

Agenda Item C6

Addendum to Section 3.3.5.5

This is an addendum to Section 3.3.5.5 of Agenda Item C6 – the EA/RIR for Chinook salmon prohibited species catch (PSC) in the Gulf of Alaska (GOA) non-pollock trawl fisheries. According to the information provided in Section 3.3.4 of the analysis, roughly 80% of the Chinook salmon taken as PSC in the GOA trawl fishery originate in British Columbia and U.S. West Coast rivers. This addendum provides additional background information on the status of those stocks. Most of this information can be found in the Annual Report of Catch and Escapement for 2016 from the Pacific Salmon Commission's Joint Chinook Technical Committee (PSC 2017).

Chinook Salmon Stocks in British Columbia and U.S. West Coast

British Columbia Stocks

Of the thousands of streams that support salmon in British Columbia, Chinook salmon are found in a relatively small number of streams (PSC 2017). Chinook production occurs mainly in major river systems, and particularly large stocks occur in the Skeena River in northern British Columbia and the Fraser River in Southern British Columbia. Of these, 26 are monitored annually by the Pacific Salmon Commission. In both systems with escapement goals, the Cowichan and Harrison rivers have only achieved their escapement goals once since 2011. Some stocks without escapement goals, such as the Nass and the Skeena, have exhibited a declining trend in recent years. Canada's Department of Fisheries and Oceans (DFO) is currently undertaking several initiatives to assess the status of these stocks under Canada's Policy for Conservation of Wild Pacific Salmon.

Northern British Columbia

Skeena River

The Skeena River is the second largest river in British Columbia and supports the second largest aggregate of Chinook salmon stocks in British Columbia with over 75 spawning populations (PSC 2017). Four large lake-stabilized tributaries (Kitsumkalum, Morice, Babine, and Bear rivers) account for 63% of the total abundance in the Skeena River. Most of the escapement estimates are based on visual observations from helicopter, fixed wing aircraft, and/or from stream walking surveys. There is no CTC-accepted escapement goal for the Skeena River aggregate. The Kitsumkalum River is the exploitation rate indicator stock for Northern British Columbia, and the spawning population has been estimated using a mark-recapture (MR) program since 1984. Marine survival has been below average since the 2007 brood year (PSC 2017) and DFO has noted reduced returns and lower productivity levels. DFO is anticipating below average runs in 2018 and closures or restrictions on catch limits are possible.

Southern British Columbia

Fraser River

A large and diverse group of Chinook salmon spawning in Canada occurs in the Fraser River watershed (PSC 2017). Most of the knowledge about the status of Fraser Chinook salmon is based on spawner escapement data from visual surveys. There are five current CWT-indicator stocks: Nicola River (Fraser Spring-Run age 1.2), Lower Shuswap (Fraser Summer-Run age 0.3), Middle Shuswap (Fraser Summer-Run age 0.3), and Harrison River and Chilliwack River for Fraser Late. Only the Harrison River has an escapement goal approved by the Pacific Salmon Commission's Joint Chinook Technical Committee (CTC), while the remaining four stock groups have habitat-based models to estimate spawning capacity

and abundance. Estimates of the three stock groups with yearling smolt life history declined steeply from 2003 to 2009, and yearling smolts that entered the ocean in 2005 and 2007 experienced especially low survival. Recently, escapements have remained low, but with modest rebuilding until 2016 when escapements to some of the stock groups failed to attain brood year levels. In contrast, escapements to the Fraser Summer-Run 0.3 increased during the 1990s and remained abundant until 2012 when escapements were low compared to levels observed over the previous decade. For the Fraser late stock group, the Harrison River had low escapements from 2012-2014 with escapements more than 15% below the lower bound of the escapement goal. Escapement for that group was just above the upper bound of the goal in 2015 and fell again in 2016 to be well below the lower bound of the escapement goal (PSC 2017).

West Coast Vancouver Island

The West Coast Vancouver Island (WCVI) index represents the sum of escapements for six rivers (Marble, Tahsis, Burman, Artlish, Kaouk, and Tahsish) that were chosen to provide an index of escapement for wild WCVI stocks in general (PSC 2017). DFO also developed a 14-stream expanded index that includes escapements to the 6-stream index plus the following WCVI streams: Colonial/Cayegle (Area 26), Leiner (Area 25), Megin, Bedwell/Ursus, Moyeha (Area 24), Sarita, Nahmint (Area 23), and San Juan (Area 21). There is currently no CTC-accepted escapement goal for this stock group. Escapements have remained low in non-enhanced streams since 1999 despite terminal fishing restrictions in effect in Areas 24 through 26 from July to September each year (PSC 2017).

Pacific Northwest Stocks

Chinook salmon stocks in the Pacific Northwest include over 200 stocks from Oregon, Idaho, and Washington State. The specific stocks are listed in 2010 BSAI Chinook salmon EIS (Chapter 3, NMFS 2009). A discussion of Chinook salmon stocks in the Pacific Northwest listed under the Endangered Species Act (ESA) is addressed in Section 3.3.5 of Agenda Item C6, and more information on non-ESA-listed species may be found on the NMFS Northwest Region website.¹

Puget Sound and Coastal Washington

Escapement trends from 1999 through 2016 revealed several patterns for Puget Sound and Washington Coastal escapement indicator stocks (PSC 2017). Of the seven Puget Sound indicator stocks, rates of change in escapement declined significantly for Stillaguamish and Snohomish and increased significantly for Skagit Spring. The remaining four Puget Sound indicator stocks indicate no significant trends. However, due to widely varying escapement, there is a great deal of uncertainty around estimates for Skagit River summer/fall Chinook, Green River Chinook, and Nooksack spring Chinook salmon. Although Puget Sound indicator stocks have largely met their agency management objectives (i.e. exploitation rate ceilings), none of them have CTC-approved escapement goals against which trends can be considered (PSC 2017).

Two out of nine Washington Coast indicator stocks showed a significant trend from 1999 through 2016 (PSC 2017). Rates of change in escapement decreased significantly for Grays Harbor spring stock (minus-3.3%), while they increased significantly for the Queets spring/summer stock (plus-2.6%). Six of the coastal indicator stocks have CTC-approved goals that have consistently been met for summer/fall (Queets, Quillayute, Hoh) but not spring/summer (Hoh, Queets) run timing groups. Despite regularly missing goals and consistently returning at levels lower than what was seen historically, the rate of change in escapement for Queets is increasing while the rate of change for Hoh is insignificant, indicating stable escapement (PSC 2017).

¹ <http://www.westcoast.fisheries.noaa.gov>, or at the Pacific Salmon Commission website: www.psc.org.

Columbia River and Coastal Oregon

Columbia River stocks include spring, summer, and fall run Chinook salmon from the Columbia River and its tributaries (PSC 2017). Mid-Columbia Summer Chinook is the only escapement indicator stock for the summer group with escapement well above goals since 2009. The Columbia River Falls stock group has three escapement indicator stocks: Upriver Brights, Deschutes, and Lewis. CTC-accepted goals have been met since 1983 for the Upriver Bright indicator stock, since 1993 for the Deschutes River indicator stock, and since 2009 for the Lewis River stock (PSC 2017).

After low escapements from 2007 to 2009, the Oregon Coastal North (NOC) aggregate stock has returned to average or above-average escapement from 2013 onwards (PSC 2017). All three NOC escapement indicator stocks (Nehalem, Siuslaw, and Siletz) failed to achieve their escapement objectives in 2007 and 2008, but all three stocks exceeded their escapement objectives in 2016 and were forecasted to reach or exceed their objectives in 2017. The Mid-Oregon (MOC) stock aggregate experienced a period of decline in escapement from 2005 to 2008 then rebounded to historical averages during 2010 to 2016 and was forecasted to stay at that average escapement level in 2017 (PSC 2017).

References

- Pacific Salmon Commission Joint Chinook Technical Committee. 2017. Annual Report of Catch and Escapement for 2016. Available at: <http://www.psc.org/publications/technical-reports/technical-committee-reports/chinook/>
- NMFS. 2009. Final Environmental Impact Statement for Bering Sea Chinook Salmon Bycatch Management. December 2009. National Marine Fisheries Service, Alaska Region. P.O. Box 21668, Juneau, Alaska 99802-1668. Available at <https://alaskafisheries.noaa.gov/fisheries/chinook-eis>.