Title: Predator avoidance training hatchery spring Chinook juveniles using Mergansers (*Lophodytes cucullatus & Mergus serrator*) as training agents.

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Abstract:
A predator avoidance training experiment was conducted upon a population of hatchery Yakima spring chinook (Oncorhynchus tshawytscha) juvenile salmon reared at the Cle Elum Supplementation & Research Facility (CERSF), in a pilot test that evaluated this type of behavioral conditioning as a fish culture methodology to enhance/improve hatchery juvenile smolt survival. The study attempted to test the hypothesis that by predator avoidance training (thereafter PAT) a test-group population composed of hatchery juvenile salmon, by the use of Hooded and Red-Breasted mergansers as training agents, trained fish would survive in proportionally higher numbers than that of a comparable sized population of un-trained juvenile salmon. This study also employed a grid matrix to measure salmonids behavioral response to avian predator activity. The noted reactionary effect PAT training had on experimental smolts, was washed out by the zero difference survival indices to John Day and McNary Dams. It should be noted that this study in terms of release strategy, differed markedly in terms of numbers of study fish available with that of the overall Optimum Conventional Treatment/Semi-Natural Treatment (OCT/SNT) production, and in the volitional manner in which OCT/SNT fish were released, versus a force-out release for PAT smolts from the Easton Acclimation site. The small population in this study may not have experienced the heavy avian predation known to occur in the Upper Yakima River's Easton reach, as a population undergoing a volitional release would be more susceptible, given the temporal and volitional flow of fish from this site. An argument can be made that a production-sized PAT regimen, in the manner of an experiment and control design with a volitional release out- migration strategy, may determine more accurately if detectable differences in overall smolt survival indices between PAT and control fish, can be attributed to anti-predator training.