

SALMON TECHNICAL TEAM REPORT ON THE 2023
KLAMATH RIVER FALL CHINOOK *DE MINIMIS* EXPLOITATION RATE

For 2023, the Klamath River Fall Chinook (KRFC) harvest control rule specifies a *de minimis* maximum allowable exploitation rate of 10 percent. The Salmon Fishery Management Plan (FMP) requires consideration of several factors when recommending *de minimis* exploitation rates. From the salmon 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 these circumstances, with the exception of indicators of marine and freshwater environmental conditions and minimal needs for Tribal fisheries.

Potential for low spawner abundance

The potential for critically low natural spawner abundance is considered high. The 2023 minimum natural-area spawner escapement of 23,614 adults is below the minimum stock size threshold (MSST; 30,525). A natural-area escapement of 23,614 adults would represent the 12th lowest value over the past 45 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 23,614 adults in 2023. 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 0.39.

Recent spawner abundance

The natural-area adult spawner escapement has been lower than MSST in seven of the last ten years and four of the last five years. The 2023 forecast of natural-area spawners in the absence of fishing is 26,238 adults, which is below the maximum sustainable yield spawner escapement

(S_{MSY} ; 40,700) and the MSST. If fishing seasons are structured such that the maximum allowable exploitation rate of 10 percent is met, the natural-area adult spawner expectation is 23,614, which is lower than the MSST and S_{MSY} .

Comingled stocks

With regard to co-mingled stocks, Sacramento River fall Chinook have a low abundance forecast and are likely to constrain fisheries in 2023.

Indicators of marine and freshwater environmental conditions

Indicators of marine and freshwater conditions encountered by KRFC broods in the 2023 fisheries [primarily brood years 2019 (age-4 in 2023) and 2020 (age-3 in 2023)] were provided in the [Habitat Committee report](#) provided at the March 2023 PFMC meeting.

Brood year 2019 KRFC were the progeny of a low abundance of spawners. Egg to fry productivity was above average, but outmigrants encountered low flows. The number of hatchery fish released was well below average, but the release timing relative to the spring transition in the ocean was favorable for survival. Early marine survival indicators were mixed. The mean status score for freshwater life stages of the 2019 brood was below average while the mean status score for the marine component of the lifecycle was above average.

Brood year 2020 KRFC were the progeny of a spawner abundance near the mean value, and incubation indicators were also close to the mean. Outmigrants encountered low flows and high temperatures. Hatchery production was below average, but hatchery-origin outmigrants encountered favorable river and ocean conditions. Early marine survival indicators were generally near mean values, the exception being a favorable North Pacific Index. The mean status score for freshwater life stages of the 2020 brood was below average while the mean status score for the marine component of the lifecycle was above average.

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 2023.

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/>

PFMC
04/04/23