

Fraser and Approach Salmon Management Forum Technical Session Update

April 21, 2021

**Fraser Salmon
Management
Council**

Forum Technical Session

- Occurs one day prior to the FSMC Forum
- The goal of the forum technical session is for First Nation and DFO technical staff to share technical information and get clarification on same as needed
- The agenda for the technical session is informed by two key items:
 - Requests from participants
 - The agenda for the FSMC Forum

Technical Session Monday April 19

1. Limit Reference Points – Carrie and Kendra Holt (DFO)
2. 2020 Fraser Chinook Run Reconstruction and CWT Mortality Tables – Chuck Parken (DFO)
3. Methods used to project Southern BC recreational fishery impacts on Fraser River Chinook – Wilf Luedke (DFO)
4. Lower Fraser Coho Assessment Update – Aidan Fisher (LFFA) and Michael Arbeider (DFO)

Limit Reference Points – Carrie and Kendra Holt (DFO)

- Limit Reference Points (LRPs) – a reference point introduced under the Stock Provisions under the Fisheries Act (6.1 (2))
- Under the Fisheries Act, the DFO minister must implement measures to maintain the fish stock above the LRP
- Stock Management Unit (SMU) – a group of one or more WSP Conservation Units (CUs) that are managed together with the objective of achieving a joint status
- One SMU = 1 LRP
- Batch 1 Pacific Salmon = Okanagan Chinook, Interior Fraser Coho, WCVI Chinook

Limit Reference Points

- Carrie and Kendra Holt are part of a Technical Working Group that seek to provide a scientific basis for individual applications of the methodology throughout the Pacific Region in consultation with Indigenous groups and stakeholders
- Presented Interior Fraser Coho (data rich) and WCVI Chinook (data limited) as case studies in their work in developing a 'tool kit' to develop LRPs moving forwards
 - Note that at this time they are not developing LRPs, but rather exploring different methods that can be used to define LRPs
 - Detailed information is found in publication SAR 2021/006

Limit Reference Points

- Discussed the difference between ‘continuous’ vs. ‘trigger’ LRPs
 - Continuous = LRP is defined along a continuous scale of abundance
 - Trigger (on/off) = one (or more) component CU is below its lower biological benchmark
 - Compared and contrasted the two approaches and the underlying analyses; reviewed pros/cons and what considerations would go into selection
- Discussed providing advice on ‘acceptable probabilities’
 - Can also consider this as ‘acceptable uncertainty’
 - Use of IPCC (Intergovernmental Panel on Climate Change) definitions
 - Emphasized that the scientific advice would propose a range of probabilities; the selection of ‘acceptable probabilities’ would happen later

Limit Reference Points – Key Messages

- It is practical to equate lower **biological benchmarks** with LRPs at the CU-level
- Goal to develop a **Tool kit** of available approaches for identifying benchmarks at CU level, and aggregating to MU level
- Candidate benchmarks and LRPs have a **range of data requirements**
- SMU-level LRPs need to consider **status of component CUs**

There will be a CSAS review of the methods discussed at the JTWG in late 2021

Fraser Chinook Run Reconstruction – Chuck Parken (DFO)

- Two different versions of the Run Reconstruction were provided to technical staff
 - Varied in how they treated Big Bar mortality in 2019
- Chuck Parken provided a brief overview of the Fraser Chinook Run Reconstruction for 2020;
 - How does it differ from previous years?
 - How is Big Bar accounted for in the data?
 - Observations unique to 2020 (ex. Nicola CWT recoveries above the Thompson confluence)
- Discussion of fisheries mortalities in 2020

Fraser Chinook Run Reconstruction

2020 Fraser Chinook Run Reconstruction Summary

Group	Run Size	Escapement	Harvest Rate		
			FSC	Recreational	Commercial (Albion)
Spring 4 ₂	9,138	8,763	3.32%	0.00%	0.79%
Spring 5 ₂	21,035	20,509	1.54%	0.00%	0.96%
Summer 5 ₂	24,481	21,780	7.32%	2.42%	1.29%
Summer 4 ₁	205,079	169,160	14.60%	1.76%	1.15%
Fall	89,435	83,420	0.29%	6.12%	0.33%
Total	349,164	303,632	9.34%	2.77%	0.93%

Run Size is return to the mouth of the river, doesn't include marine exploitation

All JTWG attendees have a detailed Fraser Chinook Run Reconstruction

Fraser Chinook Coded Wire Tag (CWT) Mortality Table – Chuck Parken (DFO)

- Brief overview of unique occurrences in 2020
 - Substantial reduction in ocean fishery impacts in BC, WA, and OR
 - Notable reduction in WA/OR troll fisheries in the spring
 - Some reduction in AK but not as marked
 - Possible redistribution of fisheries impacts in BC as people stayed closer to home due to covid
 - High water levels affecting migration behaviour of Chinook (Nicola in particular)
- Chuck suggests that for now these tables be treated as preliminary, as they will be updated as the year goes on

Fraser Chinook CWT Mortality Table

2020 CWT Mortality Table Summary

Fraser Chinook Indicator Stocks	AABM Fisheries		ISBM Fisheries					
	SEAK	WCVI	CDN Ocean Sport	Fraser			CDN Total Mortality	
				Recreational	Commercial/Net	FSC	Marine	All
Nicola (Spring 4₂)	0.00%	0.00%	0.00%	0.00%	0.70%	22.40%	0.00%	23.10%
Lower Shuswap (Summer 4₁)	4.90%	1.10%	3.50%	6.00%	2.80%	2.50%	5.10%	13.80%
Harrison (Fall 4₁)	0.40%	0.90%	10.00%	0.00%	0.80%	2.60%	11.50%	14.90%

All JTWG attendees have a detailed CWT mortality table for all of the above stocks

Methods used to project Southern BC recreational fishery impacts on Fraser River Chinook – Wilf Luedke (DFO)

- Reviewed a spreadsheet model used to plan/predict marine recreational fishery impacts on Fraser-bound Chinook
- This same model was presented (in more detail) to the JTC the week before
- Relies on a 'traditional' catch equation ($C=qEN$), effort scalars, size limit scalars, the Fraser run reconstruction, fishery sampling in marine area (CWT, PBT, DNA), and catch and effort from CREST database
- The spreadsheet is used to predict changes in recreational ER based on changes to fishing regulations (time/area closures, size limits, MSF, etc.)

Lower Fraser Coho Assessment Update – Aidan Fisher (LFFA) and Michael Arbeider (DFO)

- Second year of implementation for Lower Fraser Coho Escapement Project, first year for Chilliwack and Assessment Fishery.
- 6 field days for Assessment fishery, 180 coho total:
 - 54 clipped fish.
 - 136 unclipped fish.
 - 5 CWTs recovered: 3 Nicomen, 2 Coldwater.
- Genetics finalized, data analysis under review.
- 28 Chinook, 80 Chum, 3 Sockeye encountered as bycatch.

Lower Fraser Coho Assessment Update – Aidan Fisher (LFFA) and Michael Arbeider (DFO)

- 10,000 PIT tags applied for Brood Year 2019, 20,000 PIT tags applied for Brood Year 2020.
- Detection Efficiency study:
 - 214 double tagged coho with Radiotelemetry tags and PIT tags, to estimate detection efficiency of PIT array.
 - Preliminary results show detection efficiency is low, team will be working to increase detection efficiency of PIT array sites.
- Lillooet Coho Escapement hydroacoustic program data analysis is under review.
- Nicomen Slough head recovery and creel program implemented for second year in 2020.

Next Steps

- This was the last planned JTWG meeting (as this is the last forum currently planned for 2021)