

Study Designs and Preliminary Results in the Evaluation of Various Steelhead Responses to the Removal of a Dam on a Key Tributary to the Wind River in Southwest Washington.

Dan Rawding,
Washington Department of Fish Wildlife

Patrick Connolly,
U.S. Geological Survey, Western Fisheries Research Center, Columbia River Research
Laboratory, Cook, WA

Hemlock dam was constructed in Trout Creek in 1935 by the US Forest Service for power generation and for water storage to irrigate a large nursery for Douglas fir seedlings. A ladder was constructed to allow adult fish passage, but downstream juvenile migrants passed the dam via spill when water was passed over the 8-meter high dam. With the closing of the nursery at the start of this century, the dam became obsolete and a safety concern. Efforts were initiated to remove it, and this task was completed during the summer 2009. The Wind River supports the largest wild and endemic summer steelhead population in the lower Columbia River, and Trout Creek is among the most important spawning and rearing tributaries within this watershed. Since the mid 1990s, concerted effort has been taken to estimate adult returns for the entire watershed using mark-recapture and a trap in the Hemlock Dam fish ladder. Just prior to dam removal, an instream PIT tag interrogation system was installed to enable continued monitoring. In addition, juvenile outmigrant monitoring via screw traps occurred near the dam site on Trout Creek, and at three other locations within the watershed during the same period. This monitoring effort has led to the development of Before-After (BA), and Before-After-Control-Impact (BACI) study designs to evaluate various steelhead responses to dam removal. We will present some of the survival, abundance, life history hypothesis we are testing, results of power analyses to detect significant differences in population changes, and provide preliminary results.