

SALMON TECHNICAL TEAM REPORT ON THE 2021
KLAMATH RIVER FALL CHINOOK *DE MINIMIS* EXPLOITATION RATE

For 2021, the Klamath River fall Chinook (KRFC) harvest control rule specifies a *de minimis* maximum allowable exploitation rate of 25 percent. The Salmon Fishery Management Plan (FMP) requires consideration of several factors when recommending *de minimis* exploitation rates. From page 31 of the FMP:

“When recommending an allowable *de minimis* exploitation rate in a given year, the Council shall also consider the following circumstances:

- The potential for critically low natural spawner abundance, including considerations for substocks that may fall below crucial genetic thresholds;
- Spawner abundance levels in recent years;
- The status of co-mingled stocks;
- Indicators of marine and freshwater environmental conditions;
- Minimal needs for Tribal fisheries;
- Whether the stock is currently in an approaching overfished condition;
- Whether the stock is currently overfished;
- Other considerations as appropriate.”

The Salmon Technical Team has assessed each of these circumstances, with the exception of minimal needs for Tribal fisheries.

The potential for critically low natural spawner abundance could be considered moderate. The 2021 minimum natural-area spawner escapement of 31,574 adults is slightly larger than the minimum stock size threshold (MSST; 30,525). A natural-area escapement of 31,574 adults would represent the 20th lowest value over the past 43 years of data.

To assess the potential for critically low abundance of substocks, a statistical model (PFMC 2007, Appendix D) was applied to historical run size data to assess the probability that escapement to either the Salmon, Scott, or Shasta rivers would fall below 720 adults, given a total, basin-wide natural area escapement of 31,574 adults in 2021. The 720 escapement threshold for these substocks was based on effective population size (genetic) considerations. Application of the model suggested that at least one of the substocks would fall below the 720 adult threshold with a probability of 0.22.

The natural-area adult spawner escapement has been lower than MSST in four of the last five years. The 2021 forecast of natural-area spawners in the absence of fishing is 42,098 adults, which is above the maximum sustainable yield spawner escapement (S_{MSY} ; 40,700). If fishing seasons are structured such that the maximum allowable exploitation rate of 25 percent is met, the natural-area adult spawner expectation is 31,574, which is slightly larger than the MSST but below S_{MSY} .

With regard to co-mingled stocks, Sacramento River fall Chinook have a moderate to low abundance forecast but are likely to be less constraining to fisheries than KRFC in 2021.

Indicators of marine and freshwater conditions provided in the California Current Integrated Ecosystem Assessment (CCIEA) California Current Ecosystem [Status Report for 2021](#) suggest a mixed assessment of marine and freshwater conditions that could affect KRFC. [Table H.5.3](#) in the CCIEA report (supplementary material) displays “stoplight” indicators including adult abundance, freshwater indicators, and marine indicators affecting KRFC. Adult spawners in brood years 2017 and 2018 (age-4 and age-3 in 2021, respectively) appear to have experienced low flows and warm water while juveniles from those broods encountered more mixed conditions. Ocean indicators were generally poor for these broods. Overall, stoplight indicators suggest that KRFC experienced mixed freshwater and marine conditions for two of the three broods that were highlighted in the CCIEA report that were also considered in the rebuilding plan (2012-2014). Since then, both freshwater and marine conditions have generally declined.

The KRFC stock currently meets the criteria for being at risk of approaching an overfished condition. However; KRFC was declared overfished following the 2017 escapement, and continues to meet the criteria for overfished status in 2021.

Reference

PFMC. 2007. Final Environmental Assessment for Pacific Coast Salmon Plan Amendment 15: An Initiative to Provide for *De Minimis* Fishing Opportunity for Klamath River Fall-run Chinook Salmon. (Document prepared by the Pacific Fishery Management Council and National Marine Fisheries Service.) Pacific Fishery Management Council, 7700 NE Ambassador Place, Suite 101, Portland, Oregon 97220-1384. <https://www.pcouncil.org/actions/amendment-15-an-initiative-to-provide-de-minimis-ocean-fishing-opportunity-for-klamath-river-fall-chinook/>

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