



# 2021 Fraser River Stock Assessment and Fishery Summary



## Chinook Salmon



# Outline

## Background & Stock Assessment

- Chinook

## 2021 Fraser River Fisheries

- Recreational
- Commercial
- First Nations

## Questions

Photo by: Shane Kalyn



# 2021 Fraser Chinook Stock Assessment

## In-season Assessment:

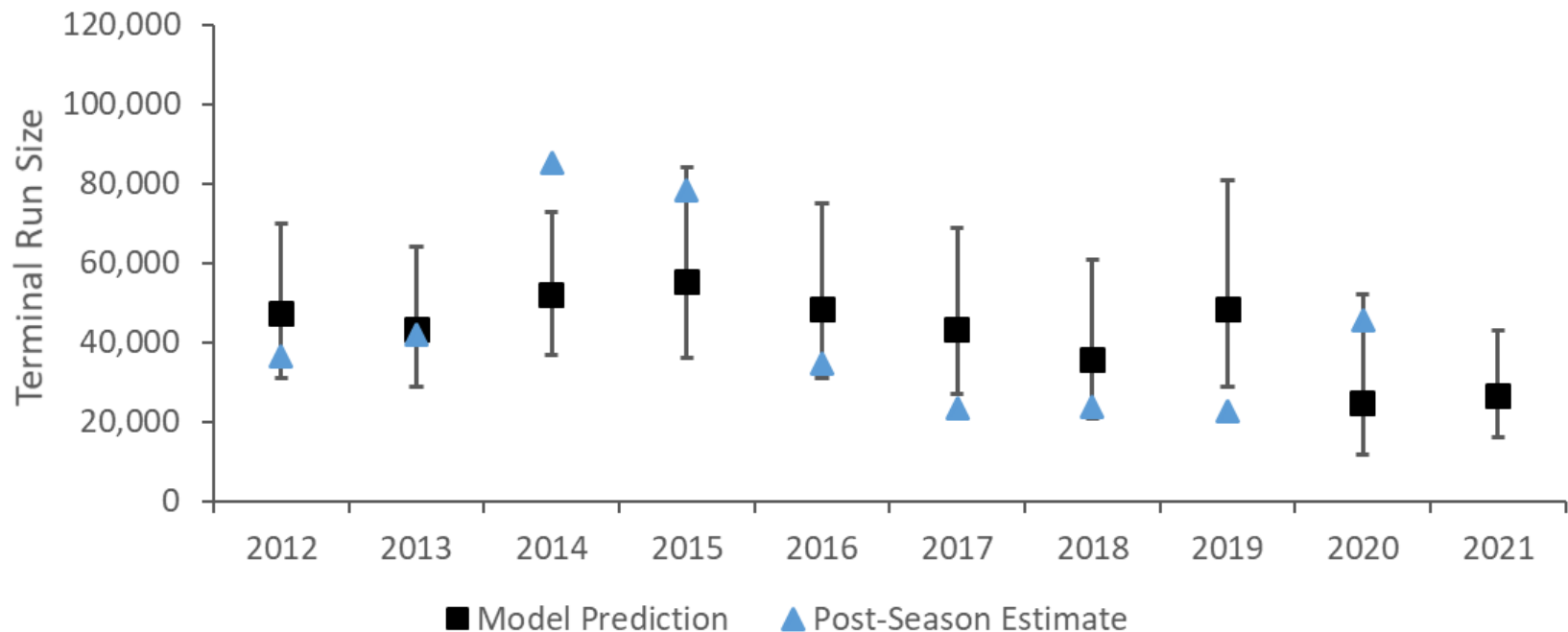
- Objective (at-risk Chinook): allow as many fish to pass through to the spawning grounds as possible
- Expected to reduce CDN fishery mortalities to very low levels approaching 5%
- Management measures superseded the previous zoned approach for Sp/Sum 5<sub>2</sub> Chinook; no more 'zone' designation
- In-season run size estimate for Sp/Sum 5<sub>2</sub> Chinook did not affect management



Photo by: Shane Kalyn

# Spring 5<sub>2</sub> and Summer 5<sub>2</sub> Chinook Run Size Model Outputs for 2021

Prediction using standard (8") gill net Albion data:  
median = 26,550 (range 16,000 - 43,000)



*See FN0585 for more details.*

*The post-season estimate for 2021 will be available in spring of 2022.*

# 2021 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 2021 Chinook escapement is still ongoing; some preliminary estimates available

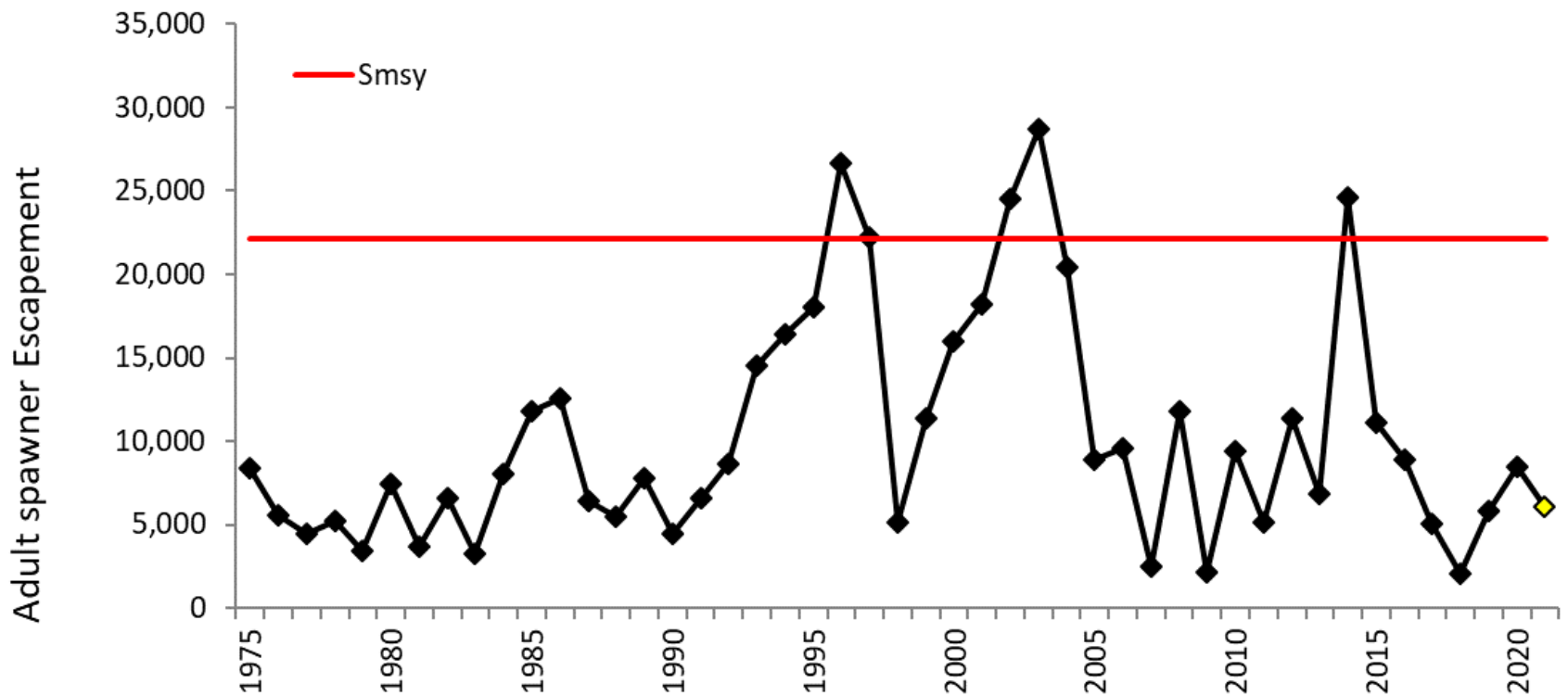
# 2021 Fraser Chinook Stock Assessment

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
  - $S_{MSY}$  is one metric the Department uses as a biological benchmark to indicate a healthy population. Other biological benchmarks and fishery reference points may be developed in the future depending on data quality and trends in abundance and productivity.
- Summary slide for 2021 *preliminary* escapements

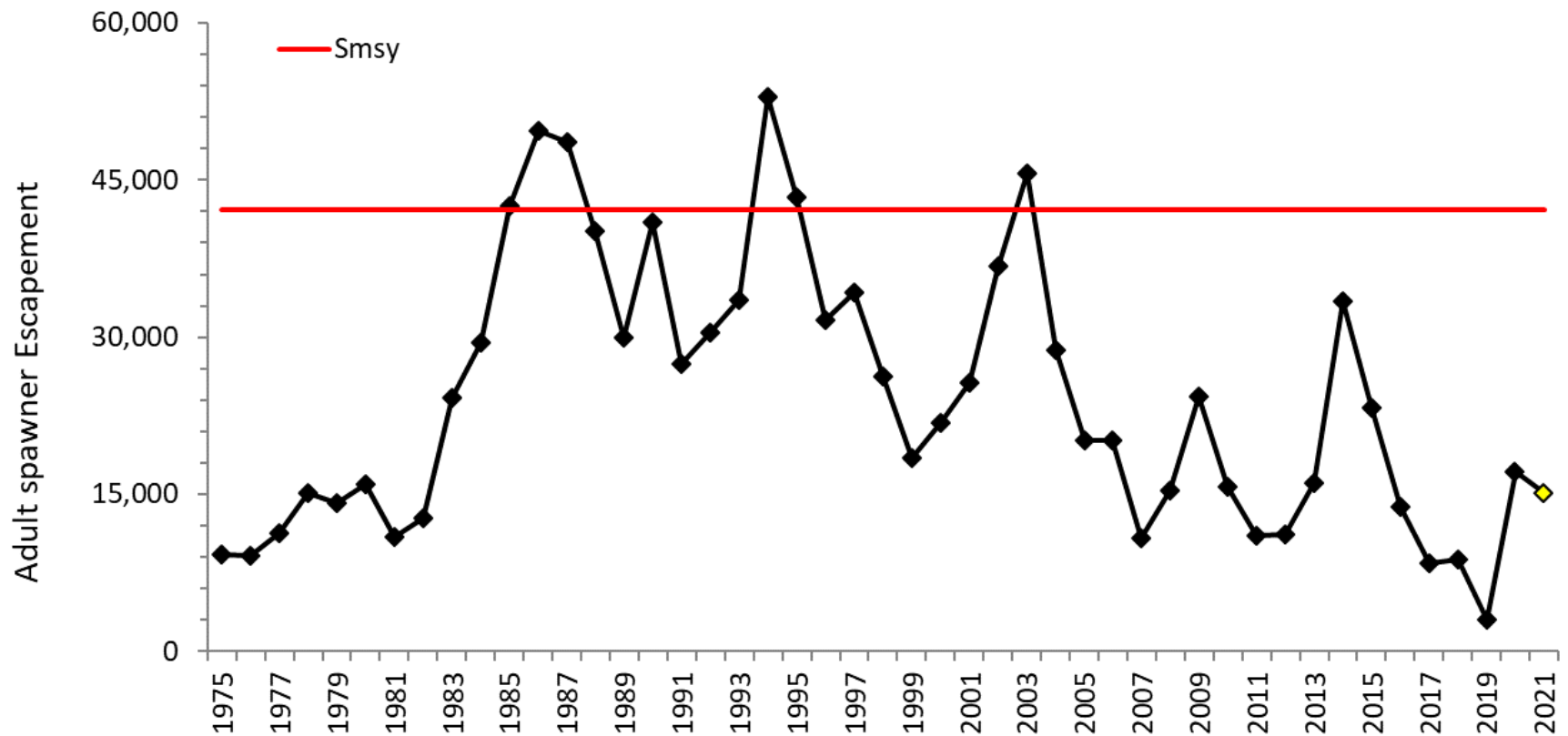
# Escapement - Fraser Spring 4<sub>2</sub> Chinook

- Brood year escapement (2017) was well below Smsy
- The *preliminary* estimate for 2021 is ~6,000.



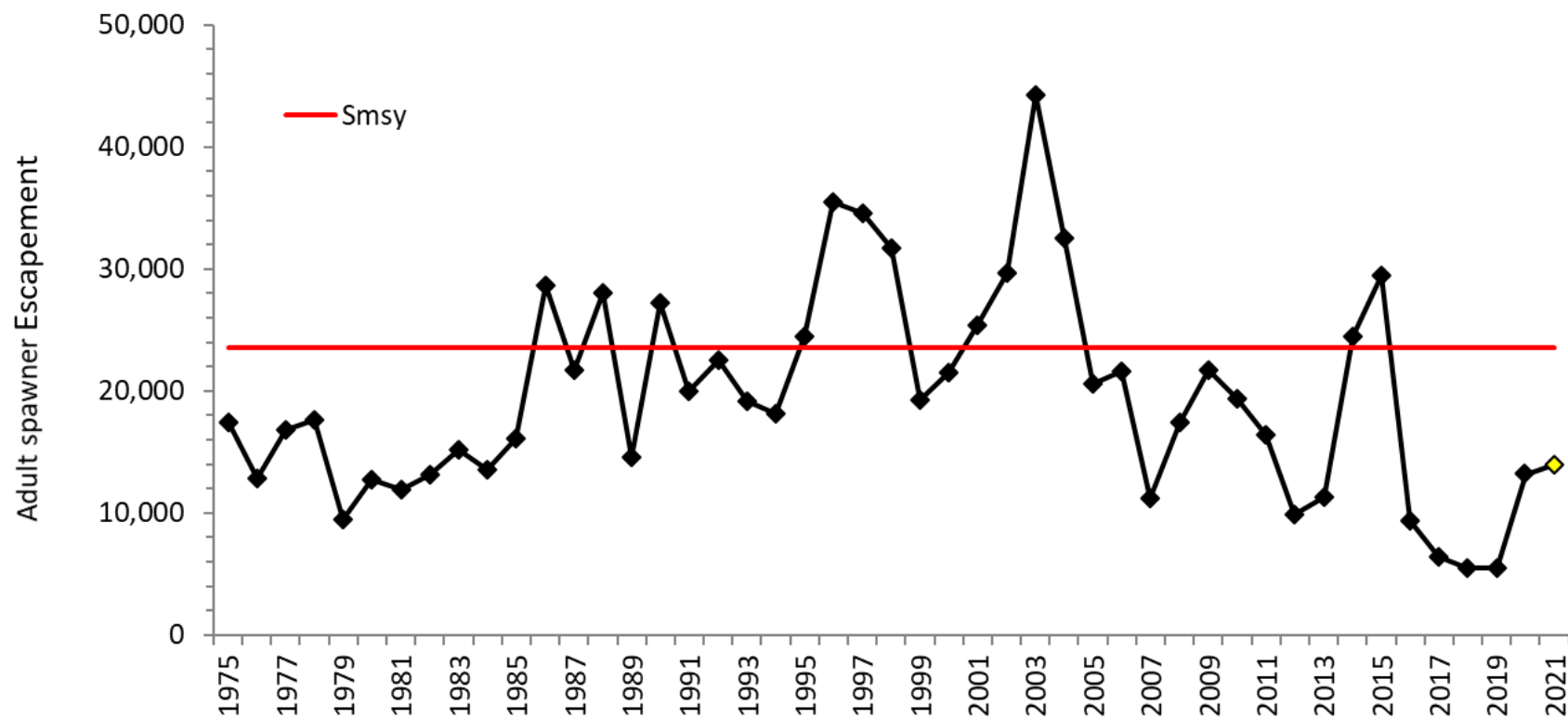
# Escapement - Fraser Spring 5<sub>2</sub> Chinook

- Brood year escapement (2016) was below Smsy.
- The *preliminary* estimate for 2021 is ~15,100.



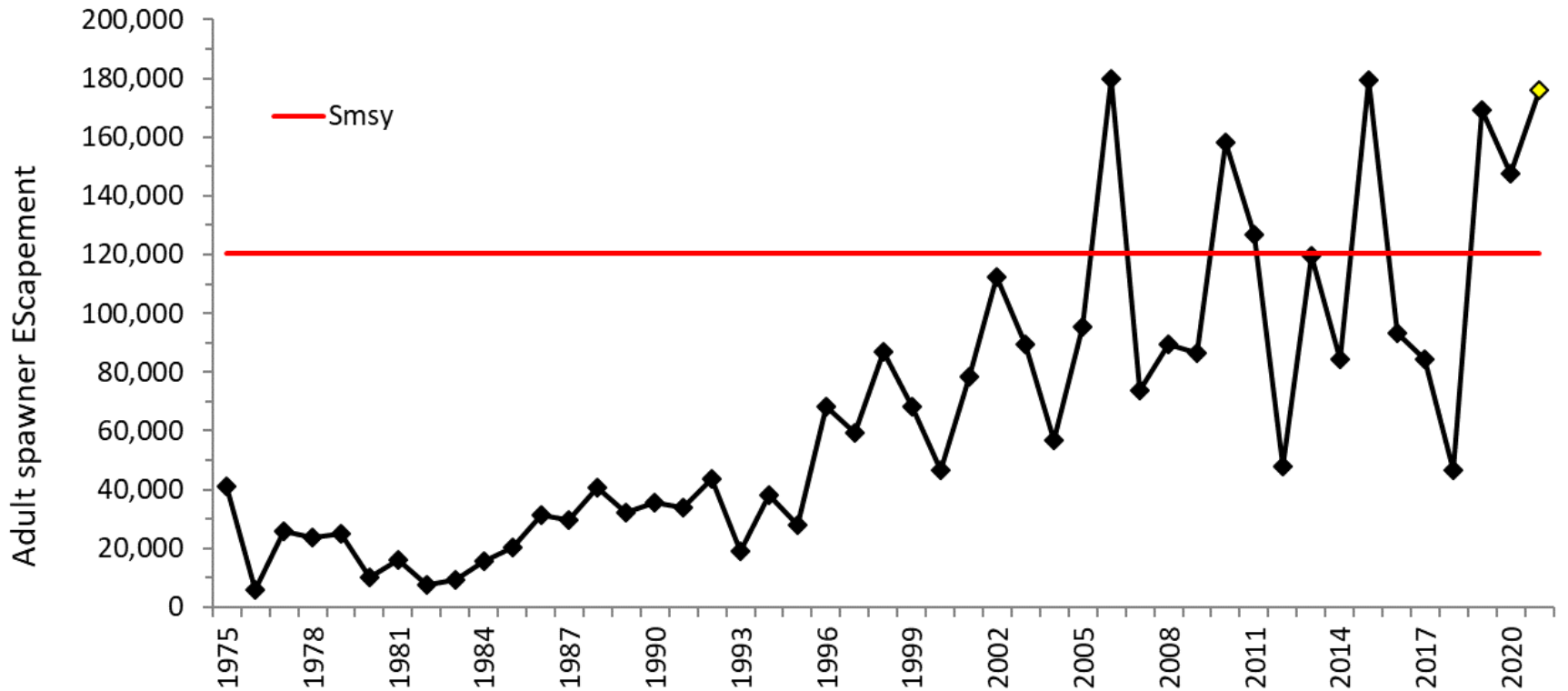
# Escapement - Fraser Summer 5<sub>2</sub> Chinook

- Brood year escapement (2016) was below Smsy.
- The *preliminary* estimate for 2021 is ~13,900.



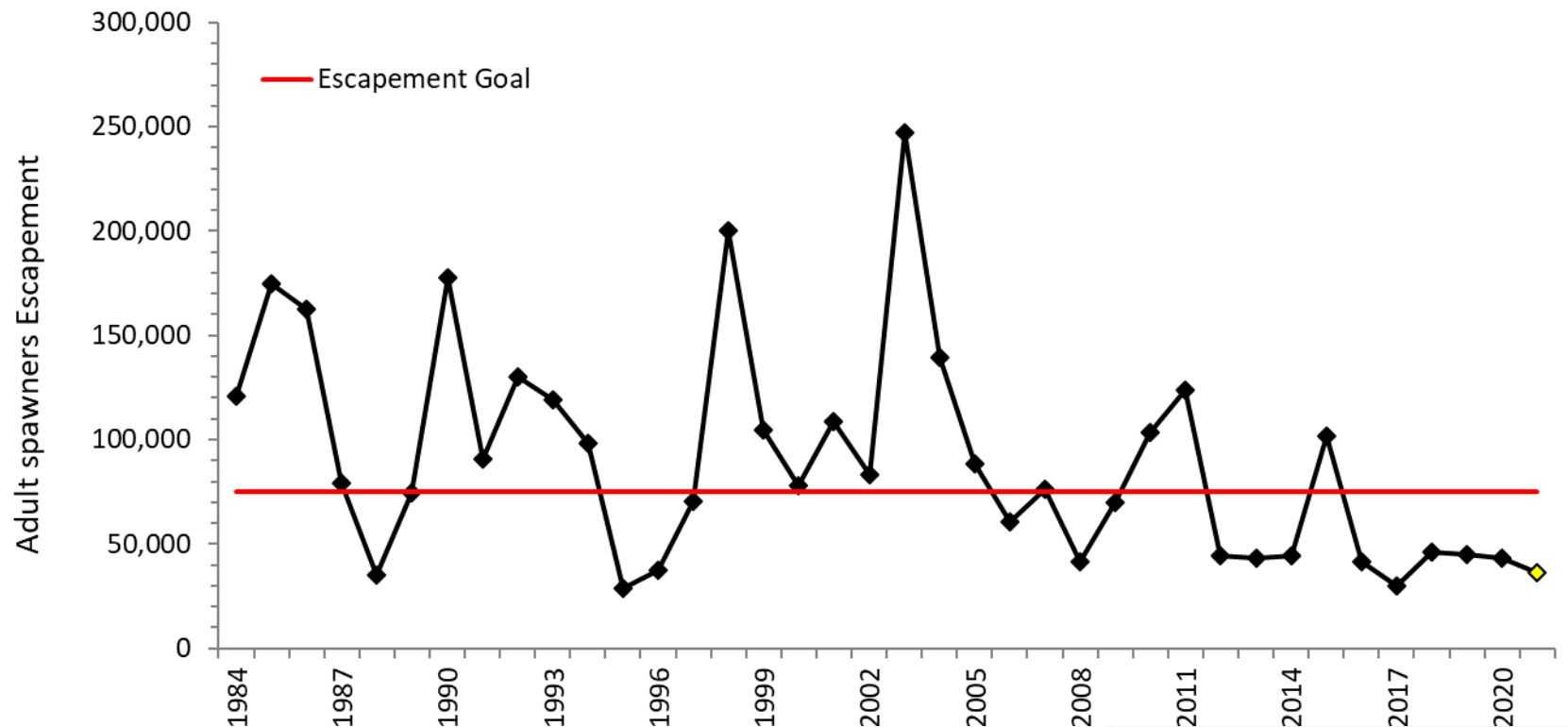
# Escapement - Fraser Summer 4<sub>1</sub> Chinook

- Brood year escapement (2017) was above Smsy
- The *preliminary* estimate for 2021 is ~175,700.



# Escapement - Fraser Fall 4<sub>1</sub> Chinook

- Brood year escapement (2017) was below escapement goal
- The escapement goal (75,100) has only been met once in the last 10 years
- The *preliminary* escapement estimate for 2021 is ~36,000.



# 2021 Fraser Chinook Escapement Summary

Management Unit	2021 Escapement Estimate*	Brood Year Escapement**	2021 Comparisons
Spring 4 <sub>2</sub>	~6,000	5,000	Well below $S_{MSY}$
Spring 5 <sub>2</sub>	~15,100	13,500	Below $S_{MSY}$
Summer 5 <sub>2</sub>	~13,900	9,500	Below $S_{MSY}$
Summer 4 <sub>1</sub>	~175,700	84,500	Above $S_{MSY}$
Fall 4 <sub>1</sub> (Harrison)	~36,000	30,000	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

# 2021 Albion Test Fishery Summary

## Dates

Chinook-directed  
single panel (8"):  
Apr. 19 – Oct. 20

Chinook-directed  
multi-panel (6-9"):  
Apr. 18 – Aug. 30

Chum-directed  
single panel (6.75"):  
Sep. 1 – Nov. 23

## Catch

Chinook: 1,668

Chum: 2,993

Coho: 253

Sockeye: 519

Pink: 301

Steelhead: 4

# 2021 Recreational Fishery Management

Approaches to Fraser River - Subareas 29-6, 29-7, 29-9 and 29-10:

- January 1 to December 31 - No fishing for salmon

Tidal Fraser River:

- January 1 to November 1 - No fishing for salmon

Non-tidal waters of the Fraser River from Mission Bridge to the confluence with Sawmill Creek:

- January 1 to November 14 - No fishing for salmon

Freshwater Regions 3, 5, 7, & 8:

- January 1 to December 31 - No fishing for salmon

Limited fishing opportunities for specific salmon stocks occurred in some areas (primarily Pink and Coho salmon). Opportunities on hatchery stocks in some tributaries to the Fraser.

# 2021 Fraser Catch - Recreational

	Chinook	
	rel	kept
Lower Fraser	NA	NA
BC Interior	1,399	5,583
<b>Totals</b>	<b>1,399</b>	<b>5,583</b>

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

**Fishing occurred in Lower Shuswap Lake, Mabel Lake, Kamloops Lake, and the Thompson River.**

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

# 2021 Fraser Fisheries - Commercial

No commercial Chum-directed fisheries were licensed in 2021 in Area 29.

## **Area E - Gill Net**

- As part of PSSI, the Area E gill net Fraser Chum commercial fishery in Area 29 was closed.

## **Area B - Seine**

- At terminal run sizes less than 916,000, no commercial Chum TAC is available.

# 2021 Fraser Fisheries - First Nations

## Management Objectives

- Direct harvest toward Summer 4<sub>1</sub> Chinook, Fraser Pink, & Fraser Chum
- Avoid at-risk stocks:
  - Chinook (Spring 4<sub>2</sub>, Spring 5<sub>2</sub>, Summer 5<sub>2</sub>)
  - Sockeye
  - Interior Fraser Coho
  - Interior Fraser Steelhead

## Management Actions

- Short communal gill net openings in August (min. 8" mesh), and October to November (min. 6 ¼" mesh).
- Short communal, EO, and demo seine openings in September
- Longer-duration openings to fish wheel, rod & reel and dip net
- Window closures

# 2021 Fraser Catch - First Nations

	Chinook	
	rel	kept
<b>FSC</b>		
<i>Lower Fraser</i>	1,019	21,078
<i>BC Interior</i>	294	5,404
<b><i>FSC Total</i></b>	<b>1,313</b>	<b>26,482</b>
<b>Economic Opportunity</b>		
<i>Lower Fraser</i>	565	-
<i>BC Interior</i>	-	-
<b><i>Ec Opp Total</i></b>	<b>565</b>	<b>0</b>
<b>ESSR</b>		
<i>Lower Fraser</i>	-	9,188
<i>BC Interior</i>	-	-
<b><i>ESSR Total</i></b>	<b>0</b>	<b>9,188</b>
<b>All Catch</b>		
<i>Lower Fraser</i>	1,584	30,266
<i>BC Interior</i>	294	5,404
<b><i>All Catch Total</i></b>	<b>1,878</b>	<b>35,670</b>

\* Estimates are preliminary and subject to change

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



# Questions?

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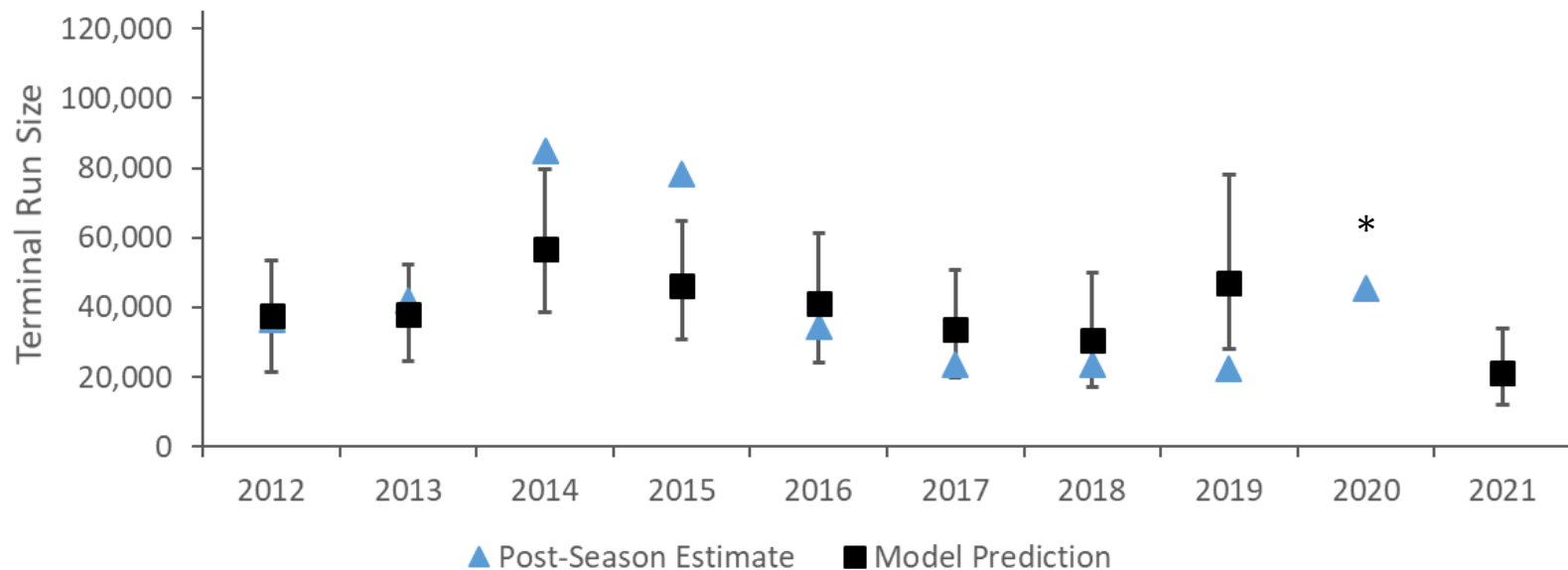


Photo by: Shane Kalyn

# Additional Slides

# Spring $5_2$ and Summer $5_2$ Alternative Albion Model Outputs

Prediction using both multi-panel and standard net Albion data:  
12,000 - 34,000 (median = 21,440)



*The post-season estimate for 2021 will be available in spring of 2022.*

\* For 2020, there was no catch in the multipanel net up to week 06/2, so the model could not be run unless a placeholder CPUE input of 0.01 was used. This was considered an unreliable estimate so is not included in comparisons with other years.