

# **Distribution and Survival of Adult Spring Chinook Salmon Radio-Tagged and Released Upstream of Warm Springs National Fish Hatchery 2008-2010**

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## **Abstract**

The Warm Springs River supports the largest population of wild spring Chinook salmon *Oncorhynchus tshawytscha* in the Deschutes River drainage. Warm Springs National Fish Hatchery is located on the Warm Springs River in north-central Oregon and produces hatchery spring Chinook salmon for sport and tribal harvests. Current trends towards declining wild returns, increasing pre-spawning mortality, and the lack of wild fish integration into hatchery broodstock have been a growing concern for resource managers. Releasing additional hatchery fish upstream to supplement the wild population has been suggested; however, the benefits and consequences of this management action are unknown. To gain a better understanding of the fate of spring Chinook salmon released upstream, we radio-tagged and released 69 hatchery-origin and 23 wild-origin adult spring Chinook over a three year period. Fish movements were tracked via fixed-wing and stationary radio-telemetry survey. ESRI's ArcGIS software was used to analyze movement patterns and map fish distribution. With a combination of individual tag movements, and motion sensitive radio-tags, we were able to track migration patterns as well as estimate survival and contribution to spawning. This information will help guide future management decisions and potentially benefit both wild and hatchery stocks in the Warm Springs River.