

File: 71007

**DRAFT AGENDA
PACIFIC SALMON COMMISSION
FRASER RIVER PANEL
Friday July 21, 2023 at 11:00 am.
Via Zoom Webinar
<https://psc-org.zoom.us/j/88416242194>**

- 1) Roll Call (Panel and Tech members, others please email Julie, ehrmantraut@psc.org)
- 2) Webinar Etiquette:
 - a) Mute Phone: Please mute phone unless you are asking a question
 - b) Chat feature: Please use for questions regarding the distribution only
- 3) Agenda
- 4) Run status of Fraser River sockeye salmon relative to forecasts and adopted run sizes PSC Staff
- 5) In-season data flow for updating objectives PSC staff
 - a) Test fishing catches and acoustics
 - b) Mission projected sockeye vs. Qualark sockeye estimates
 - c) Stock proportions
 - d) Environmental conditions
 - e) Big Bar update DFO/PSC staff
- 6) Assessments and recommendations PSC Staff
 - a) Timing update, Migration graphs, escapement projections, run size assessments
- 7) Review any decisions on staff recommendations Panel
- 8) Other Business Panel
 - a) Qualark test fishery daily effort
 - b) Weekly Report
- 9) Next FRP Meeting, Tuesday July 25, 11:00 a.m. via Zoom Webinar Panel
 Next Technical Committee meeting, Thursday July 27, 1:00 p.m. via Zoom TC

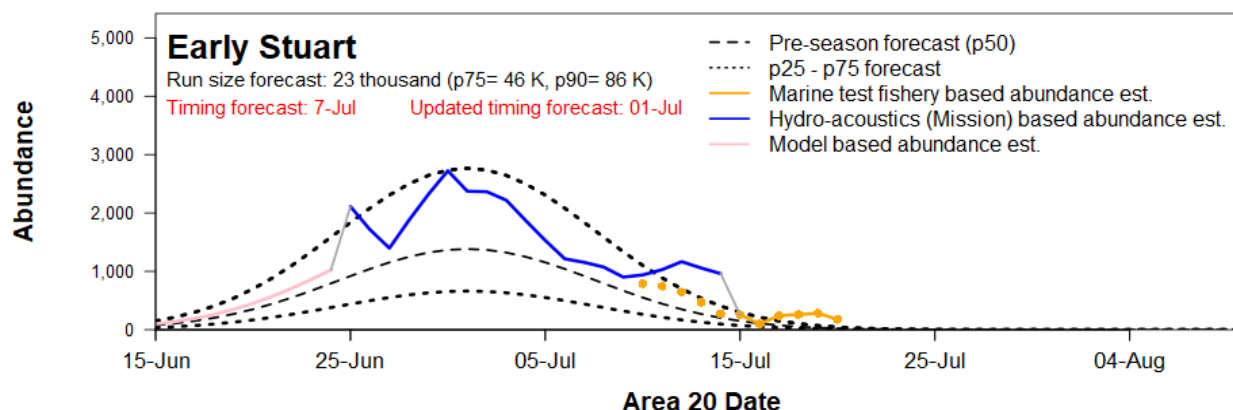
2023 Run status of Fraser sockeye and pink salmon

Date: Jul. 21, 2023

The information presented in this distribution has been prepared by PSC Secretariat staff and should be considered preliminary until reviewed by the Fraser River Panel

Week of: Jul. 16 - Jul. 22, 2023	Sockeye				Pink	
	Management Group				Total Fraser	Total Fraser
	E.Stuart	E.Summer	Summer	Late		
Mission passage (inclds Pitt, Alouette, Coquitlam)	36,500	61,400	500	100	98,500	0
Catch downstream of Mission	100	1,100	0	0	1,200	0
Accounted Run To Date	36,600	62,500	500	100	99,700	0
Run size adopted in-season ²	na	na	na	na	na	na
Run size forecasted pre-season	23,000	186,000	1,167,000	188,000	1,564,000	6,135,000
Area 20 timing adopted in-season	na	na	na	na	na	na
Area 20 timing expected pre-season	7/Jul	6/Aug	17/Aug	24/Aug	16/Aug	24/Aug
Johnstone Str. Diversion Rate	In-season 5-day average				19%	na
	Preseason forecast of annual rate:				67%	53%

² Run sizes are usually not adopted until after the peak of the run has passed through marine test fishery areas in Juan de Fuca and Johnstone straits.



2023 Fraser Sockeye Test Fishing & Escapement Summary

Area/Gear Location From A20	Johnstone Strait		Juan de Fuca Strait	Fraser River											
	A12 GN Round Is (-2 days)	A12 PS Blinkhorn (-1 day)	A20 GN* Port Renfrew (0 days)	A29-17 GN Brownsville Bar ¹	A29-16 GN Whonnock (+6 days)	Whon CPUE Estimate (+6 days)	Qualark GN Catch (+8 days)			Estimate ²	Method ³	Mission Hydroacoustics Estimate ⁴ (+6 days)		Method ⁵	Hells Gate Estimates ⁶ (+10 days)
29-Jun					0	0.00						1,400	Model		
30-Jun					0	0.00						1,700	Model		
1-Jul					1	0.09						3,500	S1+M+A2		
2-Jul					0	0.00	2					2,900	S1+M+A2		
3-Jul					0	0.00	3					1,400	S1+M+A2		
4-Jul					1	0.09	7					2,100	S1+M+A2		
5-Jul					2	0.20	6			1,860	RB x 2	5,000	S1+M+A2	0	
6-Jul					0	0.00	9			2,941	RB x 2	3,700	S1+M+A2	No Count	
7-Jul					0	0.00	8			2,845	RB x 2	4,600	S1+M+A2	No Count	
8-Jul					0	0.00	3 **			1,256	RB + LB	4,500	S1+M+A2	No Count	
9-Jul					0	0.00	1 **			1,715	RB + LB	5,000	S1+M+A2	0	
10-Jul			57		0	0.00	2 **			2,253	RB + LB	5,400	S1+M+A2	0	
11-Jul	1		129		3	0.28	4 **			3,372	RB + LB	3,600	S1+M+A2	0	
12-Jul	6		90	20	0	0.00	5 (Two sets)			4,078	RB + LB	3,800	S1+M+A2	170	
13-Jul	2		39	14	3	0.29	14 **			4,082	RB + LB	4,600	S1+M+A2	300	
14-Jul	17		48	12	13	1.17	9 **			4,777	RB + LB	3,400	S1+M+A2	370	
15-Jul	9		146	19	13	1.17	8 **			3,765	RB + LB	3,200	S1+M+A2	530	
16-Jul	2		26	25	29	2.45	11 **			4,754	RB + LB	4,100	S1+M+A2	580	
17-Jul	10		15	21	29	2.37	4 **			3,245	RB + LB	7,000	S1+M+A2	620	
18-Jul	11		194	12	40	3.03	5 **			5,724	RB + LB	7,200	S1+M+A2	670	
19-Jul	18		73	7	28	2.18	9 **			6,009	RB + LB	6,500	S1+M+A2	900	
20-Jul	20	68	69	7	18	1.48						4,800	S1+M+A2	560	
21-Jul															

¹ Alternative Lower River Test Fishery - Southern Endowment Fund Project

² Qualark escapement estimate - does not include Chilliwack, Pitt, Harrison, Birkenhead, Big Silver, Weaver, and Cultus

³ Qualark source:

RB x 2 = Right-bank (RE RB x 2 = Right-bank (RB) x 2

RB + LB = Right-bank (R RB + LB = Right-bank (RB) + Left-bank (LB)

⁴ Mission escapement estimate - does not include Pitt

⁵ Mission source:

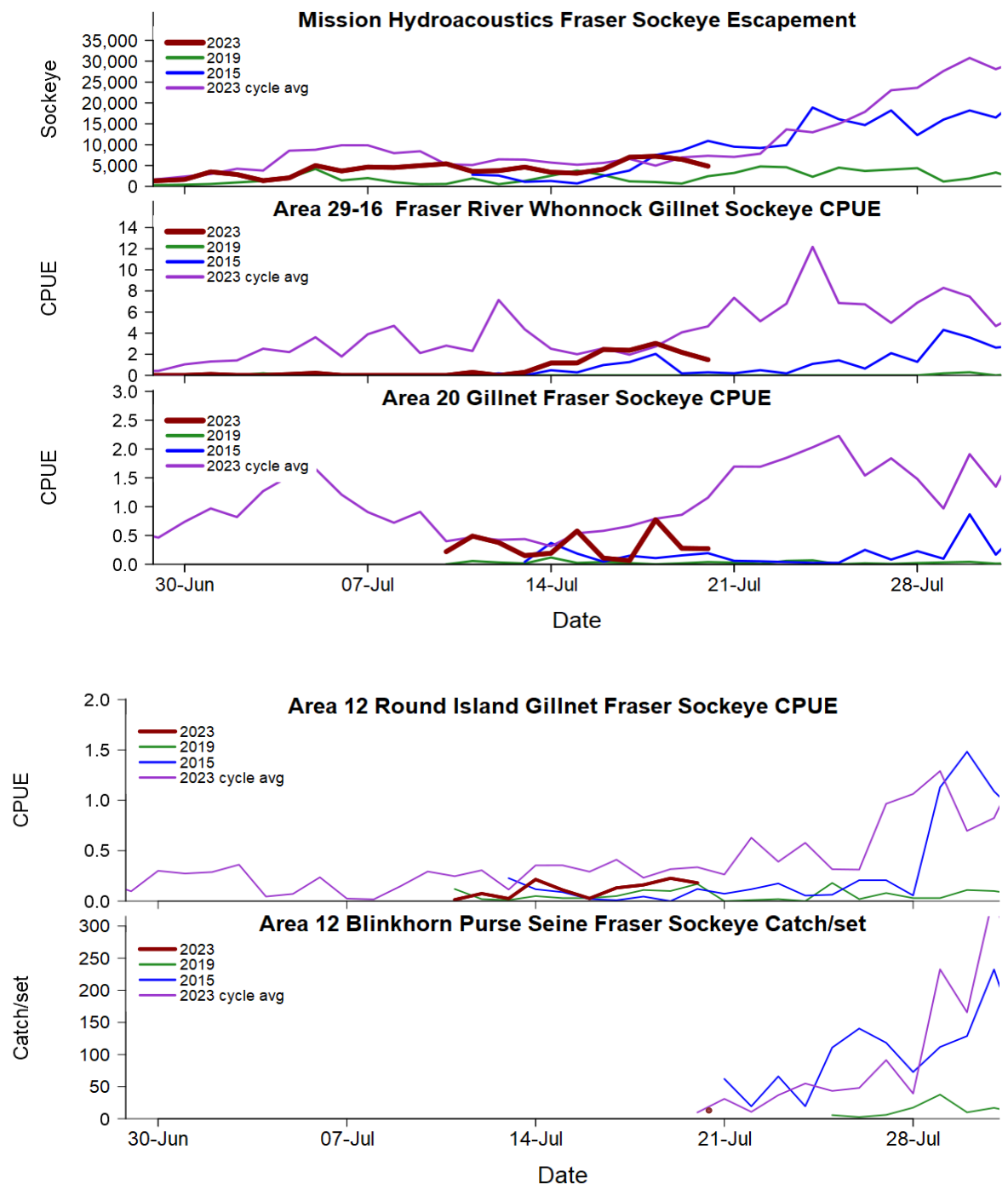
S1+M+A2 = Left bank split-beam (S1) + Mobile split-beam (M) + Right bank ARIS (A2)

Model = Daily abundances generated by the Early Stuart run-size model.

⁶ Daily Hells Gate abundance estimate; a A1+S1+M+A2 = Left bank ARIS (A1) + Left bank split-beam (S1) + Mobile split-beam (M) + Right bank ARIS (A2)

* Area 20 Gillnet - two boats fishing each day, unless specified otherwise. One boat is fishing with a 5" Alaska twist net, while the other is fishing a 5 1/8" multistrand net.

** Three sets performed for Qualark Gillnet



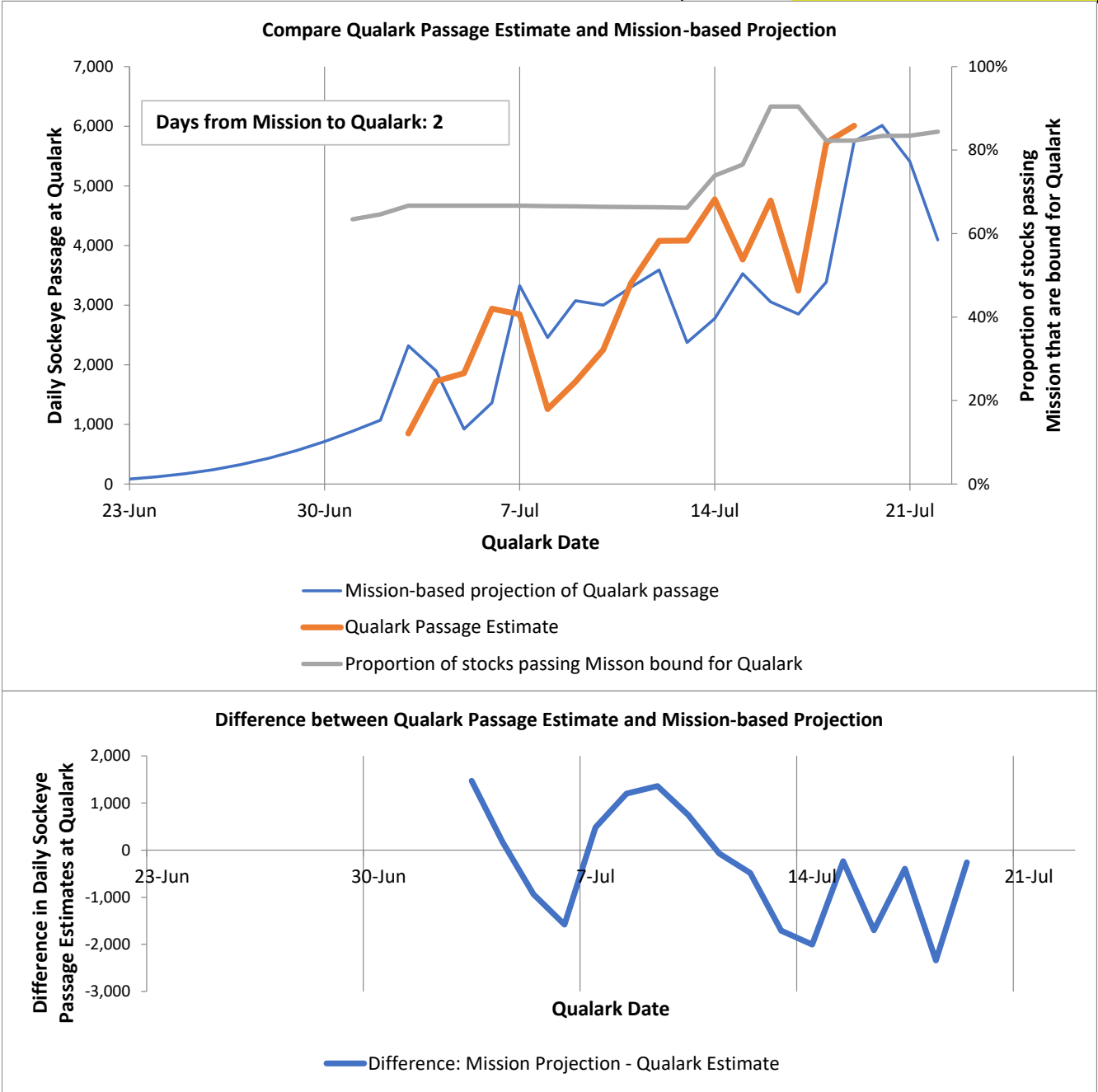
Fraser Sockeye: Qualark Passage Estimate and Mission-based Projection

Year: 2023

Date: 21-Jul-23

Time: 10:29 AM

All Days		Common Days
Mission projection	69,079	48,960
Qualark estimate	55,248	55,248
Difference		-6,288
%Difference		(13%)



2023 Fraser River Sockeye Salmon Stock identification Review

Recent stock composition estimates for sockeye salmon

						Fraser-only Stock Proportions by Reporting Group ⁴ (%)														Age (%)	
						Early Stuart	Early Summer					Summer					Late				Overall Stocks
						Early Stuart	Nadina Bowron				Early Summer sub-total	Summer				Summer sub-total	Late			Late sub-total	Age-4 ₂
Chilli-wack	Pitt Alouette	Gates Nahat-latch	Early Thompson	Harri-son	Late Stuart		Chilko Ques-nel	Raft North Thompson	Birken-head Big Silver	Late Shuswap Portage		Weaver Cultus									
Area/Gear ¹	Sector ²	Date	Type ³	Size (n)	%Fraser																
Johnstone Strait & Queen Charlotte Strait																					
A12 at	tf	Jul11-12	DNA	7	68%	9%			64%	28%	91%				0%			0%	20%		
A12 at	tf	Jul13-14	DNA	19	63%	0%	17%	8%	75%		100%				0%			0%	14%		
A12 at	tf	Jul15-17	DNA	20	40%	0%		12%	88%		100%				0%			0%	31%		
A12 gn/at		Jul 21	Prediction	1	55%	0%	6%	38%	53%		97%	3%			3%			0%	NA		
Juan de Fuca Strait & Washington & Other																					
A20 at	tf	Jul13-14	DNA	56	93%	2%	6%	17%	71%		94%	2%	2%		4%		0%	0%	10%		
A20 at	tf	Jul 15	DNA	90	87%	1%	9%	18%	68%		95%	3%	1%	1%	4%		0%	0%	22%		
A20 gn	tf	Jul 15	DNA	51	86%	0%	7%	14%	71%		92%	8%			8%		0%	0%	29%		
A20 gn	tf	Jul16-17	DNA	41	93%	6%	3%	18%	74%		94%				0%		0%	0%	8%		
A20 gn/at		Jul 21	Prediction	1	95%	1%	3%	31%	57%		92%	6%	2%		8%			0%	NA		
In-river																					
Hop-Qua gn	tf	Jul14-17	DNA	31	100%	44%			56%		56%				0%			0%	NA		
AB gn	tf	Jul16-17	DNA	52	100%	11%	17%		72%		89%				0%			0%	20%		
AB gn	tf	Jul18-19	DNA	63	100%	14%	19%	2%	62%	2%	84%		2%		2%			0%	30%		
BB gn	tf	Jul17-19	DNA	37	100%	17%	11%	19%	53%		83%				0%			0%	16%		

Next Stock ID Samples to Report for Tues FRP:

Whonnock TF: thru Sat Jul 22
 Brownsville TF: thru Sun Jul 23
 Area 20 GN TF: thru Fri Jul 21
 Area 20 PS TF: thru Sat Jul 22
 Area 12 GN TF: likely thru Fri Jul 21
 Area 12 PS TF: likely thru Sat Jul 22 or Sun Jul 23

First pink salmon stock composition estimates will be reported to FRP on Friday July 28 (both Area 12 PS TF and Area 20 PS TF).

Notes for sockeye and pink tables:

¹ BB GN=29_13 (Cottonwood,Brownsville), AT = Alaska Twist, AB GN=29_16 (Whonnock), MA FW=Matsqui Fish Wheel, QU GN=Qualark

² TF=sample from test fishery catch, CM=sample from commercial catch, C&S=ceremonial & subsistence catch, FSC=food, social, & ceremonial catch, rec= recreational catch

³ Predictions for sockeye are multinomial extrapolations of current year data to 5 days after the last observation; Predictions for pink salmon are projections of stock compositions based on historic and current data

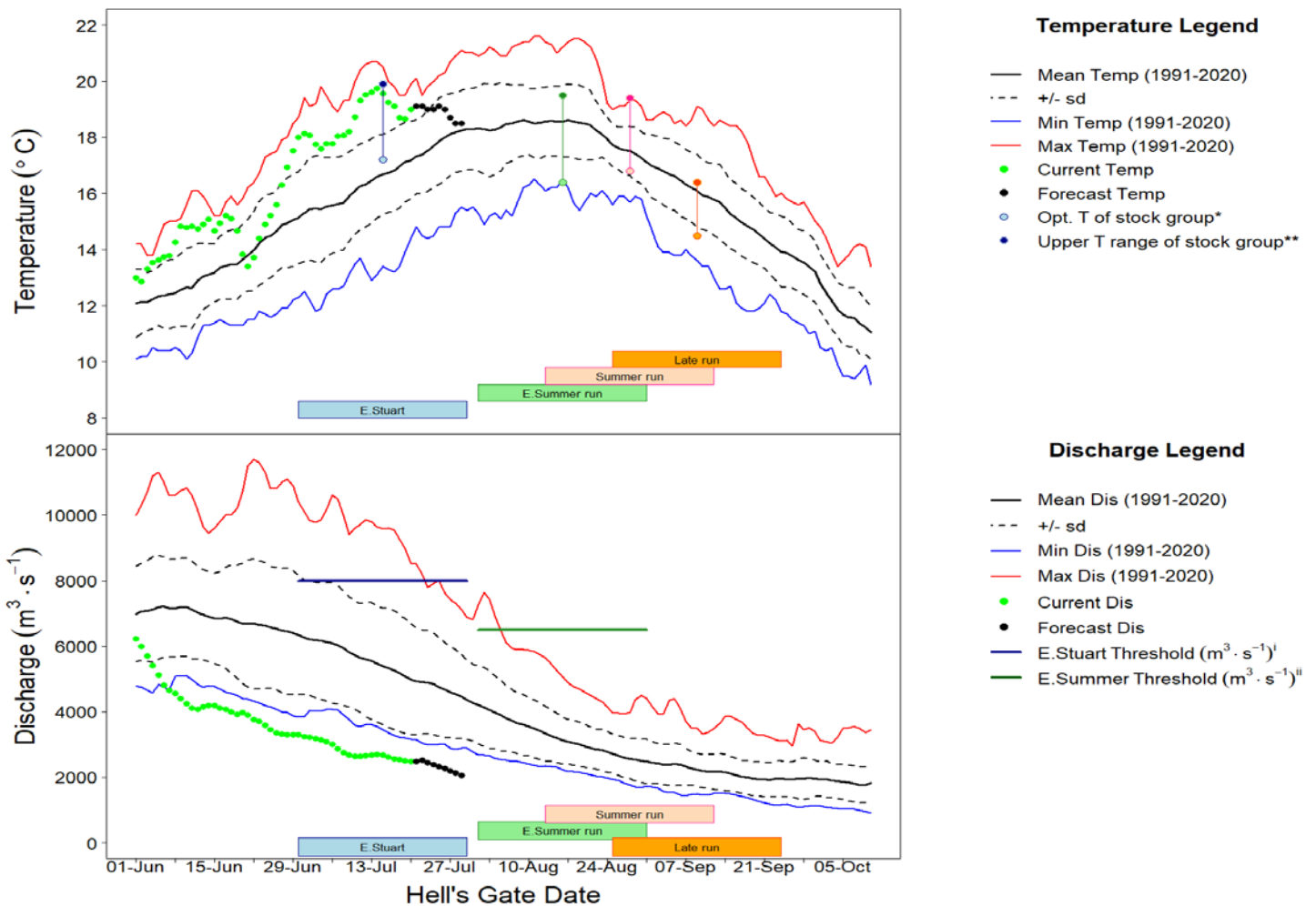
⁴ Further information relating stock group descriptions to spawning ground locations and population definitions can be found at http://www.psc.org/FRPWeb/Escapement/PSC_Fraser_Sockeye_Stock_Group_Definitions.pdf

Results in grey text have been presented to the Panel previously

Fraser River Environmental Report for July 20, 2023

Observed Fraser River Temperature at Hope for 20-Jul	19°C
Average (1991-2020) Historical Temperature on this day	17.2°C
Deviation from Average	1.8°C
Forecast Temperature for 26-Jul-23	19°C
The forecast in Kamloops is for above average air temperatures to continue until July 23 and to drop to below average for the rest of the forecast period. The forecast for Prince George is for above average air temperature until July 21 and to drop to below average for a period until July 27.	

Observed Fraser River Discharge at Hope for 20-Jul	2479 m ³ ·s ⁻¹
Average (1991-2020) Historical Discharge on this day	4988 m ³ ·s ⁻¹
% above or below Historical Discharge	-50%
Forecast Discharge for 26-Jul-23	2269 m ³ ·s ⁻¹
The forecast in Kamloops is for minimal precipitation. The forecast in Prince George is for 33 mm of precipitation.	



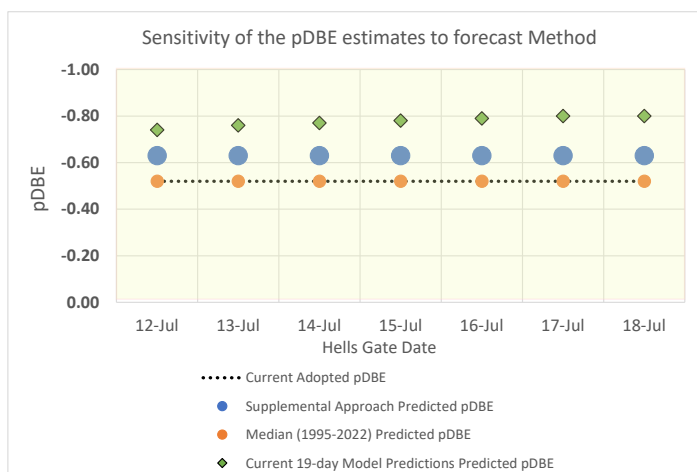
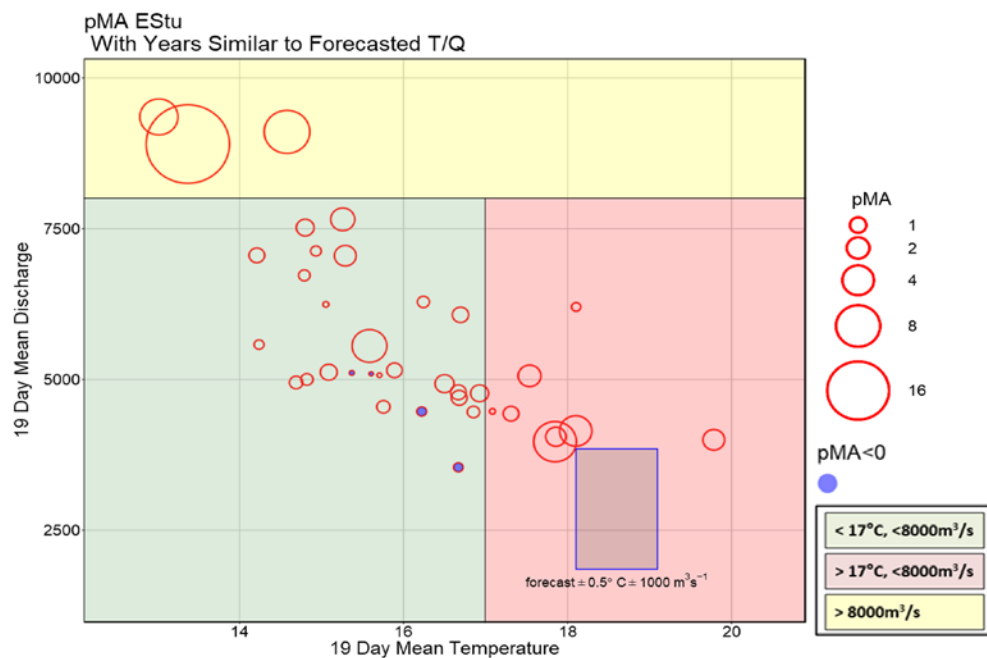
Run timing bars represent a 31 day spread of the run centered around the Hell's Gate date. Hell's gate timing is 5 days from Mission for Early Stuart and Late run; and 4 days from Mission for Early Summer and Summer run.ⁱpMA is the proportional increase to spawning escapement targets to help ensure targets are achieved.ⁱⁱ%DBE is %difference between estimates of potential spawning escapement and spawning escapement.*This is the optimum temp for aerobic swimming - T_{opt} (Eliason et al. (2011). Science 332: 109-112)**This is the upper range of the optimum temp for aerobic swimming - T_{pejus}.ⁱDischarge threshold of 8000cms for Early Stuart from Macdonald (2000). Can. Tech. Rep. Fish. Aquat. Sci. 2315: 120p. ⁱⁱDischarge threshold of 6500cms for Early Summer run from Macdonald et al. (2010). Trans. Am. Fish. Soc. 139: 768-782. 19 days of T & Q data are required to calculate a pMA - 15 days before the Hell's Gate Date and 3 days after. MA estimates can be calculated 4 days after the Area 20 date.

Current Temperatures						
Upriver of Slide	Map #	19-Jul	Daily Mean	Historic Mean	Deviation from Historical Mean	Historic Year Range
<u>Fraser River Mainstem</u>						
	1	Fraser River @ Hope	18.6	17.2	1.4	1991-2020
	2	Fraser River @ Texas Creek	18.5	17.0	1.5	2006-2022
	3	Fraser River @ Big Bar Creek	NA	NA	NA	2019-2022
►	4	Fraser River @ Marguerite	18.2	16.8	1.4	2015-2022
►	5	Upper Fraser @ Shelley	16.5	13.9	2.6	1994-2022
<u>Fraser River Tributaries</u>						
	6	Thompson R. @ Ashcroft	19.4	16.3	3.1	1995-2022
	7	South Thompson @ Chase	19.9	17.0	2.9	1994-2022
	8	North Thompson @ McLure	17.7	13.8	3.9	2006-2022
►	9	Quesnel R. @ Quesnel	16.9	14.7	2.2	2000-2022
►	10	Nechako R. @ Isle Pierre	NA	19.0	NA	2006-2022
►	11	Stuart R. @ Ft. St. James	18.5	17.8	0.7	2000-2022



Early Stuart pDBE Forecast and Sensitivity Analysis for July 21, 2023

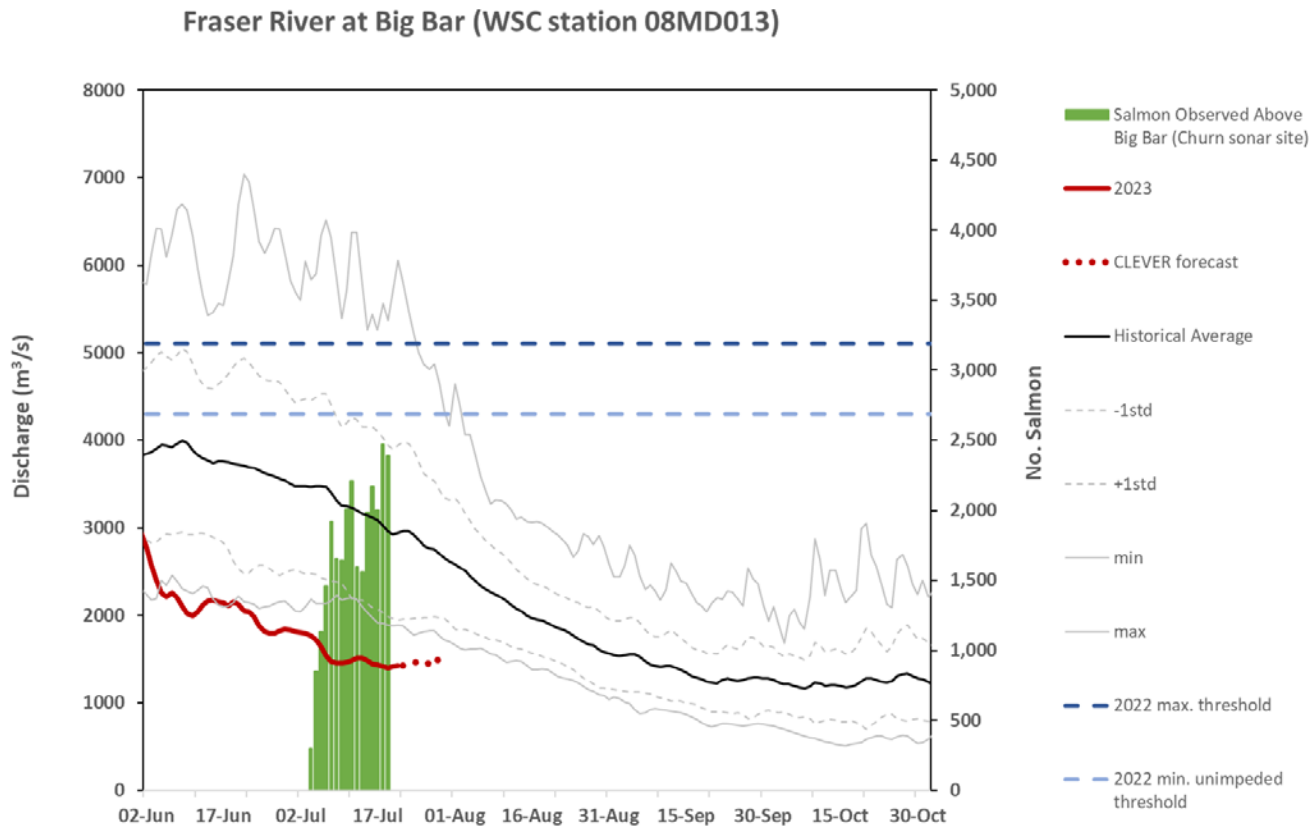
Based on the retrospective analysis evaluation of 2010-2021 for Early Stuart the best performing in-season model is the Supplemental Approach



Model Performance Based on "In-season pDBE Approach"					Best		
Retrospective					Current Adopted	Supplemental Approach	Current 19-day Model Predictions
Area	Hells Gate Date	Average Temperature °C	Average Discharge m^3/s	pDBE	Predicted pDBE	Median (1995-2022) Predicted pDBE	Predicted pDBE
01-Jul	12-Jul	18.2	2966	-0.52	-0.63	-0.52	-0.74
02-Jul	13-Jul	18.4	2930	-0.52	-0.63	-0.52	-0.76
03-Jul	14-Jul	18.5	2891	-0.52	-0.63	-0.52	-0.77
04-Jul	15-Jul	18.6	2851	-0.52	-0.63	-0.52	-0.78
05-Jul	16-Jul	18.6	2809	-0.52	-0.63	-0.52	-0.79
06-Jul	17-Jul	18.7	2768	-0.52	-0.63	-0.52	-0.80
* 07-Jul	18-Jul	18.7	2730	-0.52	-0.63	-0.52	-0.80
Implied pMA							
* 07-Jul	18-Jul	18.7	2730	1.08	1.70	1.08	4.00

* Currently adopted timing with updated forecast information (18 observed and 1 forecast days)

Fraser River Discharge at Big Bar



Data made available by:  Environment and Climate Change Canada and  northwest hydraulic consultants

Migration passage at Big Bar

Big Bar Update

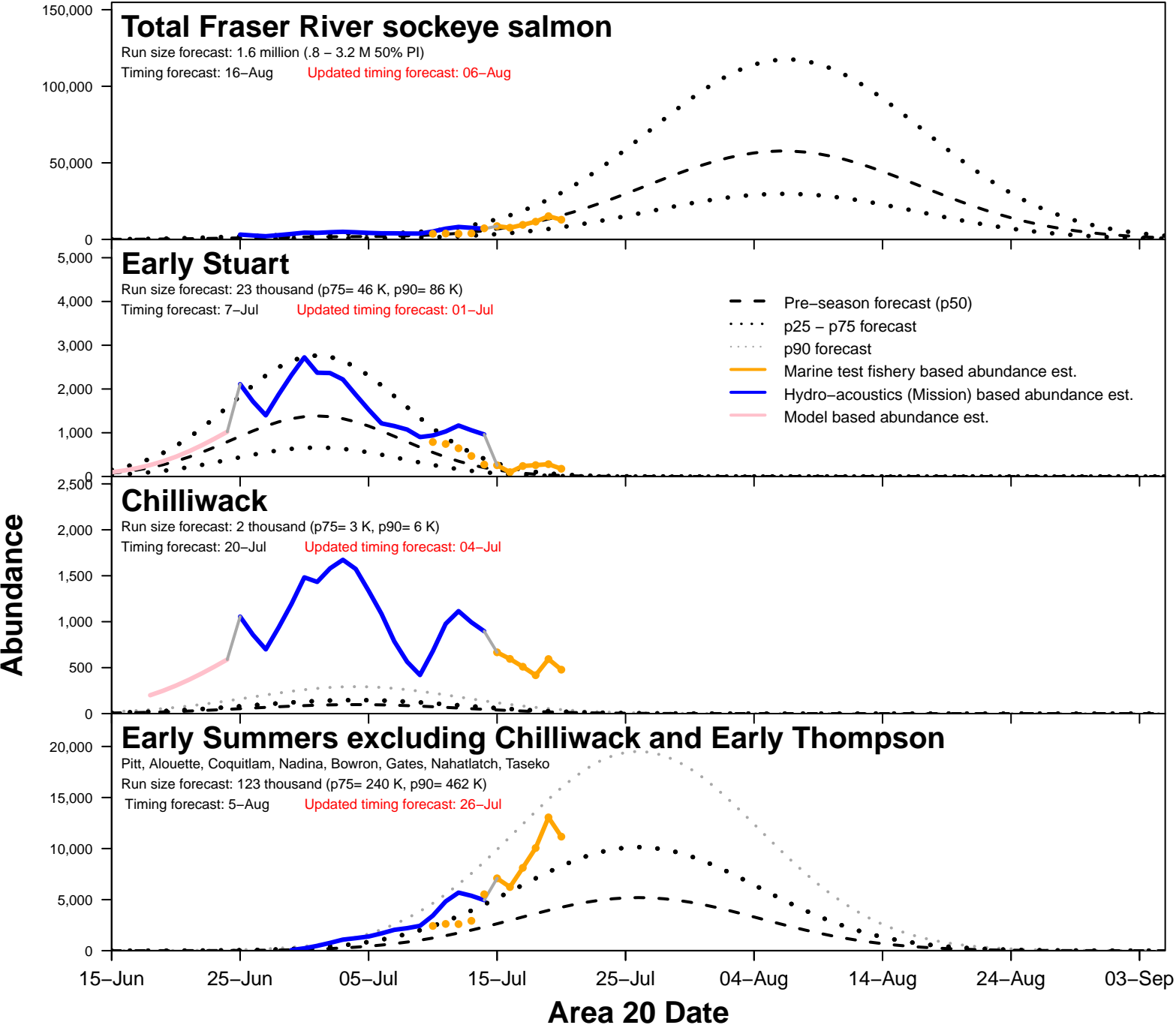
- There have been no upstream migration problems reported at Big Bar.
- A total of 27,348 salmon have been observed 40 km upstream of Big Bar (Churn Creek).
- Using a length-based estimate (68 cm) to differentiate Chinook and sockeye, 9,918 sockeye have migrated past Churn sonars up until July 19. (Note: lengths of Chinook and sockeye at the fishwheel are still overlapping and there is lower confidence in species composition estimates this season relative to this time last year.)
- A total of 16,038 sockeye have been observed below Big Bar (Alfalfa).
- A total of 124 Sockeye have been tagged.
- A total of 55 sockeye have been collected for brood stock.

Updates to Early Summer and Summer run Area 20 timing based on regressions with Early Stuart (July 1st) and Chilliwack (July 4th). Late run and pink salmon timing has not yet been adjusted.

AREA 20 DATES		APRIL	JUNE UPDATE	JULY UPDATE
Early Stuart		4-Jul	7-Jul	01-Jul
Early Summer	Early Summer Excl. S. Thompson	29-Jul	05-Aug	26-Jul
	Early S. Thompson	2-Aug	9-Aug	31-Jul
Summer	Raft N. Thompson	18-Aug	23-Aug	17-Aug
	Late Stuart-Stellako	8-Aug	13-Aug	04-Aug
	Chilko-Quesnel	10-Aug	17-Aug	07-Aug
	Harrison	6-Aug	12-Aug	05-Aug
Lates	Birkenhead	17-Aug	24-Aug	NA
	Late Shuswap-Weaver-Cultus	17-Aug	24-Aug	NA
Fraser pink salmon		24-Aug	25-Aug	NA

2023 Fraser River sockeye salmon daily migration

Timing updated based on Timing Correlations



2023 Fraser River sockeye abundance en-route to Mission

Current date: 21-Jul

	Escapement past Mission through 20-Jul	Projected abundance en route to Mission based on marine test fishery data ^{1,2}									Escapement + projections through 26-Jul
Area 20 date		15-Jul	16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	Total	80% PI ³		
Mission date		21-Jul	22-Jul	23-Jul	24-Jul	25-Jul	26-Jul		10p	90p	
Total Fraser	98,500	13,900	6,100	2,600	19,500	12,300	13,200	67,600	33,700	136,700	166,100
Early Stuart	36,500	100	100	100	500	200	100	1,100	500	2,300	37,600
Early Summer Run	61,400	12,300	6,000	2,500	17,400	11,100	12,000	61,300	30,000	126,900	122,700
Chilliwack	23,900	1,100	700	0	800	400	600	3,600	1,800	7,500	27,500
Pitt/Alouette/Coquitlam	5,000	2,000	800	400	4,400	2,800	3,700	14,100	6,900	29,200	19,100
Nadina group ⁴	32,200	9,200	4,500	2,100	12,200	7,900	7,700	43,600	21,400	90,300	75,800
Early Thompson ⁵	300	0	0	0	0	0	0	0	0	0	300
Summer Run	500	1,500	0	0	1,600	1,000	1,100	5,200	3,200	7,500	5,700

¹ En route catches are incomplete: catches from present and future fisheries must be deducted from projections and added to the catches removed

² Projected abundances en route to Mission include Harrison and Late runs, an uncertain number of which are expected to delay

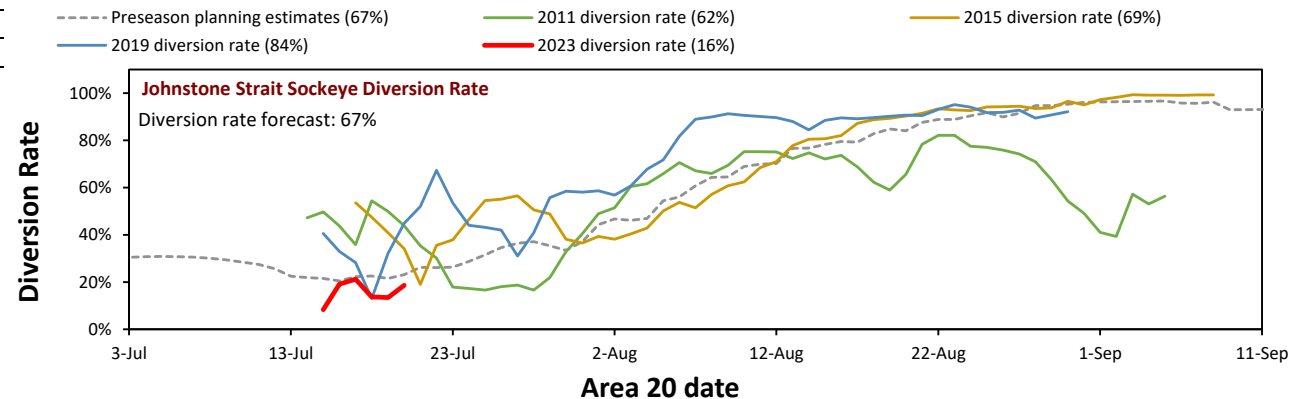
³ 80% Probability Interval: there exists an 80% chance that the true abundance lies within this interval

⁴ Nadina / Bowron / Gates / Nahatlatch / Taseko

⁵ Early South Thompson / North Barriere

2023 Fraser River sockeye diversion rates through Johnstone Strait

	5-day-average
Diversion rate	19%



2023 Fraser River run size and timing estimates

The information presented on this page has been prepared by PSC Secretariat Staff. All in-season estimates of run size and timing should be considered draft preliminary estimates unless adopted by the Fraser River Panel.

Preseason forecasts, inseason estimates, and official estimates of run size and associated timing

	Run Size						Run size components			Run Timing ¹					
	Inseason Adopted	Preseason Forecast	Inseason estimate	Inseason 80% PIs ²		Method	Catch + Escapement	6-day Projection ³	Seaward Abundance	Inseason Adopted	Preseason Forecast	Inseason estimate	Inseason 80% PIs ²		Method
				10% PI	90% PI								10% PI	90% PI	
Early Stuart Run	NA	23,000	✓ 38,000	38,000	39,000	Recon	37,000	1,000	0	NA	07-Jul	01-Jul	01-Jul	02-Jul	Recon
Early Summer Run	NA	186,000					62,000	61,000		NA	06-Aug				
Chilliwack		2,000	● 28,000	26,000	32,000	Recon	24,000	4,000	0		20-Jul	04-Jul	03-Jul	05-Jul	Recon
Pitt/Nadina Group ⁴		123,000					38,000	58,000			05-Aug				
Early Thompson ⁵		61,000					0	0			09-Aug				

¹ Run timing refers to the date when 50% of the run migrated past the Area 20 reference point.

Methods for run size & timing estimation

² 80% Probability Interval: there exists an 80% chance that the true abundance lies within this interval

Recon

Catch + escapement + 6-day test fish projection + model seaward projection

³ Normally based on test fishery data. Based on Model if Method = Recon(2).

⁴ Pitt / Alouette / Coquitlam / Nadina / Bowron / Gates / Nahatlatch / Taseko

⁵ Early South Thompson / North Barriere.

Run Size Uncertainty Legend[†]

- ✓ ≥ 95% of the run size has been accounted for in catch + escapement. Clear indication of run size; minor run size updates still expected
- ≥ 70% of the run size has been accounted for in catch + escapement. Good indication of run size; peak fo the run has been observed at Mission, uncertainty relates to seaward abundance
- ▲ ≥ 50% of the run size has been accounted for in catch + escapement. Decent indciation of run size; ≥ 50% confirmed at Mission
- ◇ < 50% of the run size has been accounted for in catch + escapement. Uncertain or early indciation of run size based on marine data

[†] The Run Size Uncertainty Indicator is a categorical indication of the degree of uncertainty present in the run size estimate. Estimates are categorized quantitatively based on the proportion of the run that has been accounted for with high certainty in catch + escapement.

