**Talk Title:**

Increased size at release of hatchery steelhead decreases tendency of Trinity River Steelhead to exhibit the half-pounder life history

**Abstract:**

Steelhead exhibit a wide variety of life histories, including a unique “half-pounder” life history, primarily found in Northern California and Southern Oregon. A half-pounder is an immature steelhead that returns to freshwater within about four months of ocean entry. Adult steelhead from both the Klamath River and Rogue River watersheds frequently exhibit the half-pounder life history as indicated by previous research. We estimated the frequency of the half-pounder life history among wild and hatchery adult steelhead from the Trinity River using scale analysis. Hatchery smolts released from Trinity River Hatchery currently are released as age-1 smolts and are substantially larger than their wild counterparts; wild smolt ages range from 1 through 3, with most smolts ages 1 or 2. Annually, around 800,000 steelhead smolts are released from the Trinity River Hatchery. To determine whether age- or size-at-ocean entry affects the tendency for an individual steelhead to exhibit half-pounder life history, we examined over 2,000 scale samples from both wild and hatchery adult steelhead collected intermittently over a 27-year period from 1982 through 2009. Retrospective scale analyses indicated that decreased size at the end of the freshwater zone increased the probability for both hatchery and wild steelhead smolts to undergo a half-pounder migration. The tendency of hatchery smolts to mature as half-pounders was generally quite low (10-20%), especially in 2007 through 2009, and appears to be related to the large size at which steelhead have been released from Trinity River Hatchery since the early-1990s.