



2024 Post-season Review

Fraser Sockeye

presented to: JTWG #1

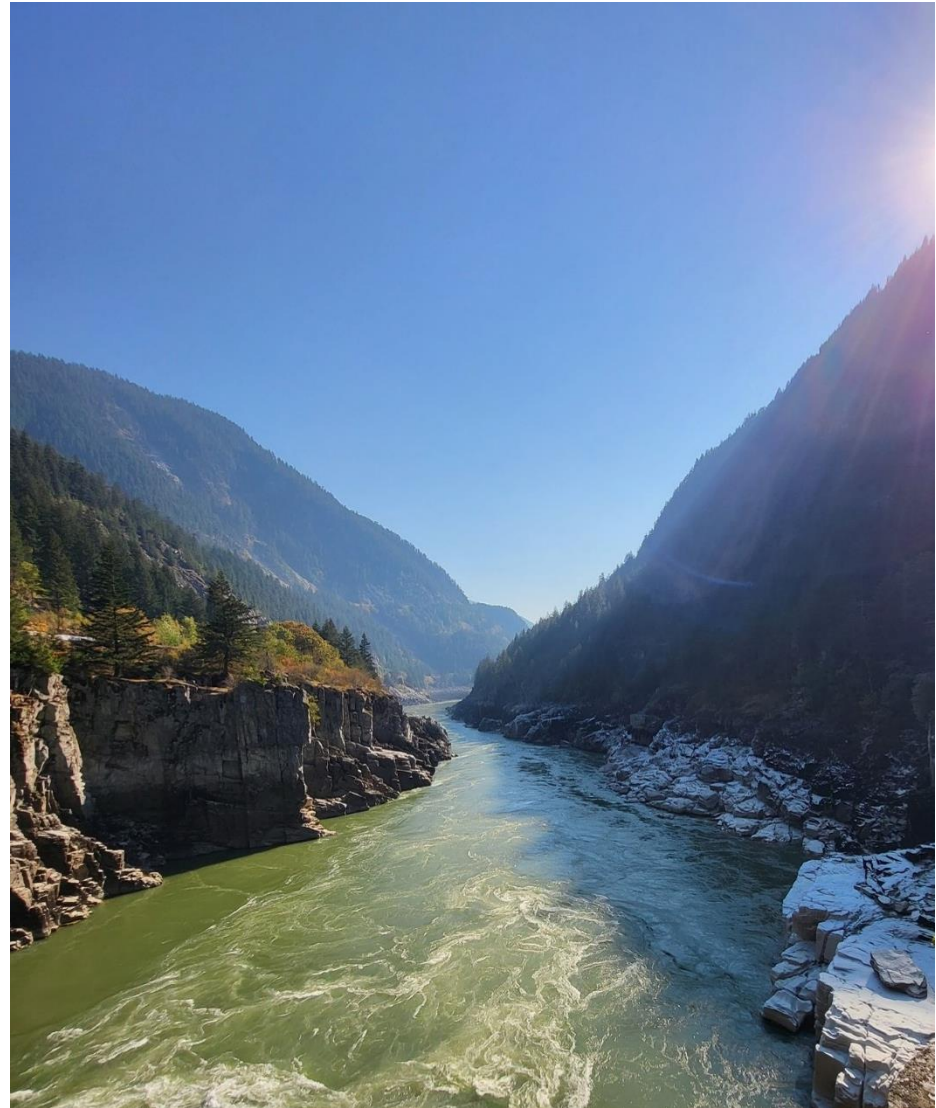
by: Colin Schwindt

date: **January 2025**



Overview

- Pre-season
- In-season
 - High level Sockeye overview
- Post-season
- Pre-lim Escapement
- Next steps/Timelines



Fraser Sockeye

2024 PRE-SEASON

Preliminary 2024 Run-size Summary

Management Group	Pre-season Forecasted Run Size	End-of-season Run Size Estimate	Difference
Early Stuart	181	NA*	
Early Summer Run	159,000	142,000	-11%
Summer Run	379,000	307,000	-19%
Late Run	29,000	24,000	-14%
Total Sockeye	567,000	473,000	-17%

Total Sockeye Run Size: 20% above the 2020 brood year return (400k) and 85% below the historical cycle-line return (3.1M)

* Not possible to generate in-season run size estimates for Early Stuart, given low abundance

2024 Fishery Planning Considerations

- **Sockeye**

- 2024 Fraser Sockeye forecast was the lowest on record (567k). Historical low brood escapements in 2019 (303k) and 2020 (288k)
- Productivity has been trending back toward average after historic low in 2019
- Unlikely to achieve escapement targets
- Precautionary escapement plan (5-10% LAER)
- **No Sockeye TAC in 2024 at any run size for any sector**
- Early Stuart window closure extended to 5 weeks

Pink

- No Fraser Pink return in 2024



Pre-season Planning Model

Stock Group	Run Size Forecast	TAM	SET	pDBE	MA	Test Fishing	Harvestable Surplus ¹	A20 Peak
Early Stuart	181	0%	181	-0.54	212	0	0	7-Jul
Early Summer	158,950	17%	131,200	-0.36	73,472	1,561	0	19-Jul
Summer	379,247	0%	379,247	-0.22	106,189	4,701	0	30-Jul
Late run (incl. Birkenhead)	28,958	0%	28,958	-0.33	14,189	549	0	7-Aug
Sockeye	567,336	-	539,586	-	194,062	6,811	0	-

Harvestable surplus = median forecast – SET – MA - TF

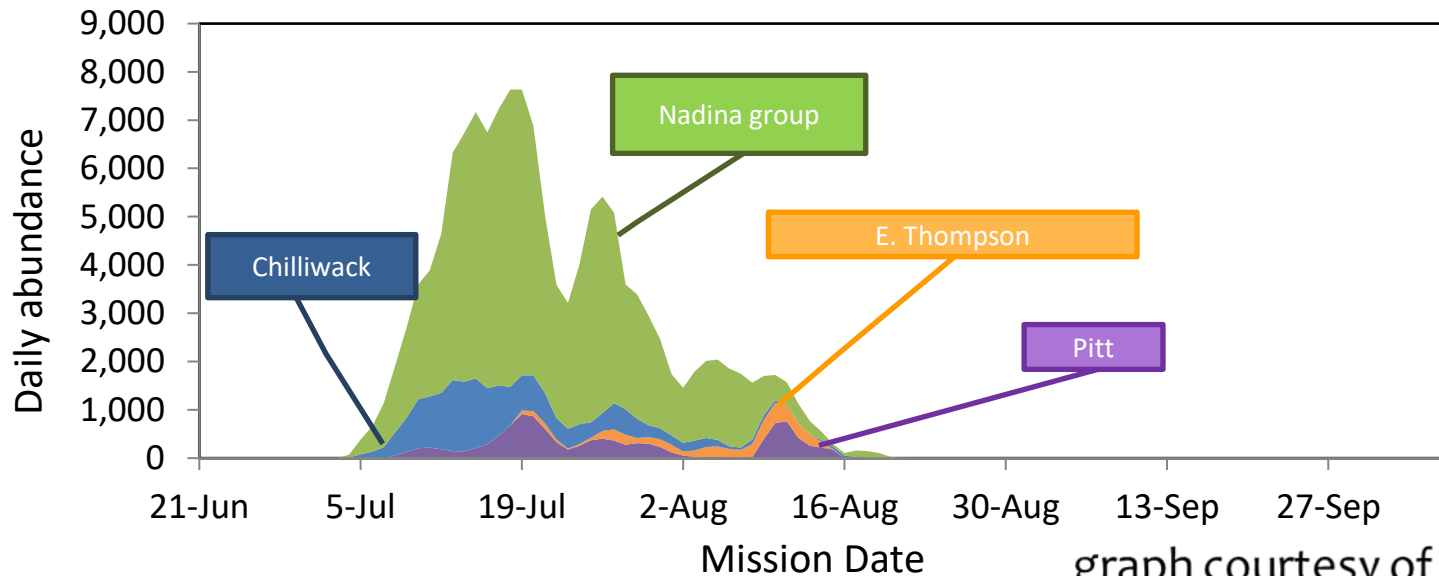
Fraser Sockeye

2024 IN-SEASON INFORMATION

2024 Run size: Early Summer Run

Stock	End of Season Run Size	Pre-Season	Difference
Chilliwack	20,000	34,000	-43%
Pitt/Alouette/Coquitlam	11,000	16,000	-30%
Nadina/Gates/Bowron/Nahatlatch/Taseko	106,000	96,000	+11%
Early Thompson, North Barriere	5,000	13,000	8%
Total Accounted Run	142,000	159,000	-11%

Early Summer escapement past Mission

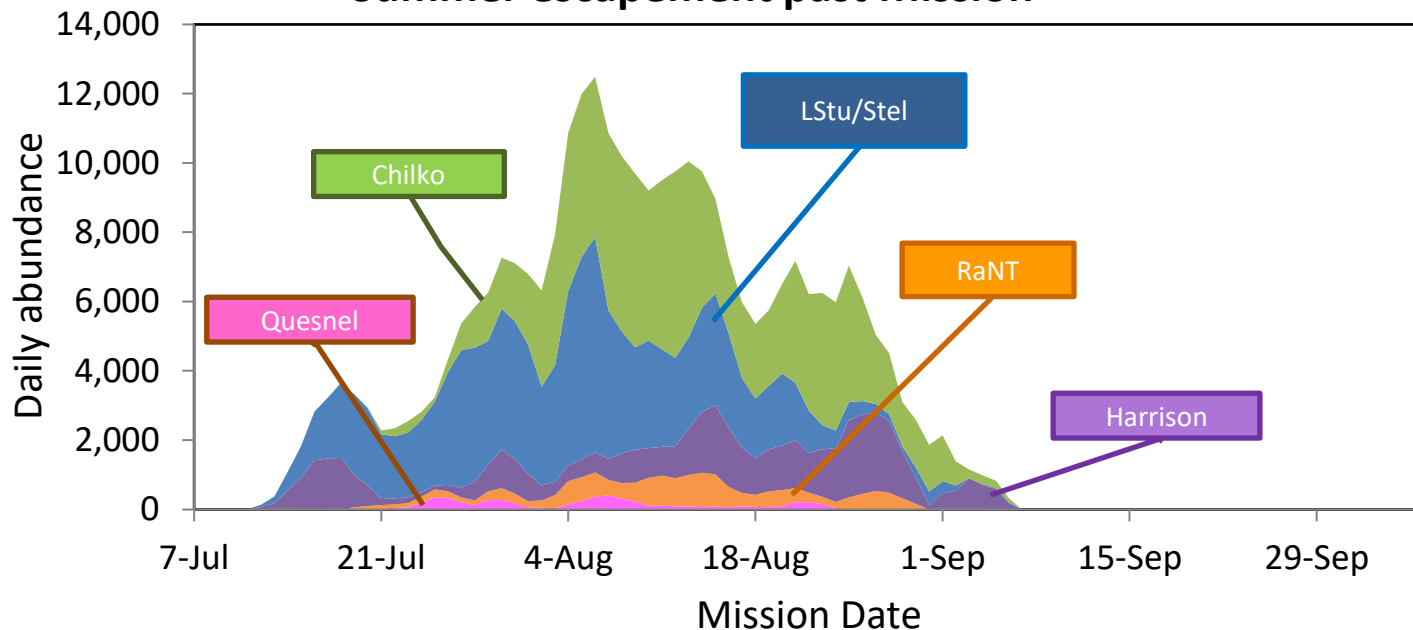


graph courtesy of PSC

2024 Run size: Summer Run

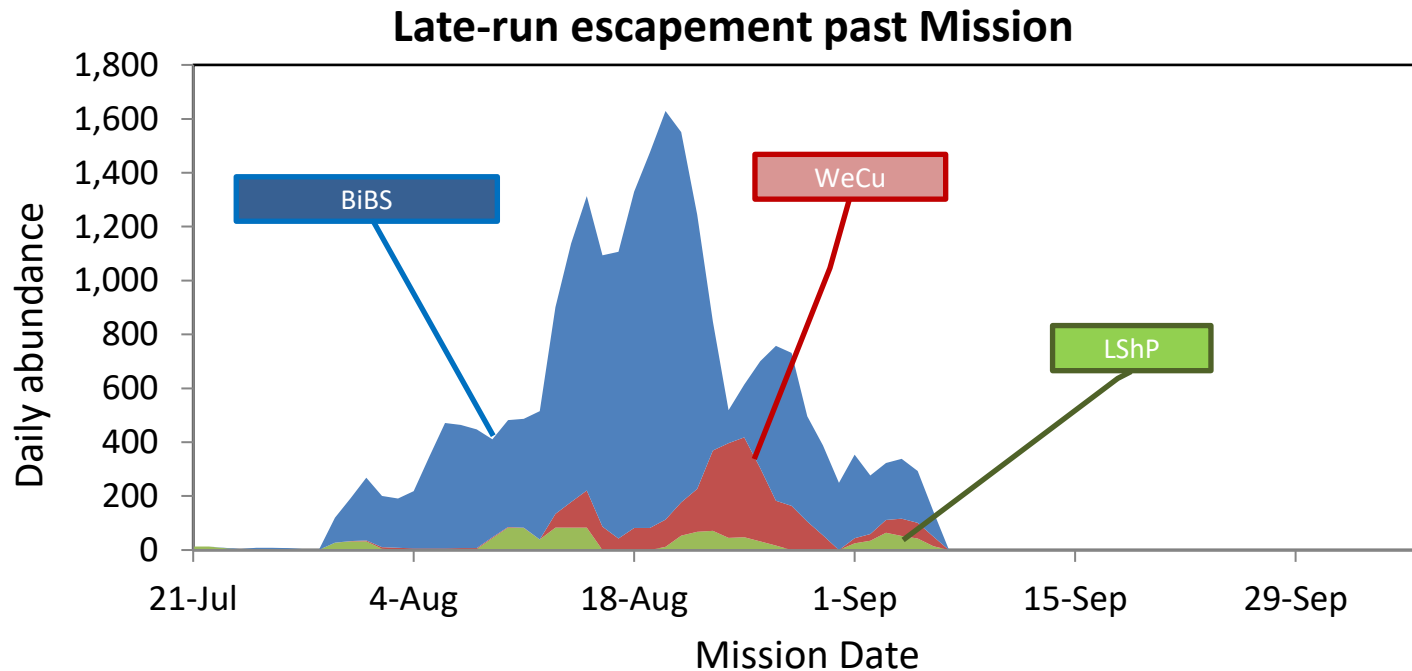
Stock	End of Season Run Size	Pre-Season	Difference
Harrison	52,000	107,000	-51%
Late Stuart / Stellako	117,000	77,000	51%
Chilko	115,000	176,000	-34%
Quesnel	5,000	3,000	90%
Raft / North Thompson	18,000	17,000	1%
Total Accounted Run	307,000	379,000	-19%

Summer escapement past Mission



2024 Run size: Late Run

Stock	End of Season Run Size	Pre-Season	Difference
Birkenhead, Big Silver	20,400	24,000	-17%
L. Shuswap / Portage	1,300	3,000	-51%
Weaver / Cultus	3,000	2,000	+58%
Total Accounted Run	24,700	29,000	-15%

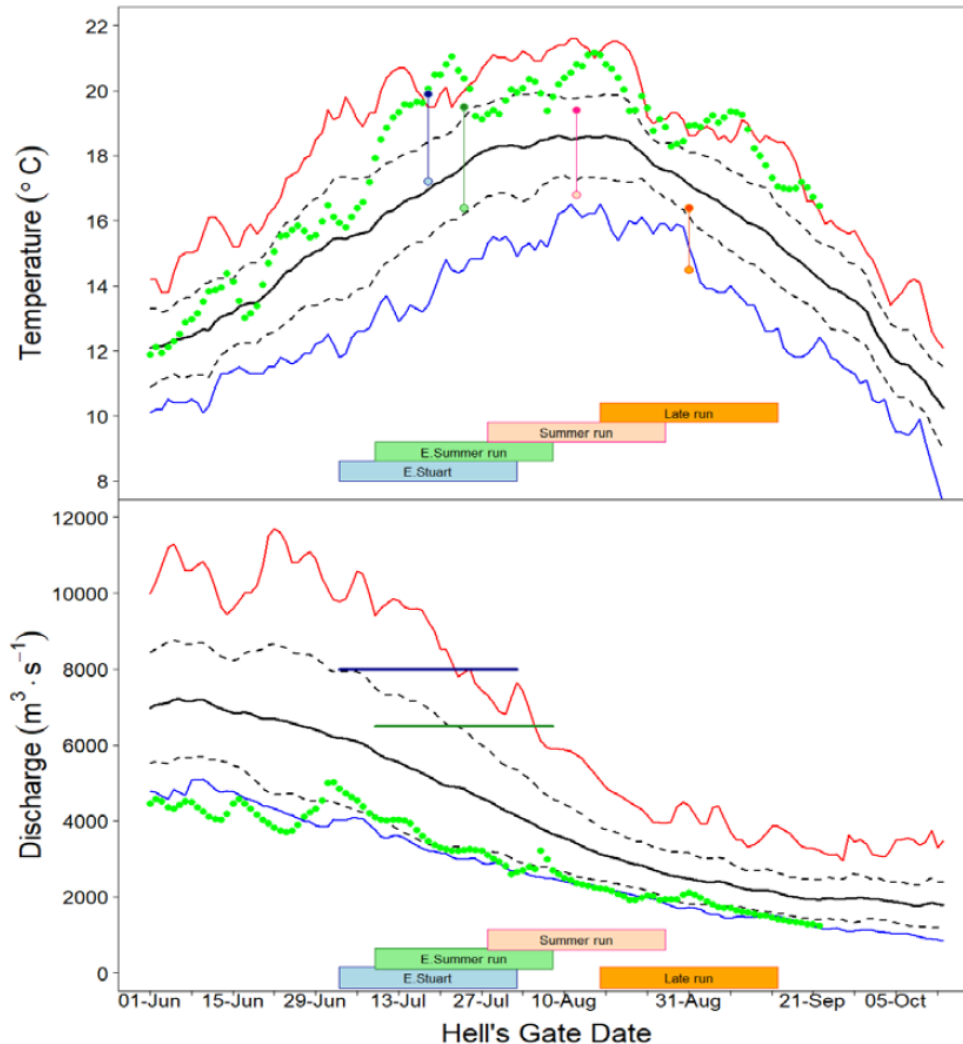


2024 Migration Timing

	Area 20 Timing		
Management Group	Pre-season forecast ¹	End of season	Difference
Early Stuart	7-July	N/A	N/A
Early Summer	19-Aug	14-July	-5
Summer	30-Aug	2-Aug	+3
Late	7-Aug	12-Aug	+5

¹Based on Panel agreed timing estimates following the June meeting. DFO's pre-season timing estimates were: July 8 for Early Stuart, August 3 for Chilko.

2024 Fraser River Temperature & Discharge



- High water temperatures and low discharge persisted throughout the migration period
- Increased en-route loss
- Increases to MAs for Estu and Summer MUs
 - Eliminated TAC opportunities
- Pre-season MAs sufficient for Late
- Low discharge = no passage challenges at BB

2024 In-Season Management Adjustment

	Pre-season Adopted		In-season Adopted	
Early Stuart In-season Temperature: > 17°C	pDBE -0.54	Implied pMA 1.17	pDBE -0.66	Implied pMA 1.94
Early Summer run	pDBE -0.36	Implied pMA 0.56	pDBE -0.36	Implied pMA 0.56
Summer run In-season Temperature: > 19.4 °C	pDBE -0.22	Implied pMA 0.28	pDBE -0.36	Implied pMA 0.56
Late run	pDBE -0.33	Implied pMA 0.49	pDBE -0.30	Implied pMA 0.43

2024 Sockeye Fisheries Summary

- No licensed fisheries directed on FR Sockeye in Canadian or US panel waters
- Retention of FR Sockeye (direct or bycatch) was not authorized by DFO except for a small terminal fishery on the Nadina and Birkenhead systems
- Impacts to Sockeye were primarily attributed to bycatch in other licensed fisheries (Chinook), test fisheries and unauthorized retention



Fraser Sockeye and Pink Salmon

2024 POST-SEASON*

* relative to fisheries management season
... it's still in-season for Stock Assessment!

Preliminary Post-Season Kept Catch

Fraser Sockeye						
Fishery Type	Early Stuart	Early Summer	Summer	Late	Total	% of Run
CANADIAN CATCH						
Commercial Catch	0	0	0	0	0	0.0%
First Nations Catch	0	50	70	420	540	0.1%
Non-commercial Catch ¹	0	40	180	20	240	0.1%
Other ²	0	1,000	16,300	80	17,400	3.8%
Canadian Total	0	1,100	16,500	520	18,100	4.0%
UNITED STATES CATCH						
Commercial Catch	0	0	0	0	0	0.0%
Non-commercial Catch ¹	0	0	0	0	0	0.0%
Other ²	0	0	0	0	0	0.0%
Washington Total	0	0	0	0	0	0.0%
Alaska (preliminary)	0	0	0	0	0	0.0%
United States Total	0	0	0	0	0	0.0%
TEST FISHING CATCH						
Test Fishing Total	0	1,600	4,000	210	5,800	1.3%
TOTAL CATCH						
Total Catch in All Fisheries	0	2,700	20,500	720	23,900	5.2%
PRELIMINARY EXPLOITATION RATE						
Preliminary Run Size	NA	143,000	275,000	38,000	456,000	
Prelim. Exploitation Rate (ER)	NA	1.9%	7.5%	1.9%	5.2%	
Prelim. ER Including FIMs	NA	1.9%	7.5%	1.9%	5.2%	

FSC under the LAER

Albion TF

Primarily mid-river unsanctioned

Based on last adopted by FRP and may differ from end of season

¹ Non-commercial catch includes recreational, charter, and ESSR in Canada, and sport and C&S in the U.S.

² May include unauthorized directed retention or unauthorized bycatch retention in fisheries directed at other species.

2024 Preliminary Post-Season Exploitation Rates

	Early Stuart		Early Summer		Summer		Late		bycatch in CH
	LAER	Catch ^b	LAER	Catch ^b	LAER	Catch ^b	LAER	Catch ^b	
Marine FN FSC		0		0		0		0	
Fraser River FN FSC (LFr)		0		47		1,444		503	
Fraser River FN FSC (BCI)		0		61		404		1	
Fraser River FN FSC-ESSR (LFr)		0		0		0		0	
Fraser River FN FSC-ESSR (BCI)	9	0	9,940	0	30,700	0	2,500	0	
US Fisheries		0		0		0		0	
Test Fisheries		1		1,630		4,173		221	
CA Com and Rec. ^d		0		3		32		6	
UnSanctioned/Other		0		1,008		16,271		78	
Total	9	2	9,940	2,749	30,700	22,325	2,500	809	
Total^c	5.0%	1.0%	7.0%	1.9%	10.0%	7.3%	10.0%	3.2%	

^a TAM or LAER based on 2024-25 IFMP

^b Catch estimates are preliminary and are kept + FIMs.

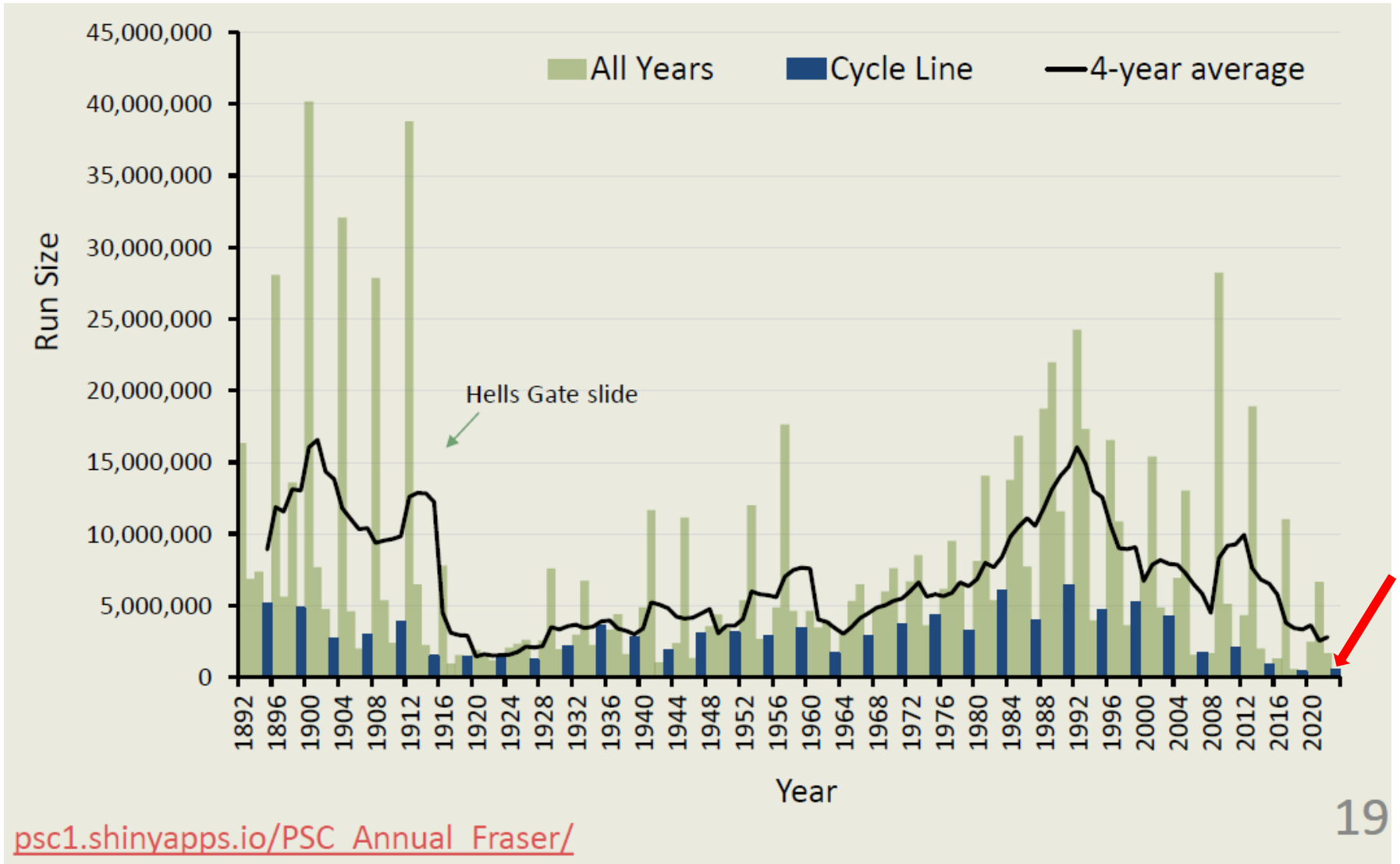
^c % is the total catch divided by the run size used for management (exploitation rate).

^d Includes Commercial: Fleet, EO, Five Nations, Demonstration and Recreational

The LAER is the allowable catch for all fisheries and is not a target and conservation may take precedence.

- Near final run size and catch estimates will be available in January 2025. Final estimates will likely be available in May 2025
- Catch is based on end-of-season run size, which may differ from PSC tables that use “last adopted”.
 - In 2024 this resulted in ER% difference for Summer and Lates

2024 Sockeye Run Size Summary



[psc1.shinyapps.io/PSC Annual Fraser/](http://psc1.shinyapps.io/PSC_Annual_Fraser/)

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The red arrow indicates the preliminary estimate of the 2024 run size

Preliminary Escapement

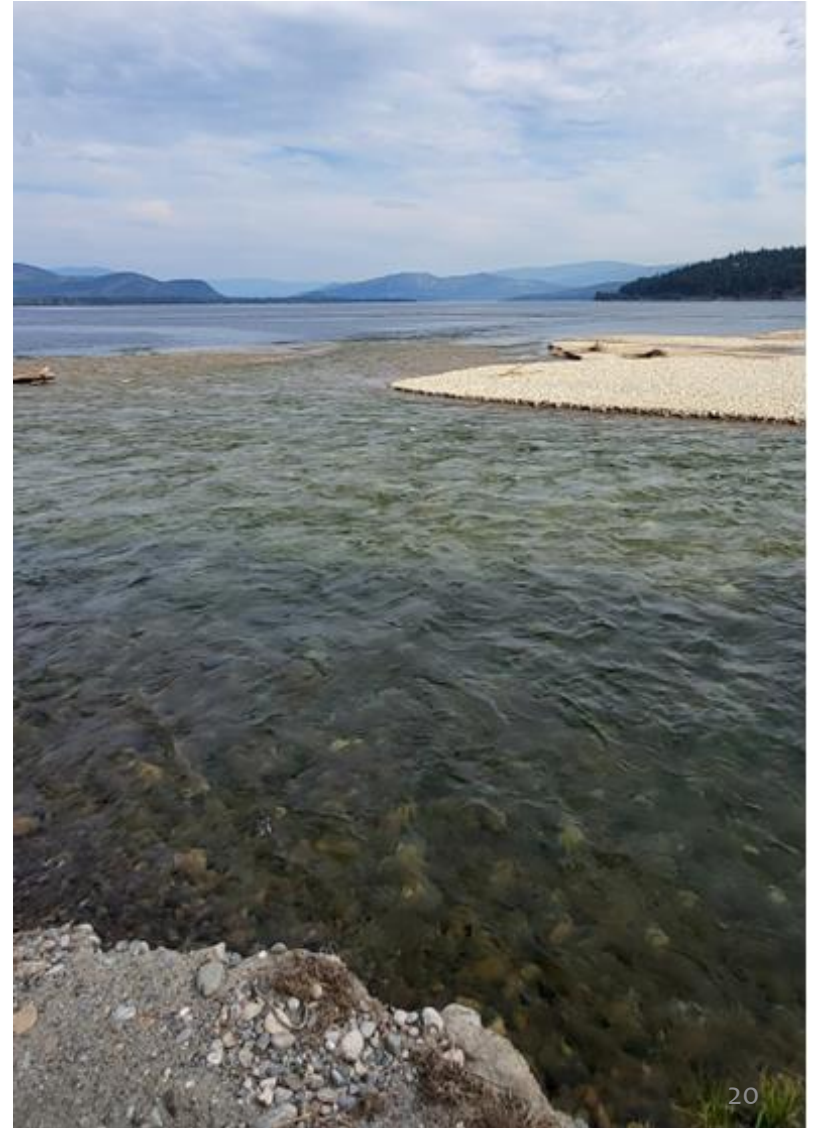
- Early Stuart preliminary escapement is 90% jacks, very few adults and no evidence of hatchery returns
- Early Summer is higher than expected, dominated by Nadina
 - lower spawn success at Nadina resulting in lower EFS (32,322)
 - Poor returns of some stocks

Management Group	Potential Spawning Escapement	Predicted Spawning Escapement ¹	Preliminary Spawning Escapement	% Deviation from Pot.	% Deviation from Pred.
Early Stuart	192	65	356	%197	
Early Summer	139,100	89,000	172,160	%124	%198
Summer	286,400	183,300	-	-	
Late	24,200	16,900	-	-	
Total Sockeye	449,892	289,265	-	-	

Preliminary Escapement

Preliminary Sonar Escapements

- Variability in expected sonar escapements
 - Chilliwack sonar count = 26k
 - Nadina sonar count = 119k
 - Stellako sonar count = 180k
 - Chilko fence count = 49,325 – higher than expected considering slide
 - Birkenhead fence count = 26k
 - Cultus fence count = 156



Next Steps & Timelines

2024 Preliminary Escapements

- Early Stuart: Dec 2024
- Early Summer, Summer, Late: Jan 2024

2024 Near Final Run Size and ER

- May 2024

2025 Fraser Sockeye Forecast

- Feb 2025

2025 Fraser Sockeye Escapement Plans

- Options in draft 2025/2025 IFMP
- Feb 2025

Questions?

Extra Slides

Stocks	Cycle yr Avg.	Brood year (2020)	Brood year (2019)	Prelim 2024
Early Stuart	42,694	30	89	356
Early Summer	144,327	80,300	45,057	171,899
(total excluding miscellaneous)	128,177	46,145	40,067	143,367
Bowron	16,248	344	20	616
Fennell (cycle avg since 1967)	7,609	981	524	1,890
Gates (cycle avg since 1955)	10,541	6,329	9,876	5,562
Nadina	17,793	29,345	23,241	118,864
Pitt	32,946	6,783	3,507	14,712
Scotch (cycle avg since 1983)	9,438	1,443	1,719	1,010
Seymour	33,602	920	1,180	707
Misc Eshu	4,267	229	2,264	196
Misc Taseko	5,272	60		229
Misc (Chilliwack)	2,290	31,770	1,438	26,251
Misc (Nahatlatch)	4,321	2,096	1,288	1,856

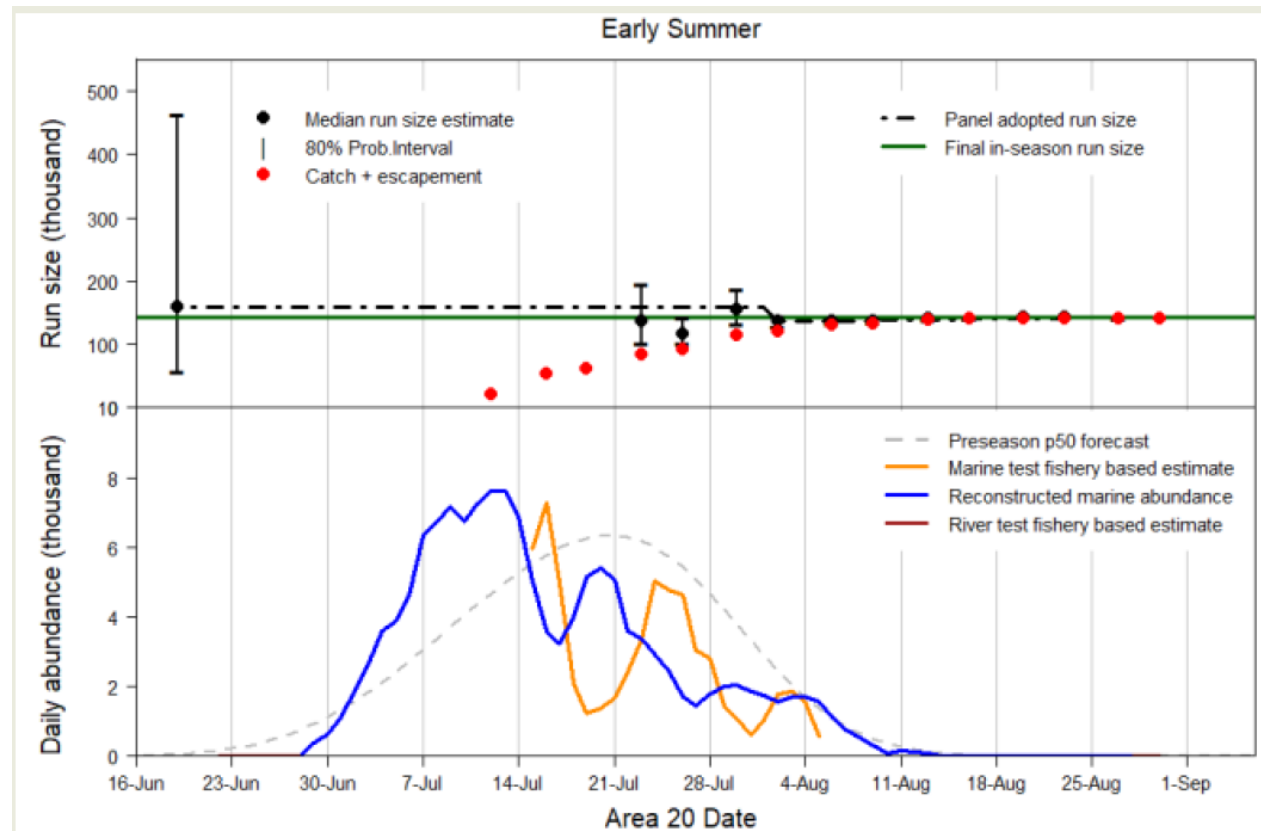
2025 Escapement Planning

- 2025 pre-season preliminary total Fraser sockeye forecast is ~2.9M (median)
- 2025 pre-season preliminary total Fraser Pink forecast is ~28M (median)
- Department and partners are in early stages of escapement planning that include planning for potential harvestable surplus of sockeye to support some FSC fisheries
- Additional Pink surplus to support a range of fishery options
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2024 Preliminary Run size: Early Summer Run

End-of-season estimate: 11% higher than p50 forecast

Date	Adopted Run Size
p50	159,000
Aug 2	136,000
Aug 9	140,000
Aug 16	142,000
Aug 23	143,000
Accounted to Date	142,000

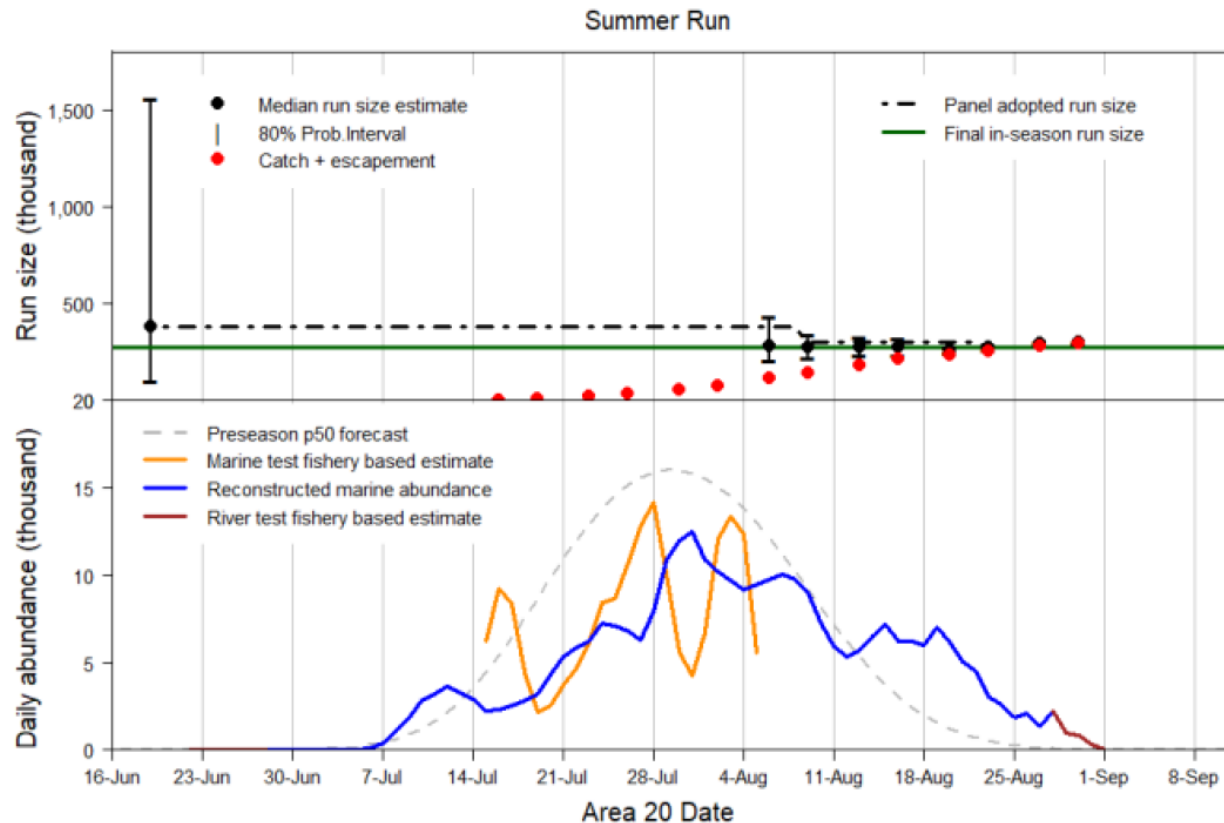


graph courtesy of PSC

2024 Preliminary Run size: Summer Run

End-of-season estimate: 19% lower than p50 forecast

Date	Adopted Run Size
p50	379,080
Aug 9	300,000
Accounted to Date	307,400

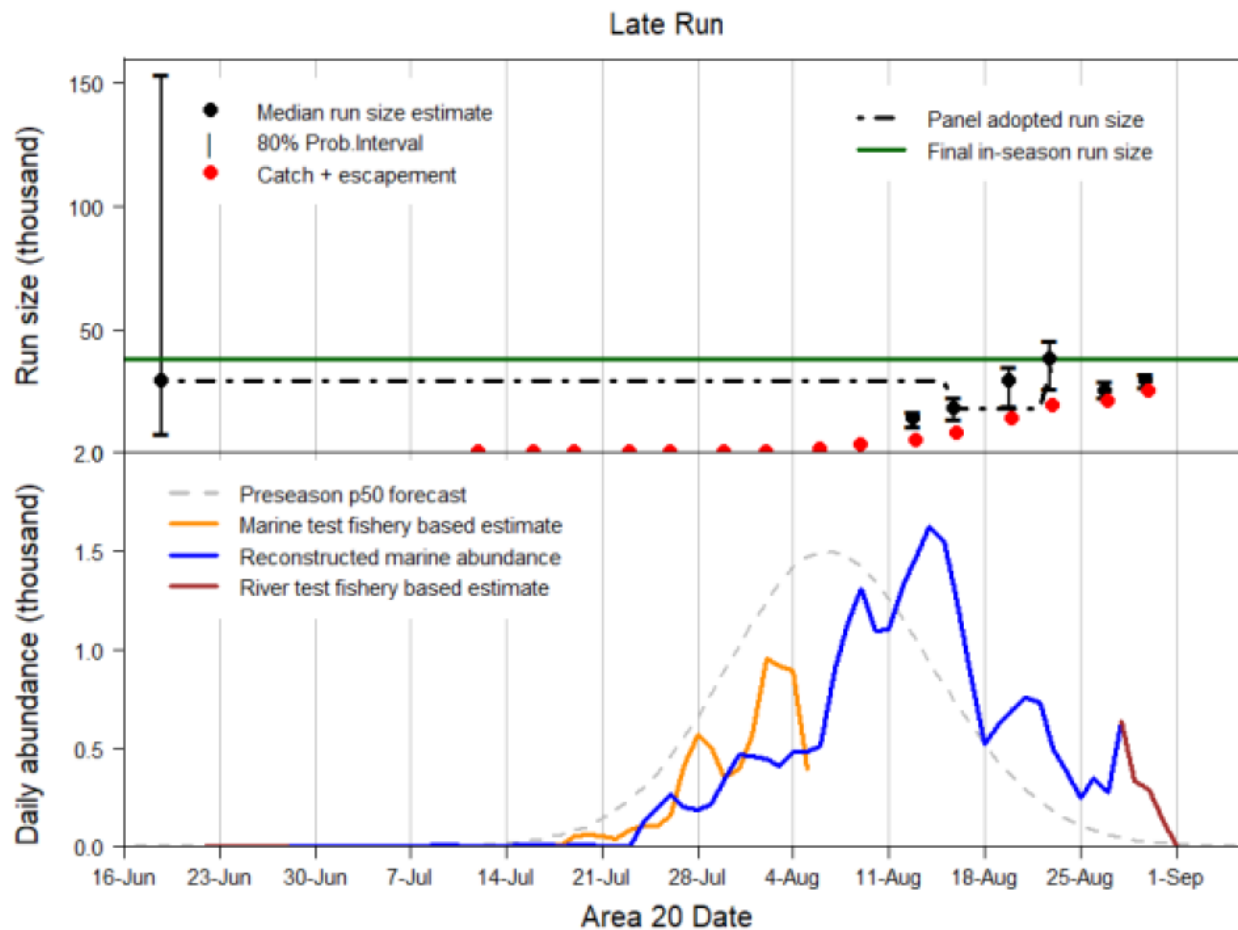


graph courtesy of PSC

2024 Preliminary Run size: Late Run

End-of-season estimate: 14% lower than p50 forecast

Date	Adopted Run Size
p50	29,000
Aug 16	18,000
Accounted to Date	25,000



graph courtesy of PSC

Returns compared to pre-season

Return Year	Forecast Probability Level						Actual Returns
	<10%	10%	25%	50%	75%	90%	
1998	NA	4,391,000	6,040,000	6,822,000	11,218,000	18,801,000	10,870,000
1999	NA	3,087,000	4,267,000	4,843,000	8,248,000	14,587,000	3,640,000
2000	NA	1,487,000	2,449,000	4,304,000	7,752,000	NA	5,200,000
2001	NA	3,889,000	6,797,000	12,864,000	24,660,000	NA	7,190,000
2002	NA	4,859,000	7,694,400	12,915,900	22,308,500	NA	15,130,000
2003	NA	1,908,000	2,742,000	3,141,000	5,502,000	9,744,000	4,890,000
2004	NA	1,858,000	2,615,000	2,980,000	5,139,000	9,107,000	4,180,000
2005	NA	5,149,000	8,734,000	16,160,000	30,085,000	53,191,000	7,020,000
2006	NA	5,683,000	9,530,000	17,357,000	31,902,000	56,546,000	12,980,000
2007	NA	2,242,500	3,602,000	6,247,000	11,257,000	19,706,000	1,510,000
2008	NA	1,258,000	1,854,000	2,899,000	4,480,000	7,057,000	1,740,000
2009	NA	3,556,000	6,039,000	10,578,000	19,451,000	37,617,000	1,590,000
2010	NA	5,380,000	8,351,000	13,989,000	23,541,000	40,924,000	28,250,000
2011	NA	1,700,000	2,693,000	4,627,000	9,074,000	15,086,000	5,110,000
2012	NA	743,000	1,203,000	2,119,000	3,763,000	6,634,000	2,050,000
2013	NA	1,554,000	2,655,000	4,765,000	8,595,000	15,608,000	4,130,000
2014	NA	7,237,000	12,788,000	22,854,000	41,121,000	72,014,000	20,000,000
2015	NA	2,364,000	3,824,000	6,778,000	12,635,000	23,580,000	2,120,000
2016	NA	814,000	1,296,000	2,271,000	4,227,000	8,181,000	853,000
2017	NA	1,315,000*	2,338,000	4,432,000	8,873,000	17,633,000	1,641,000
2018	NA	5,265,000	8,423,000	13,981,000	22,937,000	36,893,000	10,675,000
2019	NA	1,832,000	2,979,000	5,056,000	9,133,000	15,313,000	564,000
2020	NA	275,000	486,000	924,000	1,834,000	3,573,000	288,000
2021	NA	313,000	624,000	1,330,000	2,775,000	5,496,000	2,549,000
2022	NA	2,374,000	4,662,000	9,775,000	20,395,000	41,707,000	6,886,000
2023	NA	453,000	800,000	1,564,000	3,185,000	5,952,000	1,653,000*

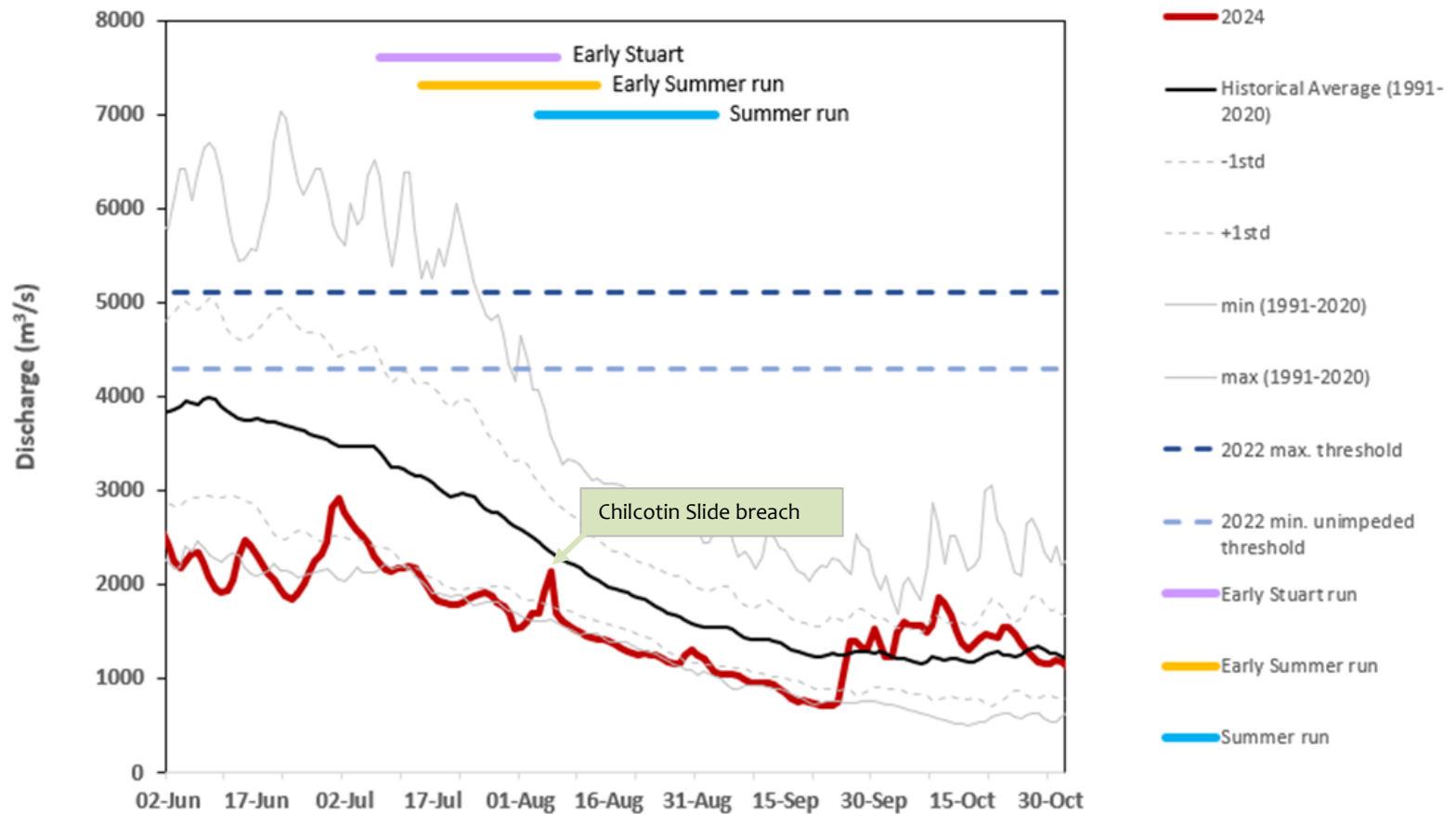
- Highlighted boxes show forecast value closest to the actual return for that year
- Returns have been below the p50 forecast since 2005 (with exception of 2010 and 2021).

← 2024 brood year

*red text is near final

Fraser Discharge and Salmon Passage at Big Bar

Fraser River at Big Bar (WSC station 08MD013)



Graph from WSC