Title:
The Effects of Domestication on the Relative Vulnerability of Hatchery and Wild Spring Chinook Salmon to Predation

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Abstract:
Hatcheries have been used in an attempt to increase the production of Pacific salmonids in the Columbia Riversystem since 1877. While able to achieve better survival from egg to release, it has been noted that hatchery-reared fish do not perform as well as their naturally reared counterparts in the natural environment. We performed the third year of an experiment where size-matched fry spawned from first generation hatchery broodstock and from wild broodstock were subjected to rainbow trout (*Oncorhynchus mykiss*) and torrent sculpin (*Cottus rhotheus*) predators in net pens at the Cle Elum Supplementation and Research Facility. This third year included the Naches line from wild broodstock collected on the spawning grounds in the Naches River Drainage, which is a tributary to the Yakima River and has no hatchery influence. The Naches line serves as a wild baseline control. There was no significant difference in survival between the three origins of fry ($P>0.05$). Other trials were performed to assess the effects of fry size on predation vulnerability. A mean size difference of 4 mm FL was found to result in a 9% survival advantage for the larger fry ($P = 0.01$). This study will be performed annually for several generations of fish to help monitor the success of supplementation.