2020 Fraser River Stock Assessment and Fishery Summary

Chinook,
Coho,
and Chum

Photos by: Shane Kalyn

Outline

Background & Stock Assessment

- Chinook
- Coho
- Chum

2020 Fraser River Fisheries

- Recreational
- Commercial
- First Nations

Questions

Photo by: Shane Kalyn

Background and Stock Assessment

Photos by: Shane Kalyn

Fraser River Chinook - Background

- Spawning occurs throughout the Fraser watershed
- Currently managed as five Management Units (MUs):

Spring 4_2	Spring 5_2
Summer 5_2	Summer 4_1
Fall 4_1	

Please refer to handouts for detailed information

2020 Fraser Chinook Stock Assessment

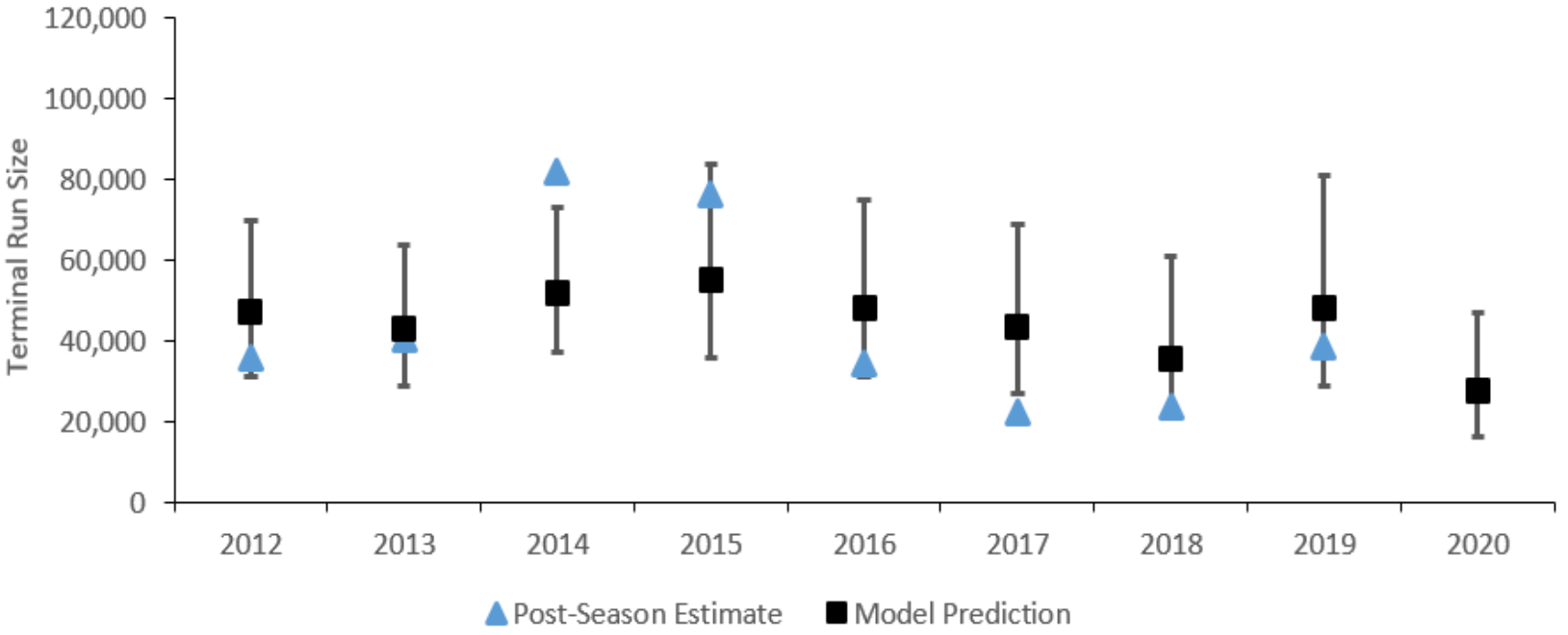
Photo by: Shane Kalyn

In-season Assessment:

- Objective (at-risk Chinook): allow as many fish to pass through to the spawning grounds as possible
- Expected to reduce CDN fishery mortalities to very low levels approaching 5%
- Management measures superseded the previous zoned approach for Sp/Sum 5_2 Chinook; no more ‘zone’ designation
- In-season run size estimate for Sp/Sum 5_2 Chinook did not affect management

Spring 5_2 and Summer 5_2 Chinook Run Size Model Outputs for 2020

Prediction using standard gill net Albion data:
median = 27,680 (range 16,000 – 47,000)



See FN0620 for more details.
The post-season estimate for 2020 will be available in spring of 2021.

2020 Fraser Chinook Stock Assessment

Post-season Assessment:

- Spawner abundance is estimated using a number of methods:
  - Mark-recapture studies – Nicola, Harrison, Lower Shuswap, Chilko
  - Electronic counters – Bonaparte and Deadman
  - Fence counts at Salmon River (Salmon Arm)
  - Remaining assessments are through visual surveys (aerial, foot or float)
- Enumeration of 2020 Chinook escapement is still ongoing; some preliminary estimates available
- The Big Bar landslide will complicate 2020 assessment

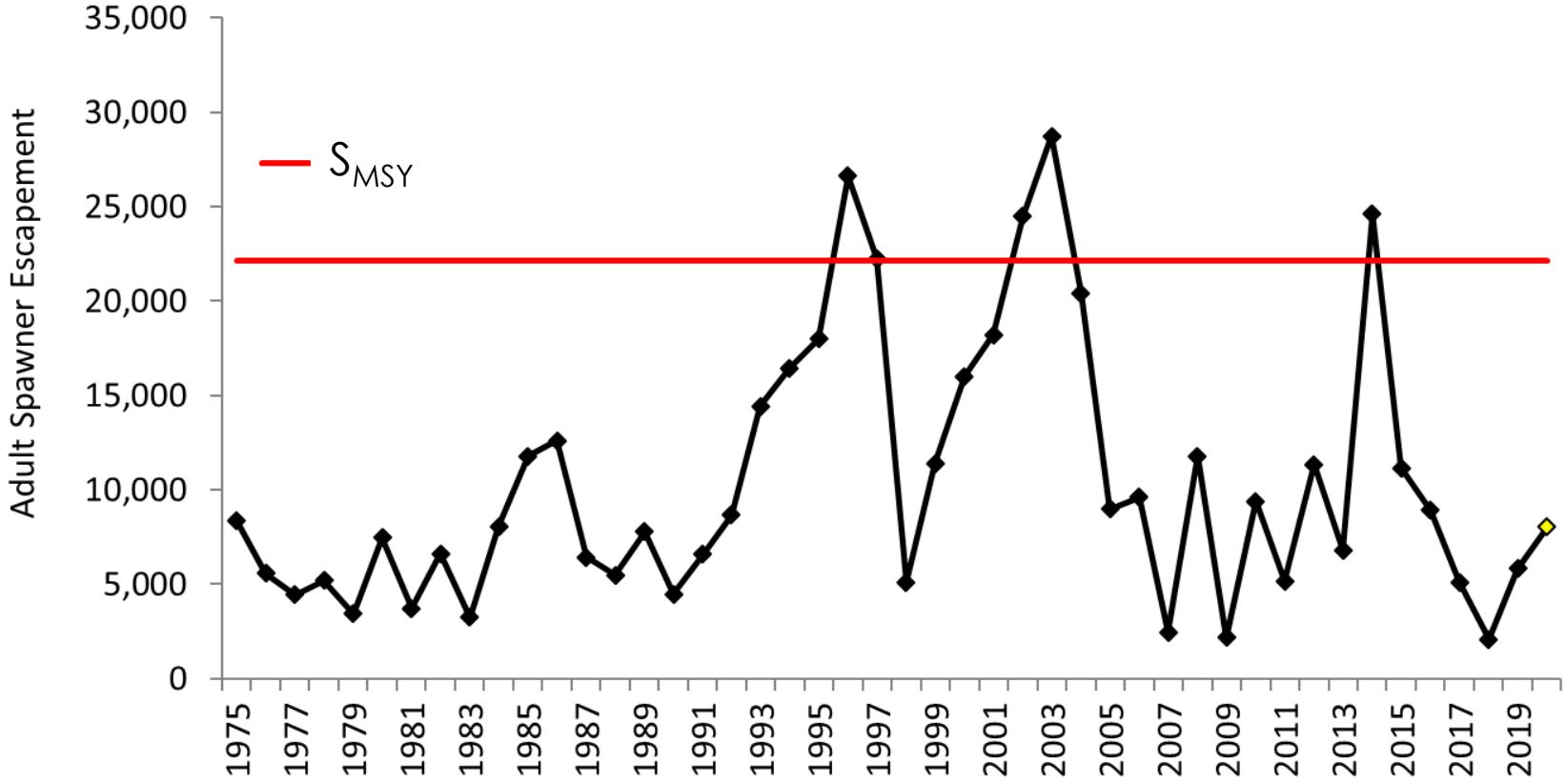
2020 Fraser Chinook Stock Assessment

Coming up:

- Time series of escapement for each Chinook MU
- Comparison against S_{MSY} or escapement goal
- S_{MSY} = the number of spawners needed to maintain Maximum Sustainable Yield (MSY)
- MSY = highest possible annual catch that can be sustained over time
- Summary slide for 2020 ***preliminary*** escapements

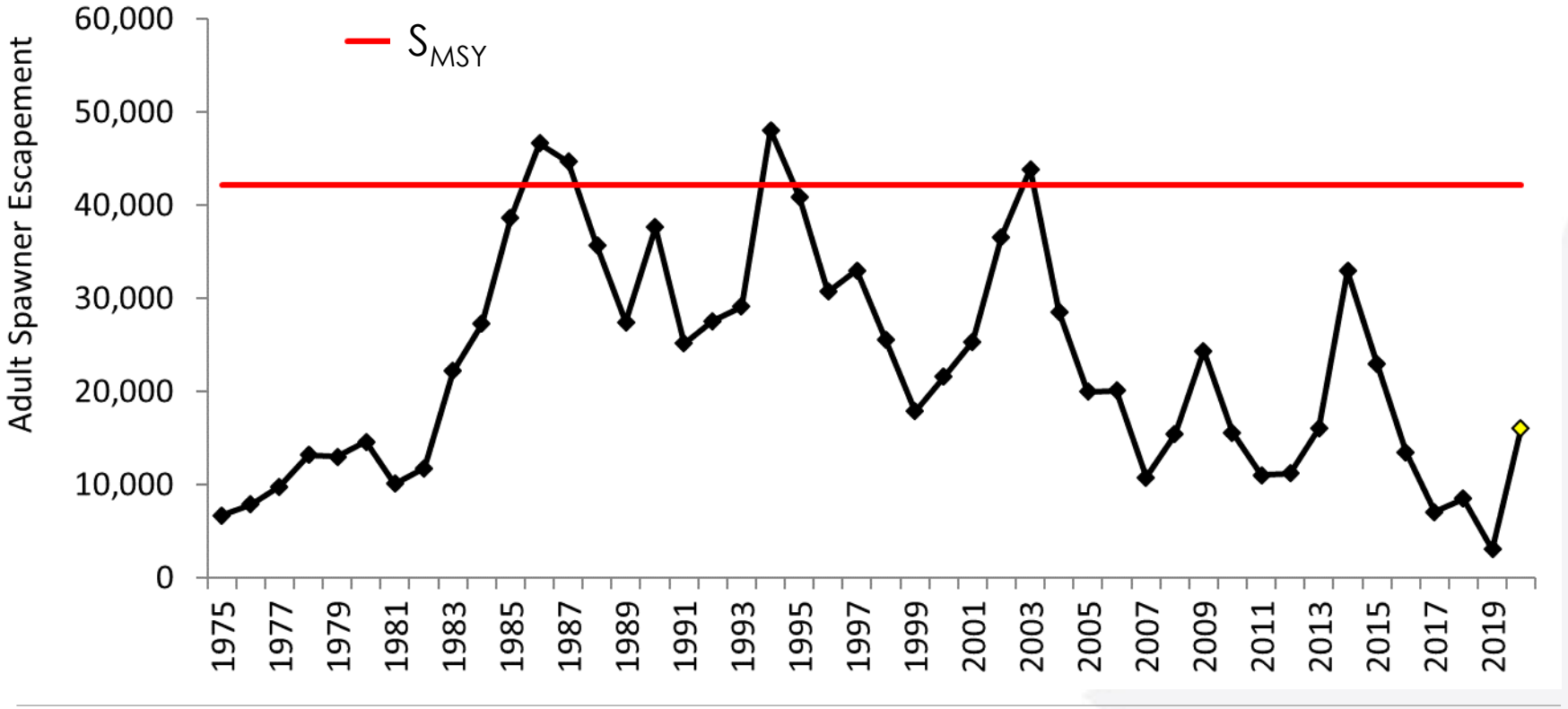
Escapement - Fraser Spring 4_2 Chinook

- Brood year escapement (2016) was below the recent average
- The ***preliminary*** estimate for 2020 is ~8,000



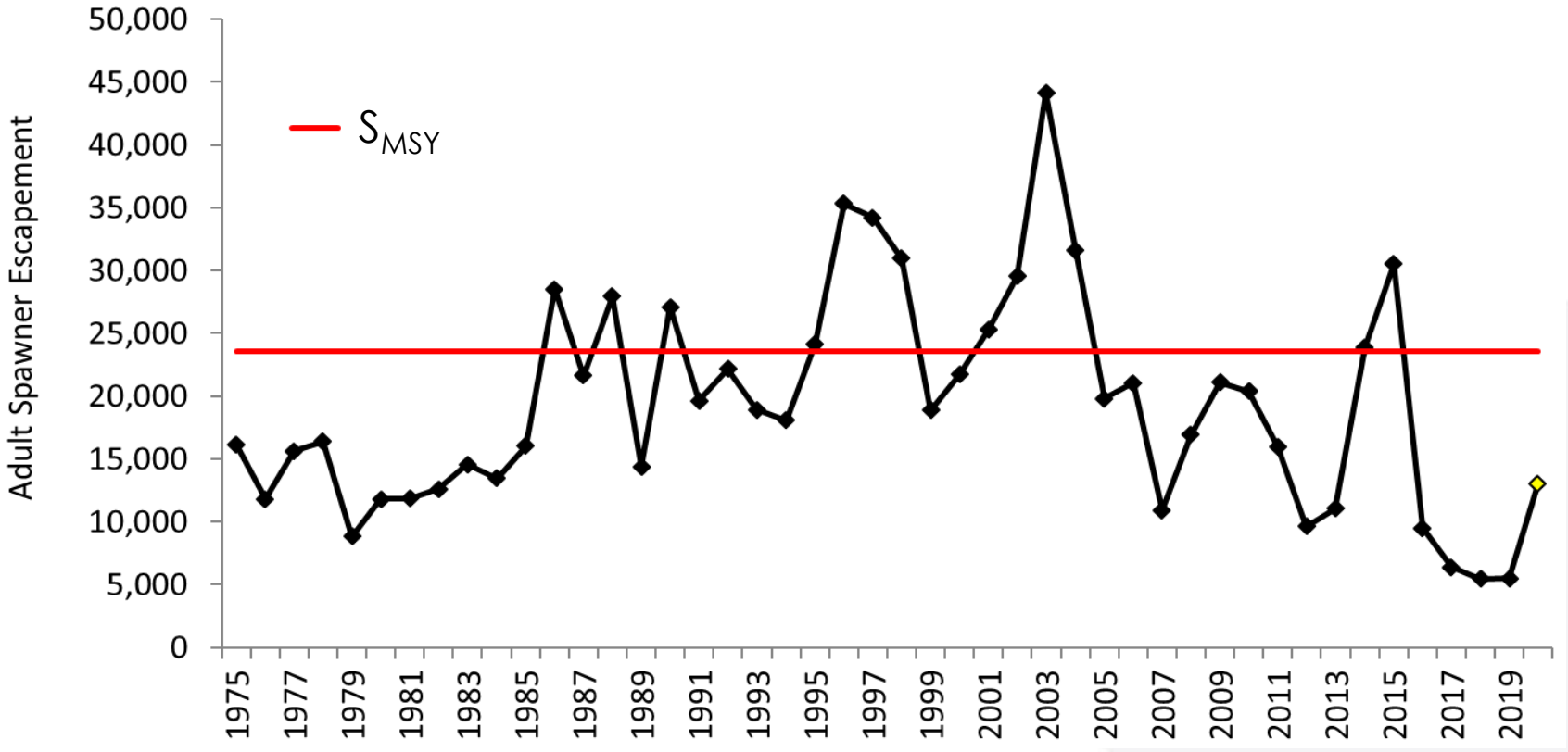
Escapement - Fraser Spring 5_2 Chinook

- Brood year escapement (2015) was near the recent average
- The ***preliminary*** estimate for 2020 is ~16,000



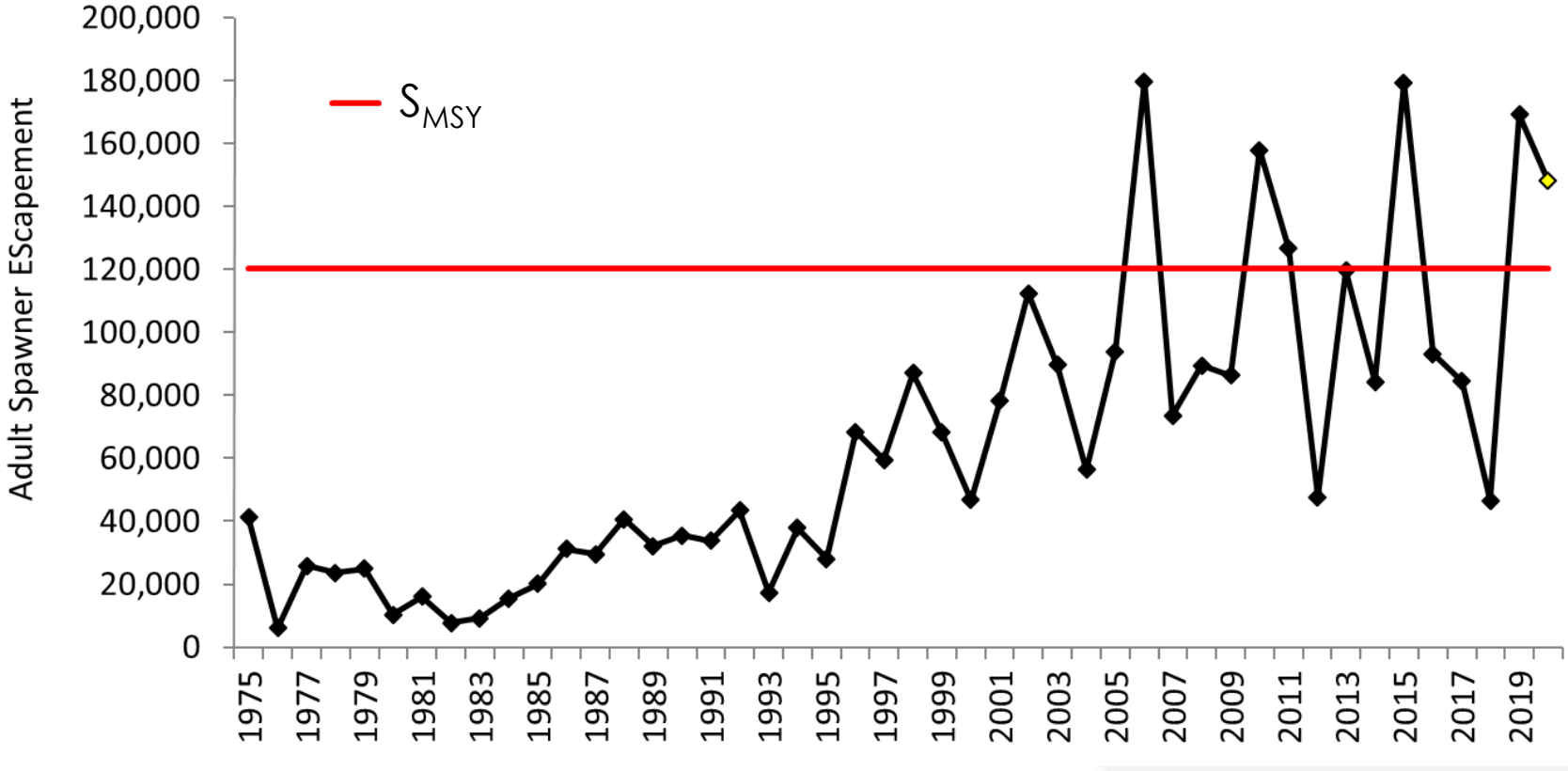
Escapement - Fraser Summer 5_2 Chinook

- 2015 brood year above average; driven by strong Nechako return
- The ***preliminary*** estimate for 2020 is ~13,000



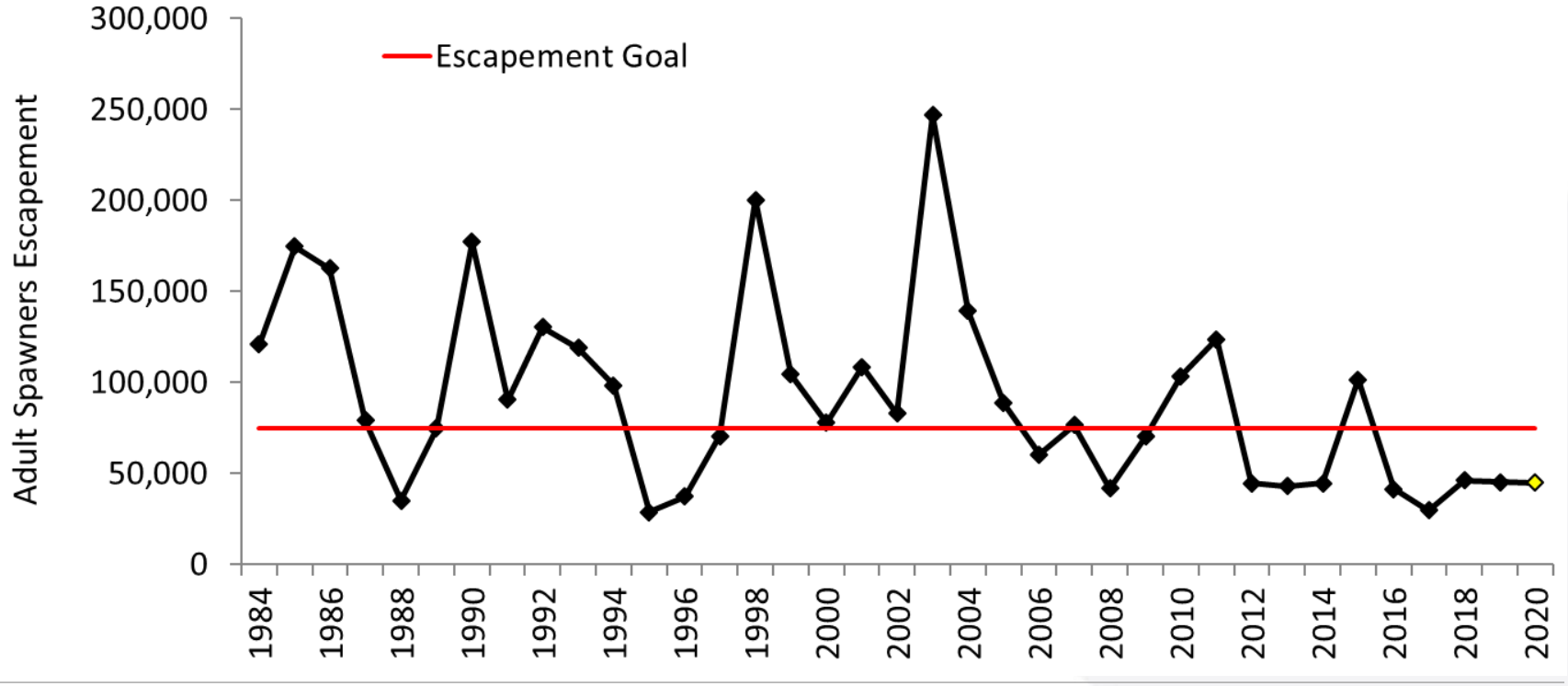
Escapement - Fraser Summer 4 $_1$ Chinook

- Brood year escapement (2016) was near the recent average
- The ***preliminary*** estimate for 2020 is ~148,000



Escapement - Fraser Fall 4 $_1$ Chinook

- Brood year escapement (2016) below escapement goal and recent average
- The escapement goal (75,100) has only been met once in the last 9 years
- The ***preliminary*** Harrison estimate for 2020 is ~45,000



2020 Fraser Chinook Escapement Summary

Management Unit	Escapement Estimate*	Brood Year Escapement**	Comparisons
Spring 4_2	~8,000	9,000	Well below S_{MSY}
Spring 5_2	~16,000	23,000	Below S_{MSY}
Summer 5_2	~13,000	29,000	Below S_{MSY}
Summer 4_1	~148,000	93,000	Near S_{MSY}
Fall 4_1 (Harrison)	~45,000	41,000	Below escapement goal

- *Estimates are **preliminary** and subject to change
- ** Estimates are subject to change due to infilling and calibration methods

Productivity for all management units remains low

Fraser River Coho - Background

- Coho populations spawn throughout the Fraser
  - Many spawning sites in Lower Fraser River
  - Interior Fraser Coho (IFC) return to the Upper Fraser and Thompson Rivers

- Fraser Migration occurs Aug. through Oct.

- IFC populations have declined dramatically from peak abundances observed in the 1980s

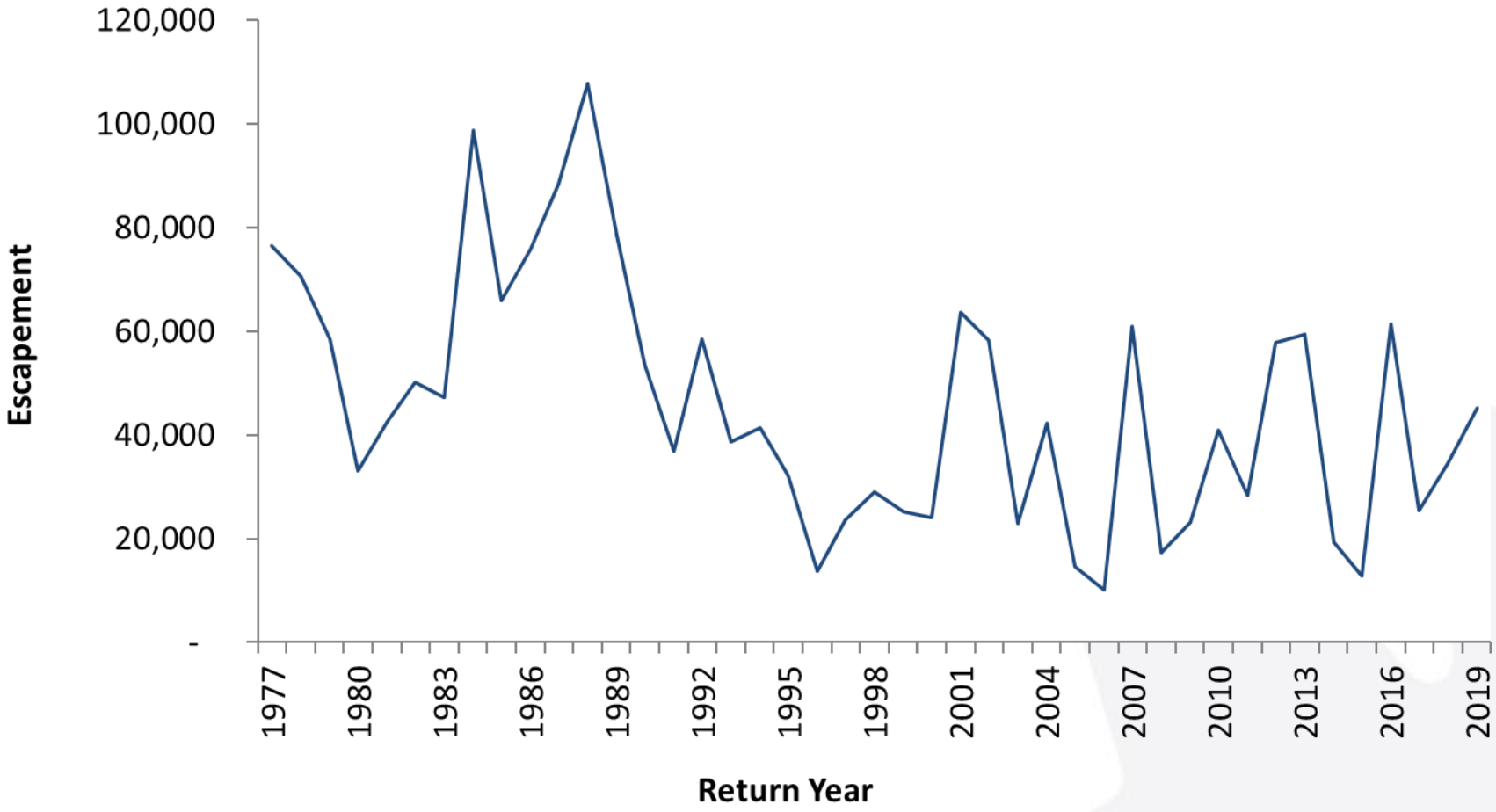
- Escapement programs and management objectives mostly focused on IFC, but new programs in development for Lower Fraser Coho

Interior Fraser River Coho - Status

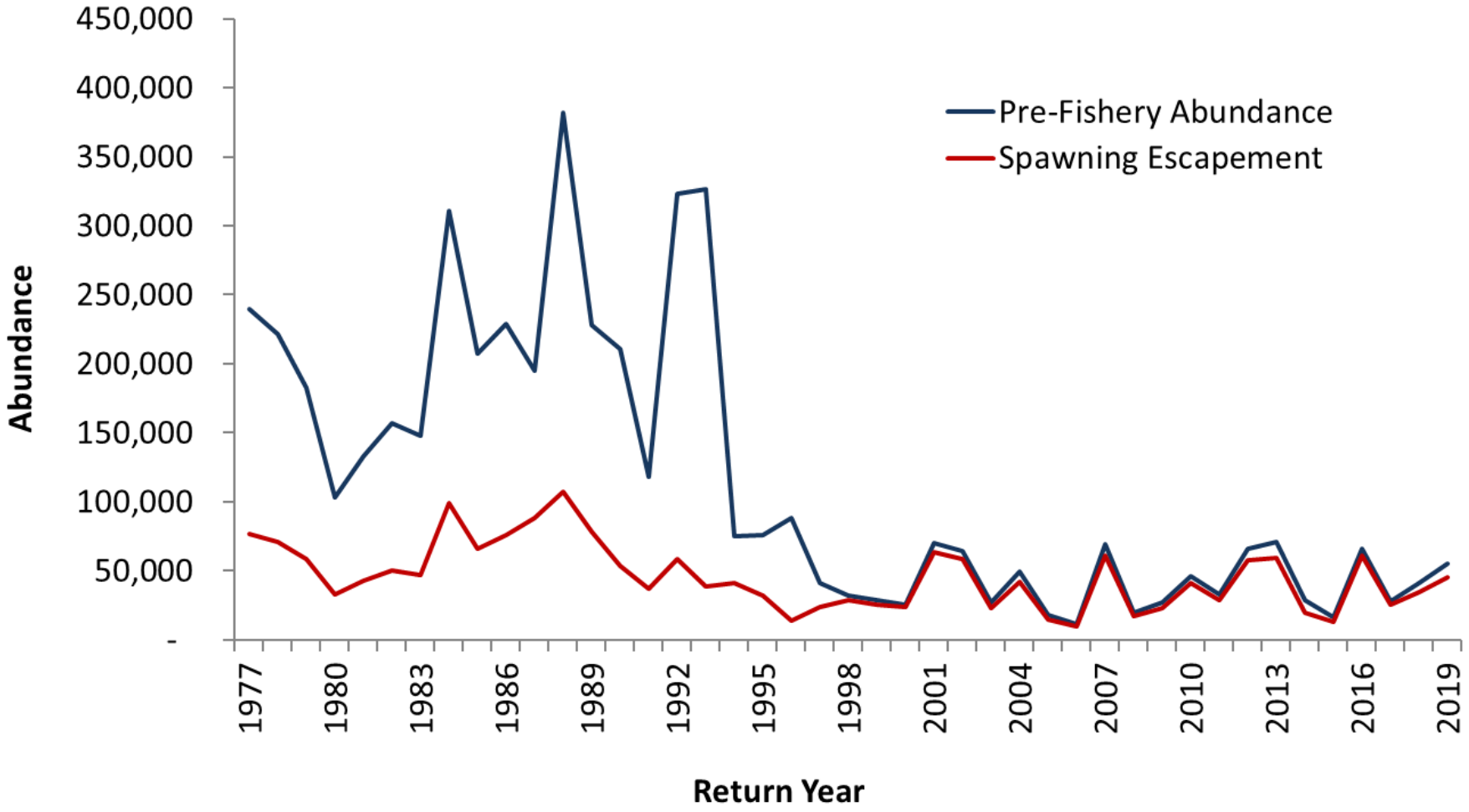
Pacific Salmon Treaty reference points and exploitation rate caps:

	Low	Moderate	Abundant
Survival (CWT Indicator Programs)	S <= 0.03	Three consecutive years 0.03 < S <= 0.06	Three consecutive years S > 0.06
		and	and
Escapement	Monitored in CU's and subpops but no thresholds	Three consecutive years: · Half of subpops in each CU > 1000; or · Moderate Aggregate MU esc. objective	Three consecutive years: · All IFR subpops in each CU > 1000; or · Abundant Aggregate MU esc. objective
ER cap (US/Can)	**0.20** (0.10/0.10)	**0.30** (0.12/0.18)	**0.45** (0.15/0.30)

Interior Fraser River Coho - Escapement



Interior Fraser River Coho – Total Abundance



Interior Fraser River Coho - Status

Escapement:

Return Year	Short Term Sub Pop Goal*		Short Term Escapement Proxy Goal	Actual Escapement	Goal met in three consecutive years
2014			22,731	19,442	
2015			25,758	12,879	
2016	no	or	27,414	61,370	no
2017	no		30,063	25,504	no
2018	no		29,781	34,737	no
2019	no		29,388	45,221	no

*three consecutive years of greater than 1000 in half the sub populations

2020 preliminary assessment for Interior Fraser River Coho is not yet available

Interior Fraser River Coho - Status

Marine survival:

Return Year	Survival	Short Term Marine Survival Goal	Goal met in three consecutive years
2014	2.1%	> 3.0%	
2015	0.8%	> 3.0%	
2016	1.4%	> 3.0%	no
2017	1.1%	> 3.0%	no
2018	2.0%	> 3.0%	no
2019	2.1%	> 3.0%	no

2020 preliminary assessment for Interior Fraser River Coho is not yet available

Interior Fraser River Coho - Status

Pacific Salmon Treaty reference points and exploitation rate caps:

	Low	Moderate	Abundant
Survival (CWT Indicator Programs)	S <= 0.03	Three consecutive years 0.03 < S <= 0.06	Three consecutive years S > 0.06
		and	and
Escapement	Monitored in CU's and subpops but no thresholds	Three consecutive years: · Half of subpops in each CU > 1000; or · Moderate Aggregate MU esc. objective	Three consecutive years: · All IFR subpops in each CU > 1000; or · Abundant Aggregate MU esc. objective
ER cap (US/Can)	**0.20** (0.10/0.10)	**0.30** (0.12/0.18)	**0.45** (0.15/0.30)

Fraser River Chum - Background

- Largest Chum population in BC

2 Conservation Units grouped under one Management Unit

- Most spawning occurs below Hope
- Escapement goal is 800,000
- Peak return mid- to late October

2020 Fraser River Chum

Managed based on in-season information derived from the Albion test fishery

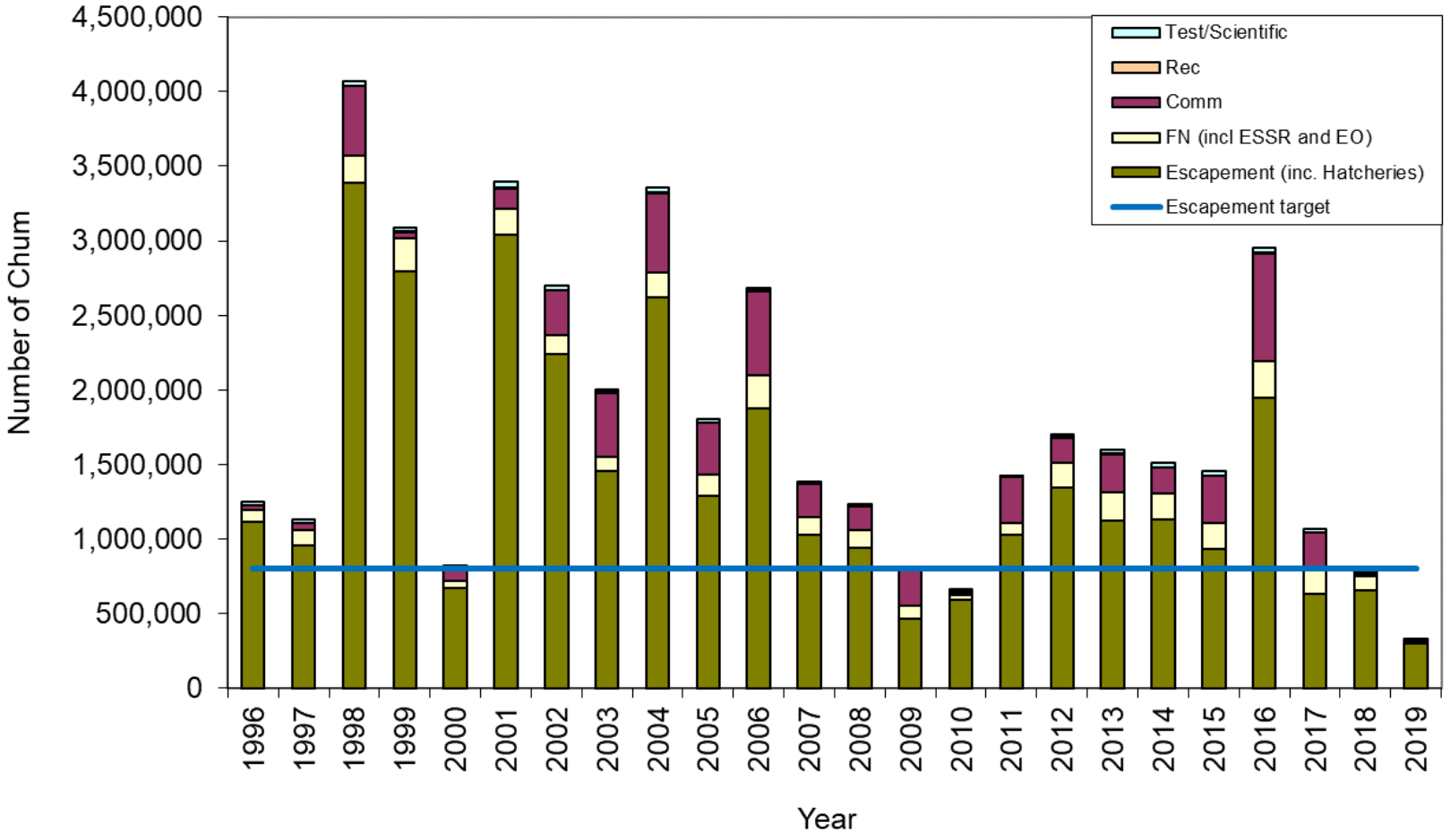
In-season run size estimates

- October 15 preliminary run size: 1,082,000 (FN1108)
- October 22 final run size: 1,084,000 (FN1146)

Post-season assessment

- 2020 escapement assessments are still underway
- preliminary estimates not yet available

Preliminary Reconstructed Fraser Chum Pre-terminal Run Size



2020 Fraser River Fishery Summary

Photo by: Shane Kalyn

2020 Albion Test Fishery Summary

Dates

- Chinook-directed single panel (8"): Apr. 21 – Oct. 20
- Chinook-directed multi-panel (6-9"): Apr. 22 – Aug. 30
- Chum-directed single panel (6.75"): Sep. 1 – Nov. 23

Catch

- Chinook: 1,737
- Chum: 7,127
- Coho: 585
- Sockeye: 49
- Pink: 0
- Steelhead: 6

2020 Recreational Fishery Management

Annual Limits

10 Chinook

Size Limits

Chinook: Maximum size limit of 80 cm in marine waters

Fishing Closures

Chinook, Chum, Coho: Area and time closures along migration route

See handout for summary of 2020 regulations in Fraser River recreational fisheries

2020 Fraser River Catch - Recreational

	Chinook		Coho		Chum	
	rel	kept	rel	kept	rel	kept
Lower Fraser	NA	NA	NA	NA	NA	NA
BC Interior	174	5,843	-	-	-	-
Totals	**174**	**5,843**	**0**	**0**	**0**	**0**

***Estimates are preliminary and subject to change**

Information on catch in marine waters can be found by searching "South Coast Assessment Bulletin Creel" at:
http://science-libraries.canada.ca/eng/home/

2020 Fraser River Fisheries - Commercial

Area E - Gill Net

- New for 2020: individual transferable quota (ITQ)
  - share was 345 Chum per licence (TAC 132,805)
- 3 openings after IFR Steelhead window closure
- Preliminary catch:

	Chinook		Coho		Chum	
	rel	kept	rel	kept	rel	kept
Area E						
Chum-directed	18	0	348	94	19	**33,339**

2020 Fraser River Fisheries - First Nations

Management Objectives

- Direct harvest toward Summer 4_1 Chinook & Fraser Chum
- Avoid at-risk stocks:
  - Chinook (Spring 4_2, Spring 5_2, Summer 5_2)
  - Sockeye
  - Interior Fraser Coho
  - Interior Fraser Steelhead

Management Actions

- Short communal gill net openings in August, min. 8” mesh
- Longer-duration openings to fish wheel, rod & reel and dip net
- Window closures

2020 Fraser River Fisheries - First Nations Licence Types

Communal	• Issued to communities to fish for Food, Social, and Ceremonial purposes
Communal – limited participation	• Issued to 1 or 2 communities at a time for a small number of fishers and/or to harvest a limited number of fish • Often for fish used during ceremonies
Communal – allowance for sales	• Issued to communities when fish are intended to be sold • Includes Economic Opportunity, Demonstration, and Harvest Agreement fisheries
ESSR	• Excess Salmon to Spawning Requirements licences are provided to local Nations to harvest all or part of a surplus in terminal area, and authorizes the sale of the surplus

2020 Fraser River Catch - First Nations

	Chinook		Coho		Chum		Steelhead	
	rel	kept	rel	kept	rel	kept	rel	kept
FSC								
Lower Fraser	1,170	24,726	1,898	283	36	22,547	49	-
BC Interior	129	8,806	0	0	0	0	-	-
FSC Total	**1,299**	**33,532**	**1,898**	**283**	**36**	**22,547**	**49**	**0**
Economic Opportunity								
Lower Fraser	3	3	12	46	0	6,318	1	-
BC Interior	-	-	-	-	-	-	-	-
Ec Opp Total	**3**	**3**	**12**	**46**	**0**	**6,318**	**1**	**0**
ESSR								
Lower Fraser	-	3,616	-	21,452	-	3,205	-	-
BC Interior	-	-	-	-	-	-	-	-
ESSR Total	**0**	**3,616**	**0**	**21,452**	**0**	**3,205**	**0**	**0**
All Catch								
Lower Fraser	1,173	28,345	1,910	21,781	36	32,070	50	-
BC Interior	129	8,806	-	0	-	-	-	-
All Catch Total	**1,302**	**37,151**	**1,910**	**21,781**	**36**	**32,070**	**50**	**0**

note: Economic Opportunity fisheries include Demonstration fisheries and Tsawwassen Harvest Agreement fisheries

- **Estimates are preliminary and subject to change**
- 38 of all released SH were encountered in fish wheels; remainder encountered in early Aug/Nov GN & BSn fisheries outside IFR SH window closure
- ESSR opportunities at Chilliwack, Inch Creek, and Capilano hatcheries

Questions?

Photo by: Shane Kalyn