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DRAFT AGENDA
PACIFIC SALMON COMMISSION
FRASER RIVER PANEL
Wednesday September 27, 2023 at 8:00 a.m.
In-person (Spring Hill Suites – Bellingham) & Via Zoom Webinar

1) Roll Call (Panel and Tech members, others please email Angela, frontdesk@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) Final in-season status report

   a) Status tables (Run status, catch to date, TAC table, test fish catches and acoustics, Stock ID, Summary by management group of environmental conditions and pDBEs) — F. Martens

   b) Comparison of pre-season and in-season run size and timing for sockeye salmon management groups — A. Phung

5) Upstream Escapement Report — DFO

6) Discussion of any issues or concerns arising from 2023 Management season — Panel

7) Canadian ESSR fisheries — Panel

8) Approve Fraser River Panel Work Plan — Panel

9) Other Business

   a) Test fishing budget update — F. Martens

   b) Regulatory control relinquishment? — F.Martens/Panel

   c) Species Composition Update – Year 1 — F. Martens

   d) Status of draft minutes and annual reports — F. Martens

   e) Next meeting (Hyatt Regency Hotel, Seattle, WA.):

      i) FRP Meeting, January 9, ?? a.m.,

      ii) FRTC, January 8, ?? a.m.

2023 Run status of Fraser sockeye and pink salmon

Date: Sep. 26, 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: Sep. 24 - Sep. 30, 2023	Sockeye					Pink
	Management Group				Total	Total
	E.Stuart	E.Summer	Summer	Late	Fraser	Fraser
Mission passage (incldes Pitt, Alouette, Coquitlam)	40,900	322,500	914,900	355,400	1,633,700	9,260,500
Catch downstream of Mission	200	3,900	10,800	4,000	18,900	926,600
Accounted Run To Date	41,100	326,400	925,700	359,400	1,652,600	10,187,100
Run size adopted in-season [2]	**41,000**	**335,000**	**950,000**	**280,000**	**1,606,000**	**15,000,000**
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**	**26/Jul**	**13/Aug**	**17/Aug**	**14/Aug**	**20/Aug**
Area 20 timing expected pre-season	7/Jul	6/Aug	17/Aug	24/Aug	16/Aug	25/Aug
Johnstone Str. Diversion Rate				Annual average to date	**67%**	**35%**
				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.*

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2023 Catch-to-date by fishery

Date: Sep. 26, 2023

Week of: Sep. 24 - Sep. 30, 2023	Sockeye		Pink	
	Total	Fraser	Total	Fraser
Canada	**16,323**	**16,322**	**602,499**	**477,510**
Commercial	**0**	**0**	**522,407**	**442,982**
B Purse Seine	0	0	519,227	440,272
H Troll	0	0	3,180	2,710
First Nations	**0**	**0**	**7,475**	**5,713**
Food, Social & Ceremonial (FSC)	0	0	7,475	5,713
Marine	0	0	3,835	2,073
Fraser R.	0	0	3,640	3,640
Economic Opportunity (EO) & Demonstration (Demo)	0	0	0	0
Escapement Surplus to Spawning Requirements (ESSR)	**1,322**	**1,322**	**0**	**0**
Recreational	**0**	**0**	**72,013**	**28,211**
Charter (Albion & A12 Chum test fishery)	**699**	**699**	**604**	**604**
Other****	**14,302**	**14,301**	**0**	**0**
United States	**2,371**	**2,370**	**572,673**	**436,972**
Commercial	**0**	**0**	**572,353**	**436,754**
Treaty Tribes (TRB)	0	0	436,829	330,509
All Citizen (AC)	0	0	135,524	106,244
Treaty Tribes Ceremonial & Subsistence (C&S)	**2,211**	**2,211**	**320**	**218**
All Citizen Recreational	**0**	**0**	**0**	**0**
Other****	**160**	**159**		
Alaska *	**na**	**na**	**na**	**na**
Panel-approved Test Fisheries	**17,179**	**16,643**	**23,566**	**14,079**
Panel Waters	**11,598**	**11,309**	**12,033**	**8,106**
Canada	11,598	11,309	8,383	5,992
U.S.	0	0	3,650	2,114
Non-Panel Waters**	**5,581**	**5,334**	**11,533**	**5,973**
Total	**35,873**	**35,335**	**1,198,738**	**928,561**
Catch Seaward of Mission ***	19,446	18,908	1,196,746	926,569
Catch Upstream of Mission	16,427	16,427	1,992	1,992

** 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**	**335,000**	**950,000**	**280,000**	**1,606,000**		**15,000,000**
Adult Spawning Escapement Target (SET)			**41,000**	**167,500**	**950,000**	**280,000**	**1,438,500**		**6,000,000**
%SET from TAM rules			100%	50%	100%	100%			40%
Management Adjustment (MA)*			**69,700**	**180,900**	**218,500**	**280,000**	**749,100**		0
Proportional MA (pMA)*			1.70	1.08	0.23	1.00			0.00
Adjusted Spawning Escapement Target (SET) **			41,000	335,000	950,000	280,000	1,606,000		6,000,000
Test Fishing (TF)****			**250**	**3,960**	**10,200**	**3,000**	**17,410**		**25,270**
Surplus above Adjusted SET & Test fishing			0	0	0	0	0		8,974,730
DEDUCTIONS & TAC FOR INTERNATIONAL SHARING									
Aboriginal Fishery Exemption (AFE)			**0**	**0**	**0**	**0**	**0**		**0**
Total Deductions (Adj. SET + TF + Available AFE)			41,250	338,960	960,200	283,000	1,623,410		6,025,270
Available TAC for International Sharing			**0**	**0**	**0**	**0**	**0**		**8,974,730**
UNITED STATES (Washington) TAC									
Proportionally Distributed TAC ***		16.5%	0	0	0	0	0	25.7%	2,306,510
U.S. Payback ***		0.0%	0	0	0	0	0		0
Proportionally Distributed TAC + Payback			**0**	**0**	**0**	**0**	**0**		**2,306,510**
Treaty Tribes Share ***		67.7%	0	0	0	0	0	50.0%	1,153,255
All Citizen Share		32.3%	0	0	0	0	0	50.0%	1,153,255
CANADA TAC									
Aboriginal Fishery Exemption (AFE)			0	0	0	0	0		0
Canadian TAC + AFE			**0**	**0**	**0**	**0**	**0**		**6,668,220**
CATCH-TO-DATE									
Test			**250**	**3,930**	**9,780**	**2,690**	**16,640**		**14,080**
Treaty Tribes (Wash.) / Ceremonial (TRB)			0	20	1,080	1,110	2,210		330,730
All Citizen (Wash.)			0	0	0	0	0		106,240
Other (Wash.)****			0	10	80	80	160		
Washington			**0**	**30**	**1,160**	**1,190**	**2,370**		**436,970**
First Nations Catch (including AFE)			0	0	0	0	0		5,710
Planned Charter & Recreational Shares			20	190	420	69	699	0	28,820
Other****			170	2,270	11,700	160	14,300	0	0
Total Commercial (including FN EO/Demo*****)			0	0	0	0	0	0	442,980
Canada			**190**	**2,460**	**12,120**	**229**	**15,000**		**477,510**
Total Catch in All Fisheries			**440**	**6,420**	**23,060**	**4,109**	**34,010**		**928,560**
Exploitation Rate (catch-to-date / run size)			1.1%	1.9%	2.4%	1.5%	2.1%		6.2%
Exploit. Rate with fishery-induced mortality included			1.2%	2.1%	2.9%	2.0%	2.5%		
CATCH REMAINING (BALANCE)									
Washington			**0**	**-30**	**-1,160**	**-1,190**	**-2,370**		**1,869,540**
Canada			**-190**	**-2,460**	**-12,120**	**-229**	**-14,999**		**6,190,710**
Balance Remaining [below share / -above share]			-190	-2,490	-13,280	-1,419	-17,379		8,060,250

* 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	Fraser River							
	A29-16 GN Whonnock (+6 days)	Whon CPUE Estimate (+6 days)	Qualark GN Catch (+8 days)	Qualark Estimate[1]	Qualark Method[2]	Mission Hydroacoustics Estimate[3] (+6 days)	Mission Hydroacoustics Method[4]	Hells Gate Estimates[5] (+10 days)
5-Sep	27	2.16	11	78,909	RB + LB	25,000	CPUE-Wh-Avg	2,040
6-Sep	17	1.37	5	49,293	RB + LB	23,100	CPUE-Wh-Avg	3,660
7-Sep	4	0.31	8	66,019	RB + LB	13,000	CPUE-Wh-Avg	2,950
8-Sep	6	0.48	8	33,022	RB + LB	8,100	CPUE-Wh-Avg	No Count
9-Sep	7	0.56	4	7,872	RB + LB	7,200	CPUE-Wh-Avg	2,820
10-Sep	2	0.16	7	14,128	RB + LB	6,700	CPUE-Wh-Avg	3,000
11-Sep	5	0.40	10	42,455	RB + LB	5,300	CPUE-Wh-Avg	2,550
12-Sep	4	0.32	5	33,822	RB + LB	5,300	CPUE-Wh-Avg	1,700
13-Sep	2	0.16	5	21,438	RB + LB	3,800	CPUE-Wh-Avg	2,170
14-Sep	2	0.15	2	14,124	RB + LB	1,900	CPUE-Wh-Avg	No Count
15-Sep	0	0.00	0	0	RB + LB	1,900	CPUE-Wh-Avg	No Count
16-Sep	2	0.17	2	26,607	RB + LB	4,000	CPUE-Wh-Avg	3,870
17-Sep	6	0.48	0	0	RB + LB	4,900	CPUE-Wh-Avg	2,950
18-Sep	2	0.16	2 (5 sets)	27,531	RB + LB	5,400	CPUE-Wh-Avg	No Count
19-Sep	3	0.25	0	0	RB + LB	5,900	CPUE-Wh-Avg	1,680
20-Sep	7	0.56	0	0	RB + LB	4,900	CPUE-Wh-Avg	No Count
21-Sep	0	0.00	0	0	RB + LB	4,400	CPUE-Wh-Avg	No Count
22-Sep	2	0.17	1	2,130	RB + LB	3,300	CPUE-Wh-Avg	1,640
23-Sep	4	0.37	1 (3 sets)	16,447	RB + LB	6,700	CPUE-Wh-Avg	1,330
24-Sep	6	0.57	2	6,238	RB + LB	7,200	CPUE-Wh-Avg	No Count
25-Sep	3	0.26	1			7,500	CPUE-Wh-Avg	810
26-Sep								
27-Sep								

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

[2] Qualark source:

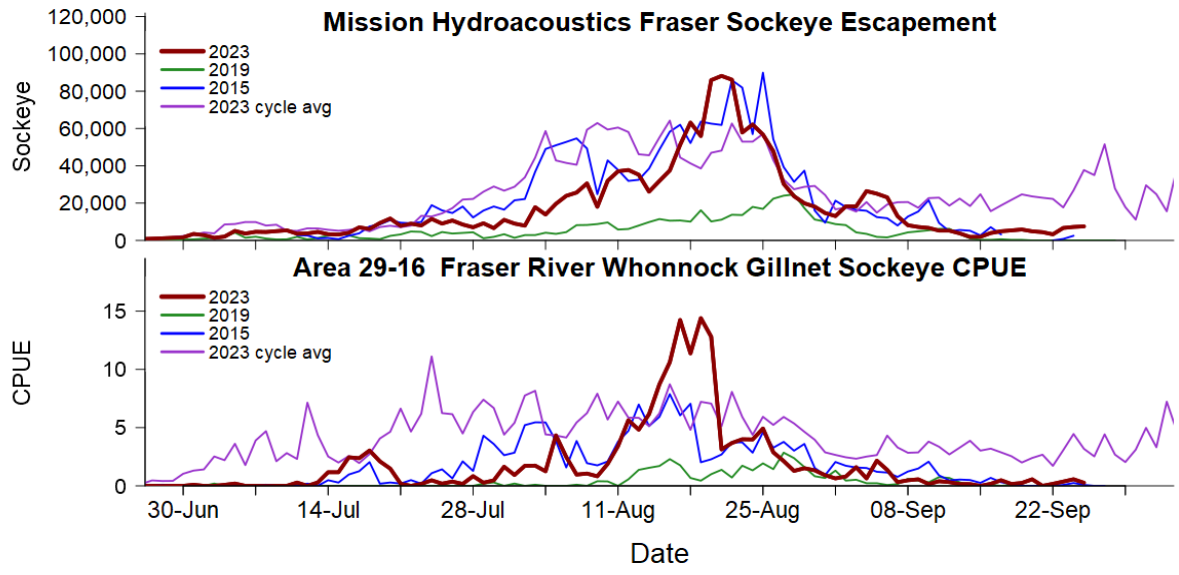
RB+LB = Right Bank (RB) + Left Bank (LB)

[3] Mission escapement estimate - does not include Pitt

[4] Mission source:

CPUE-Wh-Avg = CPUE-Wh-Avg = 3-day average Whonnock CPUE x Expansion line

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



2023 Fraser Pink Test Fishing & Escapement Summary

Area/Gear Location From A20	Fraser River							
	A29-16 GN Whonnock	Whon CPUE Estimate	Qualark			Mission Hydroacoustics		Hell's Gate
			GN Catch	Estimate[1]	Method[2]	Estimate[3]	Method[4]	Estimates[5]
5-Sep	73	5.84	52	373,026	RB+LB	324,300	A1+S1+M2+A2	250,940
6-Sep	48	3.86	36	354,913	RB+LB	216,380	A1+S1+M2+A2	276,850
7-Sep	34	2.68	38	313,590	RB+LB	295,310	A1+S1+M2+A2	411,600
8-Sep	139	11.12	44	181,620	RB+LB	275,260	A1+S1+M2+A2	No Count
9-Sep	222	17.76	90	177,116	RB+LB	246,460	A1+S1+M2+A2	345,040
10-Sep	297	23.76	87	175,596	RB+LB	340,790	A1+S1+M2+A2	398,960
11-Sep	280	22.22	36	152,836	RB+LB	615,900	A1+S1+M2+A2	151,880
12-Sep	246	19.70	23	155,582	RB+LB	659,880	A1+S1+M2+A2	152,130
13-Sep	74	5.96	42	180,082	RB+LB	529,940	A1+S1+M2+A2	125,770
14-Sep	35	2.56	37	261,286	RB+LB	254,730	A1+S1+M2+A2	No Count
15-Sep	74	5.98	44	254,264	RB+LB	198,840	A1+S1+M2+A2	No Count
16-Sep	53	4.34	16	212,858	RB+LB	202,910	A1+S1+M2+A2	189,070
17-Sep	74	5.90	11	156,093	RB+LB	240,420	A1+S1+M2+A2	315,880
18-Sep	92	7.37	7 (5 sets)	96,359	RB+LB	296,760	A1+S1+M2+A2	No Count
19-Sep	50	4.14	1	51,270	RB+LB	301,220	A1+S1+M2+A2	152,880
20-Sep	41	3.30	3	164,541	RB+LB	156,950	A1+S1+M2+A2	No Count
21-Sep	8	0.74	0	78,831	RB+LB	119,530	A1+S1+M2+A2	No Count
22-Sep	9	0.78	43	91,578	RB+LB	83,130	A1+S1+M2+A2	160,310
23-Sep	3	0.28	5 (3 sets)	82,233	RB+LB	65,150	A1+S1+M2+A2	136,240
24-Sep	5	0.47	19	59,264	RB+LB	47,180	A1+S1+M2+A2	No Count
25-Sep	11	0.97	5			36,800	A1+S1+M2+A2	73,800
26-Sep								
27-Sep								

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

[2] Qualark source:

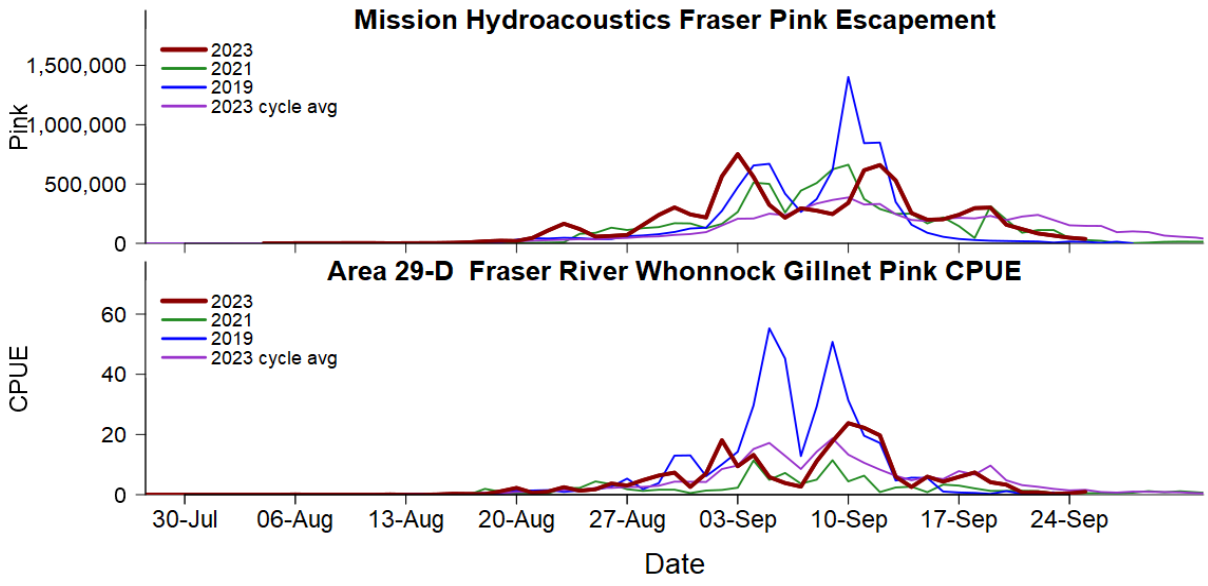
RB + LB = Right-bank (RB) + Left-bank (LB)

[3] Mission escapement estimate - does not include Pitt

[4] Mission source:

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

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



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]	Date	Sample 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$_2$
Other (Qualark)																					
Hop-Qua gn	tf	Sep7-10	DNA	26	100%	**0%**					**0%**		3%	71%	8%	**82%**		18%		**18%**	NA
Hop-Qua gn	tf	Sep11-12	DNA	15	100%	**0%**					**0%**		13%	76%	11%	**100%**				**0%**	NA
Hop-Qua gn	tf	Sep13-18	DNA	10	100%	**0%**					**0%**		12%	44%		**56%**		44%		**44%**	NA
In-river																					
AB gn	tf	Sep7-10	DNA	19	100%	**0%**					**0%**		3%	12%	5%	**20%**	41%	6%	32%	**80%**	50%
AB gn	tf	Sep11-13	DNA	10	100%	**0%**					**0%**		9%	42%	20%	**72%**	18%		10%	**28%**	78%
AB gn	tf	Sep14-19	DNA	15	100%	**0%**					**0%**		7%	13%		**20%**		33%	47%	**80%**	50%
AB gn	tf	Sep20-24	DNA	19	100%	**0%**					**0%**	16%				**16%**		40%	44%	**84%**	NA

2023 Fraser River Pink Salmon Stock identification Review

Recent stock composition estimates for pink salmon

	Fishing		Sample		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	Aug28	DNA	98	40%	32%	28%
A12 PS	TF	Sep1	DNA	96	52%	42%	6%
A12		Sep27	Prediction	1	80%	15%	4%
Juan de Fuca Strait							
A20		Sep27	Prediction	1	84%	15%	1%
Washington							
A7		Sep27	Prediction	1	93%	5%	1%
A7A		Sep27	Prediction	1	92%	5%	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

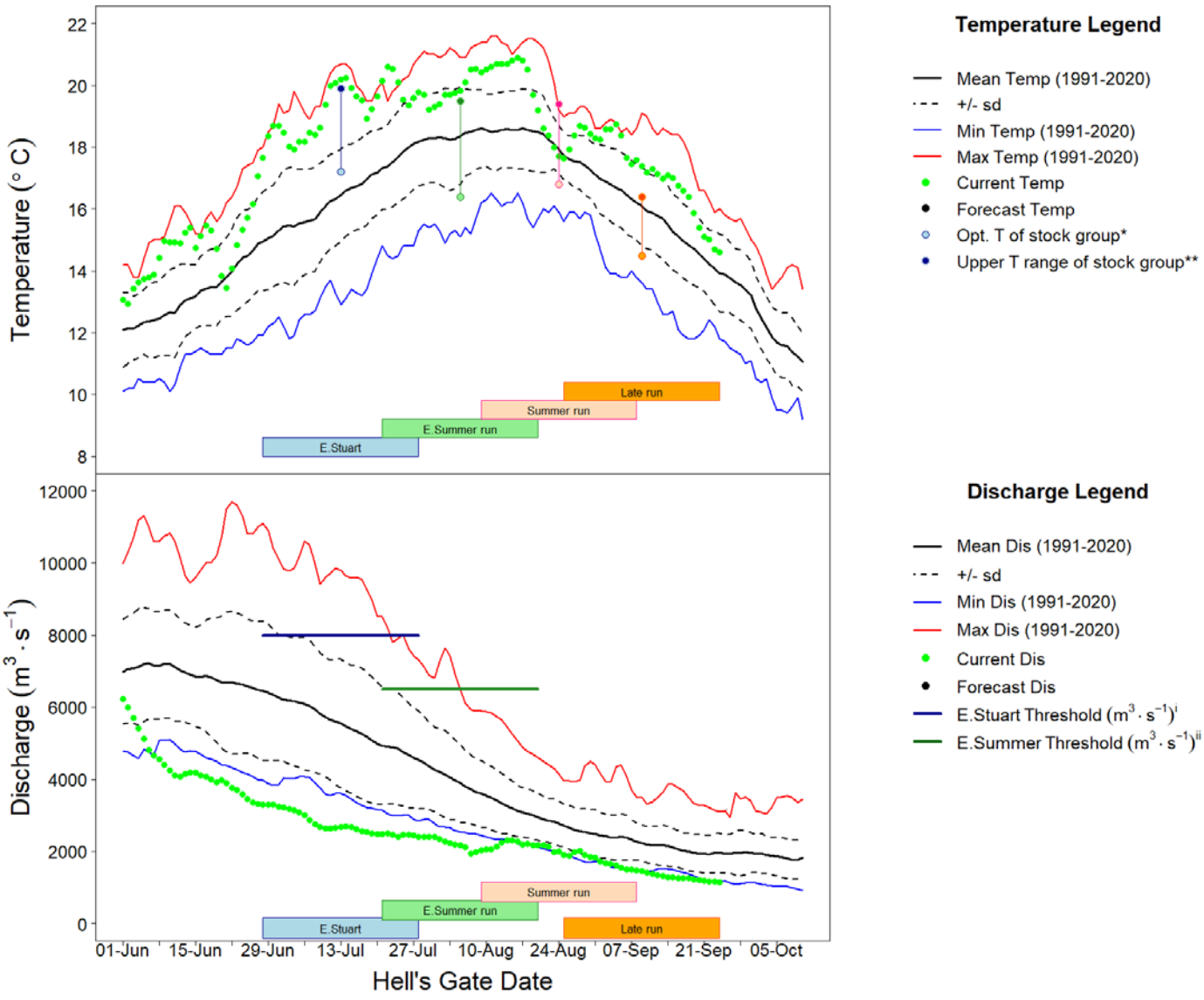
[3] Predictions for sockeye are multinomial extrapolations of current year data to 5 days after the last observation; Predictions for pink salmon are projections of stock compositions based on historic and current data

[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

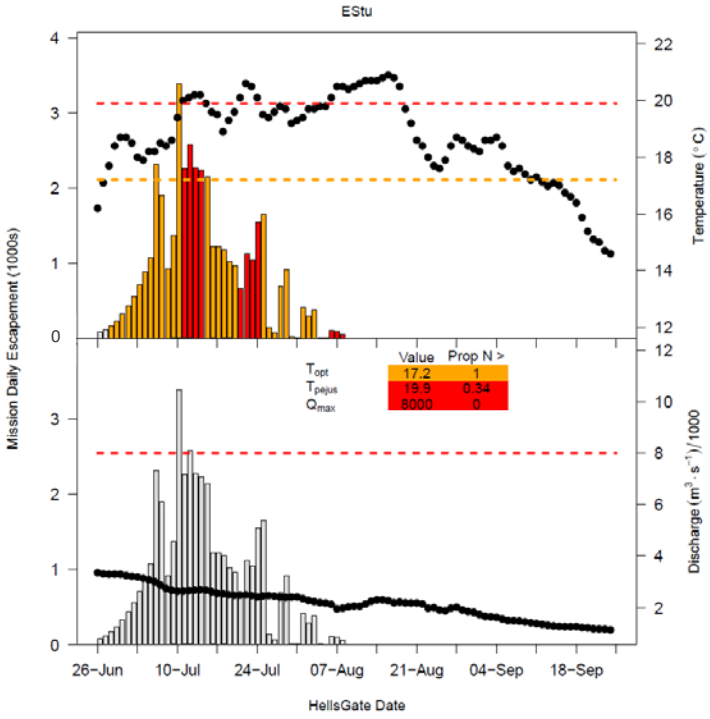
- Discharge was at or below the minimum discharge level for the time of year (1991-2020) for the entire season, but especially during E.Stuart and E. Summer migration.
- Temperature was at or above the plus one standard deviation for most of the season.



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.

Early Stuart

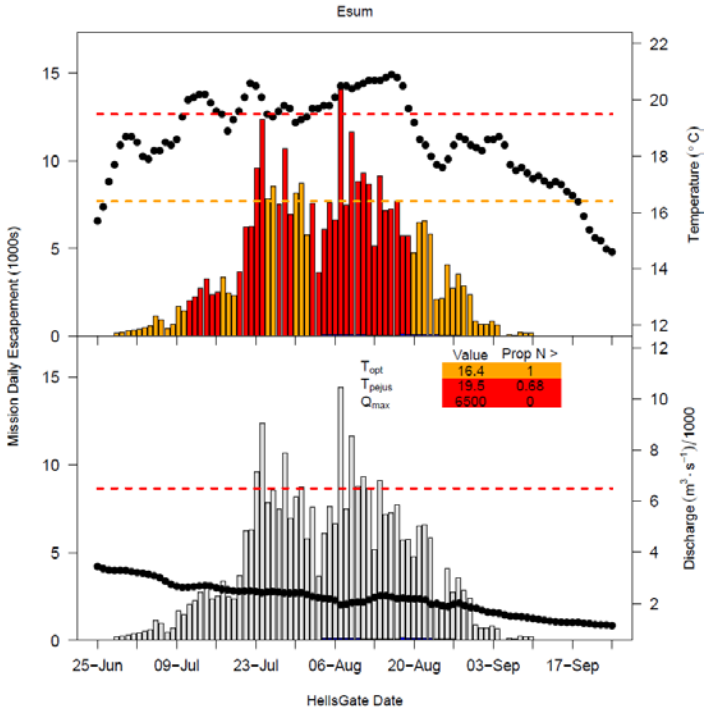
Early Stuart	Pre-season Adopted	In-season Adopted
pDBE	-0.52	-0.63
Implied pMA	1.08	1.70



- Pre-season, the median pMA (1.08) based on recent years had been adopted.
- In-season, one third of the Early Stuart migrated at temperatures greater than the Early Stuart T_{pejus} of 19.9℃. At these temperatures successful migration could be limited.
- The mean 31-day temperature at Qualark for Early Stuart was 19.2℃ (red zone in supplemental approach).
- The Panel adopted a pMA of 1.70 based on the Supplemental approach, which is the best performing model based on evaluating model performance retrospectively for all years since 2010.

Early Summer run

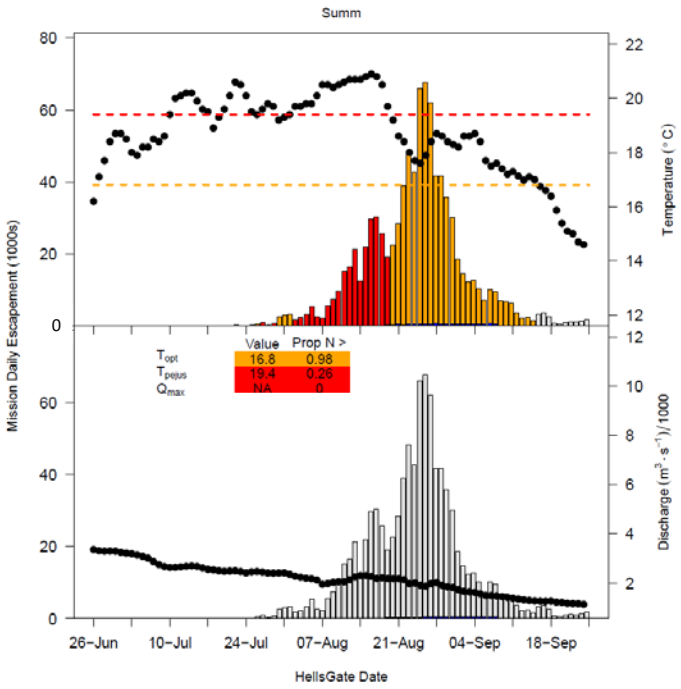
Early Summer run	Pre-season Adopted	In-season Adopted
pDBE	-0.36	-0.52
Implied pMA	0.56	1.08



- Pre-season, the median pMA (0.56) had been adopted.
- In-season, temperatures at Qualark were above the T_{pejus} of 19.5℃ for 68% of the migration.
- The Panel adopted a pMA (1.08) based on the 19-day model, which is the best performing model based on evaluating model performance retrospectively for low discharge years.

Summer run

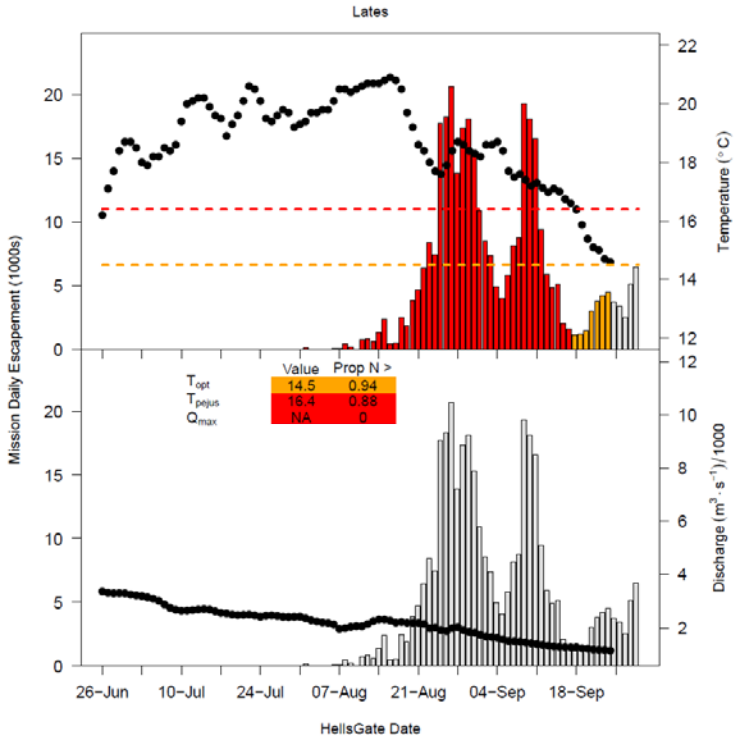
Summer run	Pre-season Adopted	In-season Adopted
pDBE	-0.19	no change
Implied pMA	0.23	no change



- Pre-season, the pMA had been increased from 0.08 to 0.23 given the high temperature forecast.
- In-season, temperatures exceeded the T_{pejus} of 19.4 ^{o}C for the early part of the Summer-run migration.
- A retrospective analysis suggested that the pre-season model is still the best pDBE approach even in low discharge years.
- In-season, the Panel stayed with the pMA (0.23) from the pre-season temperature model.

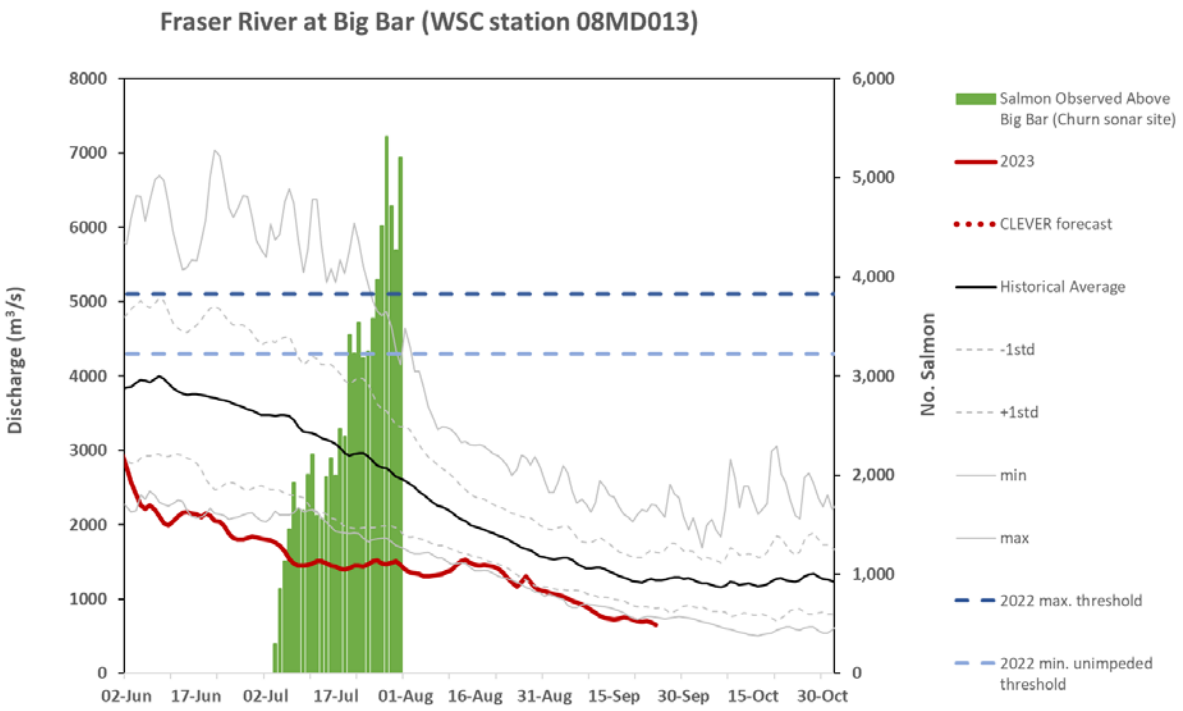
Late run

Late run	Pre-season Adopted	In-season Adopted
pDBE	-0.50	no change
Implied pMA	1.00	no change



- Pre-season, the Panel adopted a pMA (1.00) based on the weighted median pDBEs for Late run excl. Birkenhead and Big Silver (-0.74) and Bi/BS (-0.25)
- In-season, temperatures exceeded the T_{pejus} of 16.4 ^{o}C through most of the Late-run migration.
- A retrospective analysis suggested staying with the median approach is the best approach in-season.
- The Panel stayed with the pMA of 1.00.

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

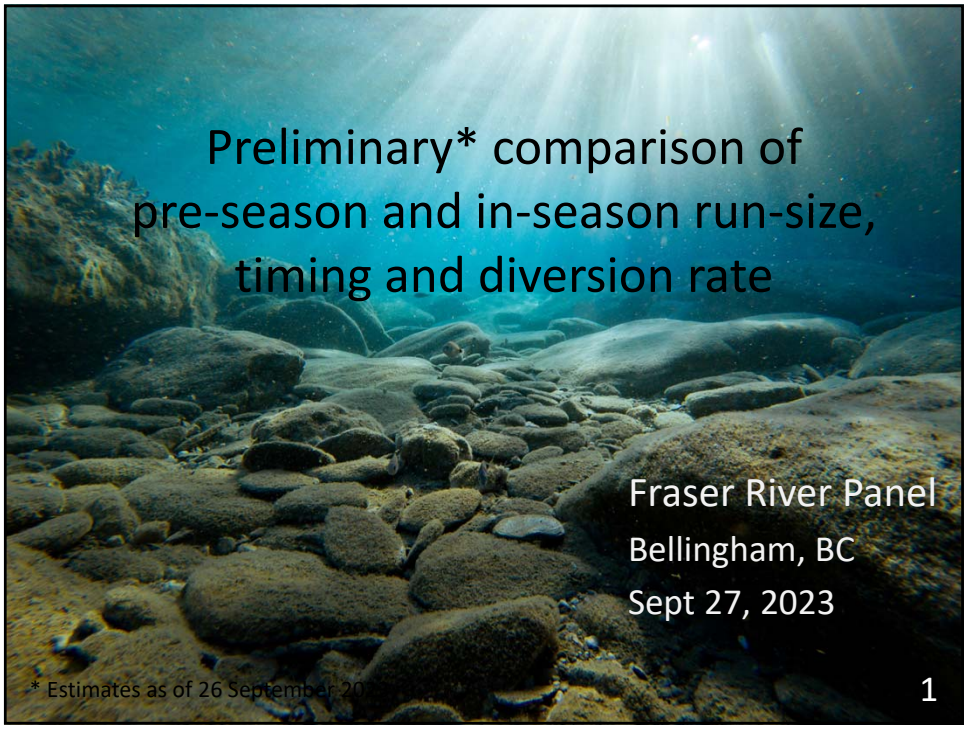
Given the extremely low discharge levels early into the 2023 season, no upstream migration problems have been reported at Big Bar

Big Bar Sonar program

- The Sonars at Alfalfa and Churn Creek operated from July 4 to July 31.
- During this period a total of 75,645 salmon were observed 40 km upstream of Big Bar (Churn Creek) and a total of 86,397 salmon were observed below Big Bar (Alfalfa).

Big Bar Tagging program

- The tagging program ran from June 26 - July 28
- A total of 178 sockeye were tagged.



Notable events in 2023

Environment

- Extremely low discharge
- Big Bar not a migration barrier

Sockeye

- High test fishing catchability when pink catches were large
- Total return substantially above the 2019 brood year
- Low age-4_2 proportion for some stocks impacted by Big Bar in 2019
- All management groups remained in a LAER

Pinks

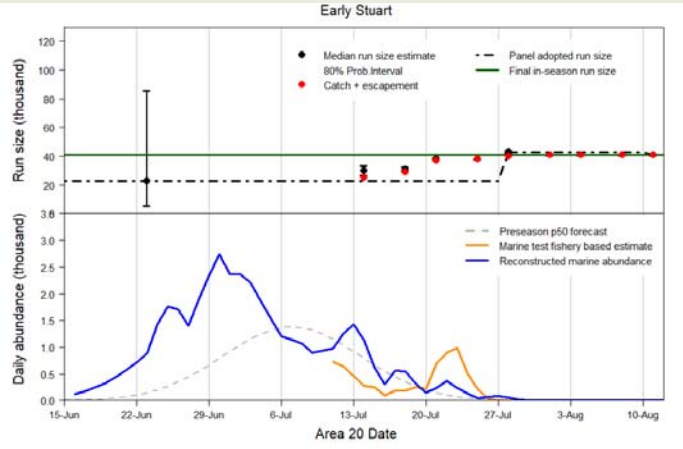
- High catchability and CPUE of pink salmon in marine areas
- Large return despite 2021 fall floods and 2022 low fry outmigration
- Highest escapement past Qualark since 2008
- Substantial overlap in sockeye and pink salmon migration
- Difficulty accessing pink salmon TAC due to sockeye concerns

2

2023 Run size: Early Stuart

End-of-season estimate: 78% higher than p50 forecast, 11% lower than p75

Date	Adopted Run Size
p50	23,000
28-Jul	43,000
11-Aug	41,000
Accounted Run	**41,000**

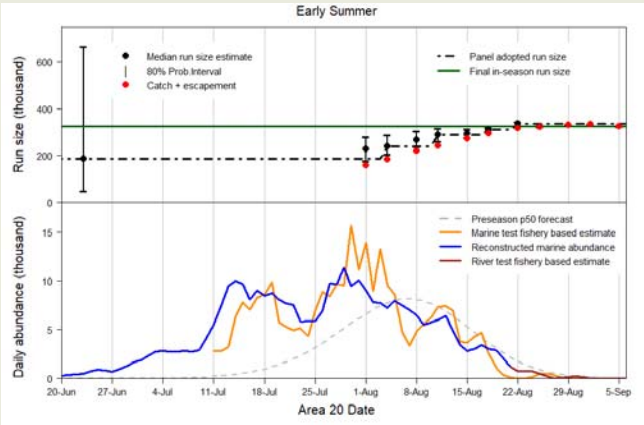


3

2023 Run size: Early Summer Run

End-of-season estimate: 75% higher than p50 forecast, 8% lower than p75

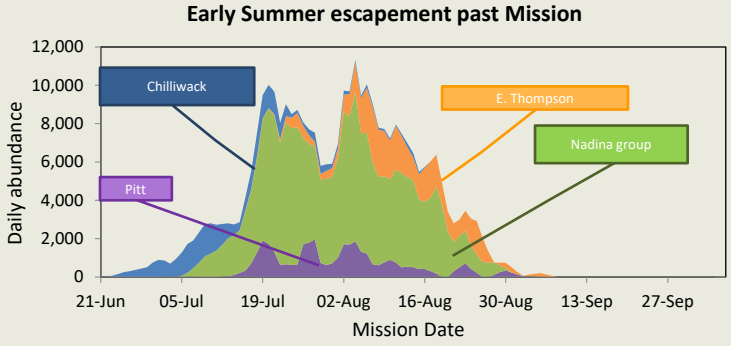
Date	Adopted Run Size
p50	186,000
4-Aug	240,000
11-Aug	290,000
18-Aug	310,000
22-Aug	335,000
Accounted Run	**326,000**



4

2023 Run size: Early Summer Run

Stock	Run Size	In-season %	Pre-season %
Chilliwack	32,000	10%	1%
Pitt/Alouette/Coquitlam	36,000	11%	17%
Nadina/Gates/Bowron/Nahatlatch/Taseko	211,000	65%	49%
Early Thompson, North Barriere	48,000	15%	33%
Total Accounted Run	**326,000**		

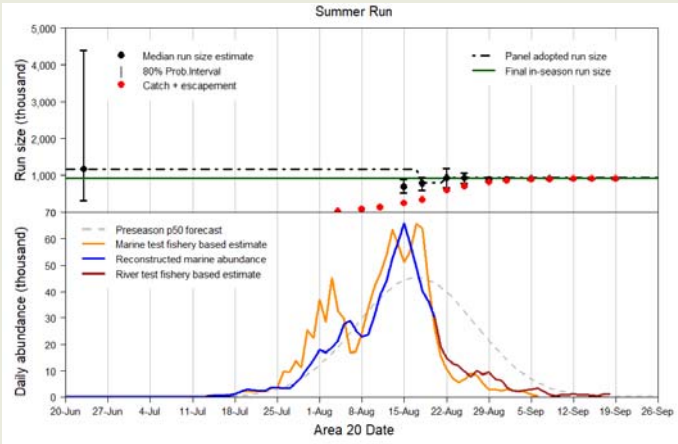


5

2023 Run size: Summer Run

End-of-season estimate: 21% lower than p50 forecast

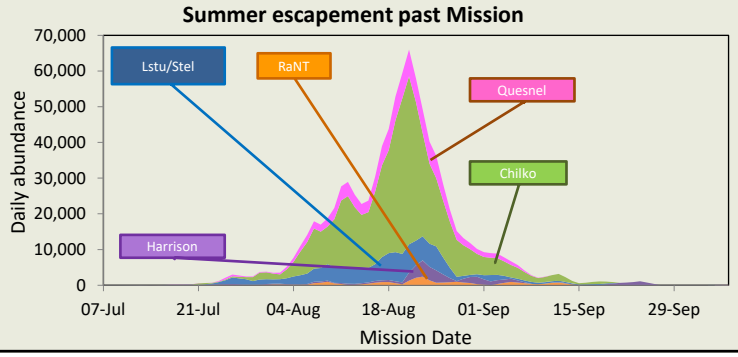
Date	Adopted Run Size
p50	1,167,000
18-Aug	800,000
22-Aug	950,000
Accounted Run	**926,000**



6

2023 Run size: Summer Run

Stock	Run Size	In-season %	Pre-season %
Harrison, Widgeon	47,000	5%	4%
Late Stuart/ Stellako (LStu / Stel)	154,000	17%	17%
Chilko	576,000	62%	51%
Quesnel	121,000	13%	27%
Raft/North Thompson (RaNT)	28,000	3%	1%
Total Accounted Run	**926,000**		



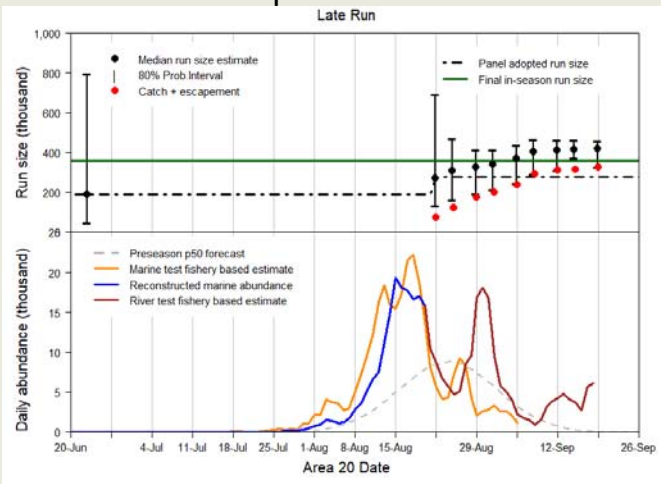
7

2023 Run size: Late Run

Current estimate: 91% higher than the p50 forecast,

7% lower than p75 forecast

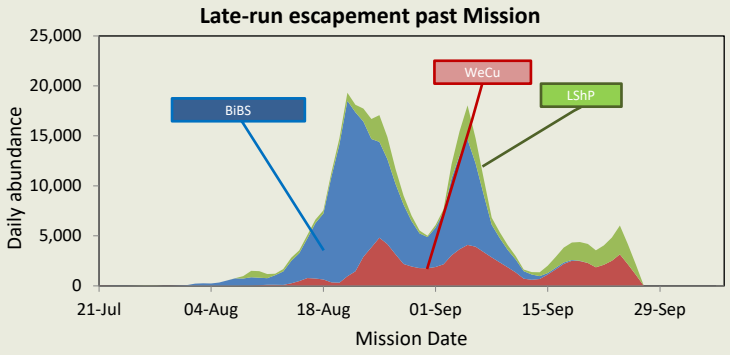
Date	Adopted Run Size
p50	188,000
22-Aug	280,000
Accounted Run	**359,000**



8

2023 Run size: Late Run

Stock	Run Size	In-season %	Pre-season %
Birkenhead, Big Silver (BiBS)	215,000	60%	49%
L.Shuswap/Portage (LShP)	54,000	15%	17%
Weaver/Cultus (WeCu)	91,000	25%	34%
Total Accounted Run to Date	**359,000**		



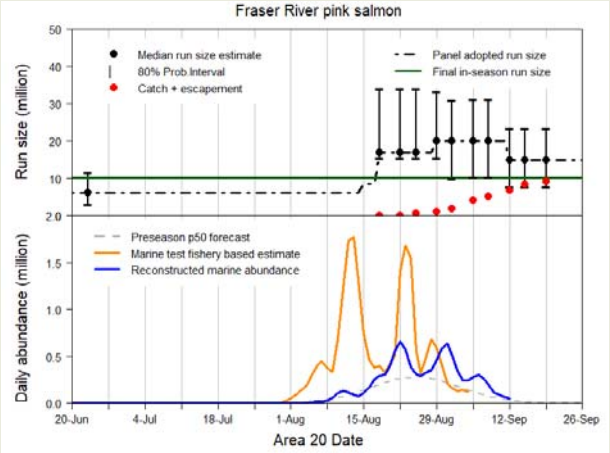
9

2023 Run size: Pink Run

End-of-season estimate: 65% higher than p50 forecast and 13% below the p90 forecast.

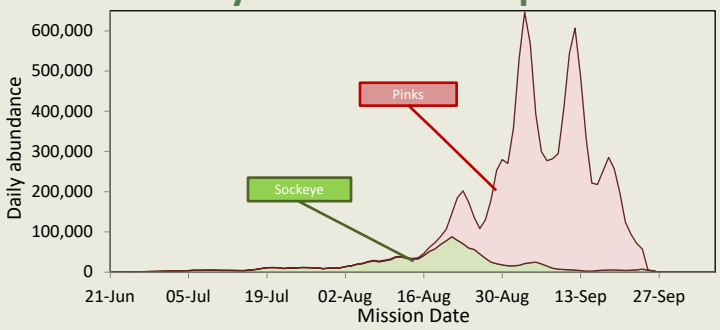
Date	Adopted Run Size
p50	6,135,000
15-Aug	8,575,000
18-Aug	17,000,000
29-Aug	20,000,000
12-Sep	15,000,000

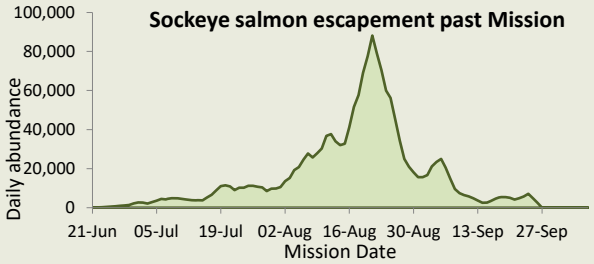
Accounted Run	10,187,000



10

Sockeye and Pink Escapement

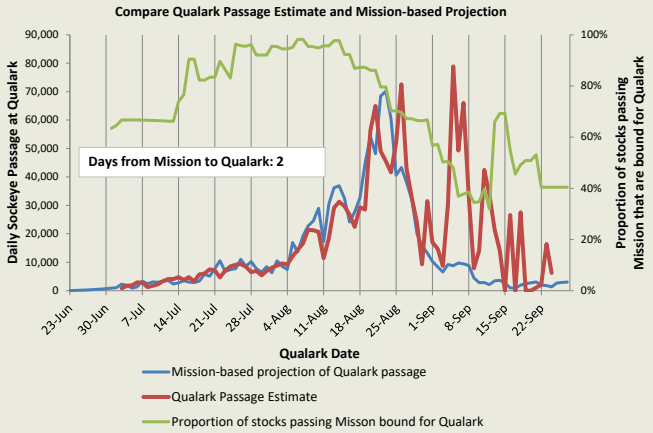




11

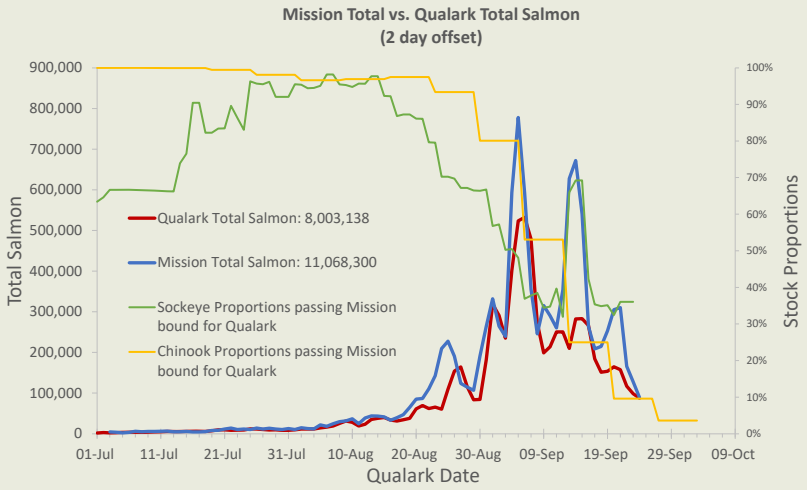
Mission vs. Qualark Sockeye Estimate

	All Days	Common Days
Mission projection	1,216,964	1,191,830
Qualark estimate	1,545,739	1,545,739
	Difference	**-353,908**
	%Difference	**(30%)**



12

Mission vs. Qualark Total Salmon Estimate



13

2023 Run-size Summary

Management Group	Pre-season Run Size	End-of-season Run Size[1]	Difference
Early Stuart	23,000	41,000	78%
Early Summer Run	186,000	326,000	75%
Summer Run	1,167,000	926,000	-21%
Late Run	188,000	359,000	91%
Total Sockeye	**1,564,000**	**1,653,000**	**6%**
Total Fraser Pinks	**6,135,000**	**10,187,000**	**66%**

- **Total sockeye run size:** **189% above the brood year (0.6M) and 60% below the historical cycle-line (4.1M).**
- **Total pink run size:** **25% above the brood year (8M) and 12% below the historical average (11.5M).**

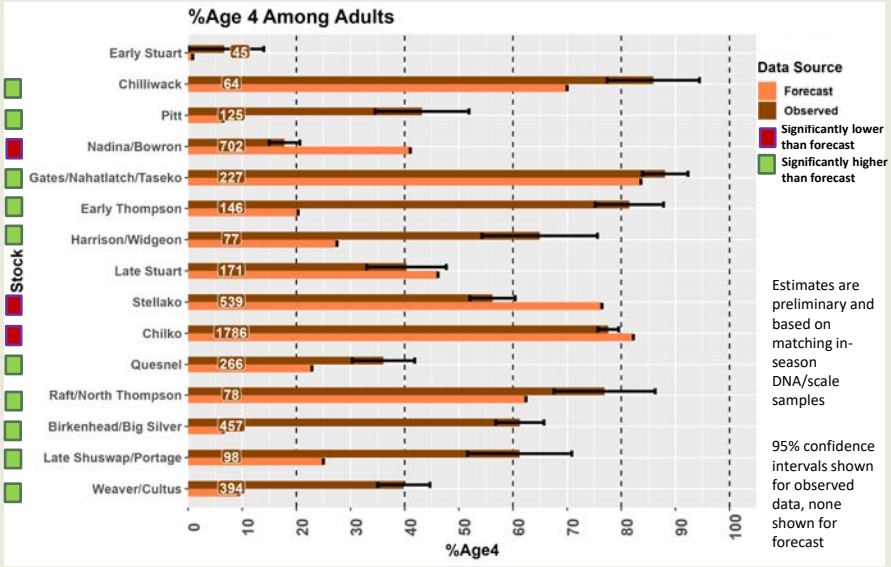
14

2023 In-season vs pre-season run size

Stock Group	2019 Spawning escapement	Pre-season Run Size	In-season Run Size	Difference
Early Stuart	**89**	**23,000**	**41,000**	**78%**
Early Summer Run	**45,052**	**186,000**	**326,000**	**75%**
Chilliwack	1,438	2,000	32,000	1500%
Pitt/Alouette/Coquitlam	3,507	31,000	36,000	16%
Nadina/Bowron/Gates/ Nahatlatch/Taseko	34,949	92,000	211,000	129%
Early Thompson, North Barriere	5,158	61,000	48,000	-21%
Summer Run	**246,869**	**1,167,000**	**926,000**	**-21%**
Harrison/Widgeon	3,994	51,000	47,000	-8%
Late Stuart/Stellako	51,838	196,000	154,000	-21%
Chilko	168,344	591,000	576,000	-3%
Quesnel	21,721	319,000	121,000	-62%
Raft/North Thompson	972	10,000	28,000	180%
Late Run	**10,820**	**188,000**	**359,000**	**91%**
Birkenhead group	3,127	92,000	215,000	134%
L.Shuswap/Portage	5,783	32,000	54,000	69%
Weaver/Cultus	1,910	64,000	91,000	42%
Total Fraser Sockeye	**302,830**	**1,564,000**	**1,653,000**	**6%**
Total Fraser Pinks	**n/a**	**6,135,000**	**10,187,000**	**66%**

15

2023 Sockeye Age Composition



Estimates are preliminary and based on matching in-season DNA/scale samples

95% confidence intervals shown for observed data, none shown for forecast

16

2023 Run size summary by age

Stock Group	Pre-season Run Size		In-season Run Size		Difference	
	Age 4	All other ages	Age 4	All other ages*	Age 4	Other*
Early Stuart	200	22,800	3,000 *	38,000	1400%	67%
Early Summer Run						
Chilliwack	1,400	600	27,000	4,000	1829%	567%
Pitt	2,000	29,000	16,000	21,000	700%	-28%
Nadina/Bowron	32,030	45,970	28,000	128,000	-13%	178%
Gates/Nahatlatch/Taseko	12,600	1,400	49,000	7,000	289%	400%
Early Thompson, N. Bar.	12,800	48,200	39,000	8,800	205%	-82%
Summer Run						
Harrison/Widgeon	14,050	37,030	30,000	16,000	114%	-57%
Late Stuart	18,000	21,000	28,000	41,000	56%	95%
Stellako	120,000	37,000	47,000	37,000	-61%	0%
Chilko	486,000	105,000	447,000	129,000	-8%	23%
Quesnel	73,000	246,000	44,000	78,000	-40%	-68%
Raft/North Thompson	6,180	3,720	21,000	6,000	240%	61%
Late Run						
Birkenhead/Big Silver	6,020	86,280	132,000	83,000	2093%	-4%
Late Shuswap/Portage	8,000	24,000	33,000	21,000	313%	-13%
Weaver/Cultus	6,000	58,000	36,000	55,000	500%	-5%

Both age composition and run sizes are preliminary and will be reviewed in the post-season

* Early Stuart Age 4 estimate likely issues with DNA.

17

2023 Run-timing Summary

	Area 20 Timing		
Management Group	**Pre-season forecast[1]**	**End of season**	**Difference**
Early Stuart	7-Jul	2-Jul	-5
Early Summer	6-Aug	27-Jul	-10
Summer	17-Aug	14-Aug	-3
Late	24-Aug	17-Aug	-7
Pink	25-Aug	21-Aug	-4

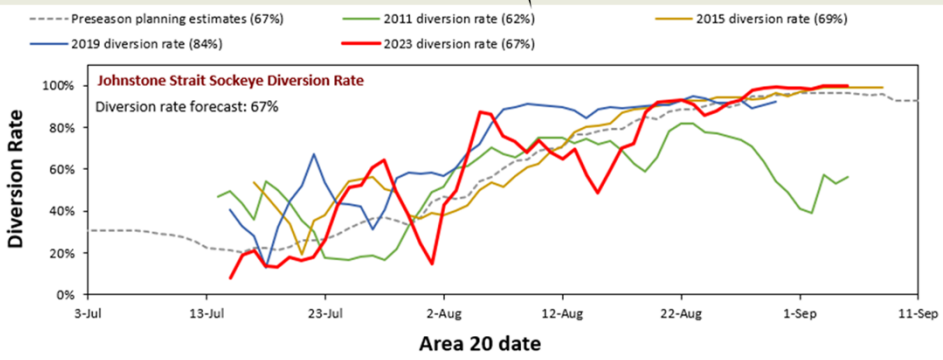
[1]Based on Panel agreed timing estimates following the June meeting. DFO's pre-season timing estimates were: July 10 for Early Stuart and August 17 for Chilko.

- **Sockeye Timing:** All groups had earlier timing than forecast, especially Early Summer.
- **Pink Timing:** Earlier timing than forecast, in line with recent years

18

2023 Sockeye Northern Diversion

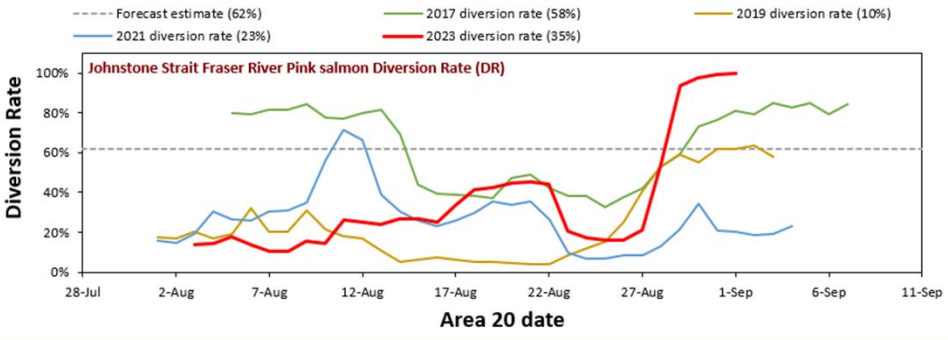
- Pre-season forecast: 67%
- Final in-season estimate: 67%



19

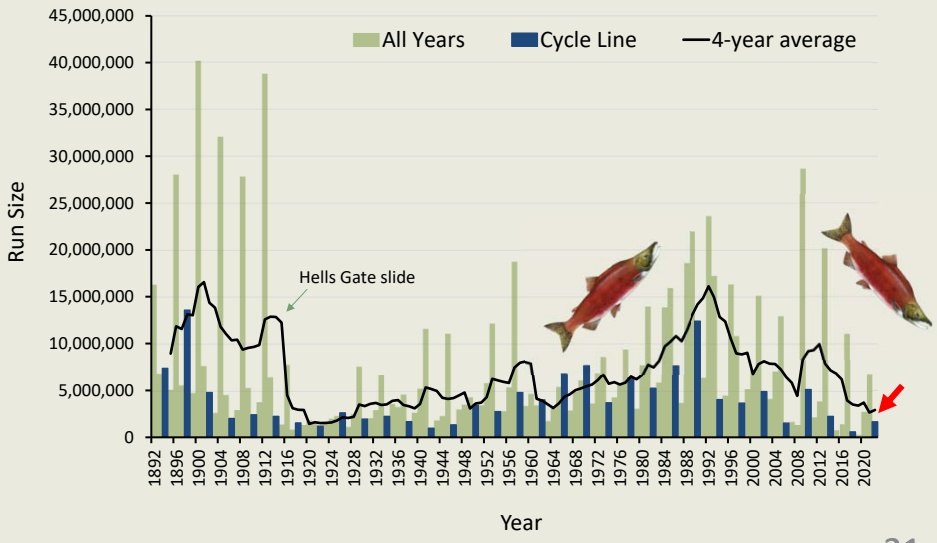
2023 Pink Northern Diversion

- Pre-season forecast: 53%, in-season updated forecast: 62%
- Final in-season estimate: 34%



20

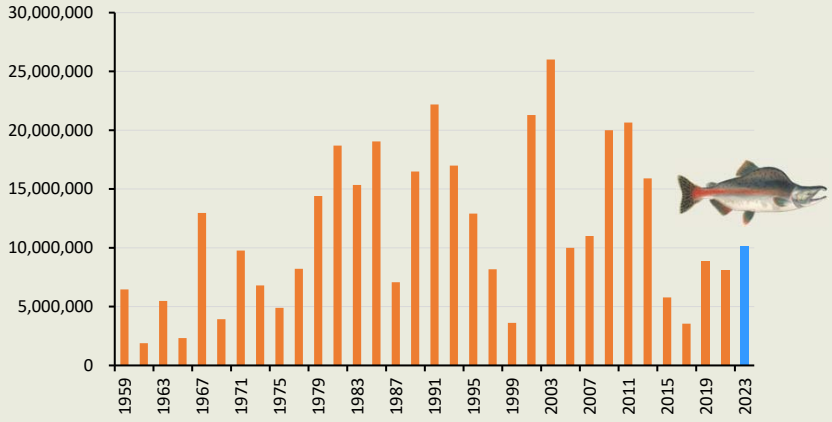
2023 Sockeye Run-size



https://psc1.shinyapps.io/PSC_Annual_Fraser/

21

2023 Pink Run-size



https://psc1.shinyapps.io/PSC_Annual_Fraser/

22

Thank you

PACIFIC SALMON COMMISSION

ESTABLISHED BY TREATY BETWEEN CANADA
AND THE UNITED STATES OF AMERICA
MARCH 18, 1985

600 – 1155 ROBSON STREET
VANCOUVER, B.C. V6E 1B5
TELEPHONE: (604) 684-8081
FAX: (604) 666-8707
www.psc.org

PACIFIC SALMON COMMISSION WORK PLAN 2023-2024

Panel / Committee: Fraser River Panel and Fraser River Panel Technical Committee

Date: Provided at PSC Executive Session via Teams on October 16-20, 2023.

Update on Bi-lateral Tasks Assigned Under Current PSC Agreement:

The Panel continued implementation of Chapter 4 of the Pacific Salmon Treaty for the 2023 Sockeye salmon season.

Obstacles to Completing above Bi-lateral Tasks:

There were no major obstacles to Panel implementation of the Fraser River Sockeye and Pink Salmon chapter (Chapter 4 of the Pacific Salmon Treaty) in 2023.

Outline of Other Panel / Committee Tasks or Emerging Issues:

1. In 2023, Canada disagreed on August 18 and August 25, 2023 with the proposed U.S. fisheries. On August 18, PSC staff recommended run size estimates for Early Summer-run and Summer-run sockeye and pink salmon of 310,000 and 800,000 and 17 million, respectively, which the Panel (both Canada and the U.S.) adopted. Following the adopted run size, the U.S. proposed a series of pink directed fisheries, approved by PSC staff based on available pink salmon TAC but not by Canada based on conservation concerns for Fraser sockeye salmon. Similarly, on August 25, no run size recommendations were made by PSC staff, and the U.S. proposed a series of pink directed fisheries, approved by PSC staff based on available pink salmon TAC but not by Canada based on conservation concerns for Late run sockeye. As stated under the current PSC Agreement, the U.S provided a written rationale to Canada for the proposed fisheries prior to their commencement. If Canada believes it has been adversely affected by these U.S. fisheries, Commission staff shall prepare an objective report on the circumstances of these fisheries and their consequences for the January Commission meeting. This report will be reviewed by the Panel to determine if action is required. If the Panel cannot come to a mutual decision on the appropriate action, the issue shall be referred to the Commission for resolution during its February annual meeting.

Potential Issues for Commissioners:

1. In 2023, the total in-season run size for sockeye and pink salmon was 1.6 million and 20 million, respectively. While there was plenty of pink salmon international TAC, 14 million, concerns about by-catch of sockeye given the lack of harvestable surplus and international TAC for sockeye resulted in little additional pink salmon retention by the test fishing program (i.e., pay fish). Additionally, market prices for pink salmon were much lower than previous years, reducing the financial impact of the limited pink salmon pay fish retained. In 2023 the Panel decided to terminate the Area 20 Purse Seine test fishery early resulting in savings of approximately $30,000. While there are currently sufficient funds within the TFRF to cover the

deficit associated with the 2023 season, given the prospects for poor returns in 2024 and possibly 2025, future contributions to the TFRF will be required to address potential deficits in those years. The Panel's test fishery review in 2017 did not identify significant cost savings which would reduce the size of the potential deficit beyond the cost-reduction actions the Panel has taken in recent years[1].

2. A review may be required of the August 18 and August 25 fisheries prosecuted by the US and Canada's objection to the proposed fisheries.

Potential Issues for Committee on Scientific Cooperation

1. The work of the Committee on if and how to incorporate environmental indicators and/or account for changes in productivity will be of great interest to the Fraser River Panel especially considering the declining Sockeye returns over the last decade or more.

Proposed Meeting Dates and Draft Agendas:

October 16-20, 2023 PSC Executive Session

Present the 2023-2024 Fraser Panel/Fraser River Panel Technical Committee Work Plan to the Commission.

Special issues the Panel will address by the conclusion of the Annual meeting cycle include:

1. Review and provide a report to the Commission on the 2023 implementation of Chapter 4 of the Pacific Salmon Treaty.
2. Address management performance and accountability issues, including a review of "2023 Fraser Management Plan Principles and Constraints" and consistency in managing all fisheries to meet bilateral objectives.
3. Continue to review the technical information and modeling work being used as the basis for the Fraser Panel's Management Adjustments, including: a) procedures and triggers used in-season to deviate from preseason agreed methods, b) improvement to the use of additional in-season information on fish condition by creating standardized time series, and c) exploration of in-season use of tagging, Big Bar and other in-season information. Review the procedure for incorporating these adjustments into in-season management of Fraser Sockeye.
4. Compare in-season Mission passage estimates of Sockeye run size by management group with observed spawning escapements, catches and any applied management adjustments, including a review of upstream migration timing, en route mortality and spawning success of Late-run stock components. Where differences are observed, evaluate the potential causes of observed differences, including consideration of species composition issues at Mission and the potential contribution of fishery induced

[1] Nelitz, M., A. Hall, C. Michielsens, B. Connors, M. Lapointe, K. Forrest, and E. Jenkins. 2018. Summary of a Review of Fraser River Test Fisheries. Pacific Salmon Comm. Tech. Rep. No. 40: 155 p.

mortalities to any discrepancies. Compare the observed differences to the projected differences based on the Management Adjustments adopted by the Panel in-season.

5. In response to record low sockeye catches in in-river test fisheries in recent years, especially at Cottonwood, an alternative Lower Fraser River gillnet test fishery, Brownsville Bar, has been explored as an alternative test fishing location from 2021-2023. This test fishery has been successful in terms of increased catches to derive stock ID information. Given the low returns in 2020, the brood year for 2024, and the very low sockeye catches at Cottonwood in 2020 (26 sockeye over 28 days of operation), the usefulness of Cottonwood as a test fishery may be limited in 2024. Included in the SEF 2024 request will be to properly analyze this alternative test fishery with the 4 years of data collected following the 2024 season.
6. The Panel will prepare recommendations on 2024 Fraser Sockeye and Pink salmon related proposals to the Southern Endowment Fund (SEF) Committee. The Panel will develop a list of specific funding priorities, which will be used in the SEF call for proposals, so that applications will be focused on work of the most value to the Panel.
7. Review issues concerning the management of Fraser Sockeye and Pink salmon, including escapement planning and escapement goal determination, documentation of escapement levels, and variations in marine area migration timing and diversion that result in stock and/or species overlap and management complications in Panel fishery harvest areas.
8. The Panel will continue discussions on methods for determining allowable impacts on non-target stocks and species, and necessary conservation actions, in Panel Area fisheries.
9. The Panel will discuss issues concerning small but acceptable harvest during pink directed fisheries.
10. If required, the Panel will review the August 18 and August 25 fisheries prosecuted by the US, Canada's objection to the proposed fisheries and the subsequent impact on Canadian fisheries in subsequent weeks.

January, 2024 PSC Post-Season Meeting

Each National Section shall conduct detailed reviews of the 2023 Fraser River Sockeye and pink salmon return, fishery performance, special conservation actions and escapement levels and provide a summary of this information to the Commission.

February, 2024 PSC Annual Meeting

The Panel shall continue discussions of any unresolved special issues.

The Panel shall address "Other Activities" identified for the Panel in the 2023/2024 Work Plan.

The Panel will initiate the 2024 Pre-Season Planning process consistent with the provisions of the renewed Annex IV, Chapter 4 of the Pacific Salmon Treaty, and any guidance provided by the Commission. The Panel will require meetings in late-April or early May and June 2024 in addition to the PSC Annual Meetings to complete pre-season planning tasks.

Outline of Other Activities of the Fraser River Panel for the 2023/2024 Cycle

This list includes special items/topics of less time sensitive nature or one-time projects.

1. Continue work to advance recommendations from the Test-Fishing review: The Panel will continue to implement test-fisheries in the most cost-effective manner possible, while obtaining information required to inform in-season run size decisions. PSC staff will aim to (1) improve robustness of test fishing data flows, (2) improve the accuracy of test fishing catch reports through improved sampling protocols and (3) to standardize nets and test fishing practices between fishers.

2. Evaluate Panel-Approved Test-Fisheries and potential use of data from other sources. The Panel will review the work done by various SEF projects since 2018 that evaluated the usefulness of current as well as alternative data for in-season assessment and management. The Panel continues to identify this research as an SEF priority for 2024.

3. Review 2023 Test Fisheries and develop a Test Fishing Plan for the 2024 Season. The plan will incorporate any changes and recommendations from the Test Fishery Review and follow-up projects, and/or use of data from other sources that could improve in-season assessments. This includes further discussion exploring the Brownsville Bar SEF test fishery, if the Area 20 test fishery will require different net materials in the future, and the usefulness of marine test fishery data in 2024 given the expected low run size. More discussion is also required to address expected future funding shortfalls.
4. As a result of the significant uncertainty associated with the in-season estimates of escapement of both Sockeye and Pink salmon in 2021 a thorough review of species composition methods at Mission and Qualark has started. SEF funding has been requested for the second year of a four-year collaborative project to improve species composition, both at Mission and at Qualark. To ensure all parties have a full understanding of the work to be conducted and the roles and responsibilities of those involved, the parties and the secretariat have agreed on Terms of Reference for this work.

5. PSC staff will provide a progress report on the sampling programs at Mission and Qualark, including any issues that arose from modifications made to the programs in 2023, and the species-specific assessments at both locations.

6. PSC staff will provide a status update on seal predation: including the systematic documentation of seal predation on test fishing catches and the methods explored to reduce its impacts.

7. PSC staff will provide a PSC Technical Report on pink salmon prior to the 2025 season and an updated PSC Technical Report on sockeye salmon prior to the 2026 season.

8. The Technical Committee will review data updates to the Fraser Sockeye catch and exploitation rate files, and make revisions as needed. Work will include advancement on the Run Size Adjustment process.

9. Administrative Issues: Review and approve outstanding Panel minutes and Fraser River Panel Annual Reports.

10. Review the PSC proposed budget for 2024 Fraser River Panel Programs.

Status of Annual Reports:

Fraser River Annual Reports up to and including 2021 are complete and have been posted to the PSC website. The 2022 report has not yet been sent for review to the Parties; however, it is anticipated this will happen before the end of the year. The 2023 Annual Report will be sent to the Parties for review spring 2024.

Fraser River Panel Meeting Schedule[1,2]

December, 2023 – 4 days	Forecast Meeting	Vancouver/Virtual
January 8-12, 2024	PSC Post-Season Meeting	Seattle/Virtual
February 12-16, 2024	PSC Annual Meeting	Vancouver/Virtual
March, 2024	FRTC Model Inputs	Email
April, 22-23, 2024 – 2 days	Fraser River Panel Technical Committee	Virtual
April, 24-25, 2024 – 2 days	Fraser River Panel Pre-Season Planning	Virtual
May, 2024 – 2 days	Technical Modeling Meeting (RSA)	Vancouver/Virtual
June, 17-18, 2024 – 2 days	Fraser River Panel Technical Committee	Tulalip/Virtual
June, 19-20, 2024 – 2 days	Fraser River Panel Pre-Season Planning	Tulalip/Virtual
July 12, 16, 19, 23, 26, 30	Fraser River Panel – In-Season Meeting	Calls
August 2, 9, 16, 23, 30	Fraser River Panel – In-Season Meeting	Calls
August 6, 2024	Fraser River Panel – In-Season Meeting	Richmond
August 13, 2024	Fraser River Panel – In-Season Meeting	Richmond
August 20, 2024	Fraser River Panel – In-Season Meeting	Richmond
August 27, 2024	Fraser River Panel – In-Season Meeting	Richmond
September 24-26, 2024	Fraser River Panel – Post-Season Meeting	?

1 – This schedule will be reviewed for opportunities to improve upon efficiency and reduce Panel costs.

2 – Both parties may choose to schedule pre-meeting caucuses virtually or in-person before Panel meetings

2023 Program Balance

Expenses[1]	Revenue[2]	Balance
$ 1,230,000	$ 421,000	- $ 809,000

Estimated on September 22, 2023
Forecast through to March 31, 2024

[1]Estimated expenses to date have not been reconciled against actual month-end financial statements
[2]Revenues are not final as test fisheries are on-going and prices may be adjusted post-season

- The balance ($809,000) will be paid for from the test fishing revolving fund currently containing $1,418,000
- Prior to the 2024 season, invoices will be sent to both Parties to top up the test fishing revolving fund as per PSC bylaws (Rule 25 p)

Fraser River Panel Regulatory Control Periods for 2023

Canada

Area/Gear	Period Closed Unless Opened by the FRP
	(Extend from a Sunday through a Saturday, both dates inclusive)
20-1, 3 and 4 net	June 25 - September 23
20-1, 3 and 4 troll	June 25 - September 23
17, 18 net	June 25 – September 30
18-1, 4 and 11 troll	June 25 - September 30
29 net	June 25 - October 14
29 troll	June 25 - October 14

United States

Note: the periods of regulatory control are the same for U.S. Tribal and All Citizen Fisheries

Area/Gear	Period Closed Unless Opened by the FRP
	(Extend from a Sunday through a Saturday, both dates inclusive)
4B, 5, 6C drift gillnet or purse seine	June 25 - September 16
6, 6A, 7 and 7A net	June 25 – September 23
7A net lying westerly of a straight line drawn from the low water range marker in Boundary Bay on the International Boundary through the east tip of Point Roberts in the State of Washington to the East Point Light on Saturna Island in the Province of British Columbia	September 24 - October 7

Status of Minutes

2020 & 2021

- Finalized and posted.

2022

- Combined drafts posted for review. Reviewed by Canada.

2023

- Minutes from January, February, April, June, July, and some August meetings have been posted for review.
- January, February, and April minutes have been reviewed by Canada.

Status of Annual Reports

2022

- Still in draft and won't be circulated for review until fall

2023

- Draft will be sent for review spring 2024