Design and Performance of the River Mill Surface Collector on PGE's Clackamas Hydro Project

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PGE owns and operates the Clackamas River Hydroelectric Project on the Clackamas River in northwest Oregon. The Project is a 100+ year old three dam complex. River Mill Dam, built in 1911, is the most downstream dam in the Project. Prior to 2012, the only routes of passage for downstream migrating fish were through the powerhouse or at high flows over the spillway. In December 2012, PGE put into operation a 500 cfs surface collection facility for collection and safe passage of downstream migrating fish. Paired releases of PIT tagged fish upstream of River Mill Dam in 2013 and 2014 indicate that survival of salmon and steelhead smolts through the impoundment (Estacada Lake), and fish guidance efficiency are greater than 95% for all three species tested. Injury rates of PIT tagged smolts recovered at the surface collector were less than 2%. Numbers of fish captured in the collector have far exceeded expectations, with over 200,000 juvenile salmonids collected in the first two years of operation. This presentation will provide a brief overview of the surface collector design, review biological performance, and touch on lessons learned in the first two years of operation.