



# WATERSHED TALK

## NEWSLETTER

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### FRASER CHINOOK UPDATE

*By Pete Nicklin, Fraser Fisheries Biologist, FRAFS*

Many of us involved in Fraser fisheries management will recall the seemingly endless discussions concerning Fraser Chinook from January through til June of this year. It's not like 2012 had a dramatic boost in attention to Chinook from the year before, but it was an increase. Before I get into talking about 2012 Chinook info, it might be helpful to recap the on-going evolution of Fraser Chinook management over the past few years.

In 2008, Fraser Chinook management blipped onto the radar in a huge way. At that time, the earliest timed portion of the Fraser Chinook run was identified as a conservation concern. Those stocks were a mixture of life histories: four year old and five year old "stream type" Chinook. Since that time, Fraser Chinook management has been moving to management and assessment based on life history groups - largely due to the discussions occurring at FRAFS Joint Technical Working Group (JTWG) - but based on work conducted by the PSC Chinook Technical Committee and earlier peer-reviewed technical work such as the Fraser Chinook life history paper and Fraser Chinook Run Reconstruction.

From 2009 and on, discussion and management of Fraser Chinook has focused largely on the Spring 4<sub>2</sub>, Spring 5<sub>2</sub> and Summer 5<sub>2</sub> life histories due to conservation concerns, and

the increasingly complex management associated with accessing benefits of higher productivity stocks in the Summer 4<sub>1</sub> (ocean type) Chinook and Fraser Lates (the Summer 4<sub>1</sub>s and Lates support a large part of Canadian marine and freshwater fisheries). There are many different stocks of Chinook embedded within those life history groups, which have been identified individually and also grouped into draft Conservation Units as part of the implementation of DFO's Wild Salmon Policy. Within the mix of stocks, there is a mix of performance, but in general the Spring 4<sub>2</sub>, Spring 5<sub>2</sub> and Summer 5<sub>2</sub> life history groups have all been trending down in spawning escapement, and thus were all identified as stocks of concern.

The learning curve associated with Chinook management has been steep, and every year highlights at least 5 main challenges:

1. The Spring 4<sub>2</sub>, Spring 5<sub>2</sub> and Summer 5<sub>2</sub> chinook remain a conservation concern despite various management measures implemented over the past few years.
2. Chinook management is very complex.
3. The existing tools used for managing Chinook are being stretched to the max in order to deal with the management complexity. There is large uncertainty associated with the use of some of those tools.
4. Additional technical tools are needed to fill the information gaps: example - There are no current

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Coded Wire Tag indicators for either the Spring 5<sub>2</sub> or Summer 5<sub>2</sub> chinook.

5. Fraser Chinook management is largely a pre-season and post-season exercise - with one main exception: the analysis of the Albion Chinook test fishery as a predictor for Spring & Summer 5<sub>2</sub> Chinook Fraser River return.

It is this last point that I want to focus some attention on.

The Albion Chinook test fishery has operated since 1981, and provided standardized sampling of Fraser Chinook through the use of an 8" and multi-panel net. Among the key pieces of information provided by the Albion test fishery are the identification of run timing through the Lower Fraser for the stocks in the Fraser Chinook life histories and the development of a "predictor" tool for the use of weekly in-season test fishery catches to predict what the estimated total return is for the combined Spring and Summer 5<sub>2</sub> Chinook group to the Fraser River. The critical time period for the predictor model is from approximately the 3<sup>rd</sup> week of April until mid-June. The model has a relatively strong correlation between cumulative catch per unit effort (CPUE) in the 8" test fishery net and return to the Fraser for the Spring and Summer 5<sub>2</sub> group from approximately mid-May until mid-June. The mid-June estimate has been identified as the in-season point from which Spring and Summer 5<sub>2</sub> management will be determined for the remainder of the season.

DFO has identified 3 "zones of management" to guide Fraser Spring and Summer 5<sub>2</sub> management, based on estimated return to the Fraser from the Albion test fishery. The discussion of the goal posts established for the zones of management is an entire topic on its own, and is the subject of on-going discussion within the

JTWG. Pre-season, Chinook data analysis is used to establish the Zone of management prior to the mid-June estimate update. After the mid-June estimate, the Zone of management is determined, and for the rest of the season Albion Chinook test fishery information related to Spring and Summer 5<sub>2</sub> Chinook is collected for post-season information.

In 2012 DFO began the Spring and Summer 5<sub>2</sub> management in Zone 1 (estimated return to Fraser of 30,000 or less), then moved to Zone 2 management in mid-June based on an estimated return between 30,000 and 60,000.

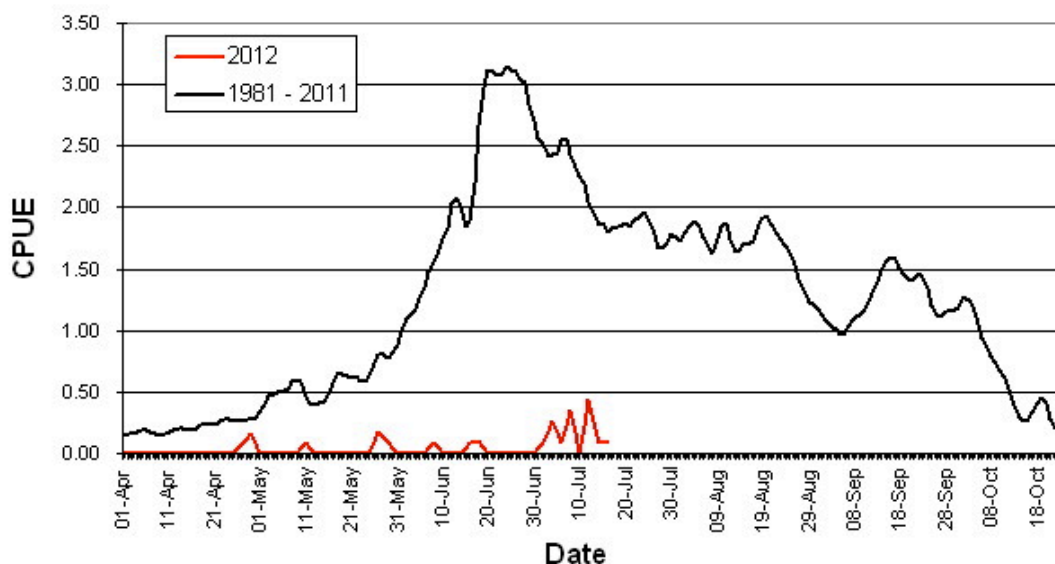
The issue I see with this management approach is multi-faceted. The 2012 Albion CPUE data was outside of the range of data used to establish the predictor model. According to the Albion run timing information determined by DNA analysis in 2000 and 2001 most of the fish (in the Spring and Summer 5<sub>2</sub> Chinook groups) return to the Fraser *after* the mid-June estimate. Even in Zone 2 management, the Spring and Summer 5<sub>2</sub> Chinook group is a conservation concern. Considering these points, a few questions come to mind. What is the process for evaluating Spring and Summer Chinook performance in-season after the mid-June update? What is the Albion Chinook test fishery telling us about actual return to the Fraser for these Chinook after the mid-June estimate? And finally: What is the total return of these Chinook to the marine area, prior to arrival at the Fraser River?

The 2012 Albion Chinook test fishery graphs look like this (taken from the DFO website at:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/fraser/docs/commercial/albionchinook-quinnat-eng.htm> (see next page)

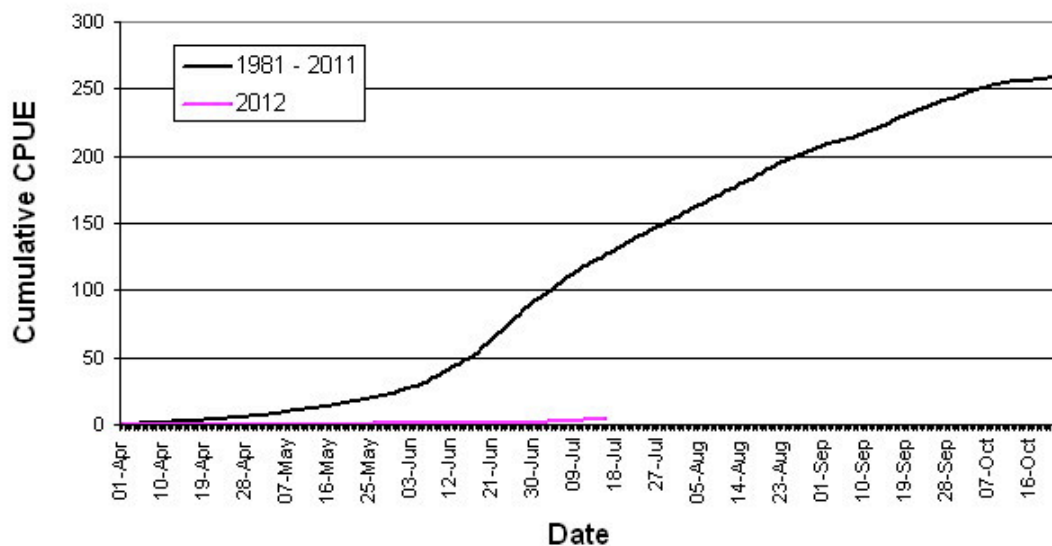


### Albion Daily Chinook CPUE compared to Historical Average CPUE (8" Net)



Note: In 2012, the Albion test fishery did not begin until April 25. The historical average CPUE data has not been calibrated to remove catch from the April 1 to April 24 period.

### Albion Cumulative Chinook CPUE compared to Historical Average Cumulative CPUE



Note: In 2012, the Albion test fishery did not begin until April 25. The historical average cumulative CPUE data has not been calibrated to remove catch from the April 1 to April 24 period.



The 2012 Albion catch is far lower than the historical averages. Taken as they are, these graphs show a Chinook return which looks pretty concerning. There may be a number of reasons why the return could be larger than what is shown by these graphs...but...what if it's not? What is the process for looking at this Chinook information - in-season and in real time (as is done for other stocks – ahem...I'm looking at you sockeye!)?

And, in a roundabout way, I have arrived at my final point...since we are spending so much time talking about these stocks of concern pre-season and post-season, let's make sure there's enough attention focused on these fish for the entire in-season...

We've come a long way on Chinook discussions in the last few years, but we have a way to go yet...

### **FRAFS First Nations In-Season Technical Conference Calls**

Thursdays at 4:00PM unless otherwise noted

Hosted by FRAFS Biologist Mike Staley

Dial in number: 1-866-512-0904; Passcode: 4954972#

### **General Information**

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

Albion Test Fishery – Chinook Gill Net:

<http://www.pac.dfo-mpo.gc.ca/fm-gp/fraser/docs/commercial/albionchinook-quinnat-eng.htm>

Pacific Salmon Commission Website: [www.psc.org](http://www.psc.org)

Fraser River Fisheries Information : <http://www.pac.dfo-mpo.gc.ca/fm-gp/fraser/index-eng.htm>

Pacific Salmon Commission Test Fisheries: [http://www.psc.org/info\\_testfishing.htm](http://www.psc.org/info_testfishing.htm)

Pacific Salmon Commission News and Regulatory announcements:

[http://www.psc.org/news\\_frpnews.htm](http://www.psc.org/news_frpnews.htm)

Fraser River Mission Escapement Reports:

[http://www.psc.org/info\\_inseasonfraserescapement.htm](http://www.psc.org/info_inseasonfraserescapement.htm)

Fraser River Environmental Watch Reports: <http://www.pac.dfo-mpo.gc.ca/science/habitat/frw-rfo/reports-rapports/2012/reports-rapports-12-eng.htm>

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