



2023/24 Draft Salmon IFMP – Chinook Update

PRE-SEASON PLANNING

FORUM ON CONSERVATION AND HARVEST PLANNING

APRIL 4-6, 2023



Outline:

1. Update on Preliminary 2022 Fishery Outcomes
2. 2023 Outlook and Planning
3. Discussion
4. IFMP process timelines

Update on 2022 Fishery Outcomes



Fraser Chinook Management Objectives

Fraser Spring 4₂, Spring 5₂ and Summer 5₂

For 2022, the management objective for Spring 4₂, Spring 5₂ and Summer 5₂ Chinook was to manage Canadian fisheries in a highly precautionary manner to allow as many fish to pass through to spawning grounds as possible.

- In 2019, this approach reduced overall Canadian fishery mortalities on these populations to low levels of approximately 5-10% (Spring 4₂ and Spring 5₂) and 18% (Summer 5₂). In 2020 and 2021, fishery mortalities were further reduced to <5% (Spring 4₂ and Spring 5₂) and 13-15% (Summer 5₂).
- Fishery mortality indices (FMI) for 2022 will be available in the Fall of 2023.

Fishery impacts are expected to include:

- Mortalities in Fraser River Chinook test fisheries (Albion)
- Incidental mortalities in Sockeye test fisheries
- Limited Chinook retention or bycatch retention in FN FSC fisheries
- Release mortalities and incidental mortalities during Chinook-directed fisheries targeting other stocks.

Mortalities, such as bycatch and incidental harvest, are factored into the calculation of exploitation rates on various stocks.

Department considers a number of fishing plan options and attempts to address a range of objectives including provision of limited opportunities for FSC harvest and minimizing bycatch/incidental catch in commercial and recreational fisheries.



Fraser Chinook Management Objectives

Summer 4₁ Chinook

- PST escapement goal for Lower Shuswap Chinook (12,500)
- Conservation concern (COSEWIC status *Endangered*) for Maria Slough Chinook (Lower Fraser)
- Run timing overlap with Summer 5₂ and Harrison Chinook will require consideration of lower fishery mortalities
- In 2019-2021, restrictions to commercial fisheries and some recreational fisheries were implemented to support increased availability of Summer 4₁ Chinook for Chinook-directed First Nations FSC fisheries. These included:
 - a delay to August 20 (2019), August 15 (2020) and August 12 (2021; also combined with closure of directed Coho fishery) of the Northern Troll fishery
 - closure of Kamloops Lake demonstration fishery
 - reduced limits (1 per day) in the southern BC recreational fishery

Fall 4₁ (Harrison) Chinook

- PST escapement goal of 75,100 was achieved in 2022. The goal has been met twice in the past 10 years (2015, 2022)
- 2020-2022 management measures also intended to further reduce exploitation rates.



2022 Chinook Measures

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).
- Fraser River First Nations FSC fisheries opportunities limited to unplanned events or first fish ceremonies into July followed by opportunities to target healthy Summer 4₁ Chinook primarily in August.

Commercial troll fisheries delayed into August to avoid Fraser Chinook encounters.

- Area F (Northern BC) – Chinook non-retention until August 10 in 2022 (directed Coho fishery was closed)
- Area G (WCVI) – Delayed start until August 1

Recreational measures

- A small number of terminal and non-Fraser Chinook retention MSF opportunities provided;
- Additional details provided by Fishery Notice and maps on DFO web-site: <https://www.pac.dfo-mpo.gc.ca/fm-gp/salmon-saumon/fraser-chin-mgmt-gest-quin-eng.html> .



2022 Escapement Review

Management Unit	2022 Escapement Estimate*	Brood Year Escapement	2022 Comparisons
Spring 4 ₂	10,162	2,100	Below S _{MSY}
Spring 5 ₂	22,933	8,539	Below S _{MSY}
Summer 5 ₂	26,458	6,390	<u>Above S_{MSY}</u>
Summer 4 ₁	110,876	46,543	Below S _{MSY}
Fall 4 ₁ (Harrison)	81,649	46,049	<u>Above escapement goal</u>



*Estimates are **near final** and may change

2023 Outlook and Planning



2023 Forecast – Spring

Spring 4₂

2023 Terminal Return Forecast	80% Interval	2019 Brood Year Escapement	Stocks
8,911	3,178 – 16,253	5,848	Lower and South Thompson Stream-Type Chinook

Spring 5(2)

2023 Terminal Return Forecast	80% Interval	2018 Brood Year Escapement	Stocks
23,570	12,018 – 33,641	8,543	North Thompson, Lower, Middle, and Upper Fraser Stream-Type Chinook

 Indicates stocks that spawn above the Big Bar Landslide



2023 Forecast – Summer

Summer 5₂

2023 Terminal Return Forecast	80% Interval	2018 Brood Year Escapement	Stocks
28,250	14,787 – 50,517	5,443	Lower and Middle Fraser and South and North Thompson Stream-Type Chinook

Summer 4₁

2023 Terminal Return Forecast	80% Interval	2019 Brood Year Escapement	Stocks
130,303	83,801 – 218,071	163,234	Lower Fraser and South Thompson Ocean Type Chinook

 Indicates stocks that spawn above the Big Bar Landslide



2023 Forecast – Fall

Fall 4 ₁ (Harrison)			
2023 Escapement Forecast	80% Interval	2019 Brood Year Escapement	Stocks
118,065	58,080 – 192,786	45,186	Harrison Chinook

Summary:

- The 2023 forecasts are projecting higher than brood year returns for all management units (except Summer 4₁).
 - This reflects recent higher than expected escapements in 2022.
 - However, generally productivity has declined in recent years for some Fraser MUs.



2023 Management Objectives

	Spring 4 ₂	Spring 5 ₂	Summer 5 ₂	Summer 4 ₁	Fall 4 ₁
2023 Management Objective	Allow as many fish to pass through to the spawning grounds as possible	Allow as many fish to pass through to the spawning grounds as possible	Allow as many fish to pass through to the spawning grounds as possible	In development	Harrison Chinook escapement to exceed 75,100 or CYER below 11.0%*

*The CYER limit applies when the escapement goal is not met

- This is a summarized table of Chinook management measures for 2023.
 - A detailed version can be found on page 266 of the draft IFMP.

PACIFIC REGION
DRAFT
**INTEGRATED FISHERIES
MANAGEMENT PLAN**
JUNE 1, 2023 - MAY 31, 2024

SALMON
SOUTHERN BC



Genus *Oncorhynchus*



2023 Management Objectives

Spring 4₂, Spring 5₂, and Summer 5₂ Management

- Continued precautionary management for Spring 4₂, Spring 5₂ Chinook, and potential measures to further reduce mortalities on Summer 5₂ Chinook.
- New motion from the FSMB: Summer 5₂ Chinook – reduce Fishery Mortality Index from recent impacts of ~15% towards 10%.

Fall 4₁ Management (Harrison)

- Escapement goal (75,100) not met in 2019-2021 but met in 2022.
 - DFO is engaging with the CTC on Canada's requirements under PST Chapter 3.
- To achieve this goal, the Department is consulting on reducing Canadian ISBM fishery mortalities to 95% CYER of the 2009-2015 average (i.e., ~11%).

Consideration of potential adjustments to current fishery management measures will be discussed and reviewed during IFMP process



2023 Management Considerations

First year of returns affected by Big Bar.

- Stocks within the Spring and Summer 5(2) management units spawn above Big Bar.
- Although not the dominant age class, four-year-olds returning in 2023 (i.e., brood year 2019) may be impacted.

Unfavourable environmental conditions.

- Floods
- High discharge
- High temperatures
- Droughts





2023 Chinook Management Measures

- Precautionary management approach for Spring 4₂, Spring 5₂ and Summer 5₂ Fraser Chinook (see slide 16 for FSMB recommendation); manage Canadian fisheries in highly precautionary manner to allow as many fish to pass through to spawning grounds as possible
- Restrictions for Fraser Chinook covering wide times/areas of Southern BC and parts of Northern BC also benefit other co-migrating Chinook; additional stock specific measures will be identified in IFMPs
- Planning to continue measures in similar times/areas like recent years
 - Management measures are anticipated to be required for many years given the status of Southern BC / Fraser Chinook
- Consideration of potential adjustments to current fishery management measures will be discussed and reviewed during Salmon IMFP process



FSMB Recommendations for Fraser Chinook

- The FSMB recommends continued precautionary management for Spring 4₂ and Spring 5₂ Chinook, and further measures to reduce mortalities on Summer 5₂ Chinook
- Concerns over future productivity and low abundance of Fraser Chinook populations, potential impacts of the Big Bar landslide on migration of the Spring 5₂ and Summer 5₂ Chinook, and limited access for FSC fisheries in the Fraser River
- DFO is a signatory to the Fraser Salmon Collaborative Management Agreement with 76 First Nations that provides management recommendations for Fraser salmon:
 - Spring 4₂ and Spring 5₂ Chinook - maintain a precautionary management approach
 - **New recommendation:** Summer 5₂ Chinook – reduce Fishery Mortality Index from ~15% towards 10%
 - In a manner that respects priority access for FSC after conservation
- Potential fishery reductions for recreational, commercial, and potentially FSC fisheries may be required after analysis & consultations have occurred



What management measures are currently anticipated for 2023?

The following measures are anticipated to be in effect but may be modified based on consultations to develop the 2023/24 salmon IFMPs.

First Nations fisheries*: Provision of priority access for First Nations FSC harvests in South Coast and Fraser River.

- Fraser River First Nations FSC fisheries opportunities limited to unplanned events or first fish ceremonies into July followed by opportunities to target healthy Summer 4₁ Chinook primarily in August.
- South Coast FSC fisheries opportunities for mixed Chinook stocks will be permitted in marine areas with the exception of the approaches to the Fraser River (Subareas 29-6, 29-7, 29-9 and 29-10).
- Five Nations (Ahousaht, Ehattesaht, Hesquiaht, Mowachaht/Muchalaht, and Tla-o-qui-aht) rights-based sale fishery is expected to open in areas seaward of 1 nautical mile from the surfline on the West Coast of Vancouver Island on July 15. A maximum 80cm size limit will be in effect from July 15 to July 31. Fishing may be authorized in areas shoreward of 1 nautical mile from the surfline.



What management measures are currently anticipated for 2023? (cont.)

Recreational fisheries*: Chinook restrictions will be implemented in most South Coast areas to address conservation concerns for Fraser River Chinook salmon. See maps with specific details attached in background slides.

- Chinook non-retention beginning April 1 in most South Coast waters with exception of WCVI waters inside 1nm from the surpline;
- No fishing for Chinook beginning April 1 in marine approaches to Fraser River; and,
- No fishing for salmon at mouth of Fraser and within Fraser in effect beginning January 1

*MSF fisheries – see slides

Commercial troll fisheries*:

- Area F (Northern BC) – Chinook non-retention until [mid-August – date TBC](#); (additional objective to pass additional Summer 4₁ Chinook to Fraser River); Proposal submitted for earlier Chinook opening date (Aug 1).
- Area G (WCVI) – Delayed start until August 1; Area G demonstration fishery proposal for 3,000 Chinook harvest in April-May 2023 in areas within the surpline (PFMAs 23-27) (page 556 in SC IFMP).



Fraser Chinook Management and Data Review

Fishery evaluation data for Chinook available in Winter/Spring of following year includes:

1. Final spawner abundance estimates
2. Big Bar impacts
3. Terminal return / Run size (Run Reconstruction)
4. Fishing impacts on Fraser stocks of concern:
 - a) Coded-wire tag (CWT) recoveries
 - b) Exploitation rate analysis (ERA) results
 - c) Estimated fishing mortalities via genetic stock identification (GSI) analysis and run reconstruction; focus on Fraser Chinook but potential future expansion to other southern Chinook populations



Nicola (Spring 4₂) Chinook Escapement and Exploitation rate

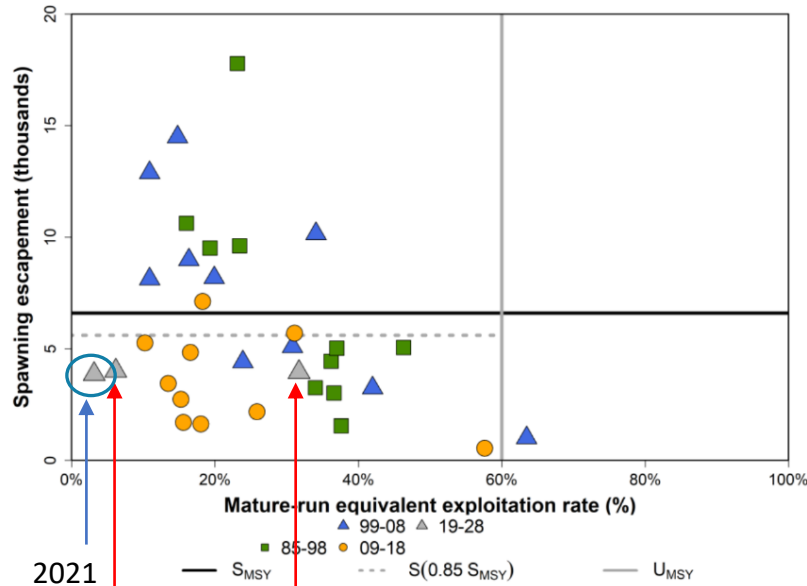
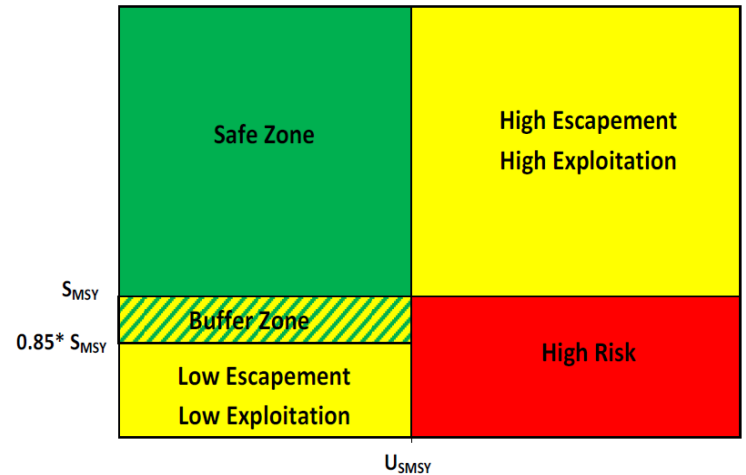


Figure 3.23—Mature-run equivalent exploitation rate, spawning escapement, and threshold reference lines for exploitation rate and spawning escapement by CY for the Nicola River stock of Chinook salmon, 1995–2021.



Source: CTC (2022) Annual Report of Catch and Escapement for 2021

Nicola Chinook are in the low escapement, low exploitation rate zone.



Lower Shuswap (Summer 4₁) Chinook Escapement and Exploitation rate

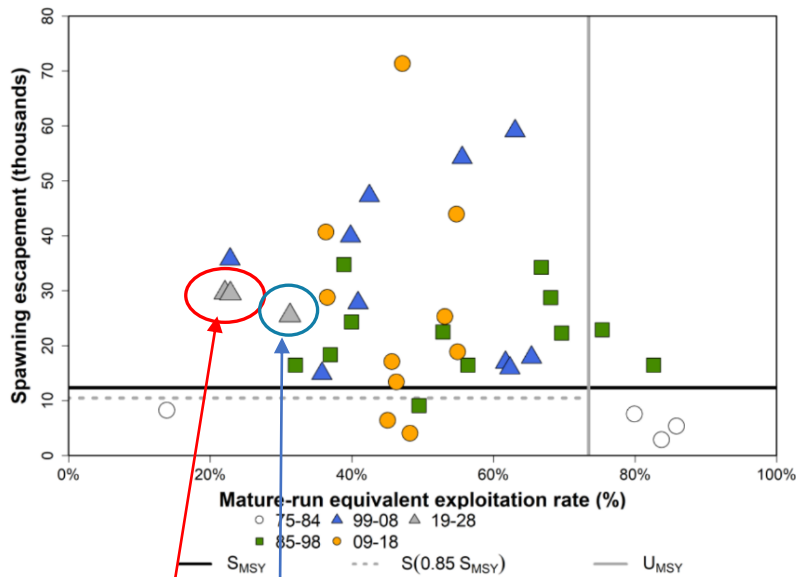
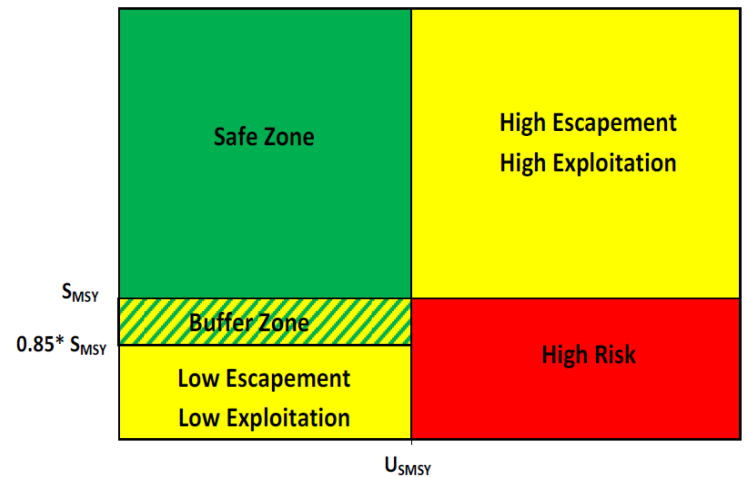


Figure 3.26—Mature-run equivalent exploitation rate, spawning escapement, and threshold reference lines for exploitation rate and spawning escapement by CY for the Lower Shuswap River stock of Chinook salmon, 1981–2021.

2019 and 2020 2021



Source: CTC (2022) Annual Report of Catch and Escapement for 2021

Lower Shuswap are in the
safe zone.



Harrison River (Fall 4₁) Chinook Escapement and Exploitation rate

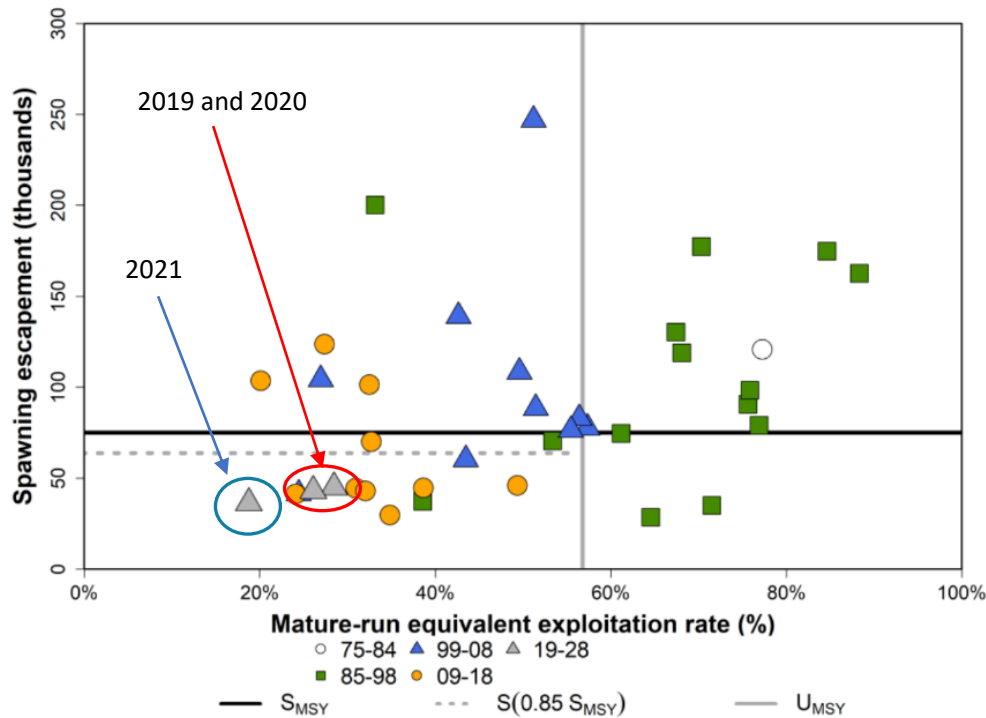
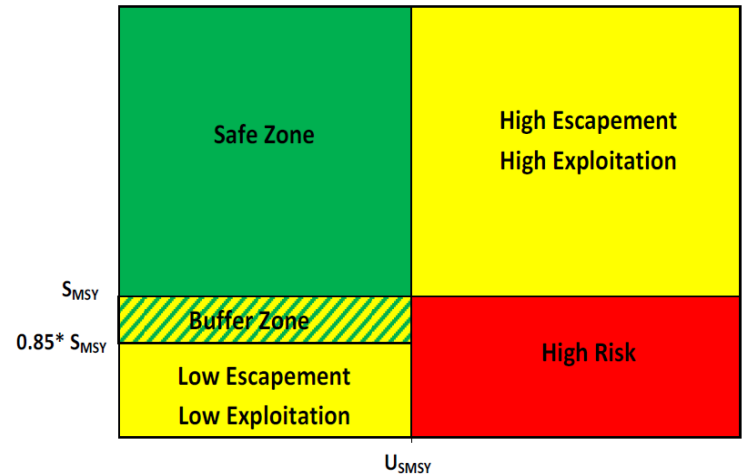


Figure 3.28—Mature-run equivalent exploitation rate, spawning escapement, and threshold reference lines for exploitation rate and spawning escapement by CY for the Harrison River stock of Chinook salmon, 1984–2021.



Source: CTC (2022) Annual Report of Catch and Escapement for 2021

Harrison Chinook are in the low escapement, low exploitation rate zone.

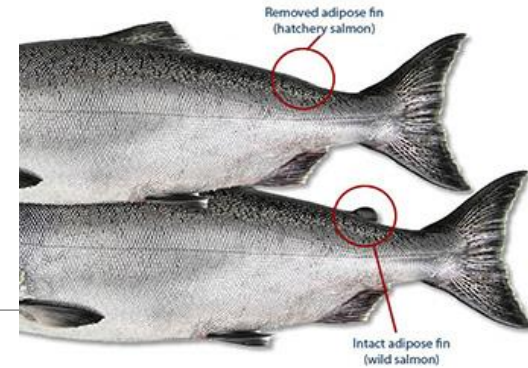


Quinsam and Harrison Chinook

- Pacific Salmon Treaty (PST) details commitments to limit Canadian exploitation rates for key Chinook populations.
- Quinsam and Harrison Chinook have exceeded allowable impacts in most recent years.
- DFO is engaging with the CTC on Canada's requirements under PST Chapter 3
- Harrison – 75,100 escapement goal; CYER reductions below 11%
 - To achieve this goal, the Department aimed to reduce Canadian fishery mortalities by at least 25% compared to the 2013-2016 average.
 - We have observed an average CYER of ~14% in years where we fail to meet the escapement objective
- Quinsam - CYER limit is 16.48%
 - Average CYER is 19.28%
- DFO will be consulting on changes to fisheries that will reduce exploitation rates on these stocks



Mass Marking / Mark Selective Fisheries Discussion Paper



- DFO released a discussion paper on June 27, 2022, to initiate a dialogue on the benefits and challenges associated with the use of MM and MSF as tools to meet conservation and sustainable use goals
- Department received considerable feedback that was collated in an engagement summary report released on Jan 24th, 2023
- To further advance longer-term work on MM/MSF, the Department has initiated a workshop process to discuss technical challenges and solutions associated with implementation of MM and MSF. Further work is planned over the course of the next year to inform longer-term implementation plans



Mark Selective Fisheries

- Previously approved mark selective fisheries (MSF) will re-open April 1, 2023, in portions of Areas 12, 13, 15, 16 (mainland inlets) and Beecher Bay (Area 20).
- **New for 2023:** MSF regulation change in portions of Area 16
 - Retention of only hatchery-marked Chinook (page 286, Table 13.1-12).
- The Department consulted on several new MSFs pilots for Spring 2023 (portions of Areas 17, 18, 19, 20 and 28)
 - Any MSF that are approved for Spring 2023 will also continue in Spring 2024 subject to post-season analysis (page 286, Table 13.1-13).



MM/MSF Longer-term: next steps

- Complete technical review
 - Winter 2022/2023
- Develop proposed MM Strategy to support DFO objectives including hatchery genetic management strategy
 - Spring 2023
- Develop and consult on Operational Framework to guide longer-term decision making on MM/MSF implementation
 - Informed by technical review
 - Fall/Winter 2023
- Seek approvals and begin implementation of MM plans aligned with DFO objectives (2024).
 - Supported by operational framework
- Note: Opportunities to target new MM Chinook in Canada would occur approximately 2 years after marking begins
 - E.g. 2026 for new marking (2024 Conuma pilot mass marking project)



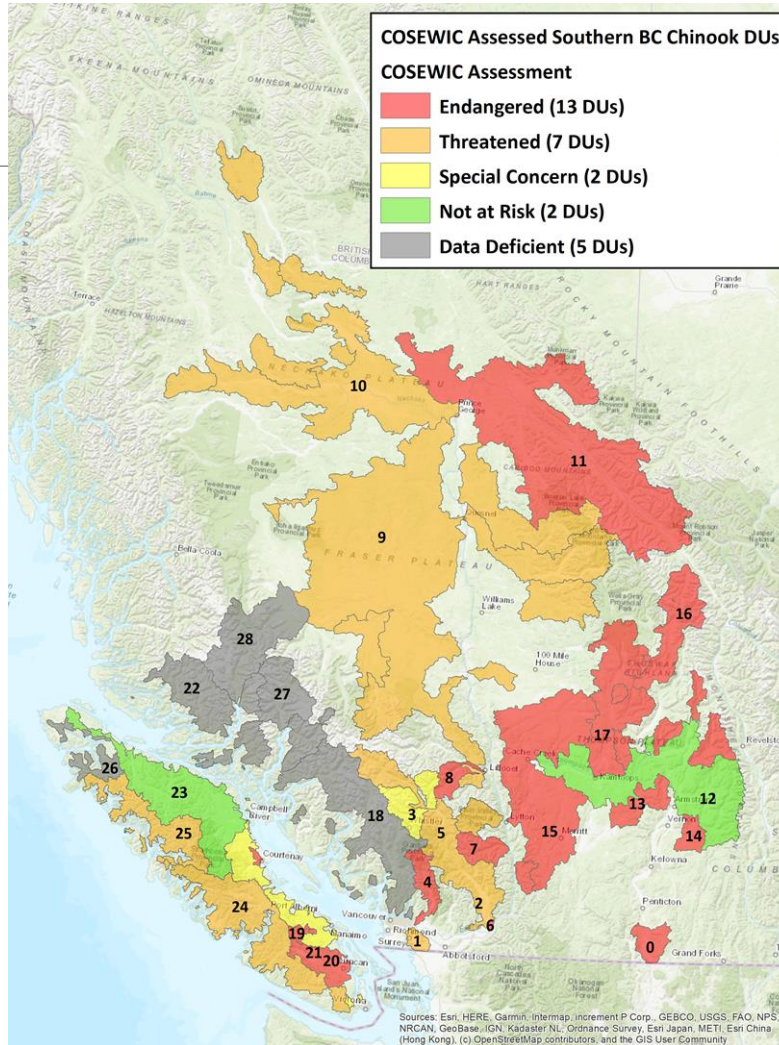
2023/24 IFMP Timelines

Activity	Proposed Timelines
Deadline for new CSAF proposals	February 3, 2023
Meetings to review and discuss potential changes to IFMPs and opportunity for focussed discussion on key IFMP issues.	Fraser Forum – January 31 - February 2, 2023 Northern IHPC – February 2, 2023 Southern IHPC – February 8, 2023
Draft IFMPs released for public review & comment	End of February 2023
Meetings to review draft IFMP	Fraser Forum – February 28 - March 2, 2023 Northern IHPC – March 8, 2023 Southern IHPC – March 9, 2023
Deadline to submit comments on draft IFMP (minimum 30-day comment period)	April 12, 2023
Final Meetings for discussion on IFMP feedback	Fraser Forum – April 4-6, 2023 Full IHPC – April 26-27, 2023
Target for public release of salmon IFMP	June 30, 2023

Appendix: Background Information



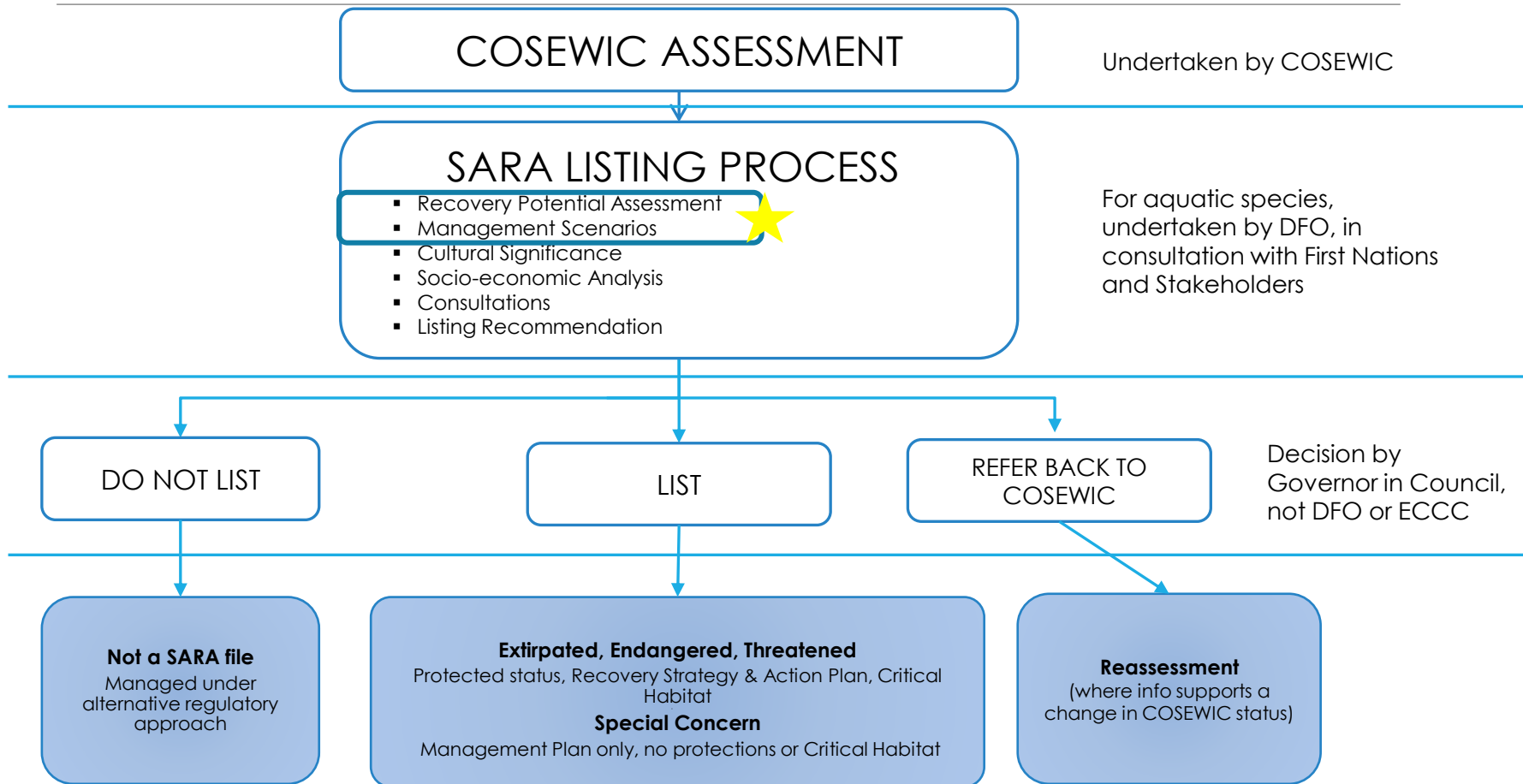
COSEWIC Status of Southern BC Chinook DUs



DU #	Name	Status
0	Okanagan Chinook	EN
1	Mainland Boundary Bay, Ocean, Fall	TH
2	Lower Fraser, Ocean, Fall	TH
3	Lower Fraser, Stream, Spring	SC
4	Lower Fraser, Stream, Summer (U.Pitt)	EN
5	Lower Fraser, Stream, Summer	TH
6	Lower Fraser, Ocean, Summer	EN
7	Mid Fraser, Stream, Spring	EN
8	Mid Fraser, Stream, Fall	EN
9	Mid Fraser, Stream, Spring (MFR+GStr)	TH
10	Mid Fraser, Stream, Summer	TH
11	Upper Fraser, Stream, Spring	EN
12	South Thompson, Ocean, Summer	NAR
13	South Thompson, Stream, Summer 1.3	EN
14	South Thompson, Stream, Summer 1.2	EN
15	Lower Thompson, Stream, Spring	EN
16	North Thompson, Stream, Spring	EN
17	North Thompson, Stream, Summer	EN
18	SC - Georgia Strait, Ocean, Fall	DD
19	East Vancouver Island, Stream, Spring	EN
20	East Vancouver Island, Ocean, Summer	EN
21	East Vancouver Island, Ocean, Fall	SC
22	SC – Southern Fjords, Ocean, Fall	DD
23	East Van. I., Ocean, Fall (EVI + SFj)	NAR
24	West Van. I., Ocean, Fall (South)	TH
25	West Van. I., Ocean, Fall (Nootka & Kyuc)	TH
26	West Van. I., Ocean, Fall (WVI + WQCI)	DD
27	Southern Mainland, Ocean, Summer	DD
28	Southern Mainland, Stream, Summer	DD



SARA Listing Process





SARA Context – Default Listing Position

DFO will advise the List be amended for a species as assessed by COSEWIC, unless there is a Compelling Rationale not to do so.

When providing Do Not List Advice, DFO must:

- Provide Compelling Rationale
- Create and implement work plan if DFO will undertake incremental activities
- Report on work plan progress after 5 years.

Compelling Rationale must address:

- Alternative recovery approach and expected outcomes in absence of listing
- Net benefits to Canadians of DNL decision.

Compelling Rationale is developed in consideration of multiple sources of information including:

- COSEWIC Assessment, Recovery Potential Assessment, consultation results, approved management scenarios and their impacts, analysis of costs and benefits.

○ <http://www.dfo-mpo.gc.ca/species-especes/publications/sara-lep/policy-politique/index-eng.html>



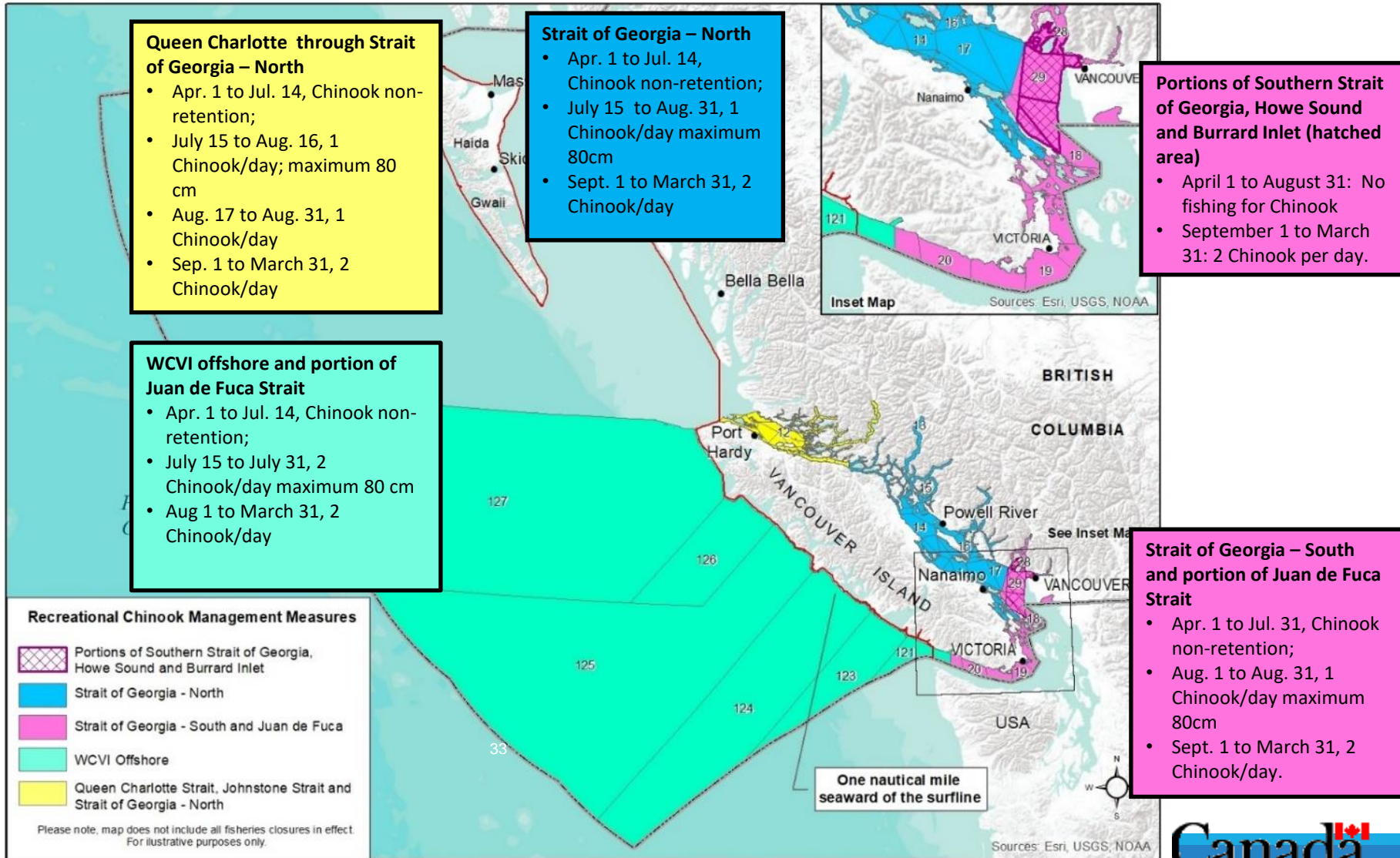
Fraser Chinook 2019 and 2021 Results – Fishery Mortalities

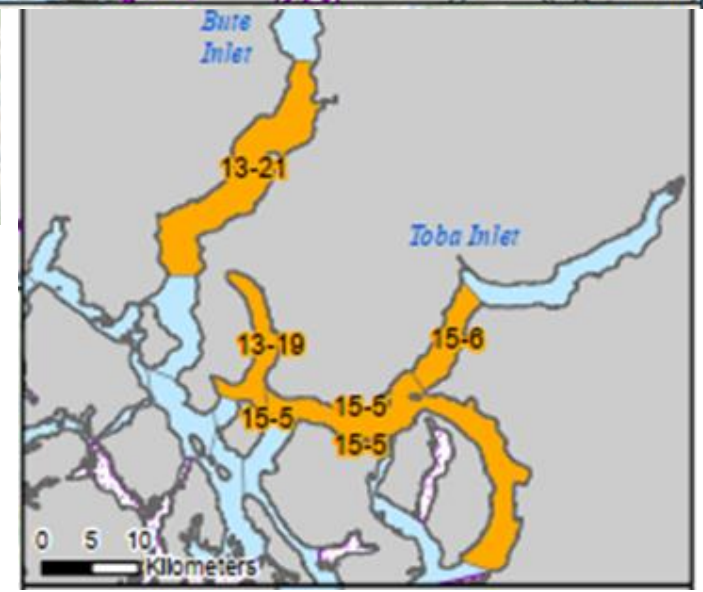
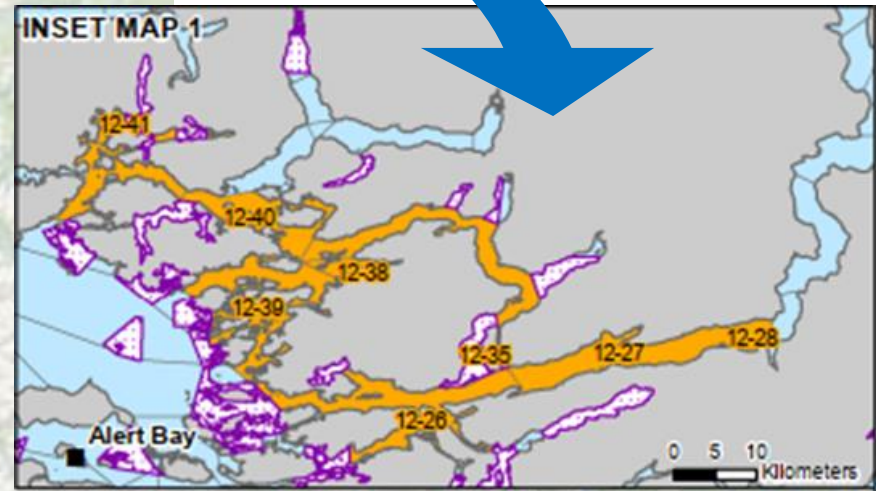
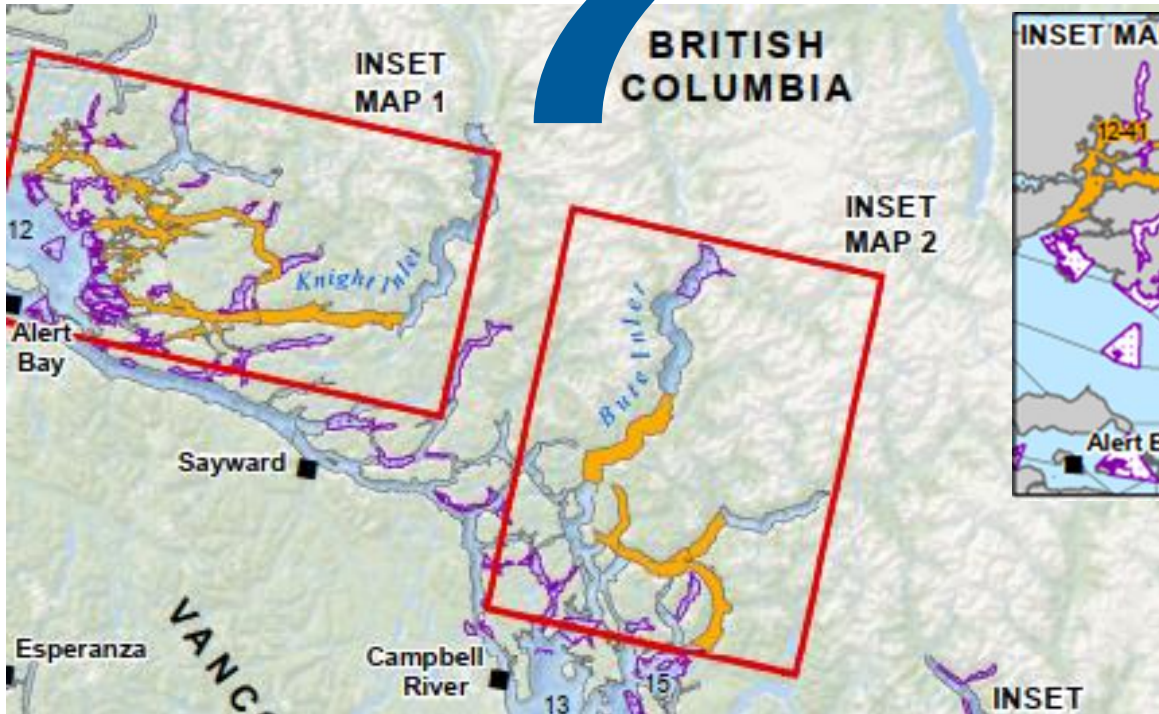
Management Unit (indicator)	2014-2018 Avg. CDN Fishery Mortalities (ERA)	2014-2018 Avg. CDN Fishery Mortalities (RR+GSI)*	2019 CDN Fishery Mortalities (ERA)	2019 CDN Fishery Mortality Index (RR + GSI)*	2020 CDN Fishery Mortalities (ERA)	2020 CDN Fishery Mortality Index (RR + GSI)*	2021 CDN Fishery Mortalities (ERA)	2021 CDN Fishery Mortality Index (RR + GSI)*	2019-2021 Avg. CDN Fishery Mortalities (ERA)
Spring 4 ₂ (Nicola)	16.6%	24.9%	2.1%	5.1%	27.7%	4.5%	5.1%	3.7%	11.6%
Spring 5 ₂ (No Indicator)	n/a	23.9%	n/a	10.4%	n/a	2.6%	n/a	4.6%	n/a
Summer 5 ₂ (No Indicator)	n/a	24.4%	n/a	18.2%	n/a	12.7%	n/a	15.4%	n/a
Summer 4 ₁ (Lower Shuswap)	27.6%	42.5%	13.6%	32.3%	20.3%	25.4%	17.6%	24.1%	17.2%
Fall 4 ₁ (Harrison)	22.5%	23.7%	22.0%	18.3%	18.9%	19.5%	15.2%	23.4%	18.7%

FMI results for 2022 will be available in the Fall of 2023



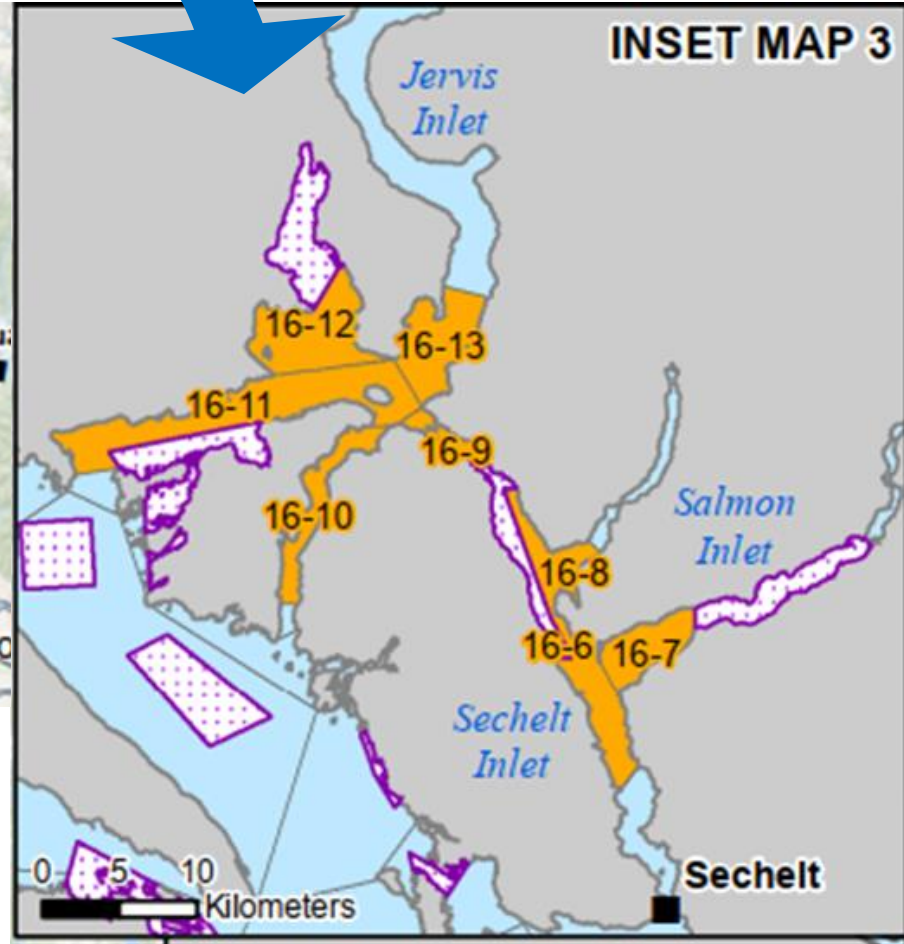
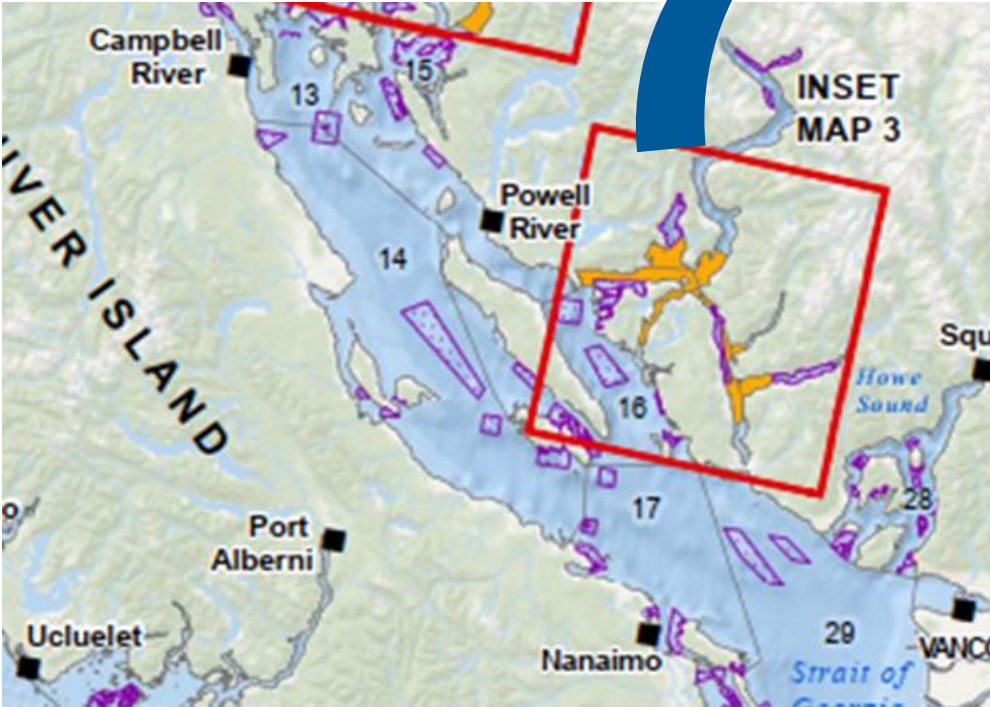
2023 Recreational Chinook Management Measures





Areas 12, 13 & 15 (portions of Broughton Archipelago/Knight Inlet; portions of Bute Inlet & Ramsay Arm; portions of Toba Inlet & Homfray Channel):

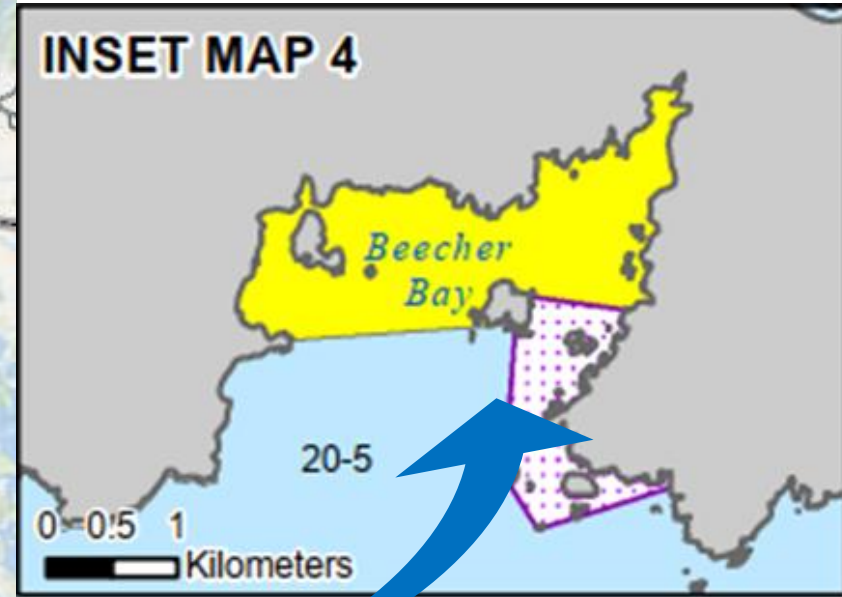
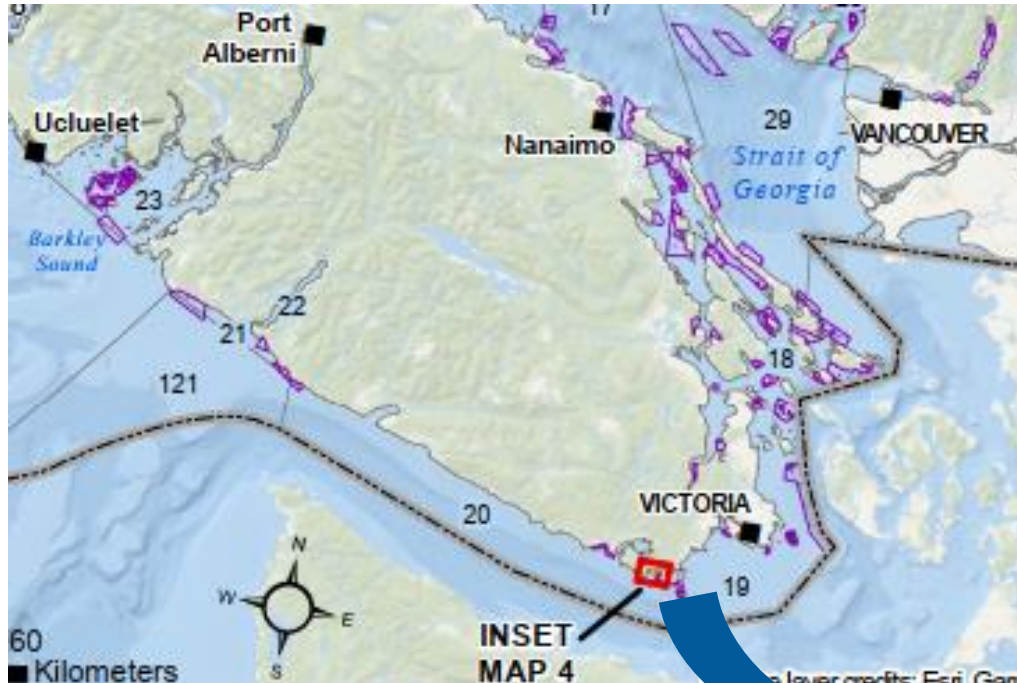
MSF: One (1) Chinook per day marked or unmarked, with maximum 80 cm size limit on unmarked Chinook.



Area 16 (portions of Sechelt & Jervis Inlets):

MSF: One (1) Chinook per day, hatchery-marked only.

Unmarked retention prohibited.



Beecher Bay (portions of Subarea 20-5):

MSF: One (1) Chinook per day, hatchery-marked only.
Unmarked retention prohibited.