

Statement of Agreement

Wells Dam 2023 Bypass Operations and Methods

Approved: January 24, 2023

Spring bypass operation at Wells Dam will be initiated on April 9, 2023 and end on June 13, 2023. Summer bypass operation will initiate on June 14, 2023, without a hiatus between the spring and summer operation, and end when Program Realtime¹ determines that the 95th percentile of the subyearling Chinook outmigration has passed Rocky Reach. This conservative summer bypass operation will ensure that greater than 95% of the subyearling Chinook outmigration is protected in all water years due to the travel time delay between Wells and Rocky Reach.

Background

The Wells HCP Agreement requires bypass operations at Wells Dam April through August. When the HCP Agreement was developed, bypass dates were selected based on fyke-net and hydroacoustic data showing concentrated movement of outmigrating plan species between April 10 and August 15 (See HCP Section 4.3.2). Beginning in 2012 Douglas PUD completed post-season bypass reporting showing the proportion of each plan species' migration covered by bypass operations in a given year. Bypass coverage has been determined by examining passage dates at Rocky Reach Dam and adjusting for the travel time of known-origin PIT-tagged smolts migrating between Wells and Rocky Reach dams. In all years between 2012 and 2021, bypass operations provided coverage for 95% or greater of all five plan species.

Employment of fixed dates between April 9 and August 9, as agreed by SOA in 2021, exceeded the performance standard for all plan species in 2021, and the spring outmigration of spring Chinook, steelhead, sockeye, and coho in 2022. However, PIT tag data suggested that the fixed termination date of August 9, 2022 was 2 days too early and resulted in less than 95% of the subyearling summer/fall Chinook being provided bypass passage opportunities. This apparent premature termination of bypass operations was a function of the estimate of travel times between Wells and Rocky Reach dams, which is based on the small sample size (n=16) of PIT tagged summer Chinook detected at both projects since 2016. For example, using the 15-day median travel time applied in 2021, the termination date of bypass operations in 2022 would have provided the necessary coverage of 95% of the subyearling Chinook migration. Of the 11 years analyzed by Buchanan and Townsend (2022), the August 11th date in 2022 is the latest date of bypass operation necessary to provide coverage for 95% of the subyearling Chinook migration. Nevertheless, the determinant of whether the standard was achieved hinged on the application of an imprecise travel-time estimate.

Using the index sample data at Rocky Reach collected during four samples each day, regardless of PIT tag disposition, is a more reliable and unbiased sample of the subyearling Chinook outmigration than the sample provided by PIT-tagged fish. Unlike screw-trap and beach-seining samples, the Rocky Reach bypass sampling program is systematic, contains a robust sample size, is not biased by fish size and

¹ Program Realtime is an in season migration forecasting tool maintained by the University of Washington's School of Aquatic and Fishery Sciences. The tool and model is publically available and can be viewed here https://www.cbr.washington.edu/inseason/smolt_midcol_che (accessed Dec 12, 2022)

availability, and occurs over the entire subyearling outmigration regardless of environmental conditions. The retrospective analysis of 2012-2021 PIT-tag data was used to predict passage timing at Wells in 2022, and could not account for annual variation in passage timing as influenced by environmental conditions that fell outside those conditions experienced in 2012-2021. Moving to a real time approach should result in a more flexible and encompassing operation that ensures compliance with the 95% bypass standard in all years regardless of environmental conditions (e.g., flows and temperature).

References:

Buchanan, R.A., and R.L. Townsend Proportion of Juvenile Plan Species Outmigrating through Wells Dam during Juvenile Bypass Operations in 2022. November 2022. University of Washington School of Aquatic and Fishery Sciences. Seattle, WA.

Wells HCP Coordinating Committee Statement of Agreement to Adjust the Timing of the Annual Termination of Bypass Operations at Wells Dam Date of Approval: January 26, 2021