CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE REPORT ON KLAMATH DAM REMOVAL RELATED ADJUSTMENTS TO MANAGEMENT TARGETS

As the Klamath Dam Removal project moves through the reservoir draw down and dam removal phases the California Department of Fish and Wildlife (CDFW) notes the need for management of Klamath River fall Chinook (KRFC) in terms that may go beyond those prescribed in the Pacific Coast Salmon Fishery Management Plan (FMP) and the associated KRFC Harvest Control Rule (HCR). While annual fluctuations in stock abundance and limiting factors related to weak stock management in ocean fisheries will clearly play a role in determining annual escapement projections, explicit treatment of a KRFC escapement objective and associated HCR parameters is warranted. The current expectation for volitional passage of anadromous salmonids is during September/October of 2024. Post dam removal, over 400 miles of new habitat will be available to anadromous salmonids, roughly double what is currently available with dams in place.

With Klamath Dam Removal, CDFW has engaged in significant efforts to craft appropriate freshwater regulations in and around the newly available habitat and, along with others, concurrently plan ocean and lower river fisheries to facilitate a successful dam removal and restoration project. Matching freshwater conservation measures with actions in the ocean and lower river represents appropriately fair and balanced management. More conservative management will be necessary to help recover what is currently an overfished stock while simultaneously hastening repopulation and recovery via added spawners to old and new habitat. In Pacific Fishery Management Council (PFMC) managed fisheries, the amount of harvest and spawning adults is regulated through the implementation of Harvest Control Rules (HCR) that determine the amount of harvest (or exploitation) that is allowed across a full range of abundances. Associated with those HCRs, the PFMC also identifies conservation objectives or management targets that are typically in the form of $S_{MSY,}$ or the spawner escapement that maximizes yield. At present time the escapement objective, or S_{MSY} for KRFC, is 40,700 natural-area adults. That objective is based upon a stock-recruitment analysis that was performed in 2005. A recent analysis performed by the Klamath River Fall Chinook Ad Hoc Work Group (Workgroup) indicates that productivity for this stock has greatly diminished over the last 17 brood years, calling into question the sustainability of the current management framework, regardless of the addition of 400 miles of new habitat associated with Klamath Dam Removal. This loss of productivity since 2005 is problematic at all levels of abundance and planned fishery exploitation, however it is particularly concerning to CDFW when levels of abundance drop to very low levels and de minimis provisions of the current HCR are employed. The FMP specifically calls out various considerations related to allowing fishing when abundance is extremely low and directs the Council to 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.

In many respects Klamath Dam Removal emphasizes the need to look at these considerations in a new light when planning management for the interim period of 8-12 years, while the habitat and Chinook populations stabilize, a new stock recruit analysis can be done, and a new long term management framework or HCR can be developed. This is especially true as we await repopulation at sufficient levels to allow for beneficial and robust subsequent recruitment. In the interim, the management framework or alternative method for deriving a maximum allowable exploitation rate should provide conservation benefit across the full range of projected spawner abundances, from very low to very high. Given the significant addition of new spawning habitat, the fact that KRFC productivity has significantly declined, and the need for fish to repopulate that habitat, the interim management approach should also preclude fishing at very low levels of abundance. This is not a new concept for Council managed fisheries, though it has not been employed in management of California and Oregon fisheries since FMP Amendments 15 and 16. Prior to those amendments, Council fisheries would typically be closed any time the projected spawner abundance fell below the conservation objectives, or $S_{MSY.}$

In 2024, an interim and more conservative management approach in the form of an alternative method for deriving a maximum allowable exploitation rate for Klamath River fall Chinook could be utilized to meet the objectives of the Council as they relate to management of KRFC in the face of this monumental restoration and dam removal project, and the more recent changes to population dynamics for KRFC. Utilizing an alternative method for deriving a maximum allowable exploitation rate, as opposed to a singular one-year buffer, may also be prudent given the uncertainty around when, or if, the Workgroup will develop any novel tools or an otherwise more appropriate or useful management framework. While the Workgroup should, and likely will continue to endeavor toward more refined analyses of productivity or sophisticated management tools, the Council should consider a near term approach that incorporates some appropriate durability. CDFW recommends this approach for 2024, with the understanding that the management of 2025 and beyond carries with it some uncertainty. Specifically, see Figure 1 below for the CDFW recommendation for an alternative method for deriving a maximum allowable exploitation rate that borrows features from the alternatives proposed by the Workgroup. CDFW acknowledges that the Council may elect to utilize any number of tools in 2025 and beyond, including other alternative methods for deriving a maximum allowable exploitation rate, however this represents the best and most appropriately durable approach for KRFC at this time, recognizing the uncertainty ahead. Among the other numerous considerations related to fishery management that have been cited in a previous CDFW report and the March 2024 Workgroup report, CDFW believes this strategy will best hasten and achieve increased abundance of future KRFC salmon populations and increases in future fishing opportunity. CDFW also finds that this approach strikes the appropriate balance between conservation needs for this stock and the socioeconomic, health, sustenance, and/or cultural needs of those that depend on the harvest of KRFC.

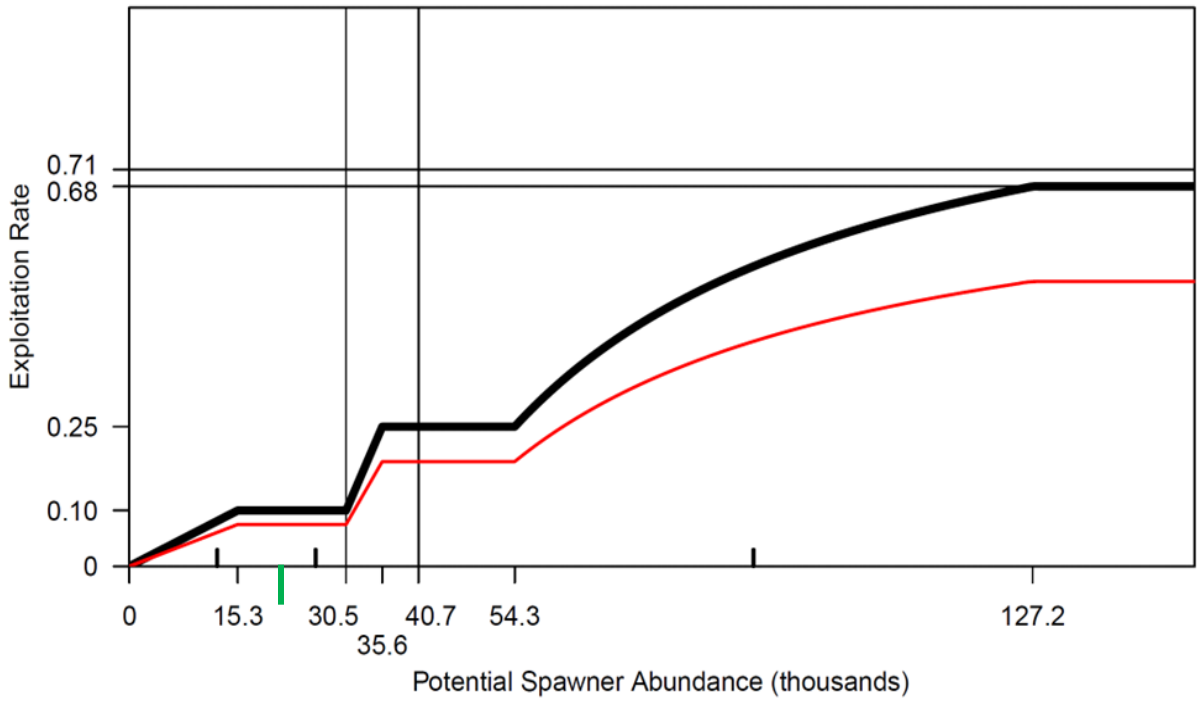

Figure 1. Proposed alternative method for deriving a maximum allowable exploitation rate: The black line is the existing HCR. The red and green line is the proposed alternative method. The alternative method for deriving a maximum allowable exploitation rate equates to a 20% reduction/buffer with 0% exploitation and the removal of de minimis fishery provisions (green line) at 15,300 potential spawners. (The sloping red line between 15.3 and 0 on the horizontal axis would be eliminated.)