October 11, 2018

Memorandum – delivered via email

To: Chris Walker, Operations Division

Portland District, U.S. Army Corps of Engineers

From: Lance Kruzic, Artificial Propagation/Inland Fisheries

West Coast Region, National Marine Fisheries Service

Subject: NMFS comments on document titled "18FOS04 Holding Unmarked Chinook Salmon at Foster Fish Facility (and other outplanting strategies)"

Thank you for the opportunity to comment on the memorandum of coordination (MOC) regarding the holding of unmarked spring Chinook salmon at Foster Fish Facility. The Corps of Engineers (Corps) sent out the first MOC on September 13, 2018, and then sent out a revised MOC on September 25th. The later memo included two additional options for outplanting salmon above Foster Dam (release into reservoir, release at alternative sites with cooler temperatures) that have not been discussed recently by the WATER Hatchery Management Team. There are many factors that need to be considered with these two options (Keefer et al. 2018; Naughton et al. 2018) and further evaluation needs to occur before NMFS will support them being implemented on a regular basis.

We support holding adult salmon at Foster Fish Facility for extended periods of time (more than two weeks) when there are extreme water temperature differences above and below Foster Dam. In 2018, peak collection of salmon at Foster Dam occurred when temperatures in the outplanting area above the dam were very high (Figure 1). These circumstances were of great concern given the very low numbers of unmarked salmon and the effects of elevated water temperatures on the stress and mortality of these fish. Holding adult salmon at facilities throughout the Willamette Basin during the summer and releasing the fish in September just prior to spawning has been a proven and effective method for maximizing spawning success during adverse environmental conditions to reduce prespawning mortality (Sharpe et al. 2017). Managers should have this option given the disparate water temperatures above and below Foster Dam and delays in the collection of fish that are likely to continue in the future.

Since the new Foster fish facility is designed to accommodate the long-term holding of adult spring Chinook salmon within acceptable standards for holding density and disease, this is not a major risk factor. Long term holding of adults needs to be an available option every year. We direct the Corps to include this potential action in the Willamette Fish Operations Plans for the South Santiam Subbasin Fish Operations Plan and Hatchery and Genetics Management Plan in the event the co-managers need to hold salmon again in order to maximize their survival.

Please let me know if you have any comments or questions.

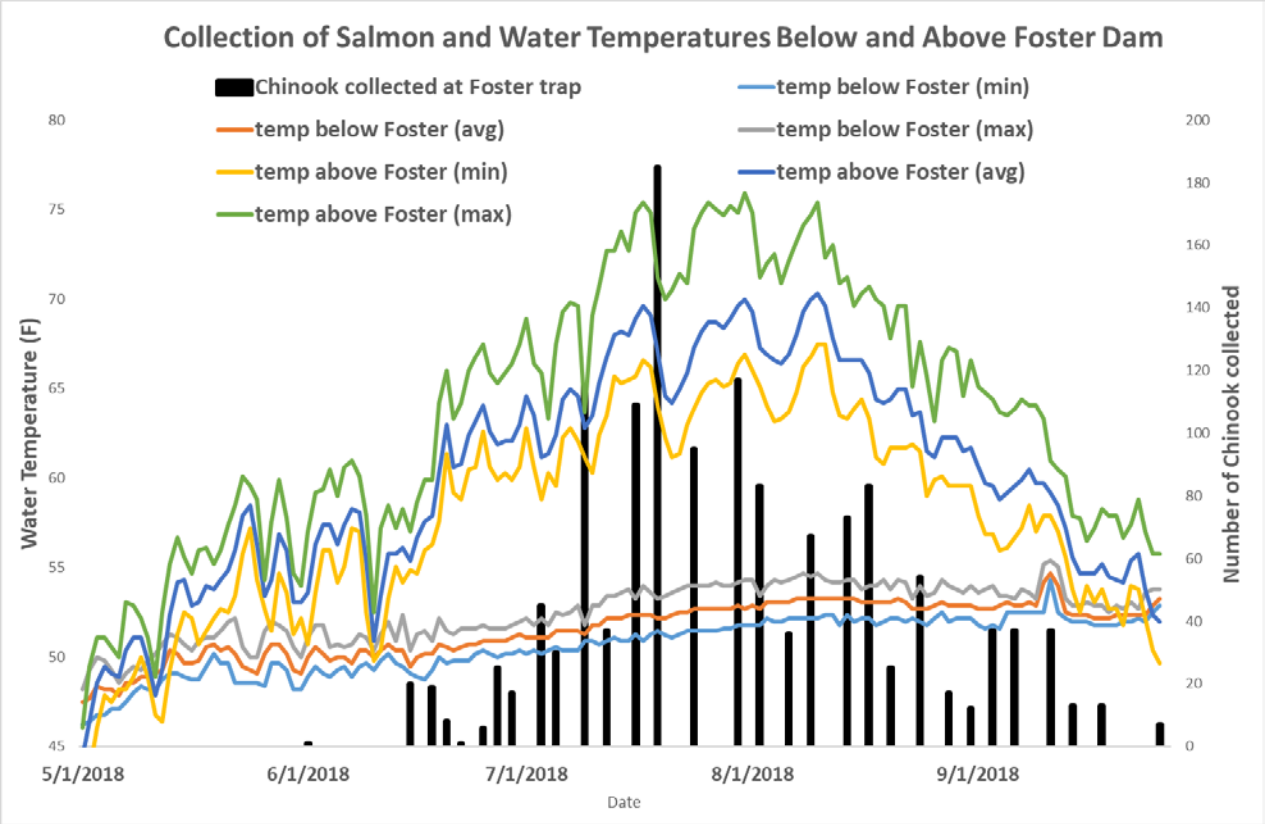

Figure 1. Water temperatures in the South Santiam River above and below Foster Dam in 2018. The black vertical bars are the number of adult spring Chinook salmon collected at the Foster fish facility. Temperature data from USGS gages 14187200 and 14185000.

Literature Cited

Keefer, M.L., T.S. Clabough, M.A. Jepson, T. Blubaugh, G. Brink, G.P. Naughton, C.T. Boggs, and C.C. Caudill. 2018. Evaluation of Adult Chinook Salmon Behavior at the Foster Dam Adult Fish Facility and in Foster Dam Reservoir on the South Santiam River, 2017. Prepared by the Department of Fish and Wildlife Sciences, University of Idaho, Moscow, Idaho for the U.S. Army Corps of Engineers Portland District. Technical Report 2018-3-FINAL.

Naughton, George P., Matthew L. Keefer, Tami S. Clabough, Matthew J. Knoff, Timothy J. Blubaugh, Cameron Sharpe and Christopher C. Caudill. 2018. Reservoir provides cool-water refuge for adult Chinook salmon in a trap-and-haul reintroduction program. Marine and Freshwater Research. https://doi.org/10.1071/MF18124

Sharpe, C.S., R.L. Mapes, B. Cannon, P. Olmstead, M. Sinnott, B. DeBow, E. Bailey, T. Hoblit, and T.A. Friesen. 2017. Abundance, Distribution, Diversity and Survival of Adult Spring Chinook Salmon in the Upper Willamette River: 2015 and 2016. Oregon Department of Fish and Wildlife. Willamette Salmonid Research, Monitoring, and Evaluation Program. Corvallis Research Lab, Oregon

Cc: (electronically)

Dishman, Mullan (NMFS)

Couture, Reis (ODFW)

Traylor (Corps)