

April 19, 2017

Memorandum -- delivered via email

To: Chris Walker, NWP Operations Division Fishery Section  
US Army Corps of Engineers (Corps)

SB

From: Stephanie Burchfield, Fisheries Biologist, Willamette Branch,  
West Coast Region, National Marine Fisheries Service (NMFS)

Subject: NMFS' comments on MOC "17DET02 North Santiam Temperature Targets"

Thank you for the opportunity to review this Memorandum of Coordination (MOC). This memo summarizes comments prepared by NMFS' West Coast Region technical staff.

### **Comments**

NMFS supports implementation of these revised temperature targets for the North Santiam River beginning summer of 2017. While the interim operation at Detroit using spill, regulating outlets (RO), and turbine discharge is not able to fully attain temperature targets, it has improved downstream habitat conditions for steelhead and Chinook salmon. We request that the Corps use the ROs, when possible, to increase the probability of achieving temperature targets.

NMFS recommends the Corps use these revised temperature targets in the design of the Detroit Phase 1 Downstream Fish Passage and Temperature Control project. Moreover, because we will continue to work together to adaptively manage temperature below the Project dams, the new temperature control facility should be designed to be capable of releasing a range of temperatures rather than a single set.

We appreciate the comparative temperature analysis prepared by Dan Turner, Corps (document dated 3/30/2016). This analysis was based on interim operations of spill and powerhouse flow only. It doesn't not take into account use of the ROs to provide cooler water. We recognize that under interim operations, temperature targets will be more likely to be exceeded in the fall if we manage Detroit to release cooler water in the summer than under the existing targets. However, if the Phase 1 Detroit downstream passage facility/tower is designed to meet these new targets, we expect the Corps' chances of meeting the targets will be much greater. Is there an explanation for why the migration row in Table 2 has the same % days not met for the existing and proposed target (1<sup>st</sup> row)? Given lower proposed minimum targets would allow cooler late spring flows in normal and cold wet years, the releases would be more likely to remain within the desired range. Could this be due to the model using spill or turbine operations only?

Regarding the change in Chinook emergence dates also shown in Table 2, there are not large differences due to the proposed targets. From 2001-2013 the median peak emergence date was April 11 above Detroit, and much earlier, February 9 below Detroit (Friesen, personal communication). The median difference above and below the dams is 87 days, so while the current proposal for temperature targets is showing between 2 and 9 days shift in the below dam incubation period, the overall effect is much smaller than that caused by shifted hydrology. The evaluation showed there were few to no days in which the proposed target would not achieve criteria during spawning periods. The percent of days not achieving criteria is lower for spawning, and changes very little in hot dry years. In these years, emergence dates are shifted to the earliest time (mid-December) and the proposed criteria only shifts emergence date by 2 days (from 12/15 to 12/13).

In years when snowpack levels in months prior to April are low or melting faster than usual, we recommend the Corps consider actions to allow filling Detroit and improve emergence timing. For example, in 2016 lack of refill might have been alleviated with actions prior to April. Where possible, lower risk drought years (those with low snowpack) might lead to alternative operations.

This evaluation further reinforces the need to install a temperature control tower at Detroit to improve the likelihood that temperature targets can be achieved. We note that RES-SIM system modeling results are based on hydrologic data through 2008, missing some recent warm, dry years, and if the future holds more warm, dry years, we would expect targets to be more difficult to achieve using operational methods.

Please direct questions or concerns about these comments to Anne Mullan at [anne.mullan@noaa.gov](mailto:anne.mullan@noaa.gov) or 503-231-2367 or Diana Dishman at [diana.dishman@noaa.gov](mailto:diana.dishman@noaa.gov) or 503-736-4466.

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