SCIENTIFIC AND STATISTICAL COMMITTEE REPORT ON REVIEW OF 2022 FISHERIES AND SUMMARY OF 2023 STOCK FORECASTS

The Scientific and Statistical Committee (SSC) discussed the Review of 2022 Ocean Salmon Fisheries and Preseason Report I for 2023. 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 appreciates the work of the STT in compiling the reports and providing a draft of the Sacramento River fall Chinook (SRFC), Klamath River fall Chinook (KRFC), and Willapa Bay natural coho forecasts on February 28, 2023; however, the full Preseason Report I was not available until Thursday, March 2, 2023, less than 48 hours before the SSC met, limiting a comprehensive review of the other forecasts.

Dr. O'Farrell pointed out some errors in the Preseason I report: (1) The Nooksack-Samish hatchery coho forecast is 66,567 not 49,208 (page 60), and (2) the exploitation rate for SRFC in Table V-4 (page 98) should be 0.75 not 0.52, and the projected three year geometric mean escapement of 81,817 should be bolded to indicate an approaching overfished condition.

The Council is tasked with specifying annual catch limits (ACLs) for SRFC, the indicator stock for the Central Valley fall Chinook complex, KRFC, the indicator stock for the Southern Oregon/Northern California Chinook complex, and Willapa Bay natural coho. Preseason Report I provides the ACLs for these stocks (Table V-5). The forecasts for SRFC and Willapa Bay natural coho were derived from forecast models that were reviewed and approved by the SSC in previous years. The SRFC forecast now uses the median rather than the mean when converting the Sacramento Index from logarithmic to arithmetic scale following the recommendation of the SSC review in November 2022. In years prior to 2023, the KRFC forecasts were made using all complete (or nearly complete) brood years (BY) since BY1979. The 2023 forecast was made using the methodology reviewed and approved previously by the SSC, however the input data was truncated to the most recent ten BYs, as described in Appendix D in Preseason Report I. The SSC found the calculations of the three acceptable biological catches (ABCs) and corresponding ACLs correct based on the forecasts for all three stocks.

The Council adopted rebuilding plans in 2019 for five salmon stocks: SRFC, KRFC, Queets River natural coho, Juan de Fuca natural coho, and Snohomish River natural coho. In 2021, SRFC met the criteria for rebuilt status. The recent three-year (2019 – 2022) SRFC geometric mean spawning escapements was 96,613, which is more than the minimum stock size threshold (MSST) of 91,500, hence the stock is not considered overfished. The status of the four other stocks were:

● KRFC. The three-year geometric mean (2020 – 2022) natural area spawning abundance was 25,857, which is less than the MSST of 30,525. The stock meets the criteria for overfished status.

● Queets River natural coho. The three-year geometric mean (2019 – 2021) escapement was 3,445, which is less than the MSST of 4,350. The stock meets the criteria for overfished status.

● Juan de Fuca natural coho. The three-year geometric mean (2019 – 2021) natural coho escapement was 9,374, which is more than the MSST of 7,000 but less than the S_{MSY} of 11,000. The stock meets the criteria for not overfished/rebuilding status.

● Snohomish River natural coho. The three-year geometric mean adult spawning escapement (2019 - 2021) was 55,154, which is more than the MSST of 31,000 and more than the S_{MSY} of 50,000. The stock meets the criteria for rebuilt status.

In 2022, Hood Canal natural coho met the overfished criteria based on the geometric mean of the 2018 – 2020 escapements, however it was never formally declared overfished. The most recent three-year geometric mean adult spawning escapement (2019 – 2021) was 16,870, which is more than the MSST of 10,750 and more than the S_{MSY} of 14,350. Hood Canal natural coho would now meet the criteria for rebuilt status if it had been declared overfished.

The three-year geometric mean (2019 – 2021) of the Queets River spring/summer Chinook escapement was 314, which is less than the MSST of 350. This stock now meets the criteria for overfished status.

None of the Chinook or coho stocks were determined to be subject to overfishing; however, the exploitation rates (ER) for 2021 were only available for coho stocks and SRFC and KRFC. In 2022, only the SRFC and KRFC ERs were reported and the SRFC ER (0.75) was close to the maximum fishing mortality threshold (MFMT) of 0.78 (Table V-4). The SSC notes that Table V-4 reports the 2019 Hoko summer/fall Chinook ER as "NA", with a footnote indicating that a reliable ER could not be calculated due to insufficient coded-wire-tag (CWT) information. However, the Pacific Salmon Commission (PSC) Chinook Technical Committee (CTC) reported an ER of 0.785 (https://www.psc.org/download/35/chinook-technical-committee/14883/tcchinook-23-01.pdf). The SSC recommends that consistent criteria be used for making changes to ER-based analyses approved by the PSC for Pacific Salmon Treaty managed stocks, with sufficient scientific review, oversight, and reporting of any changes.

Although no cases of overfishing were reported, the MFMT reference points for many stocks are based on old data and dated analyses, and a review and re-analysis of MFMTs using recent data and newer methods is warranted.

A stock is approaching an overfished condition if the three-year geometric mean of the most recent two years and the 2023 forecast of spawning escapement given last year's fishing regulations are less than the MSST. The KRFC and SRFC meet the criteria for being at risk of approaching an overfished condition.

The SSC notes that the Sacramento River winter run Chinook hatchery production was increased because poor survival was anticipated. However, the choice of the survival term applied to the hatchery release to forecast hatchery abundance was not adjusted to reflect this anticipated poor survival.

The results presented in Preseason Report I are point estimates and associated uncertainties are generally not reported. 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.

PFMC
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