



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

No. 1

WEEKLY REPORT

July 9, 2021

The Fraser River Panel (Panel) of the Pacific Salmon Commission has developed management plans for 2021 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. Fraser River sockeye salmon forecasts for 2021 remain uncertain due to the substantial variability in annual survival rates and uncertainty about changes in productivity. The total Fraser sockeye median forecast (50% probability level) is 1,330,000 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 624,000 fish (25% probability level forecast) and there is a one in four chance that the actual number of returning sockeye will be greater than 2,775,000 fish (75% probability forecast). DFO has advised that returns will likely be lower than the median forecast due to the low productivity levels observed in recent years. Despite incorporating environmental covariates into the forecast models and relying on sibling models to predict the abundance of 5-year-old sockeye, the current forecast implies a higher survival rate than observed in the previous 4 years. While freshwater conditions appeared marginally better, marine conditions have remained very warm and unfavorable for the quality of Fraser sockeye prey. 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.

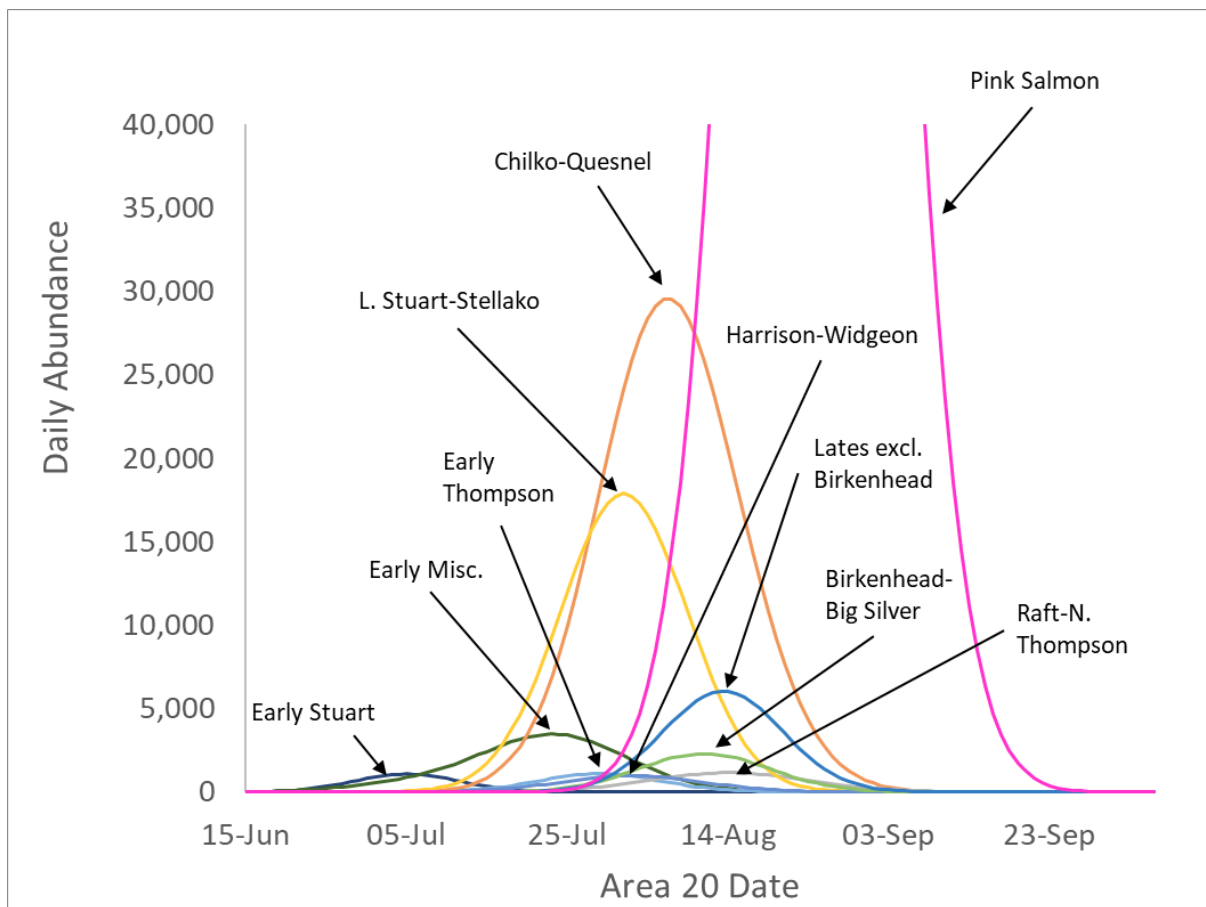
The Early Stuart sockeye return forecast at the 50% probability level is 18,000 fish (ranges from 12,000 to 30,000 fish at the 25% and 75% probability levels, respectively). The forecast for Early Summer-run sockeye at the 50% probability level is 108,000 fish (ranges from 59,000 to 207,000 fish at the 25% and 75% probability levels, respectively), with Nadina and Pitt sockeye comprising nearly 64% of the total Early Summer return. The Summer-run sockeye return forecast at the 50% probability level is 1,046,000 fish (ranges from 474,000 to 2,225,000 fish at the 25% and 75% probability levels, respectively), with Chilko, Late Stuart and Quesnel sockeye expected to contribute nearly 89% to the total Summer-run sockeye return. The Late-run sockeye return forecast at the 50% probability level is 159,000 fish (ranges from 79,000 to 313,000 fish at the 25% and 75% probability levels, respectively), with Weaver sockeye expected to comprise 47% 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. The uncertainty associated with the 2021 forecast is also negatively impacted by the cancellation of the pink salmon fry enumeration program in 2020 due to COVID-19, rendering this time series unavailable for the 2021 forecast. The new forecast models developed in response to the missing juvenile data incorporated environmental covariates. For pre-season planning of Fraser River pink salmon, the Panel used the 50% probability level forecast of 3,009,000 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 2,229,000 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 4,051,000 fish.

Marine timing expectations were based on historic time series for years since 1982 as well as environmental time series and statistical models. The 50% timing of Early Stuart sockeye through Area 20 is forecasted to be July 05 which is similar to the median timing of July 4 (1982-2020). The 50% timing forecast for Chilko sockeye through Area 20 is August 6 which is four days earlier than the median timing (1982-2019). The forecast proportion of Fraser River sockeye salmon diverting their migration through Johnstone Strait is 35%. 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 recent historical median timing for pink salmon of August 25, 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 high in the upper watershed. The record-breaking heatwave across BC at the end of June,

beginning of July will have greatly reduced this. Fraser River discharge levels are forecast to be near average compared to the historic mean levels during the sockeye migration period. Air temperatures are forecast to be variable this summer. Fraser River water temperatures have been lower 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. Also, extensive smoke from wildfires can influence air to water heat transfer processes.

During the 2021 winter/spring season, substantial mitigation work was undertaken to continue to alleviate the impact of the Big Bar rockslide that reduced successful upstream migration of sockeye stocks with spawning grounds north of Lillooet, B.C., in 2019 and to a lesser extent in 2020. The affected sockeye stocks included Early Stuart, Nadina, Bowron, Taseko, Chilko, Quesnel, Late Stuart and Stellako sockeye. In 2021, these stocks are expected to represent 78% of the run. None of the Late run stocks are impacted.

Despite the mitigation efforts that have been undertaken thus far, there still remains a risk that Fraser River sockeye and pink salmon will have trouble passing the area naturally when discharge levels are high. It is anticipated that early migrating stocks like Early Stuart and some Early Summer run stocks (e.g., Bowron) will be impacted more due to higher water discharge earlier in the season compared to later timed Early Summer and Summer run stocks that are expected to pass the slide area when discharge levels will have decreased. At this point, discharge at Big Bar is still above average but has decreased from historical maxima (1951-2015). Sockeye stocks with spawning grounds above the rockslide need about 10 days to migrate from the Lower Fraser River to the rockslide location. Based on pre-season timing forecasts for Early Stuart, the earliest of these stocks, we would expect peak migration past the rockslide around July 21. At this time, Fraser Chinook salmon have been observed to migrate past the slide area using the nature-like fishway, but no sockeye have been observed at the slide site yet.

### **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 2021. The median forecasts for all 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 limits direct harvest opportunities on Fraser River sockeye stocks. Panel management objectives will place a high priority on 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 which indicate that both Canada and the United States are unlikely to have harvest opportunities at the median forecast for sockeye salmon but have harvest opportunities at the median forecast for pink salmon. Fisheries that may occur will be managed to limit fishing induced mortality of Fraser sockeye. Additional consideration will be given to the challenges faced by stocks that must pass the Big Bar rockslide location to reach their spawning grounds. 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.

### **Run Status**

Gillnet test fishing began in the Fraser River on June 28 in Area 29d (Whonnock). Thus far, catches have been very

low and dominated by Early Stuart fish based on preliminary scale pattern analysis. Hydroacoustic estimates commenced July 4 at Mission. In-season assessments on the abundance of Early Stuart sockeye should be available next week. 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 Big Bar landslide.

### **Environmental Update**

On July 7, the Fraser River water discharge at Hope was about 7,256 cms, which is approximately 24% greater than average for this date. The temperature of the Fraser River at Hope on July 7 was 17.3 °C, which is 1.8°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 5,590 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 13. 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<br><a href="https://www.psc.org/publications/fraser-panel-in-season-information/test-fishing-results/">https://www.psc.org/publications/fraser-panel-in-season-information/test-fishing-results/</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>                                                                                                                                                                                                         |
| Province of B.C.: Big Bar Landslide Incident                                   | <a href="https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/fish/fish-passage/big-bar-landslide-incident?keyword=big&amp;keyword=bar&amp;keyword=landslide">https://www2.gov.bc.ca/gov/content/environment/plants-animals-ecosystems/fish/fish-passage/big-bar-landslide-incident?keyword=big&amp;keyword=bar&amp;keyword=landslide</a> |
| DFO: Salmon counts at the Big Bar landslide site                               | <a href="https://www.pac.dfo-mpo.gc.ca/pacific-smon-pacifique/big-bar-landslide-eboulement/smon-count-denombrement-eng.html">https://www.pac.dfo-mpo.gc.ca/pacific-smon-pacifique/big-bar-landslide-eboulement/smon-count-denombrement-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