



JTWG Update

JANUARY 30, 2024

Co Chairs: Maddie Thomson (DFO) and Kelsey Campbell (FSMC, UFFCA)

- Joint Technical Working Group met January 9th (1st meeting of the year!)
- 20-30 participants online/in-person

Overview

Purpose – provide a high-level overview of material presented, discussed, and outcomes.

1. Terms of Reference Review
2. JTWG and JTC
3. Fraser Sockeye and Pink Post Season Summary
4. 2023 South Coast Chinook Reference Fishery
5. Fraser Chinook Management Review
6. Fishery Mortality Index
7. Forum Renewal: JTWG specific

1. TOR Review

- ▶ Annual review and updated Terms of Reference.
- ▶ Additions:
 - ▶ Reference to Fraser Salmon Collaborative Management Agreement
 - ▶ Acknowledgment of Forum Renewal process
 - ▶ Clarification between FSMC Joint Technical Committee and JTWG.
- ▶ Continuation of an open and collaborative setting to discuss technical information related to Fraser salmon management.
- ▶ Flexibility without a defined workplan but strive to relate to and support Forum Agendas and discussions.

2. JTWG & JTC

presented by:

Brittany Jenewein and Mike Staley

Roles and Responsibilities

FSMB Joint Technical Committee

- Represents a part of the governance structure laid out in the FSCMA and reports up to the FSMB.
- Participants include the five members identified by each Party to the Agreement, with recognition that other experts may need to be brought into specific discussions as and when needed.
- Their work is determined by their annual work plan and is in support of the FSMB's work.

➤ Strives to reach consensus and provide formal recommendations to FSMB

Fraser and Approach Salmon Forum – Technical Session

- Supports the Forum engagement process by providing an opportunity for more in-depth technical review of the information.
- Participation is open to technical representatives from Indigenous organizations and communities that have interests in Fraser Salmon.
- Two co-chairs are identified by DFO and the FSMC to support the process, with administrative support by the FSMC.

➤ Information exchange
➤ No requirements to reach consensus recommendations and advice.

JTC & JTWG

- ▶ Still not clear how these two technical bodies will/should interact and support each other or not.
- ▶ Mention of some overlap and redundancy in first agenda.
- ▶ Anticipated to continue to evolve as a result of the Forum Renewal Process.

3. Fraser Sockeye and Pinks

presented by Colin Schwindt, DFO

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2023 Fishery Planning Considerations

- Forecasts for the 2023 run were lower than average
 - Variable and poor productivity and survival
 - 2023 was the first return of fish affected by Big Bar
 - Concern of not achieving escapement targets
 - Precautionary escapement plan (low TAM and LAER)
 - No Sockeye TAC at p50
 - Early Sockeye window closure was extended to 5 weeks

 - Pink forecast highly uncertain
 - Impacts of 2021 floods unknown
 - Neutral to poor ocean condition
 - Some harvest opportunities anticipated, but level unknown
 - Constrained by Late Sockeye and IFS closure windows



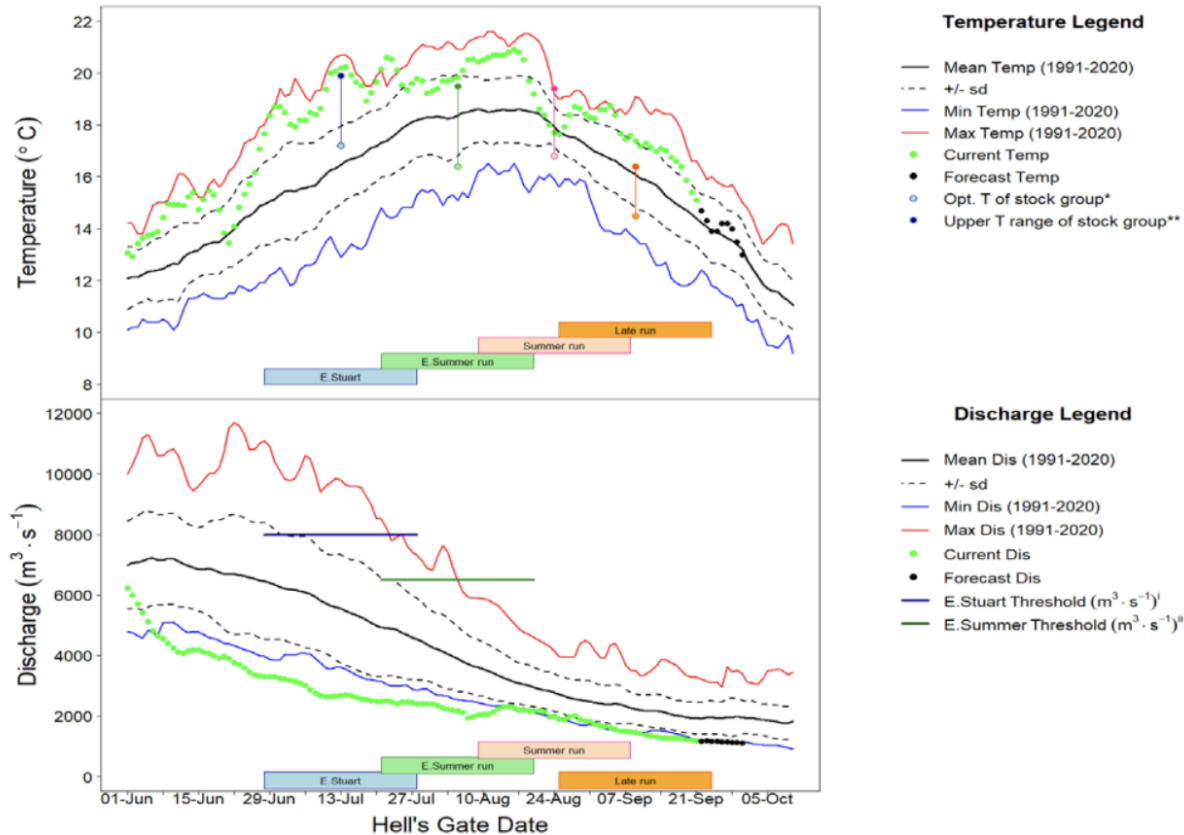
Fraser Sockeye and Pinks presented by Colin Schwindt, DFO

Pre-season forecast was for low return of ~ 1.56M

2023 Fraser Sockeye & Pink Forecast Summary

Run timing group	Probability that return will be at/or below specified run size				
	10%	25%	50%	75%	90%
Early Stuart	6,000	11,000	23,000	46,000	86,000
Early Summer	47,000	81,000	186,000	354,000	665,000
Summer	349,000	614,000	1,167,000	2,398,000	4,405,000
Late	50,000	93,000	188,000	387,000	796,000
TOTAL SOCKEYE	453,000	800,000	1,564,000	3,185,000	5,952,000
TOTAL PINK	3,247,000	4,389,000	6,135,000	8,575,000	11,591,000

► Environmental conditions were unprecedented



Run timing bars represent a 31 day spread of the run centered around the Hell's Gate date. Hell's gate timing is 5 days from Mission for Early Stuart and Late run; and 4 days from Mission for Early Summer and Summer run. ¹pMA is the proportional increase to spawning escapement targets to help ensure targets are achieved. ²%DBE is %difference between estimates of potential spawning escapement and spawning escapement. *This is the optimum temp for aerobic swimming - T_{opt} (Eliason et al. (2011). Science 332: 109-112)**This is the upper range of the optimum temp for aerobic swimming - T_{pejus} . ³Discharge threshold of 8000cms for Early Stuart from Macdonald (2000). Can. Tech. Rep. Fish. Aquat. Sci. 2315: 120p. ⁴Discharge threshold of 6500cms for Early Summer run from Macdonald et al. (2010). Trans. Am. Fish. Soc. 139: 768-782. 19 days of T & Q data are required to calculate a pMA - 15 days before the Hell's Gate Date and 3 days after. MA estimates can be calculated 4 days after the Area 20 date.

- Water level and temperatures were well above
- Water levels were well below the min discharge observed.
- Increased migration stress and potential for en route loss.

Preliminary End-Season: Run-size Summary

Management Group	Pre-season Run Size	End-of-season Run Size	Difference
Early Stuart	23,000	41,000	78%
Early Summer Run	186,000	340,000	83%
Summer Run	1,167,000	936,000	-20%
Late Run	188,000	353,000	88%
Total Sockeye	1,564,000	1,670,000	+7%
Total Pink Salmon	6,135,000	10,521,000	+71%

- **Total Sockeye Run Size:** 192% above the brood year (600k) and 60% below the historical cycle-line (4.1M)
- **Total Pink run size:** 30% above the brood year (8M) and 9% below the historical average (11.5)

Stock Group	Pre-season p50 Run Size	End-of-season Run Size ¹	Difference
Early Stuart	23,000	41,000	78%
Early Summer Run	186,000	340,000	83%
Chilliwack	2,000	32,000	1500%
Pitt/Alouette/Coquitlam	31,000	40,000	29%
Nadina/Bowron/Gates/ Nahatlatch/Taseko	92,000	215,000	134%
E. Thompson/North			
Barriere	61,000	53,000	-13%
Summer Run	1,167,000	936,000	-20%
Harrison/Widgeon	51,000	51,000	0%
Late Stuart/Stellako	196,000	160,000	-18%
Chilko	591,000	573,000	-3%
Quesnel	319,000	123,000	-61%
Raft/North Thompson	10,000	29,000	190%
Late Run	188,000	353,000	88%
Birkenhead group	92,000	199,000	116%
L.Shuswap/Portage	32,000	59,000	84%
Weaver/Cultus	64,000	95,000	48%
Total Fraser Sockeye	1,564,000	1,670,000	7%
Total Fraser Pinks	6,135,000	10,521,000	71%

2023 Catch

- ▶ No sockeye Total Allowable Harvest identified through the Fraser Panel Process and DFO Escapement Pln.
- ▶ Stock selective fisheries licensed by DFO for FSC in Chilliwack, Chilko, Nadina, and Late Stuart.
- ▶ DFO unauthorized fisheries – Stock selective, non-selective.
 - ▶ Raised some questions about how these fisheries are characterized and accounted for.
- ▶ Bycatch of sockeye occurred in DFO licensed CH and Pink directed fisheries and US pink fisheries.
- ▶ Exploitation for all sockeye MUs remained below the Low Abundance Exploitation
- ▶ Commercial fisheries and FSC harvest of pinks in CAN and US.

2023 Catch-to-date by fishery

Date: Dec. 12, 2023

Week of: Dec. 10 - Dec. 16, 2023	Sockeye		Pink	
	Total	Fraser	Total	Fraser
Canada	23,432	23,431	621,686	494,330
Commercial	0	0	522,407	442,982
B Purse Seine	0	0	519,227	440,272
H Troll	0	0	3,180	2,710
First Nations	1,272	1,272	9,564	7,802
Food, Social & Ceremonial (FSC)	1,272	1,272	8,389	6,627
Marine	0	0	3,835	2,073
Fraser R.	1,272	1,272	4,554	4,554
Economic Opportunity (EO) & Demonstration (Demo)	0	0	1,175	1,175
Escapement Surplus to Spawning Requirements (ESSR)	3,989	3,989	0	0
Recreational	0	0	89,107	42,938
Charter (Albion & A12 Chum test fishery)	707	707	608	608
Other****	17,464	17,463	0	0
United States	2,371	2,370	570,986	436,482
Commercial	0	0	570,666	436,264
Treaty Tribes (TRB)	0	0	436,839	330,560
All Citizen (AC)	0	0	133,827	105,704
Treaty Tribes Ceremonial & Subsistence (C&S)	2,211	2,211	320	218
All Citizen Recreational	0	0	0	0
Other****	160	159		
Alaska *	na	na	na	na
Panel-approved Test Fisheries	17,198	16,658	23,873	14,273
Panel Waters	11,608	11,315	12,303	8,272
Canada	11,608	11,315	8,389	5,998
U.S.	0	0	3,914	2,275
Non-Panel Waters**	5,590	5,343	11,570	6,000
Total	43,001	42,459	1,216,545	945,084
Catch Seaward of Mission ***	19,500	18,958	1,213,707	942,246
Catch Upstream of Mission	23,501	23,501	2,838	2,838

Spawning Escapement

- ▶ Preliminary spawning escapement is available for Early Stuarts and Early Summer run.
 - ▶ Early Stuart ~9,800 – high en route mortality
 - ▶ Early Summers ~187,000

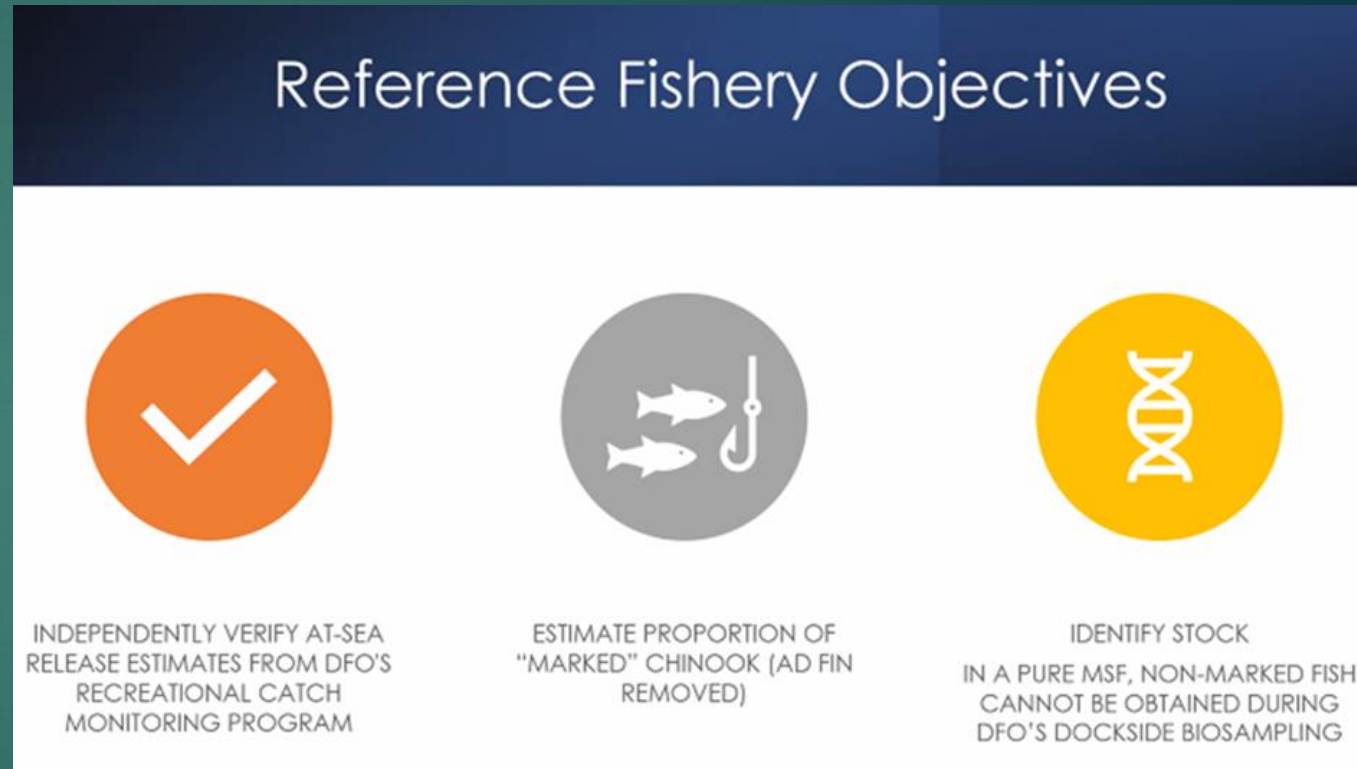
JTWG Feedback and next steps for Sockeye

- ▶ Utility of forecast versus comparing to productivity/escapement trends.
- ▶ Reference to COSEWIC and WSP status
- ▶ Still using management framework that was designed for past landscape of abundances.
- ▶ Be clear about the domestic fisheries
 - ▶ Authorized by who?
 - ▶ Accounting for different types and locations of fisheries.
- ▶ Next steps:
 - ▶ Opportunity for "sockeye management 101"
 - ▶ Revisit FRSSI and development/history of Escapement Options.
 - ▶ 2024 Forecast and Escapement Options.

4. Chinook Reference Fishery

Presented by Erin Rechisky, DFO

- ▶ Collaboration between DFO and the Sports Fishing Institute
- ▶ Intended to mimic the sports fishery to gather “on the water” information in areas/times when recreational Mark Selective Fisheries (MSF) are occurring.
- ▶ Gather information that may not be collected by existing Creel
- ▶ Information on releases in these fisheries
 - unclipped/ wild Chinook
 - undersized/sub-legal Chinook
- ▶ Released catch



Reference Fishery Locations

- ▶ Reference Fishery occurred in four areas with MSFs:
 - ▶ Area 16: Sechelt Inlet
 - ▶ Area 19: Victoria/Saanich Inlet
 - ▶ Areas 17-19: Saanich Inlet/Gulf Islands
 - ▶ Area 20-5 : Beecher Bay
- ▶ Did not occur in other areas with MSFs:
 - ▶ Area 12: Johnstone Strait/Broughton Archipelago
 - ▶ Area 13: Bute Inlet/ Ramsay Arm
 - ▶ Area 15: Toba Inlet/ Homfray Channel

Reference Fishery Prelim Results

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- ▶ 1025 Chinook caught and sampled on 128 boat trips between May 3 – July 31
- ▶ Genetic stock ID results are pending
- ▶ Mark rate results:
 - ▶ “high” (27% unclipped) Victoria fishery,
 - ▶ “intermediate” (~50% unclipped) in the Saanich & Gulf Islands fishery
 - ▶ “low” (80% unclipped) in the Sechelt/Jervis Inlet area
- ▶ High proportion of sub-legal (<45 cm or <62 cm) fish were caught in Saanich, Gulf Islands & Beecher Bay

JTWG Feedback and next steps

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- ▶ Explore legacy issues with genetic stock ID methods (small sample sizes).
- ▶ Discuss mark-rate thresholds and understand better how the results of the reference fishery are informing fishery decisions.
- ▶ Understand the assumptions associated with MSF impacts on Fraser CH.
- ▶ Update presentation at next meeting on stock ID results.
- ▶ Understand better how statistically defensible the results of the reference fishery may or may not be.

5. Fraser Chinook Management Overview

Presented by Maddie Thomson, DFO

- ▶ A look at key management changes for Fraser Chinook.
- ▶ Zoned management to conservation objectives of low mortality.
- ▶ Escapement series with preliminary 2023 results.
- ▶ Good reference material.

6. Chinook Fishery Mortality Index 2022

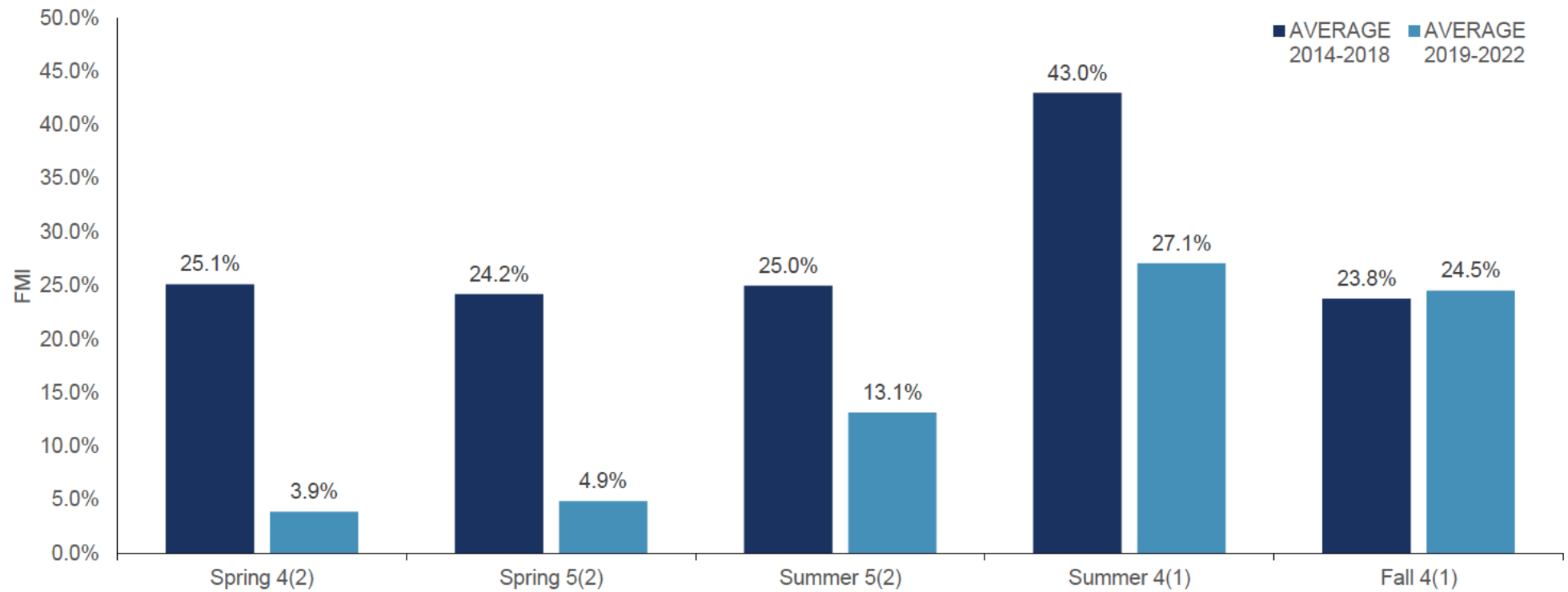
Presented by Maddie Thomson, DFO

- ▶ Will be presented to forum
- ▶ CH FMI has been reviewed by the JTC.
- ▶ Uncertainties include:
 - ▶ Some fishery catches not included – examples: mid water trawl, USA, some marine FSC, Central Coast)
 - ▶ Some in-filling for low sample sizes
 - ▶ COVID 19 disruption to assessment programs like Creel surveying.
 - ▶ Big Bar Landslide impacts – estimated using radio-tag passage.
 - ▶ 2019 and 2020 mortality of Spring and Summer 52
 - ▶ Chilliwack hatchery component in marine fisheries

FMI Summary

- ▶ Spring 4₂ and Spring 5₂ fishery mortalities below 5% for 2020-2022.
- ▶ Some reduction in Summer 5₂ mortalities
 - ▶ Higher mortality than Spring CH due to overlap in migration with Summer 4₁ CH targeted fishery opportunities in Aug-Sept.
- ▶ Escapement of Spring 5₂ and Spring 4₂ was below the long-term average.
- ▶ Escapement of Summer 5₂ was above the long term average
- ▶ Shift in proportion of harvest of Summer 4₁ to in-river FSC fisheries from the base period.
 - ▶ Lower Shu has achieved escapement objective from 2019-2022.
- ▶ Fall 4₁ mortality reductions occurred in 2019 and 2020, while Harrison still failed to meet its escapement goal.
 - ▶ In 2021, mortality increased, Harrison escapement goal not met
 - ▶ In 2022, Harrison escapement goal met. And mortality was decreased.

KEY HIGHLIGHTS – BASE PERIOD VS RECENT AVERAGE

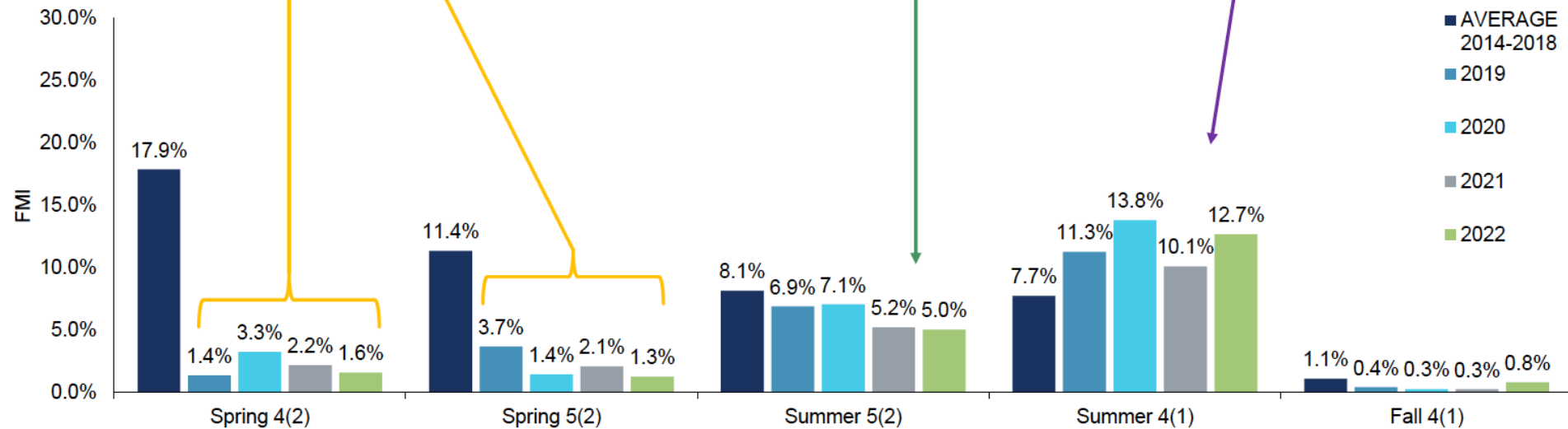


KEY HIGHLIGHTS – FIRST NATIONS FSC FISHERIES

Impacts to Spring 4₂ and Spring 5₂ Chinook decreased substantially in 2019 and remained low in 2020-2022

Impacts to Summer 5₂ Chinook decreased slightly in 2019 and 2020, then decreased further in 2021 and 2022

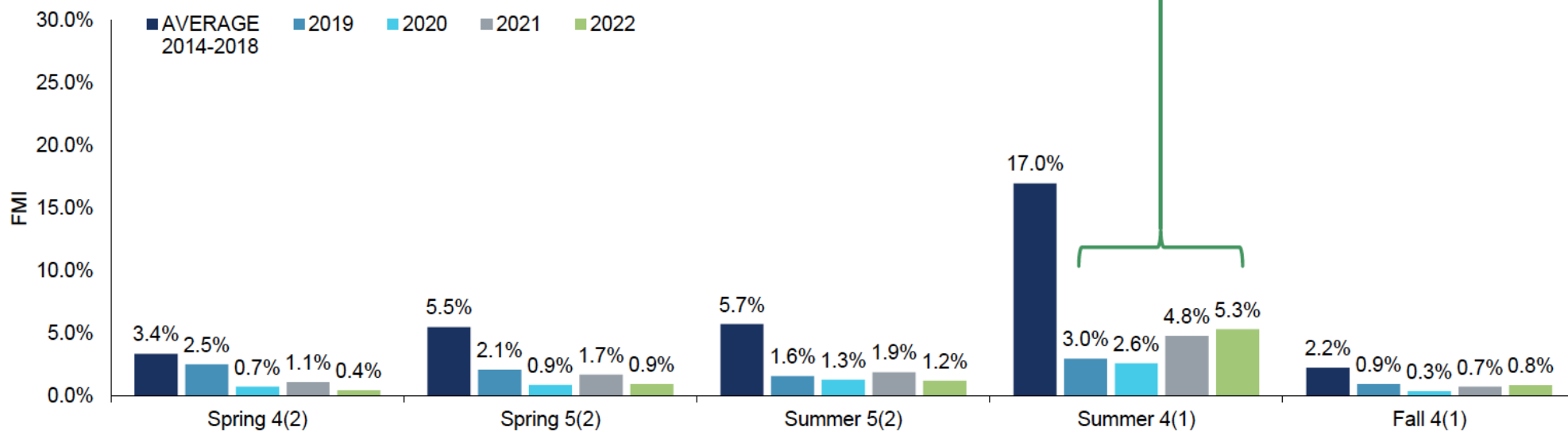
Impacts to Summer 4₁ Chinook increased in 2019 and again in 2020. 2021 impacts were similar to 2019 and increased again in 2022.



KEY HIGHLIGHTS – COMMERCIAL/EO/TEST FISHERIES

Average impacts in 2019-2022 to all Fraser Chinook MUs in commercial/EO fisheries were reduced from the base period; Remaining impact on early-timed MUs is primarily from test fisheries.

Impacts to Summer 4₁ Chinook substantially decreased, particularly in marine fisheries



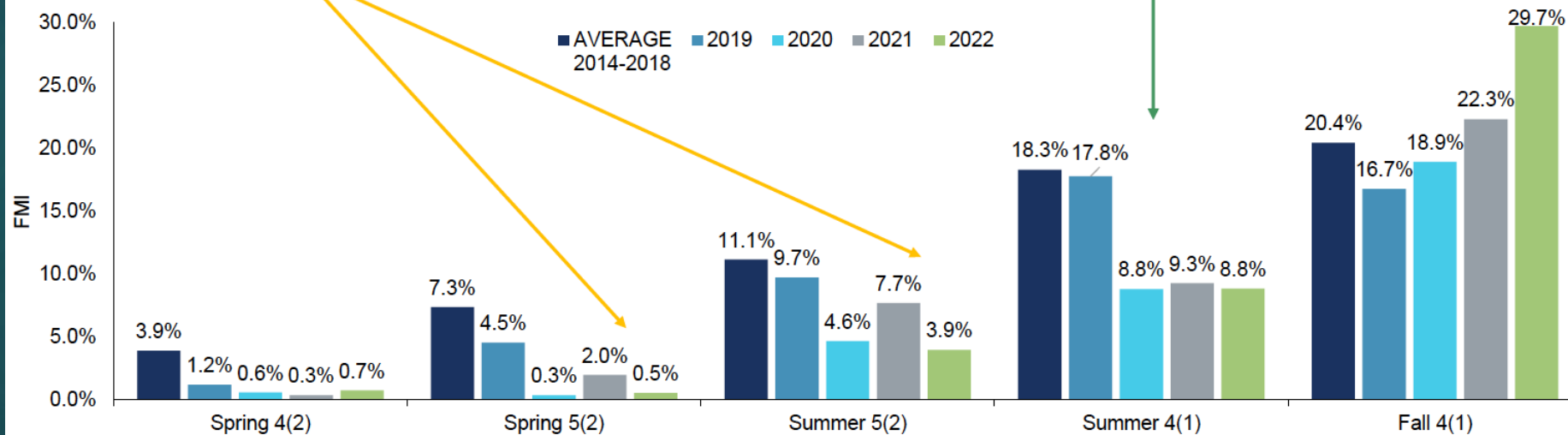
KEY HIGHLIGHTS – RECREATIONAL FISHERIES

Impacts on early-timed Fraser Chinook decreased in 2019-2022. Impacts on Spring and Summer 5₂ Chinook increased slightly in 2021. In 2022, fishery impacts to Spring and Summer 5₂ Chinook were further reduced across all fisheries.

Note: In the Fraser Recreational fishery, mortalities on Summer 5₂ Chinook occurred in tributary systems, directed on hatchery stocks (Chilliwack River and Chehalis River).

Impacts to Summer 4₁ Chinook from marine recreational fisheries decreased substantially in 2020 and have remained relatively consistent since then.

In-river impacts to Summer 4₁ and Fall 4₁ mainly occurred in terminal systems



JTWG Feedback and next steps

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- ▶ There are no confidence bounds with the index.
- ▶ Request to show the FMI across sectors in the same graph.
- ▶ When stock ID is available from groundtrawl fishery bycatch, should include as appendix.
- ▶ Request to share infilling methods associated with the CH run reconstruction.

7. Forum Renewal

- ▶ Overview of the feedback provided through interviews with West Coast Aquatic as it related to the JTWG.
- ▶ Review of the report is on-going.
- ▶ There was no major feedback provided during the JTWG meeting on the Forum Renewal findings presented.

Next meeting planning

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- ▶ Chinook
 - ▶ Groundtrawl CH bycatch presentation
 - ▶ Review of Run Reconstruction 2022, 2023
 - ▶ Update on Reference Fishery stock ID and uncertainties.
- ▶ Sockeye
 - ▶ Sockeye management framework review (potential small group)
 - ▶ FRSSI update and spawning escapement options
 - ▶ Sockeye 2024 Forecast and uncertainties
- ▶ Chum
 - ▶ Still early
 - ▶ Update on genetic stock baseline work?
- ▶ Coho
 - ▶ Update on status criteria
 - ▶ Anticipation of any domestic management changes.
- ▶ Encouragement for First Nations led presentations as well.