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**Presentation Title: Factors Associated With the Regional Patterns of Steelhead Survival in the Columbia River Basin**

Abstract for the 2018 Pacific Coast Steelhead Management Meeting

Steelhead populations within the Columbia River basin enter the hydropower system at different locations with different levels of exposure to operational and environmental conditions during their juvenile outmigration. However, these populations share a common estuarine and oceanic environment following passage through the hydropower system. These common versus differential experiences allow for useful comparisons of population- and life-stage-specific survival rates and the factors that may be associated with those rates. In this presentation, we present mark-recapture estimates of in-river survival, ocean survival, and smolt-to-adult return rates for wild steelhead populations from the Yakima, John Day, and Snake rivers and examine how these survival rates vary over time and with environmental factors. Through simulation studies that incorporate these patterns of variability, we will explore survival targets and hydropower operations that may be necessary to support population recovery.