

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

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To: Wells HCP Hatchery Committee, through Mike Tonseth March 15, 2013

From: Charles Frady and Charlie Snow

Subject: **Methow Hatchery broodstock collection of NOR spring Chinook salmon at Wells Dam**

The lack of tributary trapping facilities in the Methow Basin has precluded local collection of Methow Composite (MetComp) NOR fish for Methow Hatchery spring Chinook salmon broodstock. As an alternative to local collection, Wells Dam fish ladder traps have been used to collect run-at-large NOR spring Chinook salmon. Since 2009, WDFW Genetics Lab personnel (Ken Warheit and Maureen Small) have provided analyses of microsatellite loci from NOR spring Chinook salmon trapped at Wells Dam to characterize NORs into one of two genetic populations (Twisp or Non-Twisp); detailed methods can be found in Small et al. 2007. All NORs characterized as Non-Twisp were incorporated into MetComp broodstock. Beginning in 2011, the non-Twisp category was elaborated by including additional DNA baselines (e.g., Entiat, Wenatchee, etc.) in DNA genotyping, resulting in a more detailed representation of the genetic structure of the run-at-large population at Wells Dam. Consequently, many fish trapped at Wells Dam exhibited a strong likelihood of originating from non-target populations (out-of-basin) in the Upper Columbia. To assist managers in determining broodstock suitability, Warheit and Small in 2012 provided further guidance for baseline assignment (Table 1). During that year, a total of 129 natural origin fish were retained and sampled at Wells Dam for the 2012 Methow Hatchery broodstock. Of these, 74 fish were released as they did not assign to either the Twisp or MetComp baseline strong enough to be incorporated in broodstock. For 2013, we propose continuation of the aforementioned DNA analyses and selection criteria.

Thank you, and please feel free to contact me for further correspondence.

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References:

Small, M. P., K. Warheit, C. Dean, and A. Murdoch. 2007. Genetic monitoring of Methow spring Chinook. Molecular Genetics Lab unpublished report.

Warheit, K. Data memo for Methow broodstock screened at Wells Dam. June 15, 2012.

Table 1. Recommended treatment for Chinook salmon intercepted at Wells Dam based on genetic assignment thresholds to reporting groups (from Warheit 2012). “Assigned” fish are at least two times more likely to be from population 1 (population with highest posterior probability) than from population 2 (population with second highest posterior probability). “Unassigned” fish are less than two times more likely to be from population 1 than from population 2.

Status	Population #1	Population #2	Treatment
Unassigned	Out-of-basin	In-basin	Return to river below Wells Dam
Unassigned	In-basin	Out-of-basin	Return to river below Wells Dam
Unassigned	In-basin	In-basin	Return to river above Wells Dam
Assigned	Out-of-basin	any	Return to river below Wells Dam
Assigned	92Winthrop H	any	Return to river above Wells Dam
Assigned	Methow Summer	any	Return to river above Wells Dam
Assigned	Twisp	any	Twisp broodstock
Assigned	MetComp	any	MetComp broodstock