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**Presentation Title:** **Life-cycle Models for Yakima River *O. mykiss*: A Tool for Evaluating Environmental Factors on Fish Life History Strategy and Abundance**

Abstract for the 2018 Pacific Coast Steelhead Management Meeting

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Understanding how environmental factors will impact a fish’s life history and abundance and therefore evaluating and prioritizing habitat restoration actions to promote conservation and recovery of Yakima River Basin steelhead/rainbow trout (*Oncorhynchus mykiss*) is a challenging but necessary management action. Given the complexity of these species’ habitats and life histories, there is also great interest in understanding the magnitude of climate change effects on salmonid habitat suitability and population persistence. Development and integration of existing *O. mykiss* life-cycle models can be used to identify limiting environmental factors and evaluate climate change effects that cause mortality at various life stages, acting as population “bottlenecks.” This work draws upon multiple existing life-cycle models to create updated, more biologically-accurate, population-specific models relevant to the Yakima River Basin. The updated life-cycle model predicts population abundance at each life stage and overall abundance and viability after a set number of years in accordance with various scenarios that captures anticipated changes to freshwater environmental variables (temperature and flow) and estuarine and ocean conditions. The outputs associated with the various scenarios can act as a decision support tool to guide restoration priorities so scientists and managers can focus on scenarios associated with higher population abundance and viability.