SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON REVIEW OF 2020 FISHERIES AND SUMMARY OF 2021 STOCK FORECASTS

The Scientific and Statistical Committee (SSC) discussed the Review of 2020 Ocean Salmon Fisheries and Preseason Report I for 2021. Dr. Michael O'Farrell (Southwest Fisheries Science Center, Salmon Technical Team (STT) Chair) provided a brief summary of the reports and members of the STT were available to answer questions. The SSC received Preseason Report I less than one day before the SSC meeting and a full review of the document was not possible.

The SSC appreciates the work of the STT in compiling the reports and notes the addition of a section briefly describing the impact of COVID-19 in the beginning of each report. Impacts of the pandemic were widespread on both fisheries and data collection. For data collection, impacts ranged from reduced commercial and recreational fisheries sampling in California to a loss of coho smolt outmigration sampling from some rivers in Washington state.

The Council is tasked with specifying annual catch limits (ACLs) for Sacramento River fall Chinook (indicator stock for the Central Valley fall Chinook complex), Klamath River fall Chinook (indicator stock for the Southern Oregon/Northern California Chinook complex), and Willapa Bay coho. Preseason Report I presents ACLs for these three stocks (Table V-4). The forecasts for Sacramento River fall Chinook and Klamath River fall Chinook are derived from forecast models that have been reviewed and approved by the SSC in previous years, although new methods were required to impute small amounts of input data that were missing due to sampling challenges posed by COVID-19. The Willapa Bay coho forecast for 2021 was derived from a model endorsed by the SSC for one time use in 2020 due to insufficient time to address issues raised during the 2020 review. The SSC recommends completing the 2020 review of the Willapa Bay coho forecast as a salmon methodology review topic for this year. The SSC found the calculations of the acceptable biological catches (ABCs) and corresponding ACLs correct based on the forecasts. Due to insufficient time to review the materials, the SSC neither endorses nor rejects the forecasts as the best scientific information available for 2021 salmon management to set ABCs.

Five salmon stocks had rebuilding plans adopted in 2019. We briefly summarize the current status of each:

- Sacramento River fall Chinook. The three-year geometric mean abundance of hatchery and natural spawning adults is 133,549 which exceeds the minimum stock size threshold (MSST) of 91,500 and the stock size of maximum sustained yield (S_{MSY}) of 122,000. The stock meets the criteria for rebuilt status.
- Klamath River fall Chinook. The three-year geometric mean natural area spawning abundance is 30,167 which is below the MSST of 30,525. The stock meets the criteria for overfished status.
- Queets River coho. The three-year geometric mean adult spawning escapement is 2,395 which is below the MSST of 4,350. The stock meets the criteria for overfished status.
- Juan de Fuca coho. The three-year geometric mean adult spawning escapement is 5,391 which is below the MSST of 7,000. The stock meets the criteria for overfished status.

- Snohomish River coho. The three-year geometric mean adult spawning escapement is 48,385 which is above the MSST of 31,000, but below the S_{MSY} of 50,000. The stock meets the criteria for not overfished / rebuilding status.

While none of the stocks were determined to be subject to overfishing, we note that exploitation rates for stocks other than Sacramento River fall Chinook, Klamath River fall Chinook, and Oregon coast coho did not have estimated exploitation rates for 2020. However, preliminary analyses do not suggest that harvest rates exceeded the maximum fishing mortality threshold.

Klamath River fall Chinook along with Queets, Strait of Juan de Fuca, and Hood Canal natural coho meet the criteria for being at risk of approaching an overfished condition. In addition to the above stocks, for Hoh and Skagit coho, the spawning escapements for 2018 and 2019 were below MSST or S_{MSY} but data for 2020 are not yet available. For Chinook stocks, the Southern Oregon, Quillayute spring/summer, Hoh spring/summer, and Grays Harbor spring all had three-year geometric mean escapements (2018-2020) that were between MSST and S_{MSY}.

The SSC notes that disruptions due to the COVID-19 pandemic to data streams should logically lead to increased uncertainty in abundances, harvest rates, and forecasts. However, all of the results presented in Preseason Report I are point estimates and associated uncertainties are unquantified or quantified and not reported. This has the unfortunate consequence of creating the illusion that forecasts for 2021 are as precise as previous years when they are not. Therefore, the SSC reiterates its strong recommendation that PFMC salmon reports provide and incorporate appropriate measures of uncertainty as is currently done for groundfish, coastal pelagic species, and highly migratory species.

The SSC discussed forecasting methodologies used for salmon stocks in Preseason Report I and noted that it is unclear if and how forecasting methodologies have changed from previous years. The SSC recommends that the STT develop a database or appendix for their report where changes to forecasting methodologies for each stock can be described and archived.

In reviewing the salmon fishery management plan (FMP), the SSC identified two issues relevant to status determination criteria:

1. The FMP indicates that the intent of fisheries management in California is to "maximize natural production" (p. 48), but the Sacramento River fall Chinook escapement goal is for combined hatchery and natural returns.

2. North Lewis River fall Chinook is listed under the Endangered Species Act, but nevertheless has a maximum fishing mortality threshold specified (see p. 22). At present, exploitation rate calculations are not presented for this stock, so there is nothing to compare against the maximum fishing mortality threshold. The SSC would like guidance to determine if it should be included.

PFMC
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