File: 71007

DRAFT AGENDA
PACIFIC SALMON COMMISSION
FRASER RIVER PANEL
Tuesday July 18, 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) Total catches, Escapements and accounted-to-date relative to pre-season forecasts and in-season adopted run sizes	PSC Staff
5) In-season data flow for updating objectives	PSC staff
a) Test fishing catches and acoustics	
b) Stock proportions	
c) Environmental conditions	
d) Big Bar update	DFO/PSC staff
6) Assessments and recommendations	PSC Staff
a) Migration graphs, escapement projections, run size assessments	
7) Review any decisions on staff recommendations	Panel
8) Other Business	Panel
a) Test fishing start dates	
9) Next FRP Meeting, Friday July 21, 11:00 a.m. via Zoom Webinar	Panel
First Technical Committee meeting, Thursday July 20, 1:00 p.m. via Zoom	TC

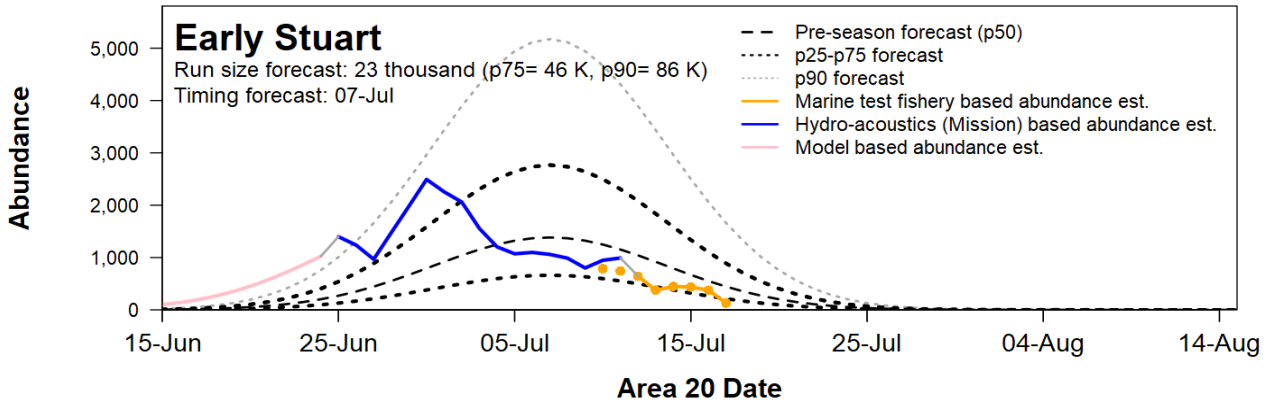
2023 Run status of Fraser sockeye and pink salmon

Date: Jul. 18, 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	Total
	E.Stuart	E.Summer	Summer	Late	Fraser	Fraser
Mission passage (incldes Pitt, Alouette, Coquitlam)	28,500	32,400	300	100	61,300	0
Catch downstream of Mission	100	600	0	0	700	0
Accounted Run To Date	28,600	33,000	300	100	62,000	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	**18%**	**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

	Johnstone Strait	Juan de Fuca Strait	Fraser River								
Area/Gear Location From A20	**A12 GN** Round Is (-2 days)	**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)
27-Jun				0	0.00				600	Model	
28-Jun				0	0.00				700	Model	
29-Jun				0	0.00				900	Model	
30-Jun				0	0.00				1,000	Model	
1-Jul				1	0.09				2,800	A1+S1+M+A2	
2-Jul				0	0.00	2			2,000	A1+S1+M+A2	
3-Jul				0	0.00	3			800	A1+S1+M+A2	
4-Jul				1	0.09	7			1,600	A1+S1+M+A2	
5-Jul				2	0.20	6	1,860	RB x 2	4,200	A1+S1+M+A2	0
6-Jul				0	0.00	9	2,941	RB x 2	3,400	A1+S1+M+A2	No Count
7-Jul				0	0.00	8	2,845	RB x 2	4,600	A1+S1+M+A2	No Count
8-Jul				0	0.00	3 **	1,256	RB + LB	4,200	A1+S1+M+A2	No Count
9-Jul				0	0.00	1 **	1,715	RB + LB	3,300	A1+S1+M+A2	0
10-Jul		57		0	0.00	2 **	2,253	RB + LB	2,700	A1+S1+M+A2	0
11-Jul	1	129		3	0.28	4 **	3,372	RB + LB	3,100	A1+S1+M+A2	0
12-Jul	6	90	20	0	0.00	5 (Two sets)	4,078	RB + LB	3,300	A1+S1+M+A2	170
13-Jul	2	39	14	3	0.29	14 **	4,082	RB + LB	4,500	A1+S1+M+A2	300
14-Jul	17	48	12	13	1.17	9 **	4,777	RB + LB	3,100	A1+S1+M+A2	370
15-Jul	9	146	19	12	1.08	8 **	3,765	RB + LB	2,800	A1+S1+M+A2	530
16-Jul	2	26	25	29	2.45	11 **	4,754	RB + LB	2,700	A1+S1+M+A2	580
17-Jul	10	15	21	29	2.37	4 **			6,600	A1+S1+M+A2	620
18-Jul											
19-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 (RB) x 2

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

[4] Mission escapement estimate - does not include Pitt

[5] Mission source:

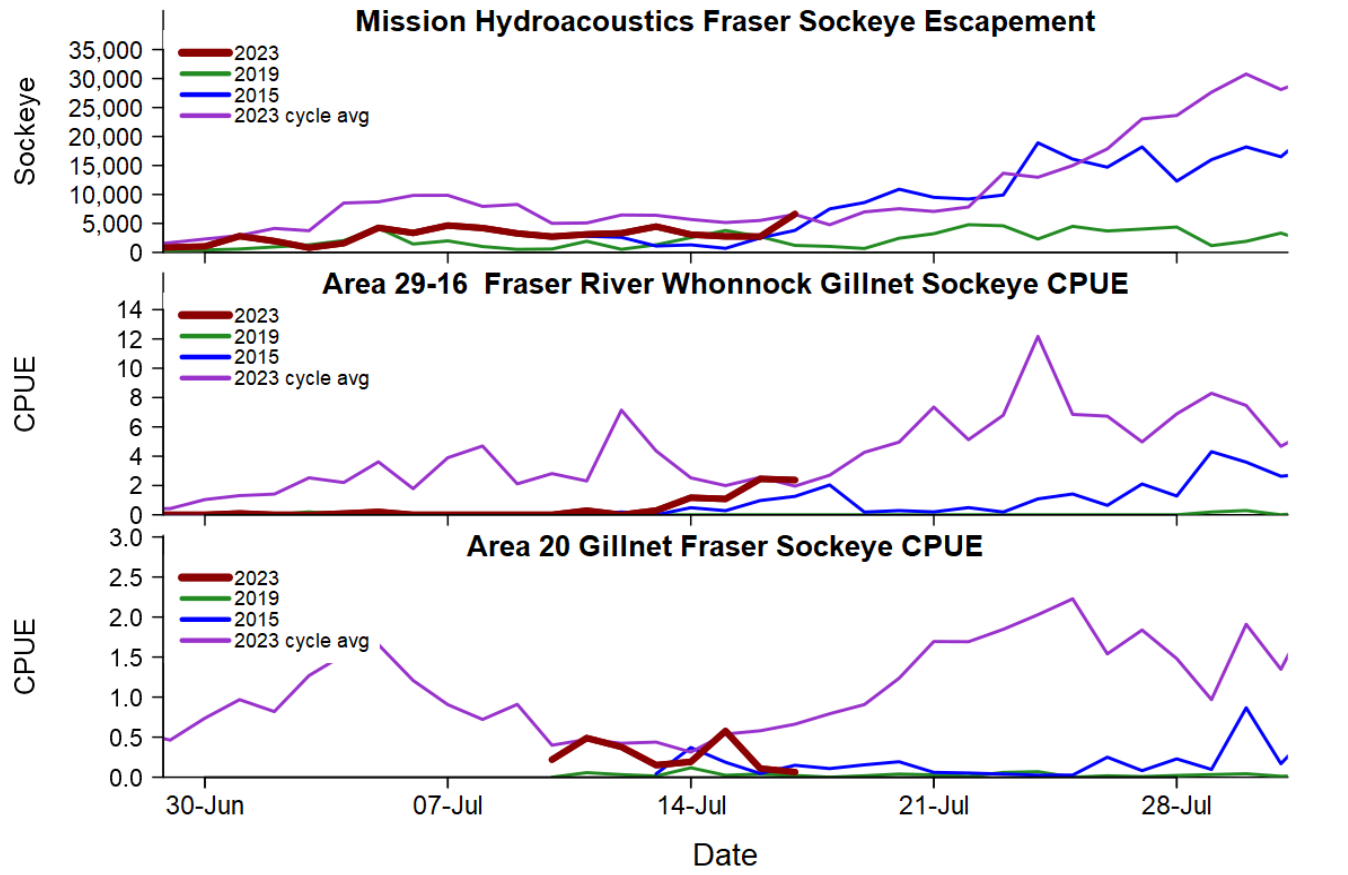
A1+S1+M+A2 = Left bank ARIS (A1) + Left bank split-beam (S1) + Mobile split-beam (M) + Right bank ARIS (A2)

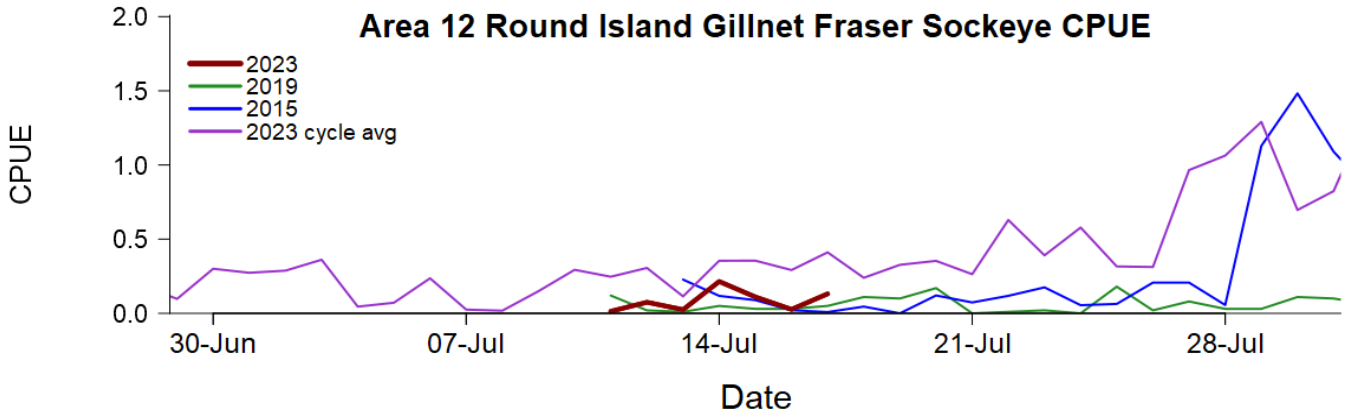
Model = Daily abundances generated by the Early Stuart run-size model.

[6] Daily Hells Gate abundance estimate; actual daily count has been expanded.

* 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


Mission Hydroacoustics Fraser Sockeye Escapement
Sockeye
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2023
2019
2015
2023 cycle avg
Area 29-16 Fraser River Whonnock Gillnet Sockeye CPUE
CPUE
14
12
10
8
6
4
2
0
2023
2019
2015
2023 cycle avg
Area 20 Gillnet Fraser Sockeye CPUE
CPUE
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2023
2019
2015
2023 cycle avg
30-Jun
07-Jul
14-Jul
21-Jul
28-Jul
Date


Area 12 Round Island Gillnet Fraser Sockeye CPUE
CPUE
2.0
1.5
1.0
0.5
0.0
2023
2019
2015
2023 cycle avg
30-Jun
07-Jul
14-Jul
21-Jul
28-Jul
Date

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
Area/Gear[1]	Fishing Sector[2]	Sample Date	Type[3]	Size (n)	%Fraser	Early Stuart	Chilli-wack	Pitt Alouette Coquit-lam	Nadina Bowron Gates Nahat-latch Taseko	Early Thomp-son	Early Summer sub-total	Harri-son Widg-eon	Late Stuart Stellako	Chilko Ques-nel	Raft North Thomp-son	Summer sub-total	Birken-head Big Silver	Late Shuswap Portage	Weaver Cultus	Late sub-total	Age-4$_2$
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%
Juan de Fuca Strait & Washington & Other																					
A20 at	tf	Jul10-11	DNA	91	83%	**21%**	8%	2%	66%		**75%**	4%				**4%**				**0%**	22%
A20 at	tf	Jul 12	DNA	60	82%	**13%**	6%	16%	62%		**84%**		1%		2%	**3%**				**0%**	22%
A20 gn	tf	Jul12-14	DNA	57	86%	**18%**	6%	8%	62%		**76%**	2%				**2%**			4%	**4%**	27%
A20 at	tf	Jul13-14	DNA	56	93%	**2%**	6%	17%	71%		**94%**	2%	2%			**4%**		0%		**0%**	10%
In-river																					
BB gn	tf	Jul13-14	DNA	22	100%	**29%**	5%	5%	62%		**71%**					**0%**				**0%**	5%
BB gn	tf	Jul15-16	DNA	43	100%	**18%**	14%	7%	55%	2%	**78%**	4%				**4%**				**0%**	21%
AB gn	tf	Jul13-15	DNA	27	100%	**31%**	17%		51%		**68%**					**0%**			1%	**1%**	30%
MA fw	sp	Jul8-10	DNA	12	100%	**58%**	25%		4%		**29%**		5%			**5%**			8%	**8%**	NA

Next Stock ID Samples to Report:

Whonnock TF: Friday FRP (thru Tues Jul 18)
Brownsville TF: Friday FRP (thru Wed Jul 19)
Area 20 GN TF: Friday FRP (thru Mon Jul 17)
Area 12 GN TF: Friday FRP (thru Tues Jul 18)

Age Compositions:

Early Stuart:	n= 65	0%	Age 4/2
Chilliwack:	n= 30	97%	Age 4/2
Pitt:	n= 30	40%	Age 4/2
Nadina:	n= 214	6%	Age 4/2

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

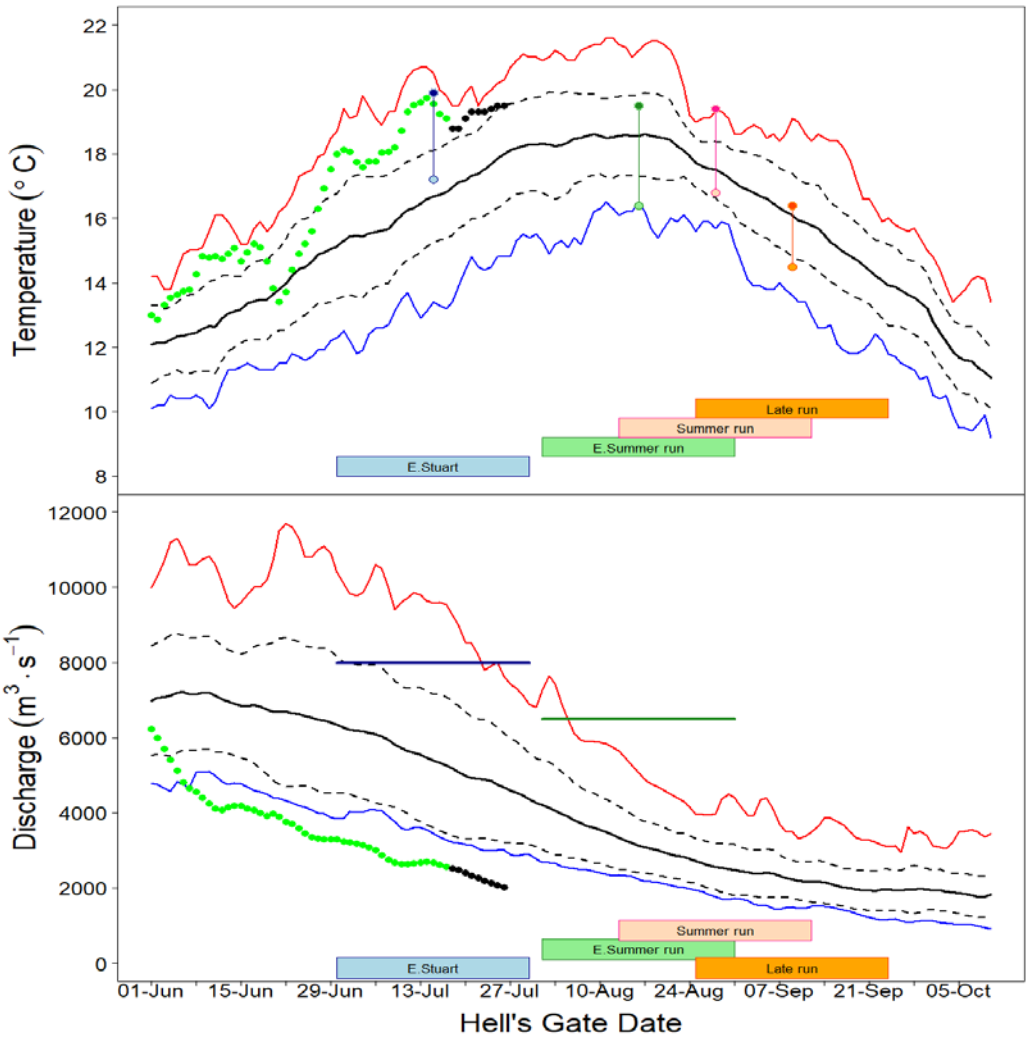
Fraser River Environmental Report for July 17, 2023

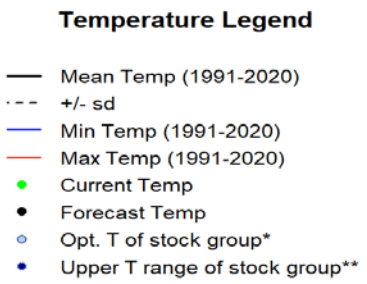
Observed Fraser River Temperature at Hope for 17-Jul	19.1°C
Average (1991-2020) Historical Temperature on this day	16.8°C
Deviation from Average	2.3°C
Forecast Temperature for 23-Jul-23	19.3°C

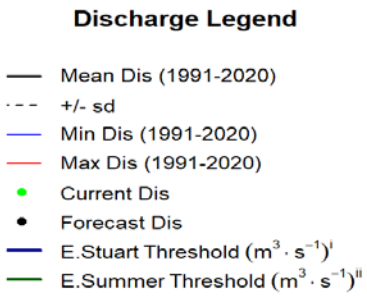
The forecast in Kamloops is for above average air temperatures to continue until July 24 and to drop to below average for the rest of the forecast period. The forecast for Prince George is for above average air temperature.

Observed Fraser River Discharge at Hope for 17-Jul	2556 $m^3 \cdot s^{-1}$
Average (1991-2020) Historical Discharge on this day	5261 $m^3 \cdot s^{-1}$
% above or below Historical Discharge	-51%
Forecast Discharge for 23-Jul-23	2196 $m^3 \cdot s^{-1}$

The forecast in Kamloops is for 10 mm of precipiatation. The forecast in Prince George is for 7 mm of precipitation.





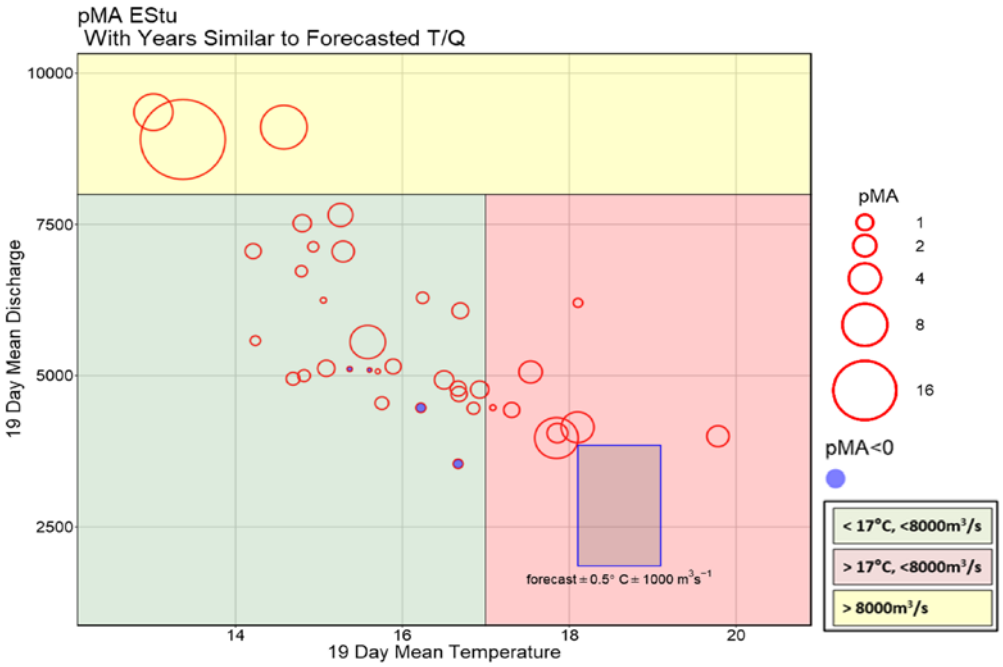


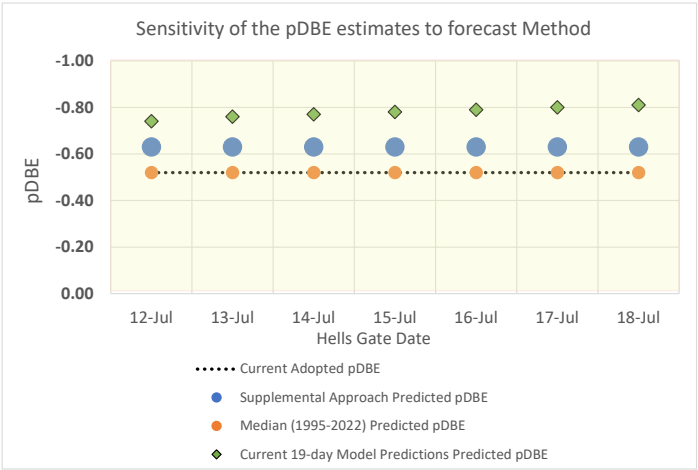
Run timing bars represent a 31 day spread of the run centered around the Hell's Gate date. Hell's gate timing is 5 days from Mission for Early Stuart and Late run; and 4 days from Mission for Early Summer and Summer run.'pMA is the proportional increase to spawning escapement targets to help ensure targets are achieved."%DBE is %difference betweeen 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}. [i]Discharge threshold of 8000cms for Early Stuart from Macdonald (2000). Can. Tech. Rep. Fish. Aquat. Sci. 2315: 120p. [ii]Discharge 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.

Upriver of Slide	Map #	Current Temperatures 16-Jul	Daily Mean	Historic Mean	Deviation from Historical Mean	Historic Year Range
		Fraser River Mainstem				
	1	Fraser River @ Hope	**19.2**	**16.7**	**2.5**	**1991-2020**
	2	Fraser River @ Texas Creek	**18.6**	**16.7**	**1.9**	**2006-2022**
	3	Fraser River @ Big Bar Creek	**NA**	**NA**	**NA**	**2019-2022**
►	4	Fraser River @ Marguerite	**17.6**	**16.5**	**1.1**	**2015-2022**
►	5	Upper Fraser @ Shelley	**16.0**	**13.7**	**2.3**	**1994-2022**
		Fraser River Tributaries				
	6	Thompson R. @ Ashcroft	**19.9**	**15.9**	**4.0**	**1995-2022**
	7	South Thompson @ Chase	**19.8**	**16.8**	**3.0**	**1994-2022**
	8	North Thompson @ McLure	**16.9**	**13.7**	**3.2**	**2006-2022**
►	9	Quesnel R. @ Quesnel	**15.4**	**14.8**	**0.6**	**2000-2022**
►	10	Nechako R. @ Isle Pierre	**NA**	**19.0**	**NA**	**2006-2022**
►	11	Stuart R. @ Ft. St. James	**18.1**	**17.8**	**0.3**	**2000-2022**

Early Stuart pDBE Forecast and Sensitivity Analysis for July 18, 2023

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



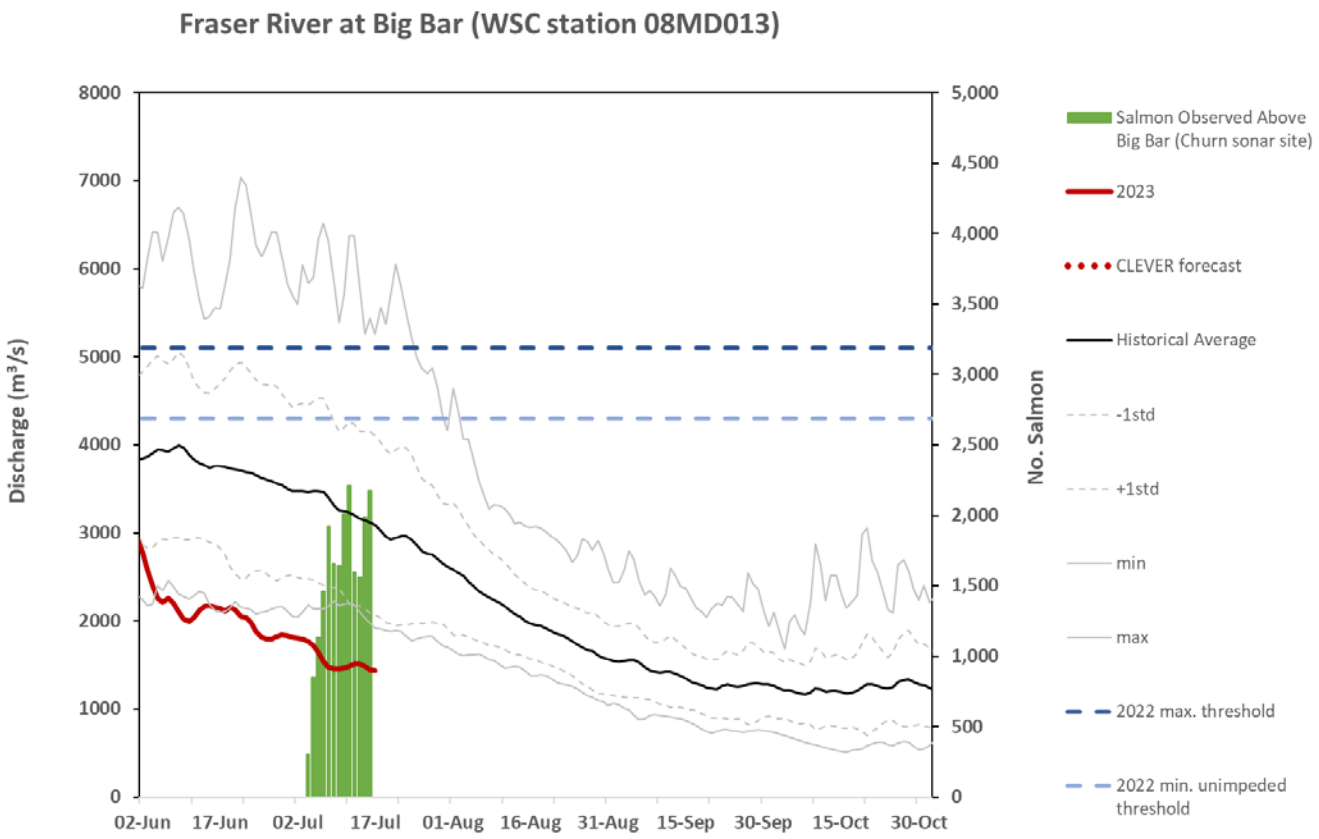


Model Performance Based on "In-season pDBE Approach"

Retrospective					**Best**	**2**	**3**
Area 20 Date	Hells Gate Date	Average Temperature ºC	Average Discharge m^3/s	**Current Adopted** pDBE	**Supplemental Approach** Predicted pDBE	**Median (1995-2022)** Predicted pDBE	**Current 19-day Model Predictions** 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	2850	-0.52	-0.63	-0.52	-0.78
05-Jul	16-Jul	18.6	2807	-0.52	-0.63	-0.52	-0.79
06-Jul	17-Jul	18.7	2763	-0.52	-0.63	-0.52	-0.80
* 07-Jul	18-Jul	18.7	2717	-0.52	-0.63	-0.52	-0.81
Implied pMA							
* 07-Jul	18-Jul	18.7	2717	1.08	1.70	1.08	4.26

* Currently adopted timing with updated forecast information (15 observed and 4 forecast days)

Fraser River Discharge at Big Bar



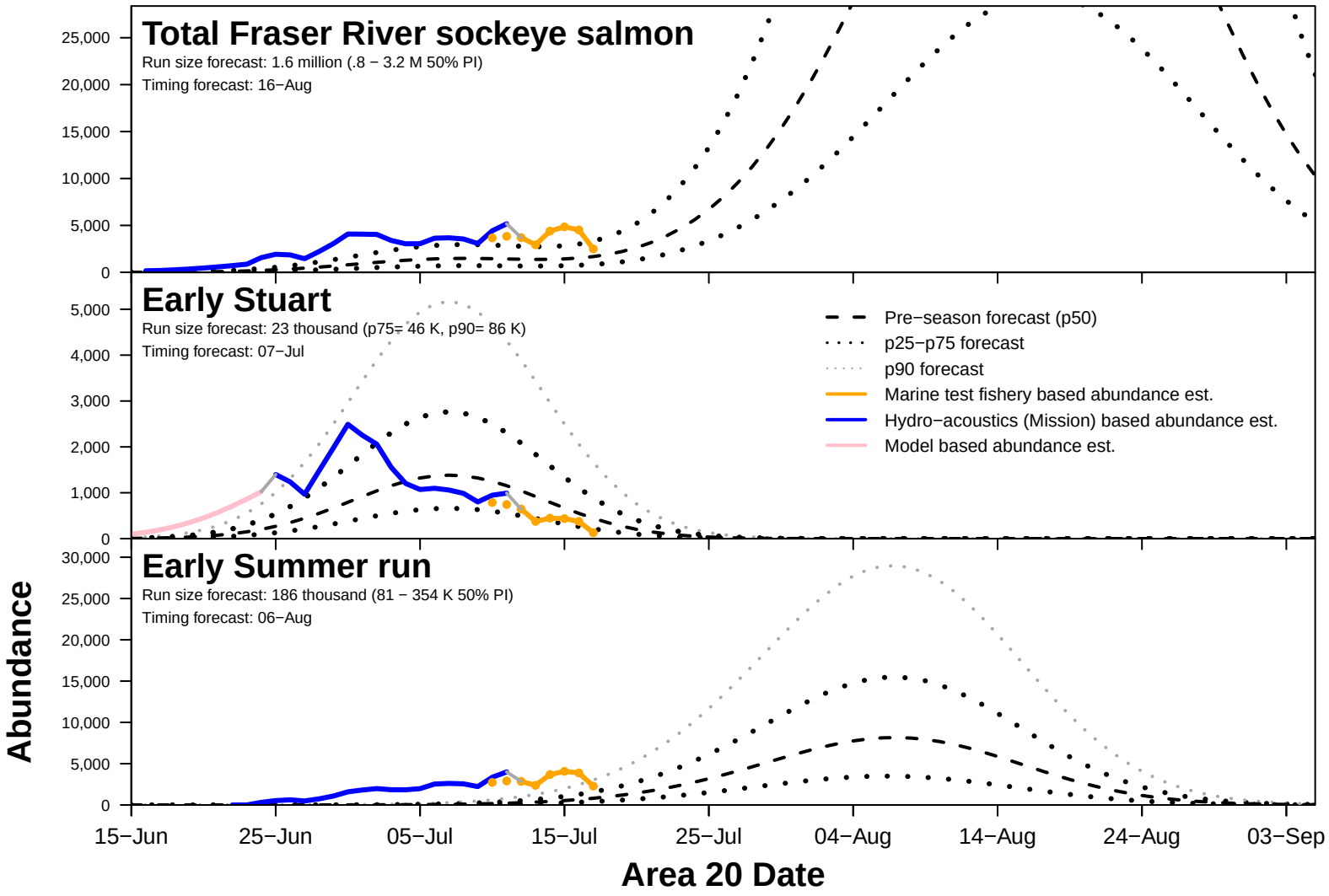
Data made available by: Environment and Climate Change Canada and nhc northwest hydraulic consultants

Migration passage at Big Bar

<u>Big Bar Update</u>

- There have been no upstream migration problems reported at Big Bar.
- A total of 20,490 salmon have been observed 40 km upstream of Big Bar (Churn Creek).
- Using a length-based estimate to differentiate Chinook and sockeye, 6,235 sockeye have migrated past Churn sonars up until July 15 (Note: lengths of Chinook and sockeye at the Matsqui fishwheel are highly overlapping in the range of 60-70 cm).
- A total of 40 sockeye have been collected for broodstock.
- A total of 94 sockeye have been tagged.

2023 Fraser River sockeye salmon daily migration



Date: 2023−07−18, Time: 09:48 SW

2023 Fraser River sockeye abundance en-route to Mission

Current date: 18-Jul

	Escapement	Projected abundance en route to Mission based on marine test fishery data[1,2]								Escapement +
Area 20 date	past Mission	12-Jul	13-Jul	14-Jul	15-Jul	16-Jul	17-Jul	Total	80% PI[3]	projections
Mission date	through 17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul	23-Jul		10p 90p	through 23-Jul
Total Fraser	**61,300**	**4,000**	**1,800**	**2,700**	**8,500**	**3,200**	**1,700**	**21,900**	**10,900 44,700**	**83,200**
Early Stuart	**28,500**	**600**	**200**	**300**	**900**	**200**	**100**	**2,300**	**1,100 4,800**	**30,800**
Early Summer Run	**32,400**	**3,200**	**1,500**	**2,300**	**7,000**	**2,900**	**1,600**	**18,500**	**9,100 38,300**	**50,900**
Chilliwack	14,700	200	100	100	500	400	200	1,500	700 3,100	16,200
Pitt/Alouette/Coquitlam	1,000	500	200	300	1,000	300	200	2,500	1,200 5,200	3,500
Nadina/E.Thomp. group[4]	16,700	2,500	1,200	1,900	5,500	2,200	1,200	14,500	7,100 30,000	31,200
Summer Run	**300**	**100**	**100**	**100**	**400**	**100**	**0**	**800**	**500 1,200**	**1,100**

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

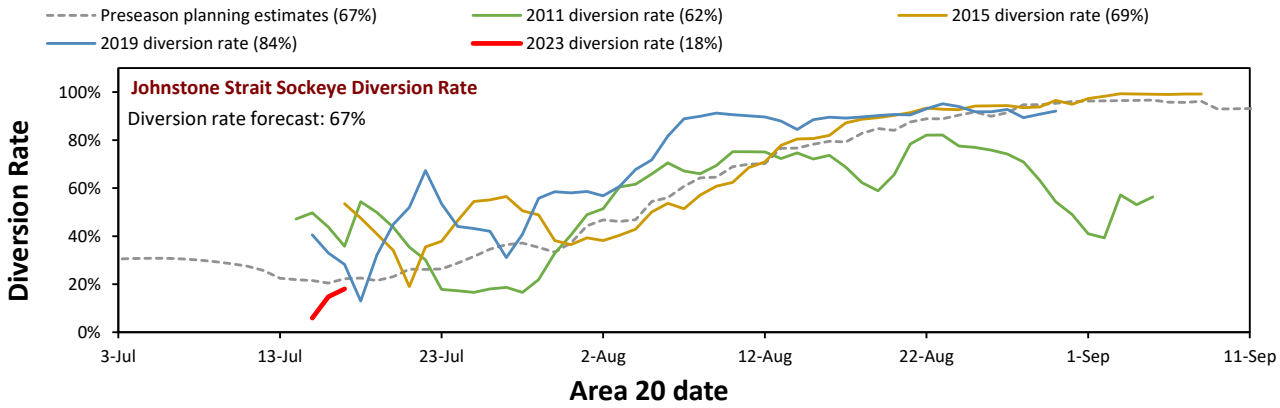
[2] Projected abundances en route to Mission include Harrison and Late runs, an uncertain number of which are expected to delay

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

[4] Nadina / Bowron / Gates / Nahatlatch / Taseko / Early South Thompson / North Barriere

2023 Fraser River sockeye diversion rates through Johnstone Strait

	5-day-average
Diversion rate	**18%**



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] 10% PI	Inseason 80% PIs[2] 90% PI	Method	Catch + Escapement	6-day Projection[3]	Seaward Abundance	Inseason Adopted	Preseason Forecast	Inseason estimate	Inseason 80% PIs[2] 10% PI	Inseason 80% PIs[2] 90% PI	Method
Early Stuart Run	**NA**	**23,000**	● **31,000**	***30,000***	***33,000***	**Recon(2)**	**29,000**	**2,000**	**0**	**NA**	**07-Jul**	**01-Jul**	***01-Jul***	***01-Jul***	**Recon(2)**
Early Summer Run	**NA**	**186,000**					**33,000**	**18,000**		**NA**	**06-Aug**				
E.Summers excl. E.Thomp		125,000					33,000	18,000			05-Aug				

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

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

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

Methods for run size & timing estimation

Recon(2) Catch + escapement + model projections

Run Size Uncertainty Legend[4]

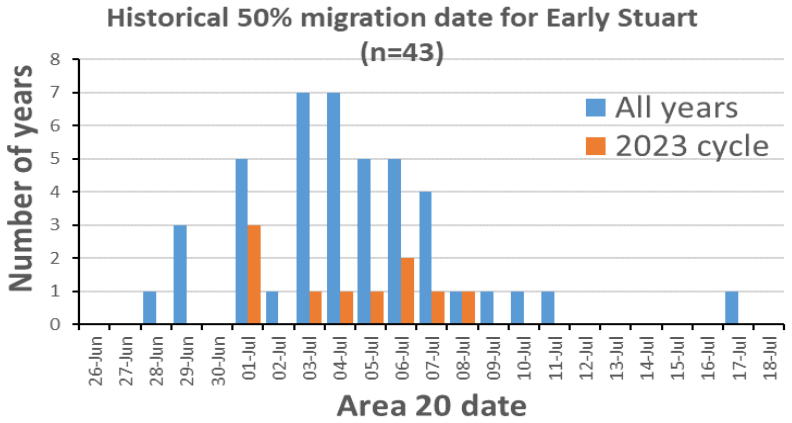
✓ ≥ 95% of the run size has been accounted for in catch + escapement. Clear indication of run size; minor run size updates still expected

● ≥ 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

[4] 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.



Upcoming Test Fishing Start Dates 2023

	Test Fishery	Start Date
Panel Waters	Area 20 Purse Seine	July 21
	Cottonwood	July 26
	Area 7 Reefnet	TBD
Non-Panel Waters	Area 12 Blinkhorn Purse Seine	July 20