

SALMON TECHNICAL TEAM REPORT ON THE 2022  
KLAMATH RIVER FALL CHINOOK *DE MINIMIS* EXPLOITATION RATE

For 2022, 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 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 an 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.

**Potential for low spawner abundance**

The potential for critically low natural spawner abundance could be considered moderate. The 2022 minimum natural-area spawner escapement of 38,180 adults is greater than the minimum stock size threshold (MSST; 30,525). A natural-area escapement of 38,180 adults would represent the 25th lowest value over the past 44 years of data.

**Substocks**

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 38,180 adults in 2022. The 720-adult 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 0.14.

**Recent spawner abundance**

The natural-area adult spawner escapement has been lower than MSST in six of the last ten years and four of the last five years. The 2022 forecast of natural-area spawners in the absence of fishing is 50,906 adults, which is above the maximum sustainable yield spawner escapement (S<sub>MSY</sub>;

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 38,180, which is larger than the MSST but below  $S_{MSY}$ .

### **Comingled stocks**

With regard to co-mingled stocks, Sacramento River fall Chinook have a moderate abundance forecast and are likely to be less constraining to fisheries than KRFC in 2022.

### **Environmental indicators**

Indicators of marine and freshwater conditions provided in the California Current Integrated Ecosystem Assessment (CCIEA) California Current Ecosystem [Status Report for 2022](#) suggest a mixed assessment of marine and freshwater conditions that could affect KRFC. Table J.2.3 in the CCIEA report displays “stoplight” indicators including adult abundance, incubation, freshwater residence, hatchery releases, and marine indicators relevant to KRFC abundance. The number of adult spawners in years 2018 and 2019 (age-4 and age-3 in 2022, respectively) were moderate and low, respectively. Brood year 2018 progeny experienced mostly average conditions during incubation and freshwater residence, while brood year 2019 progeny encountered a mixture of conditions in freshwater but generally poor freshwater residence conditions. Ocean indicators suggested poor conditions for brood year 2018 and mixed conditions for brood year 2019. Overall, stoplight indicators suggest that the KRFC broods that will make up the bulk of the adult abundance in 2022 experienced mixed conditions in marine and freshwater habitats.

### **Approaching an overfished condition**

The KRFC stock currently meets the criteria for being at risk of approaching an overfished condition.

### **Overfished status**

KRFC was declared overfished following the 2017 escapement, and continues to meet the criteria for overfished status in 2022.

### **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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