File: 71007

DRAFT AGENDA
PACIFIC SALMON COMMISSION
FRASER RIVER PANEL
Friday August 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)	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 comparison	
	c) Stock proportions	
	d) Environmental conditions	
	e) Observations from the watershed	DFO
6)	Assessments and recommendations	PSC Staff
	a) Migration graphs, escapement projections, run size assessments	
7)	Review any decisions on staff recommendations	Panel
8)	Fisheries Recommendations	Panel
	a) Secretariat staff evaluation of fisheries recommendations	
	b) Panel decision on fisheries recommendations	
9)	Other Business	Panel
	a) Weekly Report	
10)	Next FRP Meeting, Tuesday August 22, 10:30 a.m. via Zoom Webinar and in person at the Sheraton Airport Hotel	Panel
	Next Technical Committee meeting, Thursday August 24, 1:00 p.m. via Zoom	TC

2023 Run status of Fraser sockeye and pink salmon

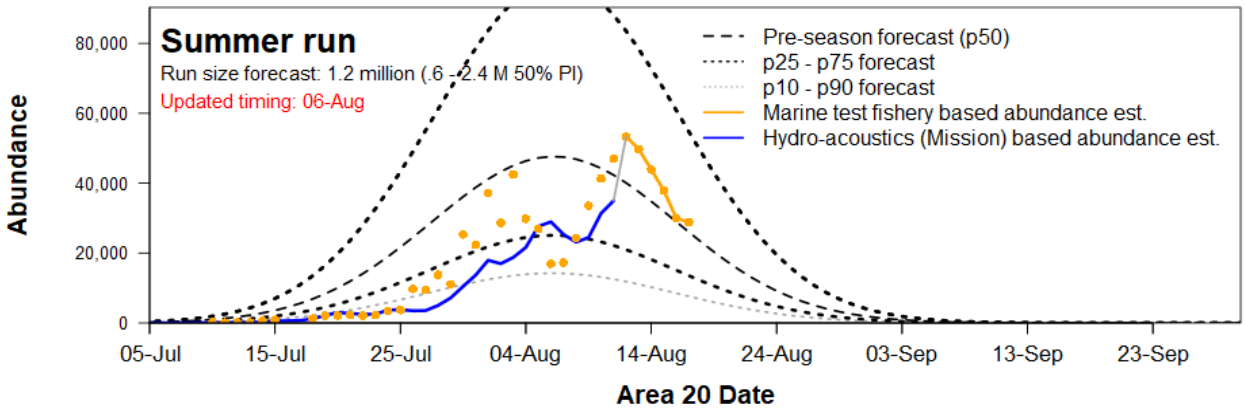
Date: Aug. 18, 2023

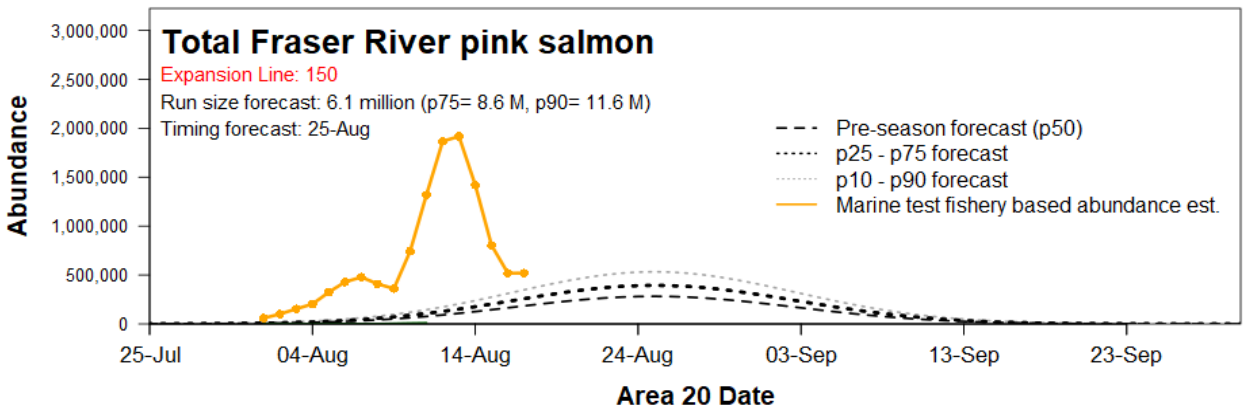
The information presented in this distribution has been prepared by PSC Secretariat staff and should be considered preliminary until reviewed by the Fraser River Panel

Week of: Aug. 13 - Aug. 19, 2023	Sockeye					Pink
	Management Group				Total	Total
	E.Stuart	E.Summer	Summer	Late	Fraser	Fraser
Mission passage (incldes Pitt, Alouette, Coquitlam)	40,900	292,200	335,200	21,000	689,300	31,500
Catch downstream of Mission	200	3,800	6,300	1,000	11,300	2,800
Accounted Run To Date	41,100	296,000	341,500	22,000	700,600	34,300
Run size adopted in-season [2]	**41,000**	**290,000**	**na**	**na**	**na**	**8,575,000**
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	**2/Jul**	**23/Jul**	**na**	**na**	**na**	**18/Aug**
Area 20 timing expected pre-season	7/Jul	6/Aug	17/Aug	24/Aug	16/Aug	25/Aug
Johnstone Str. Diversion Rate				In-season 5-day average	**65%**	**34%**
				Preseason forecast of annual rate:	67%	62%

[1] *For pink salmon the accounted run-to-date is a reconstruction-based estimate.*

[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 Catch-to-date by fishery

Date: Aug. 18, 2023

Week of: Aug. 13 - Aug. 19, 2023	Sockeye		Pink	
	Total	Fraser	Total	Fraser
Canada	**5,019**	**5,019**	**12,580**	**579**
Commercial	**0**	**0**	**0**	**0**
B Purse Seine	0	0	0	0
D Gillnet	0	0	0	0
E Gillnet	0	0	0	0
G Troll	0	0	0	0
H Troll	0	0	0	0
First Nations	**0**	**0**	**547**	**121**
Food, Social & Ceremonial (FSC)	0	0	547	121
Marine	0	0	541	115
Fraser R.	0	0	6	6
Economic Opportunity (EO) & Demonstration (Demo)	0	0	0	0
Escapement Surplus to Spawning Requirements (ESSR)	**126**	**126**	**0**	**0**
Recreational	**0**	**0**	**12,030**	**455**
Charter (Albion & A12 Chum test fishery)	**472**	**472**	**3**	**3**
Other****	**4,421**	**4,421**	**0**	**0**
United States	**0**	**0**	**0**	**0**
Commercial	**0**	**0**	**0**	**0**
Treaty Tribes (TRB)	0	0	0	0
All Citizen (AC)	0	0	0	0
Treaty Tribes Ceremonial & Subsistence (C&S)	**0**	**0**	**0**	**0**
All Citizen Recreational	**0**	**0**	**0**	**0**
Other****	**0**	**0**		
Alaska *	**na**	**na**	**na**	**na**
Panel-approved Test Fisheries	**11,617**	**11,091**	**7,470**	**2,260**
Panel Waters	**8,294**	**8,004**	**6,398**	**2,128**
Canada	8,294	8,004	2,748	513
U.S.	0	0	3,650	1,615
Non-Panel Waters**	**3,323**	**3,087**	**1,072**	**133**
Total	**16,636**	**16,110**	**20,050**	**2,839**
Catch Seaward of Mission ***	11,758	11,232	20,043	2,832
Catch Upstream of Mission	4,878	4,878	7	7

** Alaska data are processed post-season and so are unavailable in-season.*

*** Includes Qualark*

**** All catches in marine areas and in the Fraser River downstream of Mission.*

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

			Fraser Sockeye					Fraser Pinks	
			Early Stuart	Early Summer	Summer	Lates	Total		Total
RUN STATUS, ESCAPEMENT NEEDS & AVAILABLE SURPLUS									
Pre-season or Adopted In-season Run Size			**41,000**	**290,000**	**1,167,000**	**188,000**	**1,686,000**		**8,575,000**
Adult Spawning Escapement Target (SET)			**41,000**	**145,000**	**1,046,600**	**188,000**	**1,420,600**		**6,000,000**
%SET from TAM rules			100%	50%	90%	100%			70%
Management Adjustment (MA)*			**69,700**	**156,600**	**240,720**	**188,000**	**655,020**		0
Proportional MA (pMA)*			1.70	1.08	0.23	1.00			0.00
Adjusted Spawning Escapement Target (SET) **			41,000	290,000	1,167,000	188,000	1,686,000		6,000,000
Test Fishing (TF)****			**250**	**3,700**	**11,860**	**2,030**	**17,840**		**25,270**
Surplus above Adjusted SET & Test fishing			0	0	0	0	0		2,549,730
DEDUCTIONS & TAC FOR INTERNATIONAL SHARING									
Aboriginal Fishery Exemption (AFE)			**0**	**0**	**0**	**0**	**0**		**0**
Total Deductions (Adj. SET + TF + Available AFE)			41,250	293,700	1,178,860	190,030	1,703,840		6,025,270
Available TAC for International Sharing			**0**	**0**	**0**	**0**	**0**		**2,549,730**
UNITED STATES (Washington) TAC									
Proportionally Distributed TAC ***		16.5%	0	0	0	0	0	25.7%	655,280
U.S. Payback ***		0.0%	0	0	0	0	0		0
Proportionally Distributed TAC + Payback			**0**	**0**	**0**	**0**	**0**		**655,280**
Treaty Tribes Share ***		67.7%	0	0	0	0	0	50.0%	327,640
All Citizen Share		32.3%	0	0	0	0	0	50.0%	327,640
CANADA TAC									
Aboriginal Fishery Exemption (AFE)			0	0	0	0	0		0
Canadian TAC + AFE			**0**	**0**	**0**	**0**	**0**		**1,894,450**
CATCH-TO-DATE									
Test			**250**	**3,750**	**6,140**	**960**	**11,090**		**2,260**
Treaty Tribes (Wash.) / Ceremonial (TRB)			0	0	0	0	0		0
All Citizen (Wash.)			0	0	0	0	0		0
Other (Wash.)****			0	0	0	0	0		
Washington			**0**	**0**	**0**	**0**	**0**		**0**
First Nations Catch (including AFE)			0	0	0	0	0		120
Planned Charter & Recreational Shares			20	160	270	14	472	0	460
Other****			250	2,740	1,430	10	4,420	0	0
Total Commercial (including FN EO/Demo*****)			0	0	0	0	0	0	0
Canada			**270**	**2,900**	**1,700**	**24**	**4,890**		**580**
Total Catch in All Fisheries			**520**	**6,650**	**7,840**	**984**	**15,980**		**2,840**
Exploitation Rate (catch-to-date / run size)			1.3%	2.3%	0.7%	0.5%	0.9%		0.0%
Exploit. Rate with fishery-induced mortality included			1.4%	2.4%	0.8%	0.7%	1.0%		
CATCH REMAINING (BALANCE)									
Washington			**0**	**0**	**0**	**0**	**0**		**655,280**
Canada			**-270**	**-2,900**	**-1,700**	**-24**	**-4,894**		**1,893,870**
Balance Remaining [below share / -above share]			-270	-2,900	-1,700	-24	-4,894		2,549,150

* Given the 2022 pre-season forecasts of abundances, fisheries decisions that could impact the Early Stuart sockeye management group will be based on Low Abundance Exploitation Rate (LAER) limit of 10%. The intent of LAER is to allow for limited fisheries directed on co-migrating stocks or species, but also may permit limited harvest in some cases. The application of the LAER obviates the need for management adjustments for this group.

** The adjusted SET is the lesser of the run size or the sum of the MA + TAM - defined SET.

*** Washington sockeye and pink shares according to Annex IV of the Pacific Salmon Treaty.
Sockeye: 16.5% of the TAC - payback (maximum of 5% of share).
Pink: 25.7% of the TAC - payback (maximum of 5% of share)

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

***** EO = FN Economic Opportunity fisheries; Demo = FN Demonstration fisheries.

****** The test fishing deduction was updated in-season to 42,579 on September 2, 2022.

2023 Fraser Sockeye Test Fishing & Escapement Summary

Area/Gear Location From A20	Johnstone Strait	Juan de Fuca Strait		Fraser River									
	A12 PS Blinkhorn (-1 day)	A20 PS Port Renfrew (0 days)	A7 RN[1] San Juan Is (+3 days)	A29-13 GN Cottonwood (+5 days)	A29-17 GN Brownsville Bar[2] (+5 days)	A29-16 GN Whonnock (+6 days)	Whon CPUE Estimate (+6 days)	Qualark GN Catch (+8 days)	Qualark Estimate[3]	Qualark Method[4]	Mission Hydroacoustics Estimate[5] (+6 days)	Mission Hydroacoustics Method[6]	Hells Gate Estimates[7] (+10 days)
27-Jul	107	127		9	40	2	0.17	9	8,444	RB + LB	8,500	S1+M2+A2	5,000
28-Jul	522	81		20	36	9	0.83	10	6,521	RB + LB	7,000	S1+M2+A2	3,010
29-Jul	13	265		1	17	3	0.27	11	6,965	RB + LB	9,200	S1+M2+A2	2,660
30-Jul	239	384		3	44	5	0.47	11	5,396	RB + LB	6,600	S1+M2+A2	930
31-Jul	99	1,021		8	66	19	1.64	8	6,890	RB + LB	11,000	S1+M2+A2	890
1-Aug	4,592	230		3	36	11	0.93	16	8,067	RB + LB	9,000	S1+M2+A2	930
2-Aug	1,400	143		3	24	20	1.72	10	8,834	RB + LB	7,900	S1+M2+A2	1,080
3-Aug	6,197	147		10	44	21	1.74	14	9,597	RB + LB	17,800	S1+M2+A2	1,960
4-Aug	2,824	184		17	57	15	1.25	23	9,209	RB + LB	13,900	A1+S1+M2+A2	2,720
5-Aug	203	162		17	136	58	4.33	10	12,073	RB + LB	19,600	A1+S1+M2+A2	2,630
6-Aug	683	387		21	143	31	2.48	7	14,372	RB + LB	23,900	A1+S1+M2+A2	4,220
7-Aug	663	492		28	51	11	0.97	20	16,577	RB + LB	25,700	A1+S1+M2+A2	4,500
8-Aug	93 (2 sets)	188		9	107	12	1.06	17	21,431	RB + LB	30,600	A1+S1+M2+A2	6,870
9-Aug	5,923	85 (3 sets)		19	116	9	0.82	15	21,271	RB + LB	18,000	A1+S1+M2+A2	6,860
10-Aug	1,645	72 (3 sets)		44	155	24	1.89	17	20,706	RB + LB	32,000	A1+S1+M2+A2	11,100
11-Aug	4,017	1,294		15	83	44	3.42	19	11,411	RB + LB	37,100	A1+S1+M2+A2	11,620
12-Aug	9,032	2,000		24	80	72	5.63	12	18,569	RB + LB	37,800	A1+S1+M2+A2	7,060
13-Aug	991	865		15	71	60	4.82	20	29,195	RB + LB	35,200	A1+S1+M2+A2	2,580
14-Aug	763	1006 (5 sets)	290	45	106	84	6.16	47	31,260	RB + LB	26,100	A1+S1+M2+A2	No Count
15-Aug	4714 (5 sets)	405	368	66	141	109	8.72	20	29,702	RB + LB	31,900	A1+S1+M2+A2	14,260
16-Aug	90 (5 sets)	241	376	159	115	138	10.61	43	26,791	RB + LB	37,500	A1+S1+M2+A2	6,530
17-Aug	36 (3 sets)	120 (4 sets)		93	146	178	14.24				51,300	A1+S1+M2+A2	2,950
18-Aug													

[1] Area 7 Reefnet test fishery is for observation of fish presence and species composition. Vessels are operating at two observation sites.

[2] Alternative Lower River Test Fishery - Southern Endowment Fund Project

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

[4] Qualark source:

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

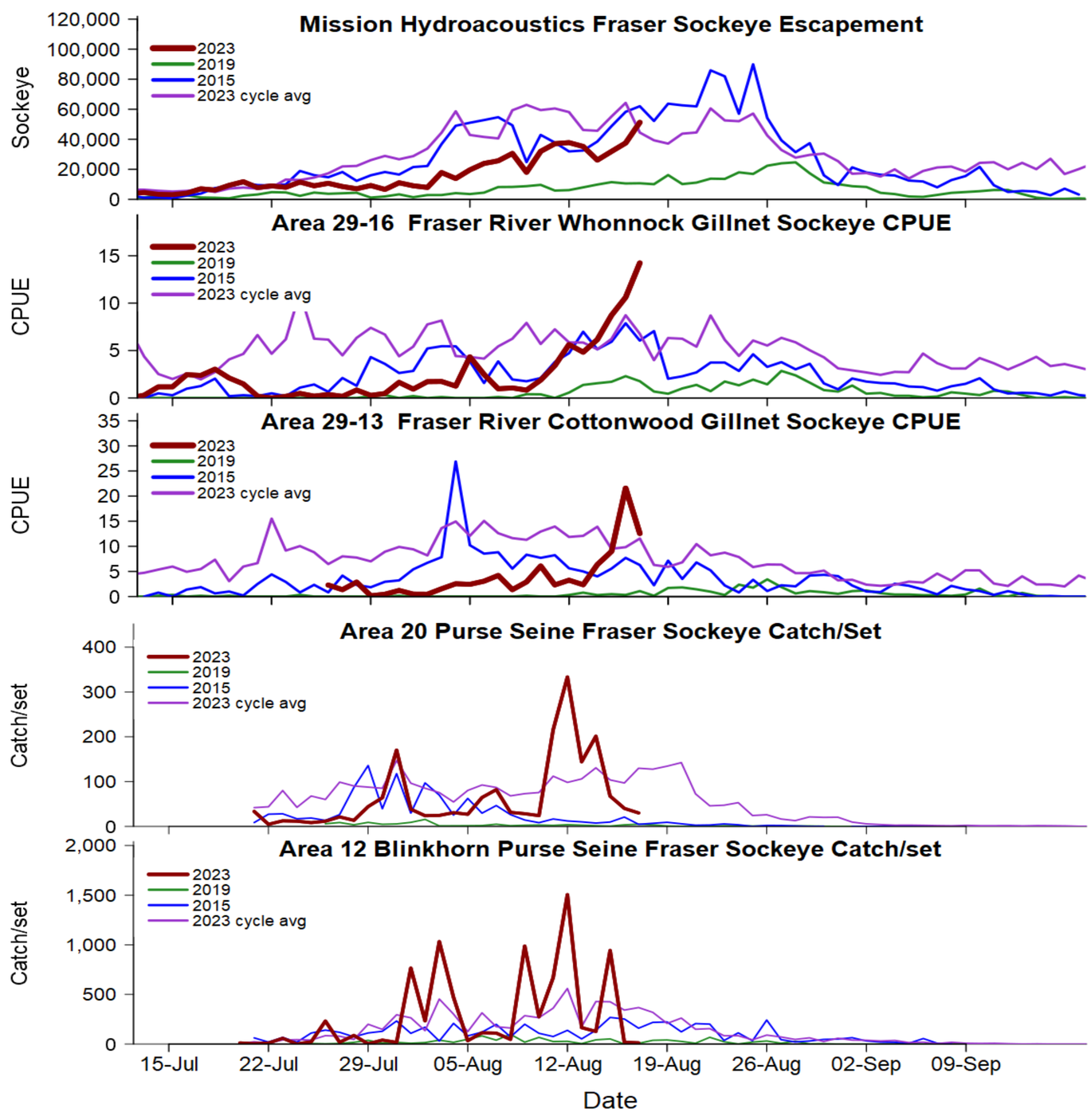
[5] Mission escapement estimate - does not include Pitt

[6] Mission source:

S1+M2+A2 = Left bank split-beam (S1) + Mobile ARIS (M2) + Right bank ARIS (A2)

A1+S1+M2+A2 = Left bank ARIS (A1) + Left bank split-beam (S1) + Mobile ARIS (M2) + Right bank ARIS (A2)

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



2023 Fraser Pink Test Fishing & Escapement Summary

	Johnstone Strait	Juan de Fuca Strait		Fraser River									
Area/Gear	A12 PS	A20 PS	A7 RN[1]	A29-13 GN	A29-17 GN	A29-16 GN	Whon CPUE	Qualark			Mission Hydroacoustics		Hell's Gate
Location	Blinkhorn	Port Renfrew	San Juan Is	Cottonwood	Brownsville Bar [2]	Whonnock	Estimate	GN Catch	Estimate[3]	Method[4]	Estimate[5]	Method[6]	Estimates[7]
From A20	(- 2 days)	(0 days)											
28-Jul	11,055	6,285		0	0	0	0.00	0	0	RB+LB	0	S1+M2+A2	0
29-Jul	574	7,964		0	0	0	0.00	0	0	RB+LB	0	S1+M2+A2	0
30-Jul	1,800	6,100		0	0	0	0.00	0	0	RB+LB	0	S1+M2+A2	0
31-Jul	2,199	4,152		0	0	0	0.00	0	0	RB+LB	0	S1+M2+A2	0
1-Aug	10,849	6,072		0	0	0	0.00	0	0	RB+LB	0	S1+M2+A2	0
2-Aug	11,745	4,101		0	0	0	0.00	0	0	RB+LB	0	S1+M2+A2	0
3-Aug	15,892	5,102		0	0	0	0.00	0	0	RB+LB	0	S1+M2+A2	0
4-Aug	5,826	10,886		0	1	0	0.00	0	0	RB+LB	0	A1+S1+M2+A2	0
5-Aug	4,442	7,835		0	2	0	0.00	0	0	RB+LB	730	A1+S1+M2+A2	0
6-Aug	12,365	20,036		0	0	1	0.08	0	0	RB+LB	1,470	A1+S1+M2+A2	0
7-Aug	25,449	22,255		0	1	0	0.00	0	0	RB+LB	1,470	A1+S1+M2+A2	0
8-Aug	4322 (2 sets)	12,043		0	3	0	0.00	0	0	RB+LB	1,470	A1+S1+M2+A2	0
9-Aug	88,365	2709 (3 sets)		1	0	0	0.00	0	0	RB+LB	2,010	A1+S1+M2+A2	0
10-Aug	51,493	6080 (3 sets)		0	1	0	0.00	0	0	RB+LB	2,010	A1+S1+M2+A2	0
11-Aug	61,846	32,260		0	1	0	0.00	0	0	RB+LB	2,020	A1+S1+M2+A2	0
12-Aug	92,413	52,160		0	1	1	0.08	0	0	RB+LB	1,010	A1+S1+M2+A2	0
13-Aug	12,244	49,024		0	2	0	0.00	0	0	RB+LB	1,520	A1+S1+M2+A2	0
14-Aug	9,283	23431 (5 sets)	398	0	2	0	0.00	0	0	RB+LB	2,020	A1+S1+M2+A2	No Count
15-Aug	45400 (5 sets)	11,635	1,337	1	5	1	0.08	0	0	RB+LB	2,520	A1+S1+M2+A2	0
16-Aug	6486 (5 sets)	3,962	2,108	0	10	4	0.30	1	623	RB+LB	4,540	A1+S1+M2+A2	10,700
17-Aug	385 (3 sets)	5645 (4 sets)		1	18	3	0.24				8,710	A1+S1+M2+A2	12,360
18-Aug													
19-Aug													

[1] Area 7 Reefnet test fishery is for observation of fish presence and species composition. Vessels are operating at two observation sites.

[2] Alternative Lower River Test Fishery - Southern Endowment Fund Project

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

[4] Qualark source:

RB+LB = Right Bank (RB) + Left Bank (LB)

[5] Mission escapement estimate - does not include Pitt

[6] Mission source:

S1+M2+A2 = Left bank split-beam (S1) + Mobile ARIS (M2) + Right bank ARIS (A2)

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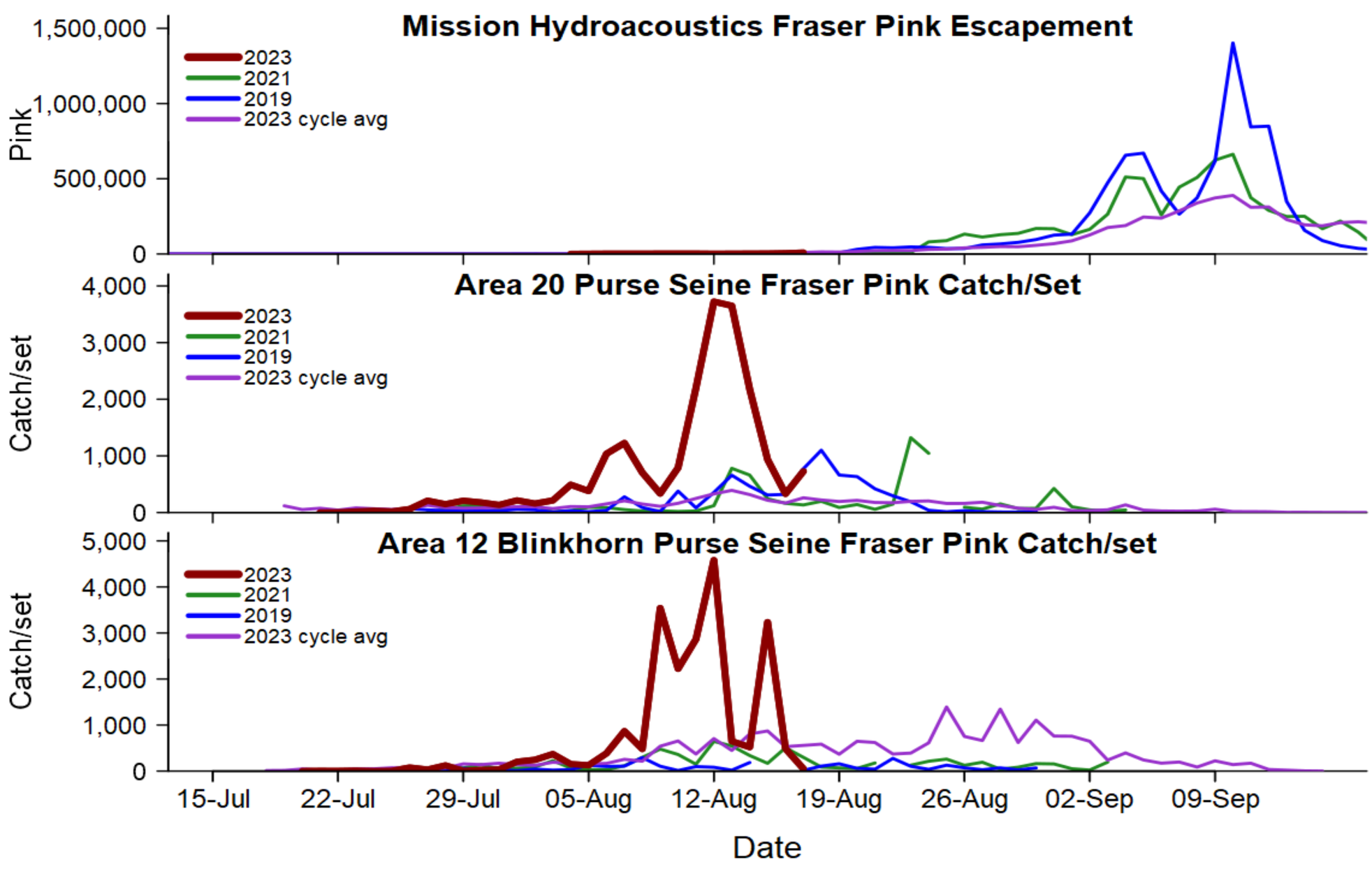
[7] Daily Hells Gate abundance estimate; actual daily count has been expanded.

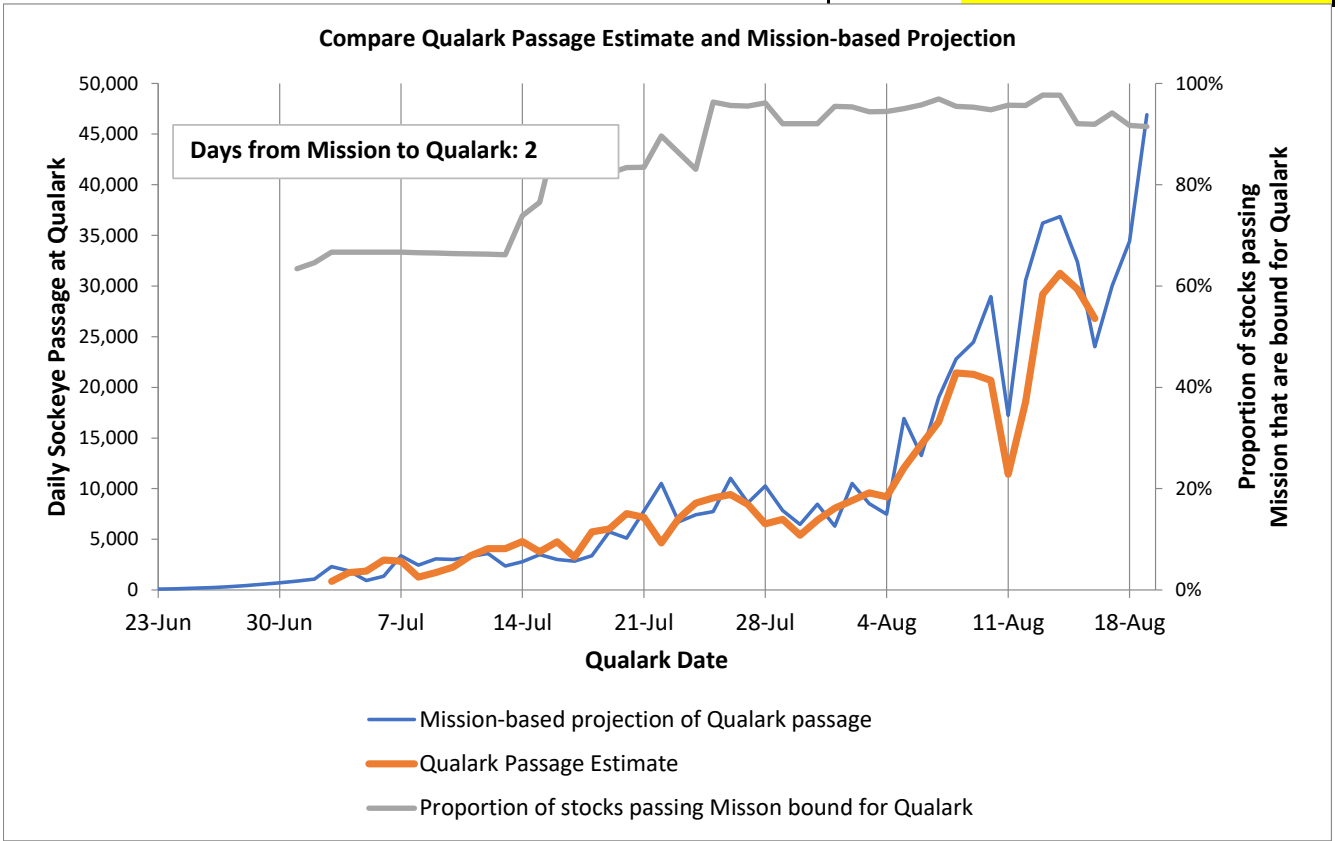


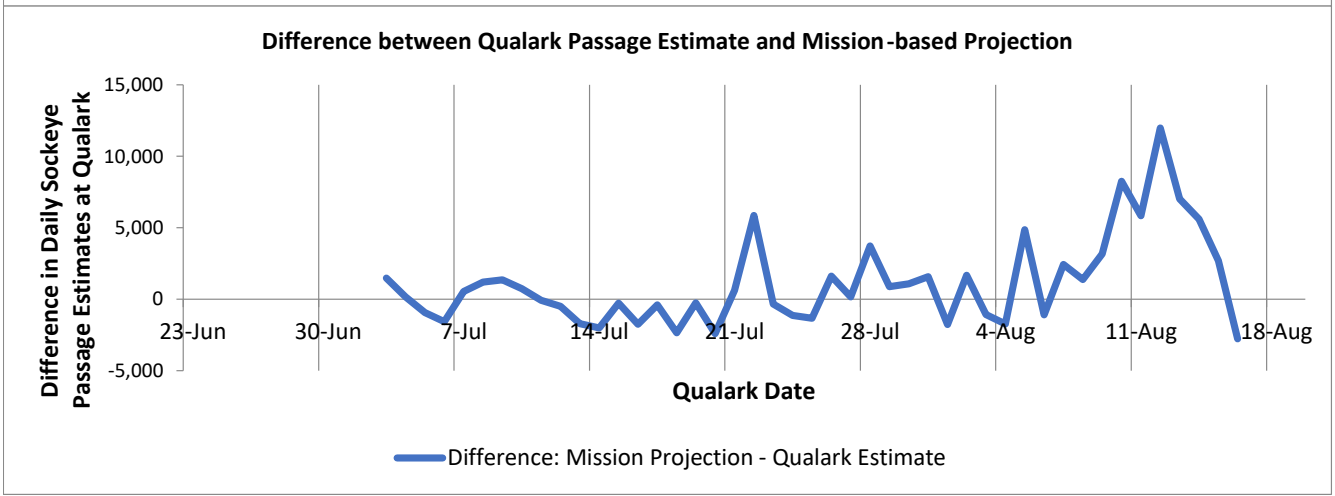
Fraser Sockeye: Qualark Passage Estimate and Mission-based Projection Year: **2023**

Date: 18/Aug/23

Time: 9:55 AM

	All Days	Common Days
Mission projection	598,328	482,379
Qualark estimate	431,977	431,977
	Difference	**50,401**
	%Difference	**10%**





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				
Area/Gear[1]	Sector[2]	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	Overall Stocks Age-4_2
Johnstone Strait & Queen Charlotte Strait																				
A12 ps	tf	Aug 9	DNA	89	98%	0%	1%		5%	1%	7%		23%	52%	2%	77%	5%	3%	8%	16%	66%
A12 ps	tf	Aug 12	DNA	90	99%	0%			3%		3%		16%	59%	1%	75%	7%	4%	10%	21%	64%
A12 ps	tf	Aug15-16	DNA	144	97%	0%			5%	3%	8%		16%	41%	3%	60%	4%	3%	25%	32%	67%
A12 ps		Aug 21	Prediction	1	98%	0%			2%	0%	2%		6%	49%	2%	57%	10%	5%	26%	41%	NA
Juan de Fuca Strait & Washington & Other																				
A20 ps	tf	Aug 11	DNA	98	100%	0%			4%	1%	6%	2%	22%	49%		73%	12%	2%	7%	21%	NA
A20 ps	tf	Aug 12	DNA	97	98%	0%			8%	3%	11%		9%	60%		69%	6%	9%	5%	20%	70%
A20 ps	tf	Aug 15	DNA	98	99%	0%			1%	1%	2%		10%	55%	1%	67%	15%	6%	10%	32%	71%
A20 ps		Aug 20	Prediction	1	99%	0%			4%	2%	6%		5%	52%	1%	57%	16%	10%	11%	37%	NA
In-river																				
Hop-Qua gn	tf	Aug11-12	DNA	29	100%	0%			19%	17%	36%		9%	55%		64%				0%	NA
AB gn	tf	Aug13-15	DNA	149	100%	0%	1%		19%	3%	23%	1%	12%	61%	1%	75%	2%			2%	71%
BB gn Bro	tf	Aug14-16	DNA	149	99%	0%		1%	13%	5%	20%	1%	14%	61%		76%	5%			5%	79%
BB gn Cot	tf	Aug14-16	DNA	149	100%	0%		1%	14%	5%	21%	1%	11%	57%	1%	70%	10%			10%	NA

2023 Fraser River Pink Salmon Stock identification Review

Recent stock composition estimates for pink salmon

					DNA % Estimates by Group		
Area/Gear[1]	Sector[2]	Date	Type[3]	Size (n)	Fraser River	Washington	Canada South Coast
Johnstone Strait							
A12 PS	TF	Aug11	DNA	95	30%	28%	42%
A12 PS	TF	Aug14	DNA	100	24%	25%	51%
A12		Aug17	Prediction	1	40%	26%	35%
Juan de Fuca Strait							
A20 PS	TF	Aug10	DNA	96	43%	38%	19%
A20 PS	TF	Aug14	DNA	91	51%	19%	29%
A20		Aug17	Prediction	1	52%	32%	16%
Washington							
A7 RN	TF	Aug14	DNA	181	40%	23%	37%
A7		Aug17	Prediction	1	50%	22%	29%
A7A		Aug17	Prediction	1	52%	13%	35%

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

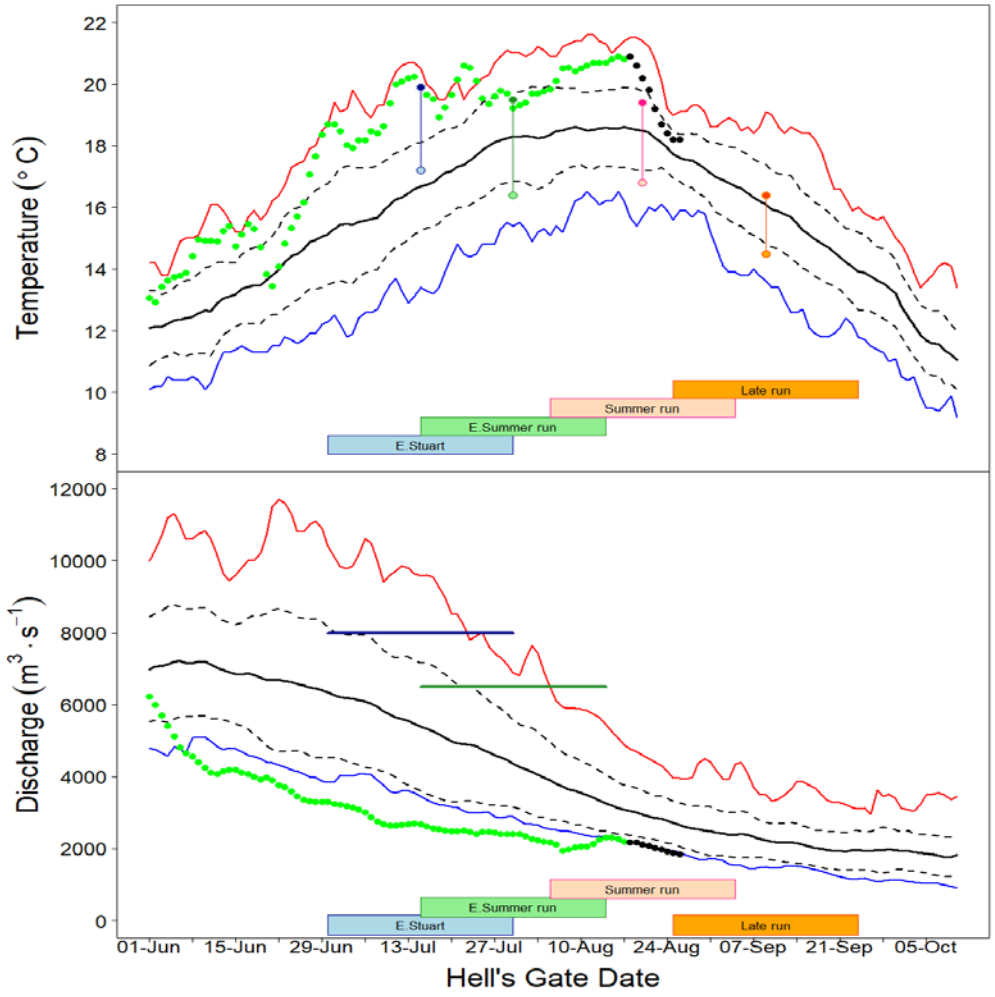
Fraser River Environmental Report for August 17, 2023

Observed Fraser River Temperature at Qualark for 17-Aug	20.8°C
Average (1991-2020) Historical Temperature on this day	18.6°C
Deviation from Average	2.2°C
Forecast Temperature for 23-Aug-23	18.7°C

The forecast in Kamloops and Prince George is for above average air temperature until Aug 18 and 17, respectively. Air temperature is then forecast to drop to below average and then return to above average air temperature for the rest of the forecast period.

Observed Fraser River Discharge at Hope for 17-Aug	2188 $m^3 \cdot s^{-1}$
Average (1991-2020) Historical Discharge on this day	3085 $m^3 \cdot s^{-1}$
% above or below Historical Discharge	-29%
Forecast Discharge for 23-Aug-23	1971 $m^3 \cdot s^{-1}$

The forecast in Kamloops is for 12 mm of precipiatation. The forecast in Prince George is for 11 mm of precipitation.



Temperature Legend

- Mean Temp (1991-2020)
- +/- sd
- Min Temp (1991-2020)
- Max Temp (1991-2020)
- Current Temp
- Forecast Temp
- Opt. T of stock group*
- Upper T range of stock group**

Discharge Legend

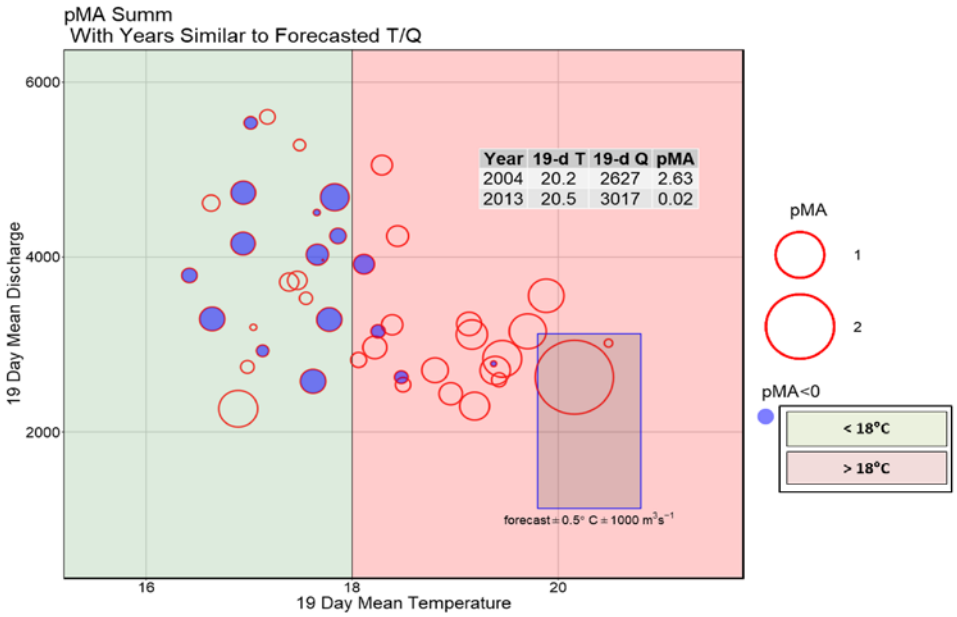
- Mean Dis (1991-2020)
- +/- sd
- Min Dis (1991-2020)
- Max Dis (1991-2020)
- Current Dis
- Forecast Dis
- E.Stuart Threshold ($m^3 \cdot s^{-1}$)[i]
- E.Summer Threshold ($m^3 \cdot s^{-1}$)[ii]

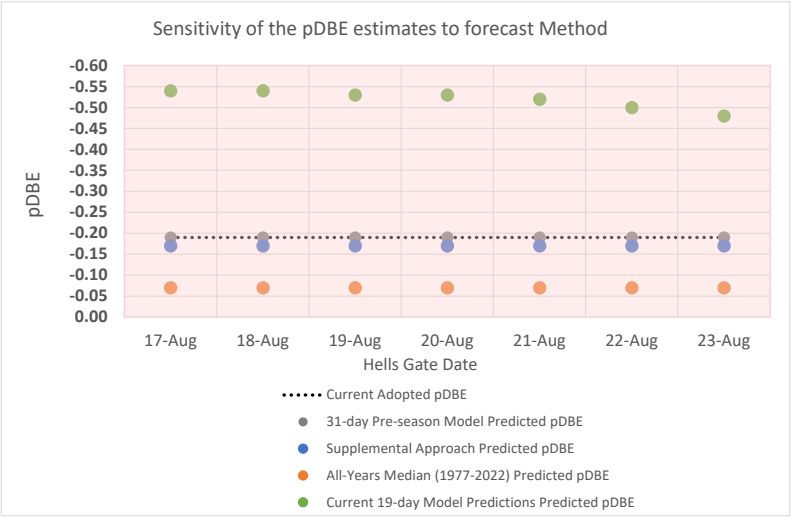
Run timing bars represent a 31 day spread of the run centered around the Hell's Gate date. Hell's gate timing is 5 days from Mission for Early Stuart and Late run; and 4 days from Mission for Early Summer and Summer run.'pMA is the proportional increase to spawning escapement targets to help ensure targets 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-Aug	Daily Mean	Historic Mean	Deviation from Historical Mean	Historic Year Range
		Fraser River Mainstem				
	1	Fraser River @ Qualark	**20.9**	**18.6**	**2.3**	**1991-2020**
	2	Fraser River @ Texas Creek	**19.7**	**18.2**	**1.5**	**2006-2022**
	3	Fraser River @ Big Bar Creek	**NA**	**NA**	**NA**	**2019-2022**
►	4	Fraser River @ Marguerite	**18.7**	**18.2**	**0.5**	**2015-2022**
►	5	Upper Fraser @ Shelley	**16.8**	**15.4**	**1.4**	**1994-2022**
		Fraser River Tributaries				
	6	Thompson R. @ Ashcroft	**21.1**	**18.7**	**2.4**	**1995-2022**
	7	South Thompson @ Chase	**21.9**	**19.6**	**2.3**	**1994-2022**
	8	North Thompson @ McLure	**19.2**	**15.7**	**3.5**	**2006-2022**
►	9	Quesnel R. @ Quesnel	**19.2**	**17.9**	**1.3**	**2000-2022**
►	10	Nechako R. @ Isle Pierre	**18.9**	**18.9**	**0.0**	**2006-2022**
►	11	Stuart R. @ Ft. St. James	**19.5**	**18.6**	**0.9**	**2000-2022**

Summer run pDBE Forecast and Sensitivity Analysis forAugust 18, 2023

Based on the retrospective analysis evaluation of 2010-2021 for Summer run the best performing in-season model is the 31-day pre-season model





Model Performance Based on "In-season pDBE Approach" Retrospective					Best	Tied Second Best (too conservative)	Tied Second Best (not conservative enough)	Least
Area 20 Date	Hells Gate Date	Average Temperature ºC	Average Discharge m^3/s	Current Adopted pDBE	31-day Pre-season Model Predicted pDBE	Supplemental Approach Predicted pDBE	All-Years Median (1977-2022) Predicted pDBE	Current 19-day Model Predictions Predicted pDBE
06-Aug	17-Aug	20.4	2157	-0.19	-0.19	-0.17	-0.07	-0.54
07-Aug	18-Aug	20.4	2147	-0.19	-0.19	-0.17	-0.07	-0.54
08-Aug	19-Aug	20.4	2135	-0.19	-0.19	-0.17	-0.07	-0.53
09-Aug	20-Aug	20.3	2124	-0.19	-0.19	-0.17	-0.07	-0.53
10-Aug	21-Aug	20.3	2110	-0.19	-0.19	-0.17	-0.07	-0.52
11-Aug	22-Aug	20.2	2098	-0.19	-0.19	-0.17	-0.07	-0.50
* 12-Aug	23-Aug	20.0	2092	-0.19	-0.19	-0.17	-0.07	-0.48
Implied pMA								
12-Aug	23-Aug	20.0	2092	0.23	0.23	0.20	0.08	0.92

*Currently last day with 19 days of observed (10 days) and forecasted (9 days) Temp & Disch data.

Years with high temperature similar to 2023

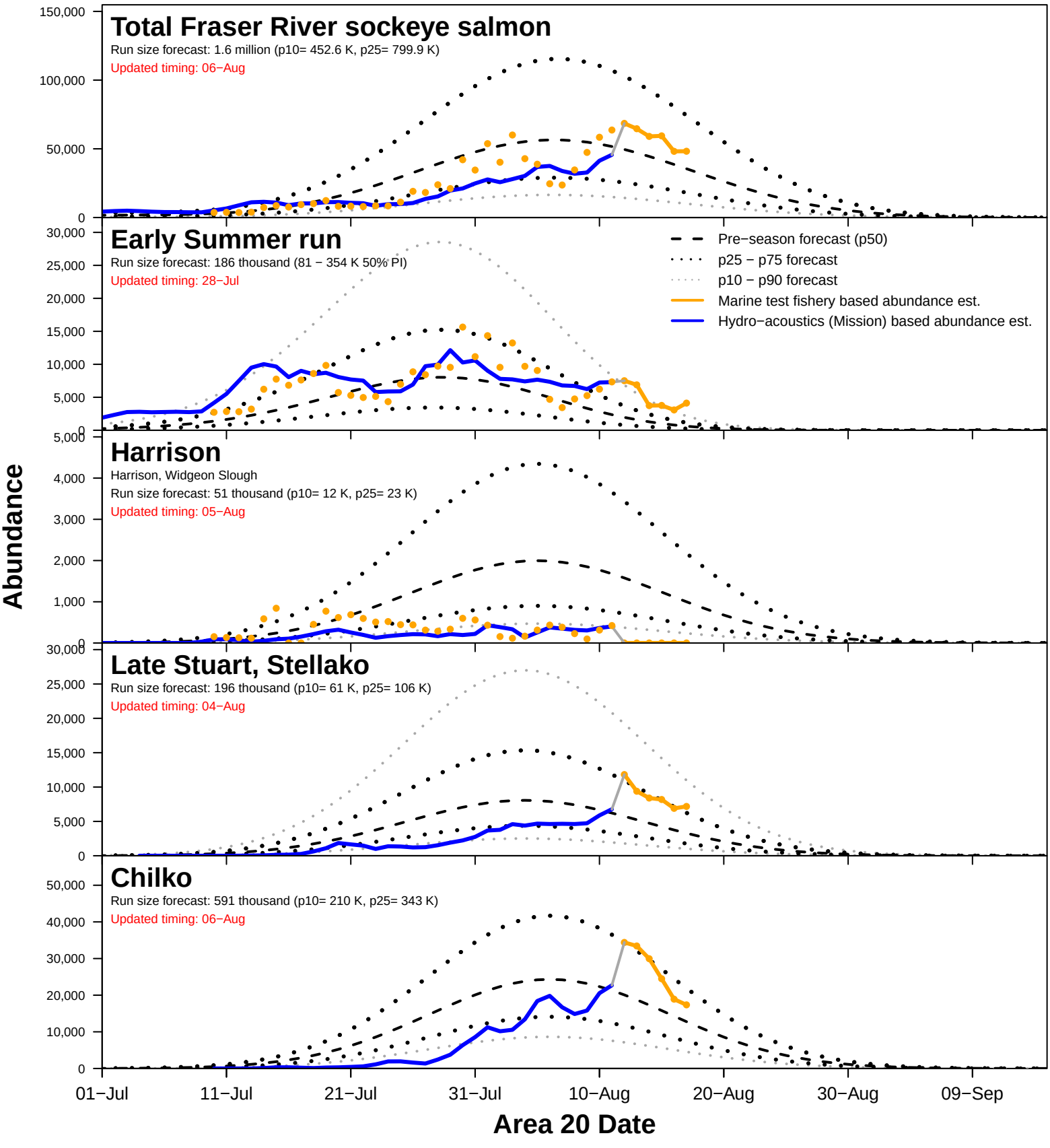
	2004	2013	Current available 2023
19-day Temperature	20.2	20.5	~20.3
31-day Temperature	19.8	19.7	NA
Observed pDBE	-0.72	-0.02	NA
Adopted in-season pDBE	-0.29	-0.71	-0.19
Impact of gear			
Catch Below Mission	1,854,000	386,542	10,434
Catch Above Mission	483,000	231,000	1,630
Inseason Reports of Fish Condition (*strength of evidence is strong)[1]			
Overall fish condition	poor	NA	good
fish holding and schooling in river	reported	NA	not reported
Body damage	reported	NA	NA
*Scale Loss	NA	NA	NA
*Gear marks	NA	NA	NA
Wounds	reported	NA	NA
Infection	NA	NA	NA
*Injury to vital organ	NA	NA	NA
*Fin damage	NA	NA	NA
Sea lice scarring	NA	NA	NA
Carcasses at Mission (August)	528	22	1
Post Season Reports			
Fish Conditon	increased incidence of poor fish condition	good	NA
Spawning success	99.3%	98.4%	NA
Incident of high Net marks	high	NA	NA
Water levels and Temperature on SG	Above average rainfall at Quesnel resulting in poor counting conditions - estimates biased low	favorable	NA
Of Note	Chilcotin landslide below Farwell Canyon	NA	NA

[1]SEF Report: Evaluation and coordination of information useful for predicting en-route loss in Fraser sockeye. Principal Proponents: David Patterson, Merran Hague, Jamie Scroggie & Keri Benner

https://airtable.com/shrGEuBDi5F62fZSO/tblrBw94Z3jFJd7Nd/viwckM3kuy51cTOyn/recv3xehZqok55NLJ/fldSqbaFIrLKI8SPf/att5fSED9htA7LkyN

2023 Fraser River sockeye salmon daily migration

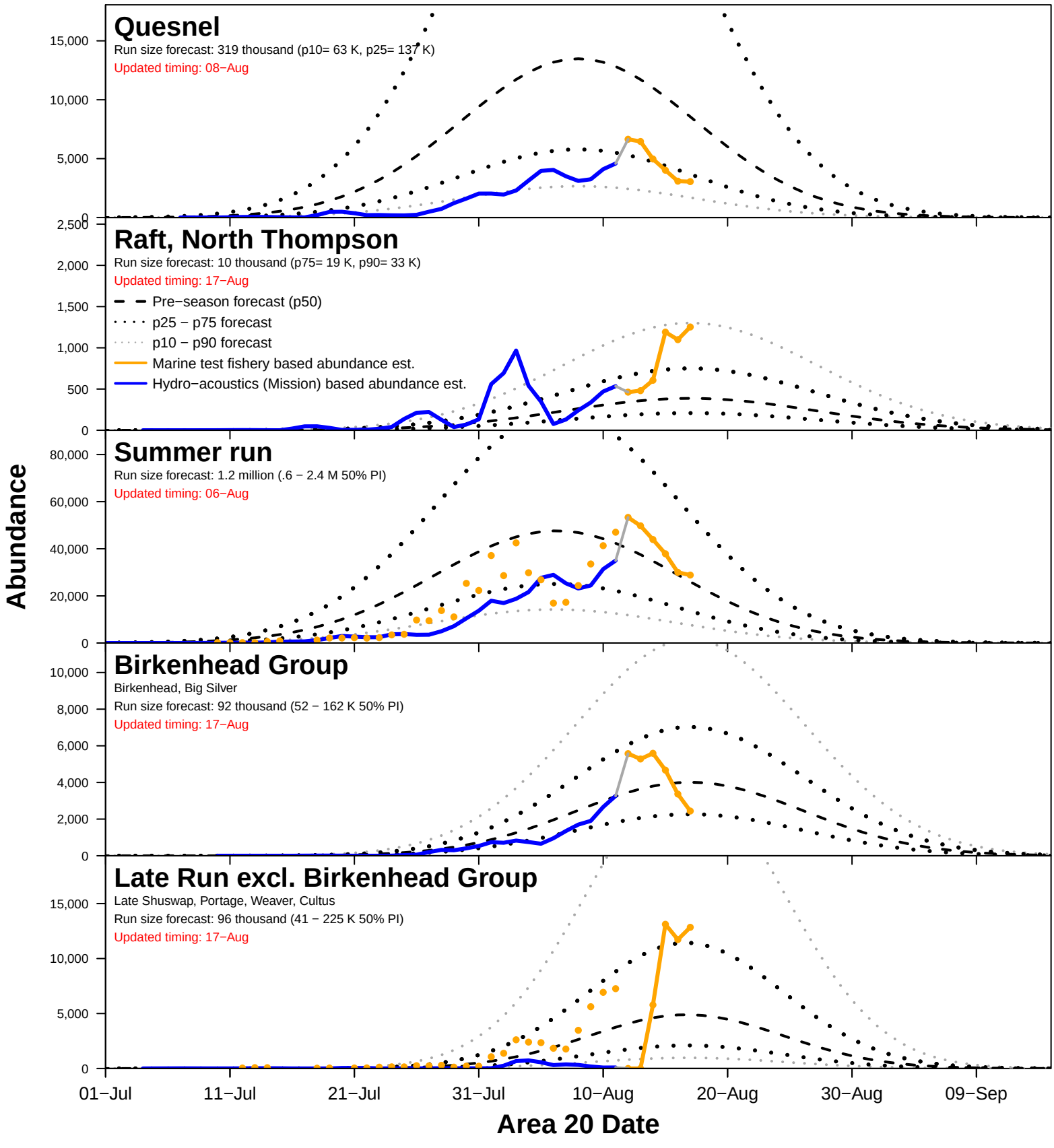
Timing updated based on Timing Correlations



Date: 2023−08−18, Time: 10:22 SW

2023 Fraser River sockeye salmon daily migration

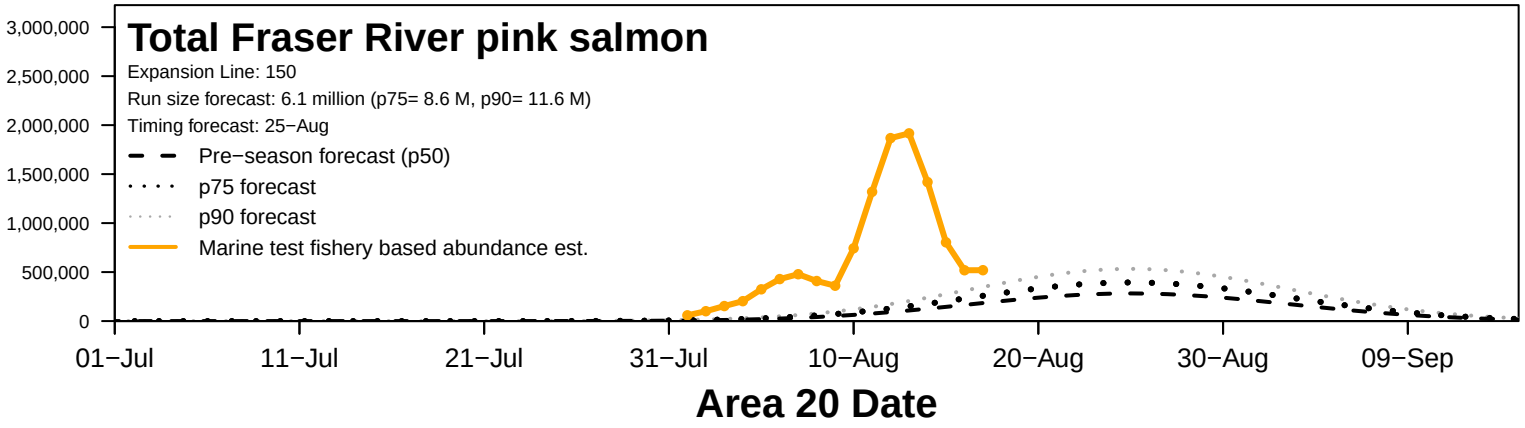
Timing updated based on Timing Correlations



Date: 2023−08−18, Time: 10:22 SW

2023 Fraser River sockeye salmon daily migration

Timing updated based on Timing Correlations



Abundance

2023 Fraser River sockeye abundance en-route to Mission

Current date: 18-Aug

Area 20 date / Mission date	Escapement past Mission through 17-Aug	Projected abundance en route to Mission based on marine test fishery data[1,2] 12-Aug / 18-Aug	13-Aug / 19-Aug	14-Aug / 20-Aug	15-Aug / 21-Aug	16-Aug / 22-Aug	17-Aug / 23-Aug	Total	80% PI[3] 10p	80% PI[3] 90p	Escapement + projections through 23-Aug
Total Fraser	**689,300**	**64,200**	**80,300**	**48,300**	**47,800**	**81,500**	**14,600**	**336,700**	**201,800**	**503,700**	**1,026,000**
Early Summer Run	**292,200**	**10,600**	**7,400**	**2,800**	**1,000**	**7,500**	**700**	**30,000**	**14,700**	**62,100**	**322,200**
Chilliwack	31,800	200	0	0	0	0	0	200	100	400	32,000
Pitt/Alouette/Coquitlam	33,700	0	0	0	0	0	0	0	0	0	33,700
Nadina group[4]	192,000	7,900	6,700	2,000	700	4,900	500	22,700	11,100	47,000	214,700
Early Thompson[5]	34,700	2,500	700	800	300	2,600	200	7,100	3,500	14,700	41,800
Summer Run	**335,200**	**49,400**	**66,500**	**32,600**	**32,200**	**48,400**	**9,100**	**238,200**	**145,300**	**343,000**	**573,400**
Harrison / Widgeon[2]	7,200	0	0	0	0	0	0	0	0	0	7,200
Late Stuart / Stellako	73,100	9,200	13,300	5,500	6,300	12,600	1,700	48,600	29,600	70,000	121,700
Chilko	204,400	32,200	44,900	22,700	21,900	28,600	6,000	156,300	95,300	225,100	360,700
Quesnel	44,500	7,600	7,700	4,000	3,200	4,900	1,200	28,600	17,400	41,200	73,100
Raft / North Thompson	6,000	400	600	400	800	2,300	200	4,700	2,900	6,800	10,700
Late Run	**21,000**	**4,200**	**6,400**	**12,900**	**14,600**	**25,600**	**4,800**	**68,500**	**41,800**	**98,600**	**89,500**
Birkenhead / Big Silver	17,300	4,200	6,400	5,100	5,200	3,700	1,200	25,800	15,700	37,200	43,100
Late Shuswap / Portage[2]	3,000	0	0	2,900	2,300	2,600	1,400	9,200	5,600	13,200	12,200
Weaver / Cultus[2]	700	0	0	4,900	7,100	19,300	2,200	33,500	20,400	48,200	34,200

[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

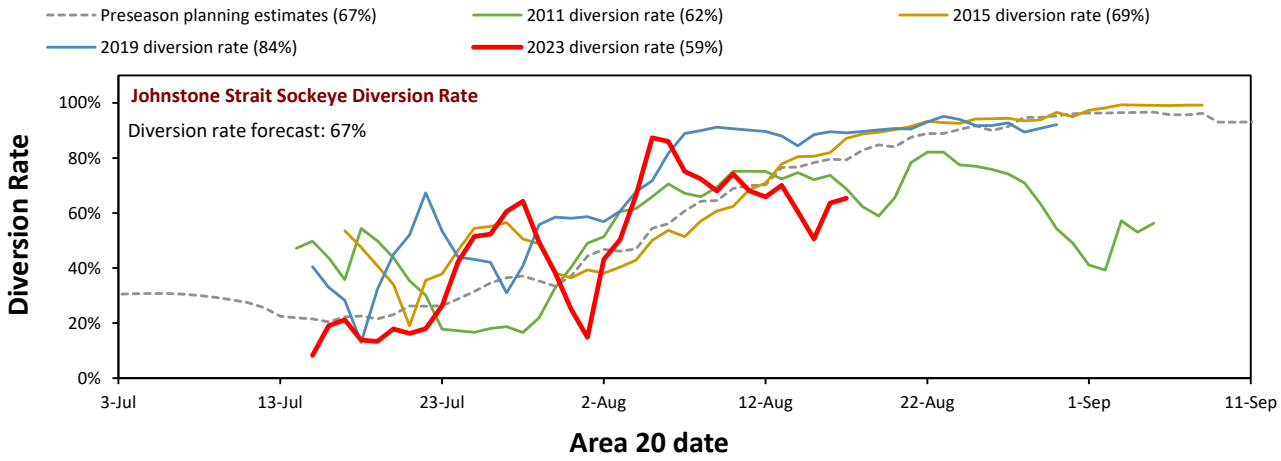
[3] 80% Probability Interval: there exists an 80% chance that the true abundance lies within this interval

[4] Nadina / Bowron / Gates / Nahatlatch / Taseko

[5] Early South Thompson / North Barriere

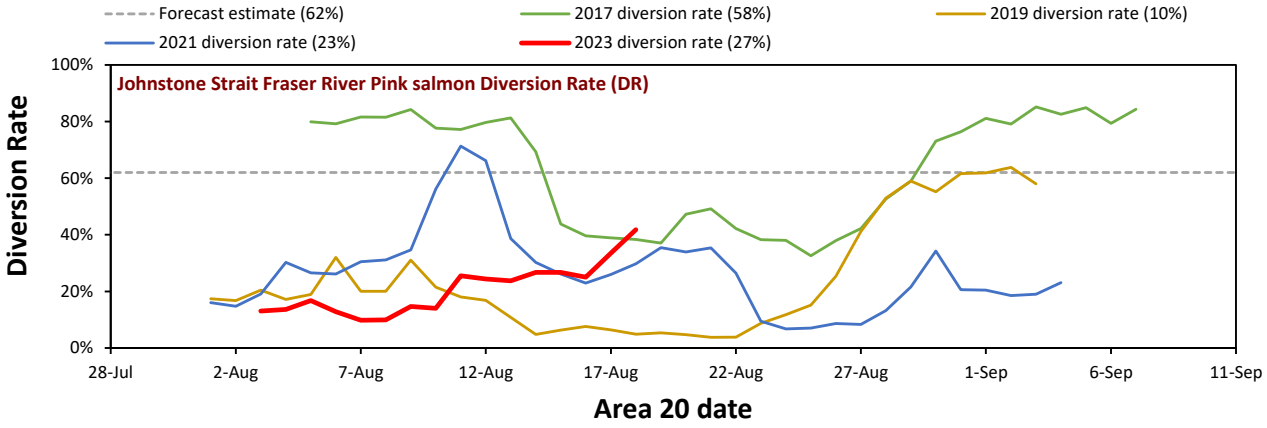
2023 Fraser River sockeye diversion rates through Johnstone Strait

	5-day-average
Diversion rate	**65%**



2023 Fraser River Pink salmon diversion rates through Johnstone Strait

	5-day-average
Fraser pink salmon	**34%**



* Pink forecast diversion rate updated from 53% to 62% based upon the DFO forecast received in August

Pink In-season Update
August 18, 2023

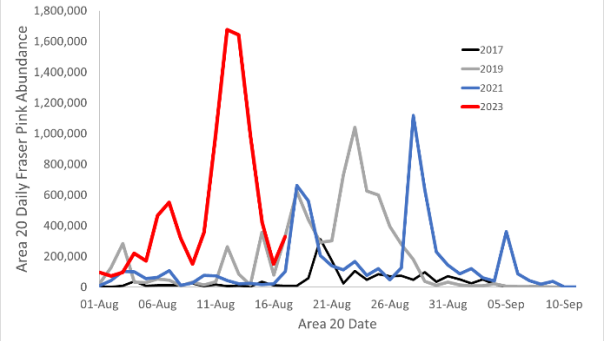
Current Trends

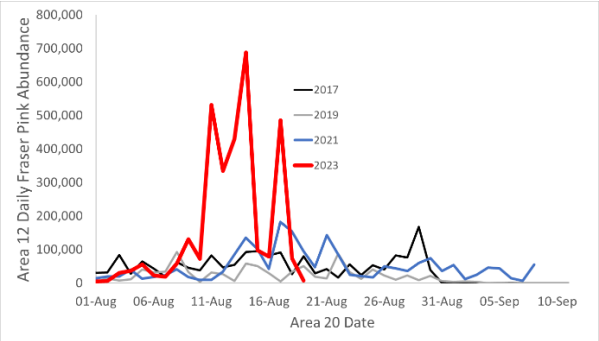
- Expansion line has been reduced from 300 to 150
- While daily expansion lines cannot be evaluated for pink salmon, it is reasonable to assume density dependent effects at high CPUE, similar to those observed for sockeye (i.e. lower catchability associated with high CPUE)
- Low expansion lines were also observed in 1999 (N = 3.6M, EL = 152) and 2013 (N = 15.9M, EL = 138)
- Greatest sources of uncertainty: (1) assumed expansion line, (2) abundance seaward of test fisheries

Daily abundances by Area

Area 20 expansion line: 450

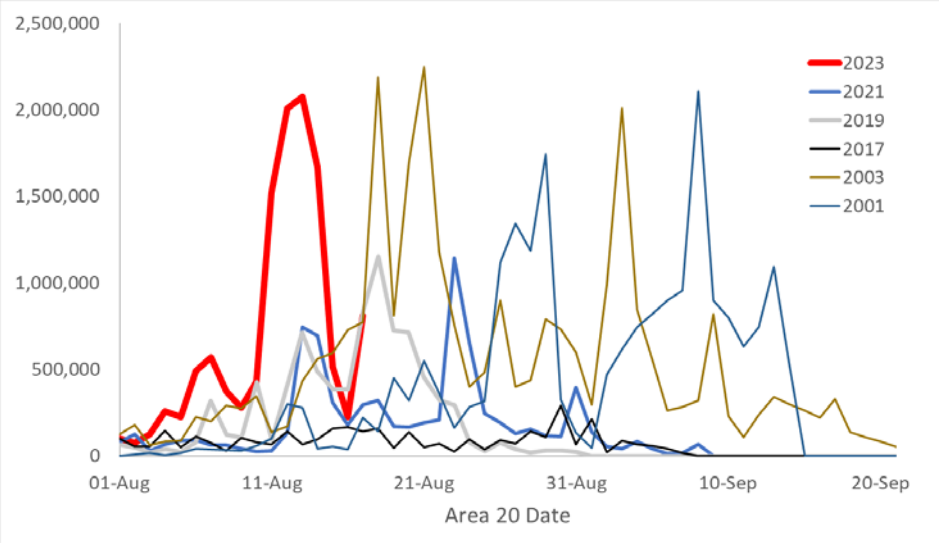
Area 12 expansion line: 150





Overall run size (for overlapping days only)

2-day assumed offset between Area 12 and Area 20



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	90% PI	Method	Catch + Escapement	6-day Projection[3]	Seaward Abundance	Migration Delay	Inseason Adopted	Preseason Forecast	Inseason estimate	Inseason 80% PIs[2] 10% PI	90% PI	Method
Early Stuart Run	**41,000**	**23,000**	✓	**41,000**	***41,000***	***41,000***	**Recon**	**41,000**	**0**	**0**	**0**	**02-Jul**	**07-Jul**	**02-Jul**	***02-Jul***	***02-Jul***	**Recon**
Early Summer Run	**290,000**	**186,000**	✓	**308,000**	***300,000***	***320,000***	**Sum**	**296,000**	**9,000**	**3,000**	**0**	**23-Jul**	**06-Aug**	**24-Jul**	***24-Jul***	***25-Jul***	**Weight**
Chilliwack		2,000	✓	32,000	32,000	32,000	Recon	32,000	0	0	0		20-Jul	05-Jul	05-Jul	05-Jul	Recon
Pitt/Nadina Group[4]		123,000	✓	237,000	*231,000*	*246,000*	Recon(2)	229,000	6,000	2,000	0		05-Aug	25-Jul	*25-Jul*	*26-Jul*	Recon(2)
Early Thompson[5]		61,000	●	39,000	*37,000*	*42,000*	Recon(2)	35,000	3,000	1,000	0		09-Aug	02-Aug	*02-Aug*	*03-Aug*	Recon(2)
Summer Run	**NA**	**1,167,000**	◇	**780,000**	***623,000***	***975,000***	**Sum**	**341,000**	**213,000**	**222,000**	**4,000**	**NA**	**17-Aug**	**13-Aug**	***11-Aug***	***15-Aug***	**Weight**
Harrison / Widgeon		51,000	▲	14,000	*9,000*	*23,000*	Model	7,000	1,000	2,000	4,000		12-Aug	30-Jul	*27-Jul*	*03-Aug*	Model
Late Stuart / Stellako		196,000	▲	119,000	*92,000*	*142,000*	Recon(2)	75,000	24,000	20,000	0		13-Aug	09-Aug	*06-Aug*	*11-Aug*	Recon(2)
Chilko		591,000	◇	541,000	*435,000*	*681,000*	Model	208,000	156,000	177,000	0		17-Aug	15-Aug	*13-Aug*	*17-Aug*	Model
Quesnel		319,000	◇	93,000	*78,000*	*112,000*	Model	45,000	28,000	20,000	0		19-Aug	12-Aug	*10-Aug*	*14-Aug*	Model
Raft / North Thompson		10,000	◇	13,000	*9,000*	*17,000*	Model	6,000	4,000	3,000	0		23-Aug	10-Aug	*07-Aug*	*13-Aug*	Model
Fraser Pink salmon	**8,575,000**	**6,135,000**	◇	**17,000,000**	**15,640,000**	**34,000,000**	**CPUE x 150 EL**	**34,000**		**16,966,000**		**18-Aug**	**25-Aug**	**13-Aug**			**Obs. Peak**

[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).

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

[5] Early South Thompson / North Barriere.

Methods for run size & timing estimation

Model	Run size assessment model (median)
Recon	Catch + escapement + 6-day test fish projection + model seaward projection
Recon(2)	Catch + escapement + model projections
Sum	Sum of individual groups
Weight	Weighted average of individual groups

Run Size Uncertainty Legend[†]

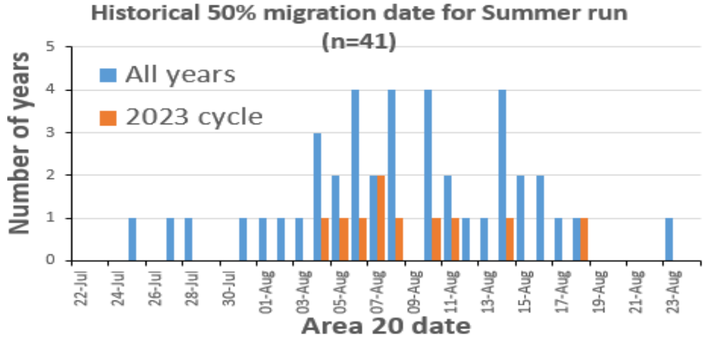
✓ ≥ 95% of the run size has been accounted for in catch + escapement. Clear indication of run size; minor run size updates still expected

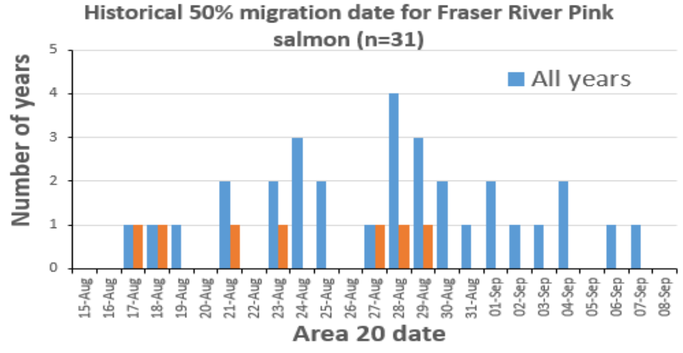
● ≥ 70% of the run size has been accounted for in catch + escapement. Good indication of run size; peak fo the run has been observed at Mission, uncertainty relates to seaward abundance

▲ ≥ 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.





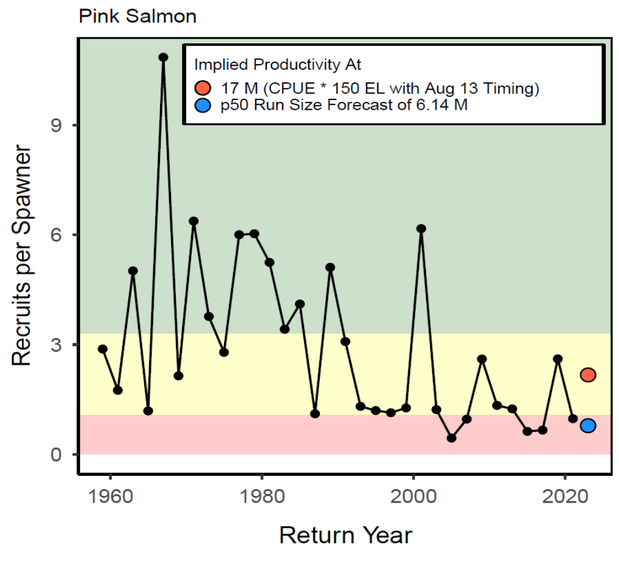
Pink run size based on timing

Catch+Escapement To Date: **34,000**

	Method	Run Size*
Based on timing of 13-Aug	50% Date	17,063,500
Based on timing of 14-Aug	50% Date	20,397,500
Based on timing of 15-Aug	50% Date	21,433,000
Based on timing of 16-Aug	50% Date	21,886,000
Based on timing of 17-Aug	50% Date	23,511,000

*Based on % seaward in 2015, 2017, 2019 and 2021 if timing is later than 17-Aug

*Equal to double the reconstructed abundance if timing is earlier than 18-Aug



2023 Predicted Fraser River Sockeye Mortality in Area 4B/5 Pink Directed Fisheries

The actual pink salmon catch of proposed fisheries should not exceed the available total allowable catch for pink salmon

Date: 18/08/2023

Predicted catches in Area 4B, 5, 6C

	Area 4B/5 date	Daily predicted Fraser pink catch	TRT harvest rate[6]		Sockeye Release Mortality rate [8]	Predicted mortality of Sockeye	
						Total Treaty Tribes	
		Treaty Tribes	Sockeye	Pink[7]		Retention	Non-retention
	13-Aug	1,008	0.5%	0.05%	60%	128	77
	14-Aug	905	0.5%	0.05%	60%	110	66
	15-Aug	443	0.5%	0.05%	60%	91	55
	16-Aug	235	0.5%	0.05%	60%	112	67
	17-Aug	248	0.5%	0.05%	60%	112	67
Relies on projected abundances	18-Aug	275	0.5%	0.05%	60%	108	65
	19-Aug	269	0.5%	0.05%	60%	103	62
	20-Aug	269	0.5%	0.05%	60%	97	58

[6] Assumes fixed daily harvest rate combined over Area 4B/5. TRT effort = 3 gillnets

[7] Harvest rate of pink salmon is estimated to be 10% of the sockeye harvest rate

[8] Sockeye release mortality of 60% applied to gillnet releases based on past studies

Predicted abundances in Area 4B, 5, 6C

	Area 4B/5 date	Predicted Pink Salmon Abundance [1,4,5]		Fraser River Sockeye Salmon [2,3,4]				% Sockeye Abundance
		Fraser	Non-Fraser	Total	E. Summers	Summer	Lates	S/(S+P)
	13-Aug	1,642,489	2,034,311	28,342	1,363	21,521	5,457	0.8%
	14-Aug	979,955	1,128,835	24,457	961	18,558	4,938	1.1%
	15-Aug	420,777	451,848	20,258	647	15,341	4,269	2.3%
	16-Aug	148,337	148,813	24,979	646	18,861	5,472	7.8%
	17-Aug	327,442	307,620	24,965	521	18,783	5,662	3.8%
Relies on projected abundances	18-Aug	298,852	263,365	24,040	403	18,013	5,625	4.1%
	19-Aug	298,852	247,576	22,921	307	17,101	5,514	4.0%
	20-Aug	298,852	233,005	21,635	231	16,070	5,333	3.9%

[1] Assumed travel time for pink salmon from Area 20 to Area 4B/5 is 0 days

[2] Assumed travel time for sockeye salmon from Area 20 to Area 4B/5 is 0 days

[3] Daily abundances are based on a time-density run-size model

[4] Sockeye and pink salmon abundance for last 3 days is based on a 3-day average of preceding values

[5] Based on purse seine test fishery projections and an expansion line of 150

Predicted sockeye impacts of net fisheries in Area 4B, 5, 6C

	Treaty Tribes					
	Retention			Non-retention		
	E. Summers	Summer	Lates	E. Summers	Summer	Lates
	6	97	25	4	58	15
	4	84	22	3	50	13
	3	69	19	2	41	12
	3	85	25	2	51	15
	2	85	25	1	51	15
Relies on projected abundances	2	81	25	1	49	15
	1	77	25	1	46	15
	1	72	24	1	43	14

2023 Predicted Fraser River Sockeye Mortality in Area 7/7A Pink Directed Net Fisheries

The actual pink salmon catch of proposed fisheries should not exceed the available total allowable catch for pink salmon

Date: 18/08/2023

Predicted catches in Area 7/7A

		Purse Seine								Gillnet							
		Daily predicted Fraser pink salmon catch[1]		Pink salmon harvest rate [2]		Sockeye Release Mortality rate [3]	Predicted mortality of Sockeye [5]			Daily predicted Fraser pink salmon catch[1]		Pink salmon harvest rate [2,7]		Sockeye Release Mortality rate [4]	Predicted mortality of Sockeye [5]		
							Treaty Tribes		All Citizen						Treaty Tribes		All Citizen
	Area 7 date	Treaty Tribes	All Citizen	TRT	AC		Assuming retention	Assuming non-retention	Assuming non-retention	Treaty Tribes	All Citizen	TRT[6]	AC		Assuming retention	Assuming non-retention	Assuming non-retention
	18-Aug	300,963	312,818	8%	8%	25%	3,492	873	900	16,083	6,701	0.96%	0.40%	60%	1,676	1,006	617
	19-Aug	351,944	365,444	8%	8%	25%	3,812	953	987	15,768	6,570	0.96%	0.40%	60%	1,830	1,098	676
	20-Aug	279,311	288,981	8%	8%	25%	3,733	933	967	9,408	3,920	0.96%	0.40%	60%	1,792	1,075	663
Relies on projected abundances	21-Aug	151,148	155,981	8%	8%	25%	3,575	894	926	4,039	1,683	0.96%	0.40%	60%	1,716	1,030	635
	22-Aug	73,856	75,678	8%	8%	25%	3,390	847	878	1,424	593	0.96%	0.40%	60%	1,627	976	602
	23-Aug	39,877	42,161	7%	8%	25%	3,452	863	892	3,143	1,310	0.96%	0.40%	60%	1,657	994	612

[1] Assumes fishing on 3 days (or blocks) of pink salmon. Does not account for any depletion effects.

[2] Assumes TRT effort = 10 PS and 24 gillnets; AC effort = 7 PS and 10 gillnets

[3] Sockeye release mortality of 25% applied to purse seine catches based on past studies

[4] Sockeye release mortality of 60% applies to gillnet catches based on past studies

[5] Assumes Treaty Tribes and All Citizen fisheries will take place on different days

[6] Based on average annual catchability of pink (harvest rate/vessel) in U.S. Area 67,7a gill net fisheries

[7] Catchability of sockeye in marine gillnets is approximately 10x the catchability of pink salmon. Independently verified with test fishing data.

Predicted abundances in Area 7/7A

		Predicted Pink Salmon Abundance [1]		Fraser River Sockeye Salmon [2,5]				% Sockeye Abundance
	Area 7 date	Fraser[3]	Non-Fraser[4]	Total	E. Summers	Summer	Lates	S/(S+P)
	17-Aug	990,456	1,008,296	24,457	961	18,558	4,938	1%
	18-Aug	1,675,342	1,560,450	20,258	647	15,341	4,269	1%
	19-Aug	1,642,489	1,405,010	24,979	646	18,861	5,472	1%
	20-Aug	979,955	771,500	24,965	521	18,783	5,662	1%
Relies on projected abundances	21-Aug	420,777	305,642	24,040	403	18,013	5,625	3%
	22-Aug	148,337	99,645	22,921	307	17,101	5,514	8%
	23-Aug	327,442	204,092	21,635	231	16,070	5,333	4%

[1] Assumed travel time for pink salmon from Area 20 to Area 7 is 6 days

[2] Assumed travel time for sockeye salmon from Area 20 to Area 7 is 3 days

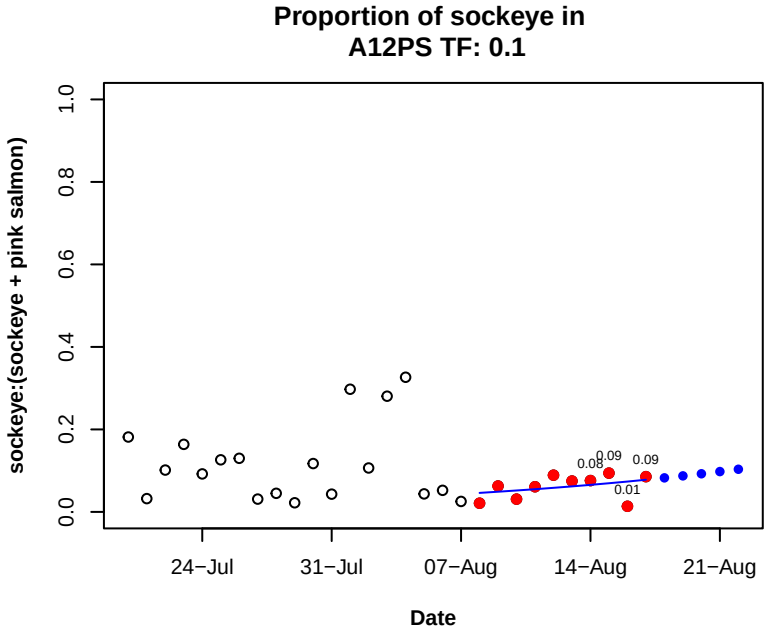
[3] Based on purse seine test fishery projections and an expansion line of 150

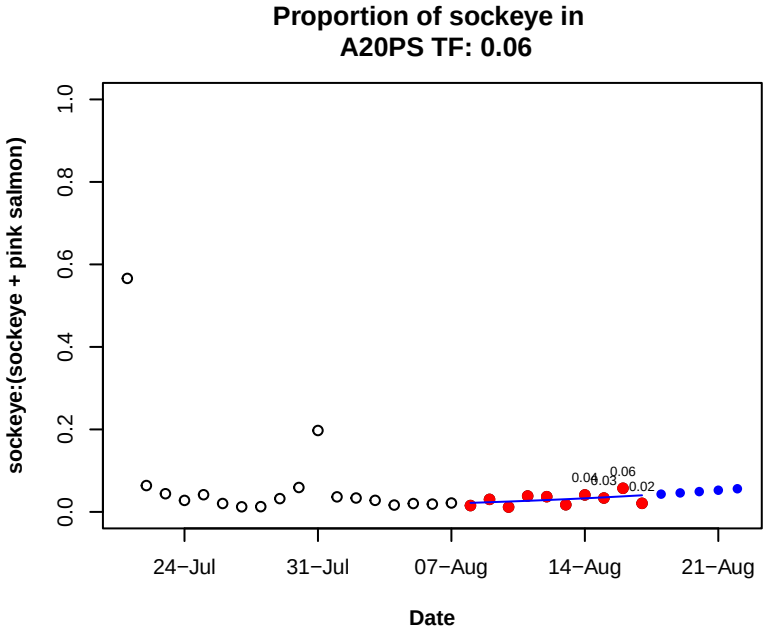
[4] Based on stock identification projections of non-Fraser pinks in Area 7

[5] Based on a time-density run-size model

Predicted sockeye impacts of net fisheries in Area 7/7A

		Treaty Tribes						All Citizen		
		Assuming retention			Assuming non-retention			Assuming non-retention		
	Area 7 date	Early Summers	Summers	Lates	Early Summers	Summers	Lates	Early Summers	Summers	Lates
	17-Aug	196	3,794	1,009	71	1,379	367	58	1,123	299
	18-Aug	165	3,913	1,089	60	1,423	396	48	1,148	320
	19-Aug	146	4,260	1,236	53	1,548	449	43	1,256	364
	20-Aug	115	4,156	1,253	42	1,511	455	34	1,226	370
Relies on projected abundances	21-Aug	89	3,964	1,238	32	1,441	450	26	1,170	365
	22-Aug	67	3,743	1,207	24	1,361	439	20	1,105	356
	23-Aug	55	3,795	1,259	20	1,379	458	16	1,117	371


Proportion of sockeye in
A12PS TF: 0.1
sockeye:(sockeye + pink salmon)
0.0
0.2
0.4
0.6
0.8
1.0
0.08
0.09
0.09
0.01
24−Jul
31−Jul
07−Aug
14−Aug
21−Aug
Date


Proportion of sockeye in
A20PS TF: 0.06
sockeye:(sockeye + pink salmon)
0.0
0.2
0.4
0.6
0.8
1.0
0.04
0.03
0.06
0.02
24−Jul
31−Jul
07−Aug
14−Aug
21−Aug
Date