

**FSMB JTC Review of the 2019-2022 FMI Results, February 20, 2024**

**NOTE: Please review full FMI memo for detailed information about results, uncertainties, etc.**

**Results**

- 1) Considering the uncertainties in the FMI and GSI data the JTC agrees by consensus that:
  - a) there has been a reduction of FMI on Sp 4<sub>2</sub> and Sp 5<sub>2</sub> Chinook to lower levels than the base period;
  - b) there has been a reduction of Su 5<sub>2</sub> Chinook FMI from the base period but still higher than the planned management objectives (5% or less) from 2019 (objective since 2020 has been to get as many fish to the spawning grounds as possible);
  - c) Su 4<sub>1</sub> FMI has been reduced as a result of reductions in the commercial and recreational fisheries and are supporting more harvest for FSC fisheries compared to the base period;
  - d) Fall 4<sub>1</sub> FMI has not been reduced.
- 2) First Nations FSC fisheries FMIs on Sp 4<sub>2</sub> and Sp 5<sub>2</sub> Chinook have been reduced from the base period by a greater percentage than commercial and recreational fisheries (Table 2 below).
- 3) For early-run Chinook (Sp 4<sub>2</sub>, Sp 5<sub>2</sub>, Su 5<sub>2</sub>) the proportional mortality in the rec fisheries has increased or stayed the same compared to the base period, for Su 5<sub>2</sub> the recent average is effectively the same as FSC.
- 4) During migration timing and in migratory areas for early-run Fraser Chinook, creel results report high released catch of Chinook from recreational fisheries during the review period (2019-2022). Release mortality rates for FMI calculations are applied at 20% but are highly uncertain.

**Uncertainties**

- 1) Early-run Chinook are in a high risk and high uncertainty state, so precautionary management actions should be taken in all fishing areas to account for this.
- 2) Planning and evaluation of the impacts of management actions to tenths of percents is not possible with the tools available.
- 3) Impact of the expanded Mark Selective Fisheries (2023 MSF pilots) are unquantified here. Existing MSFs from 2021 and 2022 were accounted for in the FMI analysis for those years.
- 4) The Chilliwack Su 5<sub>2</sub> hatchery-origin fish influence on the total Su 5<sub>2</sub> FMI remains unresolved. See FMI memo for details.

**Recommendations**

- 1) Maintain management objectives for early-run Chinook of rebuilding depressed stocks and meeting escapement objectives. Management targets of ER/FMI need to be aligned with escapement objectives (long-term survival and sustainability). JTC member involvement (from FSMC) is recommended in the new FSAR process for Fraser Chinook for future discussion and review.
- 2) Continue the support and representative operation of CWT indicator stock programs for all Fraser Chinook MUs, and ensure CWT indicator stock programs are directly representative of their MU. This will provide more information on understanding the impact on all Fraser Chinook.
- 3) Conduct an audit of the current Fraser River Chinook Run Reconstruction model. Significant concerns have been identified surrounding several assumptions of the model, and it's structure not adequately characterizing key uncertainties.
  - a) Identify how various Chinook escapement infilling procedures influence the Run Reconstruction results.
- 4) Develop plan for obtaining sufficient sample sizes of Chinook in GSI baselines to reduce uncertainty.
- 5) Management planning targets must align with the assessment tools available to evaluate the results with statistical defensibility (i.e., currently we're managing FMIs to a scale much finer than the associated uncertainties). Estimates of uncertainty need to be produced for all fishery management evaluation tools.

Table 1. Total FMI by MU Base Period and Review Period

Management Unit	2014-2018 Avg. FMI	2019 FMI	2020 FMI	2021 FMI	2022 FMI	2019-2022 Avg. FMI
Spring 4 <sub>2</sub>	25.1%	5.1%	4.5%	3.6%	2.8%	3.9%
Spring 5 <sub>2</sub>	24.2%	10.3%	2.6%	5.7%	2.7%	4.9%
Summer 5 <sub>2</sub>	25.0%	18.2%	13.0%	14.8%	10.2%	13.1%
Summer 4 <sub>1</sub>	43.0%	32.0%	25.2%	24.1%	26.8%	27.1%
Fall 4 <sub>1</sub>	23.8%	18.1%	19.5%	23.3%	31.4%	24.5%

Table 2. FMI Base period and review period comparison by fishery

Fishery	Spring 4 <sub>2</sub> 2014-2018 Avg. FMI	Spring 4 <sub>2</sub> 2019-2022 Avg. FMI	Δ Spring 4 <sub>2</sub>	Spring 5 <sub>2</sub> 2014-2018 Avg. FMI	Spring 5 <sub>2</sub> 2019-2022 Avg. FMI	Δ Spring 5 <sub>2</sub>	Summer 5 <sub>2</sub> 2014-2018 Avg. FMI	Summer 5 <sub>2</sub> 2019-2022 Avg. FMI	Δ Summer 5 <sub>2</sub>
Recreational	3.9%	0.7%	-3.2%	7.3%	1.6%	-5.7%	11.1%	5.9%	-5.2%
Commercial/EO/Test	3.4%	1.1%	-2.3%	5.5%	1.3%	-4.2%	5.7%	1.4%	-4.3%
First Nations	17.9%	2.1%	-15.8%	11.4%	2.0%	-9.4%	8.1%	5.8%	-2.3%

Fishery	Summer 4 <sub>1</sub> 2014-2018 Avg. FMI	Summer 4 <sub>1</sub> 2019-2022 Avg. FMI	Δ Summer 4 <sub>1</sub>	Fall 4 <sub>1</sub> 2014-2018 Avg. FMI	Fall 4 <sub>1</sub> 2019-2022 Avg. FMI	Δ Fall 4 <sub>1</sub>
Recreational	18.3%	11.4%	-6.9%	20.4%	23.3%	+2.9%
Commercial/EO/Test	17.0%	3.8%	-13.2%	2.2%	0.8%	-1.4%
First Nations	7.7%	11.8%	+4.1%	1.1%	0.5%	-0.6%

Table 3. Proportion of FMI by fishery

Fishery	Spring 4 <sub>2</sub> 2014-2018 Avg. FMI	Spring 4 <sub>2</sub> 2019-2022 Avg. FMI	Spring 5 <sub>2</sub> 2014-2018 Avg. FMI	Spring 5 <sub>2</sub> 2019-2022 Avg. FMI	Summer 5 <sub>2</sub> 2014-2018 Avg. FMI	Summer 5 <sub>2</sub> 2019-2022 Avg. FMI
Recreational	15.5%	17.8%	30.4%	32.7%	44.6%	44.7%
Commercial/EO/Test	13.3%	27.1%	22.7%	26.9%	22.8%	10.9%
First Nations	71.2%	55.0%	46.9%	40.4%	32.6%	44.4%

Fishery	Summer 4 <sub>1</sub> 2014-2018 Avg. FMI	Summer 4 <sub>1</sub> 2019-2022 Avg. FMI	Fall 4 <sub>1</sub> 2014-2018 Avg. FMI	Fall 4 <sub>1</sub> 2019-2022 Avg. FMI
Recreational	42.6%	42.2%	86.0%	94.9%
Commercial/EO/Test	39.5%	14.2%	9.4%	3.1%
First Nations	18.0%	43.7%	4.6%	2.1%