The Design, Construction, and Evaluation of the Wells Dam Adult PIT Tag Interrogation System

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Following the installation of the prototype adult PIT-tag interrogation system at Wells Dam in 2002, Douglas PUD consulted with the Wells Coordinating Committee (WCC) to evaluate the detection efficiency of the newly installed interrogation system. All four goals of the 2002 evaluation were achieved with a high level of resolution.

The detection efficiency for on-site tagged sockeye passing through the left bank ladder was 0.9998 with a 95% confidence interval of (0.9990—1.0000). The overall detection probability for an adult PIT-tagged fish passing over Wells Dam was also correspondingly high (left bank: 0.9959—1.0000; right bank: 0.9990—1.0000). The probability of detection for an adult PIT-tagged chinook, coho, steelhead and sockeye in each fish ladder was at or above 0.989 per species.

The detection efficiencies for run-of-river fish, on-site tagged sockeye and for all four fish species evaluated (chinook, coho, steelhead and sockeye) were not significantly different from one another or between the ladders examined. In all cases, the detection efficiency estimates exceeded the system efficiency objective of 98%.

No evidence of increased fallback at the fish counting stations and no observed accumulations of fish downstream of the adult PIT systems were noted by project personnel or passive via video monitoring in 2002.

The per weir travel time for PIT-tagged fish observed after the installation of the adult PIT-tag system were very similar to the per weir travel times observed during radio-telemetry studies conducted prior to the installation of the adult PIT-tag system.

Based upon the data collected and analyzed during the 2002 evaluation, and given the existing uses of the data being collected from the system, there does not appear to be a need to either modify or expand the existing adult PIT-interrogation system at Wells Dam.