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**No. 1**

**WEEKLY REPORT**

**July 12, 2019**

On or before June 23, 2019, a significant landslide was discovered in a narrow section of the Fraser River near Big Bar, north of Lillooet, B.C. Fisheries and Oceans Canada (DFO) and the Government of B.C. set up a Unified Command Incident Management Team in response to the landslide. Thus far, both sluicing using helicopter buckets and scalers have been used to remove debris and loose rocks from the site. Hydroacoustic fish monitoring stations have been established both upstream and downstream of the site to evaluate the impact of the slide on the upstream migration of salmon. High water levels and substantial buildup of debris from the Chilcotin River have however created challenges in the collection of hydroacoustic data. Radio tagging to track the fish travelling through the slide area is scheduled to commence as soon as possible. In addition, potential options are being explored to physically move fish upstream from the obstruction. Regular updates on the Big Bar rock slide can be found here: <https://www2.gov.bc.ca/gov/content/safety/emergency-preparedness-response-recovery/emergency-response-and-recovery/incident-summaries/big-bar-landslide-incident>.

In addition to creating a blockage, the rock slide has also created a five-meter waterfall that some of the Fraser River salmon stocks will need to migrate past in order to reach their spawning grounds. For Fraser River sockeye, the affected stocks include Early Stuart, Nadina, Bowron, Taseko, Chilko, Quesnel, Late Stuart and Stellako sockeye. These stocks represent 77% of the expected Fraser River sockeye run this year. The rock slide is expected to impact 100% of the Early Stuart run, 32% of the Early Summer run and 89% of the Summer run. None of the Late run stocks are impacted by the rock slide. For Fraser River pink salmon, the majority of the spawning grounds are located downstream of the landslide and less than 5% of the Fraser River pink salmon would be impacted by the rock slide.

Sockeye stocks with spawning grounds above the rock slide are expected to need about 10 days to migrate from the Lower Fraser River to the rock slide location. Based on pre-season forecasts for Early Stuart, the earliest of these stocks, we would expect peak migration past the landslide around July 21. Based on pre-season expectations we would expect close to 4,000 Early Stuart to have reached the slide location but the current amounts of sediments and debris within the Fraser River seemed to have slowed down the upstream migration substantially. At this point, there is no information regarding the expected success of Early Stuart sockeye migration past the landslide.

### **Pre-season Expectations**

Fisheries and Oceans Canada (DFO) provided forecasts of Fraser River sockeye salmon abundance to the Panel, as well as a schedule for calculating sockeye spawning escapement targets at different run sizes. The total Fraser sockeye median forecast (50% probability level) is 4,795,000 million fish for 2019, which is similar to the cycle average. DFO has advised that Fraser River sockeye salmon forecasts for 2019 remain highly uncertain

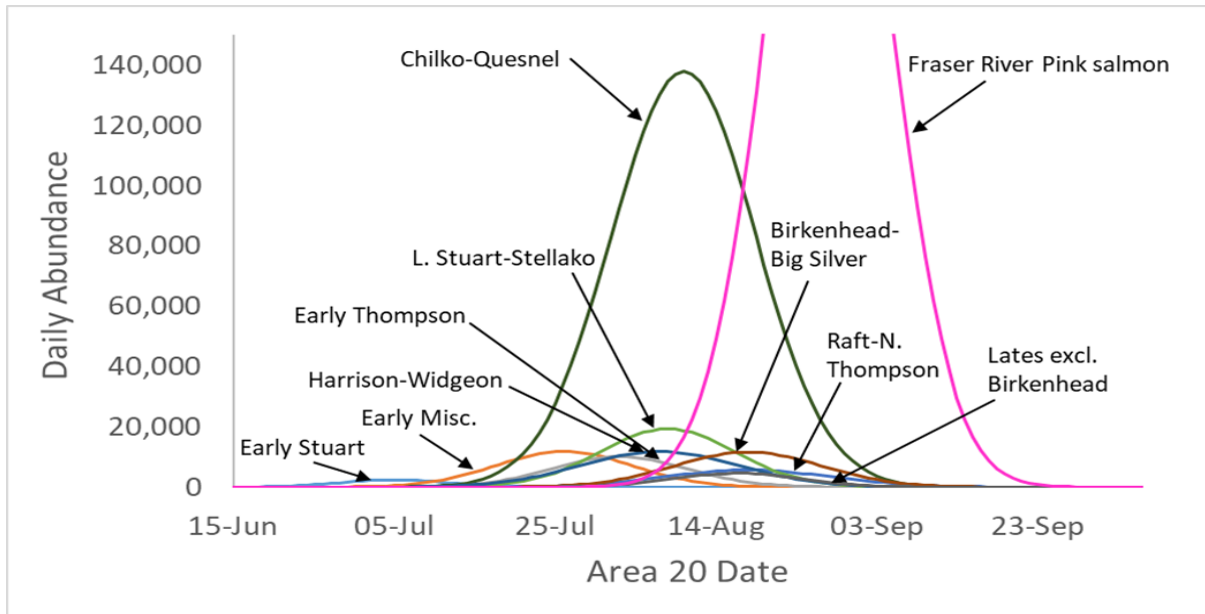
due to variability in annual survival rates and uncertainty about changes in their productivity as well as the anomalously warm marine rearing conditions experienced by a large proportion of the return. To put the recent forecast uncertainty into context, there is a one in four chance that the actual number of returning sockeye will be less than 2,891,000 fish (25% probability level forecast) and there is a one in four chance that the actual number of returning sockeye will be greater than 8,676,000 fish (75% probability forecast). 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 41,000 fish (ranges from 27,000 to 61,000 fish at the 25% and 75% probability levels). The forecast for Early Summer-run sockeye at the 50% probability level is 465,000 fish (ranges from 221,000 to 898,000 fish at the 25% and 75% probability levels), with Nadina and Early Shuswap sockeye comprising nearly 61% of the total Early Summer return. The Summer-run sockeye return forecast at the 50% probability level is 3,930,000 fish (ranges from 2,454,000 to 7,048,000 fish at the 25% and 75% probability levels), with Chilko sockeye expected to contribute nearly 70% to the total Summer-run sockeye return. The Late-run sockeye return forecast at the 50% probability level is 359,000 fish (ranges from 189,000 to 669,000 fish at the 25% and 75% probability levels), with Birkenhead sockeye expected to comprise 64% of the total Late-run return.

The pre-season forecast for Fraser River pink salmon is also highly uncertain, primarily due to shifts in enumeration methodology over time. For pre-season planning of Fraser River pink salmon, the Panel used the 50% probability level forecast of 5,018,600 fish. 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 3,577,000 fish and there is a three in four chance that the actual number of returning pink salmon will be at or below the 75% probability level forecast of 7,513,000 fish.

Marine timing expectations were based on historic as well as environmental time series and statistical models. The 50% timing of Early Stuart sockeye through Area 20 is July 05, which is two days later than the median timing (1951-2017) of July 03. The 50% timing of Chilko sockeye through Area 20 is August 10 which is one day later the median timing (1993-2018) of August 09. The forecast proportion of Fraser River sockeye salmon diverting their migration through Johnstone Strait is 69% compared to a recent year (1990-2017) median northern diversion rate of 63%. Forecasts of the migration timing and diversion rate of Fraser River pink salmon will not be available until early August. For pre-season planning, the all-year historical median timing for pink salmon of August 28, and a Johnstone Strait diversion rate of 50% were used.

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 Pink salmon may change as forecasts are updated and marine timings for both sockeye and pink salmon may deviate from the expectation as in-season data are collected and analyzed.



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

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 low in the upper watershed. Fraser River discharge levels are forecast to be less than historic mean levels during the sockeye migration period. Air temperatures are forecast to be higher than average this summer which is expected to result in increased water temperatures. Fraser River water temperatures have been higher than historic means throughout June. Though river temperatures are forecast to decline in the short-term, they are expected to fluctuate considerably depending on local weather patterns and may result in difficult migration conditions for sockeye migrating to their spawning streams. The Panel has adopted pre-season management adjustments in anticipation of the potential for en-route losses as a precautionary measure. Management adjustments are additional fish that are removed from identified allowable harvest levels and instead allowed to migrate upstream to help achieve spawning escapement targets for Fraser River sockeye management groups.

**Management Constraints and Expectations**

The forecasts for Fraser River sockeye management groups expected in 2019 has been a dominant factor in the development of pre-season fishing plans. The median forecasts for Early Stuart 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 limits harvest opportunities on co-migrating Early Summer and Summer-run sockeye salmon stocks or other species. Since 1996, the Late-run group has demonstrated abnormally early upstream migration, relative to the historic timing. This abnormal migration behavior continues to increase en-route losses and substantially reduce harvest opportunities on these stocks and on co-migrating Summer-run sockeye and pink salmon. Panel management objectives will place a high priority on achieving Fraser sockeye escapement goals, including those for Early Stuart and Late-run sockeye. As a result, the implementation of the LAER will limit fisheries directed on the more abundant Early Summer and Summer-run groups as well as pink salmon which are anticipated to have harvestable surplus. Given the constraints imposed by low returns to these two management groups and the potential for adverse Fraser River conditions, pre-season plans were developed which indicate that both Canada and the United States may be challenged to fully harvest their shares of total allowable catches (TAC) of both Fraser River sockeye and pink salmon.

Following the landslide, additional consideration will be given to the challenges faced by the stocks that have to pass the Big Bar rock slide location to reach their spawning grounds. Conservation concerns for other species and stocks 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 would be expected to commence in late July 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.

### **Run Status**

Gillnet test fishing began in the Fraser River on June 24 in Area 29d (Whonnock), July 01 at Qualark Creek, and July 12 in Area 29b (Cottonwood). Marine gillnet test fisheries began on July 10 in Area 20 (Juan de Fuca Strait) and July 11 in Area 12 (Johnstone Strait; Round Island). Thus far, catches have been very low and dominated by Early Stuart. Hydroacoustics estimates commenced July 01 at Qualark and July 04 at Mission. In-season assessments of the abundance of Early Stuart sockeye are indicating the return may be near or slightly below the p50 forecast. In-season assessments of Early Summer-run sockeye should be available in late July or early August after their peak migration through marine areas has occurred. At this point, there is no information regarding the expected success of Early Stuart sockeye migration past the landslide.

### **Environmental Update**

On July 11, the Fraser River water discharge at Hope was about 4,371 cms, which is approximately 22% lower than average for this date. The temperature of the Fraser River at Qualark on July 11 was 17.6°C, which is 1.7°C higher than average for this date. DFO's Environmental Watch program projects that river temperature will increase, while discharge is forecast to decrease to about 3,961 cms over the next 10 days.

### **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 16. 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 <http://www.psc.org/publications/fraser-panel-in-season-information> or by subscribing to our eNews <http://tinyurl.com/PSCeNews>. 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 <a href="http://www.psc.org/info_testfishing.htm">http://www.psc.org/info_testfishing.htm</a> .
DFO's Environmental Watch program	<a href="http://www.pac.dfo-mpo.gc.ca/science/habitat/frw-rfo/index-eng.html">http://www.pac.dfo-mpo.gc.ca/science/habitat/frw-rfo/index-eng.html</a>

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

**Contacts**

Canada: Jennifer Nener, Chair, Fraser River Panel

United States: Lorraine Loomis, Vice-chair, Fraser River Panel

2019 Run status of Fraser sockeye and pink salmon

Date: Jul. 12, 2019

Week of: Jul. 7 - Jul. 13, 2019	Sockeye				Pink	
	Management Group			Total Fraser	Total Fraser	
	E.Stuart	E.Summer	Summer			Late
Mission passage (includes Pitt, Alouette, Coquitlam) <sup>1</sup> Catch downstream of Mission	20,000 0	3,400 0	0 0	0 0	23,400 0	0 0
Accounted run-to-date	20,000	3,400	0	0	23,400	0
Run size adopted in-season <sup>2</sup>	na	na	na	na	na	0
Run size forecasted pre-season	41,000	465,000	3,930,000	359,000	4,795,000	5,018,600
Area 20 timing adopted in-season	na	na	na	na		na
Area 20 timing expected pre-season	5-Jul	30-Jul	10-Aug	18-Aug		28-Aug

<sup>1</sup> Mission passage includes 2800 Early Stuart run assumed to have migrated past Mission prior to the start of the Whonnock test fishery.

<sup>2</sup> 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.