

**Comparing the growth, smolt development and early male maturation rates  
of juvenile summer Chinook salmon raised in either partial water reuse  
or flow-through raceway environments.**

**Deborah Harstad, Don Larsen, Brian Beckman, Dina Spangenberg, Shelly Nance,  
Ian Adams, Sam Dilly, Joseph Miller**

NOAA Fisheries, Northwest Fisheries Science Center, 2725 Montlake Blvd E., Seattle, WA  
98112 USA

The Chelan PUD has implemented a pilot Partial Reuse Aquaculture System (PRAS) at the Eastbank Hatchery facility, located on the Columbia River near Rocky Reach Dam. Part of the evaluation of the efficacy of that system is a comparison of growth, smoltification and early male maturation of fish reared in the PRAS system to the fish reared in traditional flow-through raceway environments. In addition, this study also gave us the opportunity to investigate growth, smoltification and early male maturation in summer Chinook salmon in general, which has not been well documented. Sampling was initiated in February and continued until release in April the first year (Brood Year 2007). In the second year of the study sampling was initiated in October (Brood Year 2008) to capture what physiological changes were occurring in the fish during the fall. Of particular interest was whether any fish were smolting in the fall as under-yearlings. Sampling was done monthly and increased to bimonthly in the spring, prior to release. We will present here comparisons in overall growth, body condition, ATPase levels and early male maturation rates between the fish reared in the partial reuse system (experimental) to those reared in traditional raceways (control) over two different brood years.

(Conducted in cooperation with the Chelan PUD and WDFW. Funding was provided by the Chelan PUD)