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**Presentation Title:** **Diversity in Early Life History Movement and Survival of Juvenile Steelhead in Idaho**

Abstract for the 2023 Pacific Coast Steelhead Management Meeting

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Early life history strategies of movement and rearing of steelhead *Oncorhynchus mykiss* is diverse and varies across their distribution. Steelhead plasticity lends to the species resiliency to persevere through environmental stochasticity and anthropogenic events that affects the riverscape. Their life history diversity also creates complications in monitoring and comparing population status trends, specifically in freshwater environments. We examined large-scale freshwater movement and survival of wild juvenile steelhead from select Idaho rotary screw trap sites to Lower Granite Dam on the lower mainstem Snake River. Juveniles trapped and PIT tagged at the screw traps ranged in age from 0 to 5 years old. Juvenile age composition and mean length at age varied among systems and across years and movement patterns also varied. Some fish directly migrate to the ocean while some hold in freshwater habitat downstream of trapping sites often times in large mainstem rivers for up to three additional winters before migrating to the ocean. Holdover movement patterns were prevalent in all systems with higher prevalence in Fish Creek compared to the other systems examined. Ontogentic shifts in rearing habitat are advantageous to spread cohorts across spatial and temporal scales, reduce risk to ice conditions in small streams during the winter, and can buffer density-dependent mechanisms that can occur in smaller tributary rearing habitat. Age-specific survival of juveniles from screw traps to Lower Granite Dam were highly variable across the trapping sites examined and generally increased with age but was not associated with travel time to the hydrosystem. We continue to expand our understanding of steelhead early life history by applying these methods to other trapping locations and adding these important metrics to our reporting. Understanding diversity of early life history strategies of steelhead can help identify freshwater system needs and inform management of tributary restoration actions. Moreover, managing for diverse early life history portfolios of steelhead is essential for the species’ resiliency.