



WATERSHED TALK NEWSLETTER

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Spawners and Smolts at Wilsey Dam.

Wilsey Dam was built by BC Hydro at Shuswap Falls, in the late 1920s. Once a fishing site where hundreds of Syilx and Secwepemc would camp, the dam has since blocked Chinook, coho and sockeye (and resident fish such as Rainbow and Bull trout) from reaching 32 km of spawning habitat upstream.

“Initial drawings showed a fish ladder,” said Elinor McGrath (Fisheries Biologist, Okanagan Nation Alliance). “It was never built, however, the interest in salmon returning to upstream habitat has never ceased.”

In the 1970s and 1990s, DFO carried out habitat assessments above and below the dam. The department also conducted several Chinook spawner outplants (i.e. moving spawners, for comparison purposes, from downstream habitat to beds above the dam).

Habitat assessments found that the river above the dam is in a more natural state. “Downstream spawning occurs within a few kilometers of the dam,” Elinor explained. “Habitat there is deteriorated by higher water temperatures and gravel interception at the dam.”

Not surprisingly, results also showed that spawning capacity for Chinook is two times greater above Wilsey Dam than it is below.

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***Ryan Benson (Okanagan Nation Alliance) and
Stuart Lee (Splatshin First Nation) installing acoustic
receivers at the spillway of Wilsey Dam.***

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Spawners and Smolts at Wilsey Dam (continued)

In the early 2000s there was a series of studies and plans for a fishway. But a critical question remained: **What proportion of smolts would be destroyed as they passed through the dam's turbines on their way to the ocean?** This is known as the entrainment mortality rate.

For several years now, the ONA, together with the Secwepemc Fisheries Commission, Okanagan Indian Band and Splotsin First Nation, have been working on an answer. Elinor reports on two recent feasibility studies that will help biologists understand how many smolts make it through the turbines at Wilsey Dam:

1. In 2014, 5,000 Chinook smolts were released above the dam and their passage route was monitored using hydroacoustic splitbeam technology. Concurrent fish sampling provided information on fish community assemblage in the forebay area of the dam.
2. This year, another feasibility study was completed to determine the suitability of acoustic tags to determine entrainment rates. Acoustic receivers and tags were placed in various configurations in the forebay of the dam, in the spillway, and in the main Shuswap River channel just upstream of Wilsey Dam. The objective was to determine the range of several different tag types, and optimal configuration of equipment.

“Current data analysis is promising. It's bringing us closer to answering the question about what percentage of smolts make it through the power generation turbines,” Elinor said. “And it brings us a large step closer determining how to improve spawner passage upstream above the dam, as well as, what mitigation techniques could be used to improve the odds for smolts navigating downstream through the turbines.”



Barrow's Goldeneyes



Legend of Shuswap Falls from Okanagan Oral History

A long, long time ago when the world was young and fresh, before hatred, greed and strife entered, and all was peace and happiness, and all animals lived harmoniously together, the bear, elk, fox, coyote and all animals and birds were ancestors of human beings.

Coyote lived in a lovely but lonely place far away from everyone, where he had no one with whom to speak or play or feast. At last he became very lonesome and made his mind ever afterwards to break the monotony and invite all his friends once a year to a great feast and jollification.

So he set himself to work and built a great rapid and gave it the name Shuswap Falls. Then he made a big kettle out of stone with legs under it and hung it over the Falls. Over this he constructed a fish trap, also out of stone where he could catch many Salmon and boil them in the Big Kettle. Then Coyote made a seat for himself out of stone beside the falls where he could watch the fish being caught and being cooked, and also where he could talk with his old cronies and at the same time see the sports and watch the feasting.

When he got this all finished to his satisfaction, the buds on the fir trees were just bursting out. By this sign he knew the salmon run was due. So he called aloud for his friends to come and feast. His voice could be heard far and near as it can even to this day, so it sounded long, long ago on every hill, in every valley and all Coyote's friends said "Hark! There is Coyote calling. Let us go".

Coyote could distinguish who was coming as his friends called out to him on their way, accepting his invitation. He was overjoyed, running round and round to catch his tail as he heard the bawl of the Grizzly, the howl of the Timber Wolf, snort of the Elk, the hoot of the Horned Owl, the chatter of the Kingfisher and all the other voices he knew.

Soon they were all assembled and great was the astonishment and rejoicing when they beheld the wonder the Coyote has wrought and the provision he had made for their entertainment. It was a busy time, what with the feasting and the sports which lasted a fortnight with camp fires burning brightly by day and by night, until all were dead tired, and the time came to depart. Then all shook Old Coyote by the hand with grateful hearts for his hospitality. They all promised to come again when the fir trees were busting into bud. So all went home happy.

Now all this happened a very long, long time ago, and to this day when the firs are in bud each spring, the hills around Shuswap Falls still echo the invitation call of the Coyote and the answering call of Coyote's friends, and the campfire lights reappear.

Wise people say this is only fancy, but we know better.



Photo - Vernon Museum & Archives

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2015 Fraser Salmon Update

By: Pete Nicklin, FRAFS Biologist

During the 2015 sockeye and pink return, Watershed Talk will be distributed weekly - mainly on Friday afternoons - but occasionally other days depending on how the season rolls out.

In general, we are currently waiting for the Early Summers and Summers to start showing up in abundances reflecting pre-season expectations. It's not time to push the panic button yet, but things are not quite lining up with pre-season forecasts. Having said that, Fraser sockeye returns are nearly always surprising us in some way (late, early, many, not many, etc.) and it is still relatively early in the season.

The Fraser environmental and sockeye update is a summary of information from the July 30th Fraser River Panel Technical Committee distribution, FRAFS in-season update call (July 30th), and July 31st Fraser River Panel teleconference.

Fraser River Conditions

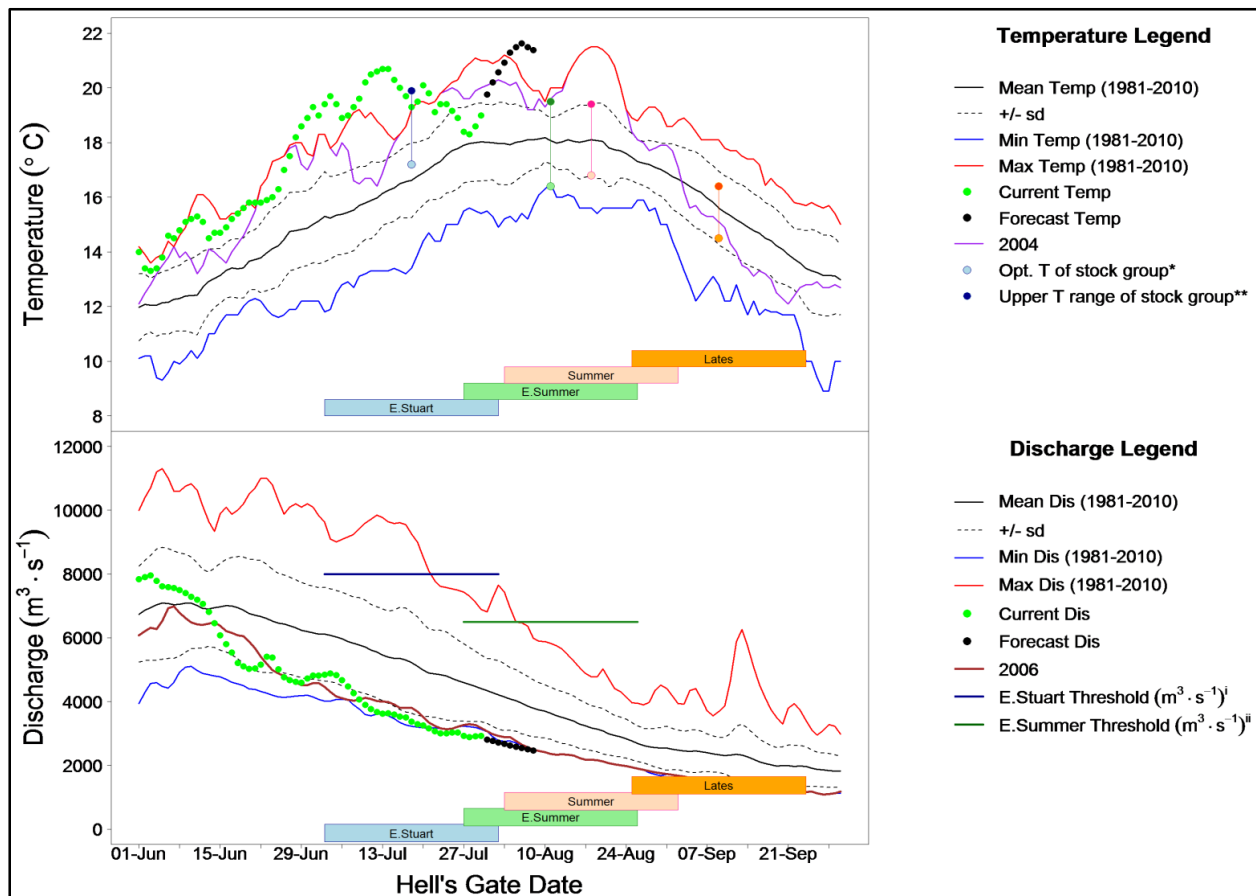
The main source of information for Temperature and Discharge data and forecasts is DFO's Environmental Watch Program (see link below).

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 31st, 2015):

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The Fraser River water temperature is currently 19 degrees Celsius (1 degrees Celsius above average for this time of year), and is forecast to increase to 21.5 degrees Celsius by August 5th. While current temperatures are not far off average, temperatures are expected to rise over the next several days. The Fraser River discharge continues to track at record low levels for this time of year with a flow of 2,922 m^3/sec at the Qualark water station on July 30th (34% below average for this time of year). The discharge is predicted to continue tracking at the minimum observed values, with a forecast discharge of 2,582 m^3/sec by August 5th.

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>



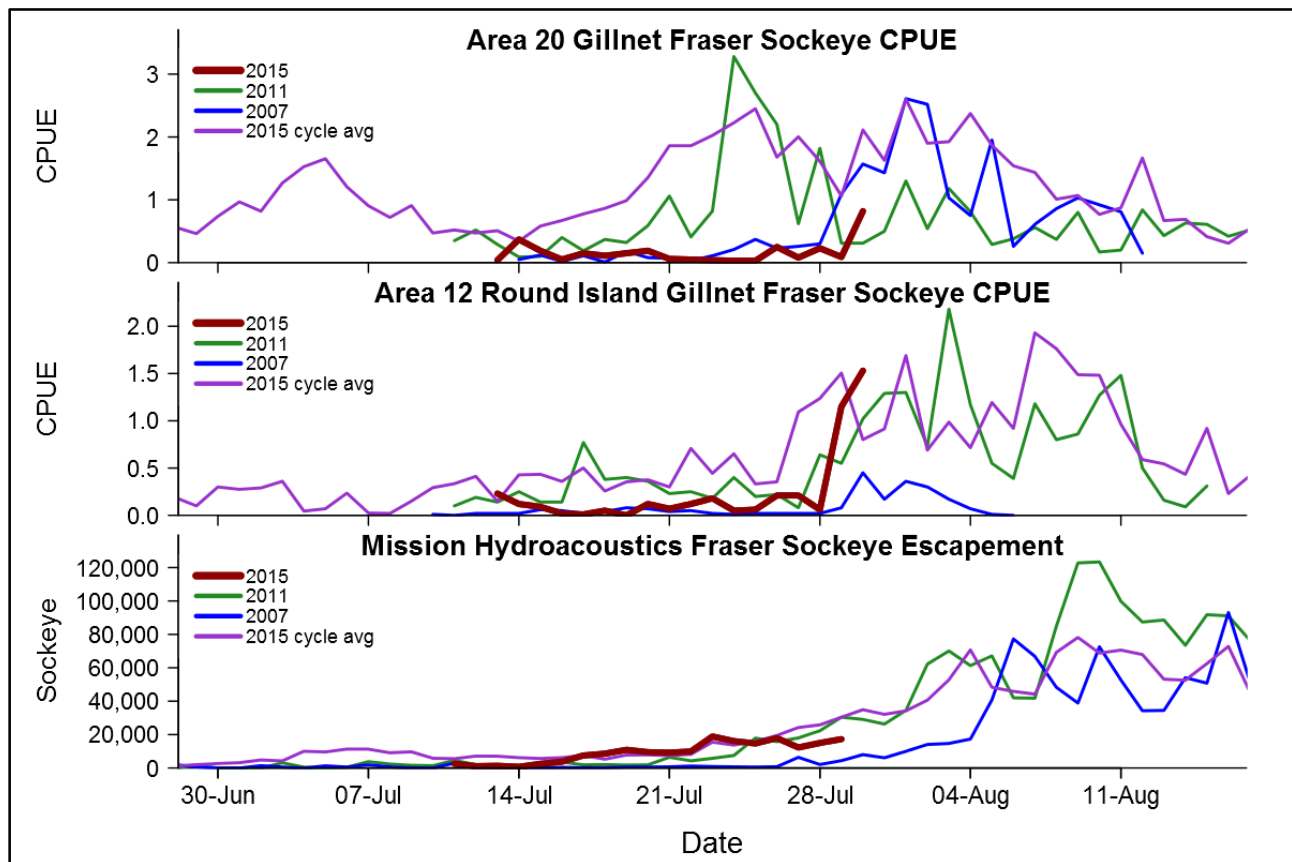
Fraser Sockeye

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 31st, 2015) and the Fraser River Panel meeting from the same day.

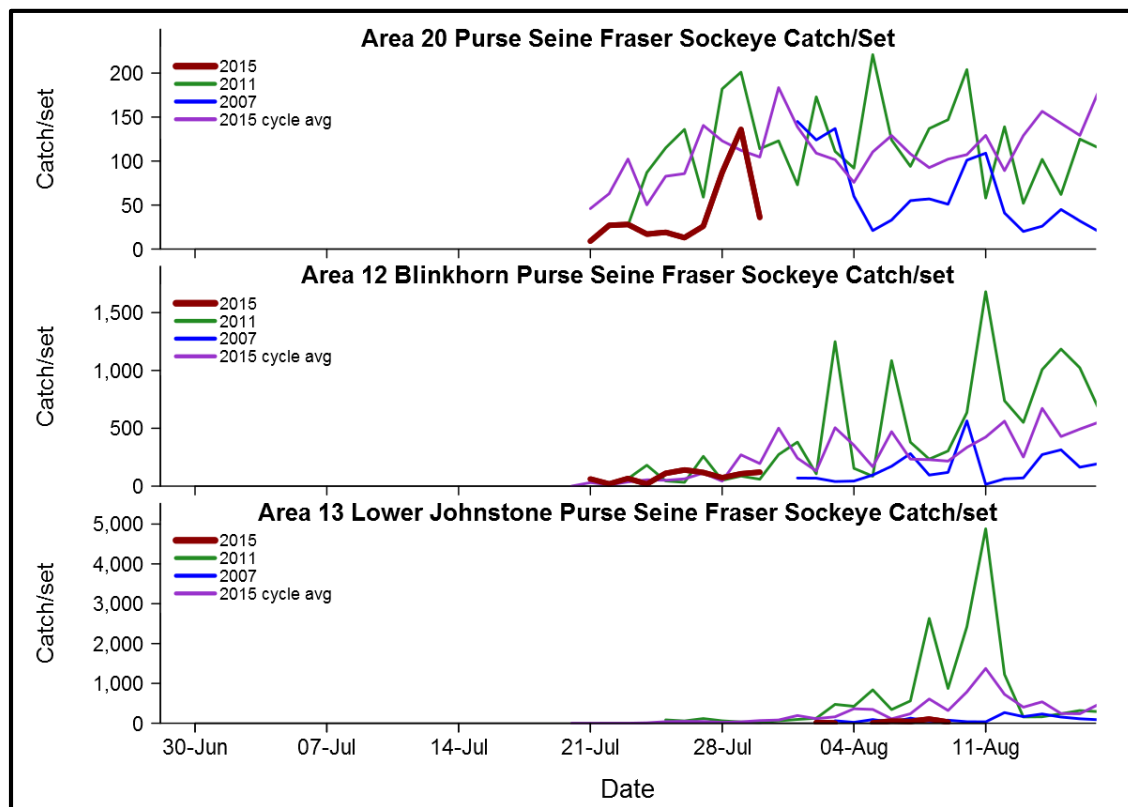
It is still relatively early in the sockeye season, and information and data flow will continue to increase over the next several weeks.

Full test fisheries (gillnet and purse seine) are in place in the Fraser River and both marine-approach areas (Strait of Juan de Fuca and Johnstone Strait). Hydroacoustics programs are in operation at Mission and Qualark (Yale). A total of 228,800 Fraser sockeye have been accounted-to-date, comprised of almost 31,900 Early Stuart sockeye, 121,000 Early Summer run sockeye and 75,900 Summers.

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



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Early Stuart Sockeye

Early Stuart sockeye are now in “accounting” mode, with the marine and lower Fraser migrations virtually complete according to test fisheries and Mission hydroacoustics.

Visual escapement surveys started on July 24th, and sockeye were first seen in the terminal areas on July 22nd. Sockeye are reported to be generally in good condition. Water temperatures in the Stuart system are ranging from 8 to 17 degrees.

Early Summer Sockeye

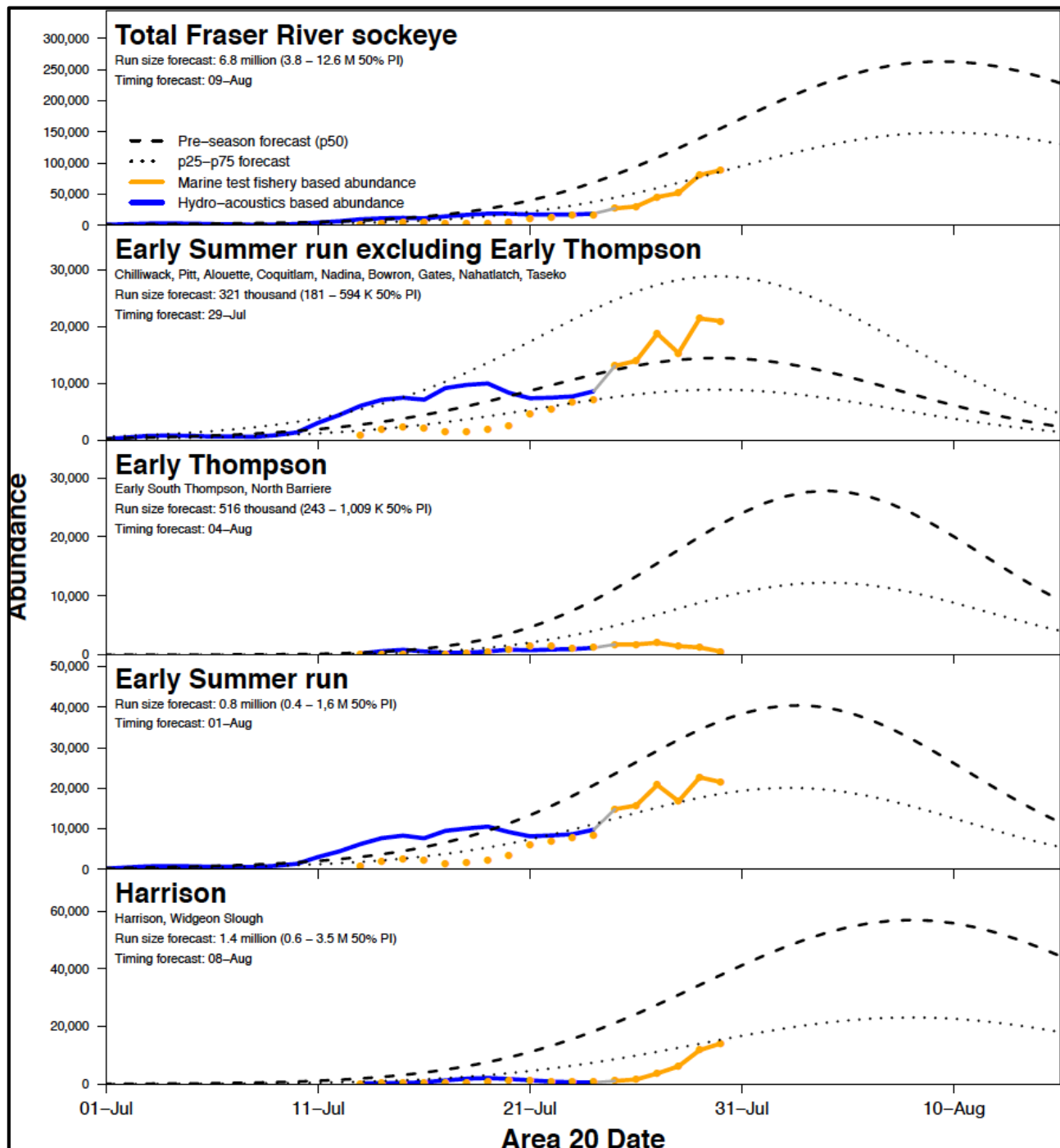
All components of the Early Summer aggregate have showed up in test fisheries. The Early Thompson component of the Early Summers is showing indications of late and/or weaker abundance than expected from pre-season information. Early Summers in aggregate are currently tracking at roughly the P25 forecast level.

Summers

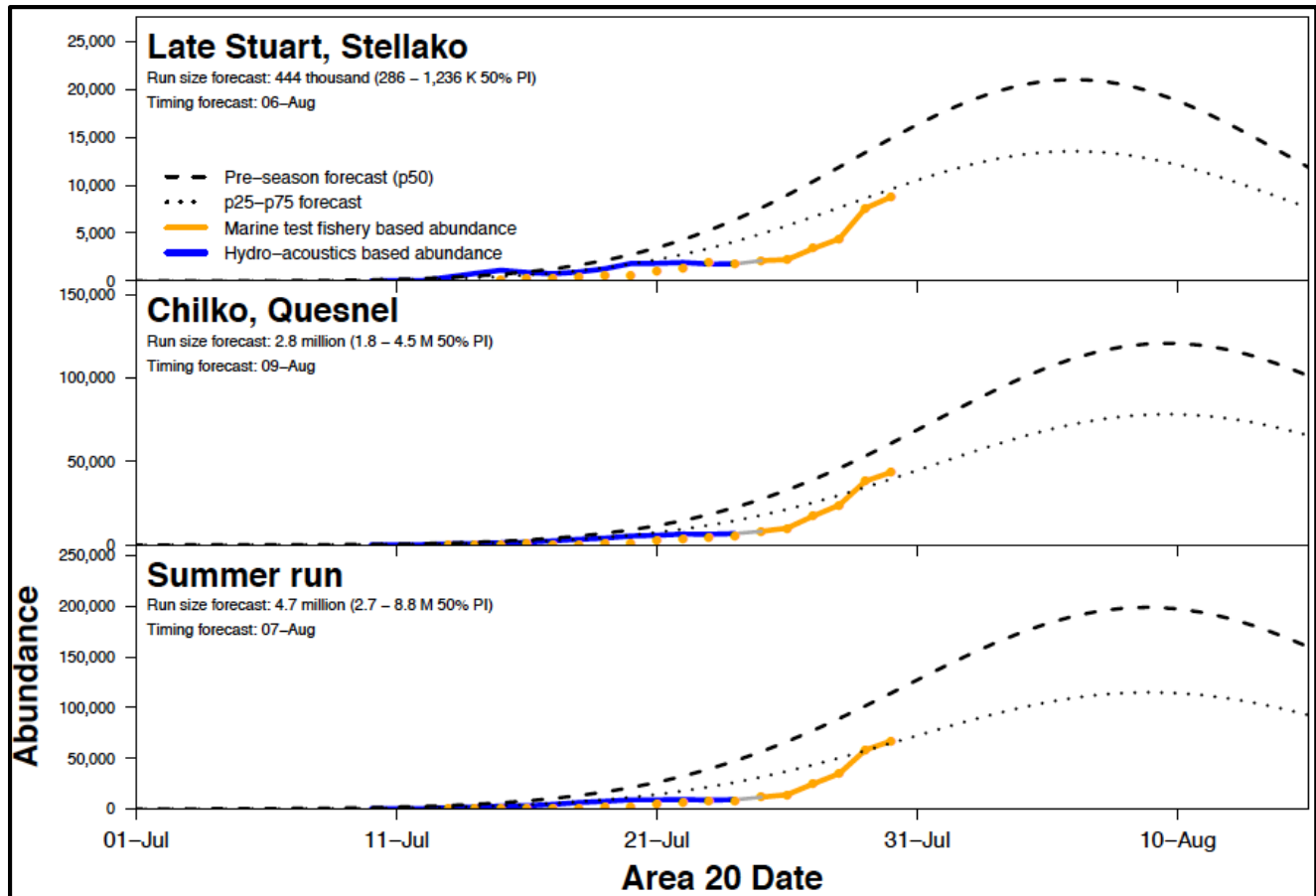
All components of the Summer run have been detected in both marine approach areas. As mentioned last week, the Harrison component is currently not as high in proportion (and abundance) as would have been expected pre-season. The Summer run is currently tracking below pre-season expectations, the Summer run is still a ways away from the expected peak migration date, and it is too early to make an assessment of the management aggregate.



Estimated Abundance and In-Season Timing Compared to Forecast



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The next Fraser River Panel meeting is scheduled for Tuesday August 4th.

Links

- 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/news_frpnews.htm
- Fraser River Mission Escapement Reports: http://www.psc.org/info_inseasonfraserescapement.htm
- 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>

For more information contact Pete Nicklin by email: pnicklin@telus.net

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