WATERSHED TALK
NEWSLETTER
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2018 FRASER SALMON UPDATE

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Current in-season information is looking good for Fraser sockeye, the in-season information to date shows trends at or above p50 for Early Summers, while Early Stuarts have exceeded the p50 forecast. The test fishery program has ramped up their effort as most test fisheries have started, including the seines. It was noted that the seine test fishery do not seem to be showing similar abundances as the gillnet test fisheries. This is not unexpected, as there are a number of differences in catchability in the seines compared to gillnets at the current abundance of sockeye, and operational challenges for the seiners to put out full effort (mechanical issues, etc.). We will be watching the differences in catch closely over the next week to see if it is a real difference in CPUE or simply an implementation issue.

Early signs of strong returns have been discussed at the Fraser Panel, with the Area 12 test fishery showing CPUE estimates similar to 2010. Hopefully these trends hold as they are a good sign for Fraser sockeye returns at or above p50. In addition, some modelling work was presented to the Panel regarding the potential run sizes of Early Summer (excluding Early Thompson) given the observed information to date. The results indicate a high likelihood of exceeding the p50 forecast for the Early Summer (excluding Early Thompson), which is another good indicator for Fraser sockeye returns this year.

Even though the initial in-season information is looking good for Early Stuart and Early Summer, there is still a long way to go for Summer and Late run sockeye. We are still too early to identify the peak migration for Early Thompson (p50: 956,000), Chilko/Quesnel (p50: 3,407,000) and Late Shuswap (p50: 6,923,000). This is where the majority of the Fraser sockeye run is forecasted and a large amount of uncertainty remains regarding these in-season returns.

The hydroacoustic site at Mission has been steadily increasing its daily passage estimate, and in conjunction the Qualark site is showing greater fish passage. We are a long way off from seeing peak migration past Mission, but daily migration has reached nearly 50,000 fish at Mission and nearly 20,000 fish at Qualark.

This summary table will be updated throughout the season as information and decisions become available.

Sockeye Management Group	**Pre-Season Planning Forecast (P50)**	**In-Season Adopted Run Size**	**Area 20 Timing (for 50% of run)**
Early Stuart	~~84,000~~	**135,000**	**July 5**
Early Summer	2,155,000	**N/A (too early for run size update)**	**Preseason (August 8)**

Summer	4,344,000	**N/A (too early for run size update)**	**Preseason (Aug 11)**
Lates	7,398,000	**N/A (too early for run size update)**	**Preseason (Aug 17)**
TOTAL	13,981,000	**N/A (too early for run size update)**	**Preseason (Aug 14)**

Regarding fisheries decisions, the Area 4b, 5, 6c in Washington started up this week with minimal catch. The only Canadian fisheries other than test fisheries that have started up are FSC fisheries in the marine area and parts of the Fraser. In some parts of the Fraser the Early Stuart window closure is still in effect.

Early Stuarts

The P50 pre-season forecast for Early Stuarts is 84,000. To date, the Mission hydroacoustic passage has accounted 121,700 sockeye. The hydroacoustic data shows the Early Stuart run tracking closer to the p75 forecast line. Today the Panel adopted an in-season run size of 135,000 with a median run timing of July 5th. An increase from 120,000 last week. This run size does not bring the Early Stuarts out of LAER management, however there are more fish available within the LAER than the preseason planning allowed.

Additionally, some work done by researchers on Early Stuarts indicates greater than average fat content, and body size. This could be indicative of greater ocean productivity, but results are preliminary. More information will be available as the work continues.

Early Summers

Early Summers are forecasted at 2,155,000 (P50). To date the Mission hydroacoustic passage has accounted for 181,000 sockeye. It is still too early for an in-season run size estimate for this management group, but the trend is looking good.

Based on the test fishery information and some modelling work, the Early Summer run is looking at or above the p50 forecast. However it is still too early for a recommendation by the Fraser River Panel on an official in-season run size recommendation.

Daily migration information shows gillnet test fishery expansion to be tracking above the p50 forecast. Nadina complex seems to be doing well, and providing the majority of the escapement in the Early Summer (excluding Early Thompson). There was an expectation for more Pitt sockeye than currently observed. It is noted that Pitt sockeye have an earlier than average migration timing compared to other Early Summer stocks.

Summer Run

Summers are forecasted at 4,344,000 (P50). To date the Mission hydroacoustic passage has accounted for 85,400 sockeye. It is still too early for an in-season run size estimate for this management group. Summers have shown up in the test fisheries, but we are still early in the Summer run migration. The preseason forecast is for the majority of the return to be in Summer and Late run aggregates, so even a high stock proportion now doesn't indicate much about the in-season abundance in a few weeks.

Late Sockeye

Lates are forecasted at 7,398,000 (P50). To date the Mission hydroacoustic passage has accounted for 8,800 sockeye. It is still too early for an in-season run size estimate for this management group. Lates have shown up in marine test fisheries and a few in the river, we are very early in Late run migration.

Cultus Sockeye

Earlier this week, DFO held 2 webinars to consult with First Nations and the Public. One webinar specifically for Tier 2 on Monday, and the second on Wednesday with the Public. Information was presented by DFO regarding the potential management issues to deal with Cultus sockeye ER and potential management concerns with Late run sockeye fisheries. The issue at hand is the forecast of Cultus at ~1,000, compared to the potential constraints it could put on Late run sockeye fisheries. DFO's major concern seems to be some new internal DFO information that shows Cultus lake in the early stages of eutrophication. Eutrophic lakes are extremely poor quality habitat for fish, as almost all of the nutrients are taken up by algae growth with insufficient zooplankton production for fish rearing. In addition to a suite of other issues caused by eutrophication. This information was not released by DFO, and we are expected to receive it later this year. DFO has informed First Nations and the Public that there could be significant 'lost' fishing opportunity if the IFMP goals for Cultus sockeye are strictly followed. It is important to note that above the Vedder river confluence there would be no management constraints to Late run sockeye harvest regarding Cultus sockeye conservation concerns.

There is a slide deck available that outlines some more information on the consultation. DFO also presented 2 management options, as well as a placeholder for a third management option if one was presented to them. The two options are **1)** continue with the IFMP language of 20% ER at <p75 Late run or 30% ER at >p75 Late run for Cultus or **2)** 20% at p25 Late run or 43% at p50+ Late run. DFO is looking for comments from First Nations on this management issue.

Sockeye Closures

In an unexpected change in management, DFO has announced a decision to extend the window closure by 4 days to protect migration of Early Summer stocks of conservation concern. This change is not described in the IFMP, and is being put forward in all areas where the window closure would have been lifted to date. The extension is described in Fishery Notice **FN0605,** released on Tuesday (July 17th, 2018) this week. Today would have been the last day for the window closure in the marine area to Mission Bridge in the Lower Fraser, but the extension has been applied from the marine approach, through to the Fraser River fishing areas.

The Early Stuart window closure has been extended by 4 days throughout the marine approach and Fraser watershed. The closure is still in place for the Mid and Upper Fraser River. The dates (plus 4 days to account for the new extended window closure) for each region are in the table below, from the 2018-2019 Southern Salmon IFMP (p. 392):

Area	Start (date, time)		End (date, time)		Management Action
Areas 111, 121, 123 to 127	Open 15-Jul, 7 days/week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 15 (Sn, Gn, Tr)
Area 11	Open 15-Jul, 7 days/week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 15 (Gn, Tr); July 25 (Sn)[1,2]
Area 12	Open 15-Jul, 7 days/week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 15 (Gn, Tr); July 25 (Sn)[1,2]
Area 13	Open 15-Jul, 7 days/week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 15 (Gn, Tr); July 25 (Sn)[1]
Areas 14 to 16	Open 15-Jul, 7 days/week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 15 (Gn, Tr); Aug 15 (Sn)[1]
Areas 17, 19, 20 and 21	Open 15-Jul, 7 days/week				Earliest potential opening to FN FSC fishing for Fraser sockeye = July 15 (Sn, Gn, Tr)
Areas 18 and 29	27-Jun	Noon	20-Jul	Noon	Earliest potential opening to FNs FSC fishing for Fraser sockeye = July 20, noon
Steveston-Mission Bridge	27-Jun	Noon	20-Jul	Noon	
Mission Bridge-Sawmill Cr	29-Jun	6:00 AM	22-Jul	6:00 AM	Earliest potential opening to FNs FSC fishing for Fraser sockeye = July 22, 6am
Sawmill Cr-Texas Cr	04-Jul	6:00 PM	25-Jul	6:00 PM	FN's FSC: Open to selective fishing for chinook (dip net, angling and potential for 8" mesh gill net) and open in tribs for sockeye and chinook.
Texas Cr-Kelly Cr	04-Jul	6:00 PM	25-Jul	6:00 PM	
Kelly Cr-Deadman	04-Jul	6:00 PM	25-Jul	6:00 PM	
Deadman-Chilcotin	09-Jul	6:00 PM	30-Jul	6:00 PM	FN's FSC: Open to selective fishing for chinook (dip net, angling) and open in tribs for sockeye and chinook.
Chilcotin-Quesnel	09-Jul	6:00 PM	30-Jul	6:00 PM	
Quesnel-Hixon	09-Jul	6:00 PM	30-Jul	6:00 PM	
Hixon-Prince George	12-Jul	6:00 PM	02-Aug	6:00 PM	FN's FSC: Open to selective fishing for chinook (dip net and 8" mesh gill net) and open in tribs for sockeye and chinook.
Prince George-Stuart R	12-Jul	6:00 PM	02-Aug	6:00 PM	FN's FSC: some allowable harvest in terminal areas.

[1] Gear restrictions remain in place to protect Sakinaw sockeye until July 25 (Queen Charlotte and Johnstone Straits) and August 15 (northern Strait of Georgia).

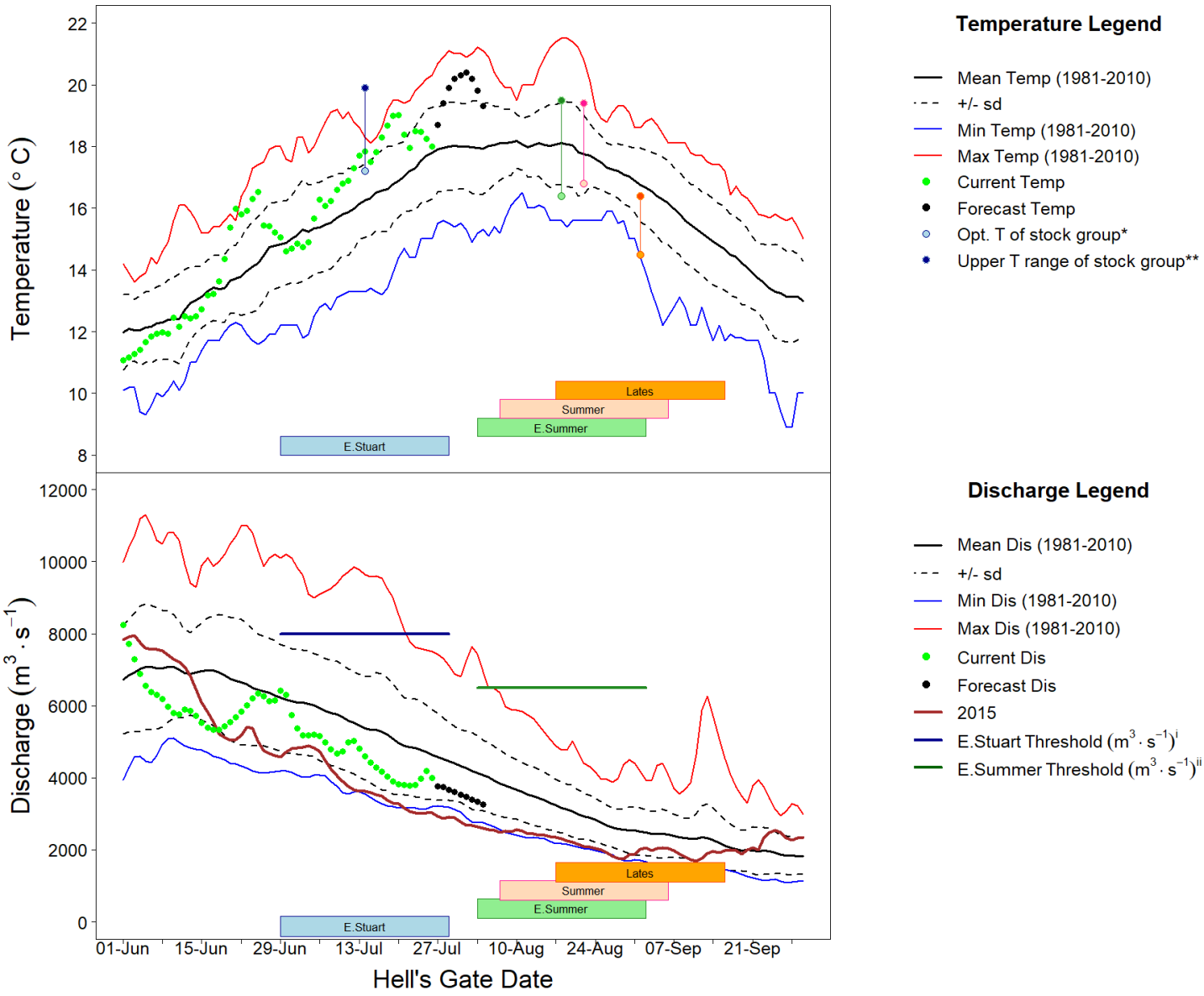
[2] Additional sockeye closures will remain in place in portions of Areas 11 and 12 until late July in waters north of Lewis Point to protect Nimpkish sockeye.

Fraser River Conditions

The main source of information for Temperature and Discharge data and forecasts is DFO's Environmental Watch Program (see link below).

The BC River Forecast Centre website (see links below) has information and links related to discharge and temperatures at various monitoring stations throughout the Fraser watershed, including snow pillow and melt updates.

Environment Canada's Water Office webpage provides access to real time hydrometric data at many locations throughout the Fraser watershed (see links below).



Fraser Discharge and temperatures at Hope and Qualark Creek (near Hope) respectively look like this (graphs from the Fraser River Panel Distribution July 26th, 2018):

The forecast is expected to increase temperatures throughout the Fraser watershed, which can quickly increase the river temperature. This could lead to poor migration conditions for further migrating Fraser sockeye stocks, affecting the pMA.

The Fraser River water temperature at Hope is currently 18.0 degrees Celsius (0.2 degrees Celsius above average for this time of year), and is forecast to decrease to 20.4 degrees Celsius by August 1st. The Fraser River discharge is within the usual annual

differences at 3,998 m^3/sec at the Qualark water station on July 26th (14% below average for this time of year). The discharge is predicted to continue tracking below average but within the usual annual variation, with a forecast discharge of 3,470 m^3/sec by July August 1st.

Fraser River Fisheries Information

Fraser First Nations Fisheries information can be found on the DFO website at:
http://www.pac.dfo-mpo.gc.ca/fm-gp/fraser/index-eng.html

DFO staff have distributed 13 Fraser Salmon Bulletins, and we strongly encourage people to review and comment on the DFO bulletin if time and resources permit. Contact your local DFO Resource Manager for a copy, and addition to the distribution list.

Fraser Sockeye Salmon

The Pacific Salmon Commission (PSC) distributes the Fraser River Panel meeting agenda and technical information for Panel members and observers to the process. The following information is a summary of key information from that document (July 20th, 2018) and the Fraser River Panel meeting from the same day.

Diversion Rate

Diversion rate through Johnstone Strait is unusually low at 17% average over the past 5 days. The majority of sockeye are coming through Juan de Fuca, hopefully the seine test fishery catches will begin to pick up and show similar information to the gillnet test fishery program regarding the diversion rate. This will be an important check to verify the current information.

Stock Identification
Early Stuarts have almost finished migration through the test fisheries, and few are being identified in the DNA samples. Early Summers and Summers are the dominant stocks in the migration throughout the marine test fishery catches, however Late Shuswap sockeye have started to showing up in the Area 12 and Area 20 DNA sample.

In river, Early Summer and Summer are nearly a 50/50 split with a few Late run and Early Stuarts. Late run identification is not great for these fish as they are a couple months away from spawning, usually the Late run sockeye hold off the mouth of the Fraser. At the moment it is not a serious concern, but we will track the DNA information closely regarding Late run proportions. As far as age data, the majority are Age 4 fish, which is a good sign. Chilko have started to dominate the Summer run DNA information and Early Thompson have started to dominate the Early Summer run in the marine DNA samples.

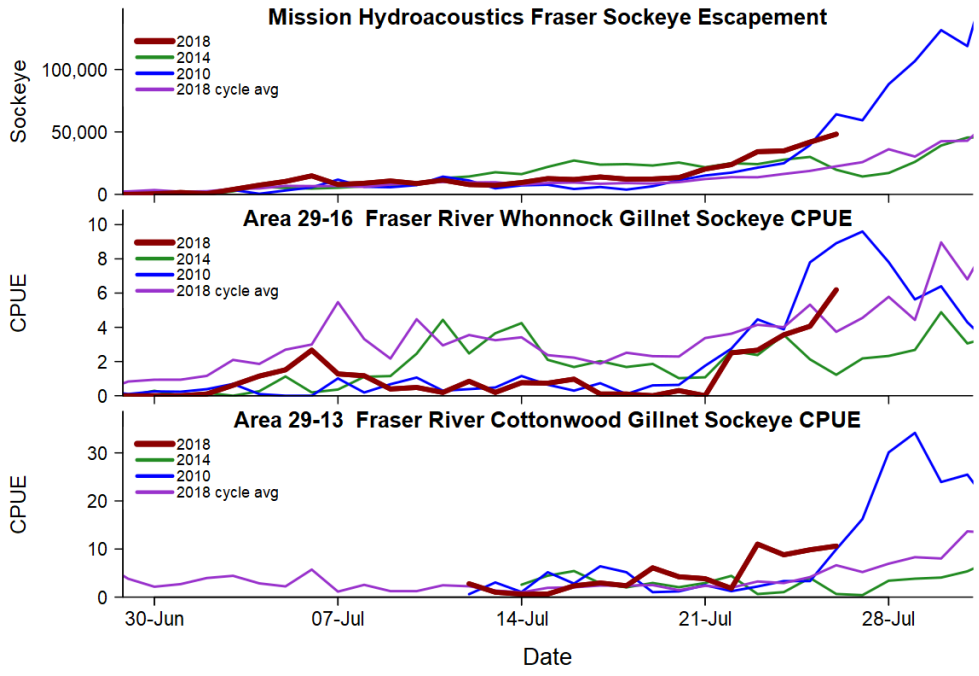
The dominant stocks for Early Summer are still Nadina and Early Thompson, with proportions of Early Thompson growing as expected in the forecast due to their later migration timing than the average Early Summer stocks. The dominant stocks for Summer run sockeye are Chilko and Quesnel, as expected preseason. Some Late Stuart sockeye have also been identified throughout the DNA samples.

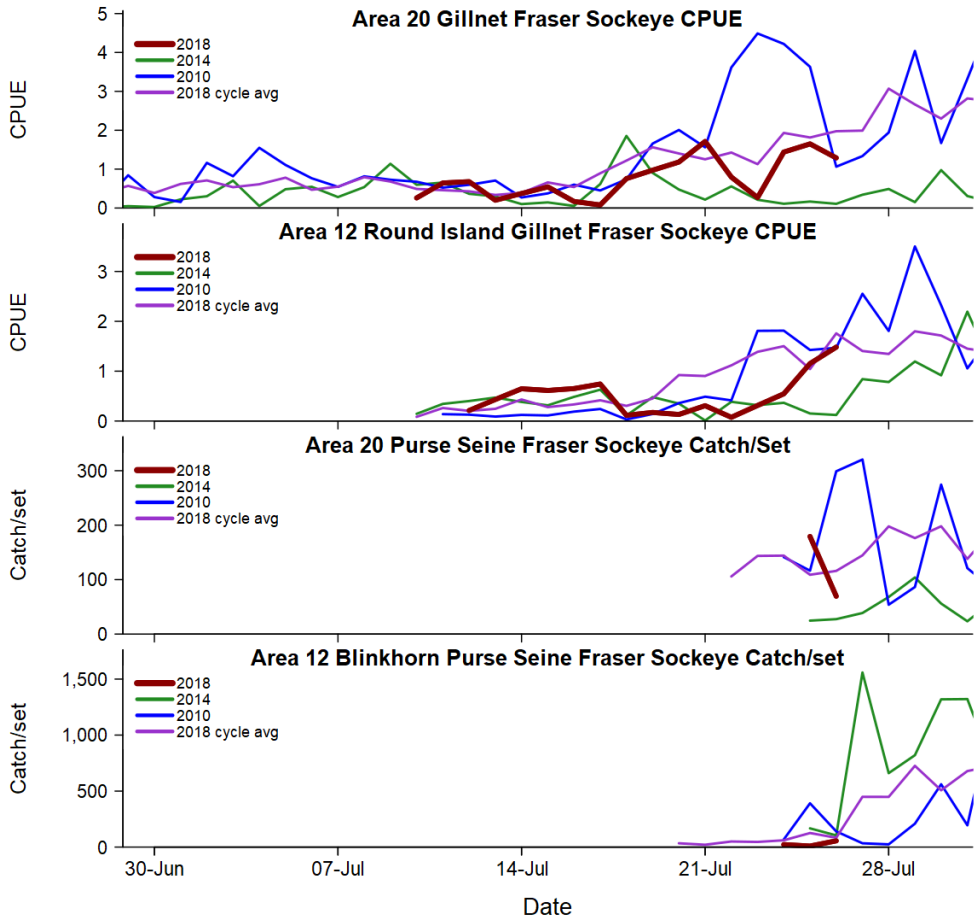
Test Fisheries
For in-river test fisheries, both Cottonwood and Whonnock are catching fish, and enough to have some certainty regarding the DNA information and stock proportions. The earlier challenge of not catching equivalent amounts of fish in both in-river gillnet test fisheries seems to have sorted itself out.

Test fisheries are operational throughout the approach and in-river. Hydroacoustics programs are in operation at Mission and Qualark (Yale). A total of 409,000 Fraser sockeye have been accounted-to-date, comprised of 122,500 Early Stuart sockeye, 186,900 Early Summer run sockeye, 89,800 Summer run sockeye, and 8,900 Late run sockeye. Fishery catch from test fisheries and FSC fisheries to date has been 12,100 sockeye (800 Early Stuart, 5,900 Early Summer, 4,400 Summer, 1,000 Late).

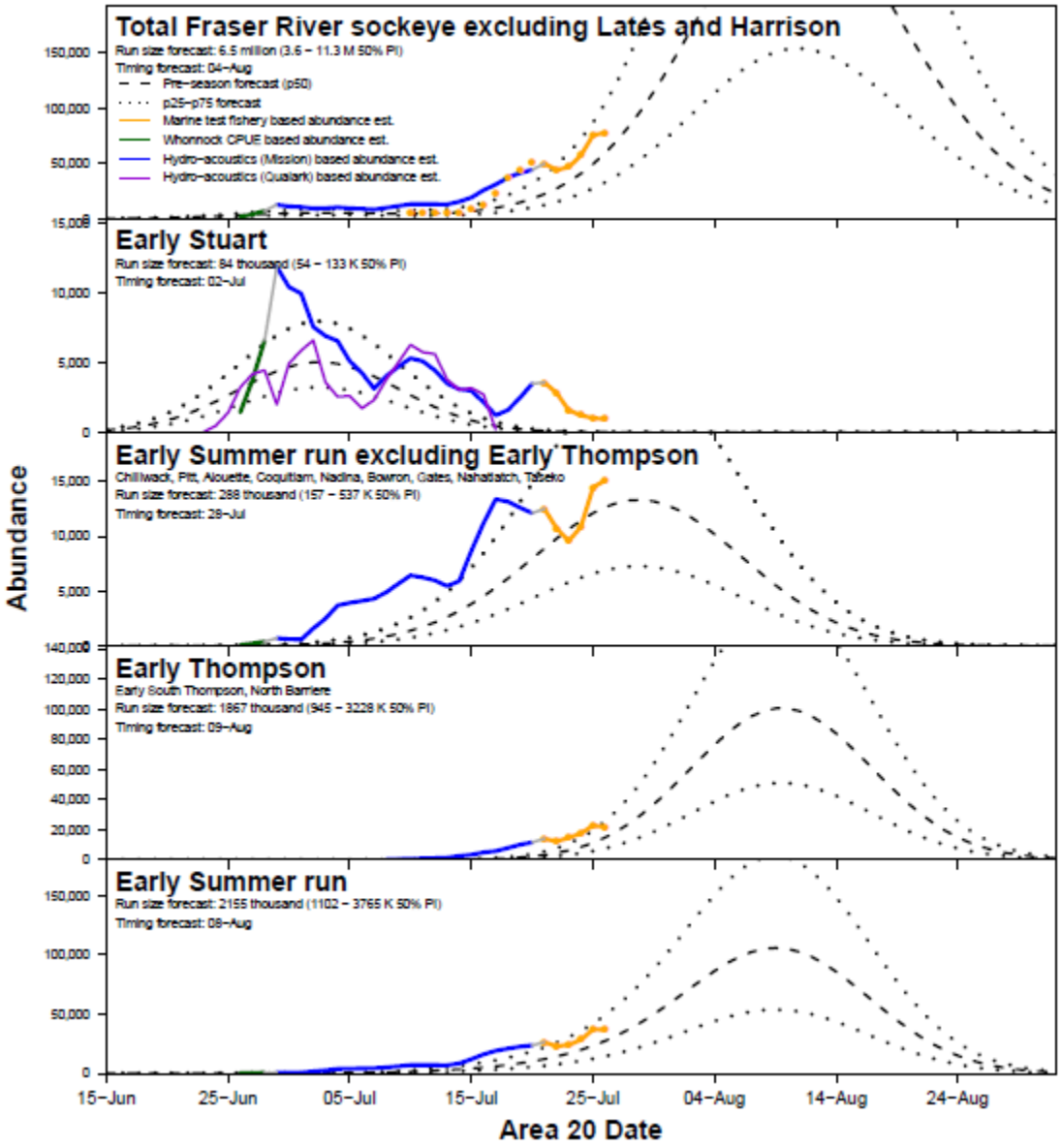
At some point this summer the FRP will be allowing the retention of “Payfish” on the test fisheries. This program is to offset some of the cost of running the test fishery, by allowing the test fishers to continue fishing for sockeye above and beyond the necessity for scientific analysis.

Test fishing graphs and Mission hydro-acoustics information from the PSC distribution package:





Estimated Abundance and In-Season Timing Compared to Forecast



The next Fraser River Panel meeting is scheduled for 10:30AM Tuesday July 31st.

Fraser River Panel Schedule:
July 6, 10, 13, 17, 20, 24, 27 (Tuesdays and Fridays) 11am
July 31 (Tuesday), August 7, 14, 21 (all Tuesdays) 10:30am
August 3, 10, 17, 24, 31 (all Fridays) 11 am
September 4, 7, 11, 14 (Tuesdays and Fridays) 11am (TBC)

Canada dial-in: 1-888-299-2873
(USA dial-in: 1-888-585-9008)
Conference ID: 902-802-337

Links

With Chinook and sockeye approaching and in the Fraser, these links may be of interest:

BC River Forecast Centre Website: http://bcrfc.env.gov.bc.ca

Environment Canada's Water Office Website: http://www.wateroffice.ec.gc.ca/index_e.html

Pacific Salmon Commission Website: www.psc.org

Pacific Salmon Commission Test Fisheries: http://www.psc.org/info_testfishing.htm

Pacific Salmon Commission News and Regulatory announcements: http://www.psc.org/publications/fraser-panel-in-season-information/fraser-river-panel-regulatory-announcements/

Fraser River Mission Escapement Reports: http://www.psc.org/publications/fraser-panel-in-season-information/fish-passage-past-the-psc-hydroacoustic-counting-station-near-mission-bc/

Fraser River Environmental Watch Reports: http://www.pac.dfo-mpo.gc.ca/science/habitat/frw-rfo/index-eng.html

The Albion Test Fishery information can be found at:
http://www.pac.dfo-mpo.gc.ca/fm-gp/fraser/docs/commercial/albionchinook-quinnat-eng.html

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