

Modeling Wind River Steelhead Life Cycle Survival Based on the Capture-Mark-Recapture Studies

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Empirical life stage and reach scale survival estimates are currently lacking for Columbia River steelhead populations but are needed for salmon recovery and adaptive management plans. We developed a Bayesian Cormack-Jolly-Seber life cycle model to estimate stage-specific survival for 8 different life stages/reach combinations. The model started at the parr stage and measured survival up to the second spawning run of adult steelhead over 9 smolt outmigration cohorts from 2003 to 2011 for an ESA listed population of summer steelhead in the Wind River. The model was parameterized with Passive Integrated Transponder (PIT) tagging, recapture and detection data from the Wind and Columbia rivers. We will present our results and demonstrate how life cycle monitoring can be used to identify limiting factors that can inform recovery planning.