

OFFICIAL COORDINATION REQUEST FOR NON-ROUTINE OPERATIONS AND MAINTENANCE

COORDINATION TITLE – Cougar Fish Facility Protocols (outplanting/recycling)

COORDINATION DATE – 19 April 2016

PROJECT – Cougar Dam

RESPONSE DATE – 11 May 2016

Description of the problem

Downstream fish passage conditions at Cougar Dam are currently too poor to support a self-sustaining sub-population of spring Chinook salmon. Therefore when adults originating from below the dam are transported above the dam, productivity of the McKenzie population is reduced. Various transport approaches for moving natural origin (unmarked) spring Chinook after collection at the Cougar Fish Facility have been implemented the last few years, with a goal to minimize transport of unmarked spring Chinook originating from below Cougar Dam upstream of the dam, and avoid “mining” from the downstream McKenzie spring Chinook salmon population. In ODFW’s proposal for the 2015 season, it called to limit transporting unmarked adult spring Chinook above Cougar Dam from the population of natural origin returns below Cougar Dam to 2% or less (Attachment 1).

In 2012 and earlier, any natural origin (unclipped) spring Chinook salmon were transported and released above Cougar Dam. During planning for the 2013 adult spring Chinook migration, it was proposed (Attachment 5) by the Oregon Department of Fish and Wildlife (ODFW) that any fish returning to the Cougar Fish Facility after September 1 be recycled downstream, and if they returned again to the Cougar Fish Facility they were then moved and released above Cougar Dam. This was based on pedigree studies indicating that the majority of fish returning to Cougar Dam before September 1 were offspring of transports above the dam. During 2015, ODFW and the National Marine Fisheries Service (NMFS) decided that all spring Chinook salmon, regardless of date, be recycled downstream, and if they returned again to the Cougar Fish Facility they would then be moved and released above Cougar Dam despite concern from the USACE (Attachment 2 and 3).

Continuing pedigree analysis performed by Oregon State University shows that the majority of fish returning to Cougar Dam before September 1 were produced above the dam. In 2013 and 2014, an estimate of about 2.4% of the downstream spawning population was transported above Cougar Dam and equates to approximately 4-5 spring Chinook salmon mined from the spawning population below Cougar Dam. The protocol implemented during 2015 resulted in transporting 1% of the downstream spawning population above Cougar Dam, however, this required double-floy tagging, excessive handling, and delaying spawning of natural origin spring Chinook salmon. These percentages are biased high since 1) the unassigned transports were calculated as a percent of the number of natural origin spawners instead of the number of natural origin returns, and 2) some unassigned transports likely originated from above Cougar Dam. In

addition, some adults originating above Cougar may spawn below Cougar Dam, increasing productivity of the McKenzie population.

Since the “after September 1st recycling protocol” has essentially met the goal to minimize mining when considering the bias in the estimated 2.4%, the USACE is proposing to revert back to the this protocol in 2016 (described in Attachment 5) to move all natural origin (unclipped) adult spring Chinook salmon above Cougar Dam that return to the fish facility before September 1. Thereafter, fish will be recycled downstream unless they return again to the facility and will be transported and released above Cougar Dam.

[Attachments 1 and 4 are documents provided by ODFW and NMFS and provide additional context]

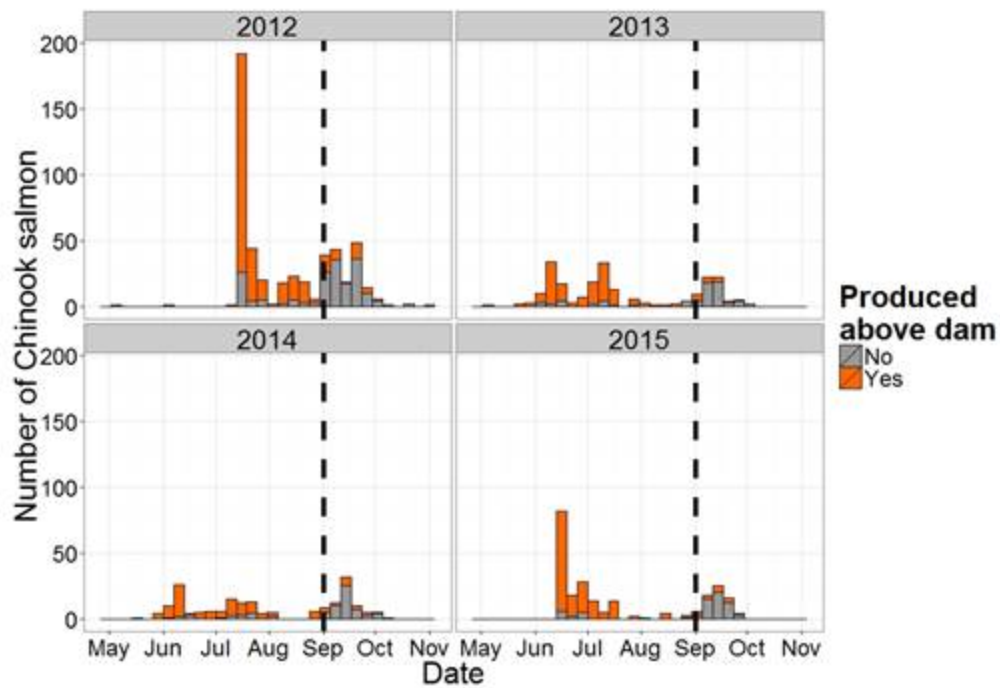


Figure 1. Results of pedigree analyses in the McKenzie River Basin of spring Chinook salmon produced above and below Cougar Dam (Sard presentation, Willamette Science Review 2016).

Table 1. Natural origin spring Chinook immigrants and fish outplanted above Cougar Dam from 2013-2015 (Personal Communication, Nick Sard, Oregon State University, April 2016).

Unmarked transported above Cougar			
Year	NOR		Total
	immigrants	Reintro.Fish	
2013	29	145	174
2014	25	108	133
2015	15	122	137

Table 2. Summary information on the percent of unassigned, unmarked adult McKenzie spring Chinook salmon entering Cougar Trap before and after September 1st, and transported above Cougar Dam, as a percent of the total estimated population of natural origin spawners in the McKenzie (excluding spawners above Cougar Dam). Unassigned refers to adult progeny that did not assign to parents which spawned above Cougar Dam using genetic pedigree analysis.

Year	McKenzie NOS (excluding above CGR) ¹	Unassigned ² trapped as a % of NOS ²		Unassigned ² transported above CGR as a % of NOS ³	Recycling?
		Before Sep 1	After Sep 1		
2011	2511	4.2%	4.6%	8.8%	No
2012	1769	2.8%	7.3%	10.2%	No
2013	1202	1.8%	4.2%	2.3%	After Sep 1
2014	1031	1.8%	5.3%	2.4%	After Sep 1
2015	1571	1.0%	3.2%	1.0%	All Season

1. Data provided by Cameron Sharpe, ODFW, Personal Communication, April 2016.
2. Unassigned adults most likely originated below Cougar Dam, however a small percent could have originated above Cougar Dam spawned from adfluvial parents (see Sard presentation, Willamette Fisheries Science Review, February 2016)
3. Data provided by Nick Sard, OSU, Personal Communication, April 2016.

Type of outage/change required

The protocol for moving fish at the Cougar Fish Facility has changed the last few years and was documented in MOC 15CGR02 for the 2015 fish collection season. The protocol implemented during the 2013 and 2014 fish collection seasons was documented in Attachment 5 provided by ODFW. Ultimately, the protocol will be included into the Willamette Fish Operations Plan once a consistent protocol is established.

Impact on facility operation

Operations would revert back to those performed in 2013 and 2014 and should decrease required personnel time.

Dates of impacts/repairs

During the 2016 adult fish collection season through October 15.

Length of time

Implementation of proposed action will occur for the next several months through October 15.

Expected impacts on fish

Naturally produced spring Chinook salmon destined to spawn above Cougar Dam will not be: delayed, double floy tagged, and handled twice thus reducing stress to fish. Approximately 2% of fish that were produced below Cougar Dam may be transported and released above Cougar Dam.

Comments from agencies

-----Original Message-----

From: Bernadette N Graham-hudson [mailto:Bernadette.N.Graham-hudson@coho2.dfw.state.or.us]

Sent: Wednesday, May 11, 2016 4:21 PM

To: Walker, Christopher NWP

Cc: Lance Kruzic (lance.kruzic@noaa.gov); Stephanie Burchfield - NOAA Federal; Jeffrey Ziller (jeffrey.s.ziller@state.or.us); Cameron Sharpe - OSU; Bernadette Graham Hudson (bernadette.n.graham-hudson@state.or.us)

Subject: [EXTERNAL] RE: 16CGR02 MOC, Cougar Fish Facility, outplanting/recycling (UNCLASSIFIED)

Chris,

Thank you for the opportunity to provide comments on the Corps' MOC regarding the outplanting/recycling protocol at the Cougar Fish Facility (16CGR02). ODFW is in agreement with the comments provided by NMFS in their 5/11/16 memo, and we do not support the Corps' proposal to change the protocol back to the September 1st recycling.

ODFW asks the Corps to implement the same Cougar Adult Fish Facility Operations and Transport Protocols that were implemented in 2015 - the full-season recycling protocol. This protocol includes that 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.

ODFW reviewed the trap return data, along with the pedigree information for 2013, 2014, and 2015. We reviewed the trap returns and assignments before and after September 1st, including hypothetical scenarios where the alternate protocol (full season recycling vs. September 1st recycling) would be implemented. We also reviewed cohort return rates at Cougar Dam and run sizes in the McKenzie Basin.

* The 2015 full-season recycling protocol resulted in potential protection of 13 natural origin fish that would have been passed above Cougar Dam under the September 1st recycling protocol. [15 out of 67 NOR fish (22%) were passed above under the full-season recycling protocol; 28 out of 67 NOR fish (42%) would have been passed above Cougar under the September 1st recycling protocol]

* Both the full-season recycling and the September 1st recycling protocol resulted in similar numbers of above-dam-produced fish not returning to the trap and potentially spawning below the dam.

* ODFW sees benefit from replicating the 2015 protocol to obtain a second year of data on the full-season recycling and its effects on fish returning to the trap, potential PSM or other impacts from handling, and pedigree assignment.

* ODFW is willing to provide assistance with recycling or outplanting NOR fish, if necessary.

ODFW will review available data, including additional pedigree results, after the 2016 run year to evaluate potential protocol changes for subsequent years. The review of data is described in the Cougar Adult Fish Facility Operations and Transport Protocols for Chinook Salmon, updated 6/24/15, provided by NMFS and ODFW last year.

Please let me know if you have any questions.

Thanks,

Bernadette

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[NMFS comments - see attachment 6]

Final results

The protocol implemented in 2015 will be implemented the same in 2016.