Looking Forward: 2015 Salmon Fisheries

Outlook and Preliminary Pre-season Planning Considerations

FN Forum Meeting

January 27-29, 2015

Outline

- Salmon Outlook
- Species Prospects:
  - Southern chinook
  - Southern coho
  - Southern chum
  - Southern sockeye
  - Southern pink
- IFMP process timelines

2015 Salmon Outlook: Summary

- Pacific Region Salmon outlooks were categorized for 84 of 91 Outlook Units
  - six were data deficient; one pink unit was not applicable
- 38 Outlook Units are likely to be at or above target abundance; 28 have outlooks of "*low*" or "*stock of concern*".
- The remaining 18 Units have mixed outlook levels
- General improvement in pre-season outlook expectations for populations in 2015 compared to 2014.

2015 Summary cont'd (Southern OUs in blue)

- 14 OUs improved in category:
  - **chinook:** Fraser Spring 4_2, Fraser Spring 5_2 and Fraser Summer 5_2
  - **coho:** Area 3, Area 12, Haida Gwaii East, Skeena and Skeena High Interior
  - **chum:** Areas 11 to 13, Georgia Strait and Areas 7 to 10
  - **sockeye:** Areas 7 to 10
  - **pink:** Areas 11 to 13 and Areas 3 to 6

2015 Summary cont'd (Southern OUs in blue)

- 8 OUs declined in category, all of which are Southern OUs
  - **chinook:** WCVI hatchery
  - **coho:** WCVI
  - **chum:** WCVI
  - **sockeye:** Early Stuart, Early Summer North Thompson, Fall Portage and Fall South Thompson
  - **pink:** Georgia Strait West

Southern BC Chinook

- **Fraser Spring 4_2:** *low;* expectations for continued modest improvements over 2011 parental brood escapements but continued overall low abundance levels.
  - Expect continuation of fisheries restrictions.
- **Fraser Spring 5_2 and Summer 5_2** : *low;* Expectation for modest improvement over parental brood escapement levels but overall low escapements due to depressed parental abundance and unfavourable marine conditions.
  - Fisheries to be informed by management zone approach and in-season assessment based on Albion test fishery information.
- **Fraser Summer 4_1 (South Thompson):** *near target.* Spawner decline in 2014 relative to brood for all stocks. Expectations depend on uncertain smolt-adult survival; this tempers outlook.

Southern BC Chinook

- **Fraser Late (Harrison):** *low* to *near target*; average returns expected in 2015 with improved parental spawners in 2011. Quantitative forecast available in late March.
- **WCVI wild**: *stock of concern.* Wild populations well below target and/or declining for several generations. (Lower hatchery returns also expected due to low survival rates in 2010 and 2011)
- **Cowichan chinook**: *low.* Continued rebuilding with 2014 return higher than 2013; still below target. Uncertainty regarding water conditions.
- AABM Forecasts and coded wire tag (CWT) based total mortality distributions available in late March / early April.
- Continued work on integrated strategic plan for Southern BC chinook populations

Southern BC Coho

- Survival rates remain variable and are well below historic highs in most areas; still in *low productivity regime* requiring lower exploitation rates
- **Interior Fraser coho** – *low.* Expectation for improving abundance given spawner abundance in 2012 (approx. 54K).
  - Preliminary information indicates escapements in 2014 are below pre-season expectations.
  - Post-season information is still being collected and will be used to inform 2015 considerations
  - Further discussion will be required to plan for management approach in 2015.
    - Updated discussion paper on 2015 management approaches planned.
- **Georgia Strait** – *near target.* Good returns in 2014 to Cowichan and Black creek. Expectations uncertain due to low/variable marine survivals.
- **WCVI** – *near target.* Expectation for decline in abundance relative to recent years due to declining survival for 2012 brood year (2014 ocean entry).
- Forecasts will be available for these units in spring 2014.

Southern Chum

- **WCVI** – *low*. Declining abundance. Low spawner and smolt abundance for 2 main brood years; hatchery surpluses possible for enhanced stocks.
- **Johnstone Strait** – *near target.* Expectations based on average brood year spawners in 2011 and improved marine survival rates. Chum returns remain highly variable.
- **Strait of Georgia** - *near target.* Above average return expected based on strong 2011 returns. High uncertainty associated with chum returns.
- Management plan based on 20% exploitation rate in mixed-stock Johnstone Strait fishery
- In other areas, harvest opportunities primarily in terminal areas based on decision rules and escapement targets.

Fraser Chum

Fraser chum - *near target.* Similar prospects to recent years. Spawner abundance in range of 980K to 1.4M from 2011-13; data incomplete for 2014.

- Management approach similar to recent years anticipated using information from Johnston Straits and Albion test fisheries to estimate in-season return abundance.
  - 800,000 escapement target for the Fraser River
  - Constraints for stocks of concern including coho and steelhead

Somass Sockeye

- Returns are expected to be *abundant* and should provide opportunities for all harvesters.
- Very high spawner abundance and smolt production for primary brood years of 2010 and 2011. Ocean entry conditions for these brood years were variable; 2012 was below average and 2013 appears very favourable.
- Uncertainty about differing survival rates for Sproat Lake vs. Great Central sockeye.
- Quantitative forecasts will be developed in 2015 to replace outlook.
- Actual fishery opportunities based on in-season assessment of abundance information

Fraser River Sockeye

Sub-dominant return year for Fraser sockeye

- **Early Stuart** – *stock of concern*. Below average returns expected due to smallest escapement on record (200 effective females).
- **Early Summer** –*stock of concern to average*. Below average returns for *Bowron*, *Nadina*, *Chilliwack*; average returns expected for *North Barriere*, *Pitt*, *Scotch* and *Seymour*; to above average for *Gates*.
- **Summer** – *Low to abundant*. *Late Stuart* returns expected to be average (higher proportion returns expected to be age 5 (strong 2010 brood-year contribution, weak 2011 brood). Expect average return and high age 5's also for *Stellako*. Above average returns expected for *Raft*, *Harrison*, *Chilko* and *Quesnel* given 2011 spawner abundance.
- **Lates** – *stock of concern to average*. Well below avg. results for *Cultus* (120K smolts vs. 977K avg.) and *Portage* (300 EFS in 2011; higher age 5 proportion). Below avg. return for *Shuswap* (46K brood spawners in 2011; 3rd smallest on record). Average returns for *Birkenhead.*

Quantitative forecasts will be available by February 2014.

Fraser Sockeye Escapement Plan

- Management approach based on abundance based harvest rules for 4 management units: Early Stuart, Early Summer, Summer and Late run.
- Expect discussion on work planning for FRSSI model/process to inform performance of harvest rules, low abundance exploitation rate (LAER) limits, caps on total allowable mortality rates and/or other issues.
- Escapement plan considerations will be developed for draft IFMP.
- Harvests will be constrained by stocks of concern, including Cultus Lake and Sakinaw Lake sockeye.
- Expected poor returns of *Early Stuart* and early timed *Early Summer* populations will require discussion of window closure period and other management constraints.
- Actual fishery opportunities based on in-season assessment of abundance information including test fisheries, hydro acoustics, and stock identification sampling.

Southern Pink

- **Fraser River pink:** - *abundant. Above average returns expected compared with 13.4M average. 609M out-migrating fry were above 443M average.*
  - Returns expected to exceed 6 million escapement target unless returns in low end of range; should provide substantial fishery opportunities, but may be constrained by Cultus Lake sockeye and Interior Fraser coho objectives.
  - Quantitative forecasts will replace outlook
- **Other southern BC pink**: Average to below average returns are expected for other Southern British Columbia populations
  - Areas 11 to 13 - *near target* – Expectation for average returns.
  - Squamish pink salmon – *data deficient*. Rebuilding returns but no quantitative assessment information.

Marine Conditions

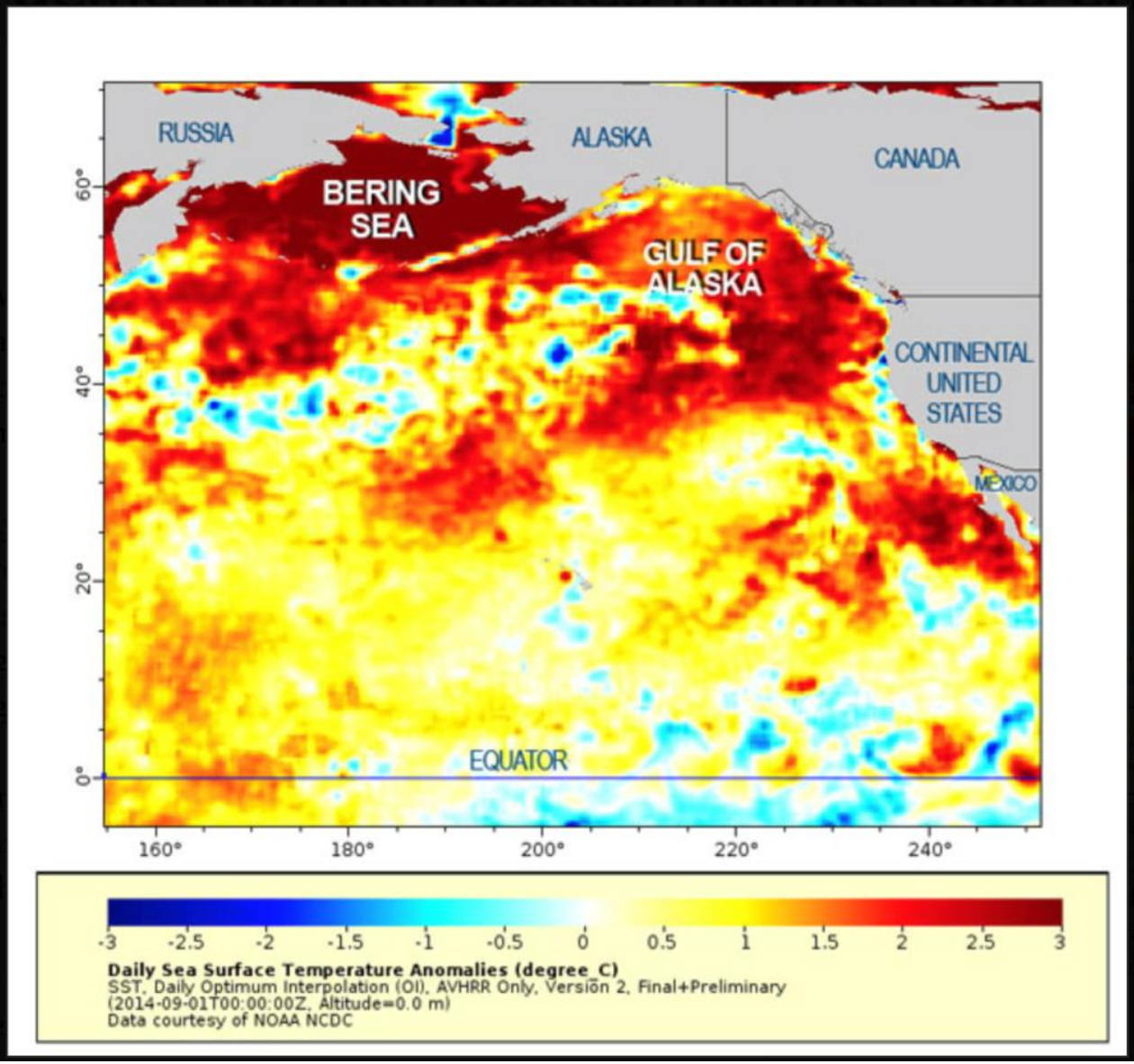
- Recent years have yielded improved marine survival for some stocks, likely tied to some short term improvements in marine conditions.
- A shift may be occurring: 2014 will be the warmest year ever in the north Pacific.
- While resulting signals of marine survival are inconsistent (e.g. 2014 fall coho abundance and condition in the GST surveys was above average), some indicators for the 2014 ocean entry year are a concern.
- First indications (from impact on returning adults) will be with coho and pink returns in 2015.

Ocean Conditions (by Marc Trudel and Chrys Neville)

Ocean entry years of interest for returns in 2015

- 2011 ocean entry for age 5 ocean type chinook
- 2012 ocean entry for age 4 ocean type chinook, age 5/2 sockeye, age 5/2 chinook from Fraser.
- 2013 ocean entry for age 4/2 sockeye and upper Fraser 4/2 chinook (and most other yearling chinook)
- 2014 ocean entry for age 3 coho. Also odd year pink salmon.

Unusually warm temperatures dominate three areas of the North Pacific: the Bering Sea, Gulf of Alaska and an area off Southern California. The darker the red, the further above average the sea surface temperature. NOAA researchers are tracking the temperatures and their implications for marine life.



Disclaimer

The North Pacific Ocean was unusually warm in 2014. Extreme warm conditions of that magnitude have not been seen before.

It is difficult to predict that the impact of these conditions will be on salmon.

This ocean conditions may be amplified by forecasts for El Nino in early 2015.

Canada

http://www.undercurrentnews.com/2014/09/12/noaa-says-warming-blob-to-impact-pacific-marine-life/

Considerations for 2015 Outlook

- Outlook information is still very preliminary
- official forecasts are currently not available
  - Sockeye/pink in February
  - chinook & coho in March
- some assessments programs still on-going (coho & chum); 2014 escapement estimates & age information are not yet available
- many BC salmon populations remain depressed due to low numbers of brood-year spawners, partially attributed to poor survival and production during the mid 2000s.

IFMP 2015 Timelines:

-see IFMP letter and Table (pdf document available)