salmon were removed from Tahltan Lake as part of the 2021 Stikine Sockeye Enhancement Production Plan. No fish were removed for stock identification purposes and it is estimated that approximately 10,800 Sockeye Salmon spawned in Tahltan Lake 2020. The total estimated run size of 24,400 Tahltan Lake Sockeye Salmon was approximately 62% below the pre-season forecast of 64,000.

The spawning escapement for the non-Tahltan Lake Sockeye Salmon stock group is calculated using stock identification, test fishery and in-river commercial catch and effort data. The escapement estimate for 2020 was approximately 5,000 non-Tahltan Lake Sockeye Salmon. The non-Tahltan spawning escapement estimate was below the escapement goal range of 20,000 to 40,000 and below the 10 year average of 23,000 fish.

Based on the in-river run reconstruction of the Tahltan Lake Sockeye Salmon run expanded by run timing, along with stock identification data from lower river assessment projects and estimated harvests of Stikine River Sockeye Salmon in U.S. terminal gill net fisheries, the post-season estimate of the terminal Sockeye

[1] Terminal run excludes U.S. interceptions that occur outside Districts 108 and 106.

Salmon run size is approximately 31,700 fish. This estimate includes 24,400 Tahltan Lake origin fish and 7,300 Sockeye Salmon of the non-Tahltan stock group. The 2020 Stikine River Sockeye Salmon run was below the 10-year average terminal run size of ~142,000 Sockeye Salmon and the preseason forecast of 103,000 fish.

Based on the post-season run size estimate, there was no allowable catch for Stikine River Sockeye Salmon in 2020. The total Canadian fishery harvest of Stikine River Sockeye Salmon in 2020 was 13,369.

2.1.3 COHO SALMON

The total Canadian fishery harvest of Coho Salmon in 2020 was 5,103. Of the total harvest, 5,098 Coho Salmon were harvested during the directed fishery period between statistical weeks 35 to 37. The total Canadian fishery harvest was below the recent 10-year average of 5,500 fish.

A Coho Salmon test fishery was not conducted in 2020. The catch per unit effort (CPUE) observed in the targeted Coho Salmon fishery was near average for statistical weeks 35 to 37. Aerial surveys of the index spawning sites for Coho Salmon were not completed due to poor weather and viewing conditions.

2.1.4 JOINT SOCKEYE SALMON ENHANCEMENT PROGRAM

4.4 million Sockeye Salmon eggs collected from Tahltan Lake, British Columbia in the fall of 2019 were hatched and reared at Snettisham Hatchery (Alaska) during the 2019/20 winter period. All fry were mass-marked at the Snettisham hatchery with thermally induced otolith marks. Green egg to released fry survival was approximately 75%. Approximately 500,000 fry reared at the Snettisham hatchery were culled due to Infectious Hematopoietic Necrosis virus (IHNv). Between May 27 and June 9, 2020 approximately 2.7 million emergent Sockeye Salmon fry were transported to Tahltan Lake for release.

For 2020, the agreed bilateral Stikine River Enhancement Production Plan (SEPP) identified an egg collection objective of 5.0 million Sockeye Salmon eggs from Tahltan Lake. In-season the 2020 Sockeye Salmon egg collection target was revised to 0.5 million eggs as a result of extremely low adult Sockeye Salmon escapement to Tahltan Lake and recently observed declines in wild egg to smolt survival. A total of 0.5 million Sockeye Salmon eggs were collected from Tahltan Lake.

2.2 TAKU RIVER

Following the 2020 pre-season meeting of the Transboundary Panel and the Pacific Salmon Commission (PSC) Commissioner's bilateral agreement on Taku River Sockeye Salmon harvest sharing arrangement (May 2020), Canada developed its fishing strategy for Taku River salmon fisheries based on the catch sharing and management arrangements outlined in Annex IV, Chapter 1 of the PST. Accordingly, the Canadian fishery strategy incorporated specific conservation considerations and contained the following harvest objectives: 1) to harvest 23% of the TAC of Taku River Sockeye Salmon (adjusted as necessary according to projections of the number of enhanced Sockeye), plus harvest any salmon in excess of spawning and brood stock needs; 2) to harvest enhanced Taku River Sockeye Salmon incidentally to wild Sockeye Salmon; and, 3) to harvest 5,000 Coho Salmon plus Canada's share of the TAC and any salmon surplus to spawning needs in a directed Coho Salmon fishery.

The 2020 commercial fishing season on the Taku River opened on June 30 (statistical week 27) and closed on September 23 (statistical week 39). Fishing area and gear restrictions were as per recent years, and incorporated the maximum gill net length of 36.6 metres, established in 2008 for drift gill nets and in 2009 for set gill nets.

The Taku River commercial fishing area in Canada consists of the mainstem of the river from the international border upstream approximately 18 km (11 mi.), to a geological feature known locally as Yellow Bluff. Nearly all commercial fishing activity takes place in the lower half of this area, downstream of the Tulsequah River / Taku River confluence.

The First Nation Taku River FSC fishery is primarily located in the lower Taku River in the same area as the Canadian commercial. Small numbers of fish are also harvested on the lower Nakina River and at the outlet of Kuthai and King Salmon lakes.

Canadian recreational fishery effort was largely absent in 2020 due to area, retention and size restrictions for the duration of the Chinook Salmon season. Restrictions were implemented within the recreational fishery to prohibit the harvest of Taku River Chinook Salmon as abundance was well below the minimum spawning escapement requirement. Recreational fishery effort for Coho Salmon was also minimal due to COVID-19 domestic and international travel restrictions.

2.2.1 CHINOOK SALMON

The bilateral pre-season forecast was for a terminal run of 12,400 large Chinook Salmon, approximately 36% below the previous 10-year average of 19,400 fish. A run size of 12,400 fish was well below the management objective of 25,500 fish (below the lower end of the escapement goal range of 19,000 to 36,000), and as a result, there was no allowable catch (AC) for either the U.S. or Canada. In response, Canada did not prosecute a directed commercial Chinook Salmon fishery. Additionally, significant efforts were made in all other fisheries to avoid the incidental harvest of Chinook Salmon. For 2020, the in-river Chinook assessment fishery was not conducted to allow for the maximum number of Chinook Salmon to pass to the spawning grounds.

The catches of large Chinook Salmon in the Canadian fisheries were: 0 large Chinook Salmon harvested in the directed commercial Sockeye and Coho salmon fisheries; 73 large Chinook Salmon in the First Nation FSC fishery; and 0 large Chinook Salmon in the recreational fishery. The total base level and test/assessment fishery harvest of 73 large Chinook Salmon was well below the Chapter 1 Canadian fishery allowance of 2,900 fish.

The Taku River large Chinook Salmon spawning escapement estimate for 2020 was approximately 15,600 fish, which was below the management objective of 25,500 and the lower end of the escapement goal range (19,000). The most recent 10-year average spawning escapement was 16,600 large Chinook Salmon.

The total Canadian catch of large Chinook Salmon was 73, which was well below the 10-year average of approximately 1,900 fish (excluding test/assessment fisheries).

2.2.2 SOCKEYE SALMON

The Canadian pre-season run outlook for wild Sockeye Salmon was 139,000 fish, approximately 6% below the most recent 10-year average total run size of 148,000 fish. In addition, approximately 10,000 adult Sockeye Salmon of Tatsamenie Lake origin and a small number of Trapper Lake origin Sockeye Salmon were expected

to return from fry outplants associated with the Canada/U.S. joint Taku Sockeye Salmon enhancement program. The forecasted return of enhanced Tatsamenie Lake origin Sockeye Salmon was anticipated to be above average.

The total Canadian fishery catch of Sockeye Salmon was 11,793 fish, of which 11,556 were taken within the commercial fishery, 237 in the First Nation FSC fishery, and 0 in assessment/test fisheries. This harvest was 52% below the 10-year average total of 24,500 fish. Canadian fisheries harvested an estimated 407 enhanced Sockeye Salmon produced through the bilateral Taku Enhancement Production Plan (3% of the total Canadian catch).

To reduce the likelihood of incidental harvest of Chinook Salmon, the directed Canadian Sockeye Salmon fishery commenced on June 30 (statistical week 27) which is 2 weeks later from what would have otherwise occurred. Additionally, the use of set nets within the commercial fishery was not permitted for the first opening while retention of incidentally-caught Chinook Salmon in the directed commercial Sockeye Salmon fishery was prohibited. The maximum permissible mesh size in the first four weeks of the directed Sockeye Salmon fishery was reduced to 140 mm (5.5”), which was intended to reduce likelihood of entanglement of large Chinook Salmon and to facilitate live release. Projected estimates of the total wild Sockeye Salmon run size, TAC and total escapement were made weekly throughout the fishing season. As in past years, projections were based on the joint mark-recapture program, the estimated catch of Taku River Sockeye Salmon in U.S. fisheries, the catch in the Canadian fishery and historical run timing information. The post-season run size estimate is 130,000 fish (comprising 127,000 wild and 3,000 enhanced Sockeye Salmon). Subtracting the management objective of 58,000 from the wild run of 127,000 fish resulted in a TAC of approximately 69,000 wild fish. The 2020 Canadian allowable catch, based on a 20% harvest share (associated with an enhanced Sockeye Salmon return range of 1 to 5,000 fish), was 13,800 wild fish. The total 2020 Canadian Sockeye Salmon fishery harvest was 11,373, below the allowable catch limit. The estimated total spawning escapement of Canadian-origin wild Sockeye Salmon was 107,000, which is above both the management objective (58,000) and the as well as the upper end of the spawning escapement goal range of 75,000 fish.

2.2.3 COHO SALMON

The 2020 total Canadian fishery catch of 7,036 Coho Salmon (6,970 commercial and 66 First Nation FSC) was 31% below the 10-year average of 10,200 fish. The catch during the directed commercial/assessment Coho Salmon fishery (after statistical week 33) was 5,143 fish. The bilateral estimate of 2020 total Canadian-origin Coho Salmon terminal abundance is 59,000 fish. In accordance with PST provisions a run size of this abundance provides Canada an allocation of 5,000 Coho Salmon for assessment purposes. The 2020 post-season spawning escapement estimate is 52,000 Coho Salmon which is below the management target of 70,000 but within the escapement goal range of 50,000 to 90,000 fish.

2.2.4 JOINT SOCKEYE SALMON ENHANCEMENT PROGRAM

2.6 million Sockeye Salmon eggs collected from Tatsamenie Lake, British Columbia in the fall of 2019 were hatched and reared at Snettisham Hatchery (Alaska) during the 2019/20 winter period. All fry were mass-marked at the Snettisham hatchery with thermally induced otolith marks. Between June 6 and June 10, 2020 approximately 1.4 million emergent Sockeye Salmon fry were transported to Tatsamenie Lake for release. No Infectious Hematopoietic Necrosis virus (IHNv) was observed in the Tatsamenie Lake Sockeye Salmon fry in

2020. Of the 1.4 million fry transported to Tatsamenie Lake approximately 210,000 fry were released into net pens for rearing between June 10 and June 30 as part of an extended rearing evaluation project while the remaining 1.19 million fry were released directly into the lake. Fry held within the extended rearing evaluation project were released into Tatsamenie Lake at approximately 1.6 grams on June 30, 2020. A sub-sample of Tatsamenie Lake Sockeye Salmon smolts outmigrating in 2020 was assessed to evaluate both enhanced contribution and survival. The results of this analysis will be used to inform future release strategies and enhancement programs.

For 2020, the agreed bilateral Taku River Enhancement Production Plan (TEPP) identified collection of up to 3.0 million Sockeye Salmon eggs from Tatsamenie Lake and 1,000,000 eggs from Little Trapper Lake for transport to Snettisham Hatchery in Alaska for incubation and thermal marking. Approximately 2.0 million Sockeye Salmon eggs were collected from Tatsamenie Lake and approximately 530,000 Sockeye Salmon eggs were collected from Little Trapper. Egg take collections were adjusted in-season based on female abundance.

2.3 Alsek River

Although abundance-based catch sharing provisions for Alsek River salmon stocks have not yet been established, Annex IV, Chapter 1 of the PST obligates Canada and the U.S. to cooperatively develop and implement abundance-based management plans and programs for Alsek River Chinook and Sockeye Salmon. In 2013, biological escapement goal ranges for Alsek River Chinook and Sockeye Salmon were bilaterally recommended by the Transboundary Panel and adopted by the Parties (3,500 to 5,300 for Canadian-origin Chinook Salmon and 24,000 to 33,500 for Canadian-origin Sockeye Salmon). Additionally, the escapement targets were revised for Klukshu River Chinook and Sockeye salmon; these are: 800 to 1,200 Chinook and 7,500 to 11,000 Sockeye. The principal escapement-monitoring tool for Canadian-origin Chinook, Sockeye and Coho salmon stocks on the Alsek River is the Klukshu weir, which has been operated DFO in collaboration with the Champagne and Aishihik First Nations (CAFN) since 1976.

In 2020 the Parties initiated the exploration and design of basin-wide stock assessment programs to support the development of abundance-based management and more accurately assess annual Chinook and Sockeye salmon returns to the watershed. At this time, there are no programs in place to estimate Alsek River Coho Salmon returns or spawning escapement. Current abundance assessment and spawning escapement monitoring programs include: the Klukshu River multi-species video enumeration system; the Village Creek Sockeye Salmon video enumeration; and genetic stock identification of samples collected from U.S. terminal fisheries. The long-term comparative escapement index for Alsek River drainage salmon stocks is the Klukshu River count. A feasibility evaluation of new Chinook Salmon abundance assessment programs on the Blanchard and Takhanne Rivers has been initiated in order to seek to develop an improved understanding of Alsek River Chinook Salmon production. The Blanchard River feasibility project was not conducted in 2020 as a result of COVID-19 restrictions and associated operational challenges.

The 2020 Canadian Alsek River First Nation FSC fishery harvest was 22 Chinook, 218 Sockeye and 0 Coho salmon. The Champagne and Aishihik First Nations requested Citizens to reduce salmon fishing effort during the 2020 season in response to the poor pre-season forecasts for both Chinook and Sockeye salmon. The 10-year average harvest in the Canadian First Nation FSC fishery on the Alsek River is 54 Chinook, 1,027 Sockeye and 15 Coho salmon (noting that this most recent 10-year period has experienced several years of very low

Chinook and Sockeye salmon returns and associated fishery harvests). Retention of Chinook and sockeye salmon within the 2020 Alsek River recreational fishery was prohibited due to low pre-season and in-season abundance estimates and, as a result, none were retained. Although the abundance of Alsek River Coho salmon was estimated to be at or above average and recreational possession limits were liberalized, reported Coho Salmon harvest was 6 fish.

The total return of Sockeye Salmon to the Klukshu River in 2020 was 4,396 while the spawning escapement was 4,287 fish. Both the return and spawning escapement were below the most recent 10-year average of 12,400 and 12,100 respectively and lower end of the escapement goal range (7,500) was not achieved. The 2020 total Sockeye salmon count at Village Creek was 65 fish, which represents the lowest recorded abundance since 1986 (compared to the most recent 10-year average of 700 fish).

The total return of Chinook Salmon to the Klukshu River in 2020 was 1,327 while the spawning escapement was 1,316 fish. Both the return and spawning escapement were slightly above the most recent 10-year average of 1,200 and 1,180 respectively while the upper end of the escapement goal range (1,200) was exceeded.

The 2020 Klukshu River Coho Salmon count was 3,869. The Klukshu River enumeration program is not operated for the full duration of the Coho Salmon run and as a result the annual count does not represent total abundance. When used as a partial indicator of run strength, the 2020 Coho Salmon count was well-above the most recent 15 year average of ~2,500.

3 NORTHERN BC

3.1 NORTHERN BC CHINOOK AGGREGATE ABUNDANCE-BASED MANAGEMENT (AABM) FISHERIES

3.1.1 OBJECTIVES AND OVERVIEW

Escapements of Northern Chinook Salmon have declined in recent years. Reduced survival rates and reduced productivity have been observed across British Columbia and South East Alaska. Conservation measures were implemented in 2020 Salmon fisheries in response to declines in Fraser River Chinook Salmon abundance. Chinook Salmon fisheries implemented in Northern BC under the PST AABM management regime include the Northern British Columbia troll and Haida Gwaii recreational fisheries.

These fisheries are managed to an annual total allowable catch (TAC) based on the forecast abundance of the aggregate of stocks that contribute to each fishery. In Canada, conservation is the first priority in fisheries management. Once conservation obligations are met, priority access is given to First Nations for food, social, ceremonial and treaty requirements. Once those obligations are met, priority access to Chinook salmon is provided to the recreational fishery, with commercial fisheries next in priority. Management constraints to the fishery include management for stocks of conservation concern, minimizing encounters of undersized Chinook Salmon and non-target species and minimizing fisheries where legal and sublegal-sized Chinook Salmon have to be released.

3.1.2 STOCK STATUS

The pre-season distribution of the NBC AABM TAC by fishery is shown in Table 3-1 below. The total Chinook catch in the Area F Troll fishery and recreational fishery can be found in Appendix 3.

Table 3-1: Pre-Season Total Allowable Catch Estimate for NC AABM Chinook

	Pre-Season	In-Season
NC BC Troll AABM and Haida Gwaii Sport Abundance Index	1.08	-
NC BC Troll AABM and Haida Gwaii Sport Chinook TAC	133,000	-
NC BC Troll AABM Chinook TAC	92,600	Actual catch: 30,096
Haida Gwaii Sport Chinook TAC	40,400	Actual catch (preliminary): 6,807
Total NBC AABM	133,000	Actual catch: 36,903

3.1.3 RECREATIONAL FISHERIES

Due to the ongoing global COVID-19 pandemic, recreational fishing effort was markedly different than in other years. Border closures and travel restrictions significantly reduced AABM tidal sport effort, as most lodges were not in operation for much of 2020. Catch estimates are subsequently significantly lower than anticipated pre-season, but will be updated should more data become available.

Estimates of AABM tidal sport catches near the mainland coast of Northern BC were obtained from creel surveys and lodge catch reports from lodges operating on Haida Gwaii. The recreational fishery maintained full daily limits of two daily and four possession. A minimum size limit of 45 cm was in effect and barbless hooks were mandatory in the sport fishery. Virtually all sport releases in AABM areas are legal sized.

In Area 1, the recreational salmon fishery primarily occurs between Masset and Lanagara Island along the north shore of Graham Island. In Area 2W, the recreational salmon fishery primarily occurs between Englefield Sound and Port Louis. The Chinook Salmon fishery in east Skidegate during late winter and early spring was reported to be average. While the harvest of Chinook in Area 2E is unknown, it is assumed to be fewer than 500 pieces and a small proportion of the recreational catch in Areas 1 and 2W. Recreational effort (>99%) primarily occurs in Area 1 and 2W. The majority of the fishery normally occurs between mid-May and mid-September with little effort in the winter.

3.1.4 COMMERCIAL FISHERIES

The North Coast BC troll fishery opening for Chinook fishing was delayed and opened from August 15 to September 30 as part of fishery restrictions designed to pass through Fraser Summer 4_1 (South Thompson) Chinook to Fraser River fisheries. The entire 2020 Northern BC troll fishery was conducted under a system of individual transferable quotas. The size limit was 67 cm and barbless hooks and revival boxes were mandatory. No troll test fisheries were conducted in the North Coast of BC in 2020.

3.2 NORTHERN BC CHINOOK INDIVIDUAL STOCK-BASED MANAGEMENT (ISBM) FISHERIES

3.2.1 OBJECTIVES AND OVERVIEW

Northern BC Chinook Individual Stock-Based Management (ISBM) Fisheries include commercial net fisheries throughout north and central BC, marine sport fisheries along the mainland coast and in freshwater, and First Nations fisheries in marine and freshwater areas. The PST obligations in these fisheries are for a general harvest rate reduction (estimated in aggregate across fisheries) for ocean mixed stock fisheries and for stock-specific objectives (i.e., achieving the escapement goal) in terminal areas.

3.2.2 STOCK STATUS

Since assessments of the ISBM fisheries are relative to the escapements achieved in the Chinook indicator stocks, a brief overview of the 2020 returns is provided. Preliminary Chinook escapements to the upper Nass River were 12,868 (based on mark-recapture data). The preliminary estimated 2020 escapement for the Skeena River aggregate was 14,500 Chinook and is based on a Kitsumkalum River estimate of 4,500 fish. The preliminary estimated total escapement in the Bella Coola/Atnarko River in 2020 was 11,600 Large Chinook and is based on the maximum likelihood estimate. These estimates will be refined by the Chinook Technical Committee.

The total Chinook catch in the Tyee Test fishery on the Skeena River was 550 (392 Large Chinook and 158 Jack Chinook). ISBM catch data can be found in Appendix 3.

3.2.3 FIRST NATIONS FSC FISHERIES

A total of 4,816 large Chinook were reported caught by First Nations in Areas 3 and 4. In addition, Nisga'a Treaty catch was reported at 5,577 Chinook (all in Area 3/Nass River). First Nations' catches in marine waters of Areas 4 to 6 were reported as 819 Chinook. First Nations catch in Areas 1 to 3 were not reported at the time of this document. A total of 2,520 Chinook were reported caught in Areas 6, 7 and 8. No Chinook catches were reported by First Nations in Rivers Inlet (Area 9) or Smith Inlet (Area 10).

3.2.4 RECREATIONAL FISHERIES

3.2.4.1 TIDAL WATERS

Estimates for tidal sport catches near the mainland coast of Northern BC were obtained from a creel survey conducted in Areas 3 and 4 in 2020. Chinook daily limits started at 2 per day, but were reduced in Area 3, 4, and 5 to 1 (one) Chinook per day from May 31, 2020 to July 15, 2020. This reduction was planned pre-season, and was designed to address concerns to forecast weak returns of Skeena Chinook, and to provide for FSC priority access.

Area 6 had a daily limit of 2 per day for the 2020 season.

Tidal sport catch from lodges operating in the Smiths Inlet, Rivers Inlet, Hakai Pass and Bella Bella areas were estimated using log books.

For 2020, recreational fishing lodge operations were significantly reduced by the restrictions in place due to COVID-19. Most lodges did not operate, while others operated at a significantly reduced capacity.

3.2.4.2 NON-TIDAL WATERS

The Skeena River watershed started with normal daily limits and opening times for Chinook, Coho, and Pink Salmon in 2020. Sockeye started closed on the Skeena River.

From May 21, 2020 to July 14, 2020, the Department closed the entire Skeena River watershed to fishing for Chinook salmon. This closure was planned pre-season, and was designed to address concerns to forecast weak returns of Skeena Chinook, and to provide for FSC priority access.

The Nass River watershed started with normal daily limits and opening times for Chinook; however, closed to all fishing for salmon on July 1, 2020 in reaction to poor Sockeye escapements in order to provide for FSC priority access. The Nass River remained closed to fishing for Chinook for the remainder of the 2020 season.

3.2.5 COMMERCIAL FISHERIES

Chinook commercial fisheries were closed in the North Coast (Areas 3-10), except for limited opportunities Area 8. In Area 8, the gillnet fishery opened for 24 hours on June 16, 2020. Due to concerns related to COVID-19, this was the only targeted Chinook opening in Area 8. Chinook retention was allowed during Chum targeted opportunities in July. Due to poor escapements of Chum Salmon, there were only three targeted Chum fisheries in Area 8. In total, there were 4 openings in Area 8, with a total effort of 436 boat days.

Refer to Appendix 3 for Chinook catch totals.

3.3 NORTHERN BC PINK SALMON FISHERIES

3.3.1 OBJECTIVES AND OVERVIEW

In 2020, Canada was to manage the Area 3-1 to 3-4 net fisheries to achieve an annual catch share of 2.49% of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 Pink Salmon. The total return of Pink Salmon to Alaskan Districts 101, 102 and 103 was not available at the time of publication.

Canada was also to manage the Area 1 troll fishery to achieve an annual catch share of 2.57% of the annual allowable harvest (AAH) of Alaskan Districts 101, 102 and 103 Pink Salmon.

3.3.2 COMMERCIAL FISHERIES

Areas 3-1 to 3-4 Pink Net Catch

In the Canadian Northern Boundary Area, Pink Salmon returns were anticipated to be below average for Areas 3 and 4, based on brood year return strength. Actual returns to Area 3 were higher than anticipated, while the Area 4 returns were below average.

Area 1 Pink Troll Catch

The Canadian commercial troll fishery targeting Pink Salmon with retention of Coho Salmon was open in the northern portion of Area 101 (Dixon Entrance AB Line) from July 1 to August 1, and then expanded to the rest of Area 1 until it the fishery closed on September 30. Pink retention was also permitted during the Chinook directed fishery in parts of Area 1 which opened from August 15 to September 30. Area 1 and 101 Pink Salmon directed effort was minimal and the total Pink catch in the Area F Troll fishery and recreational fishery can be found in Appendix 3. Area F retained catch of 136,890 Pink Salmon was improved over recent years averages.

4 SOUTHERN BC CHINOOK SALMON

4.1 SOUTHERN BC AGGREGATE ABUNDANCE-BASED MANAGEMENT (AABM) CHINOOK

4.1.1 OBJECTIVES AND OVERVIEW

Chinook fisheries are managed by either an aggregate abundance-based management (AABM) or individual stock-based management (ISBM) regime. Allowable harvest impacts in AABM areas are determined by provisions in the PST and subject to domestic considerations, such as conservation and allocation. In Southern BC, all AABM Chinook fisheries are located off the West Coast Vancouver Island (WCVI), including components of the recreational fishery, First Nations fisheries and the Area G troll fishery.

For the period of October 2019 through September 2020, the forecast Chinook abundance index was 0.75 of the PST base period; therefore, under Treaty provisions, the maximum allowable catch was 87,000 Chinook for WCVI AABM fisheries, which includes a 12.5% reduction consistent with the treaty provisions that came into effect in January 2019.

Domestic considerations for managing Chinook catch in WCVI AABM fisheries are driven by concerns regarding the low status of natural WCVI, Lower Strait of Georgia (LGS) and Fraser River Chinook, as well as Interior Fraser Coho and Interior Fraser River (IFR) Steelhead populations. Management measures in AABM Chinook fisheries to limit impacts to these domestic stocks of concern are summarized in the fishery subsections.

To protect returning Fraser Chinook stocks of concern, the Area G troll fishery was closed until August 1, 2020. Additionally, a 27-day rolling window closure was applied in portions of September/October to protect IFR Steelhead.

The pre-season planning distribution of the total WCVI AABM TAC by fishery is shown in Table 4-1 below.

AABM Chinook catch and release information from all fisheries can be found in Appendix 4.

Table 4-1 Pre-Season Total Allowable Catch Estimate for October 2019 to September 2020 WCVI AABM Chinook

	Pre-Season	In-Season
WCVI AABM Abundance Index	0.75	0.75
WCVI AABM Chinook TAC	87,000	
AABM Recreational Harvest Projection	40,000	Actual catch: 13,741*
First Nations Harvest Projection (FSC)	5,000	Actual catch: 1,758
Maa-nulth First Nations Domestic Allocation (FSC)	3,424	Actual catch: 1,951
Five Nations Allocation	7,724	Actual catch: 4,170
Area G Troll Allocation	30,852	Actual catch: 11,350
Total AABM	87,000	32,970

*Note that this is a preliminary catch estimate and does not include catch from June 2020.

4.1.2 FIRST NATIONS DOMESTIC AND FSC FISHERIES

The 2020 WCVI AABM FSC Chinook reported catch (to date) can be found in Appendix 4. Catch from Maa-nulth Nations Domestic fisheries can also be found in Appendix 4.

4.1.3 FIRST NATIONS COMMERCIAL HARVEST

Five Nations Communal Sales Fishery

In 2020, the Department provided communal sale fishery opportunities for the Five Nations (five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht and Tla-o-qui-aht) that included AABM Chinook. These opportunities were categorized as Offshore Integrated Hook and Line communal sale fisheries.

The AABM Chinook allocation was 7,724 pieces. The fishery was carried out in portions of Areas 24, 25, 26, 124, 125 and 126 on the west coast of Vancouver Island over several openings from May to November. A 100% independent dockside monitoring program was in place for the entire season. Sale of Chum, Pink and marked Coho was also permitted, as well as several groundfish species. Total salmon catches from this fishery can be found in Appendix 4.

4.1.4 COMMERCIAL FISHERIES

For the 2019/2020 Chinook year (October 1, 2019 to September 30, 2020), fisheries were shaped by conservation concerns for the following domestic stocks: Fraser River Spring 4_2 Chinook, Fraser River Spring 5_2 and Summer 5_2 Chinook, WCVI wild Chinook, LGS Chinook, IFR Coho and IFR Steelhead.

The distribution of the WCVI AABM TAC between fisheries is shown above in Table 4-1.

Area G Troll

The Area G troll annual management plan is designed to maintain exploitation rates (ERs) on domestic stocks of concern within established limits through the use of fishing time and area closures in conjunction with fishing effort limits. The management plan is subject to change when required to address specific conservation concerns. For the 2020 fishing season, the following changes to the annual fishing plan were implemented similar to 2019:

- Additional conservation measures to further protect low returns of Fraser River Chinook were implemented. For Area G troll this was addressed by implementing a fishery closure that remained in place until August 1, 2020.
- A 27-day rolling window closure starting in September was applied to protect IFR Steelhead.

The Area G catch in 2020 occurred in one opening from August 1 to September 15. Catch is summarized in Appendix 4.

4.1.5 RECREATIONAL FISHERIES

The WCVI AABM recreational Chinook fishery primarily takes place in offshore Areas 121 to 127 from June to September. Chinook catch from inshore Areas 21 to 27 in June and Areas 21 to 24 in July are also included in the AABM estimate. Catch and effort are largely driven by abundance and weather, and together both have impacts on annual harvest. Previous sampling has indicated that there is minimal AABM catch and effort outside of this period. In 2020 the Creel Survey was not conducted in the month of June due to the impacts of Covid-19, so total catch estimates are preliminary and do not include catch from June 2020.

Domestic Chinook management measures are in place in the near-shore AABM areas to protect migrating WCVI-origin Chinook. In 2020, management measures continued to include finfish closures in several areas, increasing terminal Chinook non-retention areas, and focussing recreational opportunities in areas where DNA samples indicated that WCVI Chinook presence is lower.

The domestic management actions that were implemented in 2019 continued in 2020 designed to further protect Fraser River Chinook populations. This includes a Chinook non-retention area in effect from April 1 to July 14 (inclusive) in Areas 121 to 127 seaward of a 1 nm surfline boundary and a maximum size to 80 cm for Chinook from July 15 – to July 31.

Chinook catch in the AABM recreational fishery is estimated through several catch monitoring programs, including a creel survey, a logbook program and DFO's electronic survey information (iREC). The creel survey continues to be the most utilized catch monitoring program in this area particularly because it collects effort (number of boat trips), and catch per unit effort data. Catch for any given species within a defined time-area stratum is estimated by multiplying effort estimates by CPUE. Total effort is estimated through vessel counts, gathered through either aerial or on-water boat surveys of the fishing area. CPUE is estimated from interviews with anglers at specific landing sites and from trip logbooks and manifests submitted by lodges and guides through a voluntary monitoring program. Logbook effort is removed from effort estimates where there is overlap. Data regarding the daily activity profile of the fishery, fishing locations, and the proportion of guided versus un-guided effort are also gathered from angler interviews.

The Chinook recreational catch estimate from the creel survey for the 2020 WCVI AABM fishery is provided in Appendix 4.

See Figure 4-1 below which illustrates catch and effort from 2000 through 2020.

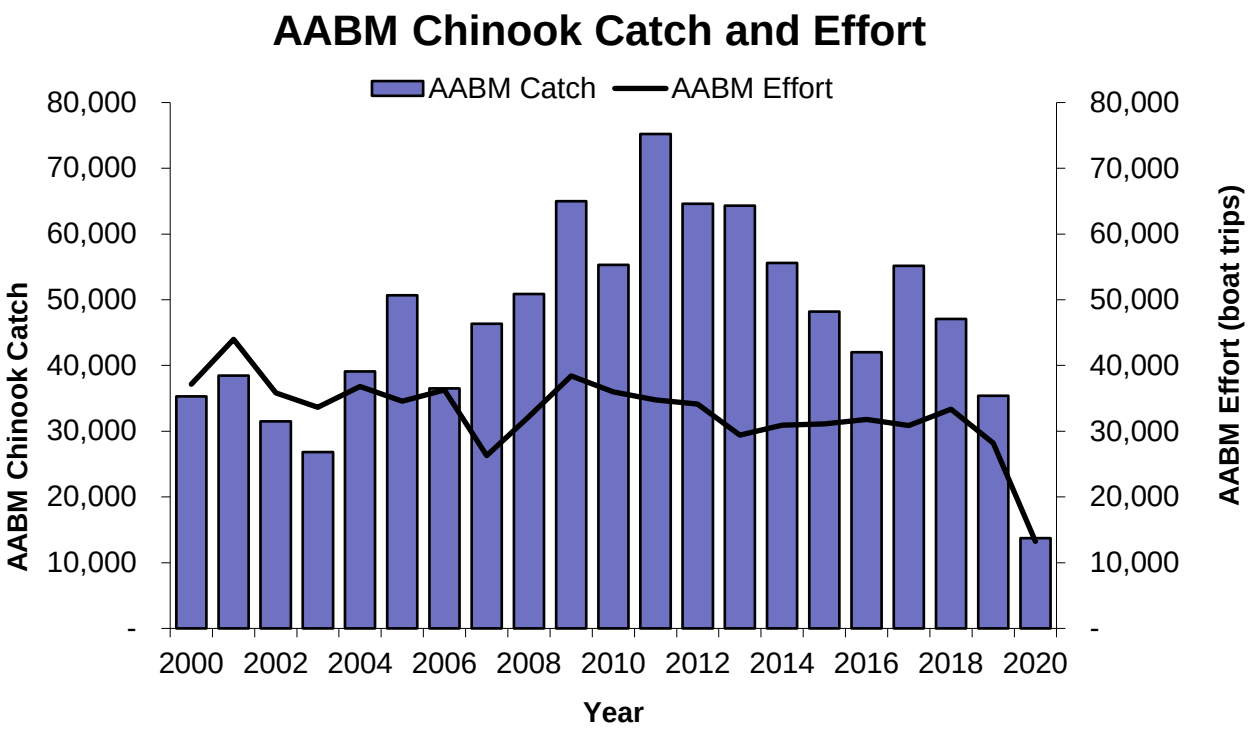

Figure 4-1 WCVI Recreational AABM Catch and Effort- Chinook, 2000-2020

4.2 SOUTHERN BC CHINOOK INDIVIDUAL STOCK BASED MANAGEMENT (ISBM) FISHERIES

4.2.1 OBJECTIVES AND OVERVIEW

In addition to the PST regime, Canada implemented management actions as required to ensure conservation of Canadian-origin Chinook and to meet domestic allocation requirements. These Chinook fisheries were managed to harvest rates on an individual stock basis (ISBM).

Measures were taken in 2020 in First Nations FSC, recreational and commercial Chinook fisheries to protect West Coast Vancouver Island (WCVI), Southern Strait of Georgiaand Fraser River Chinook stocks of concern.

Specific management actions were taken to protect WCVI-origin Chinook in Canadian ocean fisheries (not including enhanced terminal areas), the harvest of which is managed to an ER of 10%. Fisheries to which this limit applies are the northern troll, Haida Gwaii recreational, WCVI troll and WCVI recreational. Most Southern BC fisheries were managed such that impacts on WCVI wild Chinook stocks were minimized, with the exception of terminal fisheries focussed on enhanced stocks.

Southern Strait of GeorgiaChinook stocks are improving from historic lows seen in 2009 and are stable or rebuilding. Significant management measures in recreational and commercial fisheries continued to be in place to protect these stocks. Some LGS Chinook stocks are seeing a gradual increase in terminal returns, particularly in the Cowichan River.

A suite of highly-precautionary fishery restrictions were intended to provide a high degree of protection to at-risk Fraser Spring 4_2, Spring 5_2 and Summer 5_2 Chinook returning in 2020. This approach was expected to to reduce overall Canadian fishery mortalities on these populations to very low levels (e.g. approaching 5%). Expected fishery mortalities were not intended to be a management target and the objective was to allow as many fish to pass through to the spawning grounds as possible.

First Nations FSC management actions in the Fraser River included time and area closures, and reduced fishing times. Specifically, Fraser River First Nations food, social and ceremonial fisheries were restricted to unplanned events (e.g. funerals) or First Fish ceremonies until July 15 followed by opportunities to target healthy Summer 4_1 Chinook primarily in August.

South Coast FSC fisheries opportunities on mixed stocks over the period of April 1 to June 18 were permitted with approved fishing plans and using selective gear. Commencing June 19 fisheries were unrestricted in marine areas with the exception of the approaches to the Fraser River (Subareas 29-6, 29-7, 29-9 and 29-10).

Recreational fisheries in Johnstone Strait, Strait of Georgia, Juan de Fuca Strait, and the approach waters to the Fraser River were managed to Chinook non-retention between April 1 and varying dates between July 14 and August 31, with a maximum size limit of 80 cm in effect where Chinook retention was permitted before August 31.In 2020, commercial fisheries in Barkley Sound and Nootka Sound targeted ISBM Chinook. Chinook non-retention was in place for other southern BC commercial fisheries (excluding AABM Chinook).

ISBM Chinook catch and release information from all fisheries can be found in Appendix 4.

4.2.2 STOCK STATUS

4.2.2.1 WEST COAST VANCOUVER ISLAND CHINOOK

Wild WCVI Chinook are a stock of concern. While stocks are low and stable, they are below target and have not rebuilt from low abundances that resulted from a decline in productivity observed during the early to mid-1990s. Of particular concern are those stocks that originate from the SWVI area conservation unit (i.e. Clayoquot Sound).

Hatchery production supports terminal fisheries directed at surplus production with extensive management measures in place to reduce impacts on wild origin stocks. For WCVI hatchery stocks, the terminal return is defined as total catch (First Nations FSC, sport and commercial) in the near approach areas of the hatchery plus escapement (brood collection plus natural spawners and ESSR if applicable). In these approach areas, catch is dominated by the hatchery stock (e.g. > 95%); therefore, higher ERs are permitted than in times and areas dominated by naturally produced WCVI Chinook stocks.

Due to Covid-19, the test fishery conducted near the Mquq^{W}in / Brooks Peninsula from 2016 to 2019, did not occur in 2020. The objective of the test fishery was to assess the ability to improve the precision and accuracy of annual WCVI Chinook return estimates.

4.2.2.2 STRAIT OF GEORGIA CHINOOK

Fall Season

Adult returns of fall Chinook to SEP facilities south of Campbell River were average to above average again in 2020. Puntledge River escapements were strong with 9,034 adults returning compared to the 10 year average of 6,834. Further south, the Big Qualicum River escapement was well above the 4 year average of 6,980 with 10,958 returning adults. Counts in the Little Qualicum River were average at 5,002 but will be subject to an area under the curve (AUC) expansion at the end of the season.

Chinook escapement to mid-island streams was variable in 2020. The unexpanded peak count of 480 adults in the Englishman River will likely compare similarly to the AUC expanded 12 year average of 870 by the end of the season. Nanaimo River counts were near the four year average with a return of 2,498 adults and 1,532 jacks to date. Cowichan River escapement estimates were above the target of 6,500 naturally spawning adults for the fifth year in a row with a preliminary estimate of 9,100 fish. Jack returns to Cowichan were similar to those observered in 2017 which produced large returns of subsequent age classes in 2018 and 2019.

On the mainland side of the northern Strait of Georgia, Sliammon and Lang hatcheries continue to have variable returns; however, in the last five years the returns to Lang Creek have been stronger than in previous years with 1,739 adults in 2019 (4 year average 1,130). 2020 Lang Creek returns are not yet available. Adult Chinook returns to Sliammon Creek werw very low in 2020 with only 12 fish observed compared to the 12 year average of 110.

There are a few very small, wild populations remaining in the Theodosia and Skwakwa rivers, and those rivers entering Jervis Inlet, where assessment data are poor or not available. Historically, a large proportion of the Chinook stock aggregate originating from rivers north of Nanaimo migrate into central and northern BC and Alaska. ERs on this stock aggregate have gradually been reduced over the last 15 years, thus the stable trend in annual returns to rivers over this period suggests a reduction in marine survival.

Spring/Summer Season

The Puntledge, Nanaimo and more recently the Cowichan systems have identified early runs of Chinook in the Strait of Georgia. Efforts to recover Puntledge summers to viable levels have resulted in improved returns to the river since 1999. The 2020 escapement estimate for Puntledge was 400 fish including jacks, which is less than the four year average of 750 adults. This was not unexpected due to reduced hatchery releases in contributing brood years. Monitoring of Nanaimo spring/summer Chinook escapement was improved in 2020 with a series of swims from May through September. Several surveys of the reach upstream of second lake where spring run fish are believed to reside produced a peak count of three jacks. A total of 221 summer run adults for 2020 was below the 4 year average of 670. The Chemainus River was not surveyed in 2020. Recent counts in this system have been very low but the rock slide in the lower canyon was cleared naturally in winter 2018/2019, restoring access to a significant portion of the system.

4.2.2.3 JOHNSTONE STRAIT MAINLAND INLET CHINOOK

Currently only three systems are monitored consistently. In Area 12, the Nimpkish River is assessed using standardized swim surveys by hatchery staff. In Area 13, the Campbell/Quinsam and Phillips rivers are assessed by intensive mark-recapture programs. The Campbell/Quinsam is a long-term Chinook indicator, assessed yearly since 1984 (program carried out by Quinsam Hatchery). Survey coverage was also increased on systems like the Adam/Eve and Salmon rivers on Vancouver Island. Mainland Pink coverage timing also overlaps some

of the Chinook populations in the mainland inlets of Area 12. Other systems are covered using intermittent visual surveys.

Nimpkish River

In 2020, observations of Chinook abundance were up relative to both the 2019 and 2016 (BY) returns. The preliminary estimate of 2,800 Chinook (peak count 915) is double the 5-year average (1,474) and approximately 40% larger than the dominant 2016 parental brood year (1,996). Hatchery broodstock targets were met.

Campbell/Quinsam System

The 2020 program has the combined system preliminary Chinook escapement estimate at approximately 10,000 adults; the last return at this level occurred in 2004. Similar, but slightly lower abundances (~9,500) returned in 2006 and 2017. The 2020 Chinook escapement is above the 5- and 10-year averages for this system, as well as the long term (1984-2019) average (6,991). The 2016 parental brood year for the returning age-4s was approximately 7,550. The 2020 broodstock target was attained by the hatchery.

Phillips River

Preliminary results for the 2020 Phillips River program indicate an above average Chinook escapement estimate of 3,359 adults. The 5-year historic average for this system is approximately 2,100. The 2019 brood was the final enhanced release of Phillips Chinook; the mark-recapture program will continue.

4.2.2.4 FRASER RIVER CHINOOK

Fraser River Chinook are assessed as five naturally spawning stock groups for PSC management under the 2019 PST agreement including Fraser Spring 4_2, Fraser Spring 5_2, Fraser Summer 5_2, Fraser Summer 4_1 and the Harrison River (Fall 4_1).

Within the Fraser, there are four active and one discontinued CWT-indicator stocks: Nicola River (Fraser Spring 4_2), Lower Shuswap (Fraser Summer 4_1), Harrison River and Chilliwack River (Fraser Fall 4_1) and Dome Creek (Fraser Spring 5_2) that was discontinued in 2005. Two new CWT-indicator stocks are under development: Lower Chilcotin River (Fraser Spring 5_2) to replace Dome Creek and Chilko River (Fraser Summer 5_2).

Escapements to the Fraser Summer 4_1 stock group increased during the 1990s and remained abundant until 2011; followed by lower years in 2012, 2014 and 2016-2018. The 2020 spawning escapements are not yet available; however, very preliminary estimates indicate that the aggregate escapement will be higher than the long-term average and parental brood in 2016 except for Maria Slough where abundance was extremely low. The 2020 very preliminary escapement estimate for Lower Shuswap exceeds the escapement goal of 12,300.

In 2019, the Big Bar Landslide on the Fraser Mainstem obstructed migration of some populations in the Fraser Spring 5_2 and Fraser Summer 5_2 stock groups. For Chinook returning to rivers upstream of the landslide, 13% of the Spring and 48% of the Summer Chinook were estimated to be able to pass the landslide and return to their spawning grounds in 2019. Since there are populations within these stock groups that are downstream of the slide, the overall mortality relative to the terminal runs were 81% for the Spring 5_2 stock group and 39% for the Summer stock group. Passage of Chinook salmon through Big Bar Landslide occurred at higher flows in

2020 compared to 2019; however, prolonged high water levels delayed passage in 2020. Big Bar Landslide passage and mortality rates are not yet available for 2020.

The 2020 Spring 5_2 stock group spawning escapement estimate based on the CTC index for the aggregate is not yet available. The very preliminary escapement estimate indicates that on average they are below brood and close to the long-term (1999-2018) average. However, there is considerable variation amongst the populations in the stock group.

The 2020 Summer 5_2 stock group spawning escapement estimate based on the CTC index for the aggregate is not yet available. The very preliminary escapement estimate indicates that on average they are below the parental escapement brood in 2015 and below the long-term (1999-2018) average. However, there is considerable variation amongst the populations in the stock group.

The Fraser Spring 4_2 stock group spawning escapement for 2020 based on the CTC index for the aggregate are not yet available. The very preliminary escapement estimate is below the parent brood escapement in 2016 and for those systems that escapement estimates are available, it is below the recent average. The very preliminary Nicola River escapement estimate is higher than the parental brood and lower than the long-term (1999-2018) average.

The Harrison River (Fraser wild Fall 4_1 stock group) escapement estimate for 2020 is not yet available. The very preliminary estimate is higher than the parental brood in 2016, lower than the long-term (1999-2018) average of 83,754 and lower than escapement goal of 75,100. The Harrison River escapement estimate has only met the escapement goal once in the past nine years.

There have been five consecutive years (2016-2020) of low escapements to the three Fraser stock groups with yearling smolt life history (Spring 4_2, Spring 5_2; and Summer 5_2) and also to the Harrison (Fall 4_1). These four stock groups are of continuing conservation concern. Canadian marine and Fraser River fisheries were further restricted in 2020 to continue to address these conservation concerns.

4.2.3 FIRST NATIONS DOMESTIC AND FSC FISHERIES

WCVI FSC Fisheries and Treaty Domestic Fisheries

Somass First Nations (Tseshaht and Hupacasath First Nations) caught Chinook by gill net, rod and reel, and as bycatch during other salmon fisheries in Area 23. Catch reports for Maa-nulth Treaty harvest and WCVI Nuu-chah-nulth FSC harvest can be found in Appendix 1.

Strait of Georgia FSC Fisheries and Treaty Domestic Fisheries

Chinook Salmon FSC and Treaty Domestic fisheries were very limited in the Strait of Georgia from April 1 to June 18, 2020 to protect Fraser River-bound Chinook Salmon stocks of concern. Over this period, very limited harvests took place using hook and line gear by approved fishing plan. Terminal harvests of Chinook took place in Puntledge and Qualicum Rivers in September and October, using hatchery brailing and hand-picking/sorting methods. Chinook Salmon were also harvested in hook and line and gill net fisheries in Cowichan and Nanaimo Rivers from late September through October. Tla’amin Treaty and other First Nations catch reports in the Strait of Georgia can be found in Appendix 1.

Johnstone Strait FSC Fisheries

Chinook Salmon FSC Fisheries were very limited in most of Johnstone Strait from April 1 to June 18 in 2020 to protect Fraser River-bound Chinook Salmon stocks of concern. Over this period, very limited harvests took place using hook and line gear by approved fishing plan. First Nations catch summaries from Johnstone Strait can be found in Appendix 4.

Fraser River FSC Fisheries

FSC fisheries took place in the Lower Fraser River (LFR) between the mouth and Sawmill Creek from April through November 2020. The total number of Chinook harvested from Chinook-directed fisheries and Chum-directed FSC openings or limited participation openings, can be found in Appendix 3 and Appendix 4. No Sockeye-directed fisheries were authorized in 2020. Sockeye, Pink, Coho and Chum bycatch that occurred during Chinook-targeted FSC openings is also listed in those appendices.

Chinook-directed FSC fisheries took place in the Fraser River and tributaries above Sawmill Creek from June through early October 2020. The total of Chinook harvested, as well as bycatch estimates can be found in those appendices.

4.2.4 FIRST NATIONS COMMERCIAL HARVEST

Somass Economic Opportunity

In 2020, agreements were reached with the Hupacasath and Tseshaht First Nations for Economic Opportunity (EO) fisheries; however, Hupacasath was the first with an agreement and had some EO openings before Tseshaht signed an EO agreement. The fisheries occurred in portions of Subareas 23-1 and 23-2, in upper Alberni Inlet, including the tidal portion of the Somass River. The target species was Chinook with bycatch Coho and Chum allowed to be retained for FSC. There were several EO Chinook openings from August 23 to September 30. The initial EO TAC for Chinook was 20,355 in 2020 and was raised with run size upgrades to 27,481. The total EO Chinook catch and Coho bycatch can be found in Appendix 4.

Five Nations Communal Sales Fishery

In 2020, the Department provided communal sale fishery opportunities for the Five Nations (five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht and Tla-o-qui-aht) that included ISBM Chinook. These opportunities were categorized as Nearshore Integrated Hook and Line, Terminal salmon fisheries and a Surplus to Escapement Salmon fishery

The Nearshore Integrated Hook and Line fisheries occurred in Area 25 and targeted Conuma River enhanced Chinook using troll and gillnet gear and Coho using troll gear. Fishery openings for Conuma Chinook occurred between July 10 and August 31. The initial in-season TAC was 2,629 Chinook.

The Terminal fishery targeted Burman and Gold River enhanced Chinook returns in Muchalat Inlet using troll gear. Fishery openings occurred between August 8 and September 25.The initial in-season TAC was 250 Chinook.

The Surplus to Escapement Salmon fishery targeted Conuma River enhanced Chinook in the approach waters and tidal portions of the Conuma River using gillnet and beach seine gear to harvest excess salmon to spawning requirements. Fishery openings occurred between September 4 and September 14. Surpluses to escapement were identified in-season based on Conuma Hatchery and stock assessment information.

The total Chinook catch from the Five Nations Communal Sales Fisheries targeting Conuma, Burman and Gold River Chinook can be found in Appendix 4. Coho caught in Chinook directed fisheries were also permitted to be sold.

Fraser River Economic Opportunity and Inland Demonstration Fisheries

EO or inland demonstration fisheries did not occur in 2020 for ISBM Chinook in either the upper or lower reaches of the Fraser River as part of additional management actions to provide protection for Fraser Chinook stocks.

In 2020, no EO or demonstration fisheries occurred for Fraser Sockeye due to extremely low returns and no available Canadian Commercial TAC (CCTAC). There is currently one Inland Commercial Fishing Enterprise (CFE) operating in the Lower Fraser: Harrison Fisheries Authority. This CFE was not authorized to conduct a demonstration fishery for Sockeye using gill nets in the Harrison River; as the run size for the Harrison River Sockeye return was not sufficient to support a fishery. Therefore, there were no incidental impacts on Chinook from these fisheries.

It was not a Pink year therefore no EO and or demonstration fisheries occurred for Fraser Pink in the LFR in 2020 by the Harrison Fisheries Authority and the 16 communities from the Port Mann Bridge to Sawmill Creek. Therefore, there were no incidental impacts on Chinook from these fisheries.

In 2020, there was an EO/ Demonstration fishery for Fraser Chum occurring in the lower reaches of the Fraser River. The total Chinook catch from the Fraser Chum EO/Demonstration fishery can be found in Appendix 4.

There are three Inland CFEs that have operated in the BC Interior: Okanagan Nation Alliance, Upper Fraser Commercial Fishing Enterprise and Riverfresh (Secwepemc Fisheries Commission). In 2020, ONA was the only inland CFE fisheries that conducted commercial fisheries operations.

4.2.5 COMMERCIAL FISHERIES

Area B Seine

Due to a relatively large pre-season forecast of 91,000 Chinook for Robertson Creek Hatchery, Area B seine fisheries were provided in Area 23. The fisheries occurred in portions of Subarea 23-1 and 23-2, upper Alberni Inlet, targeting Chinook. Due to low WCVI Coho forecasted returns retention was not permitted in any commercial fisheries. The fisheries were operated using a pool system with only designated vessels permitted to fish. The fishery opened daily from August 26-27, September 9-11 and Sept 13-16. The Area B in-season TAC was 6,425 Chinook. The seine Chinook catch can be found in Appendix 4.

Area D Gill Net

Area D gill net fisheries were provided in Area 23. The fisheries occurred in portions of Subarea 23-1 and 23-2, in upper Alberni Inlet, targeting Chinook with no bycatch of Coho allowed. The fisheries were opened one night a week in the last two weeks of August. Due to the success of the August 30 opening in particular there was only one opening in mid-September. The fisheries occurred on August 25, 30 and September 18. The Area D in-season TAC was 11,930 Chinook. The total gillnet Chinook catch can be found in Appendix 4.

In 2020, a gill net fishery occurred in Tlupana Inlet (Area 25) targeting Conuma River Chinook. The Area D in-season TAC for Conuma Chinook was 6,121. There was one opening on August 12. The total gillnet catch during the Chinook-directed fishery can be found in Appendix 4.

Area E Gill Net

There were no Area E gill net fisheries for ISBM Chinook on WCVI in 2020.

There were three Area E gill net commercial Chum openings in the Fraser River (Area 29) in 2020 during the week of November 2 with a total cumulative encounter of 18 Chinook (released) and no Chinook kept (mandatory non-retention of Chinook in place).

4.2.6 RECREATIONAL FISHERIES

ISBM Chinook catch and release information from all fisheries can be found in Appendix 4.

West Coast Vancouver Island

In 2020, a strong return of Chinook was expected to the Robertson Creek hatchery and a moderate return to the Conuma River hatchery. Actual returns were above forecast for Robertson Creek and around forecast for Conuma River, and provided recreational fishing opportunities in terminal areas supported by these enhanced stocks.

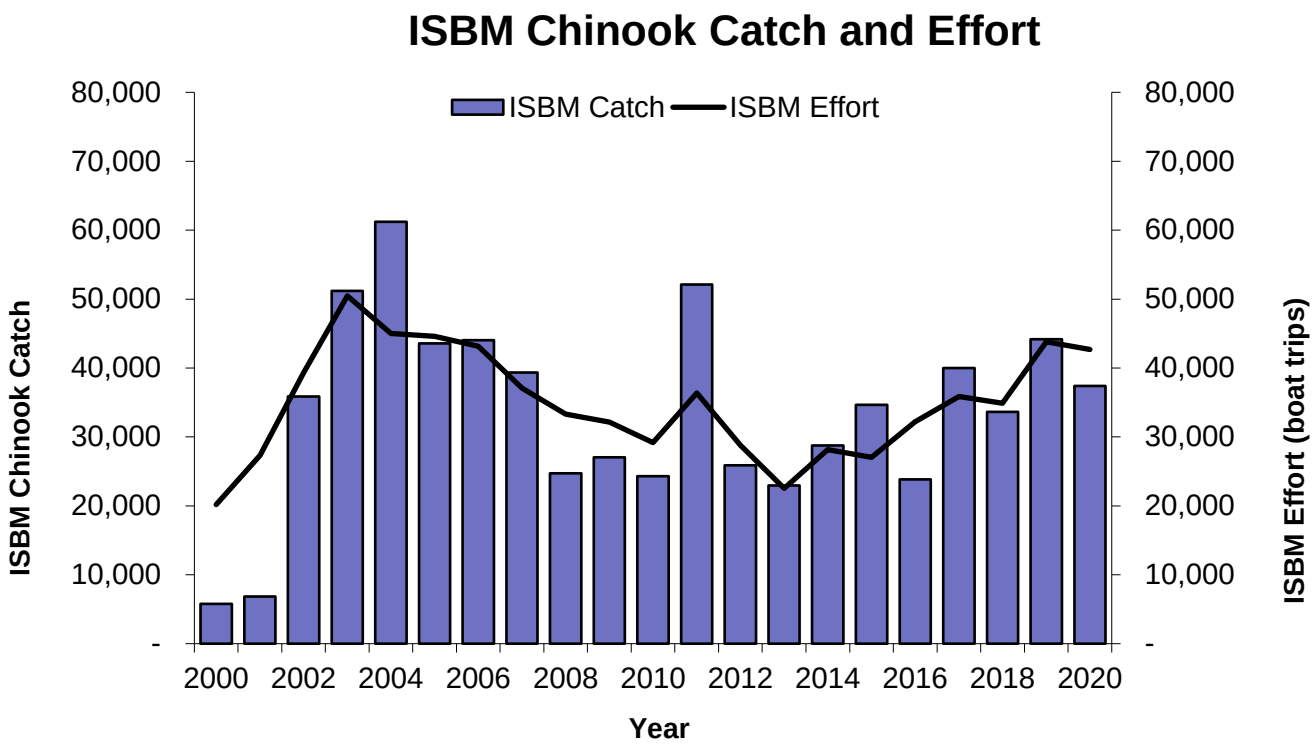

Figure 4-2 Recreational WCVI Chinook ISBM Catch and Effort, 2000 to 2020.

Inside Areas: Johnstone Strait, Strait of Georgia and Juan de Fuca Strait

The 2020 recreational fisheries in the Inside Areas Recreational fisheries in Johnstone Strait, Strait of Georgia, Juan de Fuca Strait, and the approach waters to the Fraser River were managed to Chinook non-retention between April 1 and varying dates between July 14 and August 31, with a maximum size limit of 80 cm in effect where Chinook retention was permitted before August 31 to minimize impacts on returning Fraser River Chinook stocks of concern.Salmon closures and Chinook non-retention areas were also implemented in portions of the Fraser River approach waters, Southern Gulf Islands and Juan de Fuca Strait to support the recovery of Southern Resident Killer Whales.

The following regulations were in place for the inside areas for 2020:

Queen Charlotte and Johnstone Straits (Subareas 12-1 to 12-13, 12-15 to 12-48):

- 00:01 hours January 1 to 23:59 hours March 31, two (2) Chinook per day;
- 00:01 hours April 1 to 23:59 hours July 14, Chinook non-retention;
- 00:01 hours July 15 to 23:59 hours August 16, one (1) Chinook per day with a maximum size limit of 80 cm;
- 00:01 hours August 17 to 23:59 hours August 31, one (1) Chinook per day;
- 00:01 hours September 1 to 23:59 hours December 31, two (2) Chinook per day.

Strait of Georgia - North - Areas 13 to 17, Area 28 and Subareas 29-1 and 29-2:

- 00:01 hours January 1 to 23:59 hours March 31, two (2) Chinook per day;
- 00:01 hours April 1 to 23:59 hours July 14, Chinook non-retention;

- 00:01 hours July 15 to 23:59 hours August 31, one (1) Chinook per day with a maximum size limit of 80 cm;
- 00:01 hours September 1 to 23:59 hours December 31, two (2) Chinook per day.

Strait of Georgia - South and Juan de Fuca - Areas 18, 19 and Subareas 20-3 to 20-7, 29-3 to 29-5 and 29-8:

- 00:01 hours January 1 to 23:59 hours March 31, two (2) Chinook per day.
- 00:01 hours April 1 to 23:59 hours July 31, Chinook non-retention;
- 00:01 hours August 1 to 23:59 hours August 31, one (1) Chinook per day with a maximum size limit of 80 cm;
- 00:01 hours September 1 to 23:59 hours December 31, two (2) Chinook per day.

In 2020 pilot opportunities in near-shore and terminal areas were as follows:

Subareas 12-27, 12-28, 12-35, 12-38, 12-40, 12-43 and portions of Subareas 12-26 and 12-39; Portions of Subareas 13-19 and 13-21; Portions of Subareas 15-5 and 15-6:

- 00:01 hours July 1 to 23:59 hours July 14, one (1) Chinook per day. Unmarked Chinook maximum size limit of 80 cm.

Portions of Subarea 20-5:

- 00:01 hours July 1 to 23:59 hours July 31, one (1) Chinook per day, hatchery-marked only.

Portions of Subarea 20-6:

- 00:01 hours August 15 until 23:59 hours August 31, one (1) Chinook per day, with a maximum size limit of 80 cm on marked and unmarked Chinook.
- 00:01 hours September 1 until 23:59 hours October 15, two (2) Chinook per day, no maximum size limit.

In consideration of the increased management measures for Fraser Chinook implemented in the Strait of Georgia and other mixed-stock areas, the previous annual finfish closure near Cape Mudge on Quadra Island and the Chinook non-retention closures near Sentry Shoals, Harwood Island, Denman Island-Hornby Island and Kitty Coleman were no longer in effect as of the 2019 season and was continued in 2020. Reductions to the annual limit to 10 Chinook Salmon per year first implemented in 2019 in BC tidal waters, including the inside areas listed above, were continued in 2020. Chinook management measures also include a minimum size limit of 62 cm in the Johnstone Strait/Queen Charlotte Strait and Strait of Georgia, and Areas South to Cadboro Point (Subarea 19-5). For the Canadian portion of Juan de Fuca Strait south of Cadboro Point, the minimum size limit is 45 cm.

Salmon fishing closures were also implemented from August 1 to October 31 in the following portions of the Southern Gulf Islands and Juan de Fuca to support Southern Resident Killer Whales (SRKW):

- Subareas 18-9 and portions of 18-2, 18-4 and 18-5.
- Subareas 20-3 and 20-4.
- Subareas 29-7, 29-9 and 29-10.
- Subarea 29-6 was closed to salmon fishing from June 1 to July 31 and was Chinook non-retention from August 1 to September 30.

In 2020, marine sport fisheries were monitored by creel surveys in three main areas: 1) Juan de Fuca including Victoria (south of Cadboro Point) and Juan de Fuca Strait through Subarea 20-1; 2) Portions of the Strait of

Georgia including Areas 14 through 18, that portion of Area 19 north of Cadboro Point, Areas 28 and 29; and 3) Johnstone Strait including Areas 11 to 13. Creel survey monitoring of these fisheries includes using an access point (landing site) survey for collecting catch, CPUE and biological information combined with an aerial survey for effort counts. In addition, logbook programs, directed at estimating the sport catch by fishing guides during guided trips, were conducted in the Campbell River and intermittently throughout other areas in the South Coast. The Avid Angler program and the Area 13 remote lodges around Stuart Island typically provide the majority of logbook program data. However this was reduced due to lodge closures as a result of the Covid-19 pandemic. Electronic survey estimates from the iREC program will also be used to produce catch estimates for those areas where creel surveys did not take place.

The Johnstone Strait creel survey for Areas 11 and 12 was conducted from mid-June through August.

The Strait of Georgia creel survey for Areas 13 and 14 was conducted from mid-June to October, for Area 15 from mid-June to August, for Area 16 from mid-June to September, for Areas 17 and 18 from mid-June to September and for Areas 19 and the Strait of Georgia portion of Area 20 from June to October.

Effort, catch and release information from marine fisheries are summarized in Figure 4-3.

Region 1 Vancouver Island Tributaries

River conditions in most tributaries on Vancouver Island were improved in 2020 compared to previous years due to an adequate snowpack, cooler temperatures over the summer and more precipitation during portions of the summer months. All systems in Region 1 that are typically open remained open in 2020, with the exception of Regions 1-1 to 1-6 that are managed using seasonal closures between July 15 to August 31. Many Chinook systems on the east and west coasts of Vancouver Island saw strong Chinook returns in 2020; particularly those from enhanced systems. These returns provided early and productive opportunities for recreational fresh water fisheries. The Campbell River, Qualicum River, Little Qualicum River, Puntledge River, Nitinat River, Somass River and Conuma River all provided some recreational opportunities to harvest Chinook stocks during this time period.

Fraser River and Tributaries

Fraser River Chinook stocks required additional management measures in 2020 due to continued concerns about poor stock status.

Fraser River Mouth (Subareas 29-6, 29-7, 29-9 and 29-10):

- January 1 to December 31, fishing for salmon was closed in this area.

Tidal Fraser River:

In the tidal waters of the Fraser River the following regulations were in place for 2020:

- January 1 to November 1, fishing for salmon was not permitted.
- November 2 to December 31, fishing for salmon was permitted but Chinook Salmon could not be retained.

Non-Tidal Fraser River:

Region 2

- January 1 to November 2, fishing for salmon was not permitted.
- November 3 to December 31, fishing for salmon was permitted but Chinook Salmon could not be retained.

Region 3: January 1 to December 31, fishing for salmon was not permitted on the Fraser River.

Region 5: January 1 to December 31, fishing for salmon was not permitted on the Fraser River.

Region 7: January 1 to December 31, fishing for salmon was not permitted on the Fraser River.

Fraser River Tributaries:

Fraser River Tributaries - Region 2

There were several tributaries to the Fraser River in which Chinook retention was permitted. These included:

- Alouette River: daily limit of one Chinook from September 1 to November 30;
- Chehalis River: daily limit of four Chinook with only one over 50 cm from August 7 until August 31 and a daily limit of four Chinook with only one over 62 cm from September 1 until December 31;
- Chilliwack/Vedder River: daily limit of one from July 1 until August 31, daily limit of four with two over 62 cm from September 1 to December 31; Coquitlam River: fishing for salmon was permitted but Chinook Salmon could not be retained from September 1 to December 31;
- Harrison River downstream of the Highway No. 7 Bridge, fishing for salmon was permitted but Chinook Salmon could not be retained from September 1 to December 31.

The Chilliwack/Vedder River recreational fishery was assessed from September 1 to November 15 in 2019. Catch estimates can be found in Appendix 5.

Fraser River Tributaries - Region 3

Thompson River: That portion of the Thompson River from the white trianfular fishing boundary (WTFB) signs just downstream of Gold Pan Provincial Park to the easterly border of the Skihist Ecological reserve along the Thompson River located at 50°15'N, 121°31'W; this is approximately 5 km northeast of Lytton at Skihist Park.

- August 28 to September 22, daily limit of four Chinook, zero over 50 cm.

Kamloops Lake: In the waters of Kamloops lake upstream of the fishing boundary signs at the outlet of Kamloops Lake.

- August 28 to September 22, 2020 daily limit of four Chinook, only one over 50 cm.

South Thompson River: That portion of the South Thompson River from the green can buoy near outlet of Little River, including Little Shuswap Lake, to the fishing boundary sign approximately 100 m downstream of Campbell Creek.

- August 16 to September 22, daily limit of four Chinook, only two greater than 50 cm. There is a monthly quota of six Chinook over 50cm from the South Thompson River.

Fraser River Tributaries - Region 5

January 1 to December 31, fishing for salmon was not permitted in any portion of the Fraser watershed in Region 5.

Fraser River Tributaries - Region 7

January 1 to December 31, fishing for salmon was not permitted in any portion of the Fraser watershed in Region 7.

Fraser River Tributaries - Region 8

Note: there is a monthly limit of four Chinook in Region 8.

Mabel Lake: That portion of Mabel Lake that is both northerly of a line drawn from a white triangular fishing boundary sign situated at the northern edge of Mabel Lake Provincial Park to the prominent point of land on the western shore; and southerly of a line drawn between two white triangular fishing boundary signs located on opposite shores approximately 1 km from Wap Creek.

- August 16 to September 12, daily limit of four Chinook, only two over 50 cm.

Middle Shuswap River: No fishing for salmon.

Lower Shuswap River: That portion of the Lower Shuswap River upstream from white triangular fishing boundary signs upstream of the Mara Bridge to Mable Lake, except no fishing in those waters 50 metres upstream and downstream of the Trinity Valley Road Bridge.

August 16 to September 12, daily limit of four Chinook, only two over 50 cm.

4.2.7 EXCESS SALMON TO SPAWNING REQUIREMENTS (ESSR) FISHERIES

The Tseshaht and Hupacasath First Nations were issued a joint Excess Salmon to Spawning Requirements (ESSR) Licence for Chinook and Coho at the Robertson Creek Hatchery facility.

The Ditidaht First Nation was issued an ESSR Licence for Chinook, Coho and Chum at Nitinat Lake and Nitinat hatchery.

The Mowachaht/Muchalaht First Nation was issued an ESSR licence to harvest Chinook, hatchery-marked Coho and Chum from the Conuma River and hatchery.

A Chinook Salmon ESSR fishery for the Qualicum First Nation took place at the Big Qualicum Hatchery early September 2020 to present (data are preliminary at this time), and at Little Qualicum Hatchery mid- to late-October, 2020 (data are preliminary at this time).

The K’ómoks First Nation ESSR fishery on Fall Chinook Salmon took place in early November, 2020 (data are preliminary at this time).

There were ESSR fisheries at the Capilano hatchery in 2020 that harvested Chinook Salmon.

There were ESSR fisheries at the Chilliwack hatchery in 2020 that harvested Chinook Salmon.

No Johnstone Strait ESSR opportunities on Chinook occurred in 2020.

There were no Interior BC ESSR opportunities on Chinook in 2020

There were no ESSR fisheries opportunities for either the Maa-nulth or the Tla’amin treaty nations.

All ESSR harvest information can be found in Appendix 7.

5 FRASER RIVER

5.1 SOCKEYE SALMON

5.1.1 OBJECTIVES AND OVERVIEW

In 2020 the Fraser River Panel (FRP) adopted the p50 probability run size forecast for all run timing groups (941,000 Fraser Sockeye) for pre-season planning purposes (note that there was an update to the forecast in June 2020 that reduced the run size to 924,000). There was no TAC available for international sharing until Early Summer run sizes reached the p75 or higher. The Early Stuart and Late runs did not have International TAC at any predicted run size. Pre-season plans took this into consideration; all fishery planning focused on staying within constraints to minimize impacts on less abundant stock groups and species of concern. Actual in-season harvest opportunities were dependent on in-season stock assessments.

Fishing plans incorporate provisions to meet escapement and conservation objectives for stocks of concern while considering other international and domestic objectives. Fishing plans include the following assumptions and guiding principles in no particular order:

- The Fraser River Panel (FRP) operated in accordance with Chapter 4, Annex IV of the PST;
- The U.S. share of the annual Fraser River Sockeye Salmon total allowable catch (TAC), harvested in the waters of Washington State, was set at 16.5% of the aggregate. To the extent practicable, the FRP shall manage the United States fishery to implement a fishing plan that concentrates harvest on the most abundant management group or groups;
- It is understood that the U.S. harvest may exceed 16.5% of the TAC for one or more of the less abundant management groups by a small but acceptable amount despite concentrating the harvest in this manner;
- For computing TAC by stock management groupings, the Aboriginal Fishery Exemption (AFE) of 400,000 Fraser River Sockeye, shall be allocated to management groups as follows: The Early Stuart Sockeye exemption shall be up to 20% (maximum 80,000) of the Fraser River AFE, and the remaining balance of the latter exemption shall be based on the average proportional distribution of First Nations Food, Social and Ceremonial catch for the most recent three cycles and modified annually as required to address concerns for Fraser River Sockeye stocks and other species, and as otherwise agreed to by the Fraser River Panel;
- It was anticipated that an in-season run size estimate for Cultus Lake Sockeye would not be possible due to low abundance relative to co-migrating Sockeye stocks. As a result the Cultus ER is assumed to be the same as the ER from the similarly timed Late run stocks (excluding the Birkenhead and Birkenhead-type miscellaneous stocks), caught seaward of the confluence of the Fraser and the Harrison Rivers;
- The four run timing aggregates identified under the PST Annex generally contain stocks with similar timing in the marine area;
- Canada’s escapement plan specified escapement requirements that varied with run size for each of the run timing aggregates;

- The Total Allowable Mortality (TAM) cap describes the upper range of the total mortality (including management adjustments and ER). The TAM cap was reduced to 50% for all run timing/management groups in 2020;
- At low abundances, low abundance exploitation rates (LAERs) are implemented to protect 80-90% of the run timing aggregate (10-20% LAER) while allowing for fisheries on more abundant co-migrating run timing groups and/or other species. In 2020 Canada's escapement plan permitted up to a 10% LAER for all stock groups. If the overall return was greater than the p75 forecast a maximum 20% LAER for Late Run would be considered.
- The allowable harvest in a LAER situation is not a target; the objective is to allow as many fish as possible to pass to the spawning grounds. In most circumstances harvests under a LAER scenario would be considered incidental harvest or bycatch only; however, in some circumstances limited directed harvest in terminal areas may be considered. All fishery impacts are to be accounted for under the LAER;
- In 2020, the Early Stuart Sockeye window closure and other fishing restrictions were planned for commercial, recreational and First Nations fisheries to protect a significant proportion (90%) of the Early Stuart return. These measures included a 3-week rolling window closure based on the run timing of the Early Stuart Sockeye migration through various fishery areas. The 2020 closure was extended by one week (4 weeks total) to protect the earliest of the early-timed Early Summer Sockeye that may have conservation concerns (Bowron, Taseko); and
- Conservation concerns for other Sockeye stocks and species continued to impact the planning of Sockeye fisheries. The stocks and species of concern in 2020 included: Cultus Lake Sockeye, Nimpkish River Sockeye, Sakinaw Lake Sockeye, IFR Coho, Southern BC Chinook including Fraser River Chinook and IFR Steelhead.

5.1.2 STOCK STATUS

Please Note: Tables 5-2 and 5-4 are adapted from or courtesy of the PSC.

5.1.2.1 PRE-SEASON ASSESSMENT

Pre-season expectations were for a median run size (p50 level) of 941,000 Fraser River Sockeye Salmon with a one-in-two chance that the run size would be between 488,000 (p25 level) and 1,558,000 (p75 level).

Table 5-1 2020 pre-season run size abundance forecast range by management group for Fraser Sockeye

Run timing group	Probability that return will be at/or below specified run size				
	10%	**25%**	**50%**	**75%**	**90%**
Early Stuart	5,000	8,000	13,000	23,000	33,000
Early Summer	72,000	116,000	218,000	469,000	1,098,000
Summer	169,000	311,000	611,000	1,231,000	2,376,000
Late	28,000	53,000	99,000	190,000	374,000
Total	274,000	488,000	941,000	1,913,000	3,881,000

The pre-season diversion rate forecast for Fraser River Sockeye through Johnstone Strait was 35%. Expected Area 20 50% migration timing dates were July 4th for Early Stuart, July 24th for Early Summer, July 31st for Summer and August 6th for Late-run Sockeye.

As all management units were forecast to be very low, pre-season spawning escapement goals at the p50 run size are equal to the forecast; 13,000 Early Stuart, 218,000 Early Summer, 611,000 Summer and 99,000 Late-run Sockeye for a total of 941,000 Sockeye spawners (Table 5-2).

Table 5-3. Fraser Sockeye 2020 Pre-season (top) and Final In-season (bottom) Values for Total Allowable Catch (TAC) and Other Management Parameters.

Date		Management Group	Total Abundance	Spawning Escapement Target	TAM	pMA	Manage-ment Adjust.	Test Fishing	Aboriginal Fishery Exemption	Total Deductions	*Total Allowable Catch	**Allowable Catch	50% Migration Date Area 20	Diversion Rate To-date
June 24	Pre-season	Early Stuart	13,000	13,000	0.00	0.69	9,000	200	1,100	13,000	0	1,300	4-Jul	
		Early Summer	218,000	150,300	0.31	0.52	78,200	2,400	19,400	218,000	0	21,800	24-Jul	
		Summer	611,000	611,000	0.00	0.16	97,800	5,100	56,000	611,000	0	61,100	31-Jul	
		Late	99,000	99,000	0.00	0.41	40,600	600	9,300	99,000	0	9,900	6-Aug	
		Sockeye	**941,000**	**873,300**			**225,600**	**8,300**	**85,800**	**941,000**	**0**	**94,100**		**35%**
Septmeber 23	Post-season	Early Stuart	16,000	16,000	0.00	0.69	11,000	118	1,482	16,000	0	1,600	6-Jul	
		Early Summer	72,000	72,000	0.00	0.52	37,400	1,270	5,930	72,000	0	7,200	15-Jul	
		Summer	191,000	191,000	0.00	0.16	30,600	3,150	15,950	191,000	0	19,100	28-Jul	
		Late	14,000	14,000	0.00	0.41	5,700	125	1,275	14,000	0	1,400	2-Aug	
		Sockeye	**293,000**	**293,000**			**84,700**	**4,663**	**24,637**	**293,000**	**0**	**29,300**		**25%**

*The TAC is determined by the run sizes and TAC decuctions (spawning escapement targets, management adjustments, projected test fishing catches and AFE Exemptions) that were in effect when the Fraser River Panel control of the last U.S. fishery area was relinquished

**In a no TAC situation, the allowable harvest is the maximum harvest allowed under LAER management as identified in Canada's Escapement Plan. However the LAER is not a target and is usually by-catch in fisheries directed on the other stocks or species with some limited directed terminal harvest. All impacts from all fisheries count towards the LAER.

The goals for each Sockeye management group were established by applying Canada's Spawning Escapement Plan to the forecasted pre-season run size. For pre-season planning purposes, the harvest rule for Early Stuart, Early Summer, Summer and Late Sockeye was constrained by a LAER limit of up to 10% at the p50 run size. If the overall in-season return of Fraser Sockeye reached the p75 level a Late Run LAER increase to 20% would be considered. Harvest rules were further constrained by a 50% TAM rate for all management groups (Table 5-4).

Table 5-5 Fraser River Sockeye Salmon 2020 Escapement Plan and Application of the Plan to each Management Group across a Range of Forecast Abundances

	Harvest Rule Parameters			
Management Unit	**Low Abundance ER (LAER)**	**TAM Cap**	**Lower Fishery Reference Point**	**Upper Fishery Reference Point**
Early Stuart	10%	50%	108,000	216,000
Early Summer (w/o misc)	10%	50%	100,000	200,000
Summer (w/o misc)	10%	50%	640,000	1,280,000
Late (w/o misc)	10-20%	50%	300,000	600,000

Management Unit		Pre-season Forecast Return				
		p10	p25	p50	p75	p90
	lower ref. pt. (w misc)	108,000	108,000	**108,000**	108,000	108,000
	upper ref. pt. (w misc)	216,000	216,000	**216,000**	216,000	216,000
Early Stuart	forecast	5,000	8,000	13,000	23,000	33,000
	TAM Rule (%)	0%	0%	**0%**	0%	0%
	Escapement Target	5,000	8,000	**13,000**	23,000	33,000
	MA	3,500	5,500	**9,000**	15,900	22,800
	Esc. Target + MA	8,500	13,500	**22,000**	38,900	55,800
	LAER	10%	10%	**10%**	10%	10%
	Available ER at Return	0%	0%	**0%**	0%	0%
	Allowable ER	10%	10%	**10%**	10%	10%
	Allowable Harvest	500	800	**1,300**	2,300	3,300
	2020 Performance					
	Projected S (after MA)	2,700	4,200	**6,900**	12,200	17,500
	BY Spawners	8,612	8,612	**8,612**	8,612	8,612
	Proj. S as % BY S	31%	49%	**80%**	142%	203%
	cycle avg S	35,354	35,354	**35,354**	35,354	35,354
	Proj. S as % cycle S	8%	12%	**20%**	35%	49%

Management Unit		Pre-season Forecast Return				
		p10	p25	p50	p75	p90
Early Summer (w/o RNT)	*lower ref. pt. (w misc)*	112,800	125,300	**150,300**	188,400	252,400
	upper ref. pt. (w misc)	225,500	250,600	**300,600**	376,700	504,800
	forecast (incl. misc)	72,500	116,400	**217,900**	469,000	1,098,000
	TAM Rule (%)	0%	0%	**31%**	50%	50%
	Escapement Target	72,500	116,400	**150,300**	234,500	549,000
	MA	29,700	52,400	**78,200**	131,300	334,900
	Esc. Target + MA	102,200	168,800	**228,500**	365,800	883,900
	LAER	10%	10%	**10%**	10%	10%
	Available ER at Return	0%	0%	**0%**	22%	19%
	Allowable ER	10%	10%	**10%**	22%	19%
	Allowable Harvest	7,300	11,600	**21,800**	103,200	214,100
	2020 Performance					
	Projected S (after MA)	46,600	72,300	**130,200**	234,500	550,200
	BY Spawners	156,520	156,520	**156,520**	156,520	156,520
	Proj. S as % BY S	30%	46%	**83%**	150%	352%
	cycle avg S	155,761	155,761	**155,761**	155,761	155,761
	Proj. S as % cycle S	30%	46%	**84%**	151%	353%

Management Unit		Pre-season Forecast Return				
		p10	p25	p50	p75	p90
Summer	*lower ref. pt. (w misc)*	**804,200**	**881,600**	**967,400**	**1,080,700**	**1,199,200**
(w. RNT & Har)	*upper ref. pt. (w misc)*	**1,608,500**	**1,763,100**	**1,934,900**	**2,161,400**	**2,398,500**
	forecast	169,390	311,300	**610,700**	1,231,000	2,376,000
	TAM Rule (%)	0%	0%	**0%**	12%	50%
	Escapement Target	169,390	311,300	**610,700**	1,080,700	1,199,200
	MA	20,300	43,600	**91,600**	172,900	215,900
	Esc. Target + MA	189,690	354,900	**702,300**	1,253,600	1,415,100
	LAER	10%	10%	**10%**	10%	10%
	Available ER at Return	0%	0%	**0%**	0%	40%
	Allowable ER	10%	10%	**10%**	10%	40%
	Allowable Harvest	16,939	31,130	**61,070**	123,100	960,900
	2020 Performance					
	Projected S (after MA)	135,800	246,800	**476,800**	947,400	1,197,100
	BY Spawners	277,805	277,805	**277,805**	277,805	277,805
	Proj. S as % BY S	49%	89%	**172%**	341%	431%
	cycle avg S	653,758	653,758	**653,758**	653,758	653,758
	Proj. S as % cycle S	21%	38%	**73%**	145%	183%

Management Unit		Pre-season Forecast Return				
		p10	p25	p50	p75	p90
Late	*lower ref. pt. (w misc)*	349,600	398,000	**418,300**	413,200	400,700
(w/o Har)	*upper ref. pt. (w misc)*	699,300	796,000	**836,600**	826,400	801,400
	forecast	28,180	52,800	**99,000**	189,800	374,000
	TAM Rule (%)	0%	0%	**0%**	0%	0%
	Escapement Target	28,180	52,800	**99,000**	189,800	374,000
	MA	12,700	22,700	**42,600**	81,600	160,800
	Esc. Target + MA	40,880	75,500	**141,600**	271,400	534,800
	LAER	10%	10%	**10%**	20%	20%
	Available ER at Return	0%	0%	**0%**	0%	0%
	Allowable ER	10%	10%	**10%**	20%	20%
	Allowable Harvest	2,818	5,280	**9,900**	37,960	74,800
	2020 Performance					
	Projected S (after MA)	17,600	33,200	**62,400**	105,800	208,300
	BY Spawners	45,091	45,091	**45,091**	45,091	45,091
	Proj. S as % BY S	39%	74%	**138%**	235%	462%
	cycle avg S	435,329	435,329	**435,329**	435,329	435,329
	Proj. S as % cycle S	4%	8%	**14%**	24%	48%
Allowable Harvest (TF, US, CDN)		27,557	48,810	**94,070**	266,560	1,253,100
Total projected spawners		202,700	356,500	**676,300**	1,299,900	1,973,100

Pre-season Management Adjustments (MAs) of 9,000 Early Stuart, 78,200 Early Summer, 97,700 Summer-run and 40,600 Late-run Sockeye were added to the spawning escapement targets to increase the likelihood of achieving the escapement targets. The application of a LAER for any management group indicates that spawning escapement targets are unlikely to be reached and therefore obviates the need for MAs. In 2020 this was the case pre-season for Early Stuart and Late Run Sockeye as it was apparent that for the entire range of pre-season run size forecasts LAER management was necessary. Early Summer Sockeye would be in a LAER scenario around run sizes less than p75, Summer Sockeye would be in a LAER at an abundance less than p90.

The pre-season MAs were derived from historical proportional differences between estimates (pDBEs) as follows: Early Stuart - all years median; Early Summer - weighted all years median (-0.36) for Early Summer excluding Pitt and Chilliwack (-0.15 for Pitt and -0.42 for Chilliwack); Summer - weighted all years median (-0.08) for Summers excluding Harrison and -0.28 for Harrison; Lates - weighted 2020 cycle year median for Lates excluding Birkenhead (-0.92) and -0.27 for Birkenhead using p50 forecast abundance.

There was no projected TAC of Fraser River Sockeye for international sharing based on the median forecasted abundances.

Pre-season model runs indicated that there would be no international TAC unless the Early Summer Sockeye returned at the p75 or greater or the Summer Sockeye returned at the p90 or greater. In Canada, at the p50 forecast, no TAC would be available for directed commercial, recreational or FSC fisheries due to management constraints (e.g. Early Stuarts, Early Summers, Summers and Lates being in LAERs). Expected timing indicated access to one stock group without incidentally impacting another would be difficult.

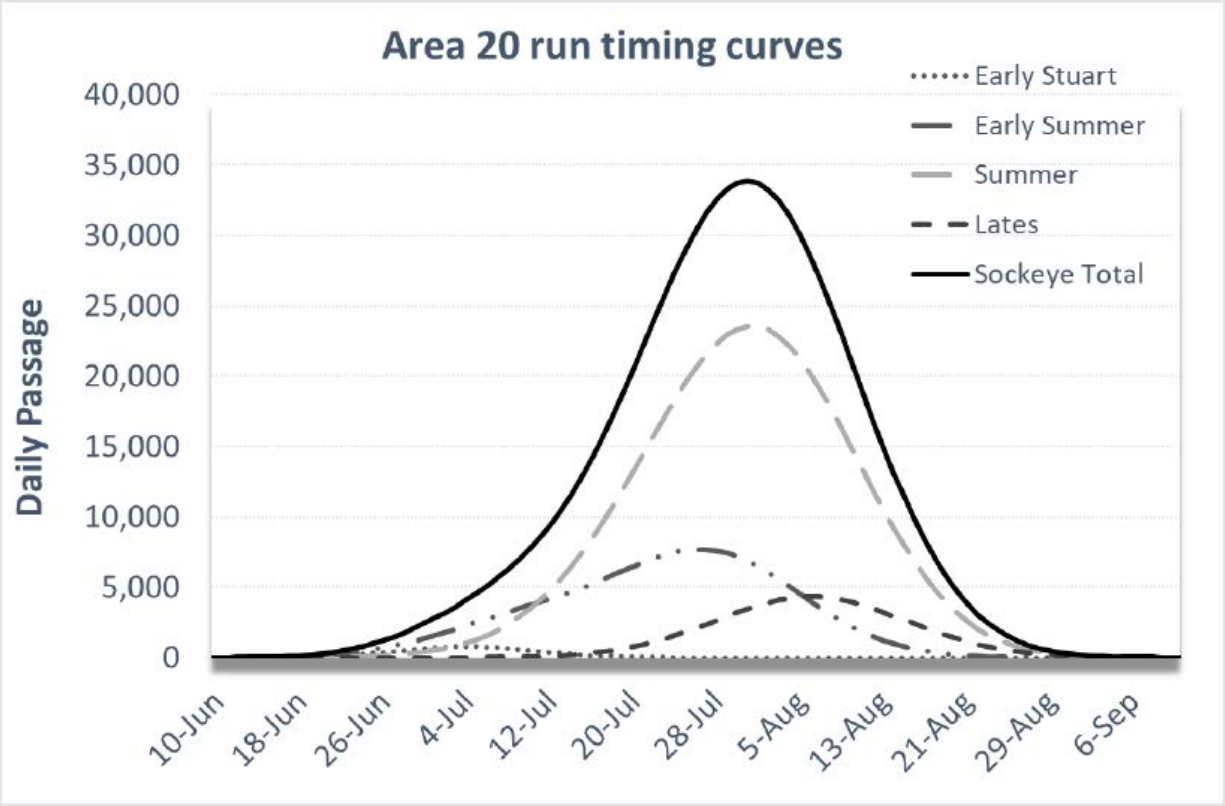

Figure 5-1 Pre-Season Projections of Daily Fraser River Sockeye Salmon Abundance by Management Group

5.1.3 IN-SEASON ASSESSMENT

Overall the marine migration timing was earlier than pre-season expectations for all management groups with the exception of the Early Stuart run which was slightly later than anticipated: 2 days later for Early Stuart, 9 days earlier for Early Summer, 3 days earlier for Summer and 4 days earlier for Late-run Sockeye.

The Johnstone Strait post-season diversion rate was 25% compared to a pre-season adopted value of 35%.

Returns for all management groups were well below median pre-season forecast levels:

- The return of Early Stuarts was low, but near expected values: 16,000 or 23% higher than the pre-season 50% probability level (p50) forecast (13,000).

- The return of Early Summers was very low: 72,000 or 68% lower than the pre-season p50 forecast (218,000), i.e. at the p10 forecast overall (72,000).

- The return of Summers was very low: 191,000 or 69% lower than the pre-season p50 forecast of 611,000. i.e. slightly higher than the p10 forecast of 169,000.

- The return of Lates was also very low: 14,000 or 84% lower than the pre-season p50 forecast of 99,000. This was also notably lower than the p10 forecast (28,000).

A landslide in the Big Bar area on the Fraser River upstream of Lillooet was discovered on June 23, 2019 and is thought to have occurred sometime between October and November 2018. It created a 5-metre-high waterfall/cascade that posed a migration passage challenge to salmon migrating to rivers and streams upstream of the slide. The Big Bar landslide had notable impacts to Sockeye passage to the spawning grounds in 2019, especially prior to August 28, 2019 when water flow was too high for natural Sockeye migration above the slide.

Over the winter in 2019/2020 substantial work was undertaken by a Unified Command Team consisting of representatives from First Nations, the Department of Fisheries and Oceans and the Province of British Columbia. This work improved passage at Big Bar, but did not completely resolve the impacts to migrating salmon. Mitigation measures included the installation of a Whooshh Passage Portal™, the construction of a nature-like fishway along the west bank of the river, construction of a road for truck transport of captured fish upstream of the slide site, and the implementation of emergency conservation enhancement programs for salmon populations most heavily affected by migration barriers (e.g. Early Stuarts). Estimates of survival past the slide side in 2020 are not yet available, though preliminary analysis has indicated it has likely improved over estimates of survival in 2019.

Post-season estimates of survival in 2019 indicated less than 1% survival for July and Early August Sockeye migrants (Early Stuart, some Early Summer), approximately 50% survival for late July to early September migrants (Early Summer, some Summer) and approximately 80% survival for mid-August through September migrants (mostly Summer). Estimates of survival past Big Bar will be available in late 2020/early 2021.

Due to uncertainty surrounding the mitigations efforts at the Big Bar landslide and the low in-season return estimates, the Department decided to: (i) delay and not licence Sockeye-directed fisheries as no in-season TAC was identified, and (ii) plan fisheries directed on other species in a way that allowed as many Sockeye to reach the spawning grounds as possible by minimizing bycatch impacts to levels well below the LAER limits identified in the escapement plan. Management Adjustments had no management implications in-season, but post-season, the Big Bar landslide will impact the Difference Between Estimates (DBEs) for Early Stuart, Early Summer and Summer runs.

Fraser River discharge was well above the mean discharge (1981-2010) throughout the watershed for most of the 2020 season. In July, salmon were observed being pushed downstream and holding at Mission, Qualark and within some smaller tributaries. Reduced migration speeds were observed especially early in the season and may contribute to increased en-route migration mortality. For most of the season, the Fraser River daily water temperatures fluctuated a few degrees below the historical mean; in the middle of August this trend reversed, with daily temperatures fluctuating by a few degrees above the historical mean.

5.1.4 POST-SEASON ASSESSMENT

The preliminary post-season return of adult Fraser Sockeye of 288,000 was estimated to be ~69% below the pre-season median forecast and the smallest return on record (1893 to 2020) (Table 5-2). The run size was ~68% below the brood year run size (0.89 M) and ~91% below the 2020 cycle line average of 3.1 M).

Even though there were no licenced Sockeye-directed fisheries in 2020, there were fisheries licenced for other species where Fraser Sockeye were encountered, notably Chinook Salmon-directed fisheries (e.g. in Canada, FSC for Chinook). Fishery-induced mortality estimates were considered in fishery planning. There was no Fraser Sockeye TAC for international sharing, based on the calculation method set out in Annex IV, Chapter 4 of the PST.

The total Canadian Fraser Sockeye catch can be found in Appendix 5 as well as Appendices 1 and 2. The preliminary post-season ER is estimated to be 5.5%. See Table 5-4 for preliminary projected post-season ERs relative to allowable ERs.

Table 5-4. Preliminary 2020 Post-Season Exploitation Rate Estimates for All Fraser Sockeye Catch by Management Group

Management Group	**Early Stuart**	**Early Summer**	**Summer**	**Late**	**Total**
Preliminary Exploitation Rate	0.9%	2.3%	7.4%	0.9%	5.5%
Allowable Exploitation Rate*	10.0%	10.0%	10.0%	10.0%	10.0%
LAER?*	Yes	Yes	Yes	Yes	Yes

*The Low Abundance Exploitation Rate (LAER) is not a target. Due to the very low returns, as well as challenges and uncertainties surrounding the Big Bar landslide in 2020, all efforts were made to minimize fisheries impacts to Fraser Sockeye.

DFO does not yet have spawning escapement data finalized from 2020 for Early Summer, Summer and Late-run groups. Early Stuart information is provided in Table 5-5. Near final spawning escapement values will be released in January 2021.

Table 5-5. Preliminary 2020 Fraser Sockeye Salmon Escapement Summary by Management Unit.

Management Unit	Spawning Escapement	Spawning Success	% high precision
Early Stuart	30	100%	0%
Early Summer	Not Yet Available	Not Yet Available	Not Yet Available
Summer	Not Yet Available	Not Yet Available	Not Yet Available
Late	Not Yet Available	Not Yet Available	Not Yet Available
Total	Not Yet Available	Not Yet Available	

Ongoing post-season work continues on the following topics that were highlighted during the 2020 season:

1. **Impacts of the Big Bar landslide:** The effect of the Big Bar landslide on 2020 passage and escapement on the Fraser River is still being evaluated. Work to mitigate the effects of the Big Bar slide are ongoing, and potential implications for passage in 2021 or in the future are still uncertain and will require ongoing evaluation.

2. **Low productivity:** In recent years there has been declining productivity, climate change and the increased variability that accompanies it, as well as low Sockeye abundances (the three lowest on record occurred in 2016, 2019 and 2020). As part of adaptive management, DFO will be reviewing potential adjustments/improvements to current harvest control rules, alternative strategies that take into account changing conditions and key uncertainties, and what implications there may be for future advice. Initial work began in 2019 through the Fraser River Sockeye Spawning Initiative (FRSSI) and is anticipated to be ongoing in 2021. Forecast model methods may also be reviewed.

3. **Estimation of species composition and passage at Mission hydroacoustic site**: There are a variety of methods used to determine the number of Sockeye, Pink and Chinook salmon that pass by Mission. The Mission estimates are critical to in-season estimates of run size and migration timing. For example, Sockeye escapement estimates are typically based on total salmon past Mission minus Pink and Chinook. When Pink proportions increase, another method is used instead (i.e. Sockeye CPUE at Whonnock multiplied by the expansion line). Species proportions are also derived from hydroacoustic-based length data and the previous year's species-specific average lengths. These methods and others have been reviewed by the Fraser River Panel Technical Committee but remain a considerable source of uncertainty. If numbers of one species are inaccurately or imprecisely estimated it may affect in-season estimates and expectations of catch of the other species in in-river fisheries.

4. **Species and stocks of concern:** In 2017, the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) determined that of the 24 Fraser Sockeye designatable units (DUs), 8 were endangered, 2 were threatened and 5 were of special concern. In 2020, one Recovery Potential Assessment was completed, the first part of a second was completed and part two of the second is in progress and should be completed by the end of 2021.

The two completed Recovery Potential Assessments can be found here:

Cultus Lake Sockeye https://cat.fsl-bsf.scitech.gc.ca/record=b4087614~S1

Nine Designatable Units –Part 1 https://cat.fsl-bsf.scitech.gc.ca/record=b4087615~S1

5.1.5 FIRST NATIONS FSC AND TREATY DOMESTIC FISHERIES

Due to extremely low returns and uncertainty surrounding the impacts of the Big Bar rock slide, there were no licenced Sockeye-directed fisheries in 2020. There were fisheries in both marine and in-river areas directed at other species where Fraser Sockeye were encountered (notably Chinook Salmon-directed FSC fisheries). In these fisheries the retention of Sockeye was not authorized.

Gear-specific fishery-induced mortality estimates, as described in the Integrated Fisheries Management Plan, may be applied to all non-retained Sockeye where estimates are available. Post season total mortality estimates may also include unauthorized kept catch where estimates are available.

For preliminary catch estimates, see Appendix 5.

5.1.6 COMMERCIAL FISHERIES

There were no directed commercial fisheries on Fraser River Sockeye in Canada or the United States in 2020.

5.1.7 RECREATIONAL FISHERIES

5.1.7.1 TIDAL RECREATIONAL FISHERIES

In southern BC in all areas except Area 23 (Barkley Sound), the marine recreational fishery was not permitted to retain Sockeye Salmon in 2020. However, the creel survey reported a small number of Sockeye kept in areas closed to Sockeye retention.

The tidal waters of the Fraser River remained closed to fishing for Sockeye Salmon in 2020.

5.1.7.2 NON-TIDAL RECREATIONAL FISHERIES

The non-tidal waters of the Fraser River remained closed to fishing for Sockeye Salmon in 2020.

For catch estimates, see Appendix 5.

5.1.8 EXCESS SALMON-TO-SPAWNING REQUIREMENTS (ESSR) FISHERIES

There were no ESSR opportunities directed on Fraser River Sockeye in 2020.

5.2 PINK SALMON

5.2.1 OBJECTIVES AND OVERVIEW

Pink Salmon return to the Fraser River in significant numbers in odd years only; negligible numbers of Pink Salmon returned to the Fraser River in 2020.

5.2.2 STOCK STATUS

Pink Salmon return to the Fraser River in significant numbers in odd years only; negligible numbers of Pink Salmon returned to the Fraser River in 2020.

5.2.3 FIRST NATIONS DOMESTIC AND FSC FISHERIES

Pink Salmon return to the Fraser River in significant numbers on odd years only; negligible numbers of Pink Salmon returned to the Fraser River in 2020, therefore there were no directed fisheries.

5.2.4 FIRST NATIONS COMMERCIAL HARVEST

Pink Salmon return to the Fraser River in significant numbers in odd years only; negligible numbers of Pink Salmon returned to the Fraser River in 2020, therefore there were no directed fisheries.

5.2.5 COMMERCIAL FISHERIES

Pink Salmon return to the Fraser River in significant numbers on odd years only; negligible numbers of Pink Salmon returned to the Fraser River in 2020, therefore there were no directed fisheries.

5.2.6 RECREATIONAL FISHERIES

5.2.6.1 TIDAL RECREATIONAL FISHERIES

Pink Salmon return to the Fraser River in significant numbers on odd years only; negligible numbers of Pink Salmon returned to the Fraser River in 2020, therefore there were no directed fisheries.

5.2.6.2 NON-TIDAL RECREATIONAL FISHERIES

Pink Salmon return to the Fraser River in significant numbers on odd years only; negligible numbers of Pink Salmon returned to the Fraser River in 2020, therefore there were no directed fisheries.

5.2.7 EXCESS SALMON-TO-SPAWNING REQUIREMENTS (ESSR) FISHERIES

Pink Salmon return to the Fraser River in significant numbers on odd years only; negligible numbers of Pink Salmon returned to the Fraser River in 2020, therefore there were no directed fisheries.

6 SOUTHERN BC COHO

6.1 OBJECTIVES AND OVERVIEW

Management of Southern BC Coho stocks is subject to Abundance Based Management provisions outlined in Chapter 5 of the Pacific Salmon Treaty, which defines allowable exploitation rates (ERs) for Canada and the US based on the status of Coho Management Units (MUs). There are three Canadian Coho MUs identified within the Southern Coho Management Plan section of Chapter 5. These are: Interior Fraser River Coho, Lower Fraser River Coho, and Strait of Georgia Coho.

Given the limited stock assessment data available for Strait of Georgia and Lower Fraser River Coho MUs, Canada's management approach is currently driven by the status of the Interior Fraser River (IFR) Coho MU. IFR Coho status determination is based on an integration of marine survival rates and spawner abundance. Under this approach, bilateral ER caps are set at 20%, 30% and 45% for Low, Moderate and Abundant status. The Canadian ER caps are 10%, 12%, and 15% for those same status levels. Canada is required to confirm the status of Interior Fraser River Coho MU to the US in March of each year.

IFR Coho have been in a low productivity regime since the mid 1990's, and were assessed to be within the Low status level in 2020, which limits the Canadian ER on IFR Coho to 10%. However, given the ongoing low productivity of this MU, Canada has opted to manage domestic fisheries to achieve an exploitation rate cap of 3%-5% for this Management Unit in recent years.

While Chapter 5 includes three Canadian Management Units under the provisions of the PST, domestically, Southern BC Coho management includes two additional MUs: Johnstone Strait and West Coast Vancouver Island (WCVI). For completeness in reporting and understanding of Canadian Coho fisheries management and stock status, details for these additional MUs are contained within this report.

6.2 STOCK STATUS

6.2.1 STOCK STATUS - INTERIOR FRASER RIVER

The preliminary 2020 escapement estimate for Interior Fraser River Coho is not yet available, but will be provided in the final report.

6.2.2 STOCK STATUS – LOWER FRASER RIVER

Currently there is no whole system escapement estimate available for Lower Fraser River Coho. A pilot mark-recapture program was inititiated in 2020 to provide an escapement estimate for this system, funded in part by PST. If successful, this program will provide annual escapement estimates for LFR Coho in the near future, although published estimates are not expected in this pilot year. Further details of the LFR Coho escapement program can be obtained through the PST Coho Technical Committee.

A hatchery Coho indicator stock at Inch Creek hatchery provides estimated rates of survival and minimum estimates of exploitation on marked LFR Coho. Catch monitoring and escapement work in support of the Inch Creek indicator program produces data for survival information. Survival estimates for coded-wire-tag marked LFR Coho from the 2017 brood year for fish that return in 2020 are yet not available but will be provided in the final report.

6.2.3 STOCK STATUS - STRAIT OF GEORGIA

Coho Salmon production within the Strait of Georgia has declined dramatically since the early 1990s. Marine survivals have been fluctuating the 1 to 4% range. Preliminary 2020 escapement estimates are average to above average while forecasts based on recent returns and ocean conditions throughout the Strait of Georgia appear conservative in some systems.

Hatchery stocks

Coho returns to most hatcheries north of Nanaimo were above average in 2020. Escapement to the Puntledge River is near the 12-year average at 5,248 to date. The Big Qualicum River experienced a strong return with 21,078 adults compared to the 12-year average of 10,340. Swim surveys of the Little Qualicum River suggest abundance for this system was near the recent 4-year average at 1,450 fish to date. Similarly, Nanaimo River returns are close to the 4-year average at 3,500 at the time of reporting.

Wild stocks

Area Under the Curve (AUC) expanded counts on the Englishman River have a 4-year average of 4,750. The 2020 peak count was 1,750 adults, but counts have not yet been expanded. Returns to the Colquitz River (near Victoria) so far have been low with 33 adults compared to the 4-year average of 500 fish. Returns to Craigflower Creek and Shawnigan Creek were also tracking below average at the time of reporting.

New Coho escapement and survival indicators are currently under development in several systems with PST funding. A camera and PIT tag system operated at the Sakinaw Lake fence for the first time in 2019 producing a count of 570 adults and 270 jacks. So far in 2020 a total of 124 jacks and 163 adults have returned to the lake. 15 jacks were also carrying PIT tags from a deployment of 1,100 tags in spring 2020. A camera was also operated in the Skutz Falls fishway at Cowichan River for the first time in 2019 producing a count of 8,271 adult Coho. A PIT tag program was used to expand the count to a population estimate of 16,534 fish. 2020 operations have produced a count of 4,155 Coho to November 1st while over 220 PIT tagged adults have returned across the lower river array from 4,700 wild smolts tagged in spring 2019. The preliminary smolt to adult return rate for fish tagged in the lower river is 5.5% while tag detections at Skutz Falls suggest an in-season escapement estimate of 15,400 adults to November 6, 2020.

Black Creek is the primary wild stock indicator in the Strait of Georgia. So far environmental conditions have been favourable for enumeration activities in fall 2020 without the fence being over-topped by high flows. As of November 5th there have been 1,898 adults observed which is more than the 976 estimated in 2019. Jack abundance has been moderate so far at 1,681 compared to 2,909 last season. The parental brood year (2017) estimate was 1,333 adults.

The smolt production contributing to 2020 return was 46,469. This was below the 24-year average smolt production of 51,109 smolts.

6.2.4 STOCK STATUS - WEST COAST VANCOUVER ISLAND

Until recently, spawning abundances for wild WCVI Coho populations have been near historic levels. However, it appears that productivity of wild WCVI Coho has likely fallen from historic highs given observed decreases

in spawning abundances despite reductions in harvest of these stocks. In addition, there have been decreases in hatchery production. Expected declines in marine survival of Robertson Creek Hatchery (RCH) (42% projected decrease from 2019) and Carnation Creek wild Coho (23% projected decrease from 2019) indicators led to a low 2020 pre-season expectation for WCVI Coho stocks. With a low categorical return, marine survival is forecasted in the second quartile (25-50%) of survival data from brood years 1996-2016 for RCH and Carnation Creek Coho. Preliminary surveys during peak returns suggest that 2020 escapement is below recent-year averages in most WCVI systems, with higher than recent-year average returns in a few Area 24 and 25 systems.

Management measures in place for WCVI Coho provided opportunities for recreational harvest in WCVI areas where IFR Coho are not considered to be impacted. No commercial harvests of WCVI Coho are permitted with the exception of the Five Nations communal sale fishery. In times and areas where IFR Coho are known to be prevalent, non-retention of unmarked Coho remained in effect.

6.2.5 STOCK STATUS - JOHNSTONE STRAIT AND MAINLAND INLETS

The Keogh River plays an important role as the wild Coho indicator stock for the upper Johnstone Strait area. Historically, the Keogh River adult Coho Salmon return has averaged 2,586 (range: 230 to 9,465), while the juvenile abundance has averaged 62,213 (range 26,940 to 110,565). Following a peak in adult abundance in 2014 (9,465), annual escapement decreased to reach its lowest level in 2016 (230). Returns have increased modestly since, and the final estimate of adult Keogh River Coho Salmon in 2019 was 749 fish. The 2020 enumeration program is ongoing and estimates will be provided as they become available, but early indications suggest continued improvement in escapement. The number of migrant Coho smolts in 2020 (86,770) was higher than in 2019 (71,779), despite low adult abundance for the brood year (405 adults), suggesting continuation of high freshwater productivity that first began in 2011. Coho tend to be extremely productive at low abundance, and individual productivity has increased dramatically in recent years, peaking with the 2016 brood year at 270 smolts per spawner (average 38 smolts per spawner, brood years 1998 to 2015). Expectations for escapement in 2020 continue to be below-average, albeit with continued improvement over recent years of low abundance.

Quinsam River Hatchery is the Coho marine survival indicator for Area 13. In 2020, the Quinsam Coho return of ~7,600 adults is well above the 4-year average (4,998) and on par with the 12-year average of 7,540. The 2020 return is double the 2017 parental return of 3,650; in 2019 a substantially higher than normal jack return (~8,100) was also observed from the 2017 brood. In 2020, 3,900 jacks are estimated to have returned to the Quinsam, similar to 2018 and also the 4-year average (3,742).

In 2020, Village Bay Creek on Quadra Island continued with video monitoring of returning Coho. A total of 468 adults were counted through the fence; more than triple the 2017 adult escapement. The 2020 return was higher than expected, and exceeds the 4-year average and similar to the 12-year escapement average. This magnitude of improvement is similar to 2019, demonstrating an improving trend in this population.

Heydon Bay Creek in Loughborough Inlet is in the process of being developed into a mainland inlet Coho indicator system. A total of 232 Coho (142 adults and 90 jacks) were counted through the fence in 2020, which is an improvement over 2019 (88 adults and 50 jacks) but still well below the historical average (as determined during the period the fence was in operation prior to 2013).

Extensive escapement reports for Coho in many systems are indicating large variation in escapements for 2020. As anticipated, Coho marine survivals continue to be low with some improvement evident in the consistently monitored populations. Similar conditions are expected through 2021; consequently, a continued trend of low escapement is anticipated next year.

6.3 First Nations Domestic and FSC Fisheries

WCVI FSC and Treaty Fisheries

First Nations Coho catch reports are preliminary at this time. Estimates based on catch reports from Maa-nulth Treaty harvest and WCVI Nuu-chah-nulth FSC harvest can be found in Appendix 4.

Lower Fraser FSC Fisheries

There were no Coho-directed fisheries in the Lower Fraser in 2020. Both hatchery-marked and wild Coho were authorized to be retained in FSC fisheries before and after the Interior Fraser Coho window closure. During the window closure, harvest was limited to hatchery-marked Coho. The total hatchery-marked and wild Coho harvested and released during Chinook, Pink and Chum FSC fisheries can be found in Appendix 5.

Interior Fraser FSC Fisheries

Most FSC fisheries in the area target Sockeye, Chinook or Pink salmon. In 2020, First Nations harvesters were requested to release unharmed any incidentally caught Coho.

Directed opportunities on Coho are permitted in terminal areas subject to abundance. In 2020, small fisheries occurred at Dunn Creek, Bonaparte River and McKinley Creek fish enumeration fences. Dunn Creek is a tributary to the North Thompson River. The Bonaparte River is a tributary to the Thompson River and McKinley Creek is a tributary to the Horsefly River in the Quesnel watershed. The total Coho catch (either directed or bycatch) in First Nations fisheries can be found in Appendix 5.

Strait of Georgia FSC Fisheries and Treaty Domestic Fisheries

Coho Salmon FSC fisheries of very limited effort occurred in the Strait of Georgia from late July to early October using primarily hook and line in 2020. Coho Salmon were harvested terminally in the Puntledge and Qualicum Rivers using hatchery brailing and hand-picking/sorting methods. Estimates based on catch reports from Tla’amin Treaty harvest and non-treaty First Nations harvest can be found in Appendix 4.

Johnstone Strait FSC Fisheries

Small numbers of Coho Salmon were harvested in Johnstone Strait by hook and line and gill net between July and late September. Estimates for the Johnstone Strait are found in Appendix 4.

6.4 First Nations Commercial Harvest

WCVI Economic Opportunity Fisheries

In 2020, Economic Opportunity agreements were in place with Hupacasath and Tseshaht First Nations during the Coho season; however, abundance did not permit a targeted opportunity.

Five Nations Communal Sales Fishery

In 2020, communal sale fishery opportunities for the Five Nations (five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht and Tla-o-qui-aht) included southern BC Coho. These opportunities are categorized as: offshore integrated hook-and-line communal sale fisheries; nearshore integrated hook-and-line communal sale fisheries; or terminal communal sale fisheries. The TAC for the offshore fishery was 2,000 Coho (hatchery-marked only until September 15, after which both hatchery-marked and unmarked Coho were permitted to be retained for sale). Additionally, hatchery-marked and unmarked Coho were permitted for sale in the Nearshore hook and line fishery targeting Conuma Chinook and the terminal fishery targeting Burman and Gold River Chinook. Hatchery-marked Coho were also permitted to be retained for sale in the Surplus to Escapement fishery for Conuma Chinook. The directed Coho Five Nations communal sale fishery in Area 25 was open between September 26 and October 16 with a TAC of 2,000 including both hatchery-marked and unmarked Coho. This fishery had no participation in 2020. Total Coho catch in these fisheries can be found in Appendix 4.

Lower Fraser First Nations Commercial Fisheries

There were no directed Coho fisheries authorized in the Lower Fraser in 2020.

Interior Fraser First Nations Commercial Fisheries

There were no EO or demonstration fisheries in the BC Interior (Fraser River above Sawmill Creek) targeting Coho in 2020.

6.5 Commercial Fisheries

Southern BC commercial fisheries are regulated so that impacts on Coho, in particular Interior Fraser River Coho stocks, are minimized. Retention of Coho bycatch was not permitted in most of these fisheries, including the Fraser River. Some limited opportunities for Coho retention occurred in terminal fisheries targeting Chinook and Sockeye in areas where IFR Coho were not present.

WCVI Offshore Area Commercial Coho Fisheries

Coho retention was not permitted in the 2020 Area G WCVI AABM Chinook troll fishery.

WCVI Terminal Area Commercial Coho Fisheries

In 2020, Chinook-targeted commercial gill net and seine fisheries occurred in Area 23 (Alberni Inlet). Retention of Coho was not permitted.

A Chinook targeted fishery in Area 25 (Tlupana Inlet) and Chum targeted fisheries in Area 25 and 26 also occurred. Coho retention was not permitted in these fisheries in 2020. The total WCVI Coho bycatch in commercial terminal fisheries can be found in Appendix 4.

6.6 RECREATIONAL FISHERIES

6.6.1 TIDAL RECREATIONAL FISHERIES

Tidal recreational fisheries can be categorized as occurring in either mixed-stock areas, where multiple stocks are found concurrently in the same fishing area, or in terminal areas where local stocks dominate the catch. Areas where mixed stocks occur typically have more restrictive management measures in place that are designed to protect Interior Fraser River Coho stocks. In terminal areas, opportunities may be permitted based on expectations of wild abundance and production from local Coho enhancement programs. The table below outlines the areas in Southern BC and the general Coho regulations pertaining to them.

Table 6-1 Southern BC Coho Fishery Regulations in 2020

Mixed stock fishing area	Daily limit (marked or unmarked)	Minimum size limit (cm)	Coho Season
Johnstone Strait	2, 1 may be unmarked	30	June 1 – July 31
Johnstone Strait	2 marked	30	June 1 – July 31
Strait of Georgia - north	2 marked	30	Aug 1 – Dec 31
Strait of Georgia - south	2 marked	30	June 1 – Dec 31
Strait of Georgia (19)	2, 1 may be unmarked	30	June 1 – Dec 31
Juan de Fuca Strait	2 marked	30	June 1 – Dec 31
Juan de Fuca Strait (20-5 to 20-7)	4, 1 may be unmarked	30	Oct 1 – Dec 31
WCVI – Inshore	2, 1 may be unmarked	30	June 1 – Dec 31
WCVI- Offshore	2 marked	30	June 1 – Dec 31

*for in-season management measures in specific areas refer to the information provided in the Fishery Notices

**some terminal portions of Areas 23 and 25 had higher daily limits of hatchery Coho (4) from August 1 – Dec 31 (portions of Area 23) and from July 15 – Dec 31 (portions of Area 25).

Catch and release information for Coho from these fisheries can be found in Appendix 4.

WCVI – Inshore Recreational Fisheries

In 2020, hatchery-marked Coho retention was reduced to 2 per day (with unmarked retention remaining 1 per day) in Areas 23 to 27. Some terminal areas in portions of Area 23 (23-1 to 23-3) and 25 (25-4 to 25-5) had daily limits of 4 per day, with unmarked retention remaining at 1 to target hatchery stocks.

Fraser River – Tidal Water Recreational Fisheries

In the tidal waters of the Fraser River downstream of the Canadian Pacific Railway (CPR) Bridge at Mission, BC, from November 2 to December 31 the retention of two hatchery-marked Coho per day was permitted.

This recreational fishery was assessed from November 2 to November 30, 2020. Catch estimates can be found in Appendix 5.

6.6.2 NON-TIDAL RECREATIONAL FISHERIES

Vancouver Island Tributary Recreational Fisheries

Fresh water conditions continued to remain favourable in 2020 compared to past years and no additional restrictions were in effect on Vancouver Island due to drought-like conditions.

Northern Vancouver Island Tributary Recreational Fisheries

Typical non-tidal openings for Coho were available on:

- Campbell/Quinsam River from October 1 to December 31 for four per day, two of which could be marked over 35 cm;
- Cayeghle River (including the Colonial River) from April 1 to March 31 for one per day;
- Cluxewe River from April 1 to March 31 for two per day, hatchery-marked only;
- Kokisilah River from April 1 to March 31 for one per day, maximum size limit of 35 cm;
- Nahwitti River from April 1 to March 31 for one per day; and
- Quatse River from June 15 to March 31 for two per day, hatchery-marked only.

Anglers were restricted to the use of barbless hooks. Catch is not estimated in these freshwater fisheries.

Strait of Georgia Tributary Recreational Fisheries

In 2020 Coho openings were provided on:

- Cowichan River from November 1 to December 31 for one Coho per day, minimum size limit of 25 cm;
- Nanaimo River from November 1 to December 31 for 2 hatchery-marked only Coho per day, minimum size limit of 25 cm;
- Puntledge River from October 1 to November 30 for 1 hatchery-marked only Coho per day, minimum size limit of 25 cm; and
- Chemainus River from October 15 to March 31 for one per day, maximum size limit of 35 cm.

Catch is not estimated in these freshwater fisheries.

WCVI Tributary Recreational Fisheries

Typical non-tidal openings for Coho were available on:

- Somass/Stamp River from August 25 to December 31 the daily limit was two, hatchery-marked or unmarked. A single, barbless hook restriction is in effect all year and there was a bait restriction in the Upper Somass and Stamp rivers from May 1 to October 31.

- Nitinat River from October 15 to December 31 the daily limit for Coho was two, hatchery-marked or unmarked. A two-week closure occurred between October 1 and October 14 to protect Chinook Salmon during their peak spawning period. The area above Parker Creek is closed to fishing. A single barbless hook restriction and bait restriction is in effect all year.

- Conuma River from August 25 to December 31with a daily limit of two Coho, hatchery-marked or unmarked.

- Washlawlis River and Waukwass River and other west coast rivers are open year-round with a daily limit of one Coho, hatchery-marked or unmarked. Barbless hooks are required. No creel survey information is collected. Other rivers receiving some directed catch and release effort for Coho stocks are the Wakeman, Artlish, Zeballos, Tahsis, Burman, Ash, Taylor, Pacheena, Toquart and Leiner. The quota for all west coast streams, unless identified above, is zero (0).

Catch is not estimated in these freshwater fisheries.

Fraser River and Tributaries – Non-tidal Recreational Fisheries

Region 2: The retention of two hatchery-marked Coho per day was permitted once the majority of the Interior Fraser wild Coho population was through the area and following the Steelhead window closure in the following area:

- From the CPR Bridge at Mission, BC upstream to the Highway #1 Bridge at Hope - November 3 to December 31.

In 2020, this Fraser River recreational fishery in Region 2 was assessed from November 3 to November 30. Catch estimates can be found in Appendix 5.

There are no directed Coho openings in the Fraser River or tributaries upstream of the Highway #1 Bridge at Hope, BC. This includes all of Regions 3, 5, 7 and 8.

The following tributaries to the Fraser River in Region 2 were open during the dates stated below:

- Alouette River and De Boville Slough from October 1 to December 31 for one hatchery-marked Coho per day.

- Coquitlam River from September 1 to December 31 for one hatchery-marked Coho per day.

- Kanaka Creek from November 1 to November 30 for one hatchery-marked Coho per day.

- Chilliwack River/Vedder for four hatchery-marked Coho per day from September 1 to December 31.

- Chehalis River from September 1 to December 31 for four hatchery-marked Coho per day.

- Harrison River for four hatchery-marked Coho per day from September 1 to December 31.
- Nicomen Slough, Norrish Creek and the Stave River for four hatchery-marked Coho per day from September 1 to December 31, with only two over 35 cm.

In 2020, the Chilliwack/Vedder recreational fishery was assessed from September 15 to November 30 and the Nicomen/Norrish fishery was assessed from October 1 to December 15. Catch estimates can be found in Table 5. No assessments were conducted on the recreational fisheries occurring on the remaining rivers listed above.

During 2019, there were limited non-tidal openings for hatchery-marked Coho on the following systems which enter Boundary Bay:

- Little Campbell River, Nicomekl River and the Serpentine River one hatchery-marked Coho per day from September 1 to December 31.
- These recreational fisheries were not assessed in 2020.

6.7 Excess Salmon-to-Spawning Requirements (ESSR) Fisheries

WCVI ESSR Fisheries

The Somass First Nations were issued an ESSR licence at the Robertson Creek Hatchery in 2020 that included Coho and Chinook salmon.

The Ditidaht First Nation was issued an ESSR Licence for Chinook, Coho and Chum at Nitinat Lake and Nitinat hatchery.

All ESSR harvest information can be found in Appendix 7.

Lower Fraser ESSR Fisheries

In 2020, there were ESSR fisheries at the Capilano, Chilliwack and Inch Creek hatcheries; harvest of Coho Salmon was permitted. All ESSR harvest information can be found in Appendix 7.

Strait of Georgia ESSR Fisheries

A Coho Salmon ESSR fishery for Qualicum First Nation took place at Big Qualicum Hatchery from late September to Mid-October (data are preliminary at this time).

An ESSR fishery for the Snuneymuxw First Nation for Chum Salmon and hatchery-marked Coho Salmon took place in Early November.

All ESSR harvest information can be found in Appendix 7.

Johnstone Strait ESSR Fisheries

For 2020, there were no ESSR opportunities on Coho in Johnstone Strait.

7 SOUTHERN BC CHUM

7.1 JOHNSTONE STRAIT CHUM SALMON

7.1.1 OBJECTIVES AND OVERVIEW

The Johnstone Strait Chum Salmon fishery targets Southern BC Chum that spawn primarily in the Fraser River and in tributaries of Johnstone Strait and the Strait of Georgia. This fishery also intercepts a small proportion of Puget Sound Chum. Since 2002, the Johnstone Strait Chum fishery as been managed using a 20% fixed ER strategy. This approach has provided predictable harvest opportunities for the commercial sector and has increased the probability of meeting escapement goals across the many populations contributing to this fishery. Of the 20% ER, 15% is allocated to commercial fisheries and the remaining 5% is set aside for test fisheries, First Nations FSC, sport harvesters and to also provide a buffer to commercial exploitation. Since the implementation of this management strategy, annual fisheries have been planned well in advance of the Chum return.

On July 11th 2019, the Government of Canada and the Province of British Columbia announced a joint Steelhead Action Plan identifying new conservation measures for Thompson and Chilcotin Steelhead Trout (two population components of the Interior Fraser River (IFR) Steelhead aggregate). Based on our current understanding, there is considerable overlap in the timing and location of the return migration of IFR Steelhead and several South Coast salmon fisheries. The timing of this stock of concern is particularly overlapped with that of Fraser River Chum. Given the potential for salmon fisheries to incidentally harvest co-migrating IFR Steelhead, the Department of Fisheries and Oceans implemented a series of window closures for fisheries occurring in times and areas that overlap with the IFR Steelhead migration, in both marine and freshwater fishing areas.

The announcement of these closures precipitated significant changes to the 20% fixed ER strategy for the Johnstone Strait Chum fishery. In 2020, the pre-season commercial fishing plan was modified to maintain opportunity in Johnstone Strait, while ensuring that fishing did not occur within the outlined IFR Steelhead closure times and areas. With the window closures reducing access to the earlier timed components of the Inside Southern Chum (ISC) run, fisheries were planned at a reduced ER (below the typical 20% ER).

As outlined in Chapter 6 of the PST, commercial Chum fisheries in Johnstone Strait are suspended when an abundance estimate of less than 1 million Chum Salmon migrating through Johnstone Strait is expected. As numbers exceeded 1 million Chum in 2020, all fisheries proceeded as scheduled.

This year, the Area B (seine) and Area D (gill net) were competitive (derby style) fisheries, and the Area H (troll) fleet was managed using an effort-based individual transferable effort (ITE) demonstration fishery.

7.1.2 STOCK STATUS

Johnstone Strait In-season Assessment

In 2020, the main components of the Inside Southern Chum (ISC) return assessed by the Johnstone Strait test fishery were expected to be both Fraser and non-Fraser stocks. These stocks are typically dominated by four-

year-old fish, and the abundance of the 2016 brood return that out-migrated in 2017 was well above average. Other salmon species that out-migrated in 2017 had encountered poor survival conditions (i.e. local Pink and Coho returns in 2018 were poor). The pre-season expectation for ISC was therefore for below to near target returns to the area. Based on the very strong 2016 brood year, it was expected that the age 4_1 component would contribute more than average to the 2020 Chum return.

The Johnstone Strait test fishery, which ran from September 21st through October 28th, provided timing and abundance information for the 2020 return, which is important in assessing the performance of the 20% fixed ER strategy. It also provided an index of abundance, used to determine the likelihood of the number of returning Chum being over the 1.0 million critical level (requirement for commercial openings). From the onset of the program, the Chum CPUE in the test fishery was tracking much lower than the 2016 brood year but better than the low returns encountered in 2010 and 2019. On October 7th it was determined that the ISC index of abundance was likely above the 1.0 million critical level (Figure 11-1) and any planned Johnstone Strait commercial mixed stock fisheries would continue as planned with a focus on the later portion of October due to Steelhead conservation measures. The Chum CPUE from the test fishery continued to track above the 2010 and 2019 return years but well below the 2016 brood indicating a continued trend of reduced productivity since 2016 (Figure 11-1). The age composition derived from the test fishery samples exhibited a much higher than average contribution of 4-year-olds throughout the season with extremely low contribution of 5-year-olds from the 2015 brood.

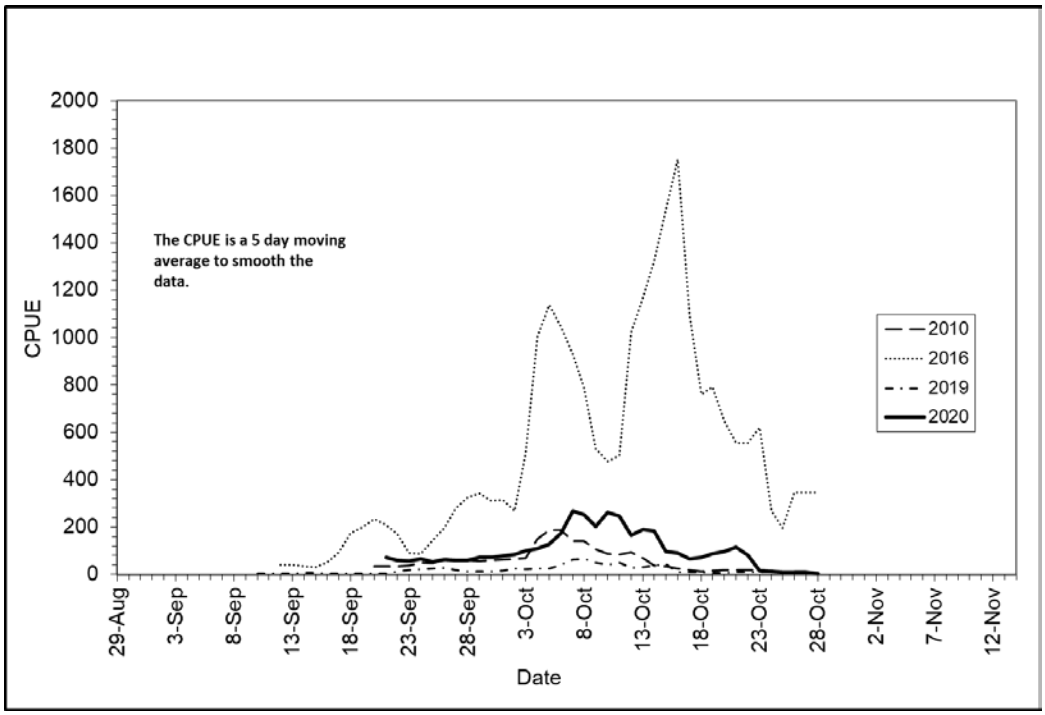

Figure 11-7-1 2020 Johnstone Strait Chum Test Fishery CPUE compared to 2016 (dominant brood year),2010 and 2019(two of the lowest retruns in recent years).

Terminal returns

Although escapement monitoring is limited, Summer Chum returns tended to be well below average.

At the time of this report, escapement programs were still being conducted for Fall Chum stocks. Preliminary escapements of ISC aggregate populations (Johnstone Strait, Strait of Georgia and Fraser combined) were below average and many populations were below their respective escapement goals throughout the ISC area. Stocks in the Southern portion of Vancouver Island and the Fraser performed much better than to the north on Vancouver Island and over on the mainland portions of the Strait of Georgia. Nanaimo River Chum achieved escapement goal and terminal fisheries were initiated. Cowichan and Goldstream Chum will likely be close to their respective goals when the 2020 season is complete.

7.1.3 FIRST NATIONS DOMESTIC AND FSC FISHERIES

Johnstone Strait's First Nations fisheries for Chum Salmon were not subject to IFR Steelhead restrictions in 2020. Chum Salmon harvests took place using hook and line, gill nets and seine nets in Johnstone Strait in mid-September, with most of the effort throughout October. The total Chum Salmon catch in the Johnstone Strait FSC fishery can be found in Appendix 4.

7.1.4 FIRST NATIONS COMMERCIAL HARVEST

There was no First Nations commercial harvest of Johnstone Strait Chum in 2020.

7.1.5 COMMERCIAL FISHERIES

Commercial Chum fisheries in 2020 were planned as per the PST, however a modified approach was taken to maintain opportunity in Johnstone Strait while aligning with the intent of the Interior Fraser Steelhead rolling window closure. Fisheries are usually scheduled to achieve a 20% fixed ER on ISC stocks passing through Johnstone Strait with 15% ER for commercial and 5% ER for test, FSC, recreational and a commercial buffer. Shares of the 15% commercial ER are usually shared among the Area B seine (11.55%), Area D gill net (2.55%) and Area H troll fleets (0.9%). With the Steelhead window closure reducing access to a portion of the ISC, the 2020 fisheries were planned pre-season to a reduced commercial ER of 9.83%, shared between the Area B seine (6.67%), Area D gill net (2.29%) and Area H troll (1.09%) fleets.

Area B Seine Fisheries

In 2020 the pre-season plan for seines was to have one 10-hour opening, followed by one 3 hour opening for Chum Salmon in portions of Areas 12 and 13. The openings were scheduled pre-season to occur October 21st and 22nd. Due to weather impacting the fishery, and lower than expected effort on the October 21st, a 5-hour extension was given on October 22nd.

The estimated catches from the 2020 Area B Seine Johnstone Strait Chum directed fisheries can be found in Appendix 4. The peak effort in the fishery was 68 vessels.

Area D Gill Net Fisheries

In 2020 the pre-season fishing plan consisted of two Area D gill net openings planned for 41 hours in duration each and subject to change based on in-season assessment, effort information and weather events. The first gill net opening was for 41 hours from 16:00 hours on October 18 to 09:00 hours on October 20 in Area 12 only

The second opening was lengthened in response to lower than predicted effort during the October 18 to 20; opening to 65 hours from 16:00 hours on October 23 to 09:00 hours on October 26 in both Areas 12 and 13. The estimated catches from the 2020 Area D gill net Johnstone Strait Chum directed fisheries can be found in Appendix 4. The peak effort on the October 18 to 20 opening was 104 vessels and 132 vessels on the October 23 to 26 opening.

Area H Troll Fisheries

In 2020 the pre-season plan for Area H troll Individual Transferrable Effort (ITE) demonstration fishery was to have only one fishing period which was to occur from October 12 to October 31 with a one-day closure during the first day of the Area B Seine fishery. Each licence was allocated five boat days during fishing period. Boat days could be transferred between vessels and could be fished at any time within the fishing period. Total effort for the Johnstone strait fishery was 142 boat days. The estimated catches from the 2020 Area H troll (ITE) Johnstone Strait Chum directed fisheries can be found in Appendix 4.

7.1.6 RECREATIONAL FISHERIES

7.1.6.1 TIDAL RECREATIONAL FISHERIES

The marine recreational daily limits for Chum are four (4) with a possession limit of eight (8) salmon. Chum opportunities are typically opened at full limits in the Johnstone Strait area, but may be reduced if Chum returns are low. Peak participation in the recreational Chum fishery typically occurs over the Thanksgiving weekend in mid-October and activity is usually driven by abundance. The Strait of Georgia creel survey for Areas 13 and 14 was conducted from July to October. Recreational catches were reported as very low, as Chum abundance in the marine area was below average in 2020. The majority of the recreational Chum Salmon fishing effort occurs in Area 13, which is included in the Strait of Georgia catch estimate.

7.1.6.2 NON-TIDAL RECREATIONAL FISHERIES

There are no Chum-retention fisheries in non-tidal waters in the Johnstone Strait area. Some catch-and-release fisheries do take place and are considered to very minimal.

7.1.7 EXCESS SALMON-TO-SPAWNING REQUIREMENTS (ESSR) FISHERIES

There were no ESSR opportunities for Johnstone Strait Chum in 2020.

7.2 FRASER RIVER CHUM

7.2.1 OBJECTIVES AND OVERVIEW

Chum Salmon return to the Fraser River from September through December, with the typical peak of migration through the lower river occurring from mid to late October. Spawning locations are predominately located in the Fraser Valley downstream of Hope, BC, with major spawning aggregations occurring within the Harrison River (including Weaver Creek and Chehalis River), the Stave River and the Chilliwack River. No spawning locations have been identified upstream of Hell’s Gate.

The escapement objective for Fraser River Chum is 800,000. Since 2001, this objective has been achieved in all but five years; escapement to spawning grounds in 2009, 2010, 2017, 2018 and 2019 did not meet the escapement goal, with approximately 460,000, 590,000, 620,000, 650,000 and 190,000 returning to spawn in those years, respectively.

Fraser River Chum are typically harvested in Johnstone Strait, the Strait of Georgia, U.S. waters of Area 7 and 7A and in the Fraser River.

Within the Fraser River, Chum-directed fisheries include First Nations FSC fisheries, recreational fisheries and commercial fisheries. In recent years, significant conservation measures have been implemented in-river during the Fraser River Chum migration period to protect co-migrating stocks of concern (including IFR Coho and IFR Steelhead). Depending on the fishery, these measures have included both time and area closures and gear restrictions. These conservation measures have restricted Fraser River commercial Chum fishing opportunities in recent years.

In 2020, the Department implemented management measures to reduce the incidental impacts of Chum fisheries on co-migrating IFR Steelhead (including Thomson and Chilcotin River populations). Measures that were implemented in 2020 were the same as those introduced in 2019, with additional restrictions for set gillnet fisheries in the Fraser River. Moving window closures 42 days in duration were put in place for commercial gillnet and seine salmon fisheries located along the migratory route of IFR Steelhead, including Southern BC marine waters and the Fraser River and tributaries downstream of Thompson and Chilcotin River Steelhead spawning areas. This 42-day rolling window closure also applied to recreational salmon fisheries within the Fraser River and tributaries (including areas immediately off the Fraser River mouth). Commercial troll fisheries in the marine area and First Nations' FSC salmon fisheries occurring within the Fraser River and tributaries downstream of Thompson and Chilcotin River Steelhead spawning areas were subjected to a 27-day moving window closure. Following the closure window (and new for 2020), set gillnet gear was further restricted to operate during daylight hours only, while attended by a harvester.

7.2.2 STOCK STATUS

The number of adult Chum Salmon arriving at the mouth of the Fraser River each fall (terminal return) is estimated in-season with a Bayesian model based on Albion test fishery catch.

The Fraser River Chum test fishery at Albion operated every other day from September 1 until October 19, alternating days with the Albion Chinook test fishery. From October 21 until November 9, the Chum net fished every day and then every other day from November 11 until November 23. Total Chum catch for the Albion test fishery can be found in Appendix 2.

DFO provided an in-season terminal return estimate on October 15 of 1,082,000 Chum Salmon. The estimated 50% migration date of the run was October 22.

A subsequent estimate of Fraser River Chum terminal return was provided on October 21. The estimated terminal return on that date was 1,084,000 (80% probability that the run is between 702,000 to 1,697,000), with a 50% migration date through the lower river of October 20. This peak date is slightly later than that observed in recent years (average peak date from 1997-2019 is October 18). It was estimated it is very likely that the run would exceed the escapement goal of 800,000.

Additional in-season terminal return estimates were not provided, as subsequent test fishing information was consistent with a terminal return run size of 1,084,000.

Fraser River Chum Salmon return to numerous spawning locations in the Lower Fraser River and its tributaries. Spawning escapement for Fraser River Chum Salmon is currently assessed for five of the largest Chum producing systems, as well as for a number of smaller tributaries. The largest observed escapement of Fraser River Chum (greater than 3 million fish), was seen in 1998. From 1999 to 2010, Fraser Chum Salmon escapement (for the annually assessed systems) trended downward. The escapement decline was then halted and reversed with an estimated 1.1 million spawners reported in 2011. Spawning escapement had remained stable through 2016 and achieved the escapement goal in each year (2011-2016 estimated escapement averaged 1.3 million spawners). However, spawning escapements in 2017 (660,000), 2018 (690,000) and most notably 2019 (300,300) were estimated to be below the escapement goal of 800,000 Chum Salmon spawners. Chum assessments in 2020 are ongoing, no estimate is currently available.

7.2.3 FIRST NATIONS DOMESTIC AND FSC FISHERIES

First Nations Food, Social and Ceremonial (FSC) Chum-directed gill net fisheries commenced October 24 (below Port Mann Bridge), October 25 (Port Mann Bridge to Mission Bridge) and October 26 (Mission Bridge to Hope Bridge), following closures to protect co-migrating IFR Coho and IFR Steelhead.

The total Fraser River Chum catch (either directed or bycatch) in First Nations FSC fisheries can be found in Appendix 5.

7.2.4 FIRST NATIONS COMMERCIAL HARVEST

In 2020, there were Chum-directed EO or demonstration fisheries in the LFR:

- Musqueam and Tsawwassen: November 1, 2020.
- Harrison Fisheries Authority: November 3-6, 2020

Hatchery Coho caught in Chum directed fisheries were also permitted to be sold.

The total Fraser River Chum catch (either directed or bycatch) in First Nations Commercial fisheries can be found in Appendix 5.

7.2.5 COMMERCIAL FISHERIES

Area B Seine Fisheries

There were no Area B fisheries in Area 29 for Sockeye or Chum salmon in 2020 and, therefore, no catch of Chum Salmon to report.

Area E Gill Net Fisheries

Commercial salmon fisheries in the Lower Fraser River (below Mission) were closed during the IFR Coho window closure, and closures remained in place through until November 1, 2020 to meet the IFR Steelhead

management objectives. Following the IFR Steelhead window closure, there were three (3) Area E fishery openings in the Fraser River, with a total estimated harvest of 33,339 Chum.

Area H Troll Fisheries

There were no Area H fisheries in Area 29 for Sockeye or Chum salmon in 2020 and, therefore, no catch of Chum Salmon to report.

7.2.6 RECREATIONAL FISHERIES

7.2.6.1 TIDAL RECREATIONAL FISHERIES

In most southern BC tidal waters, the daily limit for Chum Salmon was four (4) in 2020.

Fraser River – Tidal Recreational Fisheries

January 1 to November 1, 2020, this area was closed to fishing for salmon.

November 2 to December 31, 2020, open to the retention of Chum Salmon with a daily limit of four (4).

An assessment of the in-river tidal Fraser River recreational fishery occurred from November 2 to November 30. Catch estimates can be found in Appendix 5.

7.2.6.2 NON-TIDAL RECREATIONAL FISHERIES

Chum Salmon fishery assessments only occur in Region 2 of the Fraser River between Mission and Hope, BC. Above Hope the number of Chum Salmon likely to be encountered is very low. Chum Salmon are not known to migrate into Regions 3, 5, 7 or 8.

Fraser River – Non-Tidal Recreational Fisheries

January 1 to November 2, 2020, area closed to fishing for salmon.

November 3 to December 31, the Region 2 non-tidal Fraser River from the CPR Bridge at Mission, BC to the Highway No. 1 Bridge at Hope, BC was open to retention of Chum Salmon with a daily limit of two (2).

An assessment of the non-tidal Fraser River recreational fishery occurred from November 3 to November 30. Catch estimates can be found in Appendix 5.

Fraser River Tributaries Recreational Fisheries

The following Fraser River tributaries were open to Chum Salmon retention during the dates noted in 2020.

- Alouette River – October 1 to December 31, daily limit of one (1) Chum Salmon.
- Chilliwack and Vedder Rivers – October 1 to December 31, daily limit of one (1) Chum Salmon.
- Harrison River – October 1 to December 31, daily limit of two (2) Chum Salmon.
- Nicomen Slough – October 1 to December 31, daily limit of two (2) Chum Salmon.

- Stave River – October 1 to December 31, daily limit of two (2) Chum Salmon.

The Chilliwack and Vedder rivers recreational fishery was assessed from September 15 to November 30 in 2020. Catch estimates can be found in Appendix 5. In 2020, no assessment was conducted on the fisheries in the Alouette, Harrison and Stave rivers; however, the Nicomen Slough/Norrish Creek fishery was assessed from October 1 to December 15, 2020. Catch estimates can be found in Appendix 5.

The following systems that flow into Boundary Bay were open to Chum Salmon retention during the dates noted.

- Serpentine River – October 1 to October 31, 2020, daily limit of one (1) Chum Salmon.

This recreational fishery was not assessed.

7.2.7 EXCESS-TO-SPAWNING REQUIREMENT (ESSR) FISHERIES

There were ESSR fisheries in 2020 that harvested Chum Salmon at:

- Chilliwack Hatchery;
- Inch Creek Hatchery; and,
- Chehalis Hatchery.

All ESSR harvest information can be found in Appendix 7.

7.3 STRAIT OF GEORGIA CHUM

7.3.1 OBJECTIVES AND OVERVIEW

Strait of Georgia Chum fisheries consist of terminal opportunities for Chum returning to their natal spawning streams. Many of the terminal fishing areas have enhancement facilities and/or spawning channels associated with adjacent river systems. Terminal fishery strategies consist of monitoring and assessing stocks (escapement and returning abundance), with the objective of ensuring adequate escapement and providing harvest opportunities where possible. Stock assessments may include test fisheries, escapement enumeration including swim surveys, stream walks, channel entry counts, fence counts, sonar (DIDSON) counts and over flights. In some areas where stocks receive considerable enhancement or where stocks have above average productivity, limited fishing may occur prior to escapement objectives being reached.

7.3.2 STOCK STATUS

In 2020 escapement was forecast to be above target in every system except for the Puntledge River, which was forecast to meet the escapement target of 60,000 on the normal run timing curve (Table 7-1). In-season estimates show that the Nanaimo River has reached the escapement target of 40,000 and Goldstream River has surpassed its target of 15,000. All other systems are expected to remain below escapement targets and forecast values this year. The values presented in this section are in-season counts and AUC estimates as of December 2, 2020. Post-season analysis may change the 2020 escapement values.

Mid-Vancouver Island rivers, which include Puntledge, Big Qualicum and Little Qualicum had a combined escapement target of 230,000 and a low-range forecast of 284,800. As of November 20th Mid-Vancouver Island is below the escapement target and forecast at an escapement of 56,718 Chum. Puntledge River had 20,597 Chum, Big Qualicum had 11,558 and Little Qualicum had 24,563 Chum. However, escapement in 2020 is well above what was seen in 2019, which was 18,217 for all three systems.

Preliminary escapement for Jervis/Narrows Inlet rivers in 2020 is 24,009 total. Specifically, there was 223 Chum counted in Vancouver River, 196 counted in Brittain River, 9,610 estimated from AUC in Skwakwa River, 10,260 estimated from AUC in Deserted River and 3,720 estimated from AUC in Tzoonie River. The preliminary escapement total for all of the systems is substantially below the escapement target of 85,000 and the low-range forecast of 99,200. The preliminary escapement for 2020, however, is well above the 2019 escapement of 6,612.

Nanaimo River reached escapement target and is currently at 47,270 Chum. This is well below the low-range forecast of 111,800 for 2020, but higher than the escapement of 21,905 in 2019. Cowichan River was close to reaching the escapement target at 153,570 Chum. This is above the 2019 escapement of 94,500, but below the low-range forecast of 186,900 for 2020. Goldstream River is above the escapement target of 15,000 at an estimate of 17,995 from AUC. This is also above the 2020 forecast of 16,500, but below the 2019 escapement of 21,547.

Escapement in Sliammon Creek was well above the 1,036 Chum escapement in 2019 at 6,342, which includes fish counted at the fence, in the spawning channel, broodstock and an estimate of fish below the fence. While escapement was higher than 2019, the 2020 count is significantly below the 2020 escapement target of 11,000 and the low-range forecast of 25,000. In Theodosia, 19,340 Chum have returned to the river. This is considerably higher than the 2,654 escapement seen in 2019 and is close to reaching the 2020 escapement target of 21,000. The escapement for Okeover Creek is currently 2,130 according to AUC estimates and is expected to increase slightly, as another survey is planned for the system. The 2020 escapement seen so far is much higher than the 117 in 2019, but is below the escapement target and low-range forecast of 6,000 and 6,400, respectively. An escapement estimate for Lang Creek will be available post-season.

Table 7-1: 2020 escapement of Chum in Strait of Georgia Rivers along with the low and high forecast values for 2020, the 2019 escapement and the 2020 escapement targets.

Forecast Area	2020 Forecast		2019 Escapement	2020 Escapement Target	2020 Escapement
	Low	High			
Mid-Vancouver Island	284,800	427,200	18,217	230,000	56,718
- Puntledge	48,600	73,000	6,531	60,000	20,597
- Big Qualicum	145,300	217,900	2,020	85,000	11,558
- Little Qualicum	90,900	136,300	9,666	85,000	24,563
Jervis/Narrows Inlets	99,200	148,800	6,612	85,000	24,009
Nanaimo River	111,800	167,600	21,905	40,000	47,270
Cowichan River	186,900	280,300	94,500	160,000	153,570
Goldstream River	16,500	24,800	21,547	15,000	17,995
Sliammon Creek	25,000	37,400	1,822	11,000	6,342
Theodosia River	29,400	44,200	2,654	21,000	19,340
Okeover Creek	6,400	9,600	117	6,000	2,310
Lang Creek	4,500	6,700	1,036	2,500	

7.3.3 FIRST NATIONS DOMESTIC AND FSC FISHERIES

Strait of Georgia First Nations FSC fisheries for Chum Salmon were not restricted in 2020. Seine net and gill net fisheries targeting Chum Salmon in the marine mixed stock areas began in early October, with effort increasing towards late October and early November. Chum Salmon catch summaries from Tla'amin Treaty and non-Treaty First Nations FSC fisheries in the Strait of Georgia can be found in Appendix 4.

7.3.4 FIRST NATIONS COMMERCIAL HARVEST

Area 14 First Nations Commercial Fisheries

Discussions with the K'omoks First Nation occurred around the harvest of surplus Chum for a Demonstration Fishery, however the Chum returns were poor and no commercial demonstration fisheries occurred.

Area 17 First Nations Commercial Fisheries

Pre-season discussions with the Nanaimo First Nation occurred to identify potential triggers and develop fishing plans to harvest surplus Nanaimo River Chum. During the season communication happened on a day to day basis to discuss stock status and potential fishing opportunities. In 2020 the Area 17 Demonstration fishery began October 14 for a TAC of 5,000 Chum. The fishery continued until October 24 when the initial allowable harvest was achieved. The Demonstration fishery reopened November 5 when the Nanaimo River target escapement of 40,000 Chum was achieved. Chum catch can be found in Appendix 4.

Area 18 First Nations Commercial Fisheries

A bi-weekly conference call was held with the Cowichan Fisheries Harvest Roundtable to discuss stock status and potential fishing opportunities in Area 18. The Area 18 Demonstration Fishery was triggered when 60,000 Chum had been estimated passed the Didson counter on October 28. The fishery began October 29 for a TAC of 5,000 Chum. The fishery continued until November 7. Chum catch can be found in Appendix 4.

Area 19 First Nations Commercial Fisheries

Pre-season meetings occurred with Saanich Tribes to discuss potential triggers and fishing plans to harvest surplus Goldstream Chum. On November 23 the demonstration fishery was triggered but not activated as it was deemed unlikely to be successful. There was no Saanich Tribes Demonstration fishery in 2020 targeting Chum.

7.3.5 COMMERCIAL FISHERIES

Area 14 Commercial Fisheries

Chum returning to this area have been enhanced since the late 1960s and terminal fisheries have occurred in October and November since the 1970s. The returning Area 14 Chum abundance is forecasted pre-season using brood escapement, average survival and age composition. In-season run size is assessed by escapement counts to the three major river systems and DFO hatcheries contributing to the stock aggregate.

The Area 14 Chum fishery is directed at the enhanced stocks of three systems: Puntledge, Qualicum and Little Qualicum Rivers. The Qualicum River is often referred to as the 'Big' Qualicum River, to better distinguish it

from the Little Qualicum River. The escapement goals for the three river systems are 60,000 for Puntledge River, 85,000 for Little Qualicum River and 85,000 for Qualicum River, adding up to an overall interim escapement goal of 230,000 Chum, not including enhancement facility requirements (about 10,000 Chum, bringing the total escapement goal to 240,000).

Area 14 commercial Chum fisheries are managed based on forecasted abundance. In-season, the management strategy for considering fishery openings falls under one of two categories depending on whether the pre-season forecast is greater than or less than 340,000 Chum. When the pre-season forecast is greater than 340,000, early Chum openings can target up to 65% of the anticipated surplus above 340,000. When pre-season forecast is less than 340,000, an early-timed limited effort gillnet fishery may be used to evaluate the mid-Vancouver Island aggregate abundance.

In 2020 the mid-Vancouver Island aggregate was managed based on the pre-season forecast of less than 340,000 Chum. An Area D gill net assessment fishery consisted of three (3) openings of 50 hours each, weekly, between October 14 and October 31. During the third opening scheduled October 28-30 there was a 30 hour pause due to weather, with the fishery resuming on October 30.

Chum catch for can be found in Appendix 4.

Area 16 Commercial Fisheries

This fishery targets wild Chum stocks returning to river systems in the Jervis Inlet area. The main systems are Tzoonie, Deserted and Skwawka Rivers. The overall escapement goal for rivers in Jervis/Narrows Inlet is 85,000. Terminal fisheries may occur in these areas when the individual or combined escapement goals have been assured, but fishing opportunities do not occur on a regular basis. There were no fisheries in Area 16 in 2020.

Area 17 Commercial Fisheries

This fishery is a terminal fishery targeting Nanaimo River stocks. The Nanaimo River Chum stocks are supplemented by the Nanaimo River hatchery. Hatchery supplementation occurs is on a sliding scale, where increased enhancement occurs during poor escapement years. Escapements fluctuate annually and fishery openings are planned in-season based on escapement estimates. The overall escapement goal for the Nanaimo River is 40,000.

Nanaimo River assessments include swims by Nanaimo River Hatchery staff and a sonar counting system (DIDSON). The DIDSON was installed and operational on October 2. Early escapement information indicated potential surplus to the Nanaimo River and on October 14 a demonstration fishery was initiated for a TAC of 5,000 chum. In-season chum migration slowed and not until November 3 was there indications that the escapement goal was likely to be met. Terminal fisheries began November 4.

In 2020, terminal commercial fisheries for Nanaimo River Chum began with gill nets fishing November 4 and seines on November 5 & 6. Gear types fished separately until vessel count was low enough to avoid gear conflict. Chum catch can be found in Appendix 4. Area 17 closed for the balance of the season on November 16.

Area 18 Commercial Fisheries

This fishery is directed at Cowichan River stocks, with some incidental harvest of Goldstream-bound Chum. Fishery openings in early to mid November are limited to Satellite Channel, to minimize impacts on Goldstream stocks. Chemainus River stocks may also be impacted if fisheries occur earlier in November, but likely to a lesser extent.

Fishery openings are planned in-season based on escapement estimates from a DIDSON counter. Management is also guided by advice from the Cowichan Fisheries Roundtable and the Mid-Vancouver Island (MVI) Chum Subcommittee, and an in-season Chum Escapement Forecast Tool based on the DIDSON count and date. The overall escapement goal for the Cowichan River is currently 160,000 Chum passing by the DIDSON counter.

A bi-weekly conference call was held with the Cowichan Fisheries Roundtable to discuss stock status and potential fishing opportunities in Area 18. In 2020 there were no commercial fisheries for Cowichan River Chum except for the Cowichan Tribes Demonstration fishery.

Area 19 Commercial Fisheries

This fishery is directed primarily at Goldstream River stocks, although some Cowichan River Chum Salmon are also harvested. Fisheries are planned in-season based on escapement estimates. Area 19 falls under the same management regime as Area 18. The overall escapement goal for the Goldstream River is 15,000. Weekly stream walks are conducted on Goldstream River by Goldstream Hatchery staff to estimate Chum escapement. Enumeration began in the second week of October. In 2020, there were no commercial fisheries in Area 19.

7.3.6 RECREATIONAL FISHERIES

7.3.6.1 TIDAL RECREATIONAL FISHERIES

Marine recreational Chum fisheries are subject to the normal salmon daily and possession limits (limit of four per day and possession of eight), and are typically open throughout the area. The majority of the recreational effort directed at Chum Salmon in the Strait of Georgia occurs in the upper portions of Discovery Passage between Seymour Narrows and Chatham Point, not far from Campbell River. The annual Brown's Bay Charity Chum derby was suspended in 2020 due to the Covid-19 pandemic but it is usually the most active Chum recreational fishery in the area. There was a creel survey during the month of October in the Strait of Georgia (Areas 13 and14).

Marine recreational Chum fisheries also occur in the approach waters of the Puntledge, Qualicum, Little Qualicum, Nanaimo and Cowichan Rivers on Vancouver Island, as well as in Howe Sound, with effort increasing with Chum abundance. Due to below average Chum abundances observed in the marine area north of Nanaimo and average abundances south of Nanaimo, recreational effort in 2020 was minimal. Catch estimates for Chum in the marine recreational fisheries can be found in Appendix 4.

7.3.6.2 NON-TIDAL RECREATIONAL FISHERIES

Chum retention fisheries in Region 1 (Vancouver Island) took place in 2020 on the Courtenay, Nanaimo and Puntledge Rivers on Vancouver Island commencing in October. Due to low returns on the Qualcium and Cowichan Rivers there were no in-river recreational Chum opportunities for 2020. Recreational freshwater

retention opportunities are typically based on escapement estimates from hatchery operations, and where escapement goals are expected to be met, opportunities are provided.

7.3.7 EXCESS SALMON-TO-SPAWNING REQUIREMENTS (ESSR) FISHERIES

The Qualicum First Nation was issued an ESSR licence for Chum, Chinook, Coho and Pink salmon in 2020, however there were no surplus Chum Salmon in 2020.

An ESSR fishery for the Snuneymuxw First Nation for Chum Salmon and hatchery-marked Coho Salmon took place in Early November. In 2020, the Nanaimo River Chum ESSR was triggered November 4 when terminal escapement was assumed to be achieved. The fishery began November 5 and continued until November 12. Chum catch for the Nanaimo River ESSR fishery can be found in Appendix 7.

The K'ómoks First Nation was issued an ESSR licence to harvest Chum Salmon and fall Chinook Salmon at the DFO Puntledge River Hatchery in 2020. There were no surplus Chum Salmon available in 2020.

There were no ESSR fisheries at the Capilano hatchery in 2020 that included Chum Salmon.

7.4 WEST COAST VANCOUVER ISLAND CHUM

7.4.1 OBJECTIVES AND OVERVIEW

Commercial Chum Salmon fisheries normally occur in West Coast Vancouver Island (WCVI) from late September to early November in years of Chum abundance. The majority of Chum fishing on WCVI takes place adjacent to Nitinat Lake (Area 21). In some years there have been limited-effort gill net fisheries in Barkley Sound (Area 23), Clayoquot Sound (Area 24), Nootka Sound and Esperanza Inlet (Area 25) and Kyuquot Sound (Area 26).

Commercial fisheries for WCVI Chum employ a two-tiered strategy for managing harvest; either a constant harvest rate strategy or a surplus-to-escapement goal strategy.

Fixed Harvest Rate Strategy (fisheries targeting natural origin stocks, hatchery stocks at low abundance):

For those fisheries where a significant component of the target stock is from naturally spawning populations, a constant harvest rate strategy of 10 to 20% is implemented. The maximum harvest rate is set at a precautionary level relative to stock-recruit derived optimal ER for WCVI Chum; which are in the order of 30 to 40%. This approach allows limited harvest while protecting the biodiversity of Chum stocks and permitting rebuilding when the population is low. In areas of low quality data or only naturally spawning stocks, including Barkley (Area 23), Clayoquot Sound (Area 24), Esperanza Inlet (Area 25) and Kyuquot Sound (Area 26), the maximum allowable harvest rate is 10 to 15%. In Nootka Sound, up to 20% harvest is permitted given the prevalence of hatchery production in the area. The harvest rate is controlled by limiting effort (i.e. number and duration of openings and, in some areas, the number of permitted vessels) and limiting fishing areas to approach areas only (i.e. to those areas where fish are migrating not holding).

Since 2013, a fixed harvest rate strategy has also been used to harvest Nitinat Hatchery Chum when the stock abundance is considered above the lower fishery reference point but below the target fishery reference point. The maximum harvest rate for the Nitinat stock is 25% when it is below the target fishery reference point.

Surplus-to-Escapement Goal Strategy (fisheries targeting hatchery stocks at high abundance):

For fisheries that target primarily hatchery surpluses, the allowable harvest rate is determined by the escapement goal when it is determined the stock above the Upper Fishery Reference Point and broodstock capture targets have been or will be met. These fisheries occur only in 'terminal areas', defined as an area in close proximity to the origin watershed of the target stock where little or no interception of other stocks occurs. Surplus to escapement goal fisheries for Conuma Hatchery stock have occurred within the Tlupana Inlet portion of Area 25. Surplus to escapement goal fisheries for Nitinat Hatchery stock have occurred in Area 21 near the mouth of Nitinat Lake or in Area 22 in Nitinat Lake. All Nitinat and Conuma hatchery Chum are thermally marked, which allows for assessment of the hatchery contribution to fisheries and spawning.

7.4.2 STOCK STATUS

The recent stock status of wild WCVI Chum has generally been poor relative to historic levels, with spawning abundance for wild indicator stocks frequently below Lower Fishery Reference Points (LRPs) despite the implementation of a precautionary harvest regime (fixed harvest rate). In addition, hatchery production has declined in recent years, particularly at the Conuma Hatchery in Area 25 (Tluplana Inlet). In 2020, only two of the six WCVI Chum management areas had forecasted returns above the Lower Fishery Reference Points. In these two areas Stage 2 limited effort fisheries were implemented (Esperanza, Area 25 and Kyuquot, Area 26) and reported moderate to low CPUEs. Observed preliminary returns in 2020 suggest a continued low stock abundance.

7.4.3 FIRST NATIONS FSC AND TREATY FISHERIES

The 2020 WCVI FSC Chum reported catch (to date) can be found in Appendix 4 which includes fish retained for food, social and ceremonial purposes from Nuu-chah-nulth First Nations and Treaty harvests from Maa-nulth Nations.

7.4.4 FIRST NATIONS COMMERCIAL HARVEST

WCVI Economic Opportunity Fisheries

In 2020, EO agreements were in place with Hupacasath and Tseshaht First Nations during the Chum season however abundance did not permit a targeted opportunity.

Five Nations Communal Sales Fishery

In 2020, the Department provided communal sale fishery opportunities for the Five Nations (five Nuu-chah-nulth First Nations located on the West Coast of Vancouver Island - Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht and Tla-o-qui-aht).

Nearshore and terminal Chum fishery planning discussions occurred between the Five Nations and DFO during pre-season and in-season meetings. Implementation of nearshore Chum fisheries did not occur and no terminal harvest opportunities for Chum were identified in-season.

7.4.5 COMMERCIAL FISHERIES

Commercial fisheries on the WCVI targeted two Chum stocks in 2020: Esperanza (Area 25) and Kyuquot (Area 26).

Nitinat (Area 21/121) Commercial Fisheries

In 2020, the preseason forecast for Nitinat Chum was of 92,000. This is below the minimum forecast of 225,000) which allows Area E gill net and Area B seine fisheries. Due to ongoing declines in IFR Steelhead escapement, DFO implemented a precautionary approach to the management of those fisheries in Southern BC that are likely to impact this stock of concern. In Areas 21 and 121, a fishing window closure was in took place from September 11 to October 22 to address IFR Steelhead bycatch concerns. Following the window closure if in season abundance confirms that the return in Nitinat Lake is above the 225,000, fisheries would be permitted within a two mile boundary of the shore line between Bonilla Point and Pachena Point. Due to low Chum return of 160,000, escapement goals to the Nitinat system were not met in season; therefore, no commercial fisheries were authorized in 2020.

Nootka Sound (Area 25) Commercial Fisheries

Based on pre-season forecasts no fisheries were planned in Nootka Sound.

Esperanza Inlet (Area 25) Commercial Fisheries

Based on pre-season forecasts, a limited effort gill net Chum fishery opened in Esperanza Inlet on September 28, 2020. Effort was limited to a maximum of five vessels. The fishery was open for 1.5 days per week during daylight hours for 4 weeks. The total catch for the Esperanza Inlet Area D gill net limited effort fishery can be found in Appendix 4.

Kyuquot Sound (Area 26) Commercial Fisheries

Based on pre-season forecasts, a limited effort gill net Chum fishery opened in Kyuquot Sound on September 28, 2020. Effort was limited to a maximum of four vessels. The fishery was open for 1.5 days per week during daylight hours for 3 weeks. The total catch for the Kyuquot Sound Area D gillnet limited effort fishery can be found in Appendix 4.

7.4.6 RECREATIONAL FISHERIES

7.4.6.1 TIDAL RECREATIONAL FISHERIES

Daily limits of Chum in the WCVI recreational fishery are dependent on pre-season abundance forecasts relative to biologically based targets. In areas where the forecast was above target reference points (Area 25, Esperanza and Area 26, Kyuquot), the daily limit was four (4). In areas where the forecast was below target reference points (Area 23, Barkley, Area 24, Clayoquot and Area 25, Nootka), the daily limit was zero (0). At

Nitinat (Areas 21, 22), the daily limit was two (2). In 2020, due to conservation concerns for Southwest Vancouver Island Chum stocks, daily limits were reduced or closed as follows:

Areas 21 and 22 the daily limit was reduced to 2 per day from July 15 – Dec 31.

Areas 23, 24 and Subareas 25-1 to 25-8 and 25-15 the daily limit was reduced to zero.

The remaining portions of Areas 25, Area 26 and Area 27 were at daily limits of 4 per day.

Anglers are restricted to the use of barbless hooks and there is a minimum size limit of 30 cm.

7.4.7 EXCESS SALMON TO SPAWNING REQUIREMENTS (ESSR) FISHERIES

The Ditidaht First Nation was issued an ESSR Licence for Chinook, Coho and Chum at Nitinat Lake and Nitinat hatchery.

The total Chum ESSR catch can be found in Appendix 7.

There were no other Chum ESSR fisheries on the WCVI in 2020.

8 APPENDICES

8.1 APPENDIX 1: CATCHES IN CANADIAN TREATY LIMIT FISHERIES, 2004 TO 2020

Fisheries/Stocks	Species	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009	2008	2007	2006	2005	2004
Stikine River (all gears)	Sockeye	11,872	16,213	16,915	41,749	86,729	60,046	42,800	36,146	30,352	55,623	50,543	48,049	33,614	59,237	101,209	85,890	84,866
	Coho	5,105	5,228	3,685	5,502	5,346	5,619	4,992	4,835	5,748	4,703	4,952	5,061	2,398	47	72	276	275
	Chinook-lg	1,031	570	-	593	2,731	4,157	3,308	3,415	4,573	2,307	1,766	2,330	7,860	10,576	15,776	18,997	3,857
	Chinook-jk			-	788	794	1,537	759	1,594	1,213	1,165	1,001	714	1,067	1,735	2,078	2,177	2,574
Taku River (commercial gill net)	Sockeye	11,793	21,500	17,948	30,209	37,624	19,747	17,872	21,163	30,209	24,012	20,211	11,057	19,445	16,564	21,093	21,932	19,860
	Coho	7,036	12,252	9,503	7,726	9,513	7,886	14,568	10,374	8,689	6,102	10,349	5,649	4,866	5,399	9,180	6,860	5,954
	Chinook-lg	73	10	-	246	1,021	868	2,472	738	1,909	2,333	4,658	7,031	1,184	862	7,312	7,534	2,074
	Chinook-jk			-	88	205	-	657	N/A	478	514	697	1,183	330	337	198	821	334
Alsek River (all gear)	Sockeye	218	653	-	644	815	1,084	1,140	508	1,786	2,110	1,716	717	-	1,340	1,327	594	2,122
	Coho	6	10	-	-	-	-	-	29	N/A	29	7	3	34	1	-	71	127
	Chinook	22	37	-	74	10	87	39	73	85	214	294	125	7	41	19	114	185
Areas 3 (1-4)* (commercial net)****	Pink	-	-	101,267	704,450	430,435	80,266	450,671	1,249,570	118,164	160,757	30,686	404,460	8,330	1,740,270	228,378	878,552	402,459
Area 1 (commercial troll)****	Pink	136,890	60,003	266	38,763	32,343	41,551	31,775	84,216	57,013	52,221	19,948	60,402	29,295	61,276	34,854	39,430	27,751
North Coast** (troll + sport)	Chinook	36,817	88,001	106,976	143,330	190,180	158,903	221,001	115,914	120,305	122,660	136,613	109,470	95,647	144,235	215,985	243,606	241,508
		30,096+ 6,721	42,801+ 45,200	70,276 + 36,700	97,730 + 45,600	147,381+ 42,800	106,703 + 52,200	172,001 + 49,000	69,264 + 46650	80,256 + 40050	74,660 + 48000	90,213 + 46400	75,470 + 34,000	52,147 + 43500	83,235 + 61000	151,485 + 64500	174,806 + 68,800	167,508 + 74,000
West Coast Vancouver Island (troll + sport + FN)	Chinook	78,033	67,635	76,958	103,260	93,294	113,293	178,558	108,710	130,719	206,569	137,660	125,488	143,817	139,150	145,970	195,791	210,875
		14,566+ 51,151+ 12,316	23,195+ 35,867+ 8,573	28,840 + 45,233 + 2,885	54,411 + 46,707 + 2143	55,168 + 37,809 + 317	60,572 + 48,775 + 3,946	127,177 + 48,365 + 3,655	43,043 + 61,712 + 3955	62,573 + 61,822 + 4300	123,930 + 78,350 + 4289	79,123 + 52,698 + 5839	53,191 + 68,775 + 3381	89,704 + 50,319 + 3794	87,921 + 46,229 + 5,000	103,978 + 36,992 + 5,000	143,614 + 52,177	168,837 + 42,038
Fraser River Canadian Commercial Catch	Sockeye	-	-	3,682,561	-	-	-	7,945,474	2,124	-	443,000	9,305,104	-	16,942	-	4,633,623	137,000	1,993,800
	Pink	-	-	91,337	-	-	452	-	2,855,441	-	4,751,800	-	1,442,840	-	333,300	68,325	338,000	-
Fraser River U.S. Commercial Catch	Sockeye	-	-	989,459	-	-	44,100	691,000	4,609	105,100	266,000	1,970,000	-	49,800	3,900	701,300	-	192,200
	Pink	-	232,904	-	105,930	-	334,700	-	3,057,222	-	2,893,400	-	2,726,230	-	377,600	-	-	-
West Coast Vancouver Island (commercial troll)	Coho	115	-	-	331	774	18,126	32,992	5,499	1,988	-	458	-	369	1,424	2,399	5,989	-
Johnstone Strait (commercial catch)***	Chum	149,199	-	52,139	401,957	1,333,478	492,841	318,984	597,003	391,324	751,560	62,510	510,708	298,931	494,944	800,363	787,226	1,089,100

*AREA 5-11 CATCHES INCLUDED PRIOR TO 1995 AND EXCLUDED FROM 1995-1998 INCLUSIVE. NOT PART OF 1999 ANNEX IV PROVISIONS.

** NORTH COAST CATCH EXCLUDES TERMINAL EXCLUSION CATCHES OF 6,000 ('91), 6,100 ('92), 7,400 ('93), 6,400 ('94), 1,702 ('95), 16,000 ('96), 5,943 ('97), and 2,182 in 1998. NO TERMINAL EXCLUSION IN THE 1999 AGREEMENT - COVERED UNDER THE AABM ARRANGEMENT; CENTRAL COAST AREAS NOT PART OF 1999 ANNEX IV PROVISIONS.

*** CANADIAN CATCH INCLUDES COMMERCIAL, FSC AND TEST-FISH CATCHES IN AREAS 11-13 FOR 1991-94 INCLUSIVE, AND IN AREAS 12-13 FOR 1995 TO 2004 INCLUSIVE. 2002-PRESENT, CATCHES FROM FISHERIES MANAGED TO FIXED HARVEST RATE OF 20%.

****ALL PINK CATCHES FOR ALL YEARS (1995-2020) IN AREAS 3(1-4) AND AREA 1 HAVE BEEN UPDATED TO REFLECT FINAL ESTIMATES.

NOTE 1: WCVI CHINOOK CATCHES FROM 1995-1998 ARE REPORTED BY CALENDAR YEAR; CATCHES FROM 2008-1999 ARE REPORTED BY CHINOOK YEAR (OCT-SEPT)

NOTE 2: 1999 CATCHES ARE REPORTED ACCORDING TO FISHERIES/STOCKS UNDER THE 1999 ANNEX IV PROVISIONS.

8.2 APPENDIX 2: TRANSBOUNDARY CATCH TABLE

Licence Group	Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook Kept	Chinook Released
First Nations FSC and Treaty											
	Stikine	5,423	-	2	-	-	-	-	-	1,031	-
	Taku	237	-	66	-	-	-	-	-	73	-
	Alsek	218	-	-	-	-	-	-	-	22	-
Total First Nations FSC Catch		**5,878**	**-**	**68**	**-**	**-**	**-**	**-**	**-**	**1,126**	**-**
Commercial											
	Stikine	6,449	-	5,103	-	159	364	70	136	-	1,446
	Taku	11,556	2	6,970	6	-	7,306	-	157	-	413
Total Commercial Catch		**18,005**	**2**	**12,073**	**6**	**159**	**7,670**	**70**	**293**	**-**	**1,859**
Recreational											
	Alsek	-	-	6	3	-	-	-	-	-	-
Total Recreational Catch		**-**	**-**	**6**	**3**	**-**	**-**	**-**	**-**	**-**	**-**
TOTALS		**23,883**	**2**	**12,147**	**9**	**159**	**7,670**	**70**	**293**	**1,126**	**1,859**

8.3 APPENDIX 3: NORTHERN BC CATCH TABLE

Licence Group	Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook Kept	Chinook Released
First Nations FSC and Treaty											
	Skeena	110,685		3,081		2,148		56		2,098	
	Nass	39,390		897		6,606		80		5,577	
	Central Coast	608		13		125		173		1,627	
Total First Nations FSC Catch		**150,683**	**-**	**3,991**	**-**	**8,879**	**-**	**309**	**-**	**9,302**	**-**
Commercial											
Area C Gillnet	Central Coast	199	23	-	186	10,666	31	12,974	1	4,130	5
Demo	Central Coast	-	-	-	-	-	-	-	-	-	-
Area F Troll	Haida Gwaii AABM	-	351	28,142	75	27,392	11,336	25	1,896	30,096	5,874
Area F Troll	Haida Gwaii Pink/Coho	-	319	61,203	162	109,498	21,678	-	146	-	4,527
Total Commercial Catch		**199**	**693**	**89,345**	**423**	**147,556**	**33,045**	**12,999**	**2,043**	**34,226**	**10,406**
Recreational											
	Skeena/Nass	15,000		872		167		-		634	
	Central Coast	-	-	3,055	20	110		10		1,387	355
	Haida Gwaii	7		3,198		787		173		6,087	
Total Recreational Catch		**15,007**	**-**	**7,125**	**20**	**1,064**	**-**	**183**	**-**	**8,108**	**355**
TOTALS		**165,889**	**693**	**100,461**	**443**	**157,499**	**33,045**	**13,491**	**2,043**	**51,636**	**10,761**

8.4 APPENDIX 4: SOUTHERN BC CATCH TABLE

Not including Fraser River – see Appendix 4

Licence Group	Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook Kept	Chinook Released
First Nations FSC and Treaty											
	WCVI - Inshore ISBM			2,388				1,442		8,607	
	WCVI - Offshore AABM			20,990	120			6		3,709	115
	Strait of Georgia			730				6,651		2,962	
	Johnstone Strait			514				19,655		787	30
Total First Nations FSC Catch		-	-	24,622	120	-	-	27,754	-	16,065	145
First Nations Commercial											
EO	WCVI - Inshore ISBM									29,829	-
Total First Nations Commercial Catch				-						29,829	
T'aaq-wiihak											
	WCVI - Offshore AABM			65				2		4,170	
	WCVI - Inshore ISBM			45	132			19	13	6,174	
Total T'aaq-wiihak Catch		-	-	110	132	-	-	21	13	10,344	-
Commercial											
Area B		-	1	2	761	10	3	83,172	23	7,984	939
Area D		-	1	-	240	2	5	71,296	6	34,899	12
Area E		-	-	-	-	-	-	18,413	-	-	-
Area G		-	2	5	3,272	-	18	-	-	4,222	762
Area H		-	1	-	18	3	4	12,771	-	-	31
Total Commercial Catch		-	5	7	4,291	15	30	185,652	29	47,105	1,744
Recreational											
	Johnstone Strait	-	5	2,868	4,455	2,878	3,561	36	15	4,290	8,699
	Strait of Georgia	-	173	6,444	18,442	2,482	1,440	523	44	32,943	106,051
	Juan de Fuca	18	50	13,781	35,409	121	96	59	-	6,964	20,246
	WCVI - Inshore ISBM	10	18	10,920	7,921	48	104	7	6	37,410	19,046
	WCVI - Inshore AABM			503	244					4,296	5,293
	WCVI - Offshore AABM	5	12	7,807	10,476	11	12	-	3	9,445	3,691
Total Recreational Catch		33	258	42,323	76,947	5,540	5,213	625	68	95,348	163,026
TOTALS		**33**	**263**	**67,062**	**81,490**	**5,555**	**5,243**	**214,052**	**110**	**198,691**	**164,915**

8.5 APPENDIX 5: FRASER RIVER CATCH TABLE

Licence Group	Fishing Area	Sockeye Kept	Sockeye Released	Coho Kept	Coho Released	Pink Kept	Pink Released	Chum Kept	Chum Released	Chinook Kept	Chinook Released
First Nations FSC and Treaty											
	Fraser	11,294	4,196	283	1,898	-	-	22,547	36	33,568	1,299
Total First Nations FSC Catch		11,294	4,196	283	1,898	-	-	22,547	36	33,568	1,299
First Nations Commercial											
	Fraser	1		46	12			6,318		3	3
Total First Nations Commercial Catch		1	-	46	12	-	-	6,318	-	3	3
Commercial											
	Fraser	-	1	94	348	-	1	33,339	19	-	18
Total Commercial Catch		-	1	94	348	-	1	33,339	19	-	18
Recreational											
	Fraser	0	0	0	0	0	0	0	0	5,843	174
Total Recreational Catch		0	0	0	0	0	0	0	0	5,843	174
TOTALS		**11,295**	**4,197**	**423**	**2,258**	**-**	**1**	**62,204**	**55**	**39,414**	**1,494**

8.6 APPENDIX 6: TEST FISHING CATCH TABLE

Test-Fisheries	Start Date	End Date	Boat Days	Sockeye kept	Sockeye released	Coho kept	Coho released	Pink kept	Pink released	Chum kept	Chum released	Chinook kept	Chinook released	GRAND TOTAL
Albion Chinook Gillnet	19-Apr-20	20-Oct-20	158	48	-	41	-	-	-	977	-	1,285	-	**2,351**
Albion Chum Gillnet	1-Sep-20	23-Nov-20	50	1	-	544	-	-	-	6,150	-	450	-	**7,145**
* Mquqwin / Brooks Chinook Troll	N/A	N/A	N/A											**-**
Juan De Fuca Chum Seine	29-Sep-20	6-Nov-20	24	-	-	-	-	-	-	1,794	2,508	-	5	**4,307**
Area 12 Chum Seine	21-Sep-20	28/0ct/20	66	-	5	-	148	-	6	32,077	2,893	-	13	**35,142**
* Naka Creek Sockeye Gillnet	N/A	N/A	N/A											**-**
* Area 13 Sockeye Seine	N/A	N/A	N/A											**-**
Area 23 Sockeye Seine	7-Jun-20	20-Jul-20	16	6,447	2,431	-	-	-	-	-	-	-	85	**8,963**
Blinkhorn Sockeye Seine	20-Jul-20	5-Aug-20	17	865	719	-	89	-	17,513	-	142	-	142	**19,470**
Round Island Sockeye Gillnet	9-Jul-20	28-Jul-20	20	67	-	51	125	259	1	4	-	5	23	**535**
Round Island Sockeye Gillnet AT 90 Mesh Net Study	9-Jul-20	28-Jul-20	20	135	-	88	308	550	-	5	-	20	48	**1,154**
San Juan Sockeye Seine	21-Jul-20	6-Aug-20	17	1,044	220	-	507	-	31	-	8	-	853	**2,663**
San Juan Sockeye Gillnet	11-Jul-20	30-Jul-20	20	1,375	-	109	14	39	-	9	-	138	58	**1,742**
Whonnock Gillnet	23-Jun-20	8-Sep-20	78	333	22	20	4	-	-	6	-	709	94	**1,188**
Cottonwood Gillnet	8-Jul-20	4-Aug-20	28	22	4	-	-	-	-	-	-	2	6	**34**
Qualark Gillnet	11-Jul-20	4-Sep-20	55	926	-	-	1	-	-	-	-	827	97	**1,851**
Tyee														
** GST Troll Coho Sampling						44	15						161	**220**
Grand Total				**11,263**	**3,401**	**897**	**1,211**	**848**	**17,551**	**41,022**	**5,551**	**3,436**	**1,585**	**86,765**

All test fish catches include assessment and non-assessment sets

* Did not operate in 2020

** New for 2020

Note: Jacks are included in the above test fishing catches, if encountered

8.7 APPENDIX 7: ESSR CATCH TABLE

Hatcheries	Sockeye kept	Sockeye released	Coho kept	Coho released	Pink kept	Pink released	Chum kept	Chum released	Chinook kept	Chinook released	GRAND TOTAL
Robertson Creek	-	-	3,642		-	-	-	-	23,700		**27,342**
Quinsam River					160,667						**160,667**
Puntledge River									1,197		**1,197**
Nitinat River	-	-	92		-	-	32,288		15,922		**48,302**
Conuma River											**-**
Weaver Spawning Channel											**-**
Chehalis Hatchery							-	-	-	-	**-**
Inch Hatchery			916	-			2,606	-			**3,522**
Chilliwack Hatchery			18,255	-			599	-	2,712	-	**21,566**
Capilano Hatchery			2,281						998		**3,279**
Tenderfoot Hatchery											**-**
Big Qualicum River			15,223		10,269				8,285		**33,777**
Little Qualicum River									4,732		**4,732**
Cowichan River											
Nanaimo River			30				1,873				**1,903**
											-
Grand Total	**-**	**-**	**40,439**	**-**	**170,936**	**-**	**37,366**	**-**	**57,546**	**-**	**306,287**

2020 POST SEASON REPORT UNITED STATES SALMON FISHERIES OF RELEVANCE TO THE PACIFIC SALMON TREATY

Report Submitted to the Pacific Salmon Commission
By the United States Section

January 4, 2021

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POST SEASON REPORT

I. PRELIMINARY 2020 SOUTHEAST ALASKA FISHERIES

INTRODUCTION

This report describes the conduct of Alaska fisheries of interest to the Pacific Salmon Commission (PSC) that occurred during 2020 in the area south and east of Cape Suckling, Alaska and north of the U.S./Canada border. These fisheries were conducted under preseason management plans that were consistent with Annex IV of the Pacific Salmon Treaty, including obligations defined within Chapter 3 for Chinook aggregate abundance-based management regimes (AABM).

The 2020 season was challenging due to the broad impact of the COVID-19 pandemic on all aspects of society, including fisheries and fisheries management. In March, the State of Alaska designated fisheries as critical infrastructure to protect the food supply chain and the economy. The Commissioner of the Alaska Department of Fish and Game (ADF&G) immediately directed staff to develop action plans to safely implement field projects to the extent practicable so that fisheries could be prosecuted with the least amount of disruption. Alaska was successful in maintaining all its domestic projects necessary for fisheries management with no incidence of COVID-19, and fisheries occurred as planned with extra safety precautions in place for vessel operators, processors, and staff. We would like to recognize the numerous ADF&G staff who put in extraordinary efforts to ensure Alaska's fisheries continued uninterrupted during this difficult time.

Bilateral projects operating on the transboundary rivers (TBR) were particularly challenging this season, due to the varied mandates put in place by both countries to stop the spread of COVID-19 and the stricter rules regarding border crossings, which are inherent to bilateral operations. Despite the challenges, there was excellent bilateral communication between ADF&G, Canadian Department of Fisheries and Oceans (DFO), and Canadian First Nations that helped ensure that TBR projects operated as close to normal as possible and provided the data critical for management of fisheries harvesting salmon originating from the Stikine, Taku, and Alsek rivers. The enhancement programs on the Taku and Stikine rivers also face unique challenges with the transport of eggs and fry across the border, but by close coordination between Alaska and Canada, fry transports were ultimately successful. Alaska would like to thank all the Canadian personnel that made extra effort to ensure these essential projects were able to operate.

Due to these extraordinary efforts, Alaska was able to meet all its PST obligations with respect to data collection inclusive of catch accounting, sampling, escapement monitoring, and hatchery marking and tagging. All programs generally proceeded as normal, with exception of the federally operated Little Port Walter research facility which suspended marking and tagging. The State of Alaska does not anticipate any implications for meeting annual Treaty commitments due to the COVID-19 pandemic.

All fisheries were managed consistent with the obligations outlined in the PST. Preliminary data suggest that the harvests of sockeye salmon in Alaska were very low in all fisheries and will be below annual allowable harvests in Northern Boundary and Taku River fisheries. The District 104

purse seine fishery was limited to a single 6-hour opening prior to statistical week 31 to reduce harvest of Nass and Skeena river sockeye salmon. For Chinook salmon, all fisheries were managed conservatively and monitored closely inseason to avoid exceeding the harvest level defined in the 2019 PST Agreement, and the 2020 all-gear Treaty harvest of 204,624 was below the CPUE-based catch limit of 205,165.

NORTHERN BOUNDARY AREA FISHERIES

District 104 Purse Seine Fishery

The 2019 revision of the Pacific Salmon Treaty (PST) Agreement calls for abundance-based management of the District 104 purse seine fishery. The Agreement allows the District 104 purse seine fishery to harvest 2.45 percent of the Annual Allowable Harvest (AAH) of Nass and Skeena sockeye salmon prior to ADF&G statistical week 31 (referred to as the treaty period). The AAH is calculated as the total run of Nass and Skeena sockeye salmon minus either the escapement requirement of 1.1 million (200,000 Nass and 900,000 Skeena) or the actual in-river escapement, whichever is less.

The District 104 purse seine fishery opens by regulation on the first Sunday in July. In 2020, the first potential opening was July 5 (week 28). The pre-week 31 fishing plan for District 104 was based on the preseason DFO forecast runs of approximately 1.37 million Nass and Skeena sockeye salmon. In the 2020 Treaty period (Alaska statistical weeks 28-30), 6,923 sockeye salmon were harvested during a 6-hour opening in week 30 (Table 1). The fishery was closed in weeks 28 and 29 due to low Skeena River sockeye salmon abundance. A total of 13 purse seine vessels fished at some time in the district during the Treaty period. In past years 60% to 80% of Treaty-period sockeye salmon have been of Nass and Skeena origin, therefore we would anticipate between 4,200 and 5,500 Nass and Skeena sockeye salmon may have been harvested in the District 104 purse seine fishery during the 2020 Treaty period. The final number of Nass and Skeena sockeye salmon harvested, and the actual harvest by stock, will not be available until harvest, escapement, and stock composition estimates are finalized for the year.

In 2020, a total of 1,453,277 pink salmon, 143,877 sockeye salmon, 84,027 chum salmon, 19,705 coho salmon, and 3,833 Chinook salmon were harvested in the District 104 purse seine fishery (Table 1). The number of days that the fishery was open, and the number of boats fishing were both below the 1985–2019 average (Figure 1 and 2). Purse seine fisheries were on non-retention for Chinook salmon throughout most the season, except for weeks 32 through 34. Sockeye salmon harvests were below average in all weeks (Figure 4) and the treaty period (week 28–30) harvest of 6,923 was only 7% of the long-term average (1985–2019). The total sockeye salmon harvest of 143,877 was 32% of the long-term average of 453,000 fish. Harvests of coho salmon were also well below average in all weeks (Figures 5) and the overall harvest of 19,705 was 18% of average. The overall pink salmon harvest of 1,453,277 was only 19% of average (Figure 6) and the chum salmon harvest of 84,027 was 29% of average (Figure 7).

Since the PST was signed in 1985, the number of hours open, boats fished, and boat-days fished in the pre-Week 31 annex period in District 104 are down 56%, 63% and 85% respectively compared to the averages in the pre-treaty 1980–1984 period (Table 2). The total pre-week 31 Treaty-period sockeye salmon harvest is also down 51%. The seine fleet moves freely between districts as various species are harvested, so seining opportunities elsewhere affect the effort and catch in District 104.

Table 1. Weekly salmon harvest and fishing effort in the Alaska District 104 purse seine fishery, 2020.

Week/ Opening	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Hours
28	Closed	–	–	–	–	–	–	–
29	Closed	–	–	–	–	–	–	–
30	7/19	0	6,923	2,199	66,720	3,960	13	6
31	7/26	0	12,510	2,707	85,307	6,874	33	15
31B	7/30	0	41,647	4,166	509,164	19,872	71	15
32	8/2	771	26,546	2,195	191,282	15,571	68	15
32B	8/5	181	11,930	1,352	136,292	12,570	35	15
32C	8/8	103	10,158	1,085	111,983	7,812	23	15
33	Closed	–	–	–	–	–	–	–
33B	8/13	1,914	21,002	2,975	260,760	12,031	37	15
34	8/16	864	13,161	3,026	91,769	5,337	39	15
							Permits Fished	
Weeks 28-30		0	6,923	2,199	66,720	3,960	13	6
Weeks 31-34		3,833	136,954	17,506	1,386,557	80,067	98	105
Total		3,833	143,877	19,705	1,453,277	84,027	99	111

Table 2. Fishing opportunity, effort, and sockeye salmon harvest prior to week 31 in the Alaska District 104 purse seine fishery.

Year	Hours Fished	Individual Permits Fished	Days Fished (1d=15hrs)	Approximate Boat-Days	Sockeye Harvest	Sockeye Catch per Boat-Day
2020	6	13	0.4	5	6,923	1,385
Avg. 80-84	139	225	9	1,487	187,647	136
Avg. 85-19	61	84	4	222	92,873	454
% Change	-56%	-63%	-56%	-85%	-51%	235%

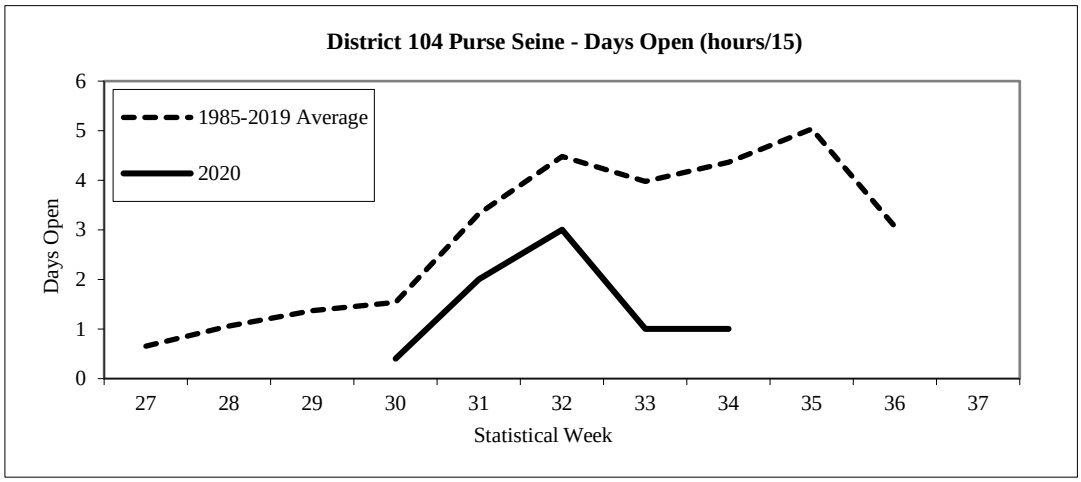


Figure 1. Days open by week in the District 104 purse seine fishery, 2020.

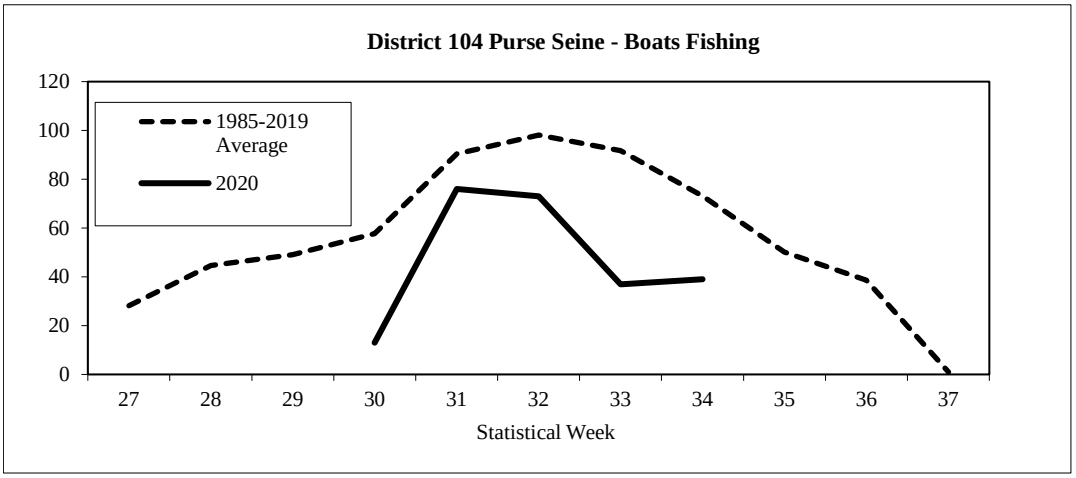


Figure 2. Number of boats fishing by week in the District 104 purse seine fishery, 2020.

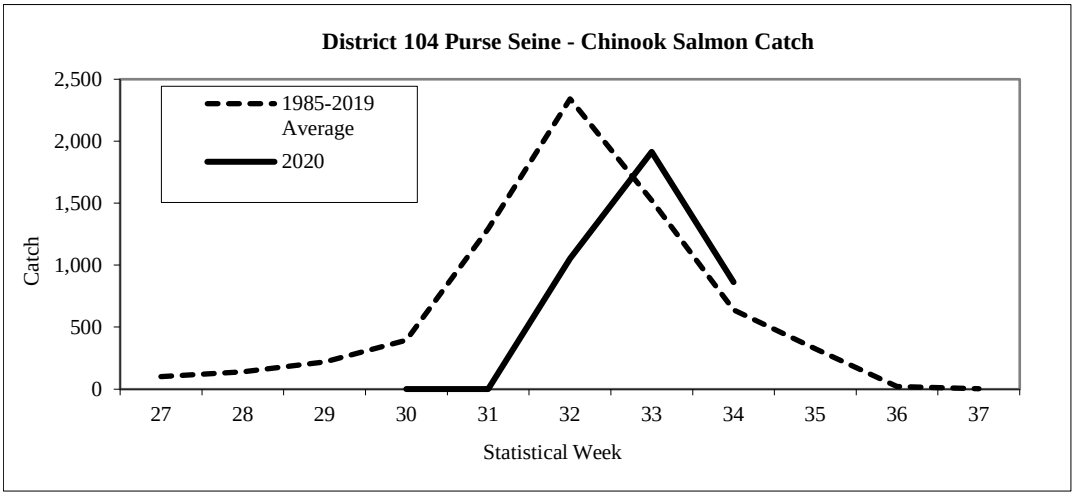


Figure 3. Chinook salmon harvest by week in the District 104 purse seine fishery, 2020.

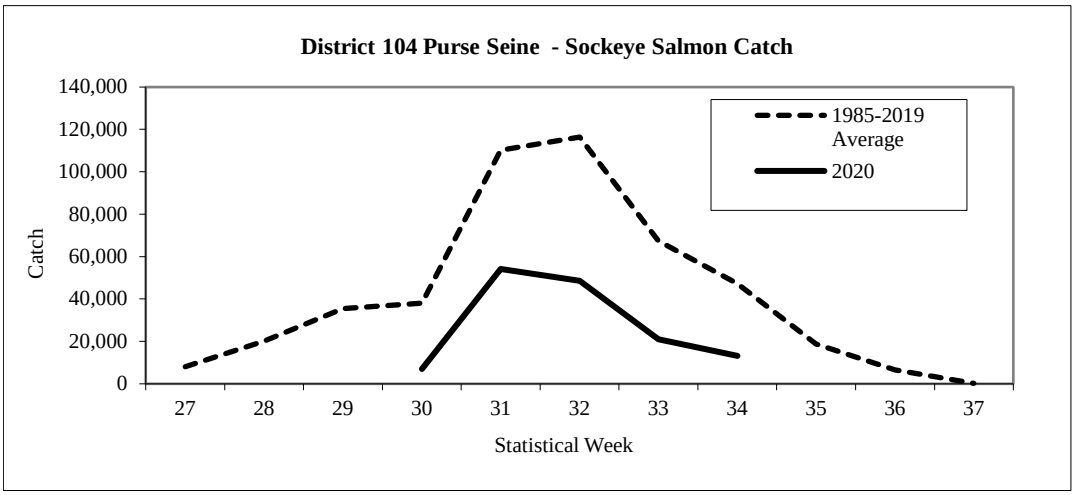


Figure 4. Sockeye salmon harvest by week in the District 104 purse seine fishery, 2020.

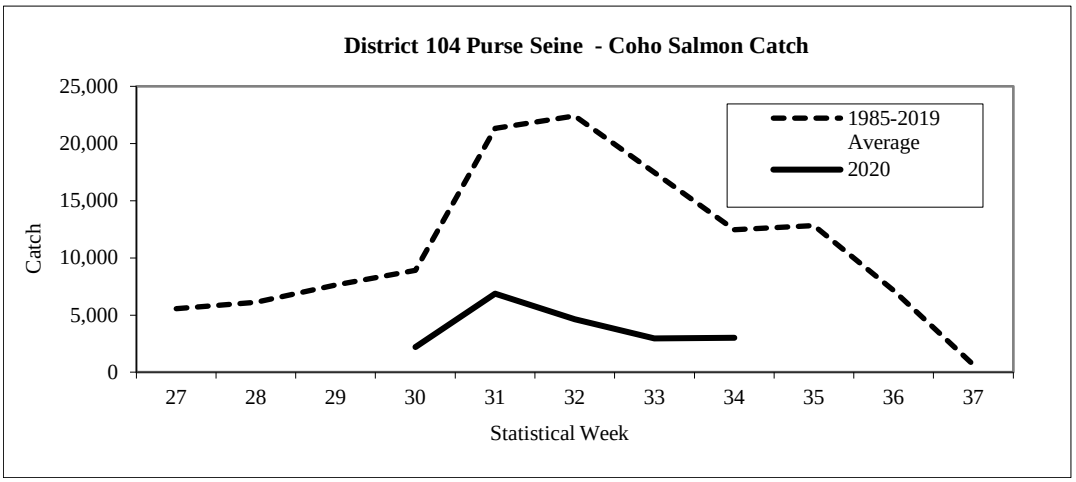


Figure 5. Coho salmon harvest by week in the District 104 purse seine fishery, 2020.

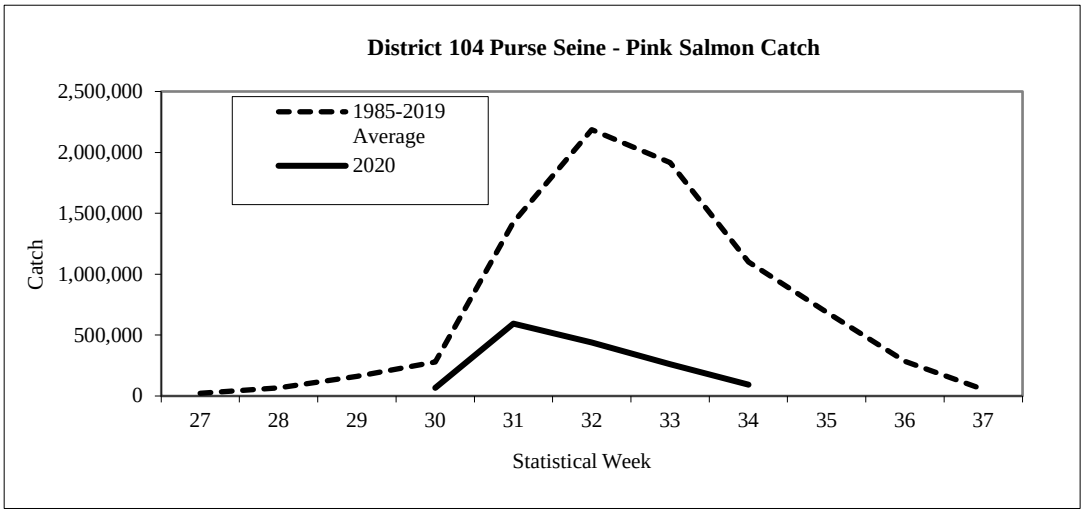


Figure 6. Pink salmon harvest by week in the District 104 purse seine fishery, 2020.

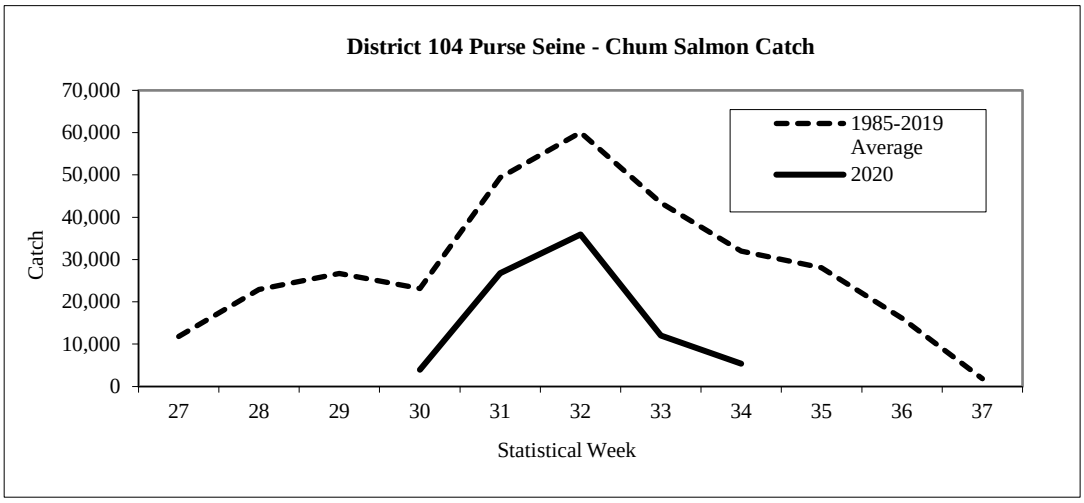


Figure 7. Chum salmon harvest by week in the District 104 purse seine fishery, 2020.

District 101 Drift Gillnet Fishery

The 2019 PST agreement calls for abundance-based management of the District 101 (Tree Point) drift gillnet fishery. The agreement specifies a harvest of 13.8 percent of the AAH of the Nass River sockeye salmon run. The AAH is calculated as the total run of Nass River sockeye salmon minus either the escapement requirement of 200,000 or the actual in-river escapement, whichever is less. The run of Nass River sockeye salmon was forecasted at 494,000 in 2020 which, minus an escapement goal of 200,000, would result in an AAH of about 294,000. Using this forecast, the 2020 allowable harvest in the District 101 drift gillnet fishery was approximately 41,000 Nass River sockeye salmon.

The District 101 drift gillnet fishery opens by regulation on the third Sunday in June, which was June 21 (week 26) in 2020. During the early weeks of the fishery, management is based on the run strength of Alaska wild stock chum and sockeye salmon and on the run strength of Nass River sockeye salmon. Beginning in the third week of July, when pink salmon stocks begin to enter the fishery in large numbers, management emphasis shifts by regulation to that species. By regulation, the District 101 Pink Salmon Management Plan (PSMP) begins the third Sunday in July and sets drift gillnet fishing time in this district in relation to the District 101 purse seine fishing time. Beginning in Week 35 (August 23) management was based on the strength of wild stock fall chum and coho salmon.

The District 101 drift gillnet fishery opened Sunday June 21(week 26) in 2020. The number of days the fishery was open was near average most of the season (Figure 8), but the number of boats fishing during weekly openings was below average throughout the season (Figure 9). The total number of individual boats fishing during the season was 50, which was approximately 48% of the long-term (1985-2019) average of 105 boats. A total of 9,348 sockeye salmon were harvested, which was only 9% of the 1985–2019 average of 109,130 fish and the lowest harvest since the inception of the PST (Table 3). Harvests of sockeye salmon were well below average throughout the season (Figure 10). The cumulative sockeye salmon harvest prior to the initiation of the PSMP in Week 30 was 4,783 fish, or about 51% of the season's total sockeye salmon harvest. The final number of Nass River sockeye salmon harvested at Tree Point will not be available until catch, escapement, and stock composition estimates are finalized for the 2020 season. In past years approximately 65% of the District 101 drift gillnet sockeye salmon harvest has been of Nass River

origin, therefore we would anticipate that approximately 6,100 Nass River sockeye salmon may have been harvested in the District 101 drift gillnet fishery in 2020.

Coho salmon harvests were below average throughout the season and the total harvest of 20,277 fish was 42% of average (Table 3; Figure 11). Pink salmon harvests were below average most of the season and the total harvest of 186,278 fish was 39% of average (Figure 12). Chum salmon harvests were also below average in most weeks of the fishery and the total harvest of 136,083 fish was 46% of average (Figure 13). Chinook salmon harvests were above average in most weeks of the season (Figure 14).

Table 3. Weekly salmon harvest and fishing effort in the Alaska District 101 commercial drift gillnet fishery, 2020.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Hours
26	6/21	348	1,469	221	228	7,862	25	96
27	6/28	519	1,940	574	2,405	11,083	26	96
28	7/5	304	705	821	8,635	12,684	31	96
29	7/12	200	669	1,253	15,887	20,041	33	96
30	7/19	297	1,866	1,324	36,136	33,555	36	96
31	7/26	87	1,421	932	73,002	23,760	39	96
32	8/2	14	319	1,255	21,559	8,195	32	120
33	8/9	10	146	554	6,943	4,531	21	48
34	8/16	6	292	1,038	10,422	5,146	26	48
35	8/23	8	340	3,232	9,490	6,144	29	96
36	8/30	6	170	4,382	1,543	2,203	23	96
37	9/6	7	8	2,637	23	574	22	96
38	9/13	6	3	2,054	5	305	19	96
Total		1,812	9,348	20,277	186,278	136,083	50	1,176
1985–2019 Avg.		1,479	109,130	48,042	481,877	294,895	105	1,377

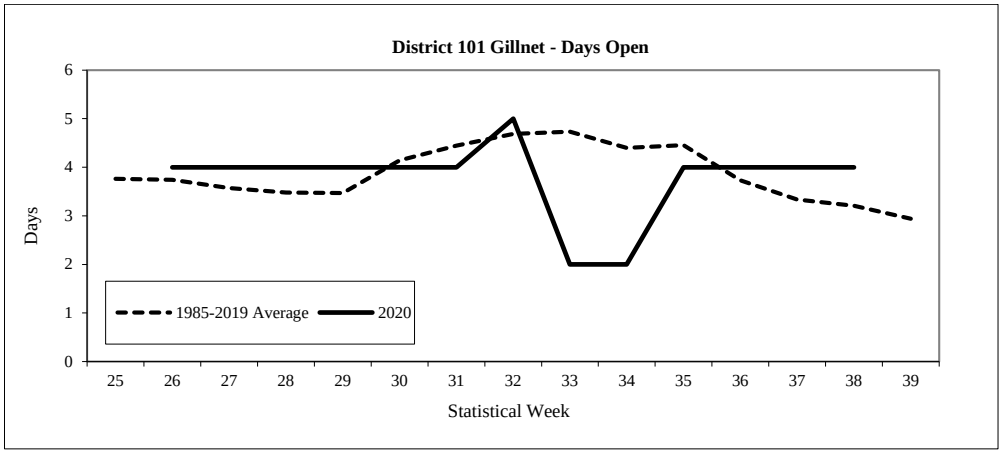


Figure 8. Days open by week in the District 101 drift gillnet fishery, 2020.

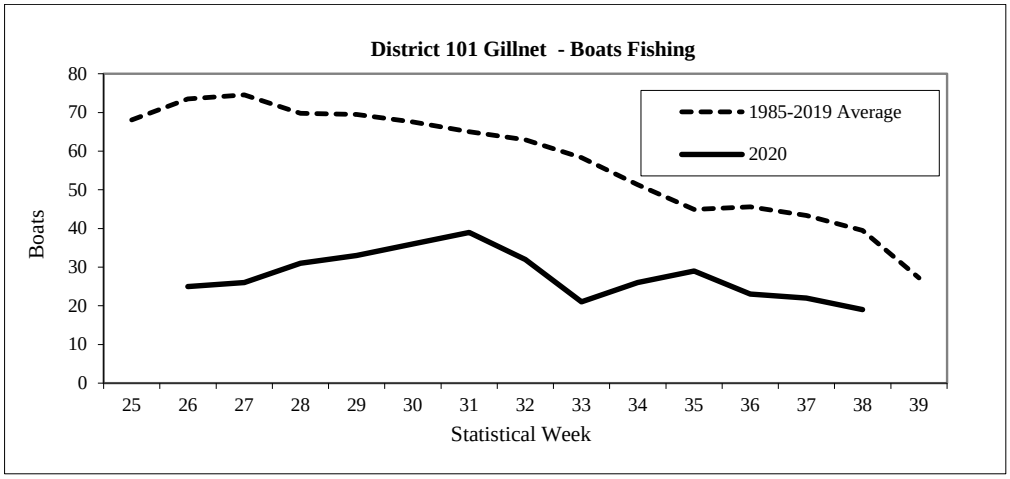


Figure 9. Number of boats fishing by week in the District 101 drift gillnet fishery, 2020.

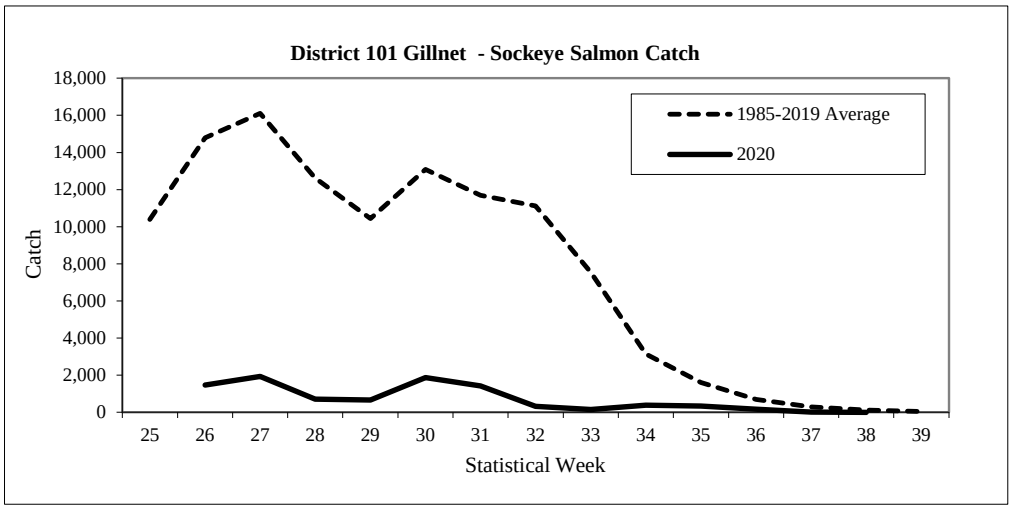


Figure 10. Sockeye salmon harvest by week in the District 101 drift gillnet fishery, 2020.

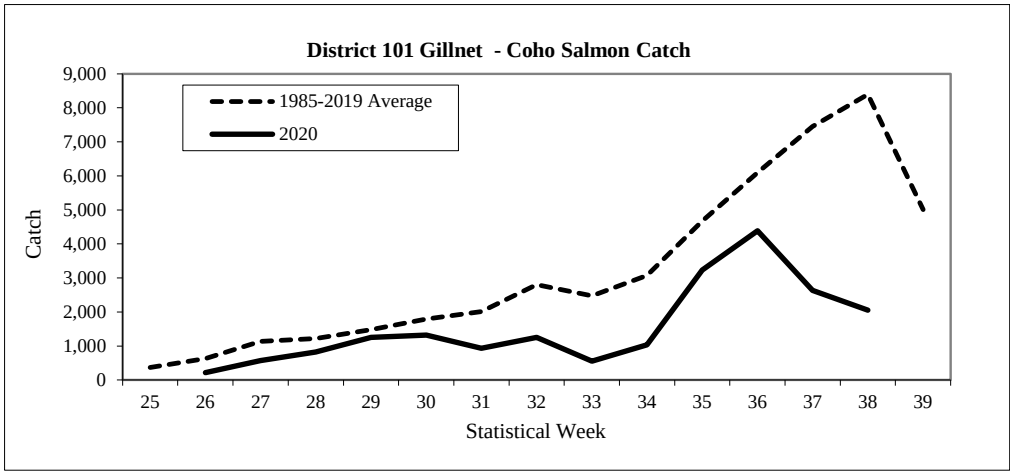


Figure 11. Coho salmon harvest by week in the District 101 drift gillnet fishery, 2020.

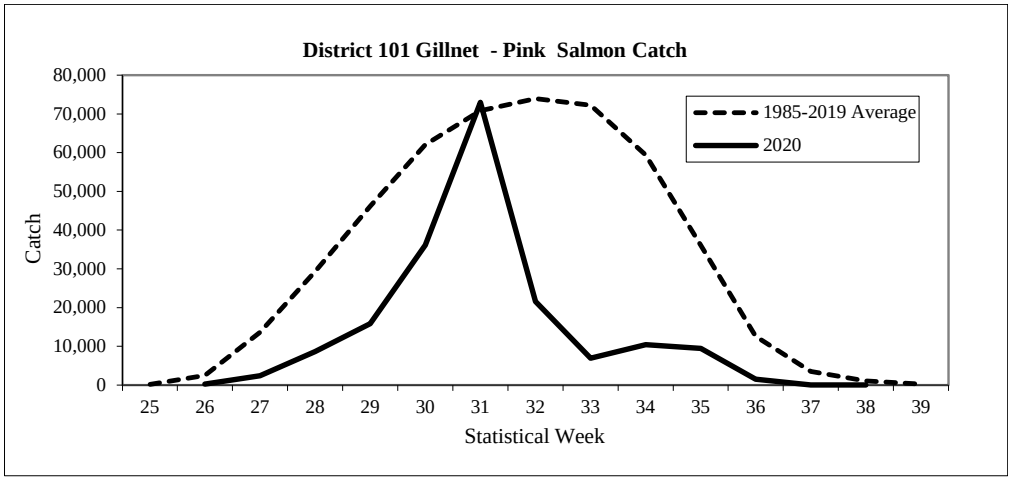


Figure 12. Pink salmon harvest by week in the District 101 drift gillnet fishery, 2020.

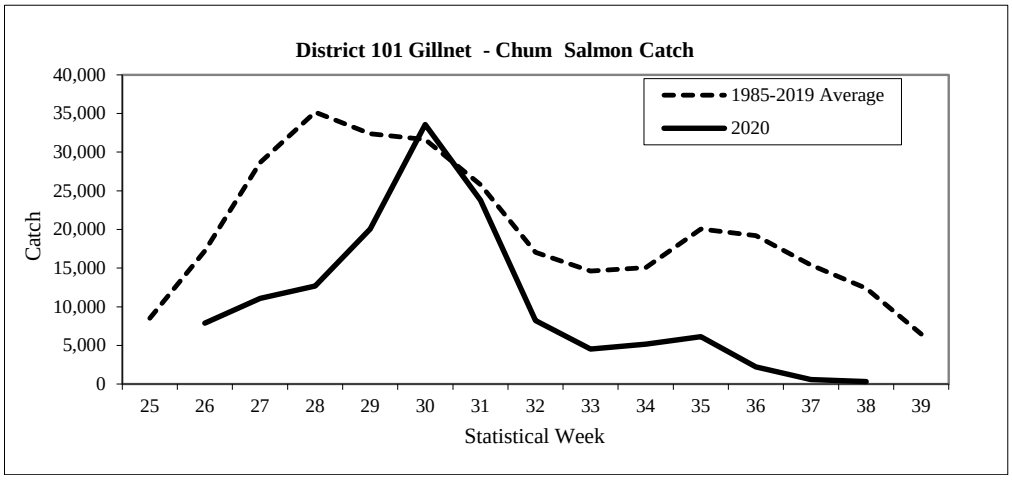


Figure 13. Chum salmon harvest by week in the District 101 drift gillnet fishery, 2020.

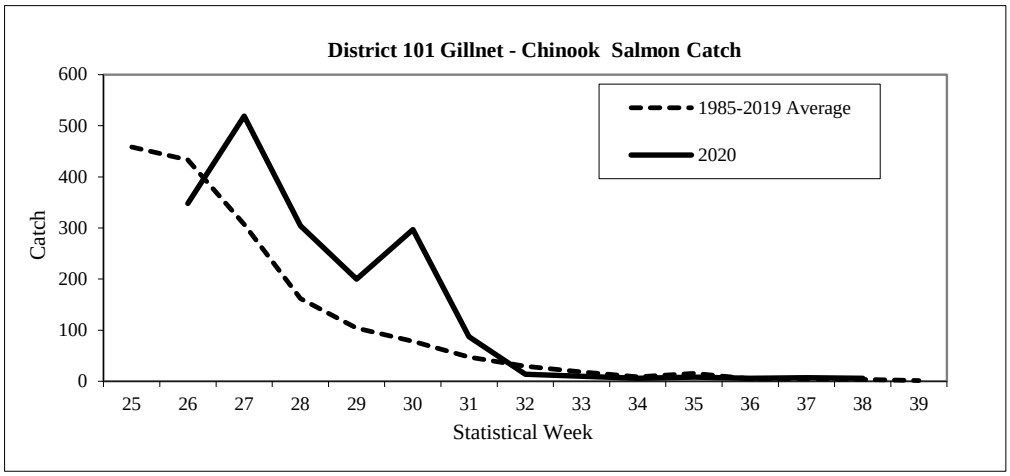


Figure 14. Chinook salmon harvest by week in the District 101 drift gillnet fishery, 2020.

Pink, Sockeye, and Chum Salmon Escapements

Escapements of pink salmon were generally good in southern Southeast Alaska and along the outer coast of northern Southeast Alaska, but poor to average throughout northern inside waters. The total 2020 Southeast Alaska pink salmon escapement index of 9.73 million index fish ranked 32nd since 1960. Biological escapement goals were met in the Southern Southeast and Northern Southeast Outside subregions, but escapement to the Northern Southeast Inside Subregion was below goal in 2020 (Table 4). On a finer scale, escapements were within management targets for 10 of 15 districts in the region and for 30 of the 46 pink salmon stock groups in Southeast Alaska. The Southern Southeast Subregion includes all of the area from Sumner Strait south to Dixon Entrance (Districts 101–108). The escapement index value of 5.7 million was within the escapement goal range of 3.0 to 8.0 million index fish. The pink salmon harvest of 6.3 million in the Southern Southeast Subregion was below the 2010–2019 average of 19.2 million fish. The overall Southeast Alaska pink salmon harvest of 8.1 million fish was approximately 23% of the 2010–2019 average of 35.4 million.

Table 4. Southeast Alaska 2020 pink salmon escapement indices and biological escapement goals by subregion (in millions).

Subregion	2020 Pink Salmon Index	Biological Escapement Goal	
		Lower Bound	Upper Bound
Southern Southeast	5.66	3.00	8.00
Northern Southeast Inside	2.29	2.50	6.00
Northern Southeast Outside	1.79	0.75	2.50
Total	9.73		

Sockeye salmon escapements throughout Southeast Alaska were mixed in 2020, and escapement targets were met for 6 of the 12 sockeye salmon systems with formal escapement goals. The Hugh Smith Lake adult sockeye salmon escapement was 3,860, which was well below the optimal escapement goal range of 8,000 to 18,000 adult sockeye salmon. Based on the expanded peak foot survey count, the escapement of sockeye salmon into McDonald Lake was only 8,200 fish, which was below the sustainable escapement goal range of 55,000 to 120,000.

For summer-run chum salmon, lower bound sustainable escapement goals were not met for two of the three subregions in Southeast Alaska. Runs are divided into summer and fall stocks. The Southern Southeast summer-run chum salmon stock group is composed of an aggregate of 15 summer-run chum salmon streams on the inner islands and mainland of southern Southeast Alaska, from Sumner Strait south to Dixon entrance, with a sustainable escapement goal of 62,000 index spawners (based on the aggregate peak survey to all 15 streams). Summer chum salmon escapements were below average at many index streams in southern Southeast Alaska, but the index of 70,000 in 2020 met the escapement goal (Figure 15).

Cholmondeley Sound is the only area in southern Southeast Alaska with a formal escapement goal for fall chum salmon. Fall chum salmon runs are monitored in Cholmondeley Sound through aerial surveys at Disappearance and Lagoon creeks. The escapement index of 30,000 was right at the lower bound of the sustainable escapement goal range of 30,000 to 48,000 index spawners (based on the aggregate peak survey to both streams; Figure 16).

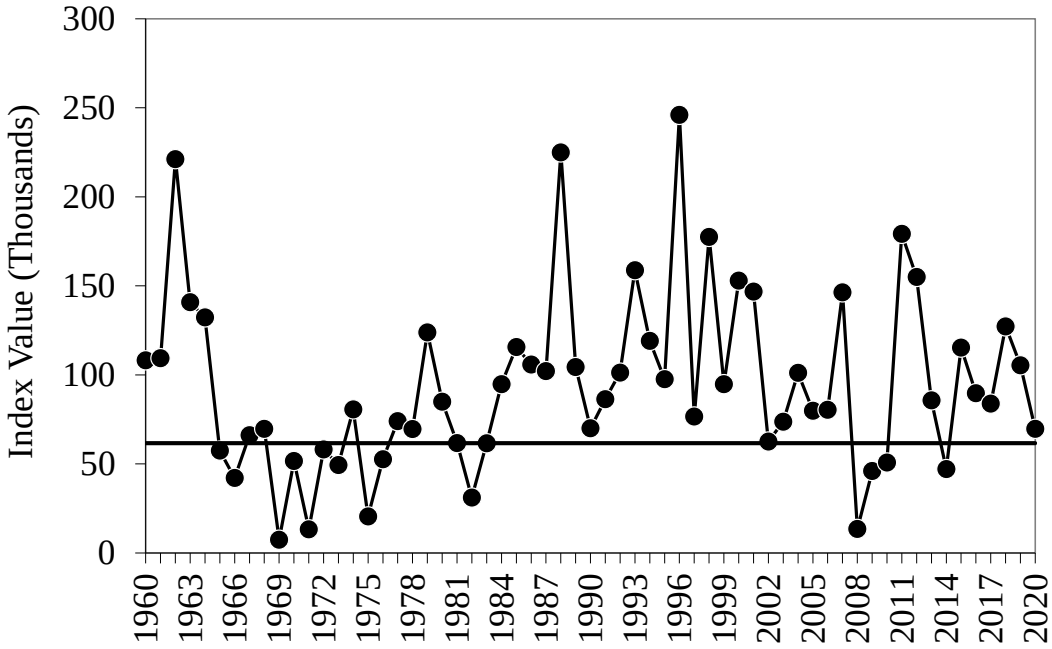


Figure 15. Observed escapement index value by year (solid circles) and the sustainable escapement goal threshold of 62,000 index spawners (horizontal line) for wild summer-run chum salmon in the Southern Southeast Subregion, 1960–2020.

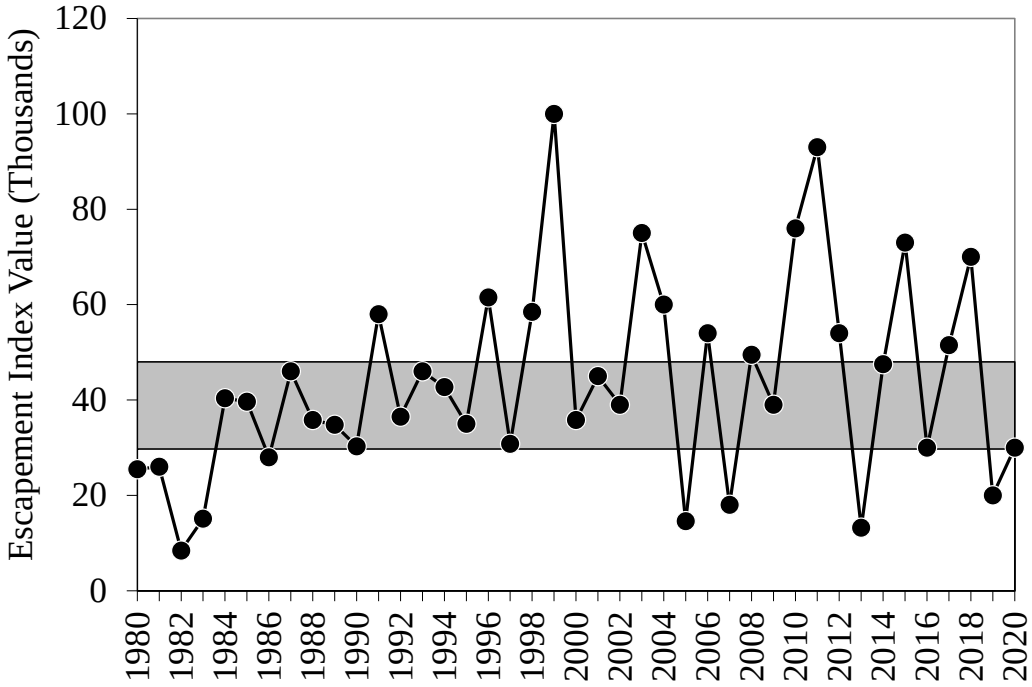


Figure 16. Observed escapement index value by year (solid circles) and the sustainable escapement goal range of 30,000 to 48,000 index spawners (shaded area) for Cholmondeley Sound fall-run chum salmon, 1980–2020.

TRANSBOUNDARY AREA FISHERIES

Stikine River Area Fisheries

The 2020 preseason forecast for large Chinook salmon returning to the Stikine River was approximately 13,400 fish, which did not allow for directed Chinook salmon fisheries in District 108. The standard mark-recapture program was not operated this year due to the low forecasted run and the desire by both countries to reduce mortality associated with the program. Inseason estimates produced by the Stikine Chinook Management Model (SCMM) indicated an escapement of 12,000 fish, which was below the lower end of the goal range of 14,000 to 28,000 fish. The preliminary escapement estimate of Stikine River large Chinook salmon is 9,753 fish, which is below the lower end of the goal range of 14,000 to 28,000 fish.

The 2020 preseason forecast for sockeye salmon returning to the Stikine River was 103,400 fish, which was below the 2010–2019 average of 114,700 fish. The 2020 forecast included approximately 30,000 wild Tahltan (29%), 34,500 enhanced Tahltan (33%), and 38,900 mainstem (38%) sockeye salmon. During the first half of the sockeye salmon management period, fishing periods in District 108, and to a lesser extent in District 106, were determined by the inseason abundance estimate of the Tahltan Lake run. Management actions during the second half of the sockeye fishery became focused on the mainstem component of the Stikine River sockeye salmon run in District 108, while returns to local area systems were the focus in District 106. Typically, Tahltan Lake sockeye salmon stocks exhibit peak run timing in District 106 and 108 fisheries during statistical week 26 (June 21–June 27). During an average Tahltan Lake run, significant numbers of sockeye salmon could be present as early as statistical week 24 (June 7–13) and as late as statistical week 31 (July 26–August 1). The 2020 runs of local area sockeye salmon stocks were below average.

Due to the poor performance of Chinook salmon stocks in SE Alaska, restrictions were implemented in the Districts 106 and 108 gillnet fisheries to conserve Chinook salmon. In District 106, the initial opening was delayed by one week and a six-inch maximum mesh restriction was in place for the first two openings. In District 108, the initial opening was delayed until week 27. Additionally, time, area, and mesh restrictions were implemented through statistical week 29 (July 12–July 18). Estimated harvest of large Stikine River Chinook salmon by the District 108 drift gillnet fishery during the sockeye salmon directed fishery period (weeks 27–29) was 62 fish based on genetic stock identification (GSI). The District 108 Spring Troll hatchery access fishery was closed for 2020. Commercial trolling remained closed to Chinook salmon retention in District 108 until the second opening of the summer troll fishery. The U.S. harvest of large Stikine River Chinook salmon in all District 108 fisheries was estimated to be 161 fish; well below the U.S. base level catch (BLC) of 3,400 fish.

The District 106 drift gillnet sockeye salmon fishery opened Sunday, June 21 (week 26) and the District 108 drift gillnet fishery opened Sunday, June 28 (week 27). Given the below average forecast of sockeye salmon runs returning to the Stikine River and local area stocks, fishing time was limited to two or three days throughout the season. Mesh and area restrictions were in place through week 29. The mesh restriction was lifted from District 106 in week 28, but mesh and area restrictions continued to be in place for District 108. By week 28, it became apparent that the mainstem portion of the Stikine River sockeye run was coming in below average and open time in District 108 was limited to two days in weeks 28 and 29 before closing for two weeks during weeks 30 and 31. A total of seven days of fishing were allowed in District 108 during the 2020 sockeye

salmon season. Open time in District 106 also experienced weekly reductions and was limited to two days per week in weeks 29 through 31 for McDonald Lake sockeye conservation (Table 5and Table 6). The preliminary postseason assessment for Stikine River sockeye salmon was not available at the time of this report.

Districts 106 and 108 were managed based on pink salmon abundance during the month of August, and in late August management focus switched to coho salmon and the fisheries continued to be open for two to three days weekly through the remainder of the season. The number of boats participating in the District 106 fishery was above average during July and below average in August and September (Figure 18). The seasonal number of permits fished was 82% of average (Table 5). The number of boats participating in the District 108 fishery was below average early in the season and near or above average from August through late September (Figure 25). The 82 permits fished was 67% of the average of 123 permits (Figure 25; Table 7).

During the 2020 season, 127,583 pink salmon, 11,314 sockeye salmon, 143,577 chum salmon, 43,850 coho salmon, and 1,182 Chinook salmon were harvested in the District 106 drift gillnet fishery (Table 5). Chinook salmon harvests were below average in most weeks from late June through late August (Figure 19); the harvest was comprised of 75% Alaska hatchery origin fish. Sockeye salmon harvests were well below average all season (Figure 20), and the total sockeye salmon harvest of 11,314 fish was 15% of the 2010–2019 average; the number estimated to be of Stikine River origin was not available at the time of this report. Harvests of coho salmon were also below average throughout the season and the overall harvest of 43,850 coho salmon was 32% of the 2010–2019 average of 136,800 fish (Figure 21). Pink salmon harvests were also below average throughout the season (Figure 22), and the overall harvest of 127,583 fish was 38% of the 2010–2019 average. Chum salmon harvests were near average throughout the season and the overall harvest of 143,577 chum salmon was 99% of average (Figure 23).

During the 2020 season, 11,799 pink salmon, 2,781 sockeye salmon, 53,678 chum salmon, 21,069 coho salmon, and 2,617 Chinook salmon were harvested in the District 108 drift gillnet fishery (Table 6). The harvest of Chinook salmon was below average in the first week of the fishery in week 27, and was near average for the reminder of the season in weeks the fishery was open (Figure 26). An estimated 161 Stikine River large Chinook salmon were harvested in District 108 from weeks 25 through 29 by subsistence, sport, troll, and drift gillnet fisheries. District 108 gillnet sockeye salmon harvests were below average throughout the season (Figure 27) and the harvest of 2,781 fish was only 10% of the 2010–2019 average. The number of sockeye salmon estimated to be Stikine River origin was not available at the time of this report. The overall coho salmon harvest of 21,069 fish was also just below the recent 2010–2019 average of 24,200 fish (Table 6, Figure 28). Pink salmon harvests were below average throughout the season and the overall harvest was 27% of the 2010–2019 average (Figure 29). The overall harvest of 53,678 chum salmon was 40% of the 2010–2019 average (Figure 30).

Table 5. Weekly salmon harvest and fishing effort in the Alaskan District 106 commercial drift gillnet fisheries, 2020.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Days	Boat Days
26	21-Jun	91	449	190	109	2,594	32	2	64
27	28-Jun	575	2,045	1,006	3,824	15,388	45	3	135
28	5-Jun	156	1,732	1,161	4,174	11,787	54	2	108
29	12-Jul	159	1,268	1,511	7,858	26,872	58	2	116
30	19-Jul	60	1,573	1,391	9,993	15,597	71	2	142
31	26-Jul	76	1,740	2,068	33,461	24,892	78	2	156
32	2-Aug	14	643	890	15,083	7,205	51	2	102
33	9-Aug	9	679	2,001	24,430	11,804	40	3	120
34	16-Aug	12	759	2,878	20,310	7,279	53	2	106
35	23-Aug	5	327	3,573	6,981	2,950	45	2	90
36	30-Aug	2	74	7,393	1,199	5,190	39	3	117
37	6-Sep	14	21	11,892	158	6,989	50	3	150
38	13-Sep	5	4	6,996	3	4,558	48	3	144
39	20-Sep	4	0	900	0	472	19	2	38
Total		1,182	11,314	43,850	127,583	143,577	120	33	1,587
2010–2019 Average		2,229	73,426	136,756	332,448	144,769	147	47	2,648
2020 as % of Average		53%	15%	32%	38%	99%	82%	70%	60%

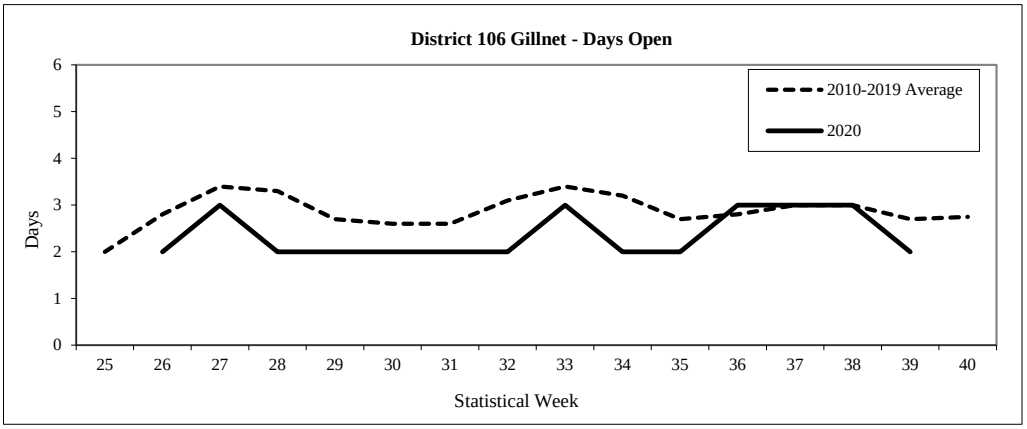


Figure 17. Days open by week in the District 106 drift gillnet fishery, 2020.

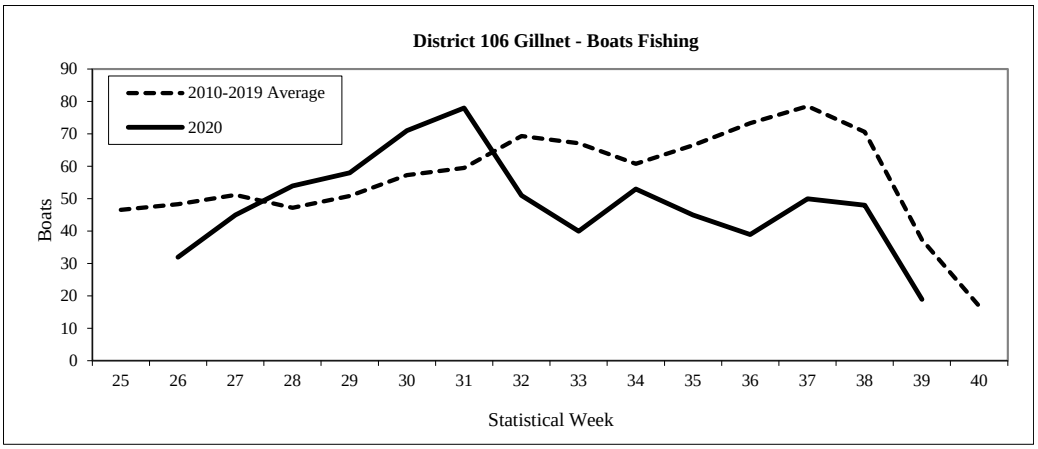


Figure 18. Number of boats fishing by week in the District 106 drift gillnet fishery, 2020.

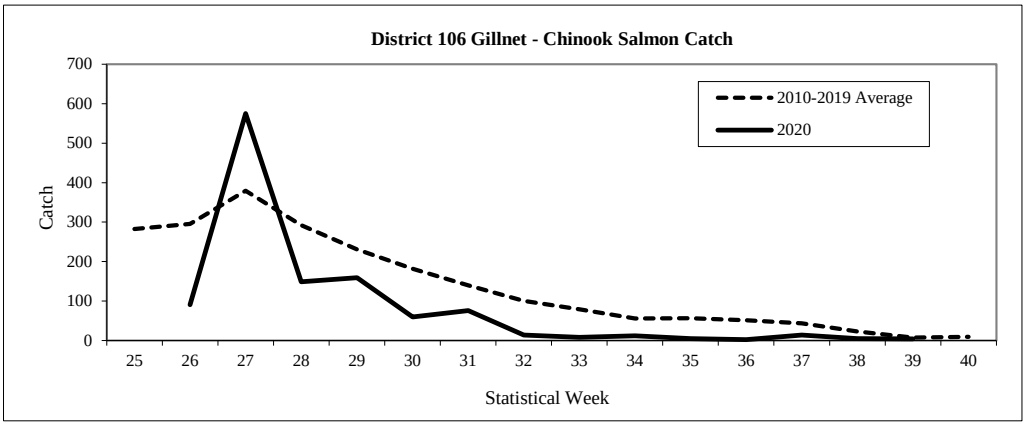


Figure 19. Chinook salmon harvest by week in the District 106 drift gillnet fishery, 2020.

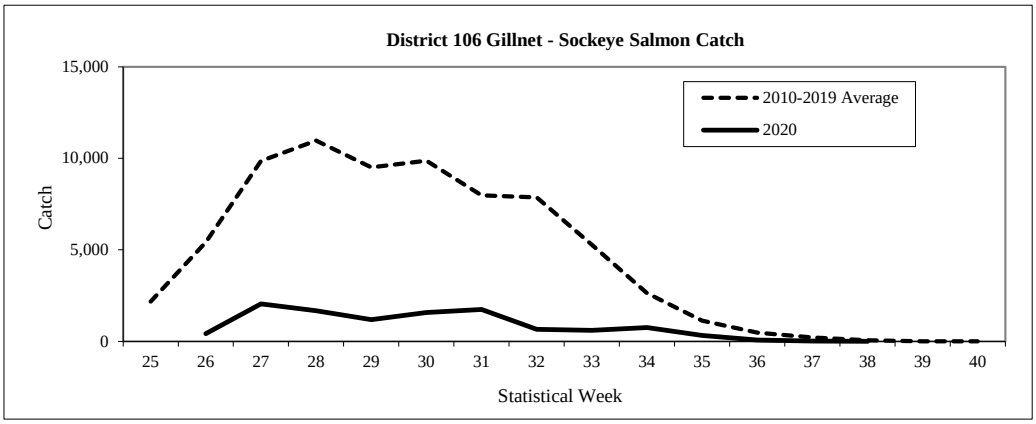


Figure 20. Sockeye salmon harvest by week in the District 106 drift gillnet fishery, 2020.

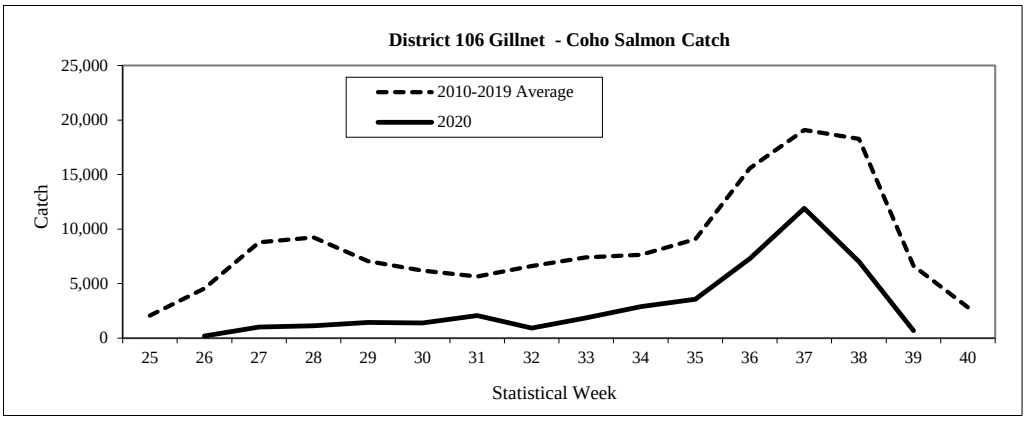


Figure 21. Coho salmon harvest by week in the District 106 drift gillnet fishery, 2020.

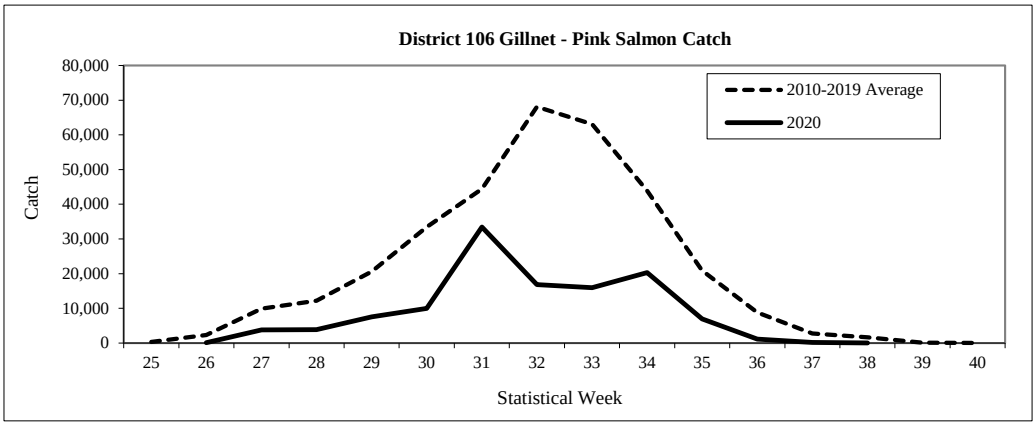


Figure 22. Pink salmon harvest by week in the District 106 drift gillnet fishery, 2020.

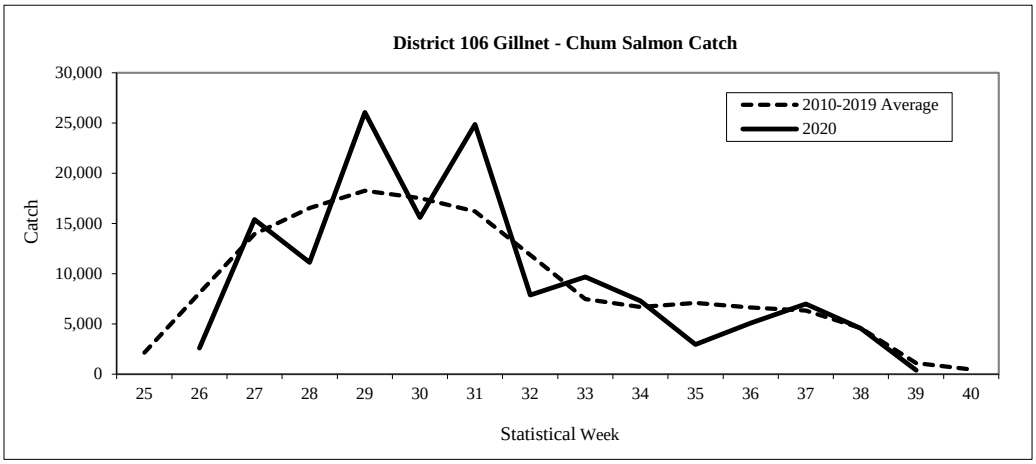


Figure 23. Chum salmon harvest by week in the District 106 drift gillnet fishery, 2020.

Table 6. Weekly salmon harvest and fishing effort in the Alaskan District 108 commercial drift gillnet fishery, 2020.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Days	Boat Days
27	28-Jun	770	877	26	72	1,658	24	3	72
28	5-Jul	1,028	761	13	214	1,725	28	2	56
29	12-Jul	656	717	22	1,157	3,553	18	2	36
30	Closed								
31	Closed								
32	2-Aug	92	143	270	4,252	22,277	42	2	84
33	9-Aug	20	162	631	4,552	17,036	47	3	141
34	16-Aug	4	44	631	906	3,207	24	2	48
35	23-Aug	17	44	1,100	505	1,508	23	2	46
36	30-Aug	4	31	4,716	131	1,368	35	3	105
37	6-Sep	10	2	8,484	7	757	37	3	102
38	13-Sep	16	0	4,544	3	528	34	3	102
39	20-Sep	0	0	632	0	61	16	2	28
Total		2,617	2,781	21,069	11,799	53,678	82	27	820
2010–2019 Average		6,914	26,627	24,154	43,659	135,016	123	48	1,622
2020 as % of Average		38%	10%	87%	27%	40%	67%	56%	51%

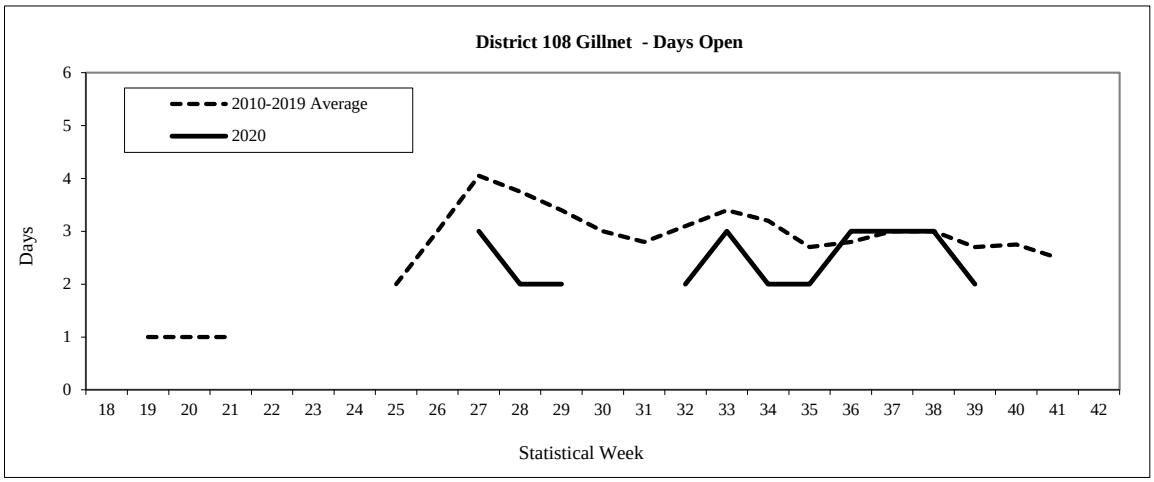


Figure 24. Days open by week in the District 108 drift gillnet fishery, 2020.

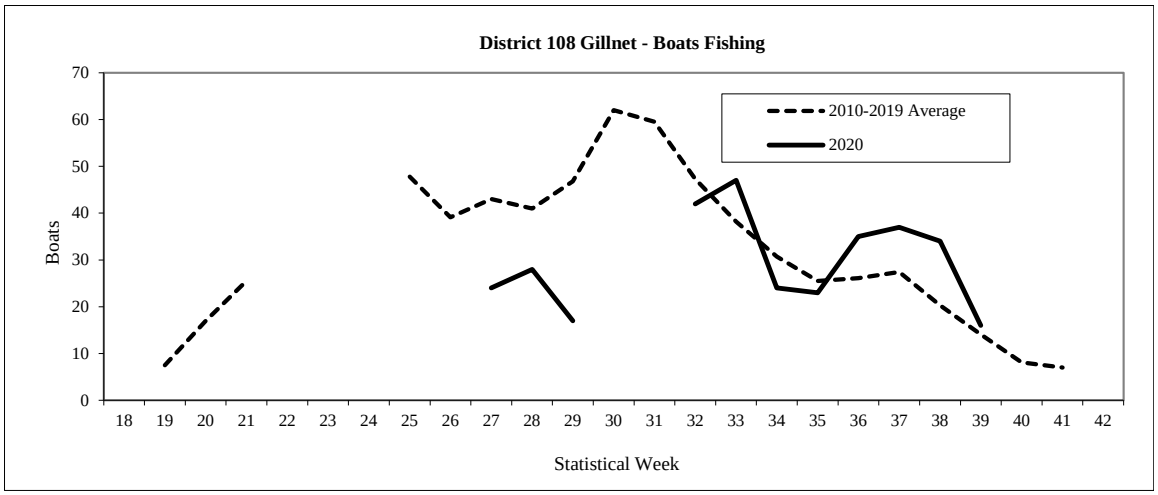


Figure 25. Number of boats fishing by week in the District 108 drift gillnet fishery, 2020.

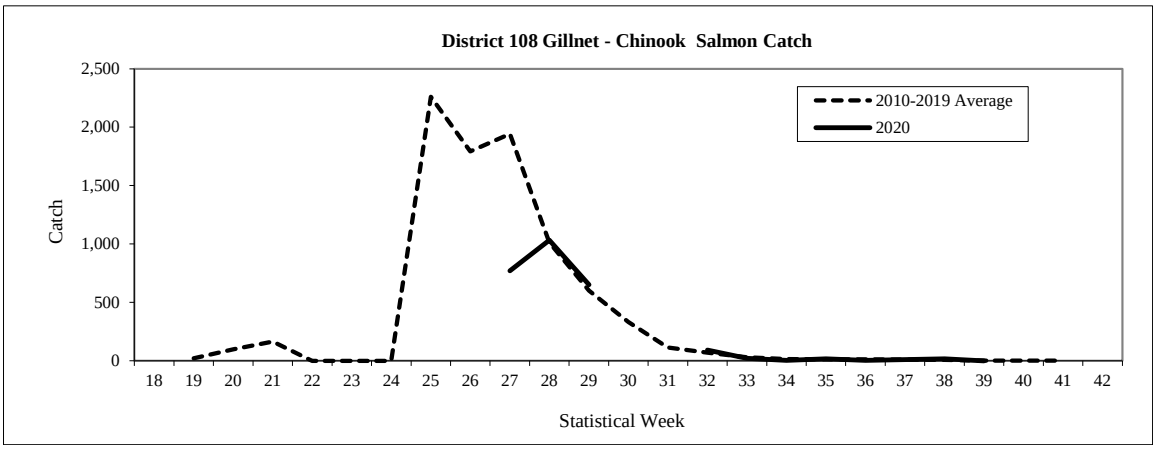


Figure 26. Chinook salmon harvest by week in the District 108 drift gillnet fishery, 2020.

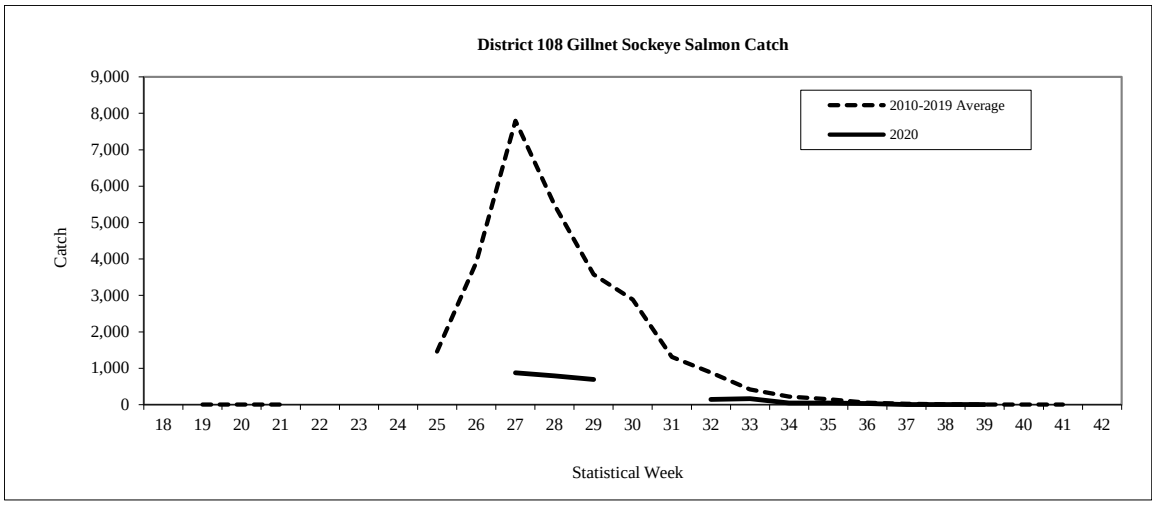


Figure 27. Sockeye salmon harvest by week in the District 108 drift gillnet fishery, 2020.

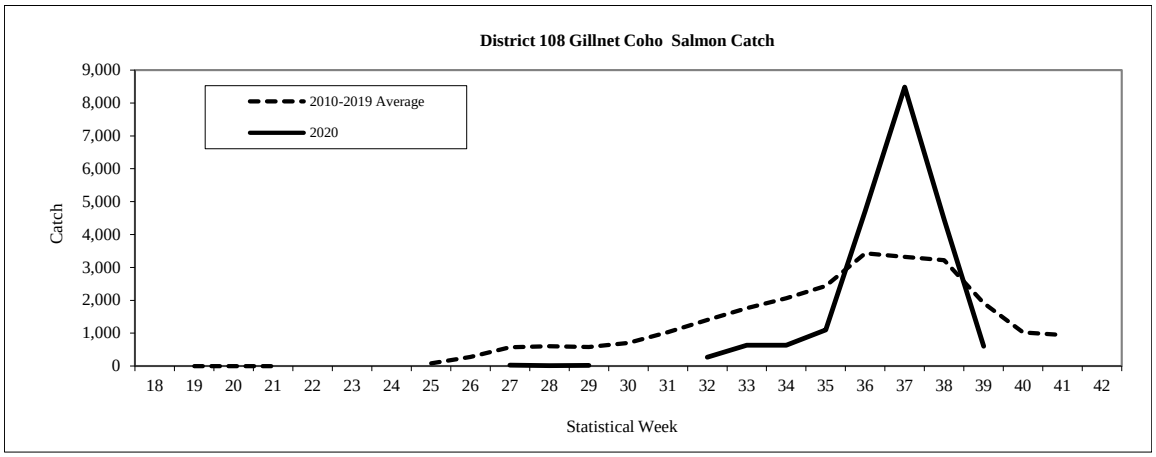


Figure 28. Coho salmon harvest by week in the District 108 drift gillnet fishery, 2020.

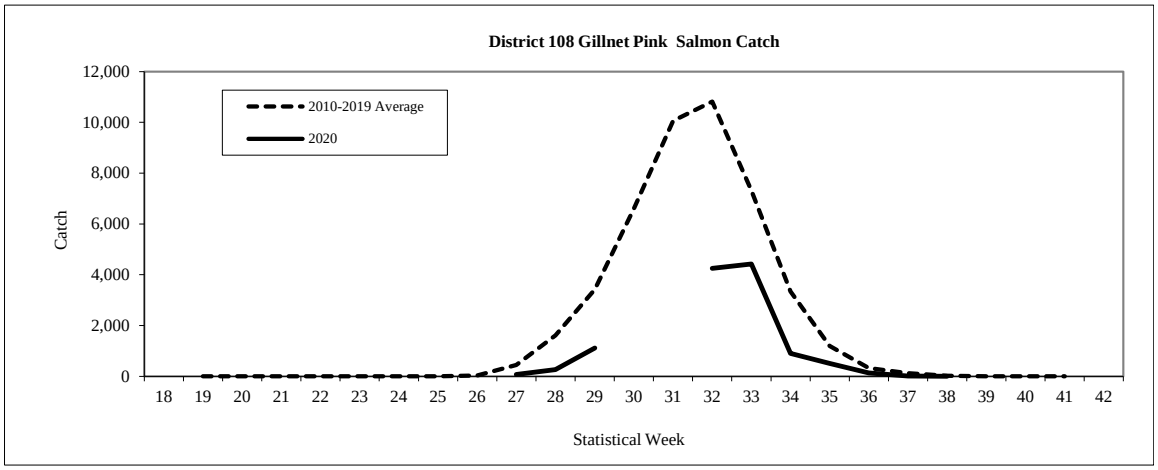


Figure 29. Pink salmon harvest by week in the District 108 drift gillnet fishery, 2020.

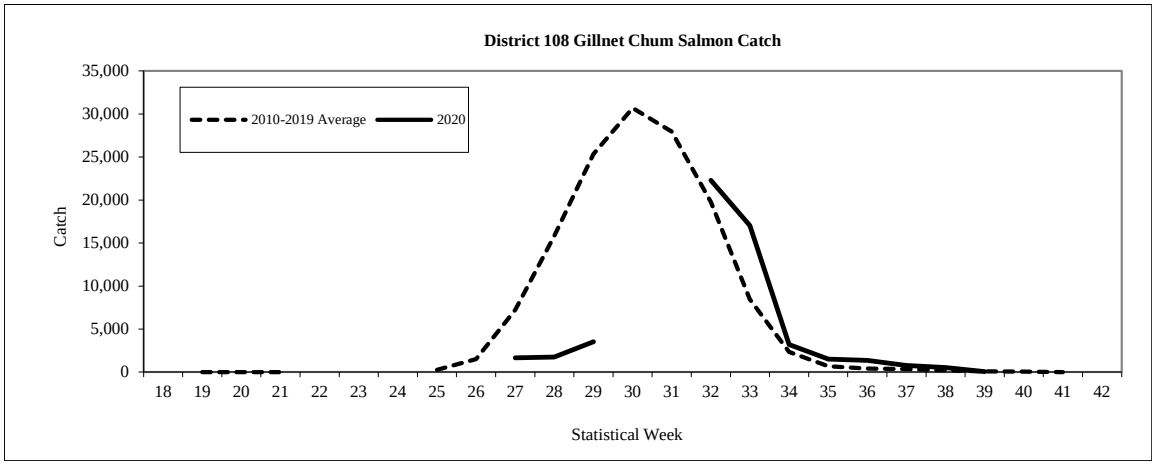


Figure 30. Chum salmon harvest by week in the District 108 drift gillnet fishery, 2020.

Taku River Area Fisheries

The traditional drift gillnet fishery in District 111 targets salmon stocks bound for the trans-boundary Taku River. This fishery is managed for Chinook salmon from week 18 through week 24 when there are sufficient fish surplus to escapement needs to provide for a fishery. From week 25 through week 33 the fishery is managed for Taku River sockeye salmon, and from week 34 through week 42 for Taku River coho salmon. Also harvested in this fishery are salmon bound for Stephens Passage and Port Snettisham streams as well as enhanced Chinook, sockeye, coho and chum salmon from Douglas Island Pink and Chum, Inc. (DIPAC) hatchery releases. The traditional fishery does not include harvests from the Speel Arm Special Harvest Area (SHA) inside Port Snettisham.

The escapement goal range for Taku River large Chinook salmon is 19,000 to 36,000 fish with a management objective of 25,500 fish. In years of high abundance, directed Chinook salmon fisheries can be implemented to harvest fish in excess of escapement needs. The 2020 preseason terminal run forecast for the Taku River of 12,400 large Chinook salmon did not allow for any directed Chinook salmon fisheries in District 111 and significant restrictions in time, area, and gear were implemented in the first three directed sockeye salmon openings (weeks 26–28) to minimize Chinook salmon harvest.

The original escapement goal range for Taku River sockeye salmon was 71,000 to 80,000 fish, with a management objective of 75,000 fish. This was established in 1985 based on the professional judgement of U.S. and Canadian biologists during initial PST negotiations to be used until a scientifically based goal was developed. Historically, the total allowable catch associated with this goal has been based on an inriver run size estimate inflated by not accounting for tag dropout rates that more recent radio telemetry studies have documented in the mark-recapture experiment. Concurrent with the adoption of an adjusted inriver run estimate to account for these dropouts, an interim escapement goal range and management objective was agreed to by the TBR Panel in February of 2019. This arrangement incorporated a 22% adjustment to the inseason inriver run estimates, and a corresponding interim escapement goal range of 55,000 to 62,000 fish with a management objective of 59,000 fish. A bilaterally approved MSY escapement goal range of 40,000 to 75,000 Taku River sockeye salmon with a management objective of 58,000 wild fish was adopted for the 2020 fishing season and the remainder of the Annex period. The 2020 Taku River wild sockeye salmon terminal run forecast of 139,000 fish, based on Canadian stock-recruit and sibling forecasts, was near the 2010–2019 average of 137,000 wild fish. DIPAC forecasted 226,000 enhanced sockeye salmon returning through District 111 waters to Snettisham Hatchery.

An escapement goal range of 50,000 to 90,000 Taku River coho salmon with a management objective of 70,000 fish was adopted in early 2015. New harvest sharing provisions between the U.S. District 111 drift gillnet fishery and the Canada inriver fisheries are in place, specified in the PST, and the U.S. management intent in 2020 was to achieve the U.S. AC and management objective. The 2020 preseason Taku River forecast was for an above average terminal run of 122,000 coho salmon, and DIPAC forecast a run of 40,000 enhanced coho salmon from releases in Gastineau Channel. DIPAC forecasted runs totaling 650,000 enhanced chum salmon returning to Gastineau Channel and Limestone Inlet, which was below the recent average.

The traditional drift gillnet fishery in District 111 began on Sunday, June 21, 2020 (week 26). The first three drift gillnet openings of the season in District 111 were for two days, and included combinations of significant area restriction, six inch maximum mesh size restriction, and night

closures, intended to minimize harvest of Taku River Chinook salmon. The number of boats fishing was less than half of average in each of the first three weeks. A minimal 1,678 sockeye salmon were harvested during these initial openings, and the chum salmon harvest of 24,666 fish was 11% of the average week 26–28 harvest for the district (Figures 34 and 37). A total of 736 Chinook salmon were harvested, which was near average for those weeks (Figure 33).

Effort in the District 111 drift gillnet fishery remained below average throughout the season, with a peak of 92 boats fishing in week 30 (Figure 32). Harvests of sockeye salmon were below average throughout the season and the total harvest of 28,233 fish was 28% of average (Figure 34) and the lowest district total since 1968. Weekly chum salmon harvests were well below average and approximately 109,000 fish were harvested from mid-June to mid-August (Figure 37). The vast majority of the summer-run chum salmon harvest in District 111 consists of DIPAC hatchery fish returning to release sites in Gastineau Channel and Limestone Inlet. The Chinook salmon harvest of 1,094 fish was just below average (excluding pre-week 25 directed Chinook fisheries; Figure 33). Pink salmon harvests were below average throughout the season and the harvest of 65,353 fish was only 44% of average (Figure 36). The overall coho salmon harvest of 15,863 fish was well below average and the peak weekly harvest of 4,141 fish occurred in week 36 (Figure 35). Fall chum salmon harvests were also well below average from week 34 through 38 (Figure 37).

A number of Chinook salmon stocks are known to contribute to the Juneau area sport fishery, including those from the Taku, Chilkat, and King Salmon rivers, and local hatchery stocks, but the major contributor of mature wild fish is believed to be the Taku River. Non-retention of Chinook salmon in District 111, 112, 115, and parts of District 113 and 114, from April 1 through June 14, resulted in minimal harvest of wild fish in the sport fishery. The GSI-based District 111 harvest estimates of Taku River large Chinook salmon during the accounting period is 189 fish in the drift gillnet fishery, 112 fish in the sport fishery, and an estimated 15 fish in the personal use fishery, for a total of 316 fish. Harvests of Taku River large Chinook salmon in these fisheries from week 30 onwards were minimal and resulted in a total harvest well below the U.S. base level catch of 3,500 fish. The preliminary escapement estimate of Taku River large Chinook salmon is approximately 15,593 fish, which is below the escapement goal range of 19,000 to 36,000 fish.

Peak harvests of sockeye salmon occurred in weeks 29 through 31 (mid-July to early August; Figure 34). The Speel Arm SHA was not opened in 2020 and the entrance to Port Snettisham was only opened late in the season for increased opportunity on coho salmon returns. The Speel Lake weir was not operated this season due to staffing concerns during the COVID-19 health emergency, so accurate enumeration of fish passing into Speel Lake was not possible although stream counts were conducted by DIPAC staff generally every three days. The minimum mesh size restriction south of Circle Point was not put in place this season with a small fleet size and very little chance for a fishery to occur inside the Speel Arm SHA. DIPAC sockeye salmon returning to the Snettisham Hatchery contributed a minimum of 16,000 fish to the traditional District 111 harvest. The preliminary escapement estimate of Taku River sockeye salmon is 100,900 fish, which is above the escapement goal range of 40,000 to 75,000 fish.

The 2020 traditional District 111 coho salmon harvest was 45% of average (Figure 35). Approximately 53% of the coho salmon were harvested in Taku Inlet, which was well below the average of 82%, and 47% were harvested from Stephens Passage and Port Snettisham. Coho salmon stocks harvested in District 111 include returns to the Taku River, Port Snettisham, Stephens Passage, and local Juneau area streams as well as Alaskan hatcheries. This was the sixth

year of full production for DIPAC's revitalized enhanced coho salmon program. Alaska hatchery (nearly entirely DIPAC) coho salmon first appeared in the District 111 harvest in week 33, and comprised substantial proportions of the harvest each remaining week of the fishery. Alaska hatchery coho salmon contributed 26% of the 2020 District 111 traditional drift gillnet harvest. The preliminary escapement estimate of Taku River coho salmon is 52,000 fish, which is near the lower end of the escapement goal range of 50,000 to 90,000 fish.

Pink salmon escapements were poor in the Northern Southeast Inside subregion of Southeast Alaska and the District 111 escapement index was approximately 54% of the lower end of the management target range. The 2020 District 111 traditional fishery chum salmon harvest of 109,516 fish was 21% of average and was comprised almost entirely of summer run fish (Figure 37). The summer chum salmon run continues through mid-August (week 33) and is mostly comprised of domestic hatchery fish and small numbers of wild stocks. Chum salmon returning to DIPAC release sites in Gastineau Channel and Limestone Inlet contributed a major portion of the harvest, but quantitative contribution estimates are not available. Approximately 49% of the District 111 chum harvest was taken in Taku Inlet, and 51% in Stephens Passage. The harvest of 547 fall-run chum salmon (i.e. chum salmon caught after week 33) was 21% of average. Most of these fall-run chum salmon are probably wild fish of Taku and Whiting rivers origin.

Table 7. Weekly salmon harvest and fishing effort in the Alaskan District 111 traditional commercial drift gillnet fishery, 2020.

Week	Start Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Days	Boat Days
26	21-Jun	268	201	2	6	689	23	2	46
27	28-Jun	284	808	4	65	11,245	33	2	66
28	5-Jul	184	669	13	744	12,732	42	2	84
29	12-Jul	192	6,529	138	10,991	46,702	62	4	248
30	19-Jul	88	10,170	564	18,333	22,050	92	3	276
31	26-Jul	29	4,617	742	12,849	7,979	55	2	110
32	2-Aug	31	2,282	528	13,053	6,342	53	2	106
33	9-Aug	3	1,168	510	5,833	1,230	20	3	60
34	17-Aug	5	1,353	1,863	3,018	398	25	3	75
35	23-Aug	2	394	3,200	452	75	33	3	99
36	30-Aug	6	38	4,141	9	59	22	4	88
37	6-Sep	0	4	3,176	0	12	25	2	50
38	13-Sep	2	0	982	0	3	13	1	13
Total		1,094	28,233	15,863	65,353	109,516	124	33	1,321
2010–2019 Average		1,258	101,668	35,080	147,140	531,140	194	52	2,895
2020 as % of Average		87%	28%	45%	44%	21%	64%	63%	46%

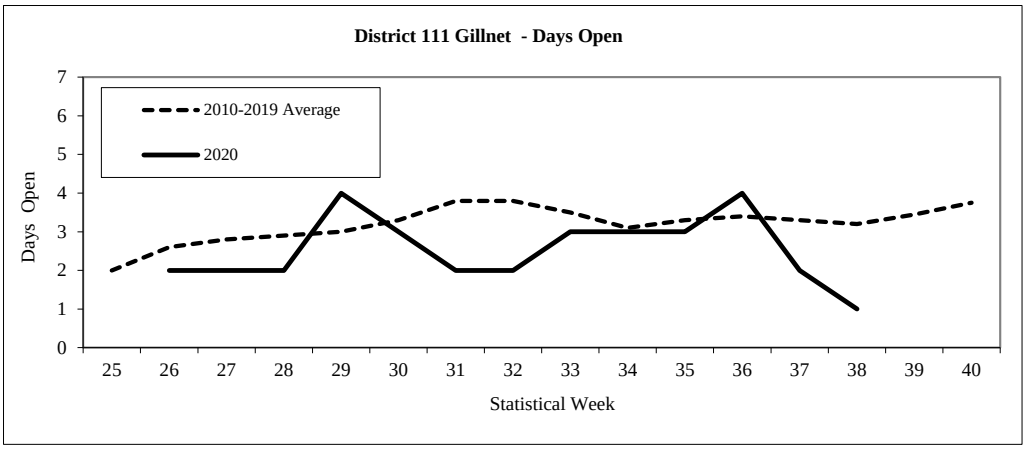


Figure 31. Days open by week in the District 111 drift gillnet fishery, 2020.

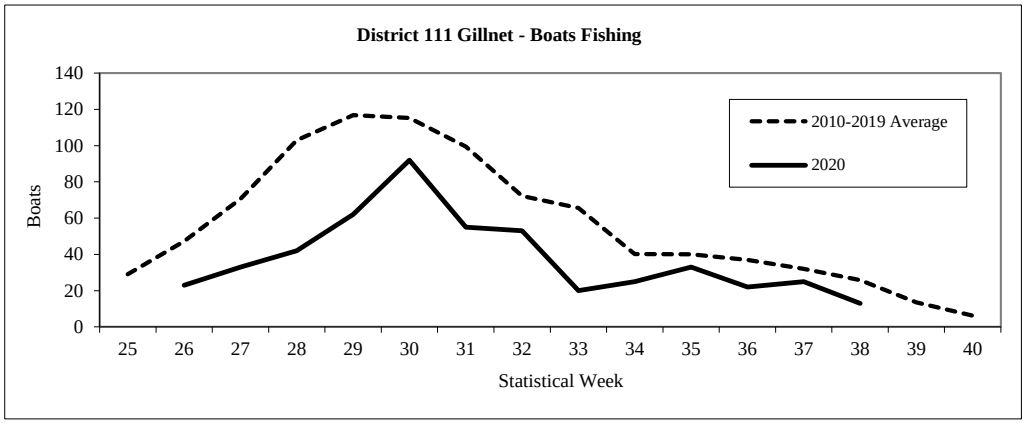


Figure 32. Number of boats fishing by week in the District 111 drift gillnet fishery, 2020.

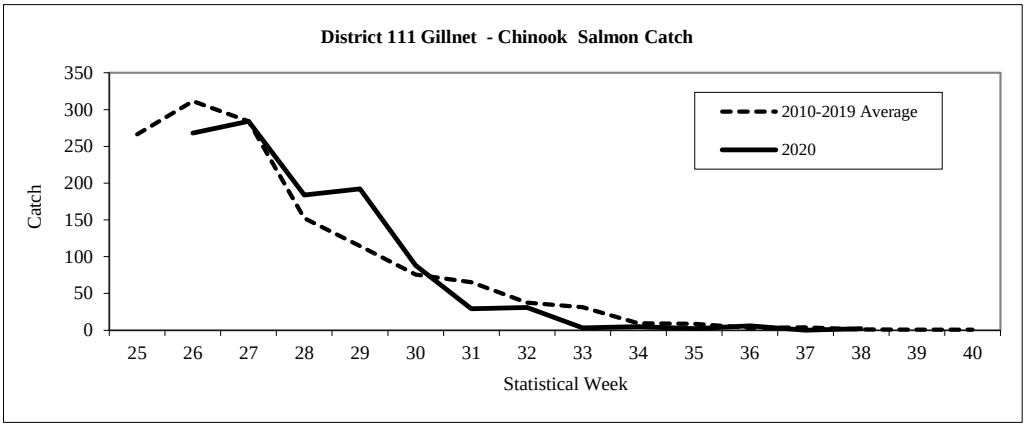


Figure 33. Chinook salmon harvest by week in the District 111 drift gillnet fishery, 2020.

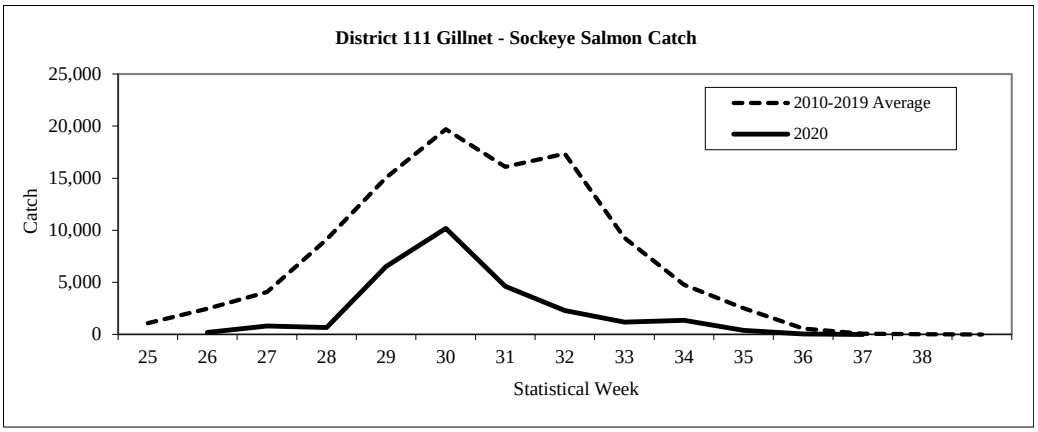


Figure 34. Sockeye salmon harvest by week in the District 111 drift gillnet fishery, 2020.

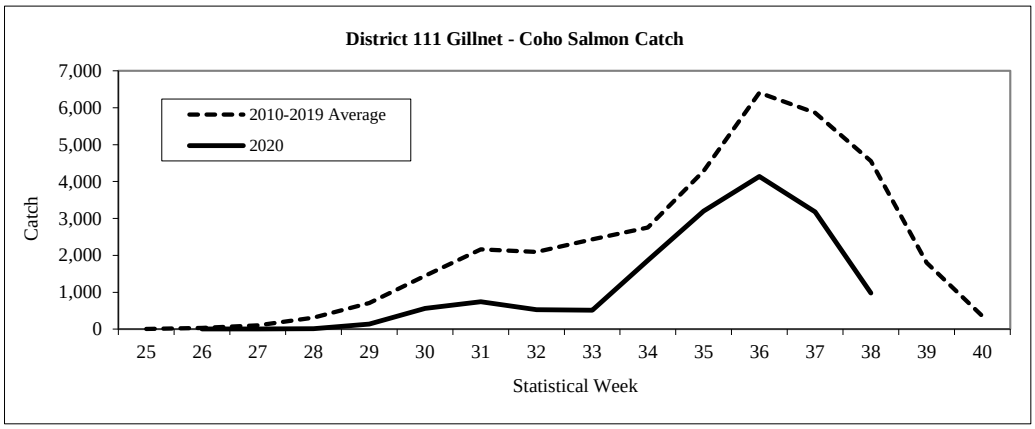


Figure 35. Coho salmon harvest by week in the District 111 drift gillnet fishery, 2020.

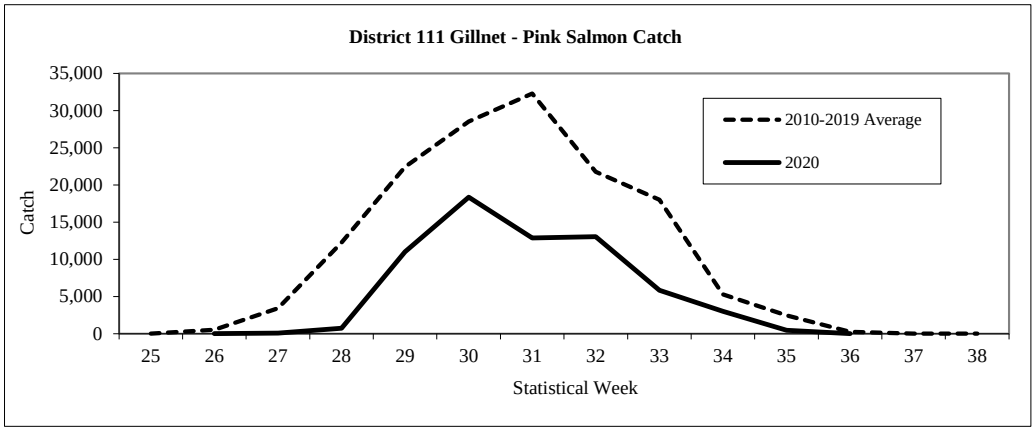


Figure 36. Pink salmon harvest by week in the District 111 drift gillnet fishery, 2020.

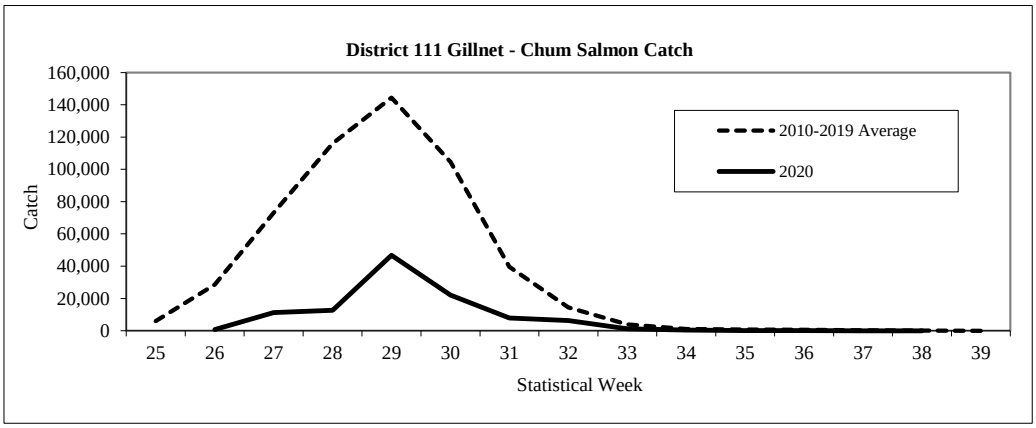


Figure 37. Chum salmon harvest by week in the District 111 drift gillnet fishery, 2020.

Transboundary River Joint Enhancement

The transport of sockeye salmon fry from the Snettisham Hatchery facility back to the Canadian lakes was complete on June 11, 2020. Approximately 4.57 million fry were released in Tahltan, Tatsamenie, and Trapper lakes in Canada. The overall green egg to fry survival for brood year (BY) 2019 releases was 78% (Table 8). After transporting BY19 fry back to their respective lakes, all TBR modules, incubators, and short-term fry rearing containers were broken down, cleaned, and disinfected prior to setting up to receive green eggs from BY20 egg takes.

Brood year 2020 egg takes began on September 4th at Trapper Lake, September 10th at Tahltan Lake, and September 18th at Tatsamenie Lake. An estimated total of 3.1 million green eggs were collected from the three donor lakes. Tahltan Lake egg takes were completed on September 12th after collecting an estimated 502,200 eggs in 2 egg lots. Tatsamenie Lake egg takes were completed on October 7th after collecting 2.1 million eggs in 5 lots. Trapper Lake egg takes were completed on September 15th after collecting 537,000 eggs in 3 lots. DFO contractors collected adult sockeye salmon tissues on the spawning grounds and shipped them to the ADF&G Juneau Fish Pathology laboratory via Snettisham Hatchery per the PST Agreement.

Table 8. Summary of numbers and survival rates of brood year 2019 sockeye salmon fry released May and June 2020.

Brood stock	Release site	Number of trips	Survival rate to eyed stage	Survival rate to release	Number released
Tahltan	Tahltan Lk	6	80.1%	61.0%	2,685,000
Tatsamenie	Upper Tatsamenie Lk	3	73.6%	67.9%	1,411,600
Tatsamenie	Upper Tatsamenie Lk Extended Rearing	2	86.3%	85.1%	210,100
Trapper	Trapper Lake	1	68.6	64.7	263,200
	Average/Totals	12	77.7%	64.1%	4,569,000

During the 2020 season, the ADF&G Thermal Mark Lab processed 7,456 sockeye salmon otoliths collected by ADF&G and DFO staff as part of the U.S./Canada fry-planting evaluation program. These collections came from commercial and test fisheries in both U.S. and Canadian waters on the Taku and Stikine rivers over a 12-week period. The laboratory provided estimates on hatchery contributions for 54 distinct sample collections. Estimates of the percentage of hatchery fish

contributed to commercial fishery catches were provided to ADF&G and DFO fishery managers 24 to 48 hours after samples arrived at the lab.

Alsek River Area Fisheries

Although harvest sharing arrangements of Alsek salmon stocks between Canada and the U.S. have not been specified, Annex IV of the Pacific Salmon Treaty calls for the development and implementation of cooperative abundance-based management plans and programs for Alsek River Chinook and sockeye salmon. Escapement goals are in place for Chinook and sockeye salmon stocks spawning at the Klukshu River, a tributary that flows into the Tatshenshini River, approximately 80 km northeast of its junction with the Alsek River. The principal escapement-monitoring tool for Chinook, sockeye, and coho salmon stocks on the Alsek River is the Klukshu River weir, operated by DFO in cooperation with the Champagne-Aishihik First Nation since 1976. In 2013, Canadian and U.S. biologists adopted a new biological escapement goal range of 7,500 to 11,000 sockeye salmon through the Klukshu River weir. The current biological escapement goal range for Klukshu River Chinook salmon, adopted in February 2013, is a range of 800 to 1,200 fish.

ADF&G manages the Alsek River commercial set gillnet fishery to achieve the agreed upon escapement goal ranges. Time and area openings are adjusted by monitoring fishery performance data and comparing it to historical CPUE. The duration of weekly fishing periods is based on fishery performance data (CPUE) and Klukshu River weir data. Historically, gillnets have often been restricted to a maximum mesh size of 6 inches through July 1 to minimize Chinook salmon harvest. The U.S. commercial set gillnet sockeye salmon fishery commenced on June 7th with a 12-hour opener in 2020 and a 6-inch maximum mesh restriction was in effect through July 20 as a Chinook salmon conservation measure.

Preseason expectations were for below average Chinook and sockeye salmon runs in 2020. The overall Alsek drainage sockeye salmon run was expected to be approximately 65,000 fish; which was below the 2010–2019 average run size of approximately 89,000 sockeye salmon. The preseason outlook for 2020 was based on a predicted run of 15,000 Klukshu River sockeye salmon derived from a Klukshu River stock-recruitment model and an assumed Klukshu River contribution rate of 23% to the total run (based on mark-recapture results from 2000–2004 and run size estimates using GSI from 2005–2006 and 2011–2014). Principal contributing brood years for the 2020 run were 2015 and 2016. The Klukshu River escapements in 2015 and 2016 were 11,400 and 7,400 sockeye salmon respectively, which were both below the 2010–2019 average of 12,100 fish.

The 2020 Alsek River set gillnet fishery opened Sunday June 7 (week 24). The total number of individual permits fished during the season was 13, which was below the 2010–2019 average of 15 permits. The commercial fishery was opened for a total of 38 days which was below the 10-year average of 46 days. The overall effort in boat-days was 44% of the average due to low or no effort in many weeks late in the season (Table 9). Harvests of Chinook salmon through late June were below the 2010–2019 average. Harvests of sockeye salmon were below average throughout the season, and the total harvest of 2,518 fish was 19% of the 2010–2019 average of 13,509 fish (Table 9). There was no effort after late July. In the past several years there has been reduced fishing effort during the coho salmon season due to economic struggles and lack of pilots to transport fish to town. In 2020, no coho salmon were harvested (Table 9).

The Klukshu River weir count of 4,396 sockeye salmon was below the lower bound of the 7,500 to 11,000 fish escapement goal range. The Alsek River drainage estimate of 28,000 fish is within the escapement goal of 24,000 to 33,500 sockeye salmon. The Klukshu River weir count of 1,327 Chinook salmon was above the upper bound of the 800 to 1,200 fish escapement goal range. The Alsek River drainage escapement estimate of 5,330 Chinook salmon is above the escapement goal range of 3,500 to 5,300 fish.

Table 9. Weekly salmon harvest and fishing effort for Alaska's Alsek River commercial set gillnet fishery, 2020.

							Effort		
Statistical	Start	Catch							Boat
Week	Date	Chinook	Sockeye	Coho	Pink	Chum	Boats	Days	Days
24	7-Jun	83	163	0	0	0	11	0.5	6
25	14-Jun	57	306	0	0	0	10	1.0	10
26	21-Jun	31	406	0	0	0	11	1.0	11
27	28-Jun	11	686	0	0	0	10	1.0	10
28	5-Jul	0	567	0	0	0	10	1.0	10
29	12-Jul	0	247	0	0	0	10	1.0	10
30	19-Jul	0	109	0	0	0	8	1.0	8
31	26-Jul	0	34	0	0	0	4	1.0	4
32-42[a]	2-Aug	0	0	0	0	0	0	31.0	0
Total		182	2,518	0	0	0	13	38	68
2010-2019 Average		354	13,509	829	0	4	15	46	154
2020 as % of Average		51%	19%	0%		0%	87%	83%	44%

[a]. Weeks 32-42 opened to fishing but not fished.

SOUTHEAST ALASKA CHINOOK SALMON FISHERY

All Gear Harvest

The SEAK Chinook salmon fishery is managed to stay within the annual all-gear PST total allowable catch limit determined by the SEAK early winter District 113 Troll fishery CPUE metric estimated from data collected in statistical weeks 41–48. Management of the 2020 SEAK Chinook salmon fishery was configured based on a preseason winter power troll CPUE metric of 4.83 for the 2020 fishing season. This CPUE translated into an all-gear PST allowable catch limit of 205,165 Treaty Chinook salmon. Management plans established by the Alaska Board of Fisheries allocate the CPUE-based Treaty catch limit among gear types and prescribe management measures for both commercial and sport fisheries [5AAC 29.060(b) and 47.055].

Under provisions of regulatory actions plans to conserve Chilkat, King Salmon, Unuk river and other SEAK and TBR wild Chinook salmon stocks, ADF&G was given direction by the Alaska Board of Fisheries, through emergency order authority, to take management actions necessary to reduce exploitation rates and pass as many SEAK and TBR Chinook stocks to the spawning grounds for escapement as possible. The conservation measures for all gear types that were implemented during 2018 and 2019 were continued for the 2020 season. The winter troll fishery closed early on March 15, spring troll fisheries were restricted to near terminal areas or areas on the outside coast, and in the summer troll fishery the primary corridors and waters directly adjacent to the terminus of the Unuk, Chilkat and Stikine rivers were closed to the retention of Chinook

salmon in the troll fishery. Retention of Chinook salmon in the purse seine fishery outside designated terminal harvest areas was delayed until August 2. Gillnet fisheries in districts 106 and 108 (near the mouth of the Stikine river) were delayed to the latter part of June. Gillnet fisheries in districts 111 and 115 (near the mouths of the Taku and Chilkat rivers) were subject to time and area restrictions through mid-July, with gear restrictions in place through early July. Openings in terminal harvest areas were delayed into June. Similarly, sport fisheries outside of terminal areas were delayed until mid-June or early July and were closed to non-residents during the first half of August. In addition to these conservation measures, all fisheries were managed conservatively and monitored closely inseason to avoid exceeding the harvest level defined in the 2019 PST Agreement.

The total Chinook salmon harvest by all SEAK commercial fisheries was 199,688 fish and the sport fish harvest was 35,100, for a total all-gear harvest of 234,788 (Table 10 and Table 11). This includes an all-gear harvest of 620 in the Annette Island Metlakatla Indian Community tribal fishery that is not directly managed by the State of Alaska. The all-gear harvest of Treaty Chinook salmon was 204,624 fish including 523 fish from the Metlakatla Indian Community tribal fishery. The 2020 all-gear Treaty harvest of 204,624 was below the CPUE-based harvest limit of 205,165.

Table 10. Estimated all-gear Chinook salmon catch in 2020**.**

Gear	Total Harvest	AK Hatchery Harvest	Wild Terminal Exclusion	Alaska Hatchery Addon	Treaty Harvest
Troll	169,916	7,640	0	4,510	165,406
Sport	35,100	6,300	0	4,539	30,561
Drift Gillnet	12,629	10,613	0	9,671	2,958
Purse Seine	16,892	11,459	0	11,444	5,448
Set Gillnet	251	0	0	0	251
Total Net	29,772	22,072	0	21,115	8,657
Total All Gear	***234,788***	***36,012***	***0***	***30,164***	***204,624***

Note: Annette Island Metlakatla Indian Community tribal harvest of 623 Chinook salmon are included of which 523 were Treaty fish. This includes a total tribal harvest of 91 troll, 288 drift gillnet, 241 purse seine fish of which 91 troll, 191 drift gillnet, and 241 purse seine Treaty fish.

Note: Terminal area harvests are included.

Table 11. Southeast Alaska Chinook salmon landed catch for aggregate abundance based management fisheries of interest to the Pacific Salmon Commission (2013–2020). Values are in thousands of fish.

Year	Total Catch	Add-on and Exclusion Catch	Treaty Catch Limit[1]	Treaty Catch	Treaty Incidental Mortality	Treaty Total Mortality
2013	257.3	65.9	176.0	191.4	59.4	250.8
2014	492.5	57.3	439.4	435.2	50.9	486.1
2015	403.3	68.3	237.0	335.0	49.1	384.1
2016	387.0	36.3	355.6	350.7	51.0	401.7
2017	207.1	31.6	209.7	175.4	46.6	222.0
2018	164.7	37.0	144.5	127.8	31.2	159.0
2019[1]	175.1	34.8	140.3	140.3	56.7	197.0

2020[2]	234.8	30.2	205.2	204.6	–

[1] 2009–2018 Treaty Harvest Limit determined by pre-season PSC Chinook Model AI
2019–Present Treaty Harvest Limit determined by CPUE Model

[2] Current year data for incidental mortality and total mortality not available.

Troll Fishery

The accounting of Chinook salmon harvested by trollers begins with the winter fishery and ends with the summer fishery. The winter troll fishery is managed for a guideline harvest level (GHL) of 45,000 non-Alaska hatchery-produced Chinook salmon, with a guideline harvest range of 43,000−47,000 non-Alaska hatchery-produced fish, plus the number of Alaska hatchery-produced Chinook salmon harvested during the winter fishery. The 2019–2020 winter troll fishery was open from October 11, 2019 through March 15, 2020. To help reduce encounters of wild SEAK and TBR Chinook salmon, the winter season the fishery was closed from March 16 through April 30, prior to reaching the GHL. A total of 15,810 Chinook salmon were harvested. Of these, 1,167 (7%) were of Alaska hatchery origin, of which 689 counted toward the Alaska hatchery add-on, resulting in a Treaty harvest of 15,121 (Table 12).

The spring troll fisheries target Alaskan hatchery-produced Chinook salmon and are conducted along migration routes or close to hatchery release sites. Terminal area fisheries, which begin during the spring, occur directly in front of hatcheries or at remote release sites. While there is no ceiling on the number of Chinook salmon harvested in the spring fisheries, the take of Treaty Chinook salmon is limited according to the percentage of the Alaskan hatchery fish taken in the fishery. Non-Alaska hatchery fish are counted towards the annual Treaty catch limit of Chinook salmon, while most of the Alaska hatchery (add-on) fish are not.

In 2020, spring troll fisheries were conducted between May 1 and June 30. To help reduce encounters of wild SEAK and TBR Chinook salmon during May and June, spring troll fisheries located in known wild Chinook salmon migration corridors did not open. A total of 17 spring troll fisheries opened, which is a 66% reduction from the number of areas opened prior to 2018 (when SEAK and TBR conservation measures began). The combined harvest for spring troll fisheries was 13,600 Chinook salmon, of which 3,285 (24%) were of Alaska hatchery origin and 1,939 counted toward the Alaska hatchery add-on, resulting in a Treaty harvest of 11,661.

The 2020 summer troll fishery included two Chinook salmon retention periods, from July 1–6 and August 15 to September 8. On August 30, prior to the completion of the second retention period target harvest, ADF&G estimated 13,370 Chinook salmon remained on the SEAK annual all-gear Treaty catch limit. On August 31, a re-allocation of the remaining all-gear SEAK Treaty Chinook salmon to the troll fishery was authorized. The remaining Treaty allocation included unharvested fish from the commercial net fisheries and most notably the sport fishery, which was under its allocation largely due to travel restrictions associated with COVID-19. The additional fish provided another eight days of Chinook retention and contributed to a total fishery length of 25 days. A total of 140,415 Chinook salmon were harvested during summer, of which 3,188 (2%) were of Alaskan hatchery origin and 1,882 counted toward the Alaska hatchery add-on. The resulting Treaty Chinook salmon harvest was 138,533 fish.

The total harvest for all troll fisheries in the 2020 accounting year was 234,788 Chinook salmon, of which 204,624 were Treaty Chinook salmon. This includes a total harvest of 620 in the Annette Island Metlakatla Indian Community tribal troll fishery of which 523 were Treaty Chinook salmon.

Table 12. Troll fishery Chinook salmon harvest by season, 2020.

Gear/Fishery	Total Harvest	Alaska Hatchery Harvest	Alaska Hatchery Add-on	Terminal Exclusion Harvest	Total Term. Exclusion/ Alaska Hatchery Add-on	Treaty Harvest
Winter Troll	15,810	1,167	689	0	689	15,121
Spring Troll[a]	13,600	3,285	1,939	0	1,939	11,661
Summer Troll						
First Period[b]	71,494	763	450	0	450	71,044
Second Period	68,893	2,425	1,432	0	1,432	67,461
Total Summer	140,415	3,188	1,882	0	1,882	138,533
Total Traditional Troll	169,825	7,640	4,510	0	4,510	165,315
Annette Is. Troll	91	0	0	0	0	91
Total Troll Harvest	**169,916**	**7,640**	**4,510**	**0**	**4,510**	**165,406**

[a] Spring troll harvest includes all terminal and wild terminal exclusion harvests for year.
[b] Total summer harvest includes confiscated harvest for year.

Net Fisheries

A total of 12,629 Chinook salmon were harvested in the drift gillnet fisheries in 2020, of which 10,613 (84%) were of Alaska hatchery origin and 9,671 counted toward the Alaska hatchery add-on, resulting in a Treaty harvest of 2,958 fish (Table 10). This includes a harvest of 288 in the Metlakatla Indian Community tribal drift gillnet fishery of which 191 were Treaty Chinook salmon. A total of 16,892 Chinook salmon were harvested in the purse seine fisheries, of which 11,459 (68%) were of Alaska hatchery origin and 11,444 counted toward the Alaska hatchery add-on, resulting in a Treaty harvest of 5,448 fish. This includes a harvest of 241 in the Metlakatla Indian Community tribal purse seine fishery; all 241 were Treaty Chinook salmon. A total of 251 Chinook salmon were harvested in the set gillnet fisheries, none of which were of Alaska hatchery origin, resulting in a Treaty harvest of 251 fish (Table 10).

With the exception of directed gillnet harvests of Chinook salmon in SEAK terminal area regulatory Districts 108 and 111, as provided in the Transboundary Rivers chapter of the PST (Chapter 1), harvests of Chinook salmon in net fisheries are primarily incidental to the harvest of other species, and in 2020 only constituted a small fraction (<1.0%) of the total net harvest of all species.

Recreational Fisheries

The Southeast Alaska Chinook salmon sport fishery is managed under the directives of the *Southeast Alaska King Salmon Management Plan* (5 AAC 47.055). This plan prescribes management measures based upon the SEAK early winter troll CPUE metric and the harvest management plan adopted by the Alaska Board of Fisheries. In 2020, 37,900 Treaty Chinook salmon were allocated to the sport fishery. As directed by the Southeast Alaska King Salmon Management Plan, if restrictions are necessary to keep the sport fishery within its harvest allocation, nonresident anglers will be restricted first, and ADF&G shall only restrict resident anglers if nonresident angler restrictions are insufficient to keep the sport harvest within the sport harvest allocation.

The following regulations applied during the 2020 sport fishery as dictated by the *Southeast Alaska King Salmon Management Plan:*

Alaskan Resident

- The resident bag and possession limit was one Chinook salmon, 28 inches or greater in length.
- In those inside waters where the sport fishery for Chinook salmon was closed to retention during the spring and early summer (Juneau area, Petersburg/Wrangell area, Ketchikan area), when those waters reopen the resident bag and possession limit was two Chinook salmon 28 inches or greater in length through December 31, 2020.

Nonresident

- The nonresident bag and possession limit was one Chinook salmon, 28 inches or greater in length;
- From January 1 through June 30, a nonresident's annual catch limit was three Chinook salmon, 28 inches or greater in length;
- From July 1 through July 7, a nonresident's annual catch limit was two Chinook salmon, 28 inches or greater in length;
- From July 1 through December 31, a nonresident's annual catch limit was one Chinook salmon, 28 inches or greater in length, and any Chinook salmon 28 inches or greater in length harvested by a nonresident from January 1 through June 30 applied toward the one fish annual catch limit;

The sport fishery was monitored closely throughout the season to ensure it stayed below the PST catch limit. In early June, COVID-19 impacts were observed to significantly reduce Chinook salmon harvest levels, due to a reduction in nonresident angler effort. While continuing to closely monitor the sport fishery—including participation levels—ADF&G initiated a series of progressively liberalized regionwide regulations beginning in mid-June of 2020 in an effort to achieve—but not exceed—the sport harvest allocation. These more liberalized regulations included increases of bag and possession limits for resident anglers as well as increases in bag, possession and annual limits for nonresident anglers. Liberalized regionwide regulations were rescinded effective September 30, 2020, at which point on October 1, 2020 the original regionwide regulations applied at the beginning of the season (noted explicitly above) per the *Southeast Alaska King Salmon Management Plan* took effect. The 2020 sport fishery had an estimated total harvest of 35,100 Chinook salmon, of which 30,561 counted as PST or treaty harvest (Table 10).

SOUTHEAST ALASKA COHO SALMON FISHERIES

Attachment B of the 1999 PST specifies provisions for inseason conservation and information sharing for northern boundary coho salmon. In 2020, troll CPUE in Area 6 in the early weeks of the fishery averaged 14 coho/day, which was within the boundary area conservation trigger range of 15–22 coho/day. Notwithstanding the provisions for a boundary area closure, following an Alaska/Canada bilateral review of the Area 6 CPUE data, it was determined there was an insufficient number of landings sampled to provide an adequate indicator of abundance. Alternatively, other inseason sources of abundance were considered in the determination of the necessity of a boundary area closure. Given the above average coho salmon CPUE in the NBC A-B line troll pink fishery and the Alaska District 101 Tree Point drift gillnet fishery during the time of the assessment, and considering the delay of the NBC directed troll coho salmon fishery from July 1 to August 1 and the reduced recreational sport coho salmon harvest resulting from decreased

guided angler trips following restrictive COVID-19 mandates, it was determined that additional boundary area restrictions were not warranted. The mid-July projection of region-wide total commercial harvest of 1.37 million was greater than the 1.1 million trigger for an early region-wide troll closure, specified in Alaska Board of Fisheries regulation and the PST conservation agreement.

The 2020 region-wide summer troll coho salmon fishery began by regulation on June 1 and continued in all waters of SEAK through September 20. The 2020 all-gear catch of coho salmon totaled 1.19 million fish, of which 1.04 million (87%) were taken in commercial fisheries (Table 13). The troll harvest of 750,700 coho salmon was 51% below the 2010–2019 average of 1.52 million fish and accounted for 72% of the commercial catch. Power troll wild coho salmon CPUEs were below the 2000–2019 average for the duration of the summer season. The overall wild stock abundance (wild troll catch divided by an index of the troll exploitation rate) was estimated at 2.91 million fish, 28% below the 20-year average. With pink salmon abundance down throughout much of SEAK in 2020, purse seine opportunities were reduced. Consequently, the purse seine coho salmon harvest of 78,700 fish was 74% below the 2010–2019 average, while the drift gillnet harvest of 130,500 fish was 77% below the 2010–2019 average. The set gillnet harvest of 81,700 fish in the Yakutat area was 40% below the 2010–2019 average, with 81% of the catch taken in the Situk-Ahrnklin Lagoon. A preliminary estimate of the SEAK sport catch (151,900) is 41% below the 2010–2019 average (257,600 fish).

Wild production accounted for 787,000 fish (76%) in the commercial catch compared with a recent 2010–2019 average of 1.74 million fish (75% wild). The hatchery percentage of the commercial catch was 24%. Of the estimated hatchery contribution of 254,600 fish, over 99% originated from facilities in SEAK, with facilities on or near the outer coast accounting for an estimated 51% of the return while inside hatchery returns contributed to the remaining 49%.

Preliminary all-fishery coho salmon exploitation rate estimates were low for all three wild indicator stocks, at 20% for Auke Creek, 24% for Berners River, and 42% for Hugh Smith Lake. The all-fishery exploitation rate for the Hugh Smith Lake stock was below the long-term average of 61%. Most of the reduction in the all-fishery exploitation rate was driven by decreases in the troll fleet exploitation rate. The troll fishery exploitation rate on the Hugh Smith Lake stock (24%) was below the 25-year (1995–2019) average of 29%. Troll fishery exploitation rates on northern inside stocks were record lows, estimated at only 0% for Auke Creek and 5% for the Berners River compared with 25-year averages of 24% and 24%, respectively. While troll exploitation rates were well below average, drift gillnet exploitation rates were within ranges of previously observed values. Compared with 25-year averages, drift gillnet fisheries accounted for an estimated 19% of the Auke Creek return (average 8%), 19% of the Berners River return (average 21%), and 8% of the Hugh Smith Lake return (average 12%).

Escapement counts and estimates were below or within goals for most coho salmon stocks. The total escapement of 634 adult coho salmon to Hugh Smith Lake was within the biological escapement goal of 500–1,600 spawners. Coho salmon escapements were within the respective goal ranges for two northern Southeast inside stocks (Taku River and Montana Creek), and below the goal for Chilkat River, Berners River, Auke Creek, and Peterson Creek. The combined peak count of 8,610 coho salmon in the 14 surveyed streams in the Ketchikan area was below the 1987–2019 average (10,495) yet above the goal of 4,250–8,500 spawners. The combined peak count of

spawners in five streams in the Sitka area (630 spawners) was approximately half of the long-term average yet within the escapement goal of 400–800 spawners.

Coho salmon stocks monitored for CWTs all experienced a decline in total adult production. For example, at Hugh Smith Lake the estimated total run size of 1,097 adults was the lowest on record, approximately 73% below the 1992–2019 average (4,042). This occurred despite a 2019 coho salmon smolt migration from Hugh Smith Lake that was only 5% below the long-term average. Overall production decline was caused by a preliminary Hugh Smith Lake coho salmon marine survival rate (3.5%) that was greatly below the long-term average (12.3%). The Hugh Smith Lake marine survival of coho salmon is the second lowest observed, similar to the record low of 2018 (3.0%).

Similar to Hugh Smith Lake, coho salmon marine survival (and associated adult total run estimates) for the northern inside stocks was below the long-term average. Smolt-to-adult survival rates of 5.7% for the Berners River and 6.8% for Auke Creek were much lower than the long-term (1990–2019) mean survival rates of 15% (Berners River) and 19% (Auke Creek). The 2020 total estimated adult coho salmon run size in the Berners River was 5,355, 80% below the 1992–2019 average (26,499). Marine survival for Northern inside coho salmon stocks has been trending lower in recent years: four of the lowest five years for marine survival have occurred in the past five years.

Table 13. Coho salmon harvest in Southeast Alaska by gear type (preliminary), 2020.

Gear Type	Harvest
Troll	750,700
Purse Seine	78,700
Drift Gillnet	130,500
Set Gillnet	81,700
Sport (marine and freshwater)	151,900
Total	1,193,500

III. PRELIMINARY 2020 CHINOOK AND COHO SALMON FISHERIES IN WASHINGTON AND OREGON

INTRODUCTION

This report describes the conduct of United States (U.S.) fisheries of interest to the Pacific Salmon Commission (PSC) that occurred during 2020 in the area north of Cape Falcon, Oregon and south of the U.S./Canada border. These fisheries were conducted under pre-season management plans that were consistent with Annex IV of the Pacific Salmon Treaty (PST 2019) including obligations defined within Chapter 3 for Chinook individual stock based management regimes (ISBM) and Chapter 5 for Southern Coho Management.

An overview of the Chinook (*Oncorhynchus tshawytscha*) and Coho (*Oncorhynchus kisutch*) salmon conservation challenges facing managers during the 2020 pre-season planning process in this region is provided in the following section. The conduct of major fisheries is described, and estimates of landed catch, where available, are compared to pre-season catch limits or expectations for Chinook (Table 14) and Coho (Table 15). For perspective, landed catches for those fisheries since 2015 are also presented. Where available, preliminary estimates of the number of Chinook or Coho salmon released by anglers in 2020 mark-selective fisheries are also presented (Table 16). All estimates for the 2020 fisheries are preliminary and subject to change. Estimates of spawning escapements and abundance of Coho and Chinook stocks are not available at this time.

PRE-SEASON PLANNING

Pre-season planning for southern U.S. fisheries of interest to the PSC is a coordinated activity involving Tribal, State and Federal management entities, with the involvement of conservation and fishing interests. The Pacific Fishery Management Council (PFMC) conducted a series of public meetings to consider options for ocean fishery season structures while the Tribes and States conducted government-to-government and public, open meetings throughout the region to develop and analyze alternative season structures for fisheries in the inside waters of the Columbia River, coastal Washington and Puget Sound. Participants in these various planning sessions evaluated the biological and socio-economic consequences of the alternative season structures for the outside (ocean) and inside (marine and freshwater) fisheries (Figure 38) including the anticipated impacts on U.S. southern origin stocks in fisheries conducted under the PST in Canada and Southeast Alaska. Agreement was reached on season structures expected to achieve conservation goals, domestic fishery objectives and legal obligations, including the PST, assuming fisheries are conducted as planned and pre-season abundance estimates are accurate.

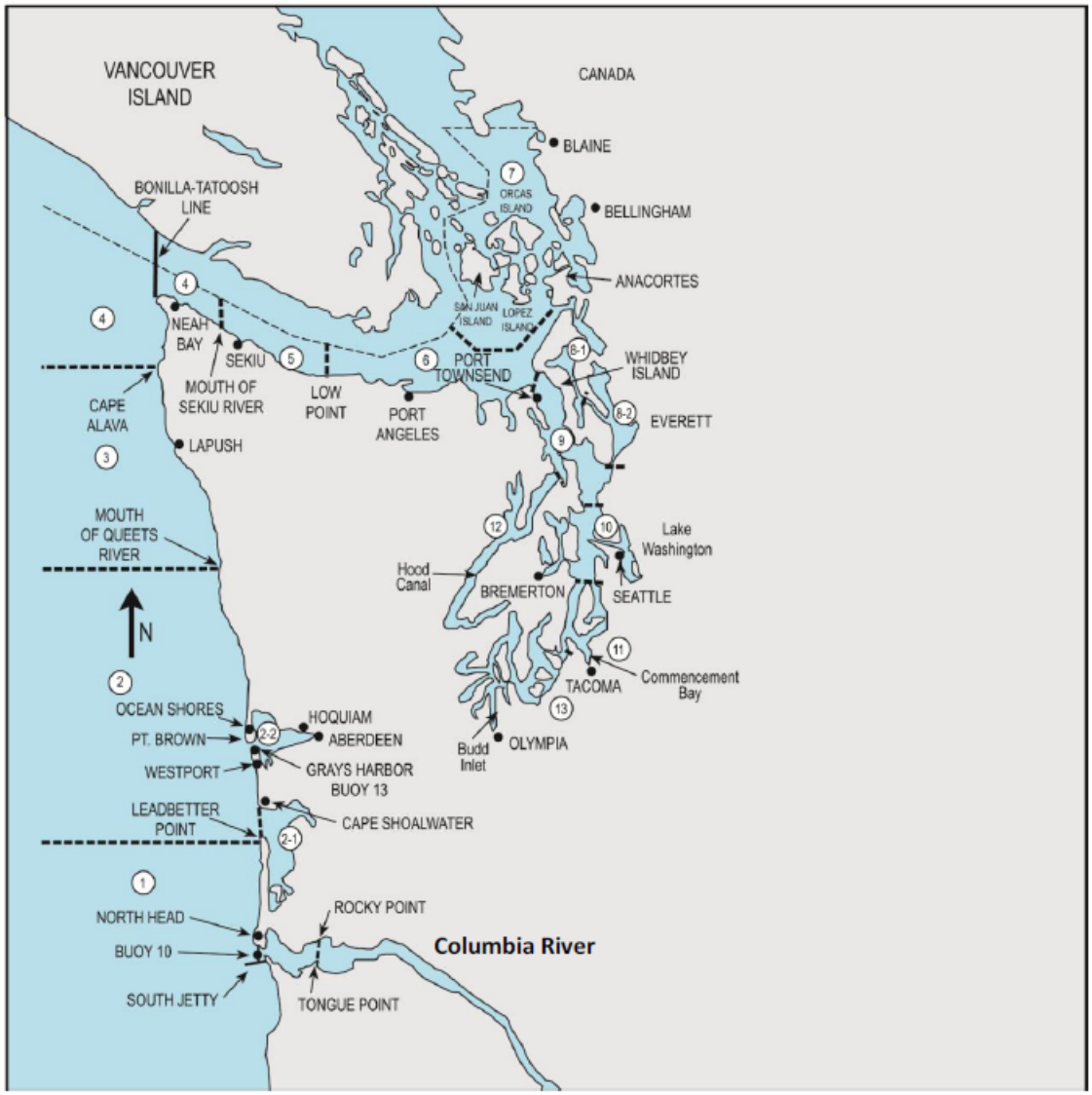


Figure 38. Map of Western Washington marine catch areas of the Washington coast (Areas 1 through 4) and Puget Sound (Areas 5 through 13) (WAC 220-22-030). Inside (Columbia River) fisheries reported in this document extend beyond the scope of this map.

Chinook Salmon Management

Under the 2019 Pacific Salmon Treaty Agreement, southern U.S. fisheries are subject to the Individual Stock Based Management provisions of Annex IV, Chapter 3. These provisions require that Southern U.S. fisheries on Chinook stocks shall be managed to limit the total adult equivalent mortality to the limits listed in Attachement I of Chapter 3.

Conservation obligations associated with the U.S. Endangered Species Act (ESA) for threatened and endangered Chinook salmon stocks originating from Puget Sound and the Columbia River have been more constraining to southern U.S. fisheries than PST obligations. Catch quotas for the 2020 U.S. ocean fisheries in the area north of Cape Falcon, Oregon, were defined by the impact limits on ESA-listed lower Columbia River natural tule fall Chinook stocks, ESA-listed Puget Sound Chinook stocks, and the abundance of other healthy, harvestable Chinook salmon stocks contributing to fisheries in this area. Puget Sound fishing seasons were structured to

provide fishing opportunity on healthy salmon species or stocks within the impact limits defined for ESA-listed Puget Sound Chinook.

Coho Salmon Management

During the pre-season fishery planning process of 2020, Canadian fishery managers informed the U.S. that the Interior Fraser management unit was again expected to be in the *low* categorical abundance status, and U.S. fisheries were constrained to ensure that the exploitation rate on this management unit did not exceed 10.0% as defined by the PST Southern Coho Management Plan. Of the U.S. natural spawning Coho management units (MUs) managed under the PST, the Snohomish and Strait of Juan de Fuca MUs were forecasted to be in *low* abundance status. The Skagit, Stillaguamish, Hood Canal, Quillayute, Queets and Grays Harbor Coho MUs were predicted to be in *moderate* status, while the Hoh MU was forecasted to be in *abundant* status.

The impacts of planned Southern U.S. fisheries on natural Coho stocks, seasons, and catch limits were predicted using the Fisheries Regulation Assessment Model (FRAM). The total exploitation rate on the Interior Fraser Coho management unit was predicted to be 7.4% in Southern U.S. fisheries. Seasons and Coho quota levels for U.S. ocean fisheries were closed or severely constrained by the management objectives of Washington coastal and Puget Sound natural Coho and ESA-listed lower Columbia River natural Coho. Limits to fisheries in marine areas within northern Puget Sound and the Strait of Juan de Fuca were likewise constrained by management objectives reflecting very low forecasted returns for some Puget Sound natural Coho stocks.

NORTH OF CAPE FALCON OCEAN FISHERIES

Details regarding North of Cape Falcon ocean salmon fishing plans were reported in Preseason Report III, published by the Pacific Fishery Management Council in April 2020.
https://www.pcouncil.org/documents/2020/04/2020-preseason-report-iii.pdf/
Fisheries in this area are managed to meet conservation objectives for ESA-listed stocks, natural stocks and brood stock goals for hatchery stocks. Within these stock management objectives, ocean fishing seasons are defined that meet legal requirements of Tribal treaties and allocations between Non-Tribal troll and sport fisheries. Ocean fishery seasons are also constructed to ensure a balance of opportunity for harvest with the inside fisheries. Lower Columbia River hatchery Coho and Columbia River fall Chinook have historically been the major stocks contributing to catches of ocean fisheries in the North of Cape Falcon area.

Chinook and Coho salmon catch quotas were established for the 2020 ocean Tribal, Non-Tribal troll and sport fisheries. Ocean fishery quotas for Chinook salmon were defined by exploitation rate limits on several ESA-listed Puget Sound Chinook stocks as well as the total exploitation rate limit of 38% on ESA-listed lower Columbia River natural tule fall Chinook stocks in all fisheries.

Non-Tribal Troll Fishery

Pre-season quota levels for the non-Tribal troll fisheries were 27,640 Chinook and 2,000 Coho with a clipped adipose fin, hereinafter referred to as marked. The preliminary estimate of non-Tribal harvest in the 2020 North of Falcon troll fishery is 12,000 Chinook (43% of the coast-wide quota) and 700 Coho (35% of the coast-wide non-Tribal troll quota). Trollers harvested 2,000 Chinook in the May 1 – June 30 fishery, and the remaining 10,000 Chinook were

harvested in the summer all-species fishery between July 1 and September 30. All Coho were harvested during the summer all-species fishery.

Tribal Troll Fishery

The Quinault, Quileute and Hoh Tribes opened their May-June Chinook Tribal Troll fisheries on May 1. The Makah Tribe did not open a Chinook fishery during this time period due to tribe-specific COVID-19 restrictions. The May-June Chinook Tribal Troll catch (31 fish) was the lowest harvest on record. The May-June fishery harvested 0.2% of the 17,500 Chinook sub-quota.

The Quinault, Quileute and Hoh Tribes opened their all-species Tribal Troll fisheries on July 1. Due to tribe-specific COVID-19 restrictions, the Makah Tribe had a delayed opening on July 24. The all-species portion of the fishery ran from July 1 through September 15. The fishery harvested 13.7% of the 17,500 Chinook sub-quota and 87% of the 16,500 Coho quota. Coho landings were highest in August accounting for 75% of the overall catch, followed by September at 20%. Chinook effort was highest in August, which accounted for approximately 70% of the Chinook landings during this time period. There were 182 landings during the all-species portion of the fishery.

Overall the Tribal Troll fishery harvested 7% of the 35,000 Chinook quota and 87% of the 16,500 Coho quota. The total ocean salmon harvest for the 2020 Tribal Troll fishery was 2,437 Chinook and 14,391 Coho across 185 total landings. The majority of the Tribal Troll catch was taken in Area 4, with smaller amounts taken in Areas 2, 3 and 4b.

Ocean Sport Fisheries

Pre-season quotas for the Washington coastal sport fishery (Ocean Areas 1 through 4) were 26,360 Chinook and 26,500 marked Coho. Preliminary total catch estimates for the ocean sport fisheries north of Cape Falcon were 7,600 Chinook (29% of the pre-season coast-wide quota) and 24,300 Coho (92% of the pre-season coast-wide sport quota). A description of the season structure and catches by management area follows.

Columbia Ocean Area (including Oregon)

All-species salmon sport fishing opened in Ocean Area 1 (Columbia Ocean Area) on June 20 with a pre-season quota of 13,250 marked Coho and a guideline of 7,000 Chinook. The fishery closed on July 26 upon attainment of the Coho quota. The catch estimates for Area 1 were 800 Chinook (12% of the guideline) and 12,900 Coho (97% of the quota). The Chinook minimum size limit was 22 inches and the Coho minimum size limit was 16 inches with a sub-area closure in the Columbia Control Zone. A preliminary overall legal-sized Coho mark rate of 67% was calculated from on-water data collection in this area.

Preliminary estimates of Coho encounters (retained and released) and mark rate in the Area 1 Coho mark-selective sport fishery, June 20 – July 26, 2020.

Coho retained	Coho released	Total encounters	Mark %
12,900	6,400	19,300	67%

Westport, Washington

Ocean Area 2 (Westport, WA) opened for all-species salmon sport fishing on June 20 with a pre-season quota of 9,800 marked Coho and a guideline of 12,700 Chinook. The fishery closed on its automatic closure date, September 30. The catch estimates for Area 2 were 4,800 Chinook (39% of the guideline) and 8,200 Coho (84% of the quota). The Chinook minimum size limit was 22 inches and the Coho minimum size limit was 16 inches with a sub-area closure in the Grays Harbor Control Zone beginning August 12. A preliminary overall legal-sized Coho mark rate of 43% was calculated from on-water data collection in this area.

Preliminary estimates of Coho encounters (retained and released) and mark rate in the Area 2 Coho non-retention sport fishery, June 20 – September 30, 2020.

Coho retained	Coho released	Total encounters	Mark %
8,200	10,900	19,100	43%

La Push, Washington

Ocean Area 3 (La Push, WA) opened for all-species salmon sport fishing on June 20 with a pre-season quota of 690 marked Coho and a guideline of 1,300 Chinook. The fishery closed on its automatic closure date, September 30. The port of La Push was closed to public access throughout the season due to health concerns associated with COVID-19; anglers could access Ocean Area 3 from the ports of Westport or Sekiu, but effort was minimal. The catch estimates for Area 3 were 20 Chinook (2% of the overall guideline of 1,200) and 200 Coho (46% of the revised quota of 462, after an in-season transfer of quota to Ocean Area 4). The Chinook minimum size limit was 24 inches and the Coho minimum size limit was 16 inches. With low Coho encounters in Ocean Area 3, encounter data from dockside interviews were combined with those from Ocean Area 4, indicating a preliminary overall legal-sized Coho mark rate of 48%.

Preliminary estimates of Coho encounters (retained and released) and mark rate in the Area 3 Coho non-retention sport fishery, June 20 – September 30, 2020.

Coho retained	Coho released	Total encounters	Mark %
200	200	400	48%

Neah Bay, Washington

Ocean Area 4 (Neah Bay, WA) opened for all-species salmon sport fishing on June 20 with a pre-season quota of 2,760 marked Coho and a guideline of 5,600 Chinook. The fishery closed on August 7 upon attainment of the Coho quota. The port of Neah Bay was closed to public access throughout the season due to health concerns associated with COVID-19; anglers could access Ocean Area 4 from the port of Sekiu. The catch estimates for Area 4 were 1,900 Chinook (34% of the guideline) and 3,000 Coho (100% of the revised quota of 2988, after an in-season transfer of quota from Ocean Area 3). The Chinook minimum size limit was 24 inches and the Coho minimum size limit was 16 inches. A preliminary overall legal-sized Coho mark rate of 48% was calculated from dockside interview data collection from this area and Ocean Area 3.

Preliminary estimates of Coho encounters (retained and released), in the Area 4 Coho non-retention sport fishery, June 20 – August 7, 2020.

Coho retained	Coho released	Total encounters	Mark %
3,000	3,300	6,300	48%

NORTH OF CAPE FALCON INSIDE FISHERIES

WASHINGTON COASTAL RIVER FISHERIES

North Washington Coastal Rivers

Net and sport fisheries directed at salmon in this region were implemented based upon pre-season, Tribal-State agreements and subject to in-season adjustments. Tribal net harvest includes non-selective catch from the Sooes, Quillayute, Hoh, Queets, and Quinault Rivers. The 2020 Tribal net fisheries in north coastal rivers harvested an estimated 20,600 Chinook salmon and 38,300 Coho salmon through November 17, 2020.

Recreational fisheries conducted during 2020 in the Quillayute, Hoh and Queets River systems included mark-selective fisheries targeting hatchery Chinook and Coho in the Quillayute and Queets systems. The Hoh River was closed to fishing May 1 through September 15 and was non-selective when the fishery reopened from September 16 through November. Harvest or impact estimates for these fisheries are unavailable at this time.

Grays Harbor, Washington

Harvest numbers reported for Grays Harbor include catch from both the Humptulips and Chehalis Rivers through November 17, 2020. The non-selective Tribal net fisheries in Grays Harbor, and including fisheries in the Humptulips and Chehalis Rivers, harvested an estimated 3,700 Chinook salmon and 6,300 coho salmon. The non-Tribal commercial fishery in the northern portion of Grays Harbor near the Humptulips River (Area 2C) was not scheduled in 2020. There were 4 Chinook salmon (mark-selective) and 1,014 Coho harvested in the Non-Tribal commercial gillnet fishery in Areas 2A and 2D. Sport fisheries conducted in the Chehalis and Humptulips Rivers included mark-selective components for Chinook and Coho salmon. Harvest data for these fisheries are not available at this time.

COLUMBIA RIVER FISHERIES

Tribal and non-Tribal net and sport salmon fisheries were implemented in the winter/spring (January-June 15), summer (June 16-July) and fall (August-December) periods. All fisheries were constrained by impacts on ESA-listed stocks. Winter/spring fisheries were primarily constrained by impacts on ESA-listed upper Columbia River spring Chinook, Snake River spring/summer Chinook, and Cowlitz spring Chinook. Summer season fisheries were constrained by impacts to upper Columbia summer Chinook and ESA-listed sockeye. Fall fisheries were mainly constrained by impacts to ESA-listed Snake River fall Chinook and upriver summer steelhead. Additionally, careful in-season management to limit the fishery impacts on ESA-listed lower Columbia tule fall Chinook further limited Columbia River fall fisheries.

Columbia River salmon fisheries are developed and regulated to meet conservation standards. Fisheries are managed to operate within the impact limits set for ESA-listed stocks, meet the objectives for healthy Columbia River natural stocks, and ensure broodstock needs are met for hatchery salmon. Mainstem Columbia River fisheries are also developed and managed to remain within the requirements of the 2018 – 2027 *US v. Oregon* Management Agreement (MA), which includes Tribal/Non-Tribal sharing agreements. All data are preliminary and

subject to change; some fisheries are still ongoing at the time of this report. The following section includes harvest numbers from Columbia River fisheries that are considered to be of the interest to PSC; therefore, the data may not match other reports that include total harvest.

Winter-Spring Fisheries

Non-Tribal Net

The mainstem winter/spring commercial fishery operated under mark-selective fishery (MSF) regulations during 2002-16. As a result of guidance from the Oregon and Washington Fish and Wildlife commissions, winter/spring non-Tribal commercial salmon seasons have not occurred in the mainstem Columbia River since 2016. Commercial fisheries during the winter/spring timeframe did occur in off-channel areas (Select Areas) in the Columbia River estuary but are not reported in this document.

Sport

Mainstem Columbia River mark-selective sport fisheries for spring Chinook began in 2001. In 2020, fisheries were closed March 28 through May 4 due to COVID-19 concerns. The area below Bonneville Dam was open from January 1 – March 27, May 5, 7, 9, 13, May 15-17, and May 20 for hatchery Chinook retention. The area downstream of the Lewis River was closed to angling beginning March 1 due to Cowlitz/Lewis broodstock concerns. Catch estimates for this area totaled 1,462 hatchery adult spring Chinook kept and 743 non-adipose fin clipped Chinook released. From Bonneville Dam to the Washington-Oregon state line, Chinook retention was open May 5, 7, 9, 13, May 15-17, and May 20, with 529 hatchery adult spring Chinook kept and 162 non-adipose fin clipped Chinook released. The Snake River fishery structure included two specific catch areas open on a days-per-week rotation during May 5-22. Catch in the Snake River fishery totaled 326 hatchery adult spring Chinook and 59 non-adipose fin clipped released. Fisheries also occurred in tributaries but are not reported in this document.

Preliminary estimated encounters of adult Spring Chinook in the Winter/Spring Columbia River mark-selective sport fishery.

System	Area	Chinook Kept	Chinook Released	Total Handle	% Kept
Columbia River	Below Bonneville Dam	1,462	743	2,680	66%
Columbia River	Bonneville Dam to WA-OR state line	529	162	691	77%
Snake River	Washington waters	326	59	385	85%

Tribal

Tribal mainstem winter/spring fisheries typically occur from January 1 through June 15. Tribal mainstem fisheries are not mark-selective. Tribal fisheries are primarily conducted in the mainstem Columbia River from Bonneville Dam upstream to McNary Dam (Zone 6). Some additional harvest occurs just downstream of Bonneville Dam in platform and hook-and-line fisheries. Spring season fisheries may include three fishery sectors, a ceremonial permit gillnet fishery, a platform and hook and line fishery and a commercial gillnet fishery (during winter and periodically in the spring, after ceremonial needs have been met).

During 2020, the platform and hook-and-line fishery was open for subsistence fishing

throughout the winter/spring period. Commercial sales did not occur in 2020 Tribal fisheries during the spring management period. Harvest estimates from the combined ceremonial and subsistence fisheries totaled 4,368 upriver spring Chinook (includes harvest below Bonneville Dam). Tribal harvest in tributaries is not included in this report.

Summer Fisheries

Non-Tribal Net

As a result of guidance from the Oregon and Washington Fish and Wildlife commissions, non-Tribal commercial fisheries did not occur in the summer management timeframe. Commercial fisheries during the summer timeframe did occur in off-channel areas (Select Areas) in the Columbia River estuary but are not reported in this document.

Sport

Summer season mark-selective Chinook recreational fisheries were open July 4-31 from the Tongue Point-Rocky Point line near the mouth of the Columbia River upstream to Priest Rapids Dam. An estimated 1,191 and 140 summer Chinook were harvested, and 995 and 167 were released below and above Bonneville Dam, respectively. The fishery (mark-selective) above Priest Rapids Dam opened on July 4 and resulted in 4,686 Chinook kept and 1,695 released. In-river allocation agreements dictate that a substantial share of the non-treaty catch be provided for fisheries upstream of Priest Rapids Dam.

Preliminary estimated encounters of adult Summer Chinook in the Upper Columbia River mark-selective sport fishery.

System	Area	Chinook Kept	Chinook Released	Total Handle	% Kept
Columbia River	Below Bonneville Dam	1,191	995	2,186	54%
Columbia River	Bonneville to Priest Rapids Dam	140	167	307	46%
Upper Columbia River	Above Priest Rapids Dam	4,686	1,695	6,381	73%

Tribal

Summer season Tribal fisheries occurred from June 16 through July 31. Tribal mainstem fisheries are not mark-selective. Tribal fisheries are primarily conducted in the mainstem Columbia River from Bonneville Dam upstream to McNary Dam (Zone 6). Some additional harvest occurs just downstream of Bonneville Dam in platform and hook-and-line fisheries. There was a brief period of permit gillnet fisheries followed by five weekly commercial gillnet fishing periods conducted from June 22 – July 23. Platform and hook-and-line fisheries also occurred throughout the season, and fish were sold commercially or retained for subsistence use. Tribal fisheries within the mainstem harvested a total of 7,929 Upper Columbia summer Chinook.

Fall Fisheries

Non-Tribal Net

Fall season mainstem fisheries are typically categorized into early and late fall seasons. The early fall season generally encompasses the month of August and in some years, early September, whereas the late fall season generally begins in mid-September and may continue through October. Time, area, and gear restrictions were in place for fall season commercial gillnet fisheries. Fall gillnet fisheries are non-MSF. No seine or pound net fisheries occurred due to ESA constraints. The early fall season consisted of six fishing periods during August 10-27 in commercial Zones 4-5 (Warrior Rock to Beacon Rock) and resulted in 16,612 Chinook and 348 Coho harvested. The late fall season consisted of 9 fishing period during September 15 through October 22 in the same area and resulted in 15,951 Chinook and 2,466 Coho harvested. Tangle net fisheries occurred during September 30-October 30 (14 periods) in commercial Zones 1-3 (mouth to Warrior Rock) and are MSF for Coho and non-MSF for Chinook and resulted in 911 Chinook and 4,992 marked Coho (1,576 unmarked Coho Salmon were released) being harvested; approximately 32% of the Coho catch in the tangle net fishery were jacks. Commercial fisheries during the fall timeframe did occur in off-channel areas (Select Areas) in the Columbia River estuary but are not reported in this document.

Sport

Fall season recreational fisheries are mark-selective for Coho, and occasionally include some mark-selective periods for Chinook in the Buoy 10 area and in the 69-mile stretch of the lower Columbia River from the Tongue Point line upstream to Warrior Rock, which is near the mouth of the Willamette River. There were no mark-selective periods for Chinook in the mainstem Columbia River in 2020.

The Buoy 10 fishery opened August 14 and continued through December 31; Chinook retention was allowed August 14-27, September 5-6, September 11-13, and September 19 through December 31. Additional regulations for the Buoy 10 fishery included minimum size limits for Chinook (24-inches) and Coho (16-inches). Released Chinook typically consisted of fish that did not meet the minimum size requirement, fish released during non-retention periods, and any voluntary releases of legal-sized Chinook throughout the season. Buoy 10 catches included 14,323 Chinook and 6,474 hatchery Coho kept. Released fish included 5,329 Chinook and 7,668 Coho.

The lower Columbia River (LCR) mainstem sport fishery from the West Puget Island line upstream to Bonneville Dam opened August 1-31, September 11-13 and September 19 – December 31. The area from the Rocky Point – Tongue Point line upstream West Puget Island was open August 14-27, September 11-13, and September 19 through December 31. Chinook retention from the Lewis River upstream to Bonneville Dam was allowed August 1-September 6 on a three days-per-week rotation, and September 11-13 and September 19-December 31. Unlike the Buoy 10 fishery, the LCR was not open to angling when Chinook retention was closed. The kept catch estimate for the LCR sport fishery included 19,842 adult Chinook (757 released) and 1,580 hatchery Coho (746 released).

The mainstem sport fishery from Bonneville Dam to the Highway 395 Bridge (near Pasco, Washington) was open August 1-September 8, September 11-13, and September 19-December

31. Adult catch estimates for the Bonneville to McNary area totaled 5,547 fall Chinook and 827 Coho Salmon. Additional fisheries occurred on the Columbia River upstream of McNary Dam, Hanford Reach area (downstream of Priest Rapids Dam), in tributaries and in the Snake River, but are not reported in this document.

Adult Fall Chinook and Coho Salmon Handle in the Columbia River Fall Sport Fisheries					
System	Area	Chinook Kept	Chinook Released	Total Handle	% Kept
Columbia River	Buoy 10	14,323	5,329	19,652	73%
Columbia River	LCR Sport	19,842	757	20,599	96%
Columbia River	Bonneville-McNary	5,547	315	5,862	95%
System	Area	Coho Kept	Coho Released	Total Handle	% Kept
Columbia River	Buoy 10	6,474	7,668	14,142	46%
Columbia River	LCR Sport	1,580	746	2,326	68%
Columbia River	Bonneville-McNary	827	209	1,036	80%

Tribal

Fall season Tribal fisheries occur from August 1 through December 31. Tribal fisheries are not mark-selective. Tribal fisheries are primarily conducted in the mainstem Columbia River from Bonneville Dam upstream to McNary Dam (Zone 6). Some additional harvest occurs just downstream of Bonneville Dam in platform and hook-and-line fisheries. Platform and hook and line fisheries will remain open through December 31.

The Tribal commercial gillnet fishery consisted of seven weekly fishing periods from August 24 through October 7. Preliminary harvest estimates for all fall season fisheries total 96,880 adult fall Chinook and 13,365 adult Coho; however, some additional fish may be landed in the ongoing platform fisheries. Harvest estimates reported herein do not include catch from tributary fisheries.

PUGET SOUND FISHERIES

Puget Sound marine fisheries of interest to the Pacific Salmon Commission were regulated to meet conservation and allocation objectives for Chinook, Coho, Chum, and Sockeye salmon stocks, per Tribal-State agreement. For Puget Sound Chinook listed under the ESA, fisheries were managed according to the Puget Sound Chinook Harvest Management Plan (PSIT and WDFW 2010). This management plan defines limits to total exploitation rates for natural stocks and was determined by the National Marine Fisheries Service (NMFS) to be consistent with requirements specified under the ESA 4(d) Rule.

Release requirements were applied to many sport and net fisheries for Chinook, Coho, and Chum salmon -- the latter to protect ESA-listed Hood Canal and Strait of Juan de Fuca summer Chum.

Puget Sound marine fisheries were constrained by the need to meet management objectives for ESA-listed Puget Sound Chinook and due to conservation concerns for some Puget Sound Coho stocks. The primary constraining Puget Sound Chinook stocks during 2020 pre-season planning

included Mid-Hood Canal, Stillaguamish, and Nooksack Chinook. Strait of Juan de Fuca and Snohomish Coho were the primary Coho management units of concern for developing fisheries in the Strait of Juan de Fuca, San Juan Islands, and Puget Sound.

Strait of Juan de Fuca Sport

Marked Chinook retention was allowed for sport fishing in salmon management Area 5 and 6 from March 1 through March 25 when all fishing was closed due to COVID-19. Sport fishing regulations allowed retention of marked Chinook and marked Coho from July 1 through August 15 in Areas 5 and 6, with marked Coho retention also permitted through September 30 in those areas. Dungeness Bay was open for marked Coho retention during the month of October. Preliminary estimates of Chinook encounters and the legal-size mark rate in the Area 5 sport mark-selective fishery are presented in the following table.

Preliminary estimates of Chinook retained, released (legal and sub-legal size), and the legal-size mark rate in the Area 5 sport mark-selective fishery, July 1 – August 15, 2020.

Chinook retained	Chinook released	Total encounters	Mark % (legal size)
3,511	11,040	14,551	56.0%

A detailed report of this summer period sport fishery, including estimated catch, effort and other results of sampling and monitoring programs, will be available from the Washington Department of Fish and Wildlife in early 2021.

Strait of Juan de Fuca Tribal Troll (Area 4B, 5, and 6C)

During the winter Tribal troll fishery in Areas 4B, 5, and 6C (November 1, 2019 – April 15, 2020), 700 Chinook and zero Coho were caught. In the summer Tribal troll fishery in Areas 5 and 6C only (June 1 – September 30, 2020), 100 Chinook and 100 Coho were caught. The Tribal catch estimates from this area do not include catch from Area 4B during the May-September PFMC management period, which have been included in the North of Cape Falcon Tribal ocean troll summary.

Strait of Juan de Fuca Tribal Net

Preliminary estimates of the 2020 catch in the Strait of Juan de Fuca Tribal net fisheries (no non-Tribal net fisheries in the Strait of Juan de Fuca) are 8 Chinook and 1,400 Coho salmon.

San Juan Islands Net (Areas 6, 7, and 7A)

Preliminary estimates of the 2020 catch in the San Juan Island net fishery directed at Sockeye, or Chum salmon totaled 2 Chinook and 715 Coho salmon in the non-Tribal fishery. Tribal fishery landings from this area for all gear types totaled 100 Chinook and 3,300 Coho.

San Juan Islands (Area 7) Sport

Marked Chinook retention was allowed in the entire Area 7 during the winter/spring season from February 1, 2020 through March 25, 2020 when all fisheries were closed due to COVID-19. Preliminary estimates of Chinook retained and released by anglers during this fishery were produced via an intensive sampling program and are presented in the table below. A detailed report of this fishery, including estimates of catch, effort and other results of sampling and monitoring programs, is available from the Washington Department of Fish and Wildlife.

Estimated Chinook retained, released (legal and sub-legal size) and the legal size mark rate in the Area 7 sport mark-selective fishery, February 1 through March 25, 2020.			
Chinook retained	Chinook released	Total encounters	Mark % (legal size)
1,760	2,416	4,176	90.2%

During the summer season in Area 7, recreational anglers were allowed to retain Chinook from July 1 through July 31 and August 22-31. The southern Rosario Strait and eastern portions of Area 7 were closed from July 1 – September 30 to protect Puget Sound Chinook salmon. Additional sub-area closures are described in the 2019-20 Washington State Sport Fishing Rules Pamphlet. The table below presents estimated Chinook encounters (retained and released) and the legal-size mark rate in the Area 7 sport mark-selective fishery, from July 1-31 and August 22-31, 2020.

Estimated Chinook retained, released (legal and sub-legal size) and the legal size mark rate in the Area 7 sport mark-selective fishery, July 1-31 and August 22-31, 2020.			
Chinook retained	Chinook released	Total encounters	Mark % (legal size)
1,604	3,574	5,178	82.1%

Inside Puget Sound (Areas 8-13) Sport

Mark-selective sport fisheries (MSFs) targeting adipose fin-clipped (marked) hatchery Chinook were conducted in Area 8.1 (Deception Pass, Hope Island, and Skagit Bay), Area 8.2 (Port Susan & Port Gardner), Area 9 (Admiralty Inlet), Area 10 (Seattle-Bremerton), Area 11 (Tacoma-Vashon Island), Area 12 (Hood Canal), and Area 13 (South Puget Sound) during the winter (October 2019 – March 25, 2020) period, and in Areas 9, 10, 11, 12, and 13 during the summer (May – September 2020) period. Additionally, marked and unmarked Chinook retention was permitted in the Tulalip Bay (Area 8-2) from June 1 through September 2 (Fridays through noon Mondays), and from September 7 through September 29 (Saturdays and Sundays), and in Elliot Bay (Area 10) from August 2 through noon August 5.

Puget Sound Chinook mark-selective sport fisheries conducted in marine areas during 2019-2020.	
Areas	Season
8.1 & 8.2	Winter: February 1 – March 25, 2020.
9	Winter: February 1, 2020 – March 25, 2020. Summer: July 16 – August 15, 2020.
10	Winter: January 1, 2020 – March 25, 2020. Summer: July 16 – August 31, 2020; Sinclair Inlet: July 1 – September 30, 2020.
11	Winter: January 1, 2020 – March 25, 2020. Summer: July 1 – September 30, 2020.
12	Winter: October 1, 2019 – March 25, 2020. Summer: July 1 – September 30, 2020 (South of Ayock Point).
13	Year round: January 1 – December 31

Post-season reports detailing results of these Chinook MSFs, including estimates of retained and released encounters, effort and mark rates from sampling and monitoring programs, will be available from the Washington Department of Fish and Wildlife in the spring of 2021.

Mark-selective sport fisheries during 2020 directed at marked Coho were conducted in the following marine catch areas: Areas 5 and 6 from July 1 – September 30, Area 9 from July 16 – September 30 and in Area 13 from January 1 – December 31. Marked and unmarked Coho

retention was permitted in Area 7 during the months of July through September, ,Tulalip Bay from June 1 – September 2 (on Fridays through noon, Mondays only) as well as from September 7 – September 29 (Saturdays, Sundays), in Area 11 from July 1 – October 31; and in Area 12 from January 1 – March 25, 2020 in the whole area, as well as from August 1 – December 31, 2019 in the areas North of Ayock Point and from July 1 – October 31, 2020 in the area South of Ayock Point.

Puget Sound Marine Net (Areas 8-13 & 7B-D)

To achieve conservation objectives for natural Puget Sound Chinook, limited marine net fishing opportunities directed at returns of hatchery Chinook and both hatchery and natural Coho were planned for 2020. Chinook and Coho were also intercepted in fisheries directed at Chum salmon. A total of 25,700 Chinook and 104,000 Coho were landed in the Tribal marine net fisheries in Puget Sound (Areas 8-13 & 7B-D) during 2020. Non-Tribal net fishery landings from these areas totaled 9,286 Chinook and 2,785 Coho. Chinook landed in the non-Tribal net fishery occurred during Chinook-directed fisheries in Areas 7B, 7C, and 12C.

Puget Sound Rivers Fisheries

Tribal net and non-Tribal sport fisheries were implemented in freshwater systems based upon pre-season, Tribal-State agreements and subject in part to in-season adjustment. Harvest of Chinook and Coho in the Tribal in-river net fisheries (includes catch from river systems in the Strait of Juan de Fuca, Hood Canal, and Puget Sound) totaled 16,600 Chinook and 51,700 Coho during 2020.

Also, recreational fisheries targeting Chinook salmon were conducted in nine Puget Sound Rivers that have PSC Chinook coded wire tag (CWT) exploitation rate indicator stocks or double index tag (DIT) groups, as listed in the table below. Of these, seven rivers had mark-selective fisheries and two rivers had non-selective fisheries, as follows:

Chinook mark-selective sport fisheries conducted in Puget Sound rivers during 2020.	
River	Season
Nooksack River	June 1 – 30, and September 1 - 30
Cascade River	June 1 – July 15
Skagit River	May 1 – May 31 from the highway 536 bridge; June 1 – July 15
Skykomish River	May 23 – July 31
Carbon River	September 1 – October 15
Puyallup River	August 15 – September 30
Nisqually River	July 1 – November 15
Chinook non-selective sport fisheries conducted in Puget Sound rivers during 2020.	
River	Season
Samish River	August 1 – September 13
Green River	September 1 – December 31

During the 2020 season there were mark-selective sport fisheries targeting hatchery Coho in the rivers of Puget Sound that have PSC Coho CWT exploitation rate indicator stocks or DIT groups on the Wallace River (Skykomish tributary) September 16 through November 30. A mark selective fishery was open on the Dungeness October 16 through November 30 and the Nisqually River from July 1 – November 15. Recreational non-selective Coho fisheries were

conducted on the Nooksack River, Skagit River, Green River, Carbon River, Puyallup River, and Quilcene River.

REFERENCES

Pacific Salmon Treaty (PST) Act of 1985. 2008 Agreement. U.S.-Canada. Public Law 99-5, 16 U.S.C. 3631.

Puget Sound Indian Tribes and Washington Department of Fish & Wildlife (PSIT and WDFW). 2010. Comprehensive Management Plan for Puget Sound Chinook: Harvest Management Component. Northwest Indian Fisheries Commission, Olympia, Washington. 237 p.

Pacific Fishery Management Council (PFMC). 2008. Fishery Regulation Assessment Model (FRAM): An Overview for Coho and Chinook v3.0. Pacific Fishery Management Council, Portland, Oregon. 43 p.

Table 14. Preliminary 2020 Landed Chinook Catch for Washington and Oregon Fisheries of Interest to the Pacific Salmon Commission. Values are presented in number of fish rounded to the nearest 100. [9/]

	2020			Landed						
	Preseason [5/]									
Fisheries	Total Mortality [1/]	Landed [2/]	Preliminary Landed	2019	2018	2017	2016	2015	2014	2013
OCEAN FISHERIES										
Commercial Troll										
Neah Bay and La Push (areas 3,4,4B) [3/]	53,800	47,200	7,600	39,100	33,700	35,200	28,100	73,600	77,100	63,700
Columbia Ocean Area and Westport (area 1,2) [4/]	25,200	15,500	6,800	3,400	13,900	24,700	14,200	50,900	39,100	28,300
Sport (see text for quota information)										
Neah Bay (area 4)	6,300	5,600	1,900	3,900	3,000	7,300	3,300	8,500	5,900	6,200
La Push (area 3)	1,500	1,300	20	600	400	500	300	2,400	1,600	2,400
Westport (area 2)	13,800	12,500	4,800	2,400	4,900	6,600	8,400	19,100	23,500	13,700
Columbia Ocean Area (area 1)[13/]	8,000	7,000	800	4,000	2,300	7,600	6,000	12,200	11,300	8,500
INSIDE FISHERIES										
Sport [10/]										
Strait of Juan de Fuca (area 5,6)	17,200	9,300	-	13,100	14,300	9,900	9,700	11,800	11,100	14,900
San Juan Islands (area 7)	2,900	1,600	-	6,400	7,300	11,300	6,200	8,600	9,200	9,500
Puget Sound Marine (area 8-13)	30,000	20,100	-	19,300	29,900	22,800	14,400	8,800	12,100	16,600
Puget Sound Rivers [12/]	13,100	12,600	-	9,800	13,300	18,500	8,600	11,100	11,800	19,600
North WA Coastal Rivers	-	-	-	1,900	1,600	1,600	600	2,200	1,200	2,700

Grays Harbor [7/]	2,400	2,000	-	1,700	3,700	2,700	2,800	3,400	1,200	3,800
Columbia River (Spring) [6/]	-	-	2,000	2,000	8,100	9,100	14,100	21,300	19,900	8,000
Columbia River (Summer) [6/]	-	-	1,200	-	1,100	3,800	3,600	5,000	2,300	2,100
Columbia River (Fall) (incl. Buoy 10) [6/]	-	-	39,700	22,000	22,400	60,400	48,700	91,300	63,000	74,500
Commercial[11/]										
Strait of Juan de Fuca net and troll (area 4B,5,6C)	6,000	4,000	800	1,500	3,100	1,900	700	5,900	6,100	4,000
San Juan Islands (area 6,7, 7A)	8,300	8,300	100	3,600	3,900	2,600	100	4,800	6,900	3,800
Puget Sound Marine (8-13,7B-D)	39,000	38,300	34,900	72,700	70,600	90,600	55,800	33,100	28,400	70,100
Puget Sound Rivers[12/]	33,700	33,700	16,600	38,400	41,600	53,900	23,300	21,200	19,900	26,800
North WA Coastal Rivers	-	-	20,600	12,200	11,400	14,400	9,400	17,200	20,100	14,300
Grays Harbor (area 2A-2D) [7/]	1,100	1,000	3,700	2,400	2,700	3,700	2,100	10,500	5,100	2,900
Columbia River Net (Winter/Spring) [8/]	-	-	4,400	4,700	10,900	8,100	20,700	38,400	28,700	11,500
Columbia River Net (Summer) [8/]	-	-	7,900	5,600	9,500	16,300	23,500	41,700	22,100	15,300
Columbia River Net (Fall) [8/]	-	-	129,400	71,600	63,000	136,900	190,100	340,200	363,600	312,600

[1/] Estimates of total mortality (not adjusted for adult equivalents) include non-retention mortality. Total Mortality is estimated by Fishery Regulation Assessment Model (FRAM) as catch + incidental mortality, where incidental mortality = drop off + non-retention mortality (PFMC 2008).

[2/] For the ocean fisheries, this column shows the Chinook troll and recreational quotas used for 2020 pre-season fishery planning as distributed by ocean area (Landing Quotas = Landed). See text for any in-season adjustments.

[3/] Includes Area 4B catch during the PFMC management period (May 1 – September 15); Area 4B Tribal troll catch outside PFMC period included under Strait of Juan de Fuca net and troll (October-April).

[4/] Includes Oregon troll catch in Area 1.

[5/] FRAM modeled pre-season fishery impacts cover the current fishery planning year, for Chinook defined as May 1 through April 30.

[6/] Mainstem retained adult sport catch only (upstream to McNary Dam for spring, Priest Rapids Dam for summer and to Hwy 395 for fall). See tables 5, 8, 24-25 in the current Joint Staff Report regarding spring and summer Chinook and tables 25-27 in the annual fall report. https://wdfw.wa.gov/fishing/management/columbia-river/reports.

[7/] Includes Grays Harbor catch, as well as catch from the Chehalis and Humptulips Rivers and their tributaries for sport and Chehalis and Humptulips Rivers for net estimates.

[8/] Mainstem retained catch only, includes tribal C&S and Commercial from all gear types and non-tribal (Columbia River mouth upstream to McNary Dam). Excludes Non-tribal Select Area commercial catches. Fall season does not include seine catch. Catch data from annual Joint Staff Reports. Winter and spring catch Tables 5 (Tribal) and 17 (non-Tribal). Summer catch is in Table 8 and 18. Fall catch from annual fall report Tables 21, 22, 23 and 29. https://wdfw.wa.gov/fishing/management/columbia-river/reports.

[9/] Includes catch from mark-selective fisheries as shown in table 3.

[10/] Sport data for the most recent two years are preliminary. All data subject to change.

[11/] Includes non-tribal & tribal commercial, as well as tribal C&S for all gear types.

[12/] Chinook fisheries in Puget Sound Rivers are modeled using the Terminal Area Management Module (TAMM), based upon FRAM output of terminal run sizes. Total Mortality is estimated in TAMM as catch + non-retention mortality (PFMC 2008).

Table 15. Preliminary 2020 Landed Coho Catch for Washington and Oregon Fisheries of Interest to the Pacific Salmon Commission. Values are presented in number of fish rounded to the nearest 100. [6/]

	2020			Landed						
	Preseason [9/]									
Fisheries	Total Mortality [1/]	Landed [2/]	Preliminary Landed	2019	2018	2017	2016	2015	2014	2013
OCEAN FISHERIES										
Commercial Troll										
Neah Bay and La Push (area 3,4,4B) [3/]	18,900	17,000	14300	55,100	11,400	13,300	-	4,100	60,100	48,500
Columbia Ocean Area and Westport (area 1,2) [10/]	3,900	1,500	800	5,900	1,300	1,800	-	4,800	19,000	5,400
Sport (see text for quota information)										
Neah Bay (area 4)	3,500	2,800	3,000	6,200	4,900	3,500	100	7,800	5,600	6,500
La Push (area 3)	900	700	200	1,800	1,000	1,750	-	600	4,600	2,800
Westport (area 2)	12,200	9,800	8,200	20,200	15,400	15,750	-	30,700	54,500	20,400
Columbia Ocean Area (area 1)[12/]	16,300	13,300	12,900	53,500	20,600	21,600	18,600	44,600	75,100	20,500
INSIDE FISHERIES										
Sport [7/]										
Strait of Juan de Fuca (area 5,6)	19,300	16,200	-	29,600	28,000	4,800	100	62,000	63,000	41,300
San Juan Islands (area 7)	2,200	2,100	-	5,800	4,800	100	100	3,800	2,000	2,600
Puget Sound Marine (area 8-13)	52,200	46,100	-	44,600	50,100	31,400	4,900	76,900	59,200	72,100
Puget Sound Rivers	14,900	14,000	-	25,100	18,300	9,000	11,300	18,600	17,900	70,000
North WA Coastal Rivers	2,800	2,700	-	5,300	2,000	4,900	1,600	3,600	8,800	7,200
Grays Harbor [5/]	7,800	7,500	-	13,500	4,000	9,200	3,700	8,200	27,300	21,200

Columbia River Buoy 10[4/,11/]	20,100	16,300	6500	22,800	6,800	18,800	9,200	36,900	57,700	7,600
Commercial [8/]										
Strait of Juan de Fuca net and troll (area 4B,5,6C)	2,500	2,400	1,500	600	5,000	1,200	700	1,700	2,300	2,700
San Juan Islands (area 6,7,7A)	7,900	5,200	4,000	1,900	3,900	3,400	4,100	4,000	19,800	19,400
Puget Sound Marine (area 8-13,7B-D)	87,900	86,000	106,800	47,400	124,600	134,400	210,900	28,800	108,400	168,500
Puget Sound Rivers	58,400	57,300	54,800	43,400	114,600	63,200	65,400	17,800	73,400	136,000
North WA Coastal Rivers	32,300	31,700	38,300	13,400	22,300	63,700	57,800	18,400	101,400	44,800
Grays Harbor (area 2A-2D) [5/]	13,700	13,500	7,300	10,200	9,800	12,700	3,200	14,700	80,100	30,400

[1/] Estimates of total mortality include non-retention mortality. Total Mortality is estimated by Fishery Regulation Assessment Model (FRAM) as catch + incidental mortality, where incidental mortality = drop off + non-retention mortality (PFMC 2008).

[2/] For ocean fisheries this column shows the Coho troll and recreational quotas used for 2020 pre-season fishery planning as distributed by ocean area (Landing Quotas = Landed). See text for any in-season adjustments.

[3/] Includes area 4B catch during the PFMC management period (May 1 – September 15); area 4B Tribal troll catch outside the PFMC period included under Strait Juan de Fuca net and troll (October-April).

[4/] Retained catch only. See table 26 in the current Fall Joint Staff report available on line at http://wdfw.wa.gov/fishing/crc/staff_reports.html.

[5/] Includes Grays Harbor catch, as well as catch from the Chehalis and Humptulips Rivers; their tributaries are included in sport estimates only.

[6/] Includes catch from mark-selective fisheries where estimates are available.

[7/] Sport data for the most recent two years are preliminary. All data subject to change.

[8/] Includes Non-Tribal and Tribal commercial and take home, as well as Tribal ceremonial and subsistence (C&S) for all gear types. Starting in 2012, the Copalis, Moclips, and Ozette Rivers have been removed from landed catch.

[9/] FRAM modeled pre-season fishery impacts cover the current fishery planning year, for Coho defined as January 1 through December 31.

[10/] Includes Oregon troll catch in Area 1.

[11/] For Buoy 10, see tables 25 in the annual fall report.

Table 16. **Mark-Selective Chinook and Coho Fisheries by Area and Year. "Yes" denotes that a mark selective fishery occurred, even if it only occurred in a subset of the fishing area, season, gear type, or user group.**

Selective Coho	2020	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2009
Ocean Troll												
Cape Flattery & Quillayute (Areas 3/4)	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes
Columbia R & Grays Harbor (Areas 1 & 2)	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes
Ocean Sport												
Neah Bay (Area 4)	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes
La Push (Area 3)	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes
Grays Harbor (Area 2)	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	yes	yes
Col. R. (Leadbetter Pt. to Cape Falcon)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Inside Fisheries												
Sport												
Juan de Fuca (Areas 5 & 6)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
San Juan Islands (7)	no	no	no	no	no	yes	yes	yes	yes	yes	yes	yes
Puget Sound Sport (Areas 8-13 all year)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Puget Sound Rivers	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
North WA Coastal Rivers	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Grays Harbor (Areas 2-2)	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	yes	yes
Willapa Bay (Area 2-1)	no	no	no	yes	no	yes	no	no	no	no	yes	no
Columbia River Buoy 10	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Commercial												
North WA Coastal Rivers	no	no	no	no	no	no	no	no	no	no	no	no
Grays Harbor (Areas 2A-2D)	no	no	no	no	no	no	no	no	no	yes	yes	yes
Willapa Bay (Area 2-1)	no	no	no	no	no	no	no	no	no	no	yes	no
Columbia River Net/ - Fall	yes	yes	no	no	no	yes	yes	yes	no	no	no	no
Strait of Juan de Fuca (Areas 4B/5/6C) Net & Troll	no	no	no	no	no	no	no	no	no	no	no	no

San Juan Islands (Areas 6, 7 & 7A)	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Puget Sound Marine (Areas 8 - 13)	no	no	no	no	yes	no	no	no	no	no	no	no
Puget Sound Rivers	no	no	no	no	no	no	no	no	no	no	no	no
Selective Chinook	**2020**	**2019**	**2018**	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**
Ocean Troll												
Cape Flattery & Quillayute (Areas 3/4/4B)	no	no	no	no	no	no	no	no	no	no	no	no
Columbia. R & Grays Harbor (Areas 1&2)	no	no	no	no	no	no	no	no	no	no	no	no
Ocean Sport												
Neah Bay (Area 4)	no	no	no	no	no	yes	yes	yes	yes	yes	yes	no
La Push (Area 3)	no	no	no	no	no	yes	yes	yes	yes	yes	yes	no
Grays Harbor/Westport (Area 2)	no	no	no	no	yes	yes	yes	yes	yes	yes	yes	no
Col. R./Ilwaco (Leadbetter Pt. to Cape Falcon)	no	no	no	no	no	yes	yes	yes	yes	yes	yes	no
Inside Fisheries												
Sport												
Juan de Fuca (Area 5&6)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
San Juan Islands (Area 7)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Puget Sound Sport (Areas 8-13)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Puget Sound Rivers	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
North WA Coastal Rivers	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Grays Harbor (Areas 2-2)	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	no	no
Columbia River Sport - Winter/Spring	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Columbia River Sport - Summer	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no
Columbia River Sport - Fall	yes	yes	no	yes	yes	yes	yes	yes	yes	no	no	no
Willapa Bay (Area 2-1)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Commercial												
North WA Coastal Rivers	no	no	no	no	no	no	no	no	no	no	no	no

Grays Harbor (Areas 2A-2D)	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	no	no
Willapa Bay (Area 2-1)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Columbia River Net-Winter/Spring	no	no	no	na	yes	yes	yes	yes	yes	yes	yes	yes
Columbia River Net - Summer	no	no	no	na	no	no	no	no	no	no	no	no
Columbia River Net - Fall	no	no	no	no	yes	yes	yes	yes	no	no	no	no
Strait of Juan de Fuca(4B/5/6C) Net & Troll	no	no	no	no	no	no	no	no	no	no	no	no
San Juan Islands (Areas 6, 7 & 7A)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Puget Sound Marine (Areas 8 - 13)	no	no	no	no	no	yes	no	no	no	yes	yes	no
Puget Sound Rivers	yes	yes	yes	yes	no	yes	yes	yes	yes	yes	no	no

IV. PRELIMINARY REVIEW OF THE 2020 WASHINGTON CHUM SALMON FISHERIES OF INTEREST TO THE PACIFIC SALMON COMMISSION

This summary report provides a preliminary review of the 2020 U.S. Chum salmon (*Oncorhynchus keta*) fisheries conducted by Puget Sound salmon co-managers (Puget Sound Treaty fishing tribes and the State of Washington) in the Strait of Juan de Fuca (Salmon Management and Catch Reporting Areas 4B, 5 and 6C), the San Juan Islands and the Point Roberts area (Areas 7 and 7A) (Figure 39), conducted in compliance with provisions of Chapter 6 of Annex IV of the Pacific Salmon Treaty (PST 2019). The harvest and abundance information provided are based on preliminary data reported through November 17, 2020. These preliminary data are subject to correction and revision as additional information becomes available.

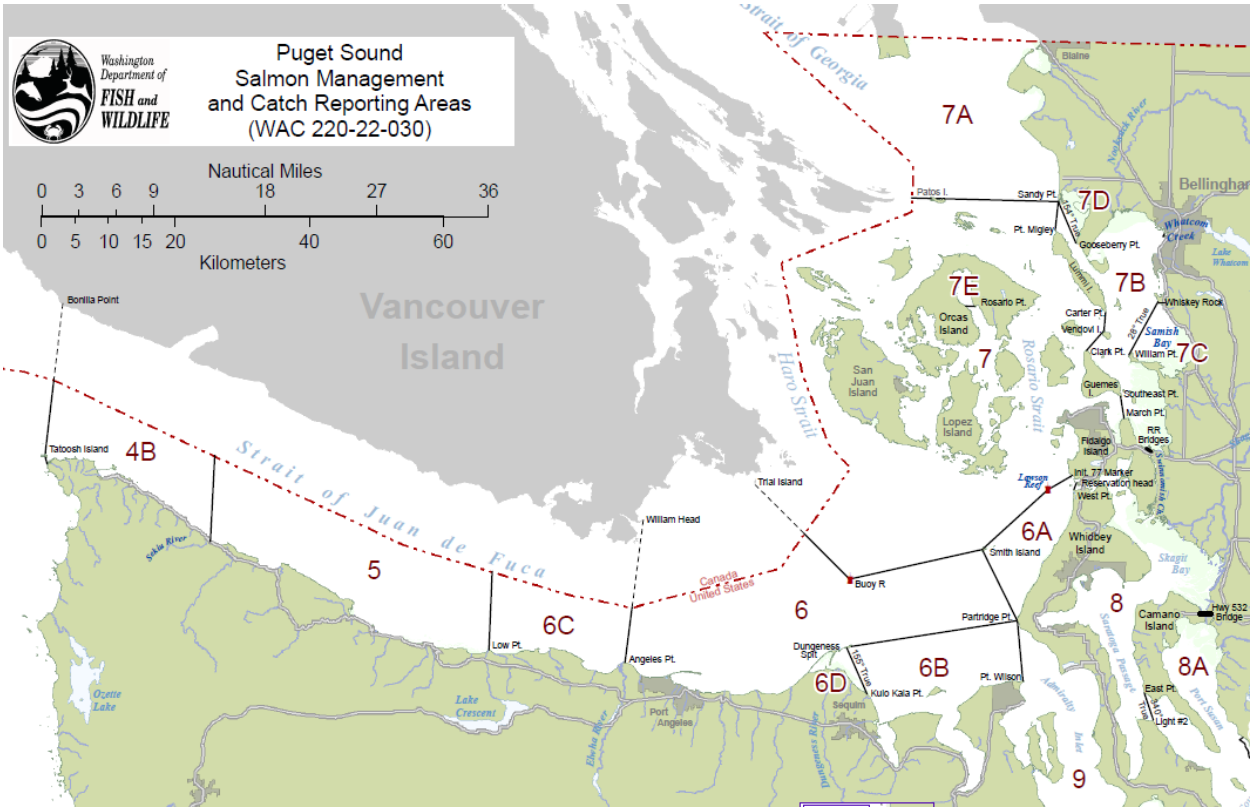


Figure 39. Puget Sound Salmon Management and Catch Reporting Areas with Chum salmon fisheries of interest to the Pacific Salmon Commission.

MIXED STOCK FISHERIES

Areas 4B, 5 and 6C

As in recent years, the 2020 Chum salmon fishery in Areas 4B, 5 and 6C was restricted to very limited effort by Tribal fishers using gillnets. The fall Chum-directed salmon fishery opened the week of October 11, with a schedule of six days per week and continued through November 14. A total of 195 Chum salmon were harvested during this period (Table 18). During the fall Chum fisheries in Areas 4B, 5, and 6C, there was a reported by-catch of 1,399 Coho, 4 Chinook, and zero Steelhead.

Table 18. Preliminary 2020 Chum salmon harvest report for Washington Salmon Catch Reporting Areas 4B, 5, and 6C.

Areas 4B, 5, 6C	
Tribal Gill Net Only	
Time Periods	GN
Through 9/19	0
9/20-9/26	0
9/27-10/3	0
10/4-10/10	0
10/11-10/17	48
10/18-10/24	59
10/25-10/31	36
11/1-11/7	40
11/8-11/14	12
Total	195

Areas 7 and 7A

Chum salmon fisheries in Areas 7 and 7A are regulated to comply with a base harvest ceiling of 125,000 Chum salmon, unless Canada estimates chum stocks migrating through Johnstone Strait ("Inside Southern Chum salmon") are below the critical threshold of 1.0 million (PST 2019). Chapter 6 of Annex IV specifies that U.S. commercial fisheries for Chum salmon in Areas 7 and 7A will not occur prior to October 10. For Inside Southern Chum run sizes below the critical threshold, Paragraph 10 (b) states the U.S. catch of Chum salmon in Areas 7 and 7A will be limited to those taken incidentally to other species and in other minor fisheries, and shall not exceed 20,000.

On October 7, 2020 Canada notified the U.S. that the Inside Southern Chum aggregate was estimated to be above the critical threshold of 1.0 million. Following this notification, the U.S. initiated Area 7 and 7A commercial chum fisheries on October 10, which continued through November 10.

Paragraph 9 (d) states that Canada will provide an in-season estimate of Fraser River Chum salmon run size no later than October 22. If that estimate is below 1,050,000, then the U.S. will limit its fishery in Areas 7 and 7A to not exceed a catch of 20,000 additional Chum salmon from the day following notification. If the Fraser River chum run size estimate is between 1,050,000 and 1,600,000, the U.S catch ceiling remains at 125,000. If the Fraser River run size estimate is above 1,600,000, the U.S. catch ceiling is revised to 160,000.

On October 22, 2020, Canada notified the U.S. that the Fraser River chum run size was estimated to be 1,084,000. This estimate was above the 1,050,000 fish threshold but below the 1,600,000 fish threshold, allowing U.S. chum fisheries in Areas 7 and 7A to continue up to the catch ceiling of 125,000 fish. Areas 7 and 7A therefore remained open to commercial chum fisheries through the remainder of the Chum management period.

Non-Tribal reef net fisheries targeting Coho salmon were conducted following the end of Fraser Panel control on September 13 with chum and unmarked Chinook retention prohibited prior to October 1.Retention of unmarked Coho prior to October 1 was capped at 500 fish, per the NOF List of Agreed to Fisheries.

.

The total 2020 Chum salmon catch by all gears in Areas 6, 7, and 7A (reported through November 17) was 84,726 fish (Table 19). During the fall Chum salmon-directed fisheries in Areas 6, 7 and 7A, there was a reported by-catch of 3,778 Coho, 48 Chinook, and zero Steelhead (Table 19).

Table 19. Preliminary 2020 Chum salmon harvest report for Puget Sound Salmon Catch Reporting Areas 6, 7 and 7A. Bycatch numbers include both landed and estimated non-landed fish.

	Area 6	Area 7				Area 7A		Area 6,7,7A	
Time Periods	GN	PS	GN	RN	Area Total	PS	GN	Area Total	Total
Through 9/19					0			0	0
9/20-9/26					0			0	0
9/27-10/3				37	37			0	37
10/4-10/10				93	93			0	0
10/11-10/17		13,807	3,778	664	17,585	9,111	5,208	14,319	31,904
10/18-10/24		7,749	624		8,373	7,312	11,234	18,546	26,919
10/25-10/31		4,579	1,515		6,094	4,398	13,572	17,970	24,064
11/1-11/7		240	26		266	904	604	1,508	1,774
11/8-11/14							28	28	28
Total	0	26,375	5,943	37	32,355	21,725	30,646	52,371	84,726
Gear Type Abbreviations: GN=Gill Net; PS=Purse Seine; RN=Reef Net									
10/10- 11/17 By-catch		Coho: 3,778		Chinook: 48	Steelhead: 0				

PUGET SOUND TERMINAL AREA FISHERIES AND RUN STRENGTH

Pre-season forecasts for Chum salmon returns to Puget Sound in 2020 predicted a fall Chum run size totaling approximately 1,066,000 fish, with 528,208 Chum predicted to return to Hood Canal and 309,573 predicted to return to South Puget Sound. As of the date of this report, in-season estimates indicate that Chum returns to Puget Sound are below forecast. In-season run size estimates from the 2020 fall Chum fisheries in South Puget Sound and Hood Canal indicate that South Sound fall Chum is expected to return at around 87% of the pre-season forecast, while the in-season Hood Canal run size estimate is about two-thirds of that forecast. Terminal fisheries in mixed-stock marine areas were significantly restricted in 2020, particularly in Central and South Puget Sound. As of the date of this report, spawning escapement surveys are in progress for most Puget Sound stocks and therefore escapement estimates are not yet available. Early indications from these surveys suggest that some natural chum stocks may fail to meet escapement goals again this year. It is also now evident that a number of fall Chum hatchery programs throughout Puget Sound will likely not achieve their egg-take objectives for 2020.

REFERENCES

Pacific Salmon Treaty (PST) Act of 1985. 2019 Agreement. U.S.-Canada. Public Law 99-5, 16 U.S.C. 3631.

III. Preliminary Review of 2019 United States Fraser River Sockeye Fisheries

INTRODUCTION

The 2020 Fraser River Panel fishing season was implemented under Annex IV of the Pacific Salmon Treaty (PST), and guidelines provided by the Pacific Salmon Commission to the Fraser River Panel. The Treaty establishes a bilateral (U.S. and Canada) Fraser River Panel (Panel) that develops a pre-season management plan and approves in-season fisheries within Panel Area waters directed at sockeye and pink salmon bound for the Fraser River (Figure 1). In partial fulfillment of Article IV, paragraph 1 of the PST, this document provides a season review of the 2020 U.S. Fraser River salmon fisheries as authorized by the Panel. Catch and abundance information presented is considered preliminary.

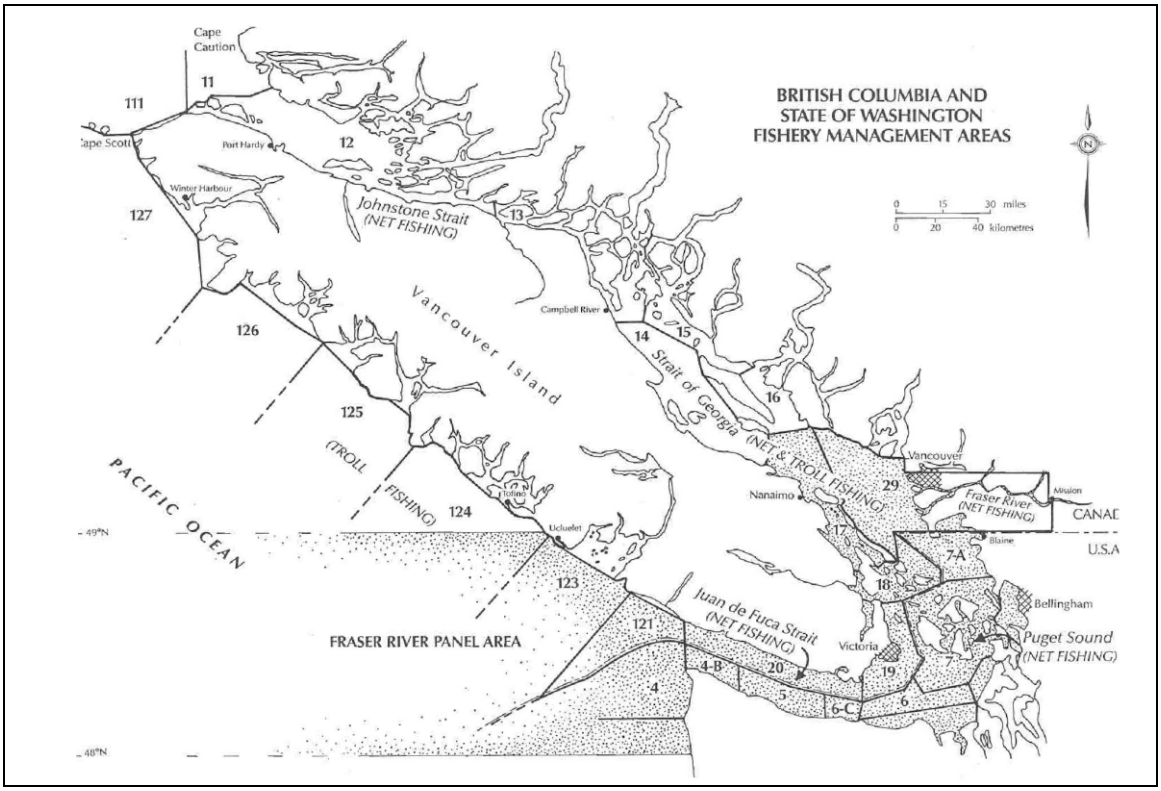


Figure 1. British Columbia and State of Washington Fishery Management Areas, 2020. The shaded area in the figure represents the marine waters managed by the Fraser River Panel.

PRE-SEASON EXPECTATIONS AND PLANS

Forecasts and Escapement Goals

Pre-season run size forecasts and escapement goals by run timing group (run) at various probability levels were provided to the Panel by the Department of Fisheries and Oceans, Canada (DFO). Table 1 shows the 2020 pre-season sockeye forecasts based on the 50 percent probability level, which represent the mid-point of the range of possible run sizes for all runs. This is the lowest pre-season forecast in the Fraser River sockeye recorded history. Table 1 also provides the escapement goals for the sockeye run timing groups based on the pre-season forecasted abundance. The escapement goals for all runs can change in-season as the run size estimates are updated.

Table 1. 2020 pre-season Fraser River sockeye forecasts and escapement goals by run timing group.

	Early Stuart	**Early Summer**	**Summer**	**Lates**	**Total**
Forecast of Abundance	13,000	218,000	611,000	99,000	941,000
Escapement Goal	13,000	150,300	611,000	99,000	873,000

Northern Diversion Rate

Northern diversion rate is defined as the percentage of Fraser sockeye migrating through Johnstone Strait (rather than the Strait of Juan de Fuca) in their approach to the Fraser River. The preseason forecast for diversion was 35%.

Management Adjustment (MA) and Environmental Conditions

Management adjustments (MA) for sockeye salmon reflect the anticipated difference between escapement estimates at Mission (minus catch above Mission) and actual spawning escapements. Adjustments adopted by the Panel are added to the gross escapement goal, effectively increasing the spawner escapement goal for that run timing group. MAs are modeled using forecasts of environmental conditions and return timing or median historical differences between estimates. Table 2 provides the pre-season projected MAs that were used for planning fisheries in 2020. In-season management adjustments use MA models that are based on both measured and forecasted temperatures and discharges or, for Late-run sockeye, upstream migration timing.

Table 2. 2020 pre-season proportional management adjustment (pMA) and corresponding proportional difference between estimates (pDBE[1]) for each run timing group.

Early Stuart		Early Summer		Summer		Lates	
pMA	pDBE	pMA	pDBE	pMA	pDBE	pMA	pDBE
0.69	-41%	0.52	-34%	0.16	-14%	0.41	-29%

[1] The aggregate Early Summer, Summer, and Late-Run pDBE is calculated using the component pDBEs weighted by the p50 run size forecasts.

Run Timing

Run timing is temporal information about the presence of a salmon stock in a specific time and area. Run timing is an important variable when planning fisheries and predicting run size in-season. The following Area 20 50% dates (the dates when 50% of the run is forecasted to have passed through Area 20) were predicted pre-season for the major Fraser River sockeye run groups.

Table 3. 2020 Area 20 Projected 50% run timing dates.

Run Timing Group	Area 20 50% Run Timing Date
Early Stuart	July 4
Early Summer	July 24
Summer	July 31
Lates	August 6

U.S. Total Allowable Catch (TAC)

Pre-season, there was no US TAC. The TAC available by sockeye run timing group is shown in Table 4.

Table 4. 2020 total U.S. total allowable catch (TAC) by run timing group[1].

Run Timing Group	Pre-season U.S. TAC
Early Stuart	0
Early Summer	0
Summer	0
Lates	0
Total	0

[1] Based on Panel-approved final pre-season model run on July 19, 2016.

Pre-season Management Plans

During the pre-season planning process the Panel evaluates and adopts management approaches for Fraser sockeye that address conservation and harvest objectives for each major run timing group. The Panel develops fishing plans and in-season decision rules with the objective of meeting management goals. Managing Fraser River sockeye salmon involves a trade-off between catching abundant runs and meeting escapement objectives for less abundant run groups.

In 2020, the pre-season forecast of ~941,000 sockeye resulted in no available U.S. TAC.

IN-SEASON MANAGEMENT

In-season, the Pacific Salmon Commission staff analyzes a variety of information to produce best estimates of northern diversion, management adjustments, timing, abundance, and harvest by run timing group. Stock identification information (both genetic data and scales), age data, test fishing data, escapement counts past Mission, harvest data, and environmental information are all used to provide these in-season estimates that are critical to Fraser Panel management.

Run Assessment

The final in-season total abundance estimate for sockeye in 2020 (Table 5) was 288,000, which was 31% of the pre-season forecast. This represents the lowest sockeye return to the Fraser River since record keeping began in 1893. Across the four run timing groups, three groups returned well below their preseason forecasts while one returned higher than forecast. The Early Stuart sockeye exceeded expectations and returned at 123% of preseason forecast but Early Summer run sockeye performed poorly with an in-season run size estimate at 32% of their pre-season forecast. The return of Summer-run sockeye was only 31% of the preseason forecast while Late-run sockeye performed even more poorly at 16% of forecast.

The 2020 Fraser sockeye run timing varied across run timing groups with Early Summer, Summer run and Late run sockeye arriving 9, 3, and 2 days early (July 15, 28, and Aug. 4 respectively; Table 6). Early Stuart run sockeye were two days later relative to preseason expectations.

Table 5. Comparison of 2020 pre-season vs. in-season abundance estimates for Fraser River sockeye salmon by run timing group.

Run Timing Group	Pre-Season 50% Probability Forecast	In-Season Run Size Estimate	Comparison: In-Season / Pre-Season Forecast
Early Stuart	13,000	16,000	123%
Early Summer	218,000	69,000	32%
Summer	611,000	187,000	31%
Lates	99,000	16,000	16%
Total Sockeye	941,000	288,000	31%

[1] As of September 21, 2020.

Table 6. Comparison of 2020 preliminary 50% run timing dates through Area 20 to in-season estimates.

Run Timing Group	Pre-season 50% Run Timing Date	In-season 50% Run Timing Date
Early Stuart	July 4	July 6
Early Summer	July 24	July 15
Summer	July 31	July 28
Lates	August 6	August 4

Season Description

The Fraser Panel met on every Tuesday and Friday between July 10 and September 1 to receive updates on the abundance and timing of the sockeye return from PSC staff and to review migration conditions in the Fraser River watershed. In-season abundance estimates did not match pre-season expectations, so U.S. fisheries did not occur. In-river environmental conditions, including the Big Bar rockslide, were a major factor affecting management decisions in 2020.

U.S. fisheries remained closed for the season. Table 7 summarizes changes to run sizes made by the Fraser Panel during the 2020 season.

Table 7. Summary of changes to Fraser River sockeye run size estimates made by the Fraser Panel during the 2020 season.

Meeting Date	Run Timing Group	Change Made
July 28, 2020	Early Stuart	increased to 14,000
August 4, 2020	Early Summer	decreased to 72,000
	Summer	decreased to 311,000
August 7, 2020	Summer	decreased to 169,000
	Lates	decreased to 28,000
September 1, 2020	Early Stuart	increased to 16,000
	Summer	decreased to 191,000
	Lates	decreased to 14,000

Harvest

U.S. harvest opportunities in 2020 were expected to be nil going into the season and in-season abundances estimates were continually downgraded from preseason expectations throughout the season with no sockeye available for U.S. TAC.

Table 8. Preliminary estimate of 2020 U.S. catches of Fraser River sockeye salmon in Panel area waters.

	Treaty Indian	**All Citizens**
Ceremonial and Subsistence (all areas)	NA	NA
Commercial Catch in Areas 4B/5/6C	NA	NA
Commercial Catch in Areas 6/7/7A	0	0
Total Catch	0	0
% of U.S. Catch		

The 2020 Fraser sockeye season presented management and conservation challenges:

- Due to the Big Bar rockslide, in-river migration of Early Stuart and some Early Summer run stocks were impacted due to higher than average water discharge (46-62% greater than average during mid to late July).
- Approximately 100% of the Early Stuart, 32% of the Early Summer, and 66% of the Summer runs were expected to migrate past the Big Bar rockslide to reach spawning grounds
- By July 31st, sockeye started to arrive at the Big Bar slide area and passed with the assistance of the Whoosh system but little to none used the natural fishway passage.
- By August 7th, only 10% of the tagged sockeye in the slide area were observed passing Churn Creek, but still impacted by a discharge 38% greater than average.
- By August 19th, water discharge levels decreased and allowed sockeye to pass above the Big Bar slide area.
- The total sockeye salmon return was approximately 30% of the pre-season forecast, 91% below the historical cycle-line, and the lowest on record (~288,000), making the last 3 out of 5 years record breaking low returns.
- Over the last two decades, there has been a decline in Fraser sockeye survival (smolt to age 4 survival rate of less than 0.17% compared to long-term average of 7% in Chilko).

2020 Southeast Alaska Chinook Management

Pacific Salmon Commission Postseason meeting
January 2021

SEAK AABM Fishery Primary Treaty Obligations

1. Manage to preseason catch limit [6 (f)]
2. Manage to achieve escapement goals for 6 SEAK and TBR stocks [6 (b)(iv)]
3. Payback any overages the following year [6 (h)(i)]
4. Manage incidental mortality to not exceed 59,400 [4 (a) and (f)]

2020 SEAK Winter CPUE

District 113 power troll harvest from statweeks 41–48 (Oct 11 – Nov 30)

- Catch = 2,557
- Effort = 529
- CPUE = 2,557/529 = 4.83

2020 Table 2 Catch Limits

CPUE-based Tier	AI-based Tier	Catch Limit
Less than 2.0	Less than 0.875	Commission Determination
2.0 to less than 2.6	Between 0.875 and 1.0	111,833
2.6 to less than 3.8	Between 1.005 and 1.2	140,323
3.8 to less than 6.0	Between 1.205 and 1.5	205,165
6.0 to less than 8.7	Between 1.505 and 1.8	266,585
8.7 to less than 20.5	Between 1.805 and 2.2	334,465
20.5 and greater	Greater than 2.2	372,921

Tier = 4 Catch Limit = 205,165

* 2019 catch limit not exceeded; no payback provision for 2020

2020 SEAK Postseason Performance

- Preseason allowable Treaty catch → 205,165
  - State fisheries catch → 204,101
  - Annette Island Reserve catch → + 523
- All-gear Treaty catch → 204,624
- Hatchery addon → + 30,164
- Total catch → 234,788

2020 ADF&G Preseason Management Directives

1. Monitor closely inseason to avoid exceeding 2020 allowable catch & payback provision in 2021.
2. Manage fisheries based on production concerns for SEAK and TBR stocks

Management Actions to Conserve SEAK & TBR Stocks

COMMERCIAL FISHERIES:

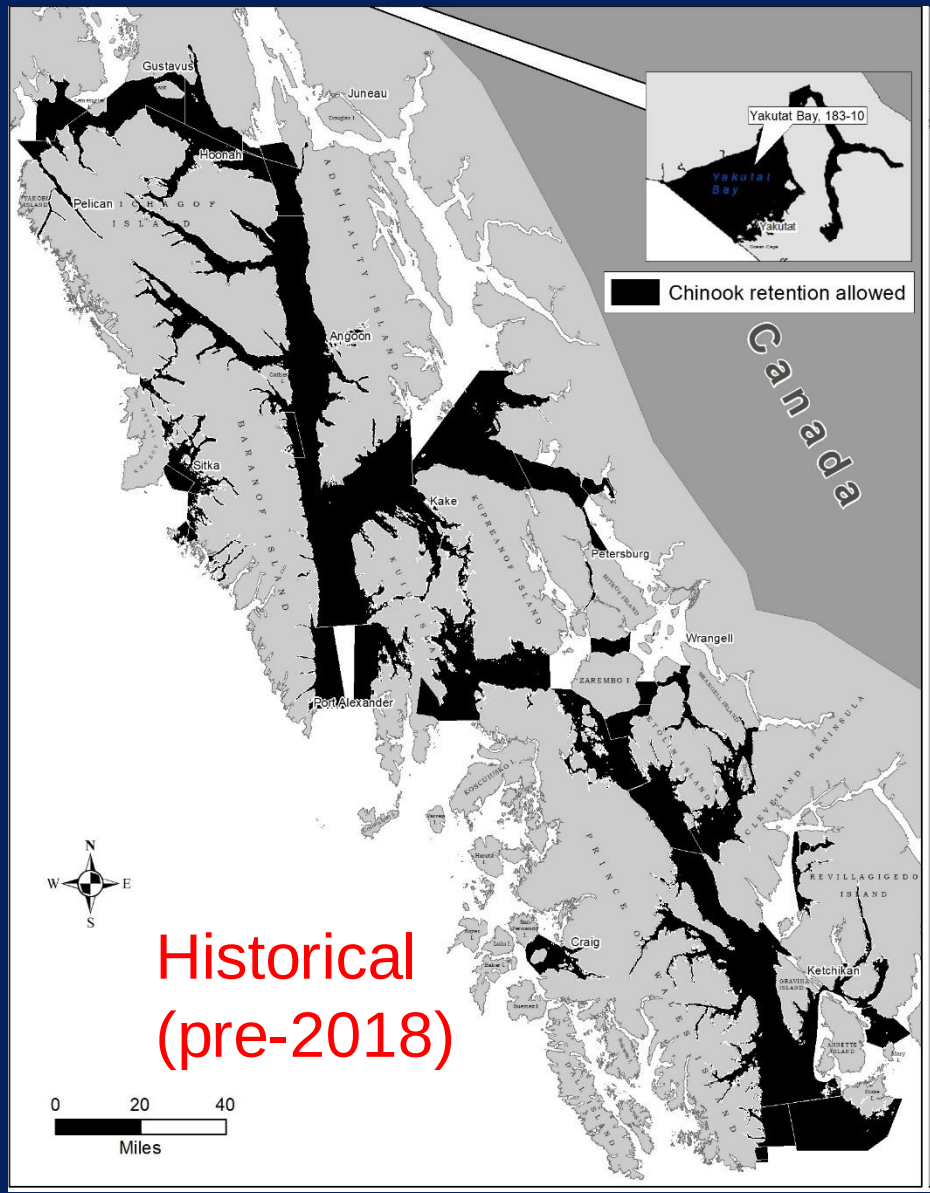
- ✓ TBR: No directed fisheries; additional actions in all traditional base level fisheries.
- ✓ Winter troll: Closed 6 weeks early; guideline harvest level of 45,000 not reached, Oct 11 - Mar 16.
- ✓ Spring troll: May & June restricted to outer coast and/or near hatchery release sites; all inside waters outside terminal harvest areas closed.
- ✓ Delayed initial openings of Chinook terminal harvest areas.
- ✓ Portions of Section 15-A (Chilkat River) closed to trolling July 1 - Dec 31.
- ✓ Summer troll: All waters of District 8 (Stikine River) and select areas of District 1 (Unuk River) closed to retention during 1st summer Chinook opening, July 1-6.
- ✓ Purse seine: delayed Chinook retention outside terminal harvest areas until Aug 2.
- ✓ Drift gillnet: delayed openings, reduced area, and mesh restrictions were implemented.

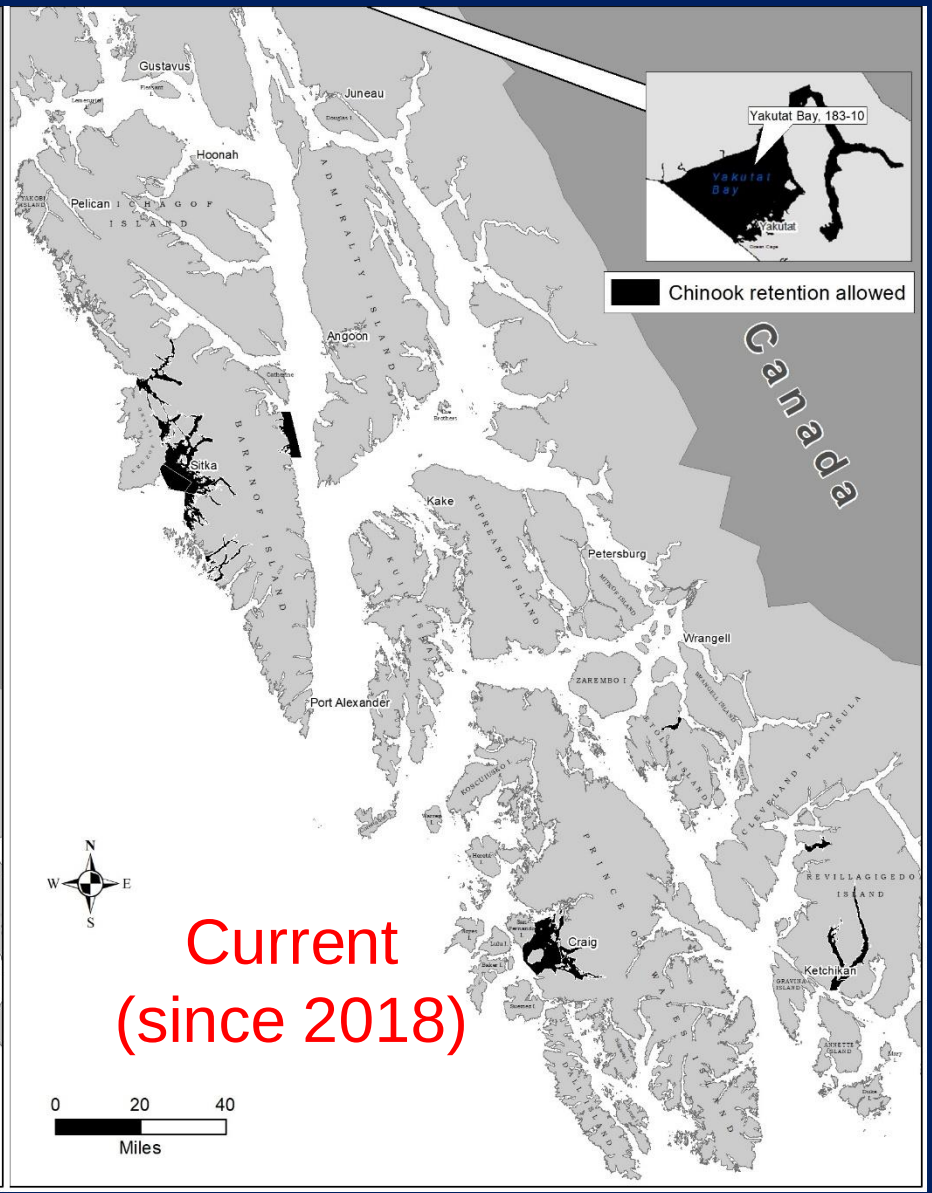
Management Actions to Conserve SEAK & TBR Stocks

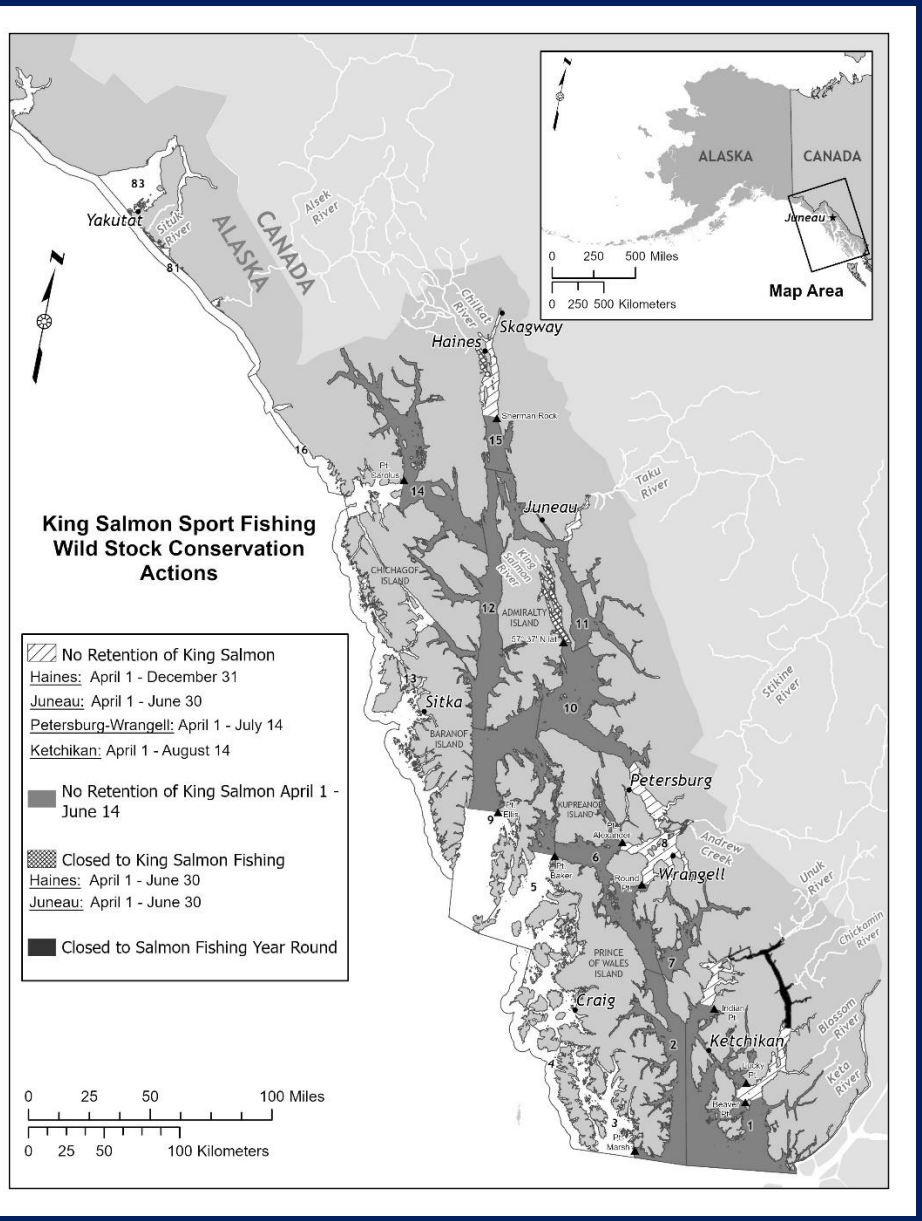
- **SPORT FISHERIES:**
  - ✓ Retention of Chinook was prohibited in inside waters, excluding designated hatchery areas, from April 1–June 14, extending through June 30 in the Juneau area, July 14 in the Petersburg/Wrangell area, August 14 in the Ketchikan area, and through Dec. 31 in the Upper Lynn Canal area.

- **SUBSISTENCE AND PERSONAL USE FISHERIES:**
  - ✓ Chilkat River: Delayed opening Chilkat Inlet Chinook fishery from June 15 to July 17, reduced area when opened July 18. Chilkat inriver fishery closed June 15-July 31, with exception of small area which opened 4-days/week.
  - ✓ Taku River: personal use fishery delayed nearly two weeks, opened July 13–August 12.
  - ✓ Stikine River: directed Chinook subsistence fishery closed, general subsistence fishery delayed until June 21.

Spring Troll Fishing Areas



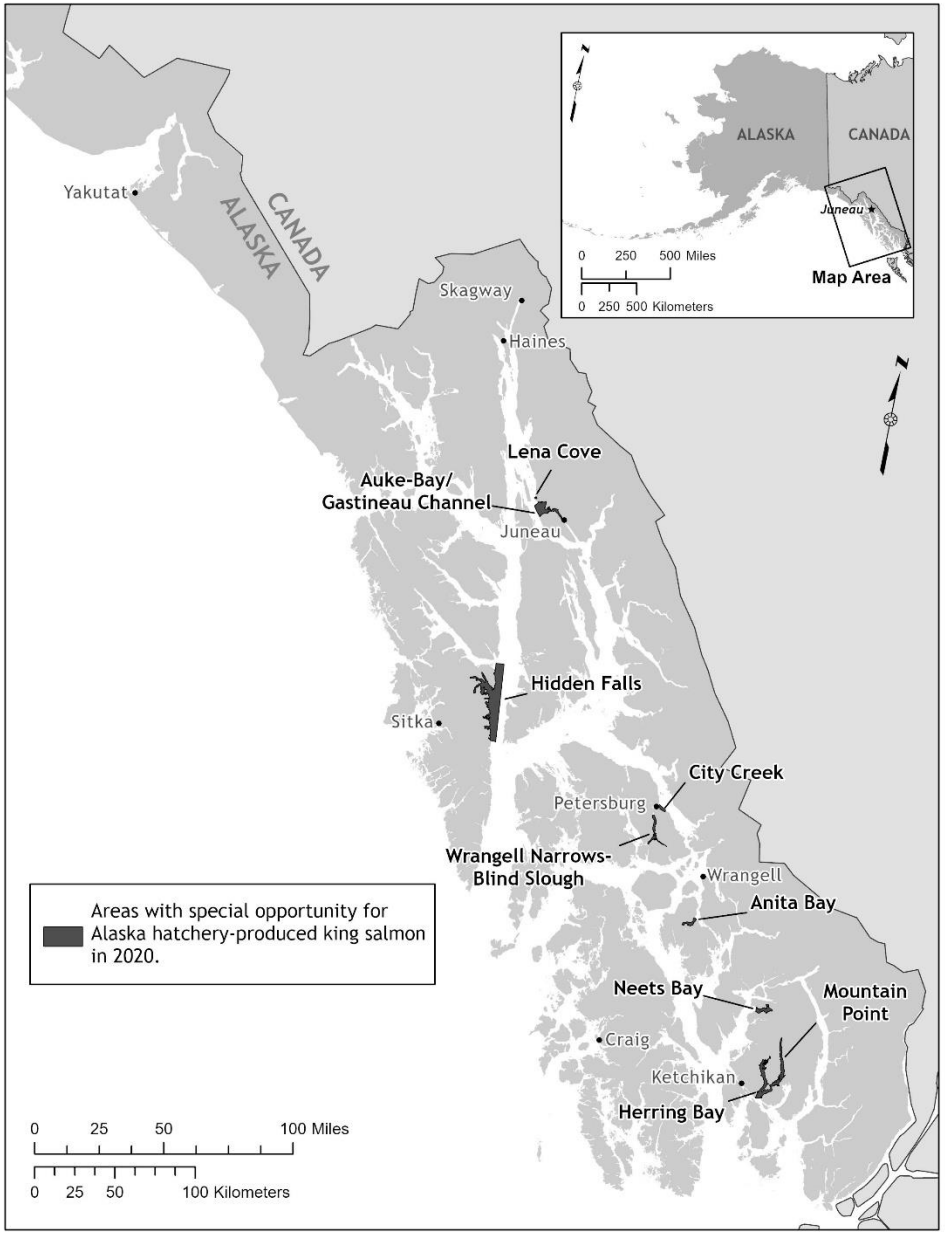




2020 Sport Fishery Management Actions:

- Regional regulations: applied during areas and times outside of wild stock conservation actions and designated hatchery areas.
- Inseason management: Bag, possession, and annual limits were progressively increased as inseason projections indicated sport fishery would fall short of its allocation due to the decline in effort.

2020 Designated Hatchery Sport Harvest Areas:



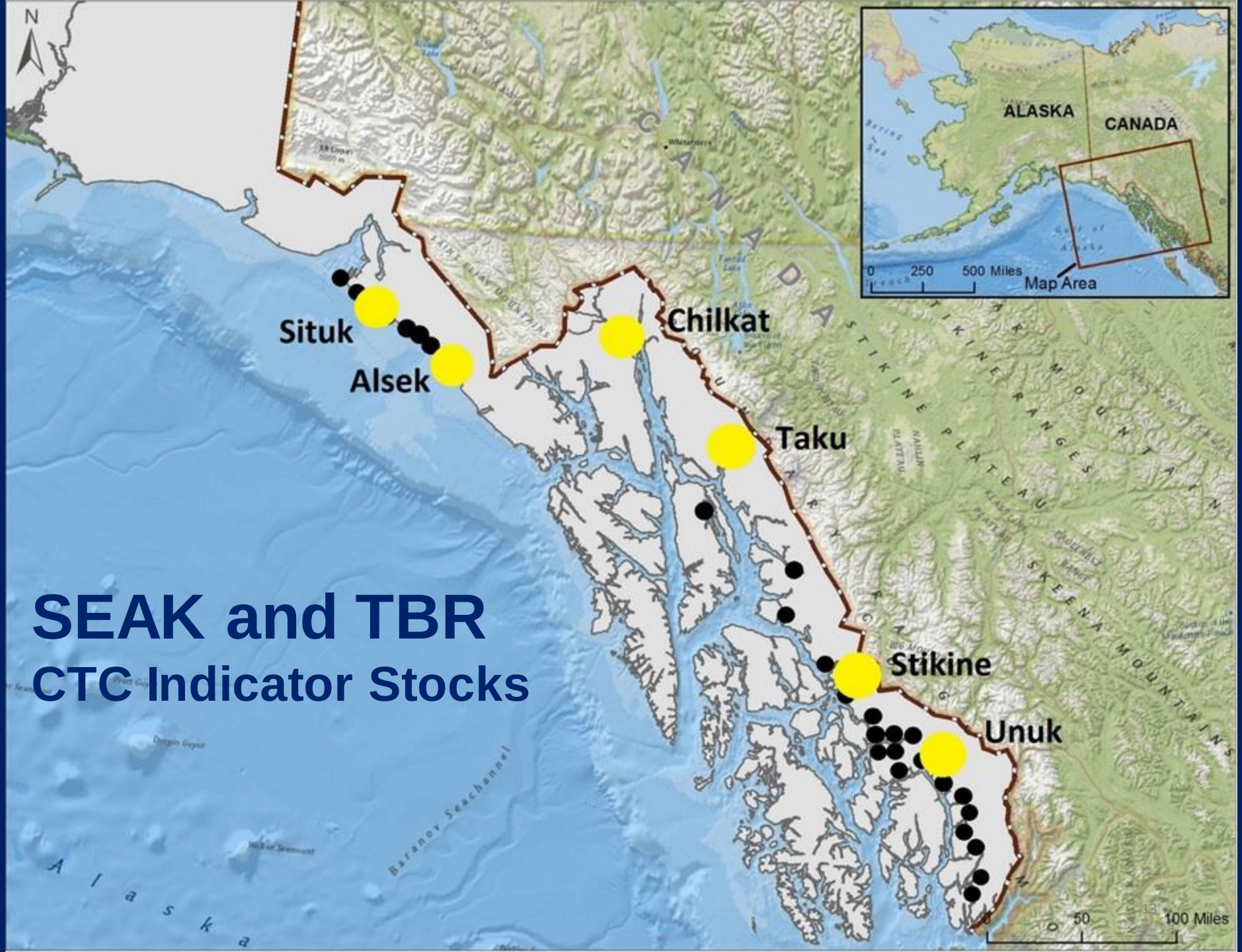
- Special regulations to allow harvest opportunity within areas and times when Alaska hatchery produced Chinook are available.
- Open periods were unique to each location and ranged between June 1 – August 31

Summer Troll Management

- Traditionally summer Chinook fishery limited to two openings to provide opportunity to harvest remaining annual troll allocation

- Prior to the completion of the 2nd summer Chinook retention period in late August, ADF&G estimated 13,370 Chinook remained on the all-gear treaty catch limit.
  - Remaining Treaty allocation included unharvested fish from commercial net fisheries and most notably the sport fishery largely due to travel restrictions associated with COVID-19.

- Remaining all-gear Treaty Chinook were reallocated to troll fishery, extending the 2nd summer retention period by 8 days.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Map Area
Situk
Alsek
Chilkat
Taku
Stikine
Unuk
SEAK and TBR
CTC Indicator Stocks
0 50 100 Miles

SEAK & TBR Chinook Escapements 2015-2020

Stock	2015	2016	2017	2018	2019	2020
Situk	174	329	1,187	420	623	1,197
Alsek	5,697	2,514	1,762	4,312	6,400	5,308
Chilkat	2,452	1,380	1,173	873	2,028	3,180
Taku	23,567	9,177	8,214	7,271	11,558	15,593
Stikine	21,597	10,554	7,206	8,344	13,817	10,671
Unuk	2,623	1,463	1,203	1,971	3,115	1,135

- Poor production since 2012
- Most escapement goals not achieved 2016-2018
- More escapement goals achieved in 2019 and 2020 owing to restrictive management measures

SEAK AABM Fishery
Primary Treaty Obligations

1. Manage to preseason catch limit

   Actual Treaty catch was below the limit

2. Manage to achieve escapement goals for 6 SEAK and TBR stocks

   With restrictive management actions 3 of 6 escapement goals met

3. Payback any overages the following year

   No overage in 2019 = no payback in 2020

4. Manage incidental mortality to not exceed 59,400

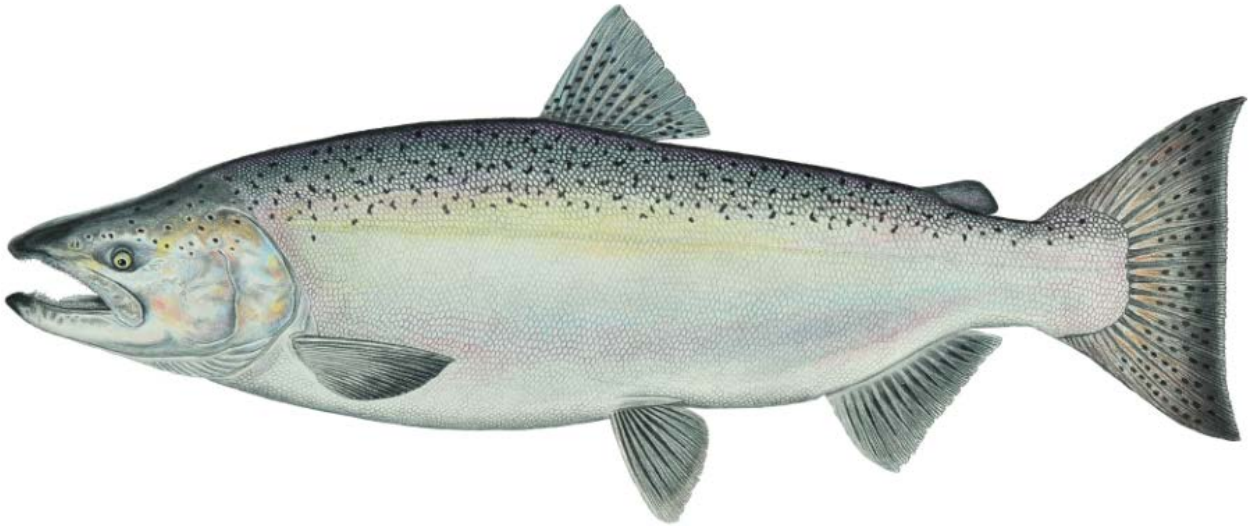
   Below limit in 2019; do not anticipate exceeding in 2020 (TBD = March)

2020 COVID-19 Impacts

Fisheries	Prosecuted normally	
Escapement Monitoring & Sampling	All stocks monitored & sampled	
Fishery Sampling	All fisheries sampled	
Marking & Tagging	SEAK hatcheries & wild	
	NOAA Little Port Walter	
Catch Accounting	All catches accounted	


Questions?

2020 Canadian Chinook Fishery – Post-season Review



PSC Post-season -January 2021

Canadian Domestic Conservation Constraints

Key drivers for management of Canadian Chinook fisheries in 2020:

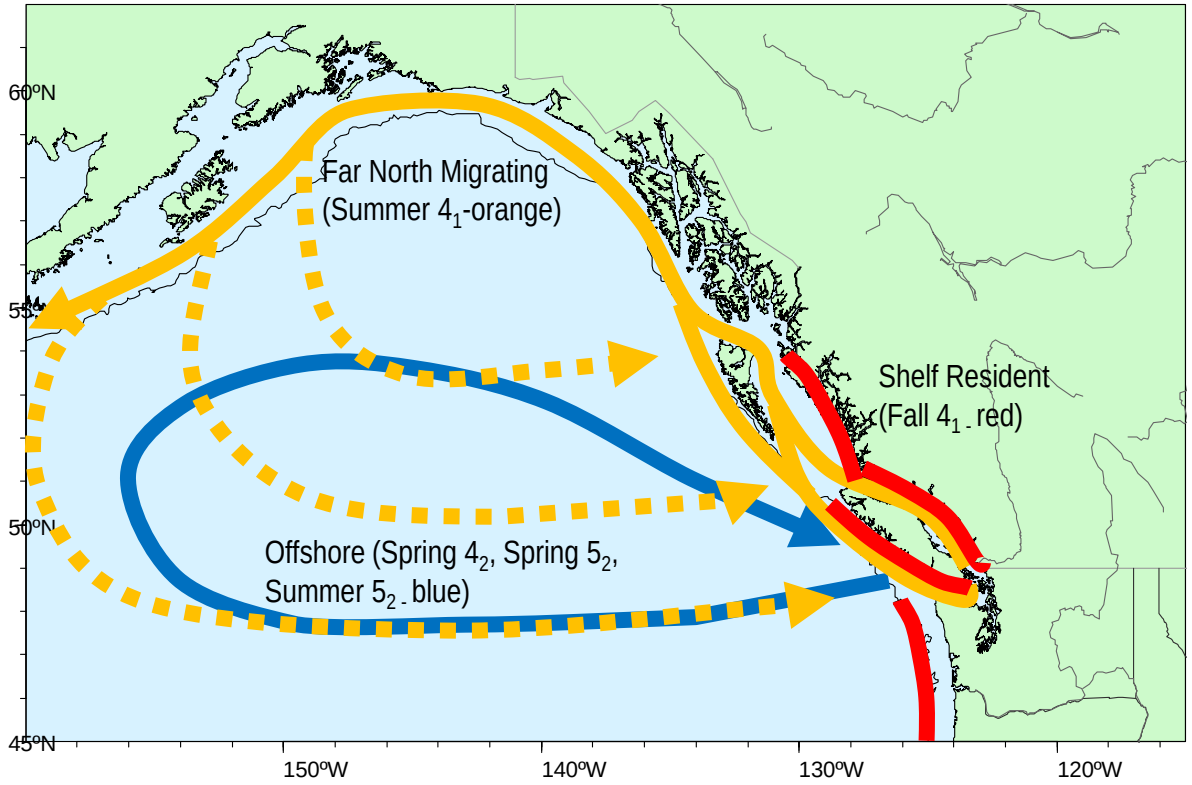
- Conservation measures for Fraser stream-type Chinook; also measures for WCVI, and Skeena Chinook
- Big Bar rockslide
- COVID-19 – travel restrictions and reductions in fishing effort in some times/areas

Chinook Status Assessment

- 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).
- 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
- COSEWIC assessments of the remaining southern BC Chinook populations completed November 2020; (Fraser updates shown in blue at right). Details: Cosewic / Cosepac - Detailed version November 2020

Mgmt Unit	# DUs	Designatable Unit Status
Spring 4_2	2	1 *endangered*, (1 *endangered*)
Spring 5_2	6	4 *endangered*; 1 *threatened*; 1 *special concern*
Summer 5_2	5	2 *endangered*; 2 *threatened*; (1 *endangered*)
Summer 4_1	2	1 *not at risk*; (1 *endangered*)
Fall 4_1	1	1 *threatened*
Total	16	*7 endangered; 4 threatened; 1 special concern; 1 not at risk; (3 endangered)*

Fraser Chinook - Ocean Distribution



Different Fraser River origin Chinook populations exhibit a range of ocean distributions which influences their exposure to and impacts by ocean fisheries.

Fraser Chinook Management Objectives

Fraser Spring 4_2, Spring 5_2 and Summer 5_2

- Management objective for Spring 4_2, Spring 5_2 and Summer 5_2 Chinook to manage Canadian fisheries in highly precautionary manner to allow as many fish to pass through to spawning grounds as possible. Approach is expected to reduce overall Canadian fishery mortalities on these populations to very low levels approaching 5%.

Summer 4_1 chinook

- PST escapement goal for Lower Shuswap Chinook
- Conservation concern for Maria Slough Chinook (Lower Fraser) given ongoing poor spawner abundance.
- Run timing overlaps with Summer 5_2 and Fall 4_1 Chinook will require consideration of lower fishery mortalities

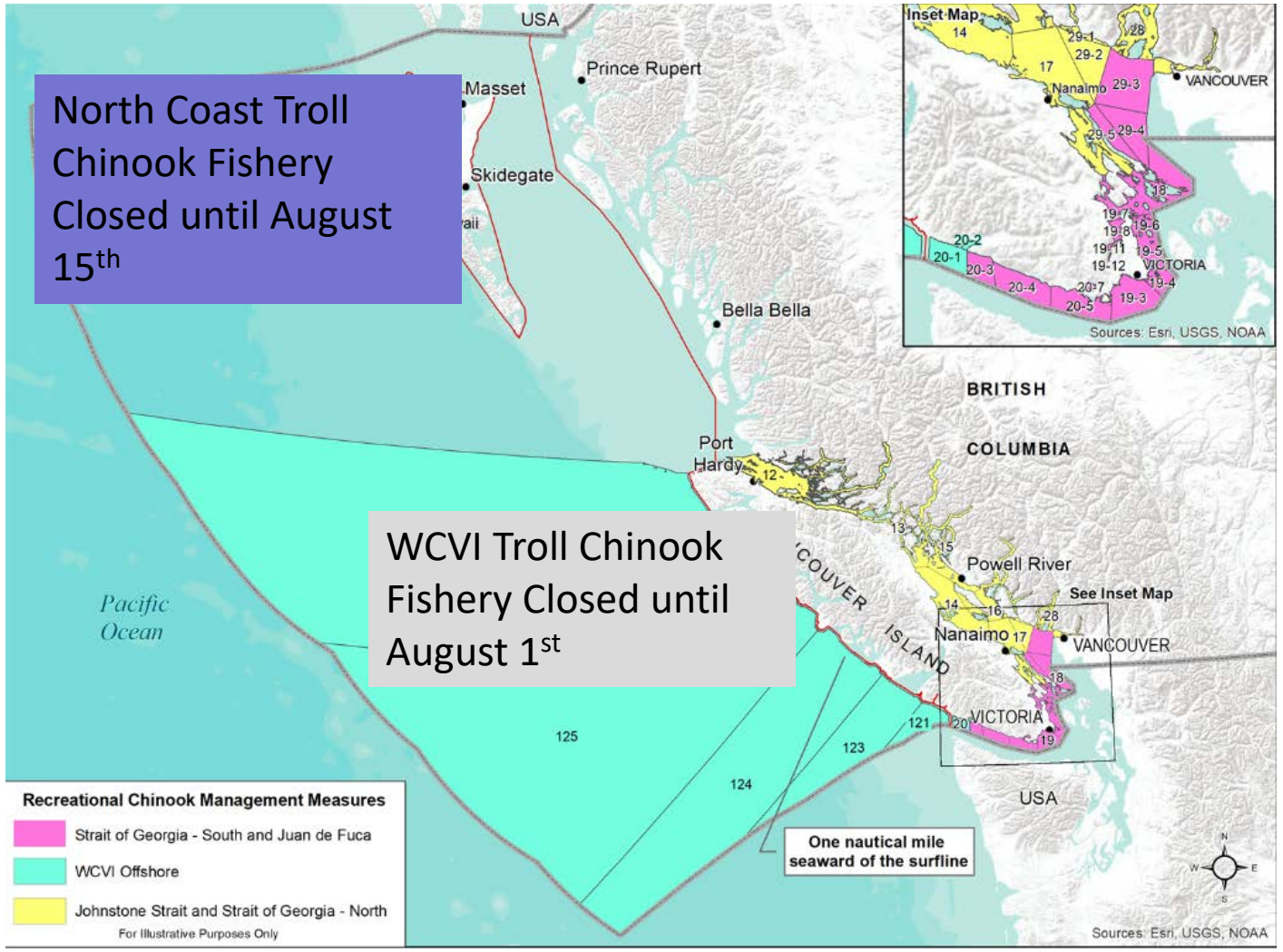
Fall 4_1 chinook

- Spawner abundance has not achieved the PST escapement goal in 7 of last 8 years (2012-2019). Harrison Chinook continues to experience low productivity.

2020 Chinook Management

- Provision of priority access for First Nations FSC harvests in south coast and Fraser River.
  - South Coast FSC fisheries opportunities on mixed stocks were permitted in marine areas with the exception of the approaches to Fraser River (Subareas 29-6, 29-7, 29-9 and 29-10).
  - Very limited Fraser River FSC fisheries opportunities were permitted into July to limit impacts on at-risk Fraser Chinook, with opportunities to target healthy Summer 4_1 Chinook in August.
- Commercial troll fisheries delayed into August to avoid Fraser Chinook encounters.
  - Area F (Northern BC) – Chinook non-retention until August 15
  - Area G (WCVI) – Delayed start until August 1
- Recreational measures are summarized on following slides
  - In addition, small number of pilot opportunities provided in terminal areas away from main Fraser Chinook migratory corridors/rearing areas with additional FN consultation and catch monitoring/sampling to address potential concerns;
  - Additional details to be provided by Fishery Notice and maps on DFO website: https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/fraser-chin-mgmt-gest-quin-eng.html .

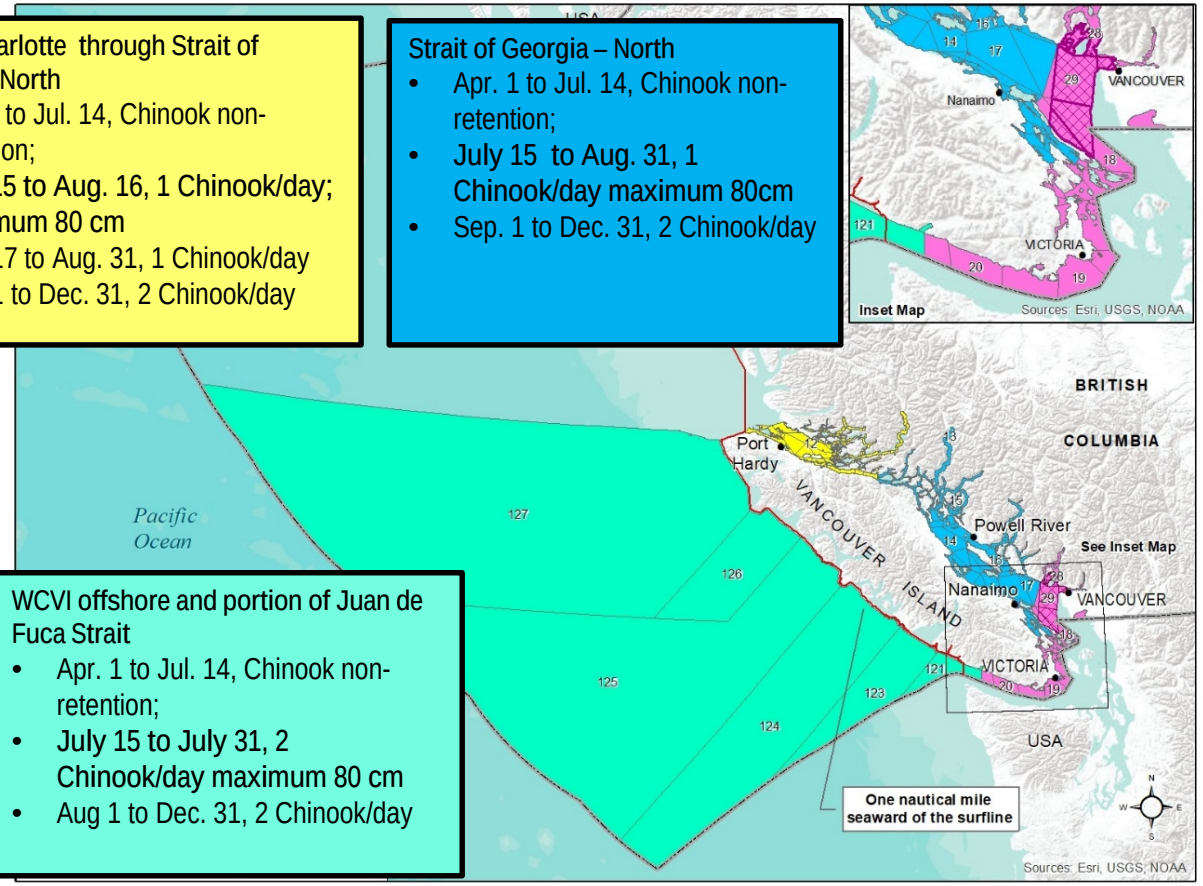
2020 Commercial management measures



2020 Recreational management measures

Queen Charlotte through Strait of Georgia – North
- Apr. 1 to Jul. 14, Chinook non-retention;
- **July 15 to Aug. 16, 1 Chinook/day; maximum 80 cm**
- Aug. 17 to Aug. 31, 1 Chinook/day
- Sep. 1 to Dec. 31, 2 Chinook/day

Strait of Georgia – North
- Apr. 1 to Jul. 14, Chinook non-retention;
- **July 15 to Aug. 31, 1 Chinook/day maximum 80cm**
- Sep. 1 to Dec. 31, 2 Chinook/day



Portions of Southern Strait of Georgia, Howe Sound and Burrard Inlet (hatched area)
- **April 1 to August 31: No fishing for Chinook**
- September 1 to December 31: 2 Chinook per day.

Strait of Georgia – South and portion of Juan de Fuca Strait
- Apr. 1 to Jul. 31, Chinook non-retention;
- **Aug. 1 to Aug. 31, 1 Chinook/day maximum 80cm**
- Sep. 1 to Dec. 31, 2 Chinook/day.

WCVI offshore and portion of Juan de Fuca Strait
- Apr. 1 to Jul. 14, Chinook non-retention;
- **July 15 to July 31, 2 Chinook/day maximum 80 cm**
- Aug 1 to Dec. 31, 2 Chinook/day

2020 changes noted in bold font

2020 Recreational management measures – Fraser River

Approaches to Fraser River - Subareas 29-6, 29-7, 29-9 to 29-17 and the non-tidal waters of the Fraser River from Mission Bridge to the confluence with Sawmill Creek:

- January 1 to November 1: No fishing for salmon
- (Fishing opportunities for specific salmon stocks may be considered)

Freshwater Regions 3,5,7 & 8: Year round:

- Closed to fishing for salmon
- (Fishing opportunities for specific salmon stocks may be considered)

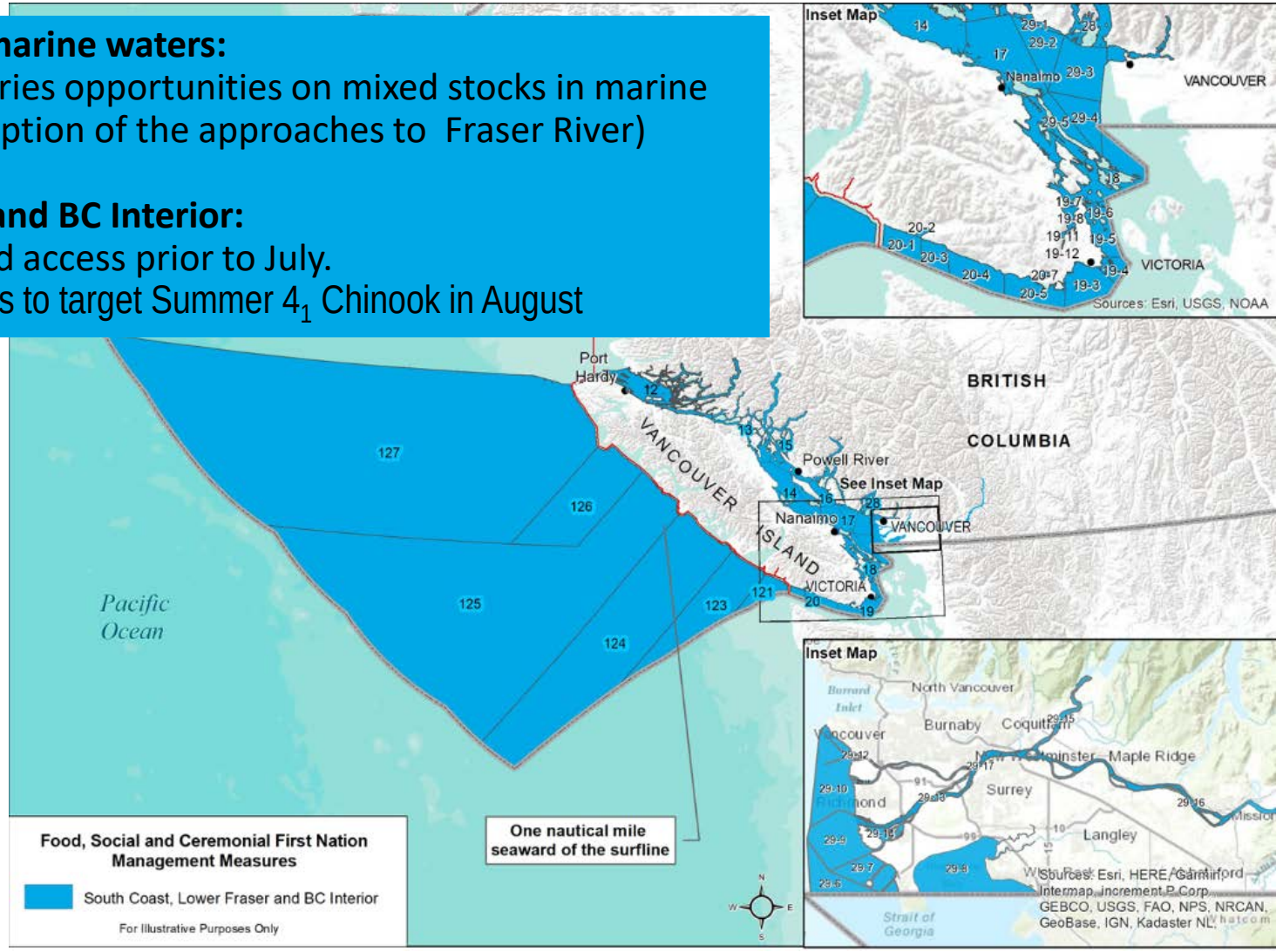
2020 First Nations Food, Social and Ceremonial

Southern BC marine waters:

- Some fisheries opportunities on mixed stocks in marine areas (exception of the approaches to Fraser River)

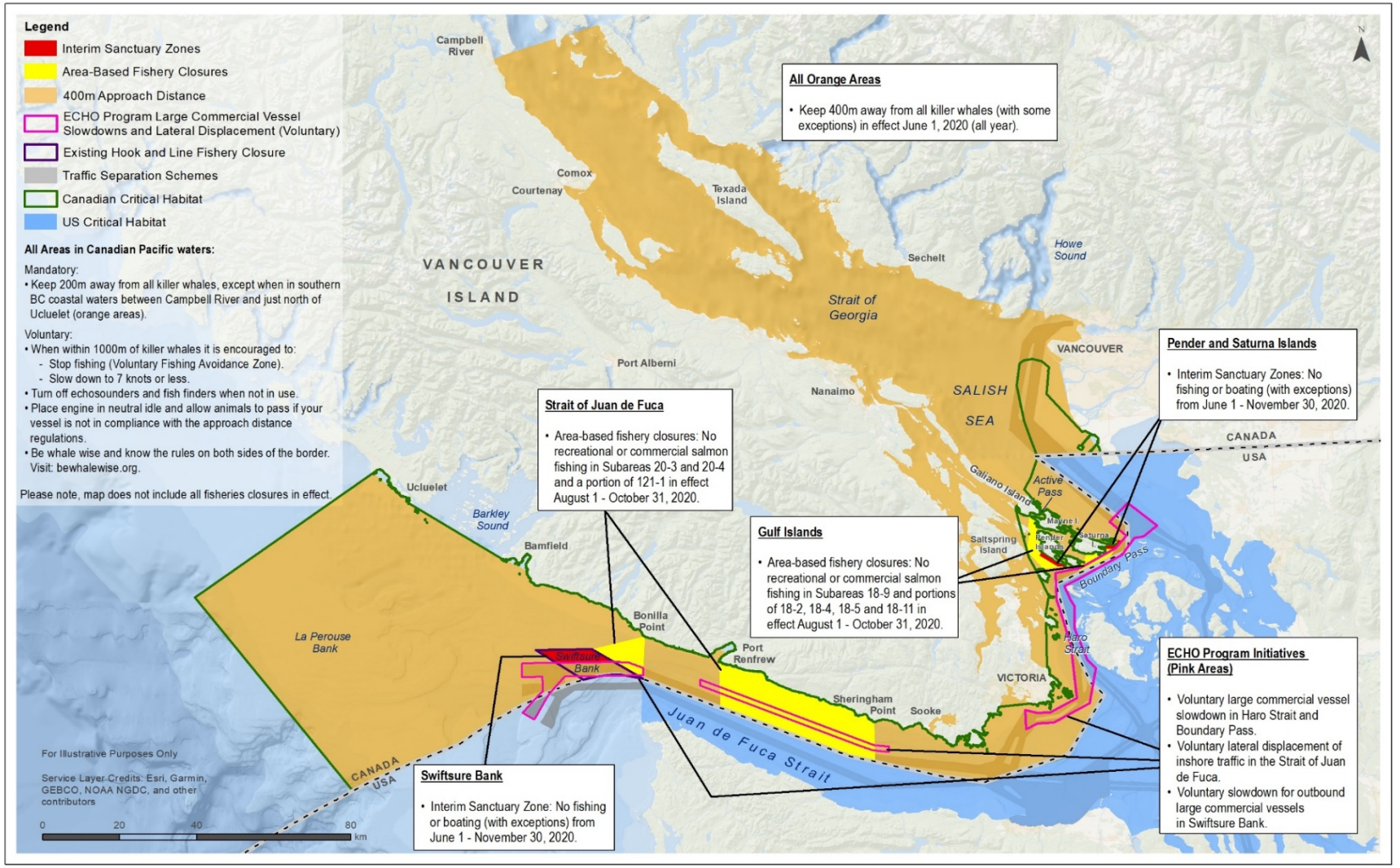
Lower Fraser and BC Interior:

- Very limited access prior to July.
- Opportunities to target Summer 4_1 Chinook in August



Canada

2020 Southern Resident Killer Whale (SRKW) Management Measures



Overview of 2020 management measures to protect Southern Resident Killer Whales

Canada

Northern BC AABM Catch Summary

	Pre-Season	In-Season
NC BC Troll AABM and Haida Gwaii Sport Abundance Index	1.08	-
NC BC Troll AABM and Haida Gwaii Sport Chinook TAC	133,000	-
NC BC Troll AABM Chinook TAC	92,600	30,096
Haida Gwaii Sport Chinook TAC	40,400	6,807 (preliminary)
Total NBC AABM	133,000	36,903

Notes:

1. The ongoing global COVID-19 pandemic, border closures and travel restrictions significantly reduced AABM tidal sport effort, as most lodges were not in operation for much of 2020. Catch estimates are subsequently significantly lower than anticipated pre-season, but will be updated should more data become available.

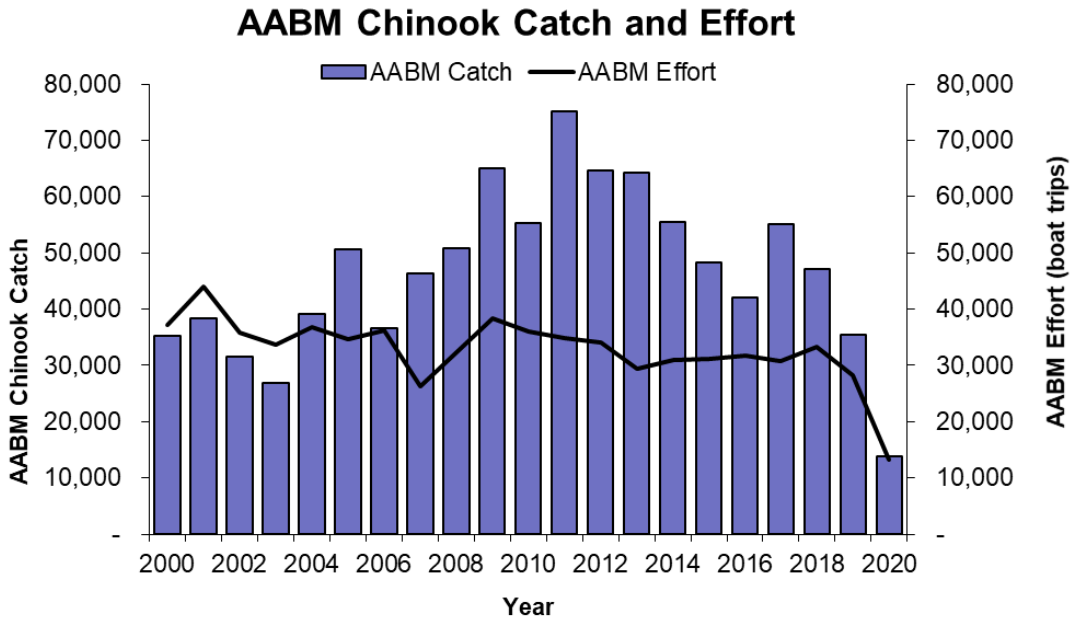
2. Northern BC commercial troll fishery Chinook retention was delayed to August 15th as part of Fraser Chinook management measures.

WCVI AABM Catch Summary

	Pre-Season	In-Season
WCVI AABM Abundance Index	0.75	0.75
WCVI AABM Chinook TAC	87,000	
AABM Recreational Harvest Projection	40,000	13,741*
First Nations Harvest Projection (FSC)	5,000	1,758
Maa-nulth First Nations Domestic Allocation (FSC)	3,424	1,951
Five Nations Allocation	7,724	4,170
Area G Troll Allocation	30,852	11,350
Total AABM	87,000	32,970

*Note that this is a preliminary catch estimate and does not include catch from June 2020.

Recreational

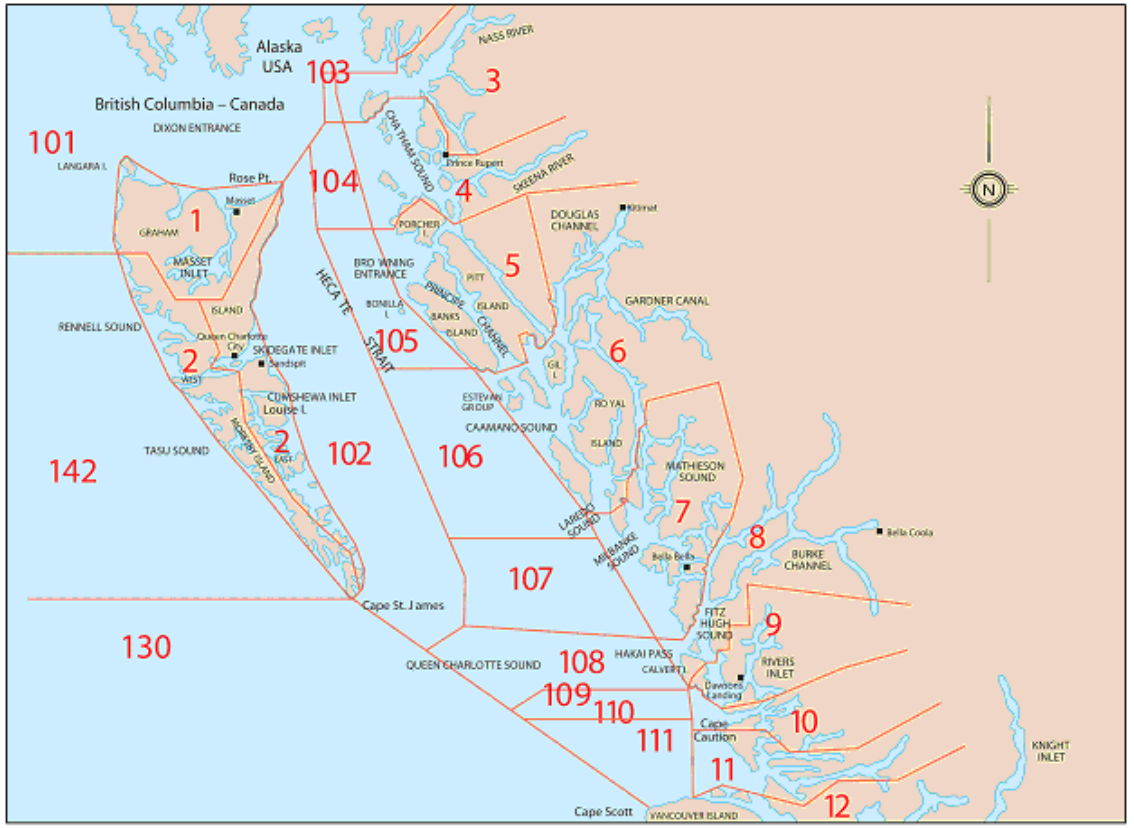


Reduction in fishing effort in 2020 likely due to COVID-19; similar management measures to 2019.

Canada

Summary ISBM Catch – Northern BC

Licence Group	Catch
First Nations FSC & Treaty	11,371
Commercial	4,131
Recreational	10,268
Total	**25,770**



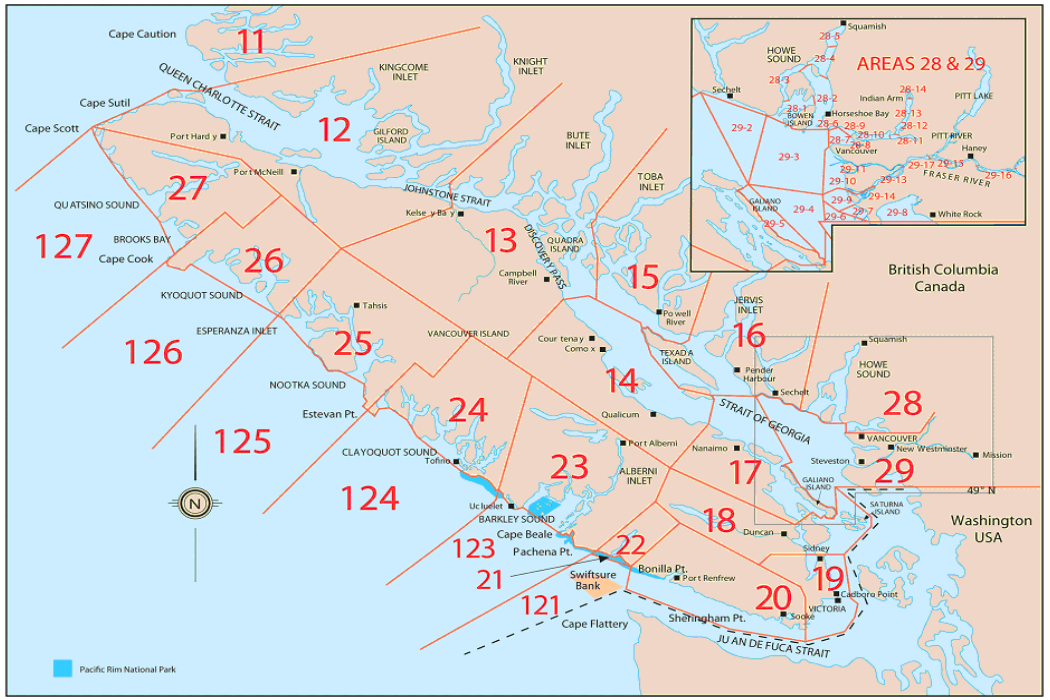
Notes:

1. First Nations: 5,511 (Nass); 4,233 (Skeena), 1,627 (Central Coast)
2. Commercial catch: 4,131 (Area 8)
3. Recreational catch: 634 (Skeena / Nass); 8,247 (Area 3+4); 1,387 (Central Coast)
4. Further details on ISBM fisheries and stock status provided in the CDN post-season report

Canada

Summary of ISBM Catch – Southern BC

Licence Group	Catch
First Nations FSC & Treaty	45,924
First Nations Commercial	29,829
Five Nations - WCVI	6,174
Commercial	42,863
Recreational	87,450
Total	212,240



Notes:

1. First Nations FSC: 8,607 (WCVI); 2,962 (Strait of Georgia); 787 (Johnstone Strait); 33,568 (Fraser watershed)
2. First Nations Commercial: 29,829 (Area 23); Five Nations – WCVI: 6,174 (Area 25)
3. Commercial: 42,863 (Area 23 and 25)
4. Recreational: 4,290 (Johnstone Strait-Areas 11/12); 32,943 (Strait of Georgia-Areas 13-19); 6,964 (Juan de Fuca - portion Areas 19 and 20); 37,410 (WCVI ISBM-Areas 21-27); 5,843 Fraser watershed
5. Further details on ISBM fisheries and stock status provided in the CDN post-season report.

Canada

Big Bar Landslide

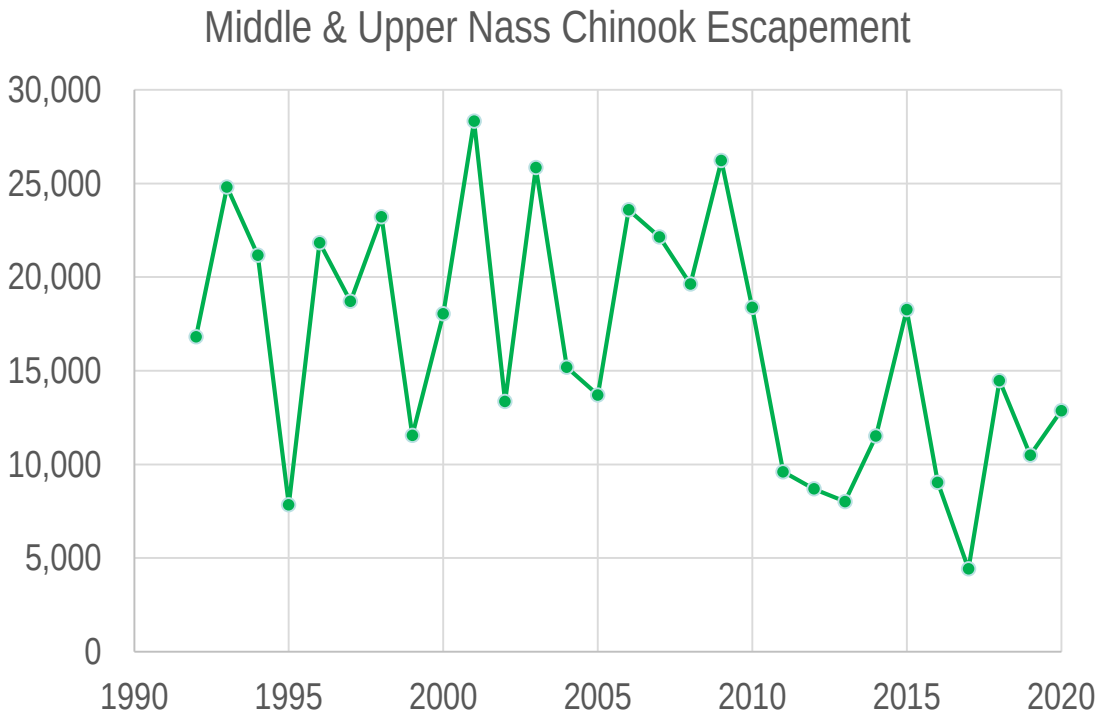
- During the 2020 Fraser salmon migration, two types of monitoring methods were used above and below the Big Bar landslide site to track fish passage – hydroacoustic sonars and radio tagging.
  - Greater than 80% of Spring 5_2 and Summer 5_2 typically spawn upstream of Big Bar in the Upper Fraser.
  - Assessment and mitigation plans were implemented
  - 2020 Fish Counts can be found at: https://www.pac.dfo-mpo.gc.ca/pacific-smon-pacifique/big-bar-landslide-eboulement/smon-count-denombrement-eng.html
  - In 2020, increased threshold flow for Chinook passage at flows below 3800 m^3/s compared with approx. 2400m^3/s in 2019 due to rock removal and channel modifications.

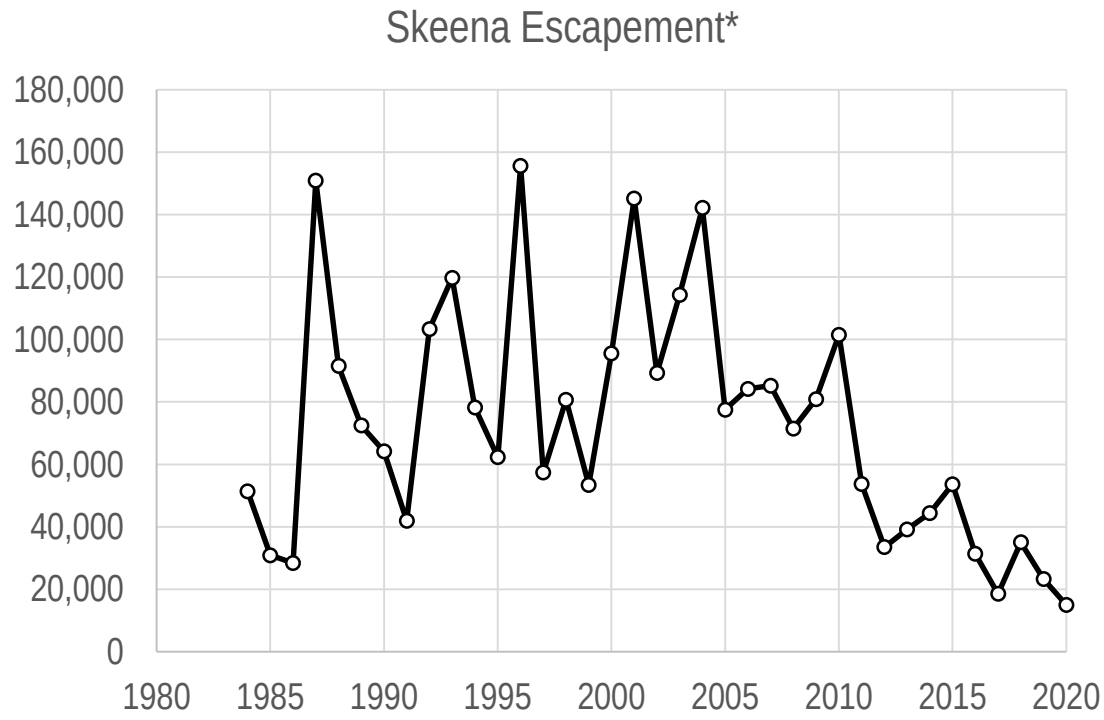
Canadian Chinook Indicators with Defined Objectives

Stock Country	CWT Indicator	Escapement Indicator	Preliminary 2020 Escapement	Management Objective
CAN	ATN	Atnarko	>5,000	5,009
CAN	COW	Cowichan	~9,500	6,500
CAN	SHU	Lower Shuswap	~26,000	12,300
CAN	HAR	Harrison	~45,000	75,100

Atnarko – >19K escapement estimate is being reviewed to partition enhanced / wild components but likely met objective.

Nass and Skeena Chinook

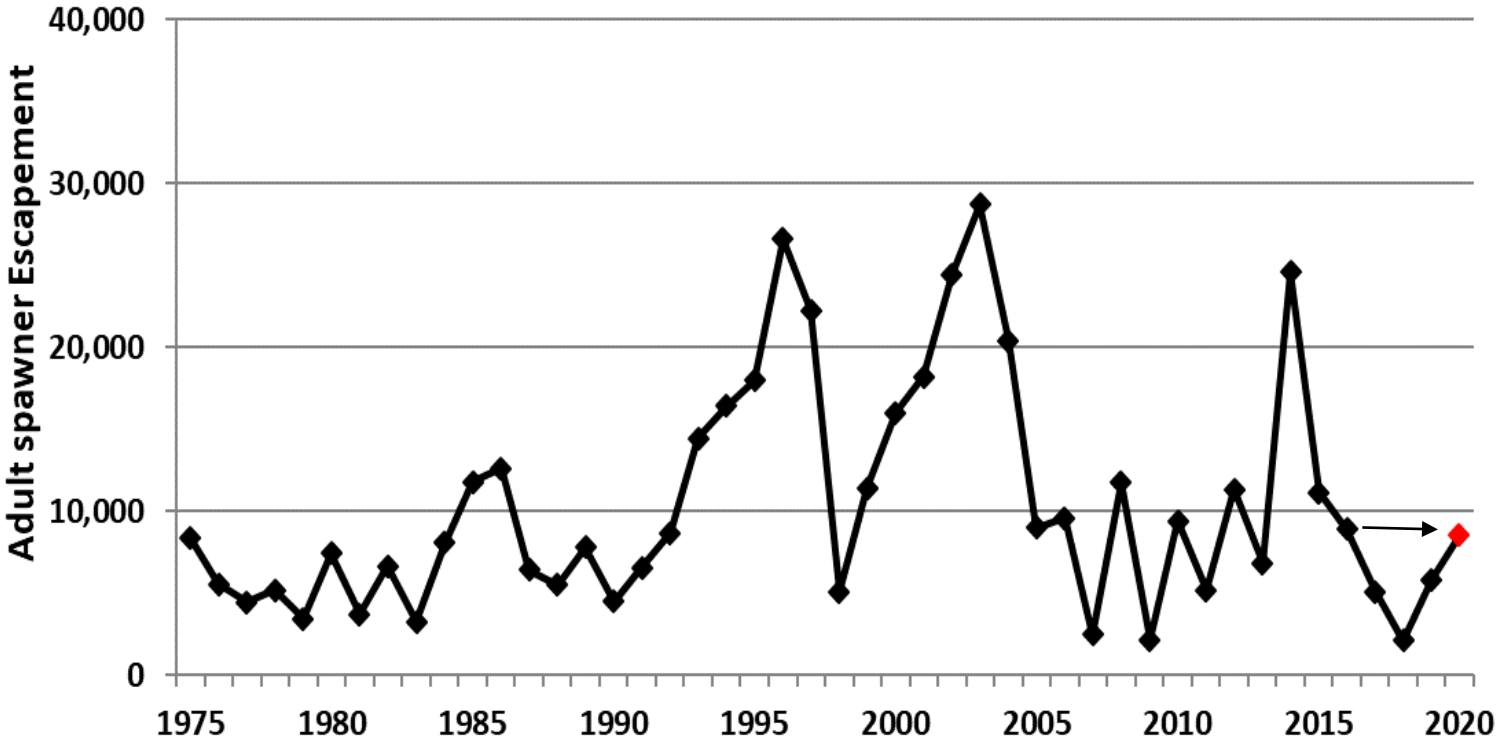




Nass Upper and Middle escapement from Management tables 2021 (based on fish wheel M-R estimator and accounting for upstream harvest removals).
2020 = 12,868 preliminary
1992-2020 Average = 16,473

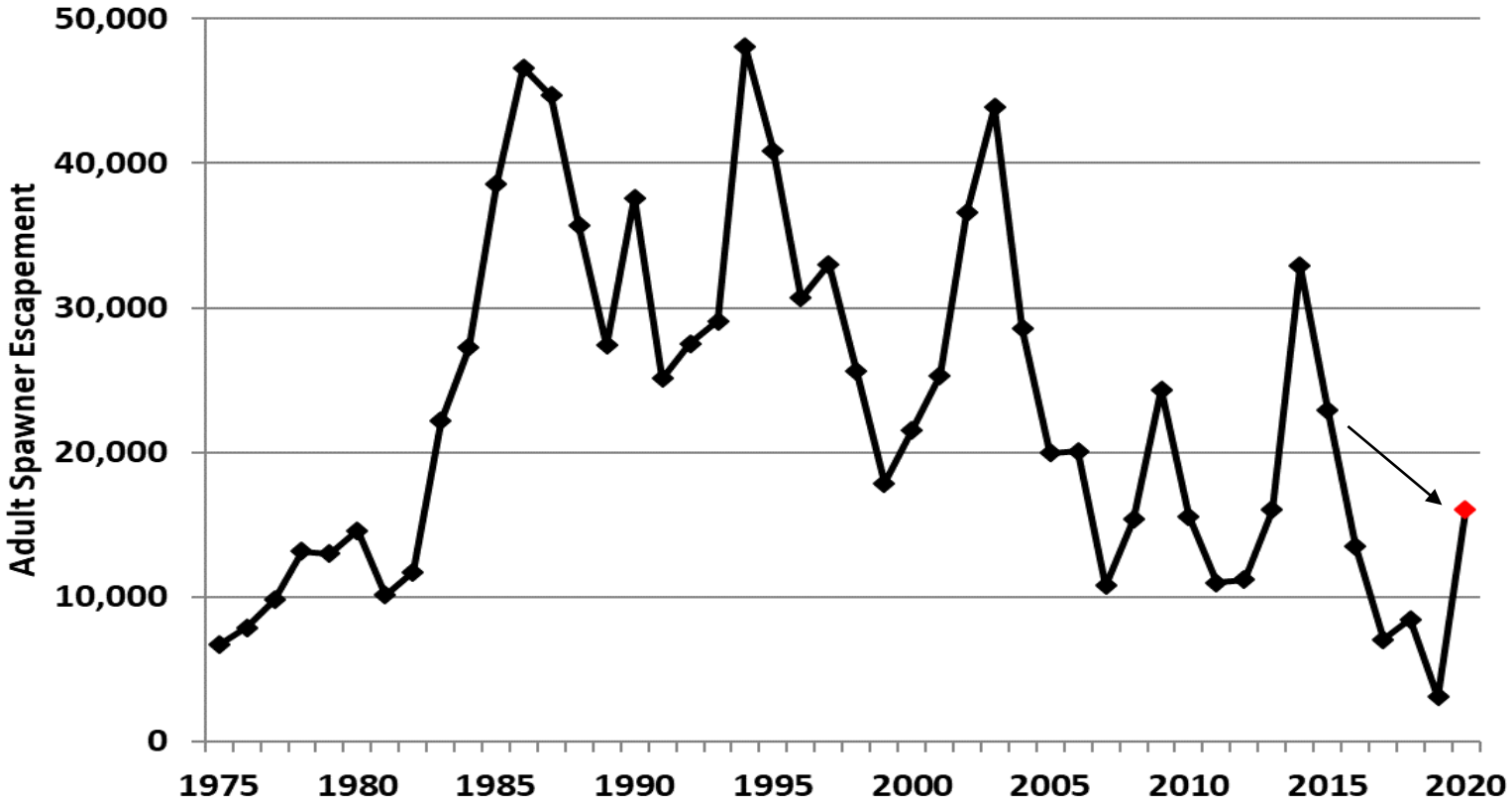
Skeena escapement based on GSI from the Tyee Test Fishery and the preliminary Petersen estimates of the Kitsumkalum escapement.
2020 = 14,977 preliminary (record low)
1984-2020 Average = 72,436

Spawners - Fraser Spring-run Age 1.2 (4_2) Chinook



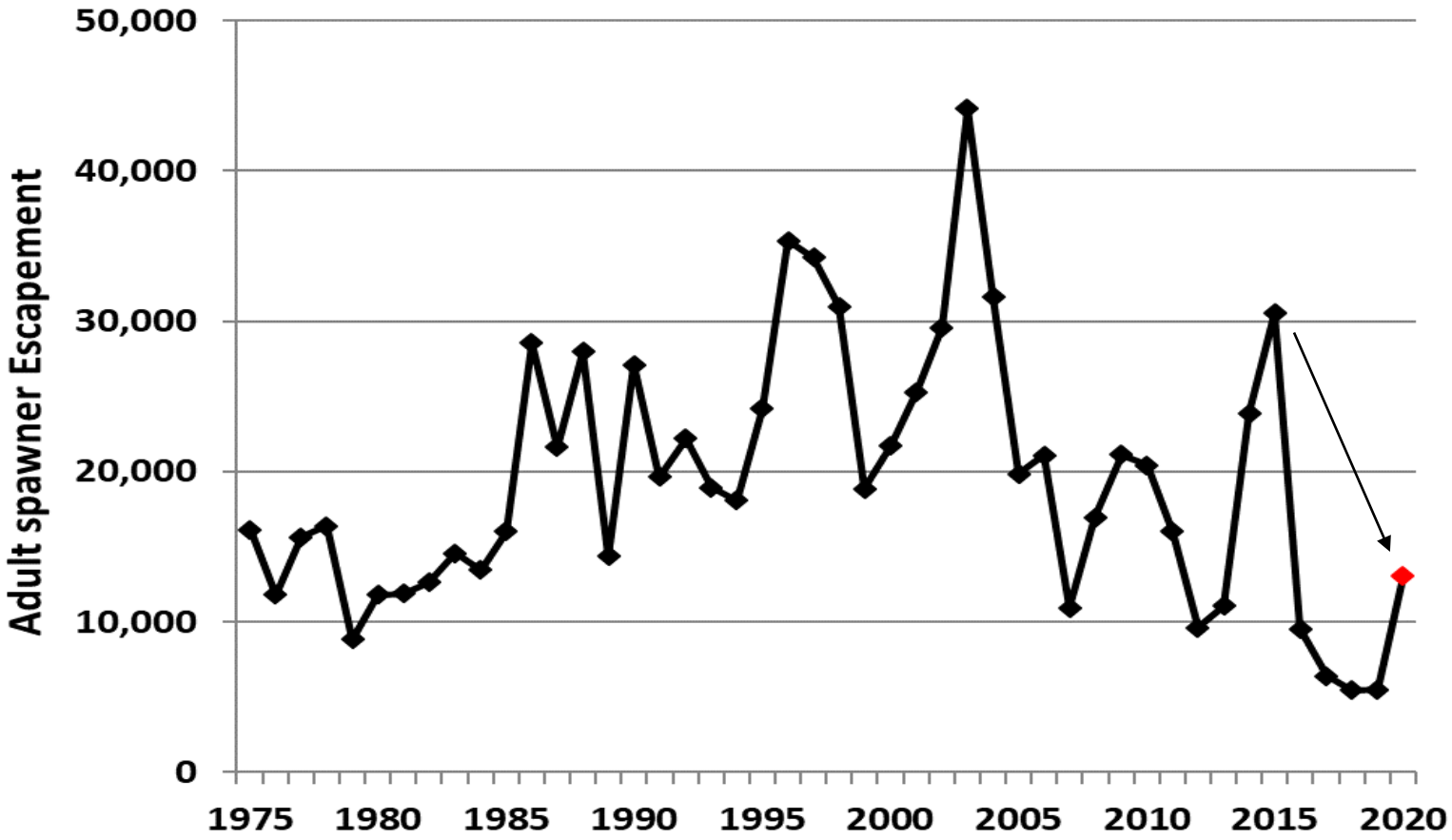
- 2019 was below the recent (1999-2018) average
- The brood year escapement (2016) was near the recent average
- 2020 (red point) is a preliminary estimate only

Spawners - Fraser Spring-run Age 1.3 (5_2) Chinook



- 2019 was well-below the recent average
- 2015 brood year escapement was near the recent average
- 2020 (red point) is a preliminary estimate only

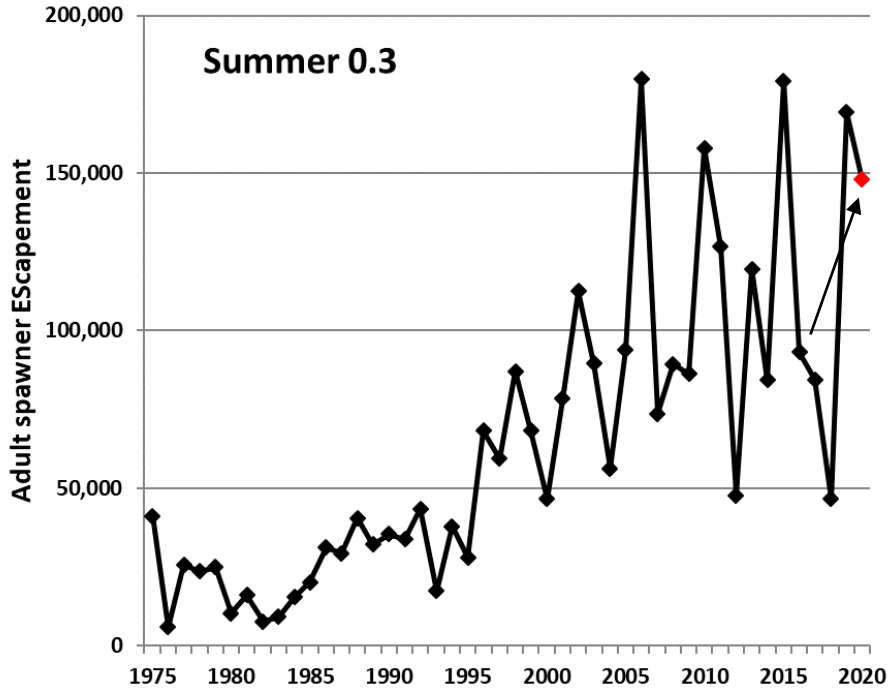
Spawners - Fraser Summer-run Age 1.3 (5_2) Chinook

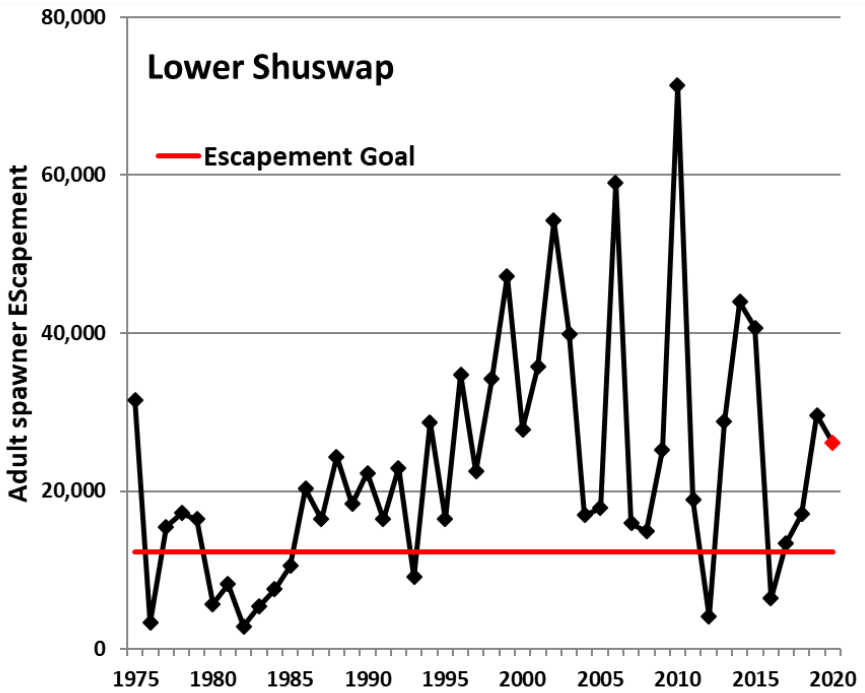


- 2019 was below the recent average
- 2015 brood year was above average
- 2020 (red point) is a preliminary estimate only

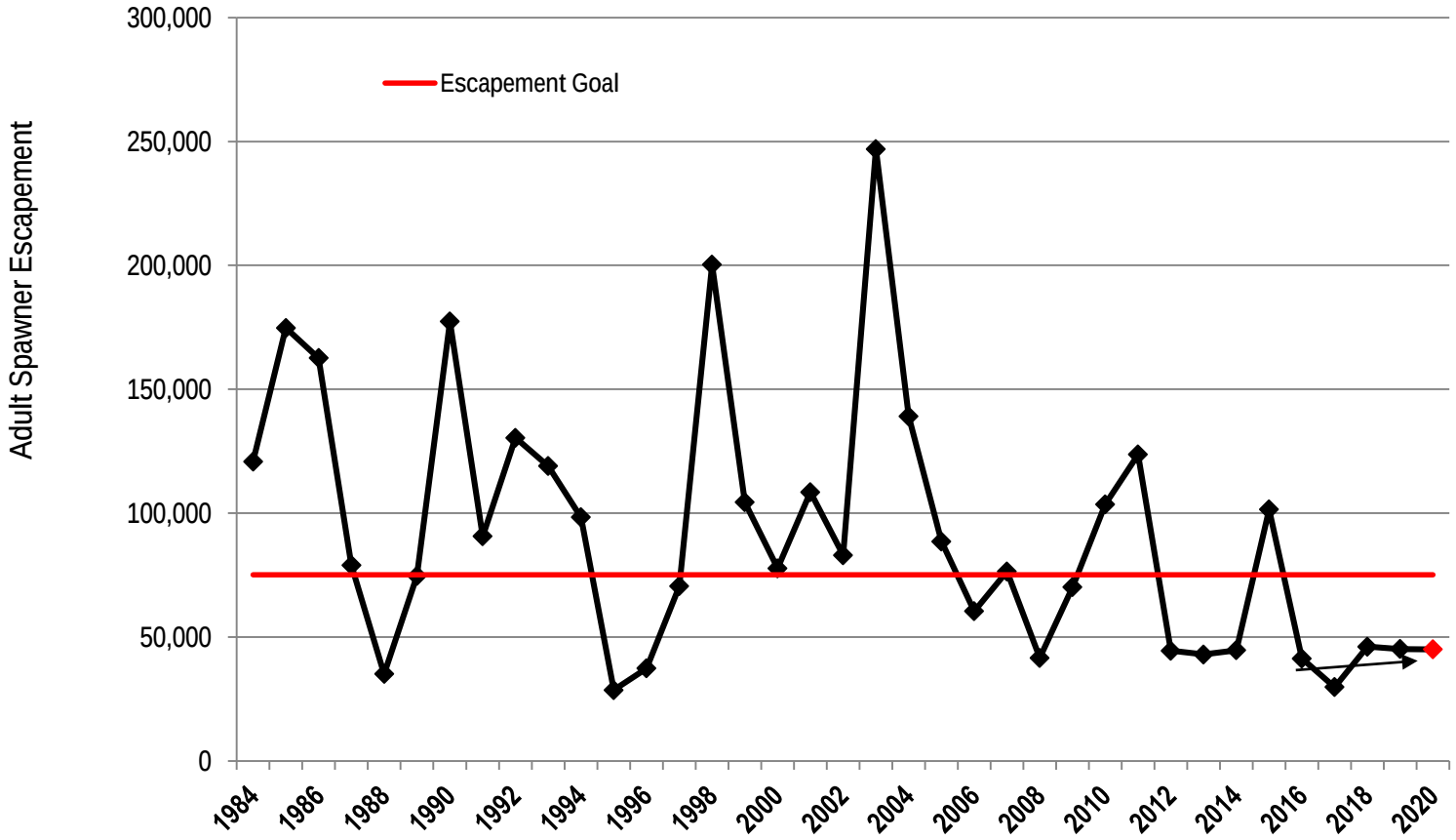
Spawners - Fraser Summer-run Age 0.3 (4_1) Chinook

- 2019 stock group was above recent average
- 2019 Lower Shuswap indicator stock was above escapement goal
- 2020 (red point) is a preliminary estimate only





Spawners - Fraser Harrison Fall (4_1) Chinook



- 2019 escapement estimate and the 2016 brood year escapement were below both the escapement goal and the recent average
- The escapement goal has only been met once in the last 9 years
- 2020 (red point) Harrison preliminary estimate is ~45,000

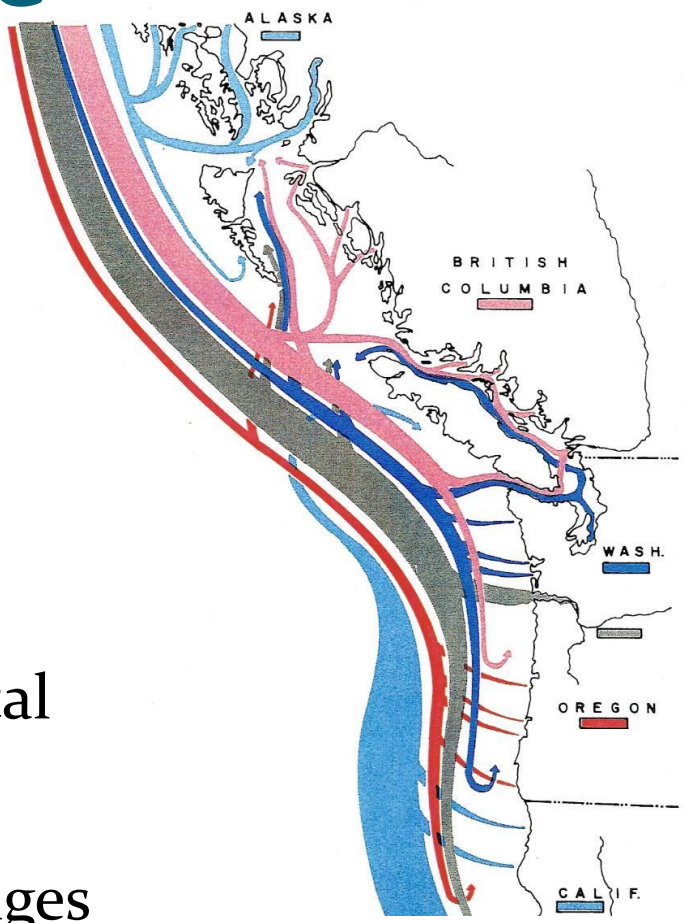
2020 Chinook Data Review + Timelines

Fishery evaluation data available in Winter/Spring of following year for Chinook including:

1. Spawner abundance (Jan/Feb)
2. Big Bar impacts – improved passage at landslide in 2020 but very high flows early in season (hydro-acoustics / telemetry analysis of passage success).
3. 2020 Reconstruction of Fraser terminal return / run size (March/April)
4. 2020 fishing impacts (March / April):
   a) Coded-wire tag (CWT) recoveries
   b) Exploitation rate analysis (ERA) results for CWT Indicators
   c) Estimated fishing mortalities via genetic stock identification (GSI) analysis

SOUTHERN U.S. CHINOOK MANAGEMENT IN 2020

Management Along the Migration



- ESA-Impact Limits on Puget Sound and Columbia River stocks severely constrain fisheries
- Mixed-stock fisheries limited by incidental impacts on constraining stocks
- Environmental Variability – New Challenges
- Intensive Management - Preseason & Inseason

Puget Sound Wild Chinook Forecasts: 2019 vs. 2020

Basin	2019	2020	Comparison
Nooksack spring	248	411	1.66
Skagit spring	2,003	1,605	0.80
Skagit S/F	13,629	12,877	0.94
Stillaguamish	354	359	1.01
Snohomish	3,222	2,978	0.92
Lake Washington	1,063	807	0.76
Green	4,833	2,396	0.50
White spring	573	493	0.86
Puyallup	1,724	1,674	0.97
Nisqually	824	901	1.09
Skokomish	520	503	0.97
Mid Hood Canal	285	39	0.14
Dungeness spring	282	288	1.02
Elwha	333	187	0.56
Hoko	1,488	1,411	0.95
Total	31,381	26,929	0.86

2020 LIMITING STOCKS

LAT = Low Abundance Threshold

Below LAT

- Nooksack
- Stillaguamish
- Snohomish
- Mid Hood Canal
- Skagit Spring (Cascade)

Near LAT

- Skagit Sum/Fall (Sauk)
- Dungeness

Other Key ESA Stocks

- Lower Columbia River Tules

Stock-Specific Limits

Stock	Management Criteria			Model Prediction			
	Abundance Tier	ER Ceiling	ER Type	Escapement	Total ER	SUS ER	PT-SUS ER
Spring/Early:							
Nooksack - Total		10.5%	SUS		32.1%	**10.5%**	3.6%
North/Middle Fork	< LAT			138			
South Fork	> LAT			232			
Skagit - Total	> LAT	10.3%	SUS	1,508	20.8%	**9.0%**	3.5%
Upper Sauk	> LAT			871			
Upper Cascade	< LAT			168			
Suiattle	> LAT			469			
White	> UMT	22.0%	SUS	2,125	23.3%	**15.7%**	3.9%
Dungeness	> LAT	10.0%	SUS	793	16.2%	**3.4%**	3.1%
Summer/Fall:							
Skagit - Total	> LAT	48.0%	Total	9,560	**48.0%**	24.1%	3.7%
Upper Skagit	> LAT			7,051			
Sauk	> LAT			445			
Lower Skagit	> LAT			1,717			
Stillaguamish - Total	900-1200	22.0%	Total	990			
Unmarked ER		8.0%	UM SUS		**18.4%**	**7.2%**	3.5%
Marked ER		12.0%	M SUS		28.2%	**12.0%**	8.7%
Snohomish - Total				2,989	21.1%	**7.7%**	6.5%
Skykomish	< LAT	8.0%	SUS	1,766			
Snoqualmie				1,223			
Lake WA (Cedar R.)	> UMT	13.0%	PT-SUS	855	34.2%	22.4%	**10.5%**
Green	> UB	13.0%	PT-SUS	4,001	51.9%	40.0%	**10.5%**
				6,377			
Puyallup	> UMT	13.0%	PT-SUS	2,633	46.4%	34.6%	**10.5%**
				4,176			
Nisqually	> LAT	47%	Total	9,423	**48.8%**	39.82%	13.32%
Western Strait-Hoko	> UMT	10%	SUS	2,170	22.5%	**2.3%**	2.3%
Elwha	> LAT	10%	SUS	3,319	15.7%	**3.3%**	3.3%
Mid-Hood Canal	< LAT	TBD	PT-SUS	39	22.9%	12.4%	**12.2%**
Skokomish	> UMT	50%	Total	2,749	**48.3%**	37.8%	12.5%
				23,482			

Model Run: SLC-Chin3120_Final	**SRFI =**	**51.3%**	**(70% Ceiling)**
Run Date & Time: 04/11/20 09:53	**Lower Col Nat Tule ER =**	**38.0%**	**(38% Ceiling)**

2020 – PRESEASON OVERVIEW

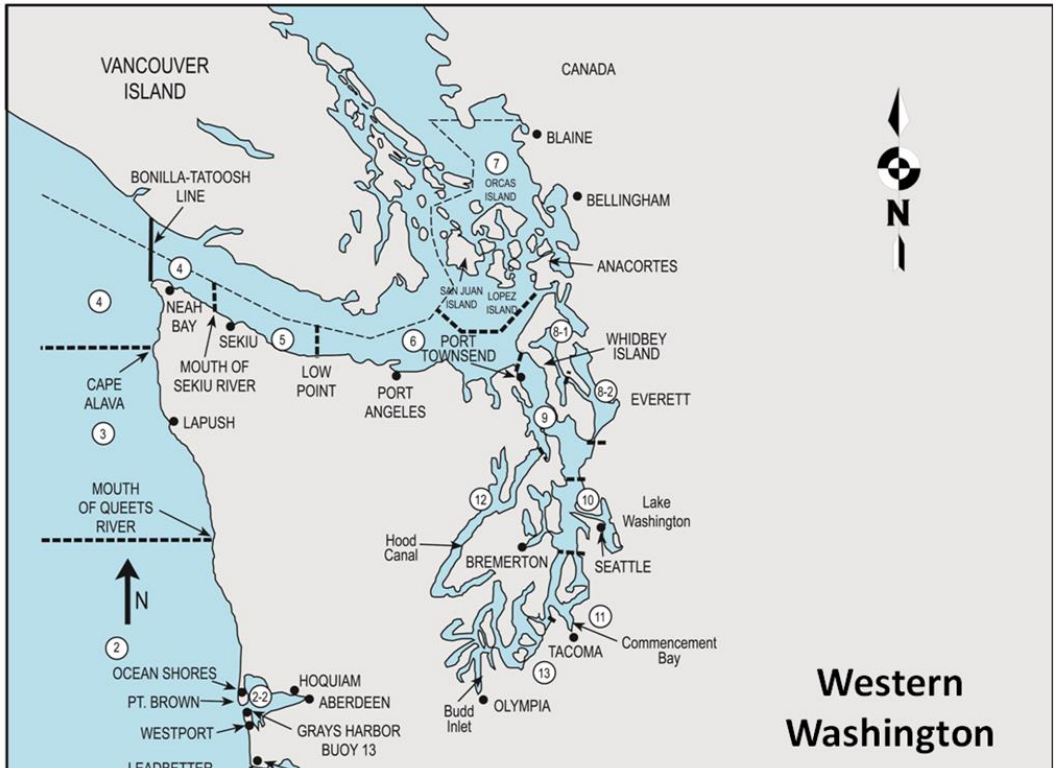
- Additional restrictive fishery measures in place due to Puget Sound stocks below their Low Abundance Thresholds, triggering low exploitation rate ceilings

- Puget Sound Recreational Fishery
  - Winter MSF fisheries closed in most areas in PS

- Total (Tribal/Non-Tribal) Ocean Chinook quotas
  - Similar to 2019, lowest years since 2009
  - 2019 = 87,500 and 2020 = 89,000
  - Coho continued to constrain ocean fisheries

2020 – COVID effects

- Ocean ports of Neah Bay and La Push closed to public
  - Access to Marine Areas 3 and 4 for non-treaty troll and recreational fisheries only available via ports to the south and east – sampling adjusted accordingly



2020 – COVID effects

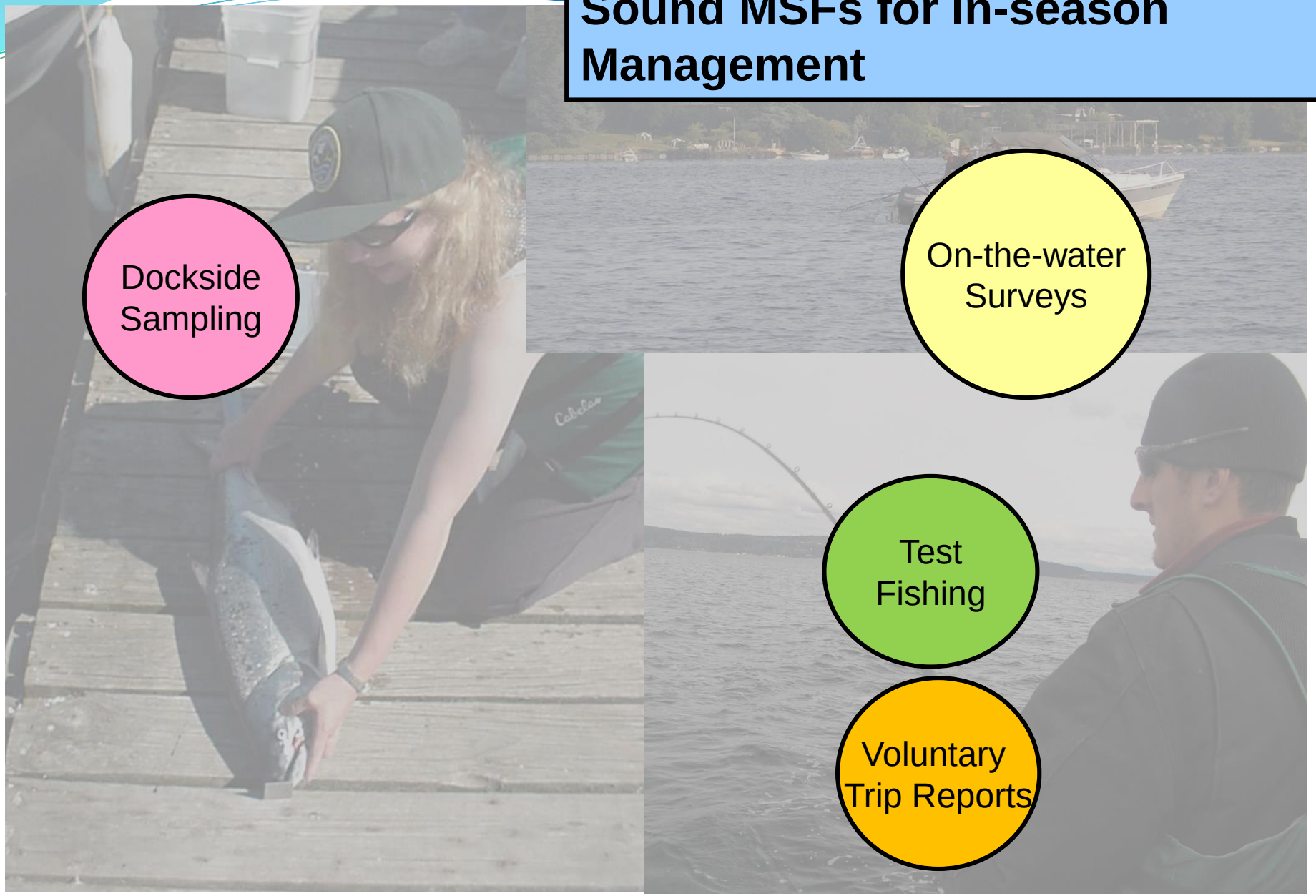
- Ocean ports of Neah Bay and La Push closed to public
  - Access to Marine Areas 3 and 4 for non-treaty troll and recreational fisheries only available via ports to the south and east – sampling adjusted accordingly
- Some Tribal fishery openings were delayed
- Recreational fisheries were closed statewide from March 26 through May 5

2020 – COVID effects

- Social distancing protocols incorporated into dockside sampling

- CWT sampling rates remained good – CWT sampling was prioritized, collection of other biological data was given lower priority

Intensive Monitoring of Puget Sound MSFs for In-season Management



Dockside Sampling

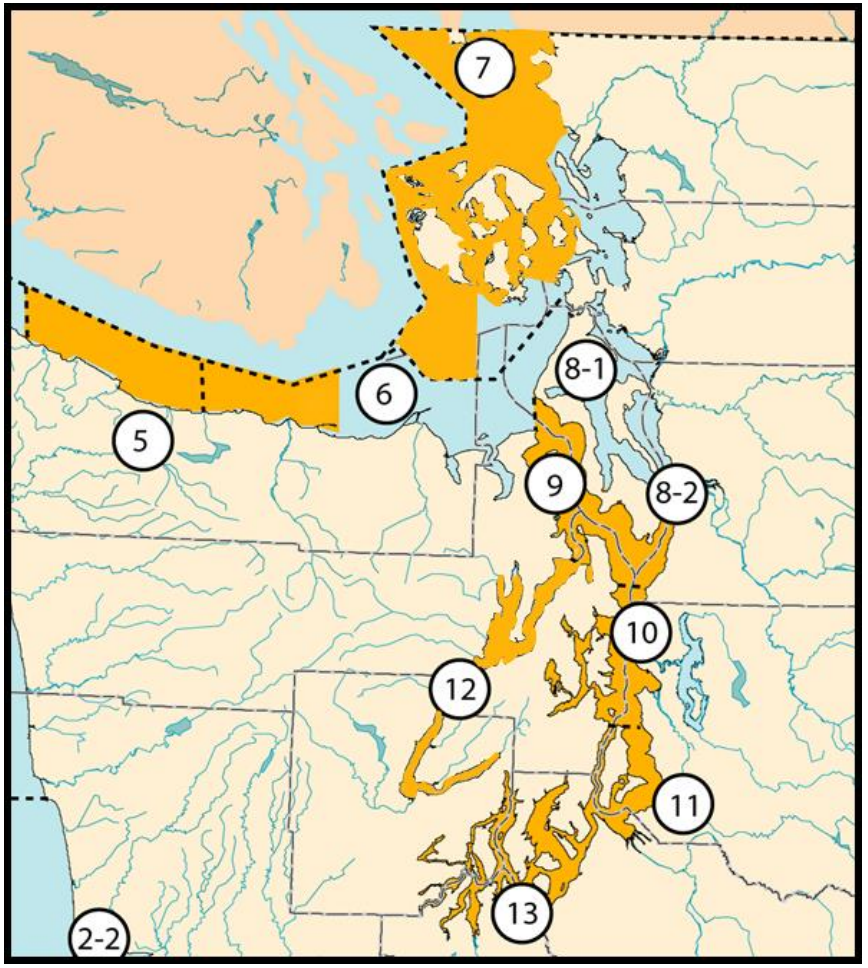
On-the-water Surveys

Test Fishing

Voluntary Trip Reports

Examples of 2020 In-season Actions

- Puget Sound Recreational:
  - All areas open to winter fishing early in 2020 closed March 26 due to COVID
  - Area 7 Summer MSF
    - Chinook retention planned July 1-31 and August 16-31
    - Based on in-season monitoring, reopening to Chinook retention in August delayed one week to limit catch to preseason quota
- Ocean Recreational:
  - Columbia River Area reached coho quota and closed to salmon fishing on July 27
  - Neah Bay Area reached coho quota and closed to salmon August 8

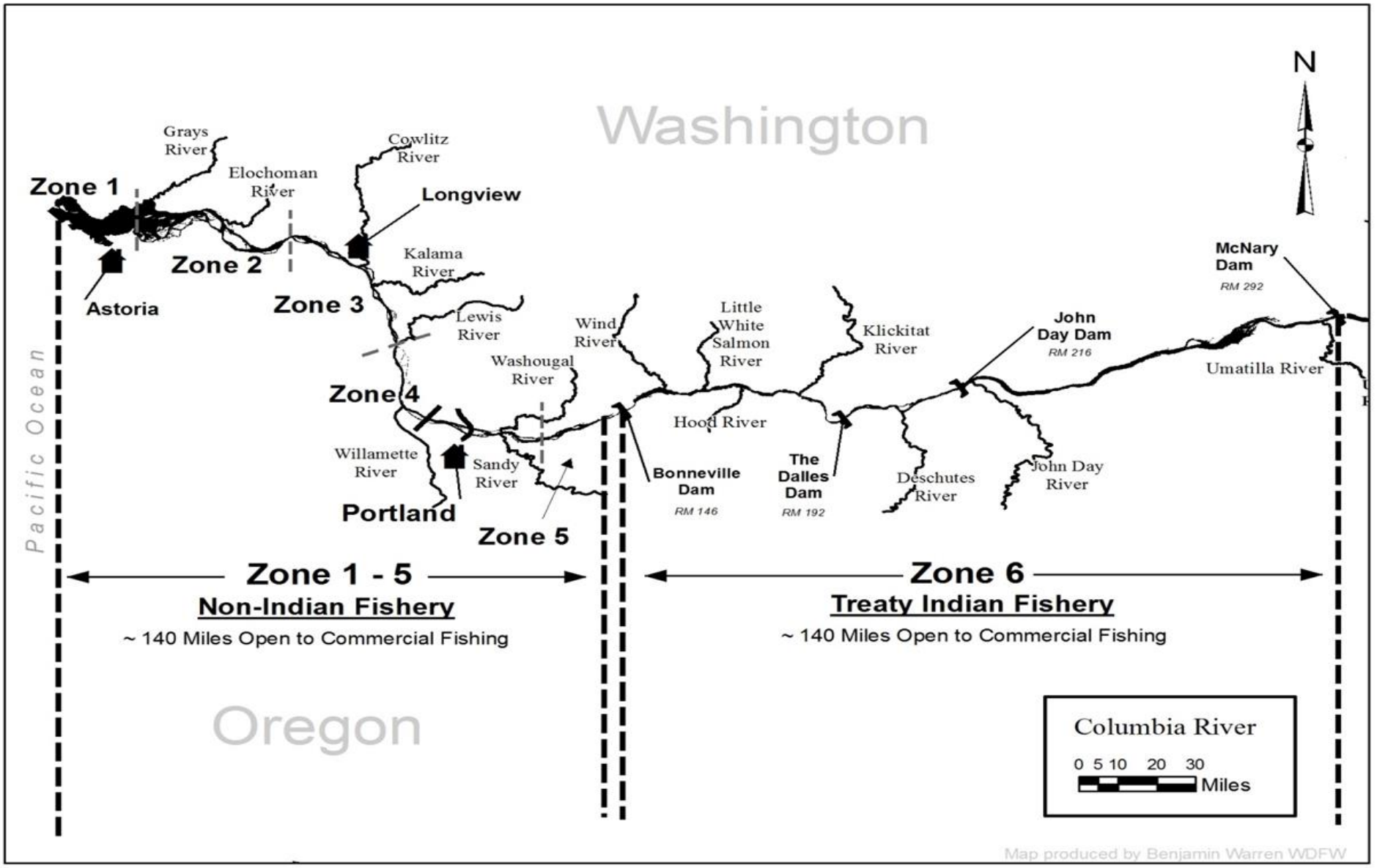


Examples of 2020 In-season Actions

- Tribal and Non-tribal troll fisheries:
  - In-season management of commercial troll and tribal troll in the Ocean; tracking harvest quotas with regularly updated fish ticket information.
  - In-season adjustments (trip limits, open/closed dates) were not needed in 2020 due to low catches relative to quotas
- In-river management: terminal areas are last in line; therefore, if returns are significantly below forecasts, fisheries can be reduced or closed to meet escapement objectives.

Fisheries	2020			Recent Year Landed	
	Preseason		Postseason		
	Total Mortality	Landed	Preliminary Landed	2019	2018
OCEAN FISHERIES					
Commercial Troll					
Neah Bay and La Push (areas 3,4,4B)	53,800	47,200	7,600	39,100	33,700
Columbia Ocean Area and Westport (area 1,2)	25,200	15,500	6,800	3,400	13,900
Sport					
Neah Bay (area 4)	6,300	5,600	1,900	3,900	3,000
La Push (area 3)	1,500	1,300	20	600	400
Westport (area 2)	13,800	12,500	4,800	2,400	4,900
Columbia Ocean Area (area 1)	8,000	7,000	800	4,000	2,300
INSIDE FISHERIES					
Sport [10/]					
Strait of Juan de Fuca (area 5,6)	17,200	9,300	-	13,100	14,300
San Juan Islands (area 7)	2,900	1,600	-	6,400	7,300
Puget Sound Marine (area 8-13)	30,000	20,100	-	19,300	29,900
Puget Sound Rivers	13,100	12,600	-	9,800	13,300
North WA Coastal Rivers	-	-	-	1,900	1,600
Grays Harbor	2,400	2,000	-	1,700	3,700
Columbia River (Spring)	-	-	2,000	2,000	8,100
Columbia River (Summer)	-	-	1,200	-	1,100
Columbia River (Fall) (incl. Buoy 10)	-	-	39,700	22,000	22,400
Commercial[11/]					
Strait of Juan de Fuca net and troll (area 4B,5,6C)	6,000	4,000	800	1,500	3,100
San Juan Islands (area 6,7, 7A)	8,300	8,300	100	3,600	3,900
Puget Sound Marine (8-13,7B-D)	39,000	38,300	34,900	72,700	70,600
Puget Sound Rivers	33,700	33,700	16,600	38,400	41,600
North WA Coastal Rivers	-	-	20,600	12,200	11,400
Grays Harbor (area 2A-2D)	1,100	1,000	3,700	2,400	2,700

Columbia River Fisheries



Columbia River: Management Along the Migration

- Summer Management Period
  - 2020 forecast was for 38,300 adult summer Chinook at Columbia River mouth
  - Actual run was 65,494 (return considerably larger than forecast) and 8,874 jacks
  - 2021 pre-season forecast is 77,600 adults
- Fisheries:
  - Chinook catches managed in-season according to total allowed catch limit (impacts from NT PFMC ocean fisheries are included for abundance and count as part of the harvest share non-treaty fisheries under the terms of the U.S. v. OR Management Agreement).

Columbia River: Management Along the Migration

- Fall Management Period
  - 2020 forecast was for 227,570 Upriver Bright (URB) Fall Chinook
  - Preliminary in-season URB run size was 295,233 adults (130% of forecast)
  - McNary Management Goal of 60,000 was met
- Fisheries:
  - Fall season fisheries mainly constrained by listed Snake River fall Chinook, upriver summer steelhead, and listed lower Columbia tule fall Chinook
    - Upriver bright and tule fall Chinook, upriver Coho, and B-Index fish came in above preseason forecasts, and A-Index came in below.

Preliminary 2020 Total Columbia Harvest

Natural Stock Constraints	Col. R Spring Chinook Snake Spr/Sum Chin Winter Steelhead	Upper Col Summer Chin Snake R Sockeye	Lower Col. Tule Lower Col. Coho Snake R "B" Steelhead
Columbia River Fishery	Winter / Spring 1 Jan – 15 June	Summer 16 Jun – 31 Jul	Fall 1 Aug – 31 Oct
Tribal	4,368	7,929	96,880 + 13,365 Coho
Non-Tribal Net	0	0	33,474 Chinook + 7,816 Coho (1,576 released)
Sport	2,317 marked 964 unmarked release	6,017 marked 2,857 unmarked release	39,712 + 6,401 released (8,881 kept + 8,623 released Coho MSF)

South of Cape Falcon, OR, Fisheries

Cape Falcon to Humbug Mountain	2020			Prior Years Landed	
	Pre-season Modeled		Actual (prelim.)	2019	2018
	Total Mortality	Landed			
Commercial Troll:	52,354	39,364	11,740	26,502	20,229

2020 will be the lowest year on record for total Chinook Salmon landings in this management zone, except 2008 and 2009 when there were no general ocean seasons and very limited state water seasons

Ocean Recreational:	6,977	6,141	5,359	4,739	2,708

2020 landings were the highest since 2015, however, lower than the running 10-Year Average of 5,761 Chinook Salmon

Conclusions

- SUS fisheries continue to be limited by conservation measures for weak stocks
- Effects of COVID on catch in fisheries difficult to separate from other factors
- Sampling programs were modified due to COVID, but catch estimates and CWT sampling rates remained sound in spite of social distancing limitations
- Columbia River returns generally above forecast
- Estimates for other areas still being processed, but no strong indications that returns were broadly above or below expectations