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**Title: The Effect of Experimental Hatchery Manipulations on Wild Broodstock Steelhead (*Oncorhynchus mykiss*) Growth and Behavior**

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One of the biggest hurdles for a juvenile salmonid is migrating downstream from freshwater spawning grounds to the ocean. Because many Pacific salmonids are ESA listed, research using wild populations is limited. The Surrogate Project’s goal is to raise wild-like fish to provide researchers with sufficient numbers of fish to evaluate potential causes for the decline of wild populations. Specifically, the project’s goal is to study an endangered wild winter run of *Oncorhynchus mykiss* on the dammed North Santiam River in western Oregon. We reared juveniles from wild winter steelhead broodstock at the Oregon Hatchery Research Center (OHRC) in Alsea, OR using two treatments over nine months: conventional tanks and tanks with a scalable complex structure that is easy for hatchery staff to implement and clean. We chose to rear both groups at densities below conservation hatchery standards and to feed them low-lipid experimental diets. We assessed the fish using morphometric measurements, behavioral assessments, and conducting growth rate analyses. For the fin morphometrics, we compared dorsal and caudal fins of fish reared in conventional hatchery tanks and in tanks containing complex structure. In addition, we used behavioral assessments, including predator-avoidance and foraging behavior, to comparefish across rearing treatments. In a separate component, we tested fish growth rate related to individuals’ egg size at spawning. We chose to raise fish in duplicate tanks containing small-egg origin fish, large-egg origin fish, and a mixture of the two. The goal of this project is to improve on current hatchery practices to produce a wild “surrogate” fish for downstream passage studies when a wild run is not robust enough to provide experimental animals.