



**US Army Corps
of Engineers** ®
Portland District

June 12, 2015

MEMORANDUM FOR THE RECORD

SUBJECT: Questions and comments on the proposed changes to the existing Cougar adult trapping and transport protocol, as described in the *Cougar Adult Fish Facility Operations and Transport Protocols for Chinook Salmon - 6-5-15 edits (3).docx*

TO: WATER Hatchery Management Team

Bernadette, Jeff and Lance,

Thank you for sharing the revised draft Cougar AFF protocol (*Cougar Adult Fish Facility Operations and Transport Protocols for Chinook Salmon - 6-5-15 edits (3).docx*). The ODFW and NMFS propose to change the existing Cougar adult trapping and transport protocol this season, specifically to recycle all unmarked Chinook back downstream throughout the run. For reasons outlined below, the Corps does not recommend changing the existing Cougar AFF protocols until the current protocol is further evaluated, options considered, and a trap operation and reintroduction plan is completed for the Cougar AFF.

The Corps requests ODFW and NMFS formally present the proposed changes to Cougar AFF trap and transport protocols at an upcoming WATER technical team meeting for discussion (HMT, FPT, or RME). We further request a written response from ODFW and NMFS to the questions and comments we've shared below. Until ODFW and NMFS formally request these changes, operations are ongoing at Cougar AFF and we will follow the established protocols.

Questions and comments from the Corps on the revised draft Cougar AFF protocol:

1. Evidence collected to date indicates the current protocol sufficiently protects the population below the dam, while still allowing for transportation of fish that originated upstream of Cougar Dam to their natal habitat. The population above Cougar cannot develop a locally adapted phenotype or contribute to the below dam population if it is not afforded upstream passage. Information on adult return timing (G. Taylor pers. com.) indicates that local adaptation is occurring rapidly at Fall Creek with adults now returning one month earlier than the original hatchery stock that was used for reintroduction. We are concerned that under the ODFW/NMFS proposed protocol many of the recycled fish will spawn below the Dam where there is less optimal water quality (especially this fall, when it is anticipated temp ops will not be

possible beginning in late July this year). Therefore more hatchery fish will need to be placed above Cougar Dam to meet the established thresholds (400 females/200 males), further eroding any local adaptation that we have worked hard to establish.

2. What is the basis for the proposed goal to limit the transportation of the below-Cougar population to 2% or less? How will the goal be measured, and what margin of error is acceptable?
 - a) Isn't some intermixing above and below Cougar healthy? And shouldn't it be accounted for when determining this management goal?
 - b) What abundance below Cougar is needed to maintain the current population viability status (extinction risk)?
3. Why would a change in the current protocol be proposed when data indicate it is very close to, if not, meeting your proposed 2% goal?
 - a) The current trapping protocol (to recycle adults after September 1st) was implemented in 2013 and continued in 2014. Pedigree data analyzed for 2013 indicate the number of unassigned unmarked adults passed above Cougar in 2013 was effectively reduced.
 - b) Based on numbers you shared, prior to Sept 1, 21 of the unmarked adult Chinook transported upstream were unassigned in 2013. This represents up to 1.9% (21/1081) of the McKenzie population below Cougar Dam in 2013.
 - c) After September 1st, 2013, with the recycling protocol implemented, a total of 64 Chinook entered the Cougar Trap and would have been released above the dam in absence of the protocol. Of these 64 adults, 51 were not offspring of Chinook previously reintroduced above Cougar Dam, however only 7 of the 15 Chinook released above Cougar Dam after September 1st were unassigned. Therefore, a total of 28 unassigned fish in 2013, or 2.6% of the McKenzie population (28/1081) were transported upstream. This 2.6% estimate is an over estimate since the pedigree data are known to be biased low (i.e. some of the unassigned fish were actually produced above Cougar). Similar data is now available for 2014, but have not been analyzed.
 - d) The Corps is currently processing funding of pedigree analysis for two additional years (2014 and 2015) to support continued evaluation of the current protocol.
 - e) Results from more than one year should be considered before making changes, given inter-annual variability in the Chinook run and environmental conditions.
4. pHOS management between Leaburg and Cougar dams. Is another goal of the revised draft Cougar AFF protocol (100% recycling at Cougar Trap) to manage pHOS between Leaburg and Cougar dams?
 - a) The proposed Cougar Trap protocol will influence pHOS management by increasing the number of unmarked Chinook below Cougar, in part with wild Chinook originating from above Cougar Dam.
 - b) Are the effects of HOS significant enough to warrant the increased potential of PSM from the proposed management actions at both Leaburg (see below) and Cougar? If the effect is this great, should there be additional thought given to pHOS actions with more certainty and less direct affects on wild fish?

5. Stress and risk of PSM to wild McKenzie Chinook will increase as a result of the proposed change in the Cougar AFF protocol, due to additional handling, tagging, transport and migration, which will be further exacerbated this year by extremely hot and dry conditions.
 - a) Most importantly, this is likely a bad year to institute aggressive management techniques. As indicated in your proposal, the rationale for your change includes the current flow conditions and corresponding poor temperatures anticipated that may exacerbate PSM. However, your proposal will almost certainly increase stress and potential for greater PSM.
 - b) The additional handling and delay at Leaburg in combination with the proposed recycling at Cougar will likely have a cumulative effect and increase PSM. ODFW and NMFS approved dip netting for this summer in the Leaburg Dam fish ladder to reduce pHOS upstream. For wild Chinook that will be transported above Cougar they could be trapped and handled three times and experience truck transport twice prior to release. Please explain how this handling is likely to address the anticipated poor flow and temperature concerns that contribute to PSM.
 - c) The above-Cougar population will also likely experience additional delay and stress this year due to the issues currently restricting turbine operations at Cougar which is limiting operations to attract adults into the Cougar AFF.
6. What work is being done by ODFW and NMFS to determine the cause of declining Chinook run sizes in McKenzie Basin below Cougar Dam, as cited as an ongoing concern in the revised draft Cougar AFF protocol?
 - a) We understand ODFW and NMFS have formed a workgroup outside of WATER on this subject. We would appreciate an update on any progress made by the group.
 - b) How does the potential transportation of 100-200 (maximum) fish above Cougar compare to other limiting factors? Given the impact from transportation is less than 5% (especially when you factor in 0.4-0.6 cohort replacement rate, not zero) the transportation of these individuals is almost certainly NOT the most limiting factor for the fish below Cougar.
 - c) Historically the SF McKenzie contributed 25% of the McKenzie basin UWR Chinook population (NOAA 2008, 4.3.1.1). Recent returns to the SF McKenzie are on par with this rate. This is alarming given the very poor passage conditions documented at Cougar Dam. Additionally we have recently seen wild fish runs in the North and South Santiam rivers where federal projects impact and block significantly more habitat than in the McKenzie. Even Fall Creek in the MFW has recently seen fish runs roughly half the size of those in the McKenzie in spite of the spatially limited habitat and significant barriers to passage.
7. When will a long-term reintroduction plan be completed?
 - a) The revised draft Cougar AFF protocol states that “Data collected between now and downstream passage implementation will inform appropriate outplant numbers to be included in a long-term reintroduction plan”. This statement suggests NMFS and ODFW are not committed to the established 400/200 thresholds.

- b) The ODFW and NMFS have requested the Corps fund ongoing data collection without a completed plan for how the data would be used to inform passage and reintroduction at Cougar Dam.
 - c) We provided comments on a draft Cougar Chinook reintroduction plan shared by NMFS and ODFW in March 2013, and are waiting for comments to be addressed. Since that draft was shared, the current Cougar AFF September 1st recycling protocol was established and implemented, and should be included in a final reintroduction plan.
 - d) The Plan should describe the goals, performance metrics, monitoring data needs, critical uncertainties, and how monitoring data will be used to make future changes.
8. Is ESA “take” coverage needed to carry out the proposed 100% recycling of wild Chinook at Cougar AFF?
9. The Corps encourages the NMFS and ODFW to carefully weigh the impacts of additional handling, high temperatures, and lack of attraction due to unit outages against the unknown benefit gained through additional recycling. If the actions at Leaburg and Cougar are implemented, post hoc analysis using the parentage analysis AND prespawning mortality data should be performed to inform future decisions on whether a benefit was realized.

Thank you for considering our questions and comments.