

**Title:**

Precocious Salmon on the Spawning Grounds

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**Summary of Presentation:** Previous work has shown that a spring Chinook salmon supplementation program in the Yakima Basin produces large numbers of precocious males but that these fish were not abundant on the spawning grounds. Growth modulation of half the hatchery-reared fish was instituted to reduce the incidence of precocious maturation. In this study, we compared demographic and behavioral variables of hatchery and natural origin male spring Chinook salmon (*Oncorhynchus tshawytscha*) that precociously mature in the Yakima River. Comparisons were made between those years where growth modulation was not instituted (1999-2003) and the years when it was instituted (2004, 2005). We counted the number of precocious males on the spawning grounds while snorkeling during the peak of spawning, electrofished to determine abundance and distribution of precocious males away from redds, observed agonistic interactions while snorkeling, and collected Chinook to determine % precocity, size, and age. The abundance of hatchery origin precocious males on redds during 2004 was the highest that has been recorded, but still considerably less than the number of natural origin precocious males. In contrast, the abundance of hatchery origin precocious males on redds during 2005 (n=0) was the lowest that has been recorded. These results suggest that factors after release may be more important in determining abundance of precocious males on redds than the abundance of precocious males released from a hatchery. The mean size of precocious males was within the range observed during previous years. In contrast to previous years, some of the residualized fish collected were immature. Preliminary results suggest that growth modulation might reduce the abundance of hatchery origin precocious males on the spawning grounds if factors that occur after release promote a low probability of surviving or proximity to the spawning grounds.