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WEEKLY REPORT

July 14, 2023

The Fraser River Panel (Panel) of the Pacific Salmon Commission has developed management plans for 2023 Fraser River sockeye and pink salmon fisheries in Panel Area waters.

Pre-season Expectations

Fisheries and Oceans Canada (DFO) provided forecasts of Fraser River sockeye salmon abundance to the Panel, as well as a formula for calculating sockeye spawning escapement targets at different run sizes. It is broadly understood that the sockeye run size forecasts are low due to the low number of sockeye that returned in 2019 and the impact of the Big Bar landslide in the same year. In addition, Fraser River sockeye salmon forecasts for 2023 are very uncertain due to the substantial variability in annual survival rates. With the exception of the Summer run timing group, the forecast is also dominated by age-5 returns, which further contributes to the uncertainty, as forecasts for 5-year-olds are more uncertain than for 4-year-olds. The total Fraser sockeye median forecast (50% probability level; p50) is 1,564,000 fish, which is well below the cycle average. To put the forecast uncertainty further into context, there is a one in four chance that the actual number of returning sockeye will be less than 800,000 fish (25% probability level forecast; p25) and there is a one in four chance that the actual number of returning sockeye will be greater than 3,185,000 fish (75% probability forecast; p75). For pre-season planning purposes, the Panel used the median Fraser sockeye forecast abundance (equal chance that actual return will be higher or lower) for all management groups.

The Early Stuart sockeye return forecast at the 50% probability level is 23,000 fish (ranges from 11,000 to 46,000 fish at the 25% and 75% probability levels, respectively). The forecast for Early Summer-run sockeye at the 50% probability level is 186,000 fish (ranges from 81,000 to 354,000 fish at the 25% and 75% probability levels, respectively), with Nadina and Early Shuswap sockeye comprising nearly 63% of the total Early Summer return. The Summer-run sockeye return forecast at the 50% probability level is 1,167,000 fish (ranges from 614,000 to 2,398,000 fish at the 25% and 75% probability levels, respectively), with Chilko and Quesnel sockeye expected to contribute nearly 78% to the total Summer-run sockeye return. The Late-run sockeye return forecast at the 50% probability level is 188,000 fish (ranges from 93,000 to 387,000 fish at the 25% and 75% probability levels, respectively), with Birkenhead and Weaver sockeye expected to comprise 83% of the total Late-run return.

The pre-season forecast for Fraser River pink salmon is traditionally highly uncertain, due to variability in both freshwater and marine survival rates combined with shifts in adult enumeration methodology over time. Adding to the uncertainty is the impact of the floods in the Fraser Valley mid-November 2021 on pink salmon eggs deposited in the lower Fraser River. For pre-season planning, the Panel used the 50% probability level forecast of 6,135,000 fish. This estimate is consistent with lower-than-average productivity. To put the pink run size forecast uncertainty into context, there is a one in four chance that the actual number of returning pink salmon will be at or below the 25% probability level forecast of 4,389,000 fish and there is a one in four chance that the actual number of returning pink salmon will be at or above the 75% probability level forecast of 8,575,000 fish.

Marine timing expectations are based on historic time series for years since 1982 as well as environmental time series and statistical models. The 50% migration timing of Early Stuart sockeye through Area 20 is forecasted to be July 10 which is substantially later than the median timing of July 04 (1982-2022). For planning purposes, July 07 has been used as the 50% marine migration date for Early Stuart. The 50% timing forecast for Chilko sockeye through Area 20 is August 17 which is seven days later than the median timing (1982-2022). Chilko sockeye run timing is used to forecast timing for Early Summer, Summer-run and Late-run sockeye. The forecasted proportion of Fraser River sockeye salmon diverting their migration through Johnstone Strait is 67%. Forecasts of the migration timing and diversion rate of Fraser River pink salmon will not be available until mid-August. For pre-season planning, the preliminary timing and diversion rate forecasts used for Fraser River pink were August 24 and 53%, respectively.

Pre-season expected abundance-timing curves for Fraser River sockeye and pink salmon (Figure 1) stock-groups are shown below. The expected timing for Fraser sockeye and pink salmon may change as forecasts are updated based on in-season data.

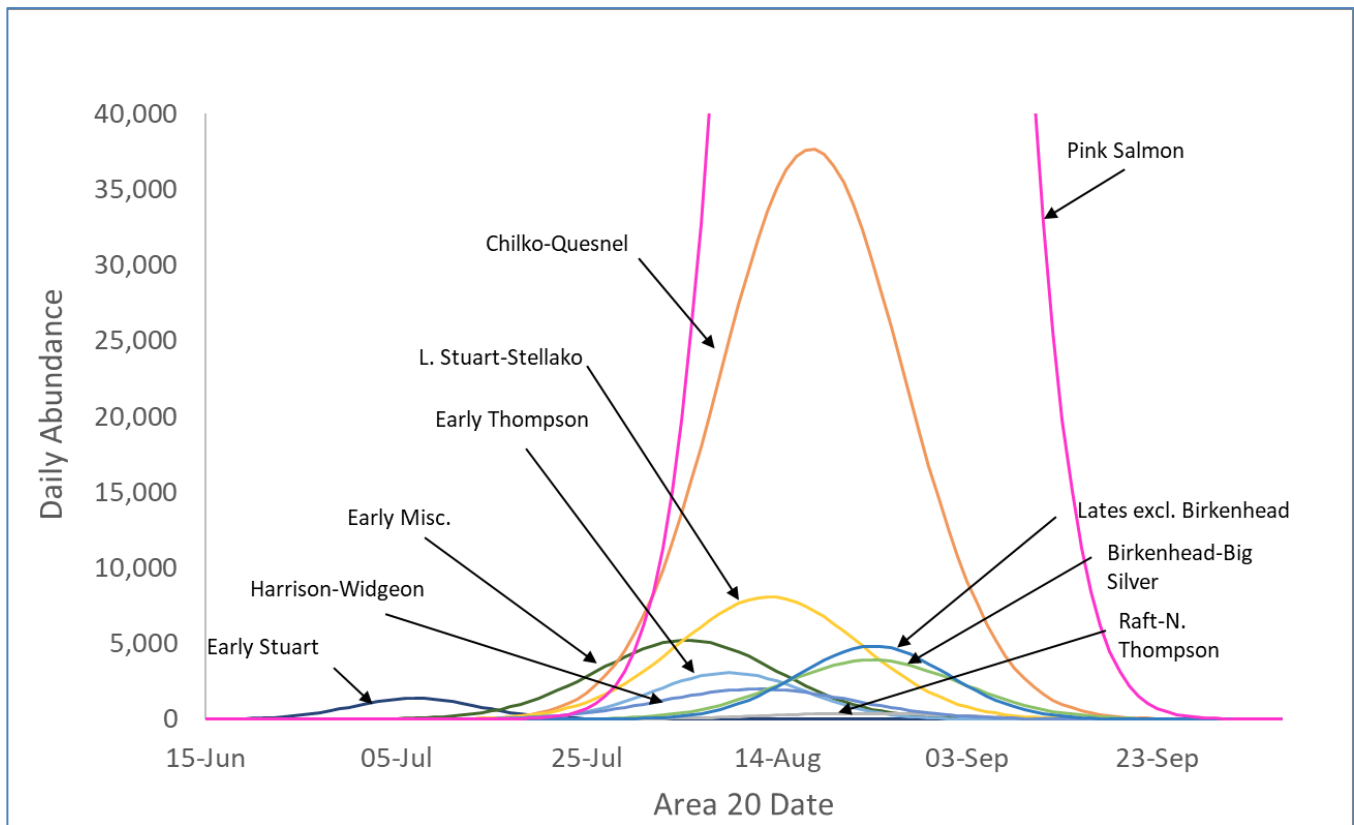


Figure 1. Expected abundance timing curves for Fraser River sockeye and pink salmon.

Migration conditions in 2023 are expected to be challenging. The upper Fraser River is the main driver for the discharge at Hope during the mid-summer period, and as of June 01 the snowpack was extremely low throughout the watershed. Fraser River discharge levels are forecast to be below historic mean levels during the sockeye migration period. Air and water temperatures are forecast to be above average this summer and the expected low flows will decrease the water temperature buffering capacity to hot or cool weather. Also, extensive smoke from wildfires can influence air to water heat transfer processes.

Over the last couple of years, substantial mitigation work has been undertaken to alleviate the impact of the Big Bar rockslide on the upstream migration of sockeye stocks with spawning grounds north of Lillooet, B.C. The affected sockeye stocks included Early Stuart, Nadina, Bowron, Taseko, Chilko, Quesnel, Late Stuart and Stellako sockeye. In

2023, these stocks are expected to represent 77% of the run, but based on current migration conditions, it is not anticipated that these stocks will encounter migration challenges at Big Bar.

Management Constraints and Expectations

The Fraser River sockeye forecast of the different management groups has been a dominant factor in the development of pre-season fishing plans for 2023. The median forecasts for all sockeye management groups (Early Stuart, Early Summer, Summer and Late run) are small enough for Canada's escapement plan to trigger the implementation of a low abundance exploitation rate (LAER) for these groups, which significantly restricts directed sockeye harvest opportunities. Under these conditions, the Fraser River Panel will prioritize achieving Fraser sockeye escapement goals. Given the constraints imposed by low returns to all management groups and the potential for adverse Fraser River conditions, pre-season plans were developed assuming that both Canada and the United States do not expect to have harvest opportunities for sockeye salmon at the median forecast but are likely to have harvest opportunities at the median forecast for pink salmon. At the median forecast, potential pink-directed fisheries will be managed to limit fishing induced mortality of Fraser sockeye. Conservation concerns for other species and stocks as identified by Canada and the United States will be taken into account throughout the management season.

If in-season conditions are consistent with pre-season expectations, low impact fisheries directed at pink salmon would be expected to commence in late August in Panel Waters. The actual start dates, and duration of fisheries will depend on in-season estimates of timing, abundance, diversion, and agreed management adjustments as well as concerns for other co-migrating species.

Test fishing and stock identification information

Marine test fishing in Area 20 and Area 12 commenced on July 10 and 11, respectively. Catches in Area 20 have been exceeding 2019 catches; however, catches in Area 12 have been very low. The majority of sockeye en route to the Fraser River are predominately migrating through the Juan de Fuca Strait route rather than through Johnstone Strait. DNA analysis of a fish sample recently collected from the Area 20 gill net test fishery indicated Fraser River sockeye contributions of 23% Early Stuart, and 77% Early Summer. Gillnet test fishing began in the Fraser River on June 26 in Area 29d (Whonnock) and July 12 in Area 29b (Brownsville Bar). Thus far, in-river catches have been low and dominated by Age-5 Early Stuart fish. Hydroacoustic estimates commenced July 1 at Mission.

In-season Assessment Information

The Early Stuart migration through marine areas appears to be winding down. The estimated escapement plus catch of Early Stuart sockeye through July 13 is 24,900. In-season assessments on the abundance of Early Stuart sockeye are indicating the return is above the p50 forecast (23,000) but below the p75 forecast level (46,000). There is also some indication that the run timing for Early Stuart may be earlier than forecast. Early Stuart may however experience major migration challenges with the Fraser River given the high temperatures and extremely low discharge (see next section). At this point, the management of Early Stuart remains in a low abundance exploitation rate (LAER), meaning that no fisheries will be directed at Early Stuart sockeye.

The estimated escapement plus catch of Early Summer-run sockeye through July 13 is 20,500. At this time, only the early-timed Early Summer-run component is represented in the catches (Chilliwack, Pitt, Nadina/Bowron). Early Summer-run sockeye run-size estimates should be available in late July or early August after their peak migration through marine areas.

Migration Conditions in the Fraser River

On July 13, the Fraser River water discharge at Hope was about 2,682 cms, which is below previously recorded minimum discharge levels and approximately 52% lower than average for this date. The temperature of the Fraser River at Hope on July 13 was 19.6°C, which is 3.1°C higher than average for this date. DFO's Environmental Watch program projects that river temperature will increase and exceed previously recorded maxima, while discharge is forecast to decrease to about 2,410 cms over the next 10 days. Current reports from Big Bar indicate good passage of salmon.

Regulatory Announcements & Resources

The Panel announced the following regulations for commercial salmon fisheries in Panel Area waters:

CANADIAN FRASER RIVER PANEL AREA WATERS:

Remain closed to commercial salmon fishing.

UNITED STATES FRASER RIVER PANEL AREA WATERS:

Remain closed to commercial salmon fishing.

The next in-season meeting of the Panel is scheduled to occur on July 18. Weekly reports in this series will be provided by the Panel through the Commission every Friday during the in-season management period to inform those interested in the progress of the Fraser River sockeye salmon run. Weekly reports and regulatory announcements can be obtained via [Fraser Panel In-Season Information - Pacific Salmon Commission \(psc.org\)](http://www.psc.org) or by subscribing to our eNews [Pacific Salmon Commission \(list-manage.com\)](http://list-manage.com). Regulations and resources for fishing schedules, test fishing catch and DFO's environmental watch program can be found in Table 1.

Table 1. Regulations & Resources

Fishing Schedule Contacts/Resources	Phone Number/ Website Links
United States fishing schedules (Treaty Indian)	1-800-562-6142
United States fishing schedules (Non-Indian)	1-800-662-9825
Canadian commercial fishing regulations (from the lower B.C. mainland)	604-666-2828
Canadian commercial fishing regulations (from outside the lower B.C. mainland)	1-866-431-3474
PSC Daily Test Fishing Catch (recorded message)	604-666-8200 Test Fishing Results - Pacific Salmon Commission (psc.org)
DFO's Environmental Watch program	Fraser River environmental watch Pacific Region Fisheries and Oceans Canada (dfo-mpo.gc.ca)

Note: For species other than sockeye salmon consult the appropriate regulatory agency regarding fisheries regulations in the Fraser River Panel Management Area.

Contacts

Canada: Adam Keizer, Chair, Fraser River Panel

United States: Jason Gobin, Vice-Chair, Fraser River Panel

2023 Run status of Fraser sockeye salmon

Date: Jul. 14, 2023

Week of: Jul. 9 - Jul. 15, 2023	Sockeye				Total Fraser
	Management Group				
	E.Stuart	E.Summer	Summer	Late	
Mission passage (includes Pitt, Alouette, Coquitlam) ¹	24,800	20,300	0	0	45,100
Catch downstream of Mission	100	200	0	0	300
Accounted run-to-date	24,900	20,500	0	0	45,400
Run size adopted in-season ¹	na	na	na	na	na
Run size forecasted pre-season	23,000	186,000	1,167,000	188,000	1,564,000
Area 20 timing adopted in-season	na	na	na	na	
Area 20 timing expected pre-season	7/Jul	6/Aug	17/Aug	24/Aug	

¹ 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: Jul. 14, 2023

Week of: Jul. 9 - Jul. 15, 2023		Sockeye	
		Total	Fraser
Canada		61	61
	Commercial	0	0
	B Purse Seine	0	0
	D Gillnet	0	0
	E Gillnet	0	0
	F Troll	0	0
	G Troll	0	0
	H Troll	0	0
	First Nations	0	0
	Food, Social & Ceremonial (FSC)	0	0
	Marine	0	0
	Fraser R.	0	0
	Economic Opportunity (EO) & Demonstration (Demo)	0	0
	Marine	0	0
	Fraser R.	0	0
	Recreational	0	0
	Marine	0	0
	Fraser R.	0	0
	Charter (Albion gillnet test fishery)	16	16
	Other**	45	45
United States		0	0
	Commercial	0	0
	Treaty Tribes (TRB)	0	0
	All Citizen (AC)	0	0
	Treaty Tribes Ceremonial & Subsistence (C&S)	0	0
	Other**	0	0
	All Citizen Recreational	0	0
	Alaska *	na	na
Panel-approved Test Fisheries		412	339
	Panel Waters	353	284
	Non-Panel Waters	59	55
Total		473	400

* Alaska catch is processed post-season and so is unavailable in-season.

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