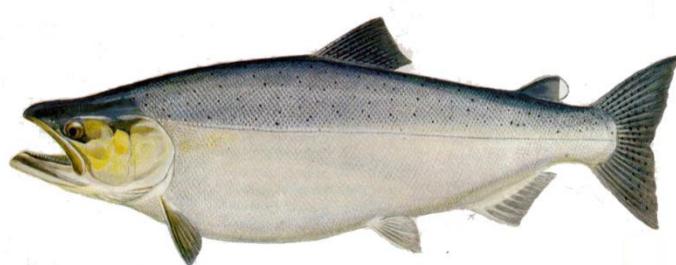


# 2018 Fraser River Stock Assessment and Fishery Summary

## Chinook, Coho, and Chum





# Background and Stock Assessment



# Fraser River Chinook - Background

- Diverse group of populations
  - exhibit a wide range of life histories, geography, and run timing
- Chinook enter the Fraser River from March through October
- Spawning occurs throughout the Fraser
  - from just above the tidal limits in the Lower Fraser to the upper tributaries of the Stuart basin
- Juveniles exhibit both stream and ocean life history types
- Currently managed as five Management Units
  - Spring 4<sub>2</sub> Chinook (2 Conservation Units)
  - Spring 5<sub>2</sub> Chinook (9 Conservation Units)
  - Summer 5<sub>2</sub> Chinook (5 Conservation Units)
  - Summer 4<sub>1</sub> Chinook (4 Conservation Units)
  - Fall 4<sub>1</sub> Chinook (3 Conservation Units)



# 2018 Fraser River Stock Assessment Chinook

## In-season Assessment:

- Spring and Summer 5<sub>2</sub> Chinook are assessed in-season with an abundance model based on catch from the Albion Test Fishery
- began the year assuming Zone 1
- on June 19<sup>th</sup> the in-season model generated an estimate of 35,360 Chinook (FN0503)
- based on this estimate, all Zone 1 management actions remained in place (Zone 1 < 45K; Zone 2 = 45 to 85K; Zone 3 > 85K)



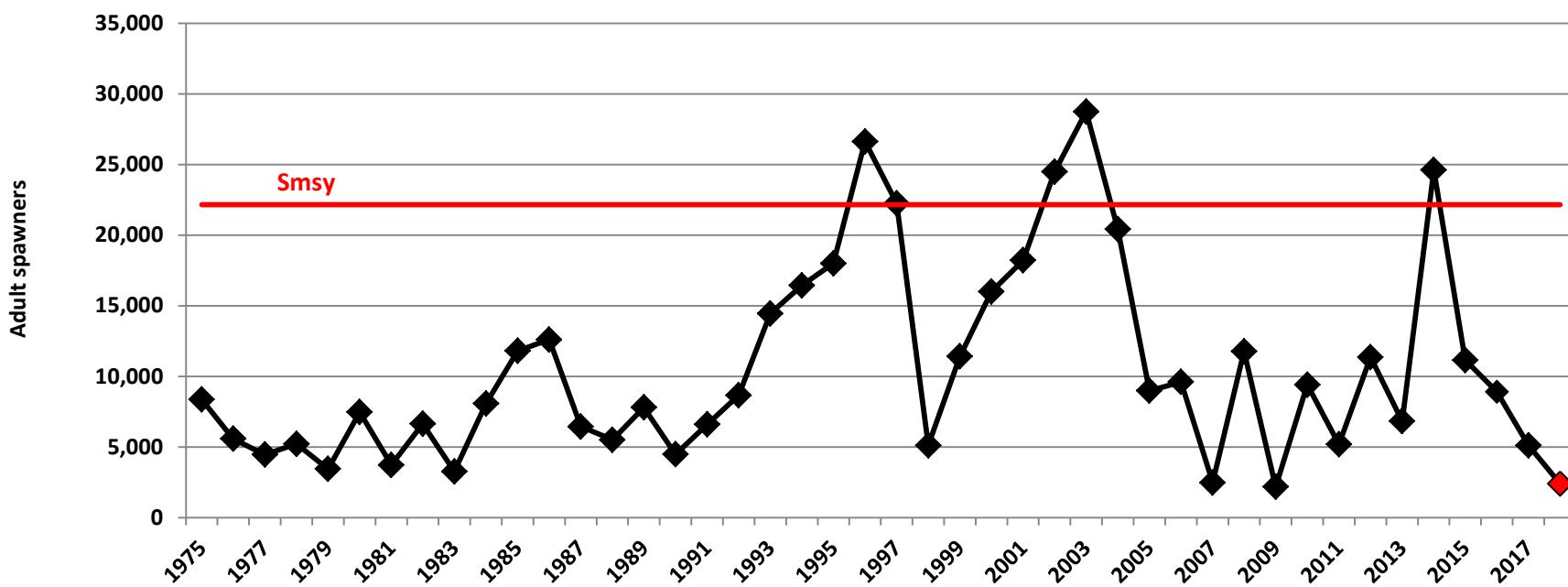
# 2017 Fraser River Stock Assessment Chinook

## 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)

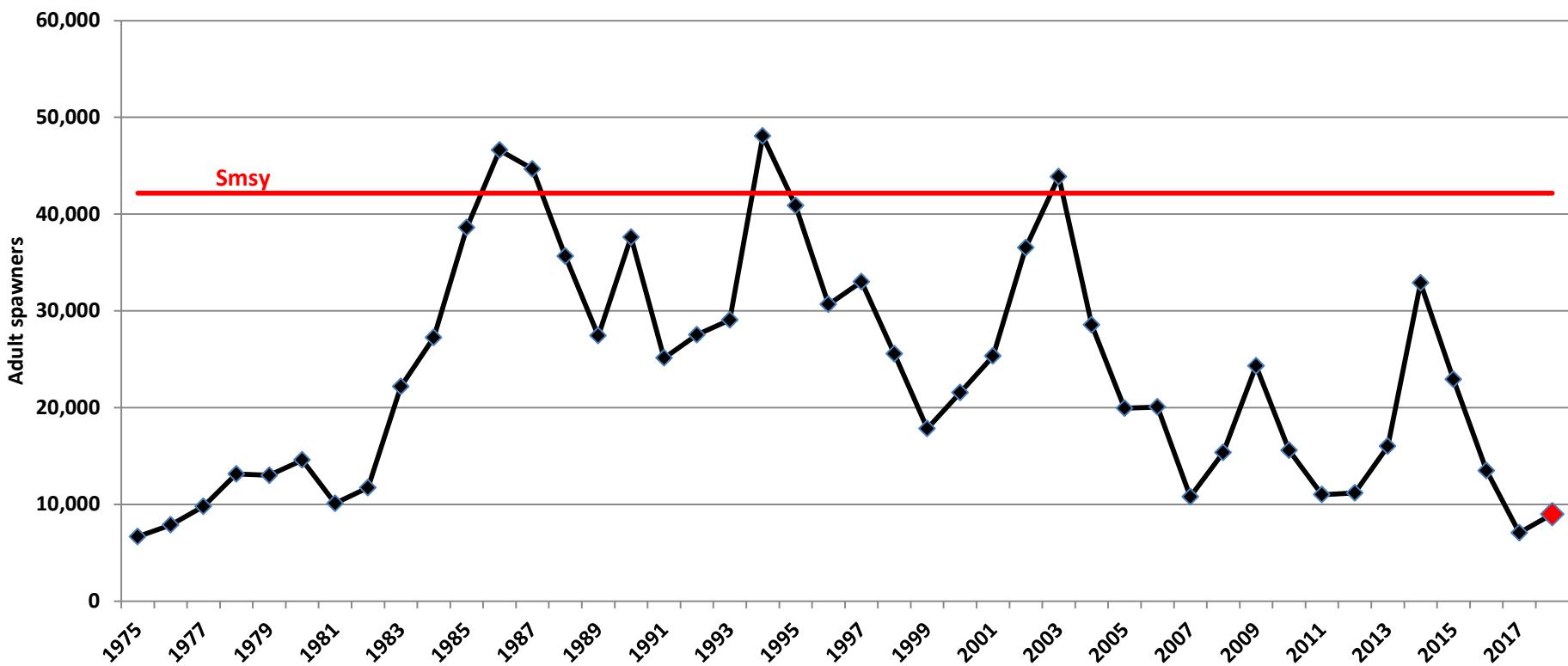
## Escapement - Fraser Spring $4_2$ Chinook

- 2017 was well-below  $S_{msy}$  and below the long-term average
- 2014 escapement was driven by strong Bonaparte R return
- 2018 (red) is a preliminary estimate only



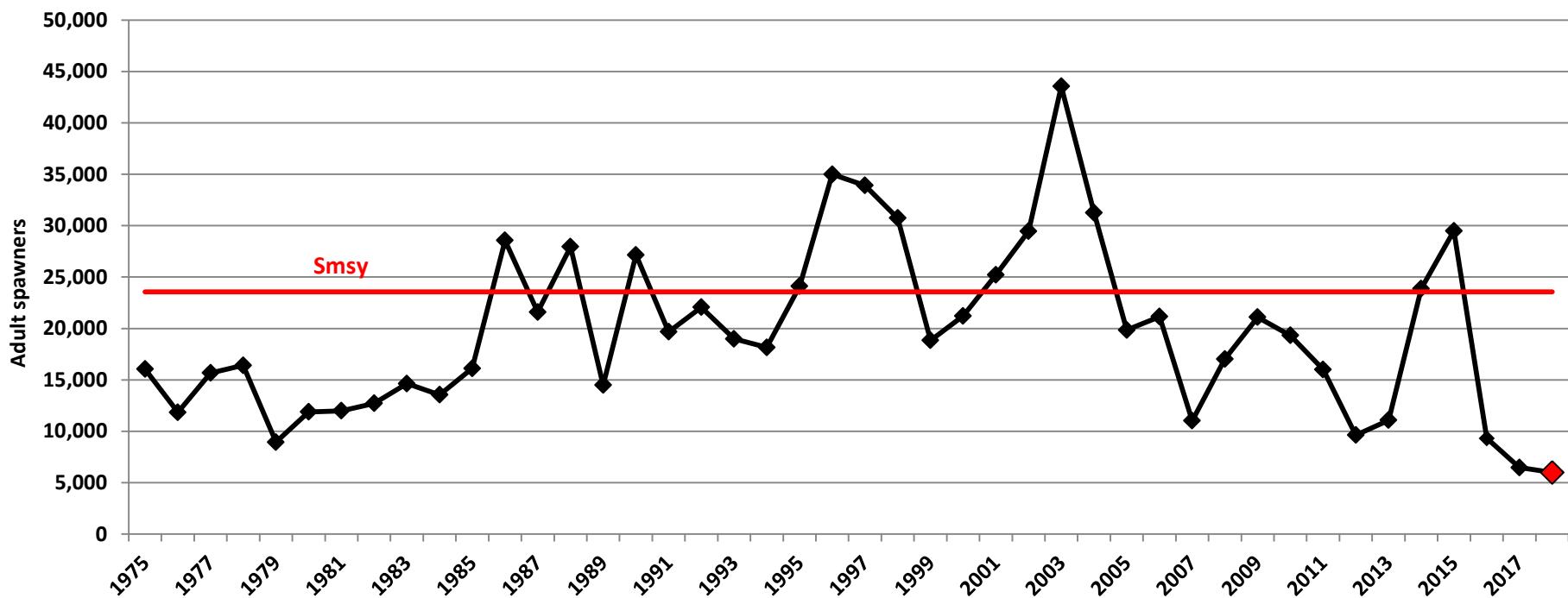
## Escapement - Fraser Spring 5<sub>2</sub> Chinook

- 2017 was well-below S<sub>msy</sub> and below the long-term average
- 2018 (red) is a preliminary estimate only



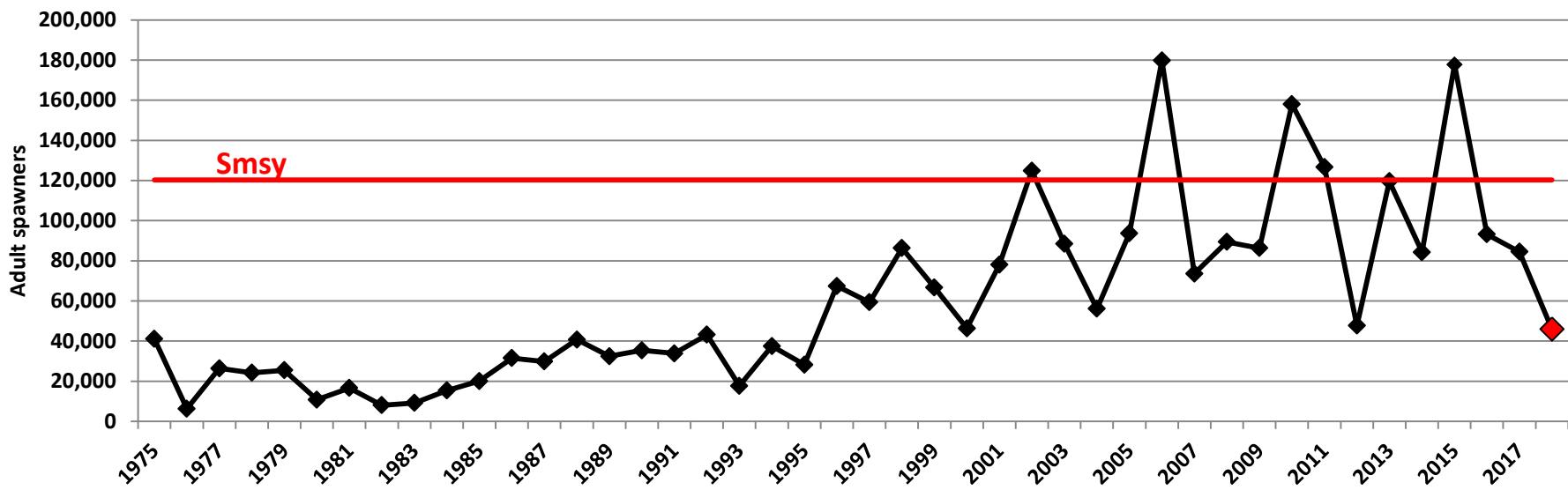
## Escapement - Fraser Summer 5<sub>2</sub> Chinook

- 2017 was well-below S<sub>MSY</sub> and the long-term average
- 2015 driven by strong Nechako return
- 2018 (red) is a preliminary estimate only



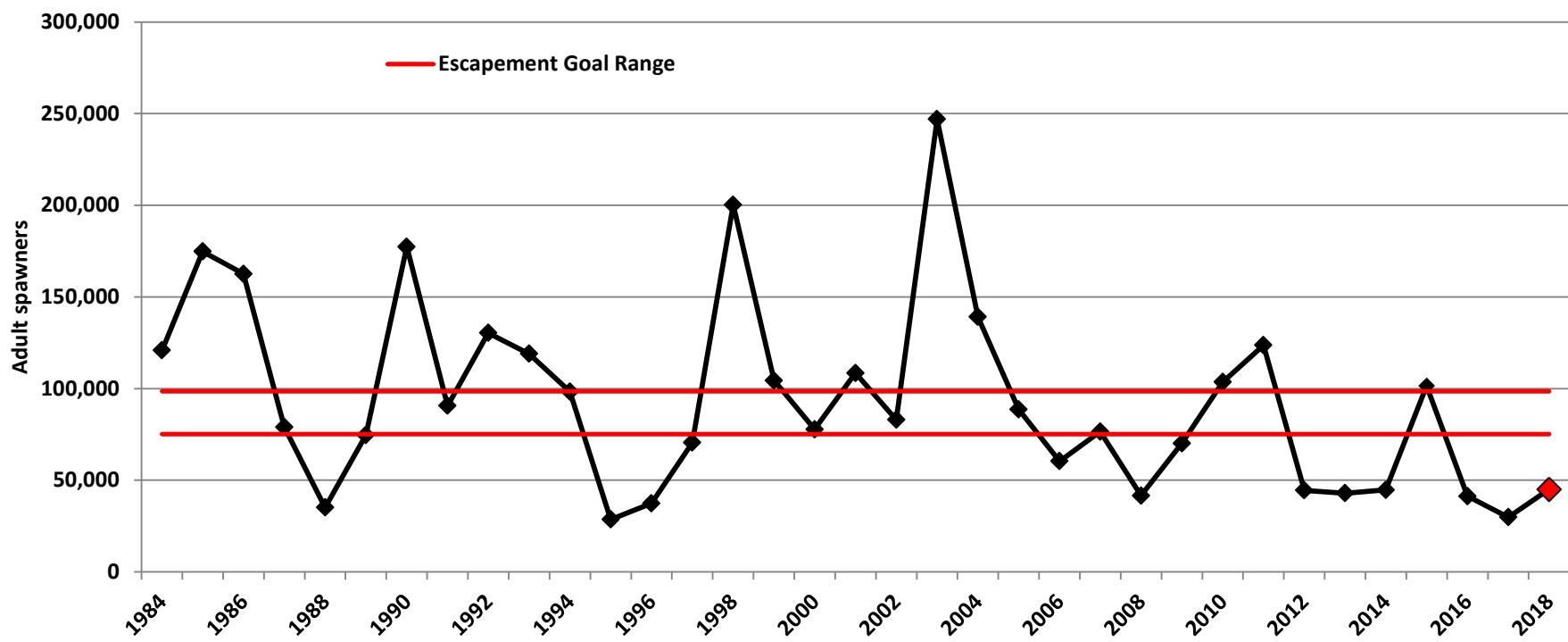
## Escapement - Fraser Summer 4<sub>1</sub> Chinook

- 2017 was below Smsy
- Individual stocks varied relative to the long-term average for 2017: the indicator (Lower Shuswap) was below, Lower Adams was average and South Thompson and Little River were well-above
- 2018 (red) is a preliminary estimate only



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

- 3 years of low escapements (2012-2014) and 2015 met escapement goal
- 2017 estimates well-below the escapement goal and the long-term average
- 2018 (red) is a preliminary estimate only





# 2017 Fraser Chinook Escapement Summary

Near-final Escapement Estimates\*:

- Spring  $4_2$  = well-below Smsy
- Spring  $5_2$  = well-below Smsy
- Summer  $5_2$  = well-below Smsy
- Summer  $4_1$  = below Smsy
- Fall  $4_1$  = well-below escapement goal
- Productivity for all management units remains low

*\*field based estimates*



# 2018 Fraser Chinook Preliminary Escapement Estimates

- Spring 4<sub>2</sub> < 2,400 (brood year escapement >24,000)
- Spring 5<sub>2</sub> < 9,000 (brood year escapement >18,000)
- Summer 5<sub>2</sub> < 6,000 (brood year escapement ~16,000)
- Summer 4<sub>1</sub> ~ 46,000 (brood year escapement ~84,000)
- Fall 4<sub>1</sub> ~ 45,000 (VERY PRELIMINARY; almost equal to brood year)
- Productivity for all management units remains low



## Fraser River Coho - Background

- Coho populations spawn throughout the Fraser watershed
  - many spawning sites in Lower Fraser River
  - Interior Fraser coho return to the Upper Fraser and Thompson Rivers
- Stream-type life history
- Most return as three year olds, though 10% return as 4 year olds having spent 2 years in fresh water
- Coho enter the Lower Fraser River from late August to December
  - peak migration period for Interior Fraser Coho from early September to early October
- Interior Fraser Coho populations have declined dramatically from peak abundances observed in the 1980's.



# 2017 Fraser River Stock Assessment Coho

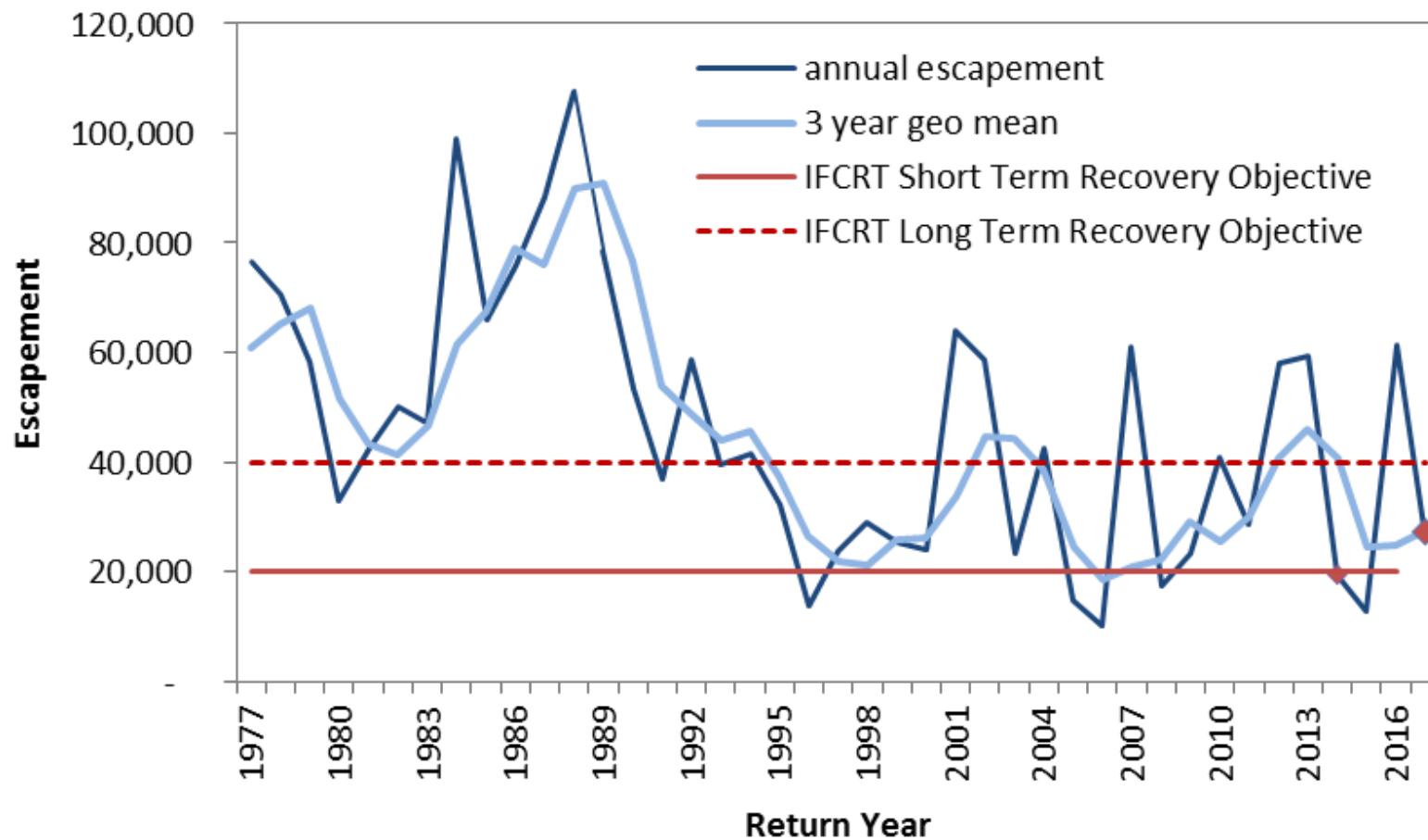
## Interior Fraser River Coho

- 2017 preliminary escapement estimate of ~25,700
- 2014 parental brood escapement of 19,441

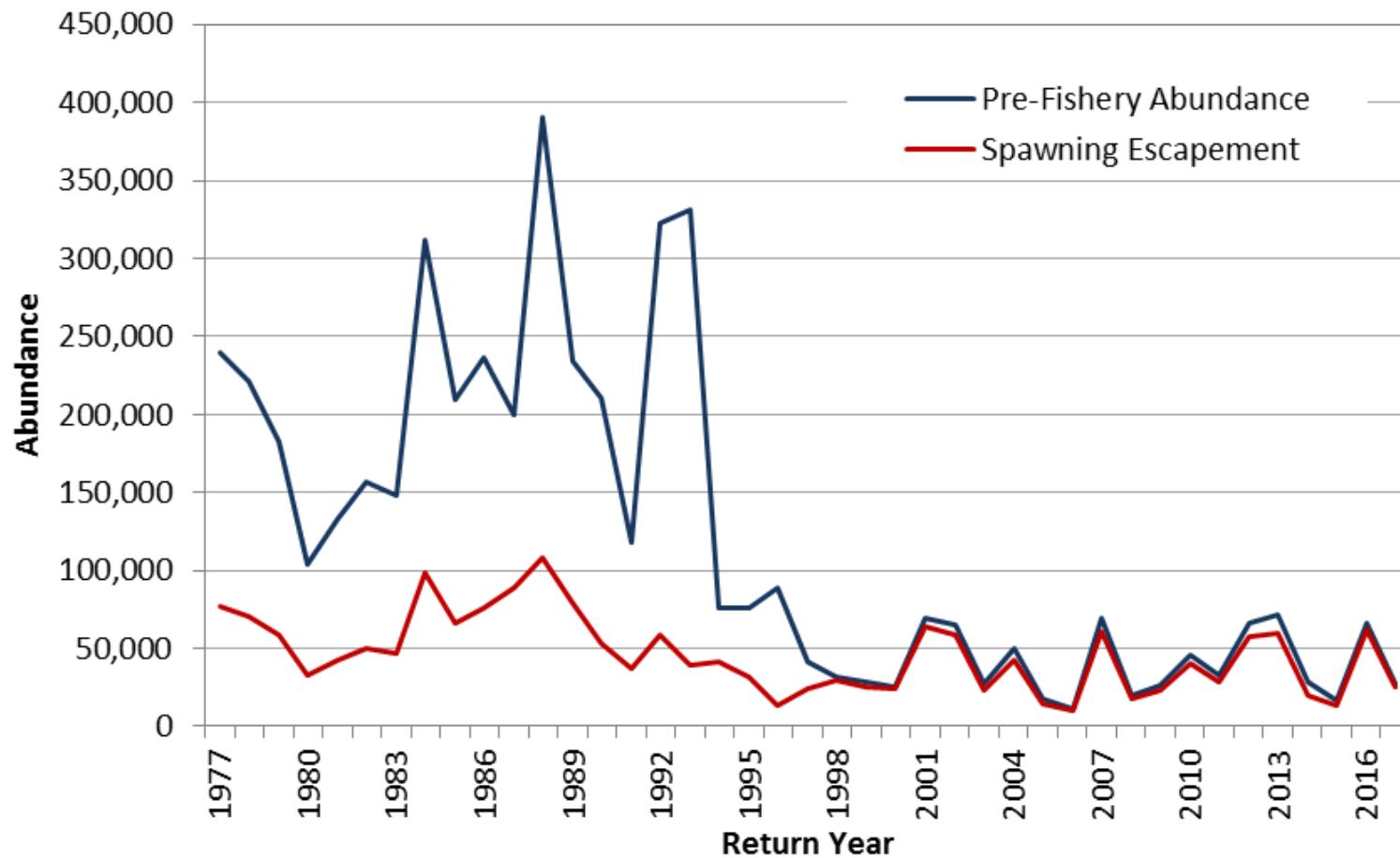
2018 preliminary assessment for Interior Fraser  
River Coho is not yet available



## Escapement - Interior Fraser River Coho



# Total Abundance - Interior Fraser River Coho





# Interior Fraser Coho Abundance (2012-2017)

year	escapement estimate
2012	57,371
2013	59,050
2014	19,115
2015	12,422
2016	61,370
2017	25,661



## Fraser River Chum - Background

- Largest chum population in British Columbia
  - two Conservation Units (Lower Fraser and Fraser Canyon)
  - managed as one management unit
- Escapement goal is 800,000
- Return to Fraser from September through November
  - recent year peak migration mid/late-October
- Major spawning areas are below Hope
  - Harrison/Weaver/Chehalis, Chilliwack/Vedder, Stave
- Enhancement
  - Weaver spawning channels, Inch Creek, Chilliwack, and Chehalis hatcheries
  - production relatively consistent over the last 10 years

# 2012-2017 Chum In-Season Model Estimates

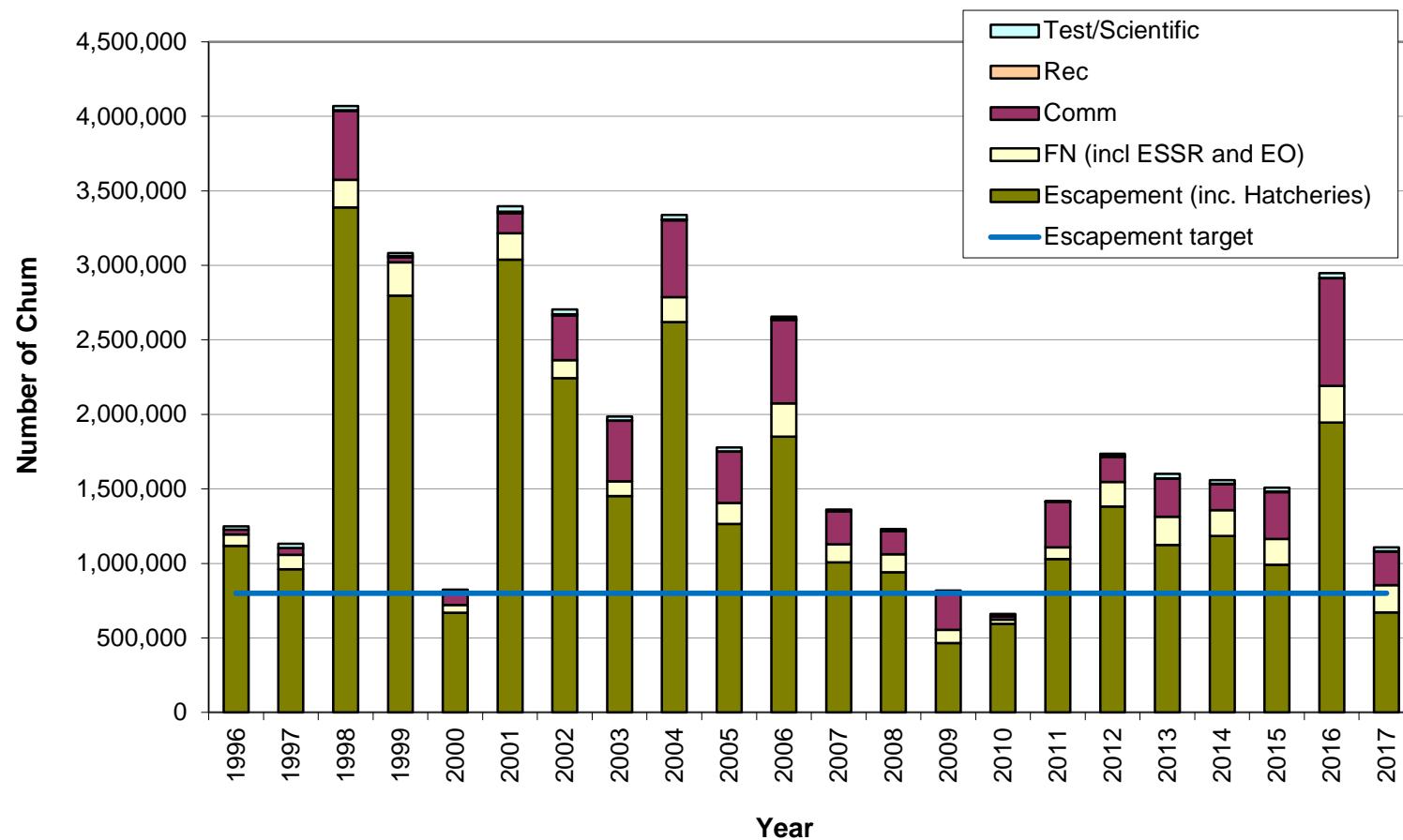
year	in-season run size est.	escapement	post-season run size est.
2012	2,326,000	1,368,479	1,627,951
2013	1,489,000	1,114,947	1,425,595
2014	1,329,000	1,176,694	1,437,144
2015	1,567,000	979,319	1,305,690
2016	2,000,000	2,006,667	2,456,897
2017	1,320,000	656,124	944,144



## 2018 Fraser River Chum

- Managed based on in-season information derived from the Albion test fishery
- 2018 in-season assessment:
  - October 17<sup>th</sup> preliminary run size estimate of 793,000 (FN1161)
  - October 22<sup>th</sup> run size estimate was 769,000 (FN1179)
- Post-season assessment (escapement):
  - 2018 escapement assessments are still underway - no preliminary estimates available

## Reconstructed Fraser chum pre-terminal run size





# 2018 Fraser River Fishery Summary (Chinook, Chum, Coho)



## Terminology for river breakpoints

**Lower Fraser:** Fraser River mainstem below Sawmill Creek and tributaries

**Mid Fraser:** Fraser River mainstem from Sawmill Creek to Kelly Creek and tributaries, includes Thompson below the Bonaparte

**Upper Fraser:** Fraser River mainstem upstream of Kelly Creek and tributaries

# 2018 IFR Steelhead Window Closure

Moving window closure of approximately 4 weeks duration, designed to protect the central 90% of the IFR Steelhead migration on average from exposure to salmon fisheries

## Window closure impacts FR chum fisheries

- Lower Fraser:
  - FSC fisheries allowed two limited gillnet openings, time per opening reduced by approximately 50% during closure
  - FSC beach seine fisheries permitted throughout closure
  - Closed to all commercial fishing during window closure
  - Closed to all recreational fishing during window closure

## Mid Fraser:

- FSC and recreational - status quo - closed to salmon for IFR Coho
- Closed to all commercial fishing during window closure



# Commercial Fishery - JST Chum

## JST mixed stock fishery:

- Returns in 2018 were below average
- Interior Fraser River Steelhead window closure restricted gill net fisheries in Area from Sept 12 to Oct 8 and in Area 13 from Sept 17 to Oct 13.
- In-season the return was tracking below the 1.0 M critical threshold (as per PST), all pre-season scheduled commercial fisheries were suspended as of October 1 until further notice.
- By October 10 the return was tracking above the 1.0 M threshold and commercial fisheries were planned as follows:
  - Area B seine: October 15 (10 hour, plus 1 hour extension due to low effort)
  - Area D gill net: two- 41 hrs openings on October 18-20 & 26-28
    - 24 hr extension for 2<sup>nd</sup> opening due to poor weather (ended October 29)
  - Area H troll ITE: Period 1- October 12-14; Period 2- October 16-31
    - Note Area H troll ITE open Sept 28 to 30 (prior to in-season closure) with no effort

# 2018 Commercial JST Chum Catch

Stat Week	Fishery Opening	Total Catch	Fraser Composition*	Fraser Catch Estimate
41	Area H (Oct 12-14)	865	27%	234
42	Area B (Oct 15)	37,773	25%	9,443
42	Area D (Oct 18-20)	6,647	25%	1,662
43	Area D (Oct 26-29)	5,743	27%	1,551
42/43	Area H (Oct 16-Oct 31)	1,111	26%	289
	<b>Total</b>	<b>52,139</b>		<b>13,179</b>

\*Fraser composition – based on test fishery data only – DNA samples from commercial fishery not yet available



## 2018 Fraser River Fisheries - Commercial

- Directed chum fisheries in-river if a commercial TAC is identified
  - constraints due to co-migrating stocks of concern
    - IFR Coho
    - IFR Steelhead
- Area B Fraser River Chum Fishery
  - No fishery openings in 2018
- Area E Fraser River Chum Fishery
  - No fishery openings in 2018

# 2018 Fraser River Fisheries - Recreational

## Chinook management actions in Region 2 (Lower Mainland)

- January 1 to July 31, no fishing for salmon (Zone 1 Mgmt.)
- August 1 to August 6, no fishing for salmon.
  - This management measure was in place to protect Summer 5<sub>2</sub> Chinook and to provide priority access for First Nations FSC harvest opportunities
- August 7 to September 28, the daily limit was four (4) chinook per day with only one (1) greater than 62 cm allowed to be retained
- September 29 to October 25, no fishing for salmon
  - Closure period to protect and mitigate potential impacts on Interior Fraser River Steelhead stocks of concern

# 2018 Fraser River Fisheries - Recreational

## Chinook management actions in Region 3 (Thompson-Nicola)

Fisheries in Region 3 generally target a specific stock group and are short duration opportunities designed to avoid impacts on non-target stocks. Areas not specifically mentioned are closed to fishing for salmon year-round.

### Fisheries targeting Spring and/or Summer 5<sub>2</sub> stocks

- Zone 1 management actions in place for 2018, no fishing for salmon

### Fisheries targeting Summer 4<sub>1</sub> stocks

- South Thompson River Aug 16 to Sept 22, 4 per day, 2 > 50 cm. There is a monthly quota of six chinook from the S. Thompson River
- Kamloops Lake Aug 22 to Sept 22, 4 per day, 2 > 50 cm
- Thompson River Aug 22 to Sept. 22, 4 per day, 1 > 50 cm

# 2018 Fraser River Fisheries - Recreational

## Chinook management actions in Region 5A and 7 (Cariboo/Peace)

All fisheries in these Regions target Spring or Summer 5<sub>2</sub> Chinook

– Zone 1 management actions in place for 2018. No fishing for salmon in most areas.

## Chinook management actions in Region 8 (Okanagan)

These fisheries target Summer 4<sub>1</sub> Chinook with measures in place to avoid Bessette Spring 4<sub>2</sub> stocks, in 2018 additional actions taken to protect earlier timed Shuswap component of the Summer 4<sub>1</sub> Chinook by closing Middle Shuswap and delaying Mabel Lake and Lower Shuswap by approx. 2 weeks. Areas not specifically mentioned are closed to fishing for salmon year round.

- Mabel Lake: Aug. 16 to Sep. 12, four chinook per day only two over 50 cm
- Middle Shuswap River: Closed in 2018
- Lower Shuswap River: Aug. 16 to Sep. 12 - four per day only two over 50 cm



# 2018 Fraser River Fisheries - Recreational

## Coho management actions

- Mouth to Sawmill Creek - no fishing for coho (bait ban) during IFR Coho Window Closure from early September to early October
- Sawmill Creek to Lytton - No fishing for salmon Sep. 16 to Dec. 31
- Lytton to Williams Lake - No fishing for salmon Sep. 23 to Dec. 31
- Upstream of Williams Lake - No fishing for salmon Oct. 1 to Dec. 31

## Chum management actions

- Oct. 25<sup>1</sup> and Oct. 26<sup>2</sup> to Dec. 31 - chum non-retention in mainstem and following tributaries (Oct. 28 - Dec. 31): Allouette River, Harrison River, Stave River, Nicomen Slough, and Chehalis River (<sup>1</sup>below Mission <sup>2</sup>Mission to Sawmill Creek)
  - these management actions were in effect due to low Fraser River terminal chum returns (i.e. run size not sufficient to allow for recreational opportunities)



# 2018 Fraser River Catch Recreational

	Chinook		Coho		Chum	
	rel	kept	rel	kept	rel	kept
Lower Fraser	102	5,227	382	0	0	25
BC Interior	96	2,096	0	0	0	0
<b>Totals</b>	<b>198</b>	<b>7,323</b>	<b>382</b>	<b>0</b>	<b>0</b>	<b>25</b>



# 2018 Fraser River Fisheries First Nations Food, Social and Ceremonial

## Chinook-directed fisheries

### Lower Fraser

- Above Port Mann:
  - gillnet openings occurred from Apr. 13 to Jul. 7
  - gillnets restricted to 8-inch mesh from Jun. 29 to Jul. 7
- Below Port Mann:
  - gillnet openings occurred Apr. 27 to Sep. 3
  - gillnets restricted to 8-inch mesh from Jun. 30 to Sep. 3
- managed to reduced hours to maintain effort consistent with Zone 1 management

### Mid Fraser

- Rod and reel, dip net, and gill net from Apr. 13 to Early Stuart Window Closure
- gillnets restricted to 8-inch mesh from Jul. 4 to 31 (Early Stuart Window Closure)
- Chinook-/Sockeye-directed Aug. 1 to Oct. 13



# 2018 Fraser River Fisheries First Nations Food, Social and Ceremonial

## Chinook-directed fisheries (cont.)

### Thompson River Upstream of Bonaparte

- licensed Jul. 23 to Sep. 30 with no restrictions, using traditional gear
- Beach seine licensed from Oct. 1 to 11

### Upper Fraser

- Rod and reel and dip net openings Jun. 1 to Jul. 31



# 2018 Fraser River Fisheries

## First Nations Food, Social, and Ceremonial

### Sockeye-directed fisheries

Sockeye-directed FSC and EO fisheries took place in 2018, which may intercept chinook, chum, and coho. Details of these fisheries were included in the Fraser Sockeye presentation.

### Coho-directed fisheries

- No terminal Coho directed opportunities occurred for Secwepemc communities in 2018.
- Northern Shuswap Nation Tribal Council Coho directed opportunity from McKinley Creek Fence based on abundance

### Chum-directed fisheries (Lower Fraser only)

- one shallow seine opening Oct. 10
- gillnet opening on weekends Oct. 12 to Nov. 4



# 2018 Fraser River Fisheries First Nations Economic Opportunity and Demo

- No Chinook-directed opportunities for 2018



# 2018 Fraser River Catch - First Nations

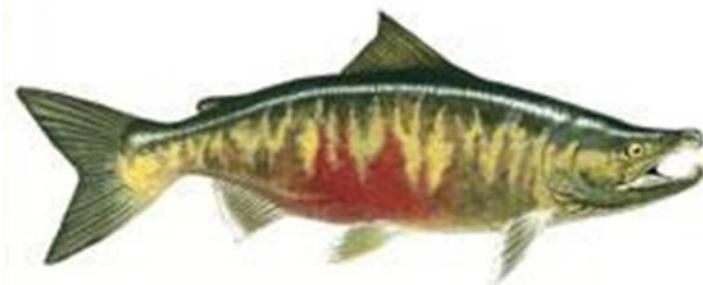
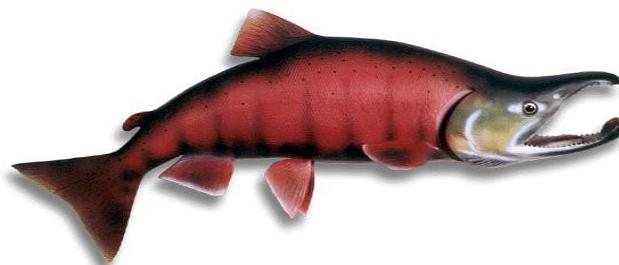
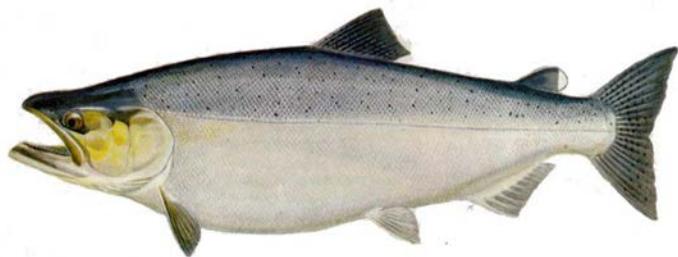
	Chinook		Coho		Chum		Steelhead	
	rel	kept	rel	kept	rel	kept	rel	kept
<b>FSC</b>								
Lower Fraser	445	15,048	1,212	601	435	65,706	63	2
BC Interior	18	2,639	0	141	0	0	*0	*0
<b>FSC Total</b>	<b>463</b>	<b>17,687</b>	<b>1,212</b>	<b>742</b>	<b>435</b>	<b>65,706</b>		
<b>Economic Opportunity</b>								
Lower Fraser	435	1,068	1,212	1,099	188	1,421	15	1
BC Interior	3,344	0	2,677	0	0	0	*0	*0
<b>Ec Opp Total</b>	<b>3,779</b>	<b>1,068</b>	<b>3,889</b>	<b>1,099</b>	<b>188</b>	<b>1,421</b>		
<b>ESSR</b>								
Lower Fraser	0	13,593	0	41,966	0	9,353	0	0
BC Interior	0	0	0	0	0	0	*0	*0
<b>ESSR Total</b>	<b>0</b>	<b>13,593</b>	<b>0</b>	<b>41,966</b>	<b>0</b>	<b>9,353</b>		
<b>All Catch</b>								
Lower Fraser	880	29,709	2,424	43,666	623	76,480	78	3
BC Interior	3362	2,639	2677	141	0	0	0	0
<b>All Catch Total</b>	<b>4,242</b>	<b>32,348</b>	<b>5,101</b>	<b>43,807</b>	<b>623</b>	<b>76,480</b>	<b>78</b>	<b>3</b>

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

*\*preliminary numbers*



# The End





# 2018 IFR Steelhead Window Closure

Fishery Location	Start Date	End Date
Subareas 29-6, 29-7, 29-9 and 29-10	28-Sep	24-Oct
Fraser River – Below Mission	28-Sep	24-Oct
Fraser River – Mission to Hope	29-Sep	29-Oct
Fraser River – Hope to Sawmill Creek	03-Oct	31-Oct
Fraser River – Sawmill Creek to Lytton	05-Oct	31-Dec
Fraser River – Lytton to Williams Lake River	12-Oct	31-Dec
Thompson River – D/S of the confluence of the North and South Thompson Rivers	12-Oct	31-Dec