

Chelan River Fishery Forum Pump Station Flow Reduction in the Chelan River Habitat Channel Investigation

Proposal

September 3, 2013

FINAL

Background

Flow to be provided in the Chelan River Habitat Channel for steelhead and Chinook salmon is a minimum of 320 cfs by a combination of spill and pumping, per the Chelan River Biological Evaluation and Implementation Plan (CRBEIP). Currently, 5 pumps are used to meet the minimum spawning flow requirement in the Habitat Channel. Due to the complexity and, according to PUD engineers, reduced reliability of variable speed pumps, the pump station was designed to provide 240 cfs at minimum tailwater elevations (maximum "lift" from intake screen to canal, which means minimum discharge per pump). This assures that the 320 cfs minimum flow would always be provided when the minimum instream flow from the lake matches the 80 cfs minimum flow from that source. However, at normal tailwater elevations, the 5 pumps actually discharge from 250-260 cfs (about 50-55 cfs each), and the total Habitat Channel flows during both the Chinook and steelhead spawning periods have been 340-350 cfs.

Washington Department of Ecology (Ecology), Washington Department of Fish and Wildlife (WDFW), and Chelan PUD staff have commented that water velocities being provided in the Habitat Channel currently, particularly for steelhead, may be too high, based on Habitat Suitability Index (HSI) measurements, flow observations in stream margin habitat and log structures during early rearing of Chinook salmon fry, and best professional judgment that the Habitat Channel "just looks better" at lower flows. A remedy for reducing flows in the Habitat Channel for steelhead spawning and Chinook fry early rearing is to reduce the number of pumps operated during the March 15 through May 15 steelhead spawning period. Lower flows can be provided by reducing pump operations from 5 pumps to 4 pumps (200-208 cfs) and adjusting the Low level Outlet (LLO) output, if desired, to be greater than 80 cfs to provide a total flow in the Habitat Channel in the range of 280 cfs – 320 cfs.

Proposal

1. Conduct a pump station reduced flow operation during the Chinook spawning period in 2013
2. Operate 4 pumps instead of 5 pumps from October 15 through November 30, 2013
3. Conduct Chinook salmon spawning ground surveys, as required by the Lake Chelan comprehensive Settlement Agreement (SA)
4. Compare Chinook salmon redd distribution in the Habitat Channel in 2013 to redd distribution from spawning ground survey redd mapping from 2009 through 2012
5. If Chinook salmon redd distribution in the Habitat Channel appears to be similar in 2013 to previous years, then conduct the same pump station operation (4 pumps versus 5) during the steelhead spawning period, March 15 through May 15, in 2014
6. If Chinook salmon redd distribution in the Habitat Channel appears to be significantly different in 2013 to previous years, then return to 5 pump operation for the steelhead spawning period in 2014.