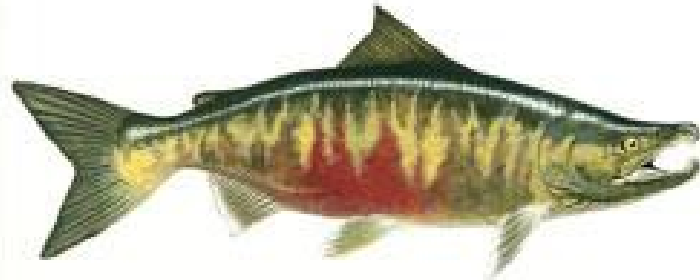
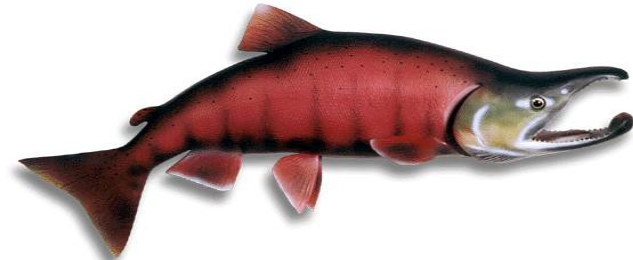
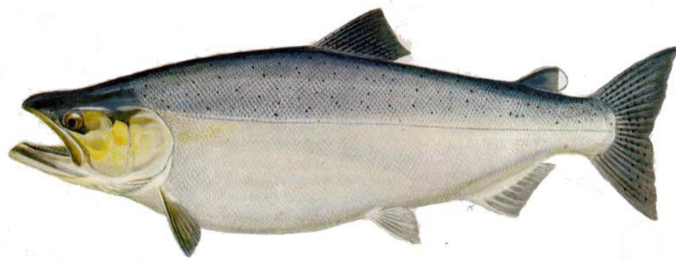




2018 Fraser River Stock Assessment and Fishery Summary

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 4₂ Chinook (2 Conservation Units)
 - Spring 5₂ Chinook (9 Conservation Units)
 - Summer 5₂ Chinook (5 Conservation Units)
 - Summer 4₁ Chinook (4 Conservation Units)
 - Fall 4₁ Chinook (3 Conservation Units)



2018 Fraser River Stock Assessment Chinook

In-season Assessment:

- Spring and Summer 5₂ 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 19th 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

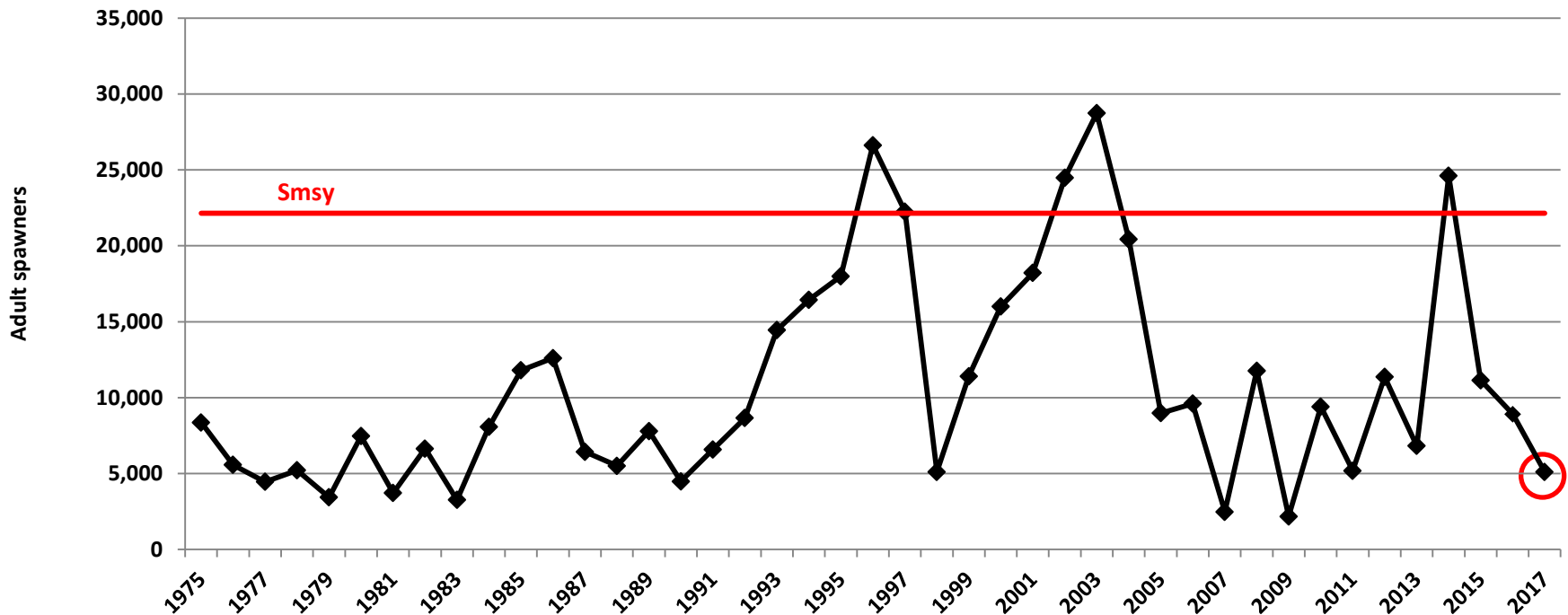
Post-season Assessment:

- 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 4₂ Chinook

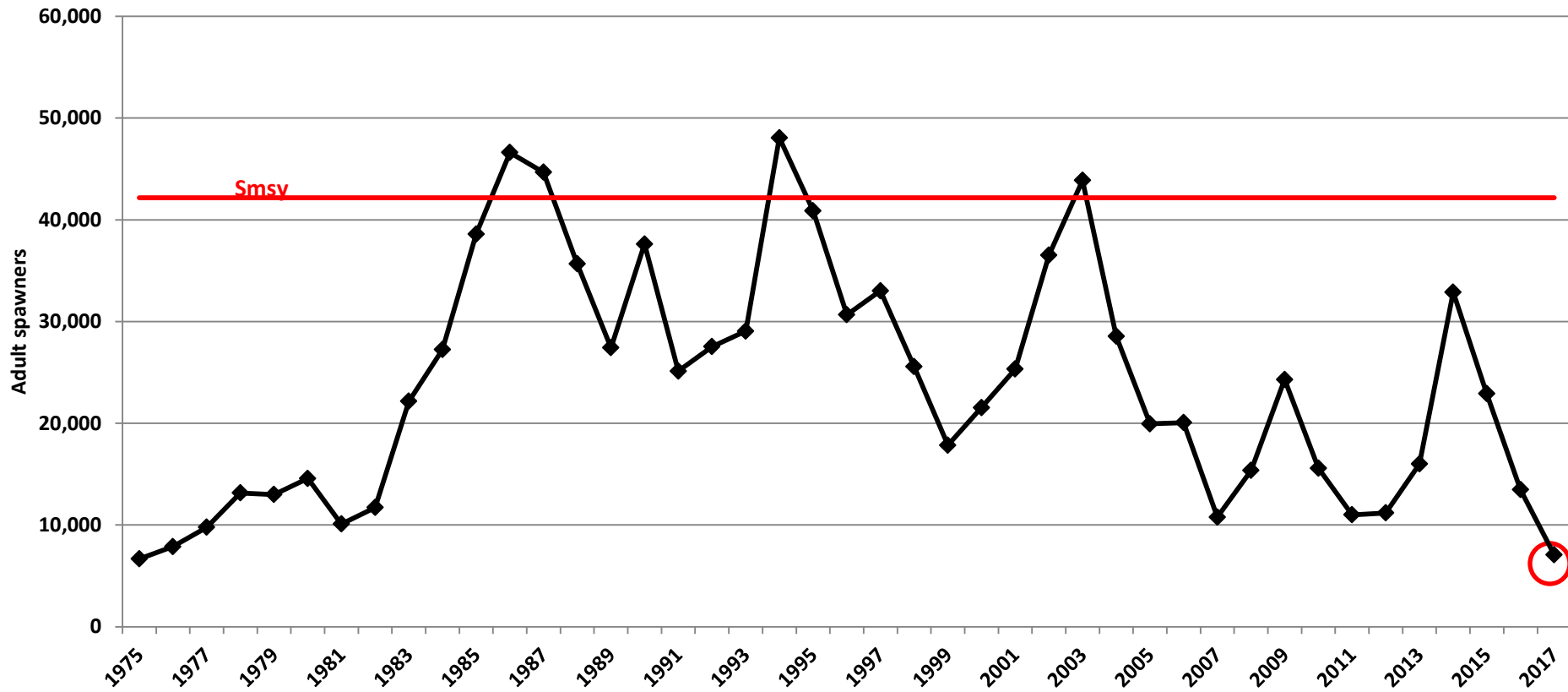
- 2017 was well-below S_{msy} and below the long-term average
- 2014 escapement was driven by strong Bonaparte R return





Escapement - Fraser Spring 5₂ Chinook

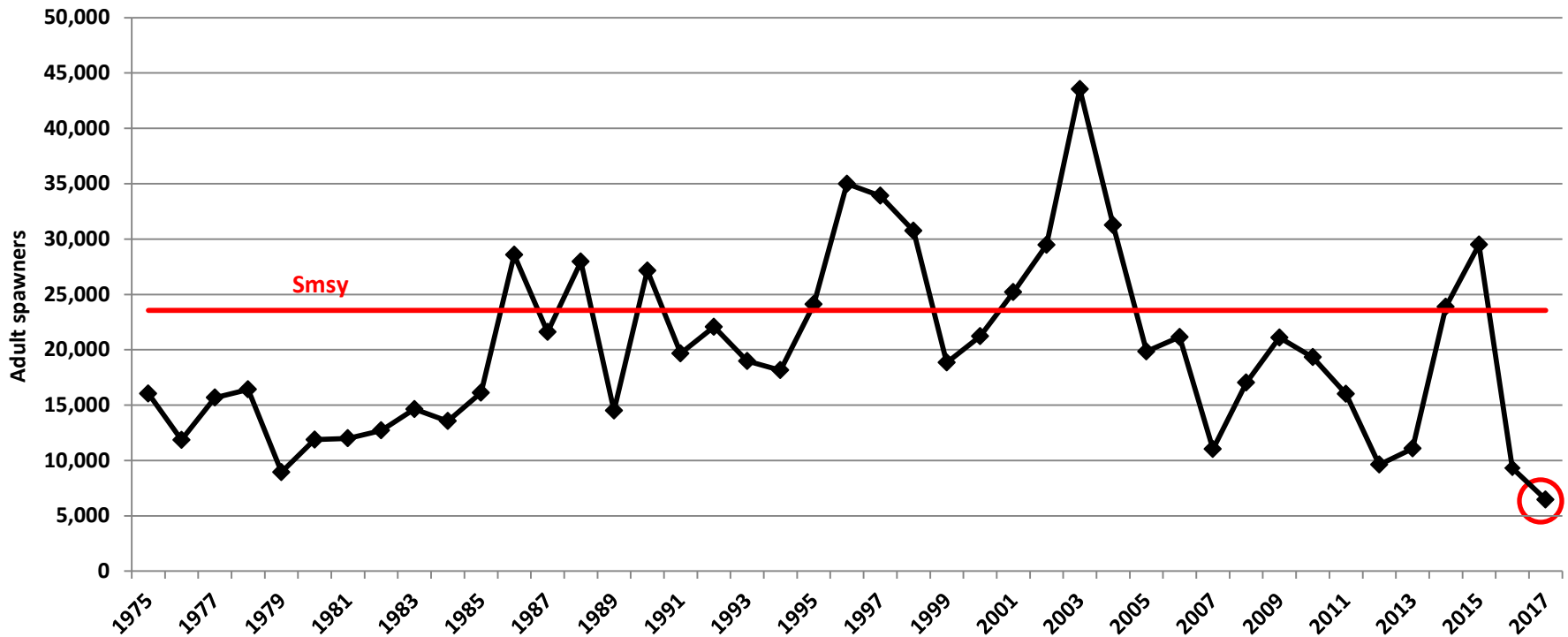
- 2017 was well-below Smsy and below the long-term average





Escapement - Fraser Summer 5₂ Chinook

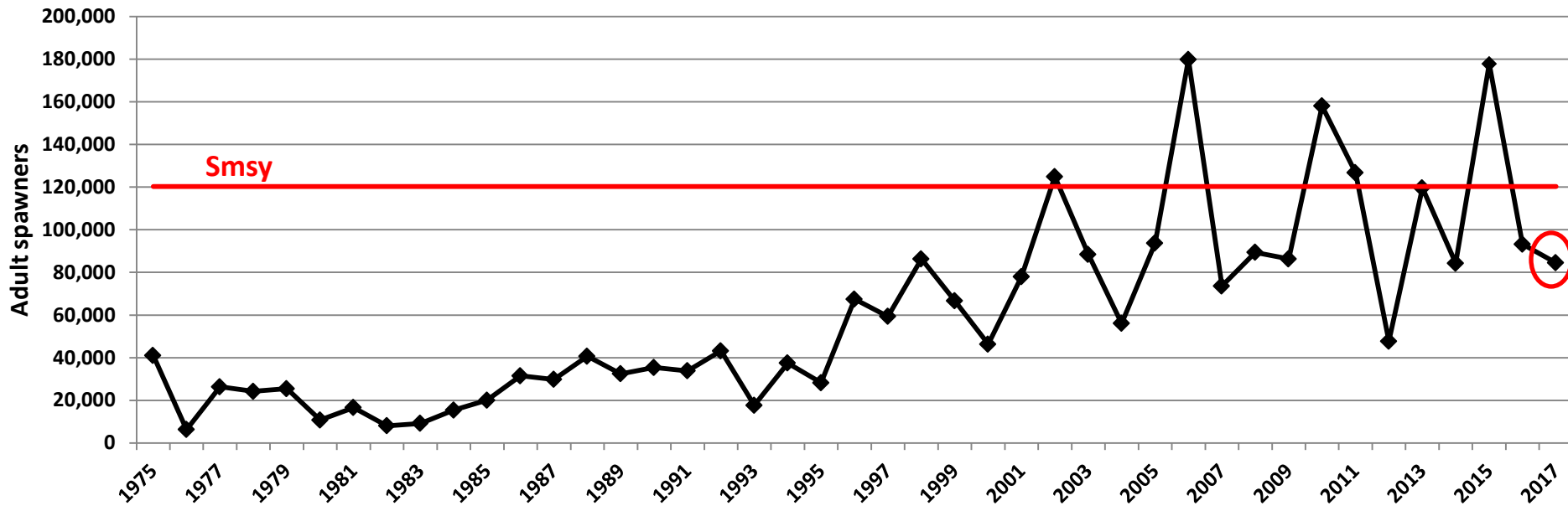
- 2017 was well-below Smsy and the long-term average
- 2015 driven by strong Nechako return





Escapement - Fraser Summer 4₁ Chinook

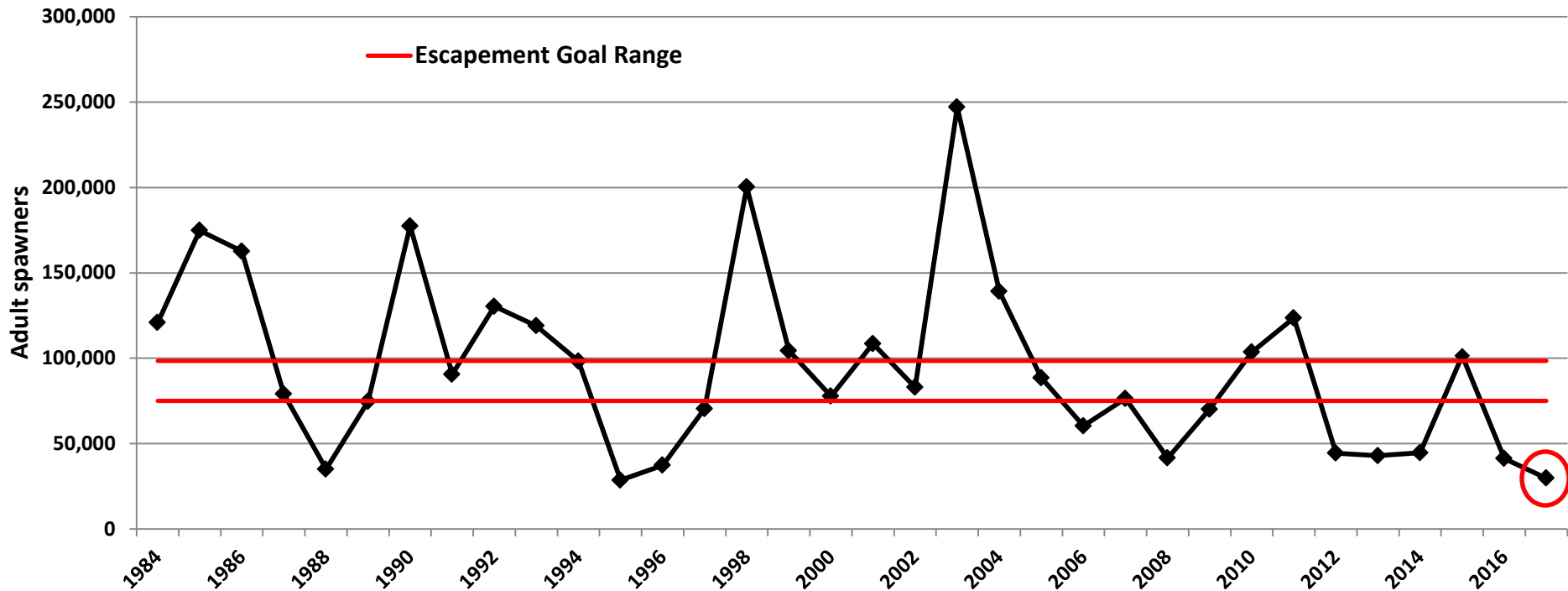
- 2017 was below Smsy
- Individual stocks varied relative to the long-term average for 2017: the indicator (Lower Shuswap) was below, Lower Adams was average and South Thompson and Little River were well-above





Escapement - Fraser Fall 4₁ 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





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 $4_2 < 2,400$ (brood year escapement $>24,000$)
- Spring $5_2 < 9,000$ (brood year escapement $>18,000$)
- Summer $5_2 < 6,000$ (brood year escapement $\sim 16,000$)
- Summer $4_1 \sim 46,000$ (brood year escapement $\sim 84,000$)
- Fall $4_1 \sim 45,000$ (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

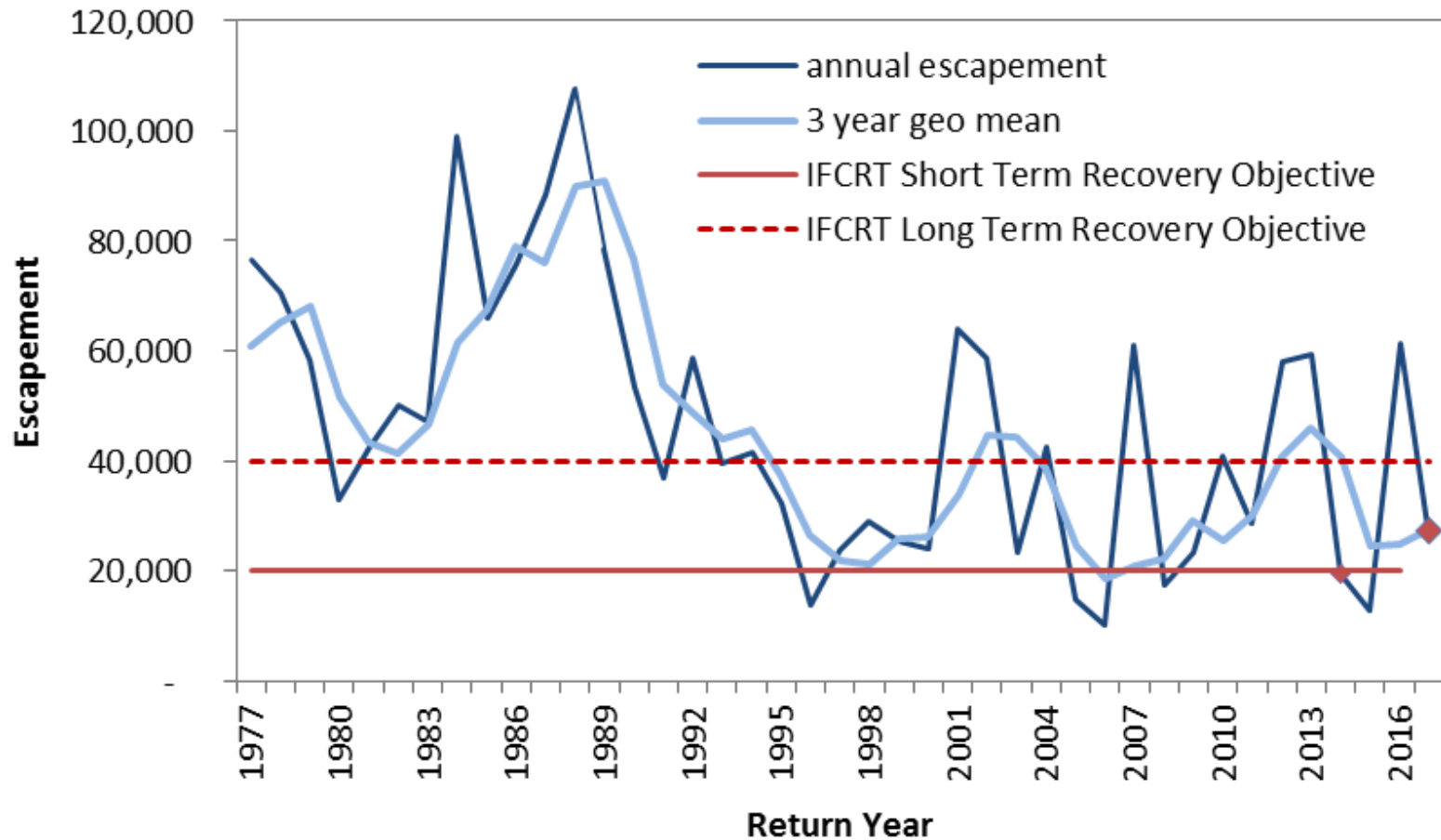
Interior Fraser River Coho

- 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

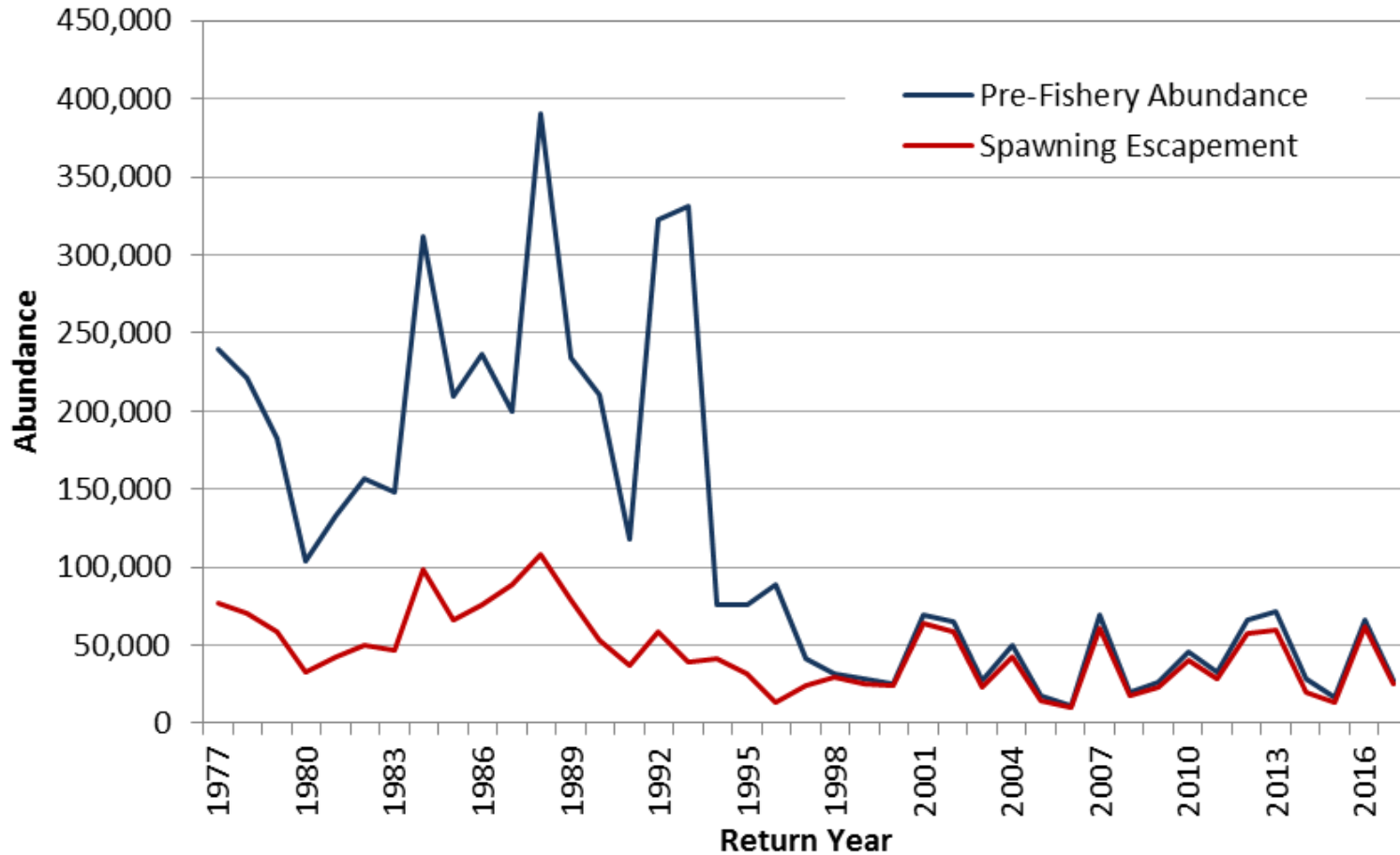


Escapement - Interior Fraser River Coho





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

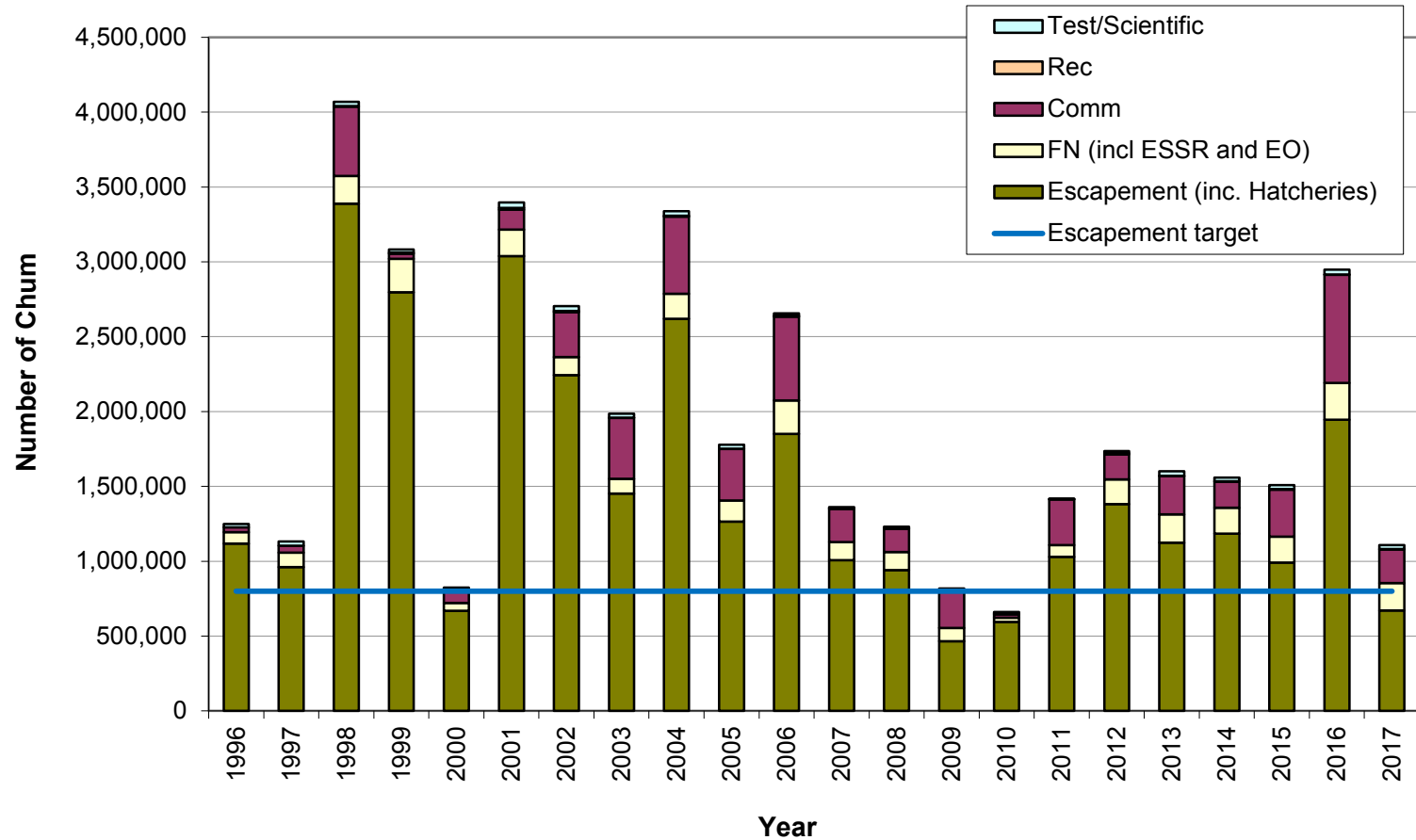


2018 Fraser River Chum

- Managed based on in-season information derived from the Albion test fishery
- 2018 in-season assessment:
 - October 17th preliminary run size estimate of 793,000 (FN1161)
 - October 22th 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



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 5₂ 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 5₂ stocks

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

Fisheries targeting Summer 4₁ 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 5₂ 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 4₁ Chinook with measures in place to avoid Bessette Spring 4₂ stocks, in 2018 additional actions taken to protect earlier timed Shuswap component of the Summer 4₁ 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. 25¹ and Oct. 26² 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 (¹below Mission ²Mission 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
Totals	198	7,323	382	0	0	25



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

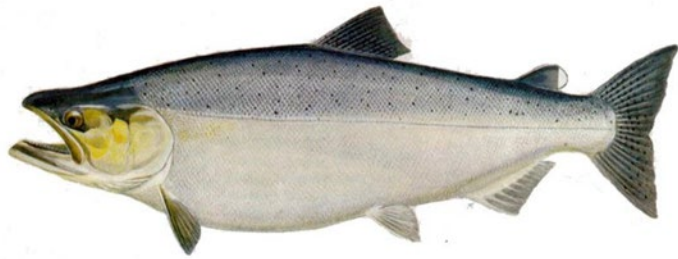
	Chinook		Coho		Chum		Steelhead	
	rel	kept	rel	kept	rel	kept	rel	kept
FSC								
<i>Lower Fraser</i>	445	15,048	1,212	601	435	65,706	63	2
<i>BC Interior</i>	18	2,639	0	141	0	0	*0	*0
FSC Total	463	17,687	1,212	742	435	65,706		
Economic Opportunity								
<i>Lower Fraser</i>	435	1,068	1,212	1,099	188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

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