

A. Cougar Adult Fish Facility Operations and Transport Protocols for Chinook Salmon:

1. Given ongoing concerns about declining run sizes in the McKenzie Basin, the poor flow and temperature conditions in 2015, and limited data on which to base long-term decisions, a protective approach to operations and transport protocols will be implemented at the Cougar Adult Fish Facility to try to limit the mining of the below-Cougar population to 2% or less. All natural origin Chinook captured in the trap will be floy tagged and released in the lower SF McKenzie or mainstem McKenzie below the SF confluence [at Forest Glen]. If floy-tagged fish reascend into the trap, they will be released above Cougar Dam. "Stray" adipose clipped fish captured at the Cougar Fish Facility will be transported above Cougar.
2. Pedigree results and other data (run size, timing at Willamette Falls, Leaburg Dam, and Cougar Fish Facility, etc.) will be reviewed annually to inform potential changes to this operation in the next year. The pedigree study results from the 2014 and 2015 samples will be of particular value for informing management in 2016. If this retrospective analysis indicates that impacts to the below-dam-origin Chinook population is less than 2% (number of below-dam-origin Chinook placed above Cougar/McKenzie NOR abundance estimate (excluding above Cougar), changes to the protocol will be considered.
 - a. Previous data indicates that the September 1st protocol may provide adequate protection for the below-dam population – that protocol will be considered in future years based on previous and new data:
 - i. Before September 1: Transport all natural origin Chinook salmon captured in the trap for release above Cougar Dam.
 - ii. After September 1st: Floy tag and transport all natural origin Chinook salmon capture in the trap for release in the lower SF McKenzie or mainstem McKenzie below the SF confluence [at Forest Glen]. Transport all natural origin Chinook salmon outfitted with a Floy tag captured in the trap for release above Cougar Dam.
 - b. Review of data may indicate other changes to the protocol may be warranted, and will be considered in the annual review. These may include lower or upper abundance thresholds that trigger recycling, changes in the date when recycling begins, or other options.
3. If less than 400 natural origin females are trapped and transported throughout the season, then additional hatchery female Chinook salmon will be outplanted to total 400 females seasonally. Hatchery females will be outplanted in September from McKenzie Hatchery, after nearly all of the natural run at Cougar has occurred so that the appropriate number of hatchery females can be ascertained. Additional hatchery males will only be outplanted to ensure a sex ratio of one male for every two females released above Cougar Dam (natural and hatchery origin). If at least 200 natural origin males have been released from Cougar trap for 400 females, then no additional males will need to be outplanted from McKenzie Hatchery. Outplanting of "stray" hatchery-origin Chinook salmon from the Cougar FCF will be included in the accounting. The outplanting of hatchery Chinook salmon from McKenzie Hatchery shall use the same

protocols and use only fish that are likely to survive to spawn. Emphasis is on the quality of hatchery Chinook salmon outplanted, not the quantity.

4. It may be several years after a downstream passage fix that natural origin returns increase substantially, depending upon age at return (i.e. 1-4 years later). Data collected between now and downstream passage implementation will inform appropriate outplant numbers to be included in a long-term reintroduction plan.

B. Adaptive Management:

1. Annually, tissue samples will be taken from all natural-origin adults entering Cougar Trap, all hatchery-origin Chinook outplanted above Cougar Dam, and from carcasses encountered during spawning surveys in the McKenzie subbasin below Cougar Dam and preserved for future genetic analysis. Funding will be sought for Pedigree study analyses and results from two years of sampled data (e.g. Banks et al.) and will be reviewed annually before Cougar Dam downstream fish passage is improved, and every other year for at least a total of 6 years following passage improvements, to evaluate the fish passage and reintroduction program. Annual trap protocols will be defined by April of each year, based on review of relevant data.
2. The seasonal trapping protocol should be reviewed and adjustments considered if impacts to the below-dam population are less than or greater than 2%. (as described in Section A #2 above) When the seasonal transport protocol is under review, additional factors should be considered including:
 - a. contributions from above Cougar below the lower spawning reaches,
 - b. adfluvial parents contribution to the unassigned fish,
 - c. repeat male spawners from below entering trap late in season,
 - d. impacts of recycling on returns to Cougar Trap (PSM, straying elsewhere after recycled)
3. If fitness of hatchery fish is statistically different from natural origin returns, then the thresholds for supplementation (400 females / 200 males) should be reviewed and changed as necessary to maximize fitness and encourage local adaptation, as balanced with the need to maintain production using supplementation until natural origin returns are above the thresholds.
4. A review of supplementation efforts (as described in #3 of Operations/Protocols above) will occur if annual abundance thresholds (>400 natural-origin females / >200 natural-origin males) are maintained on a three year rolling average or when R/S ratio is determined to be >1 for three consecutive years. The review would include examining population trends, potential impacts (negative and positive) of supplementation, and other relevant factors.
5. This document will be reviewed annually given the considerations described above, and updates will be made as necessary.