**Ruzycki, James – Oregon Department of Fish and Wildlife**

**Presentation Title: Estimating Escapement of Summer Steelhead Using Redd Surveys: What have we learned and where do we go?**

Abstract for the 2018 Pacific Coast Steelhead Management Meeting

In 2002, we initiated an effort to refine summer steelhead redd survey methods to increase accuracy and precision of natural-origin spawner abundance (NOSA) estimates across several populations in Eastern Oregon. While index redd surveys had been conducted since the 1950’s, they were inadequate for estimating spawner status. We incorporated a statistical GRTS and rotating panel survey design to estimate and spatially represent steelhead populations across watersheds. Repeat surveys were incorporated to compensate for temporal variation within, and across years. To convert redd counts to spawner estimates, we developed fish/redd ratios by surveying a representative watershed that also had a reliable weir for counting passed adults. To improve accuracy, we employed several methods to compensate for our inability to observe redds given variable flow conditions. To increase precision, we stratified watersheds by stream classification and gradient with modest success. Despite these efforts, estimating NOSA using redd survey methods remains a challenge, which has encouraged us to continue exploring alternative methods for estimating spawners in watersheds that lack counting structures and monitoring infrastructure.