RECOVERY PATTERNS OF CODED-WIRE TAGGED SPRING CHINOOK SALMON IN THE UPPER WILLAMETTE RIVER BASIN.

David S. Hewlett, Cameron S. Sharpe

Oregon Department of Fish and Wildlife
Upper Willamette RM&E Program
Corvallis Research Lab
28655 Highway 34, Corvallis, Oregon 97333
hewlett.david@gmail.com

Twelve-million coded wired tagged spring Chinook salmon were released from upper Willamette River hatcheries for brood years 2000 through 2008. Using the Regional Mark Information System (RMIS) and statistical software package R we looked for patterns in smolt to adult returns (SARs). The goal of this project was to determine the impact of release timing on SARs.

In our analysis we defined SAR as the number of tag code recoveries collected at the hatchery of origin / number of coded wire tags released with those tag codes. The four spring Chinook salmon hatcheries of the upper Willamette basin had median SAR values between 0.07% and 0.28% (Figure 1). Broken down by monthly release groups, November, February, and March SARs were between 0.16% and 0.24%. The estimated SAR for April releases was 0.69%, but the sample size was small (n=3) (Figure 2).

Sample sizes were too small (n<30) to report SAR values for release groups at individual hatcheries for broods 2000-2008. When we expanded our brood year range to include 1990 through 1999 only three release group's SARs were significant. These were February (0.25%) and March (0.21%) releases from McKenzie hatchery, and March (0.15%) releases from Willamette hatchery.

The results from this project suggest that SARs for upper Willamette hatchery spring Chinook salmon are subbasin specific. These findings are informative for building hatchery releases that reflect mitigation goals. Similar methods could be used to estimate SARs based on in-river conditions at time of release, size at release, off station releases, and stray rates.

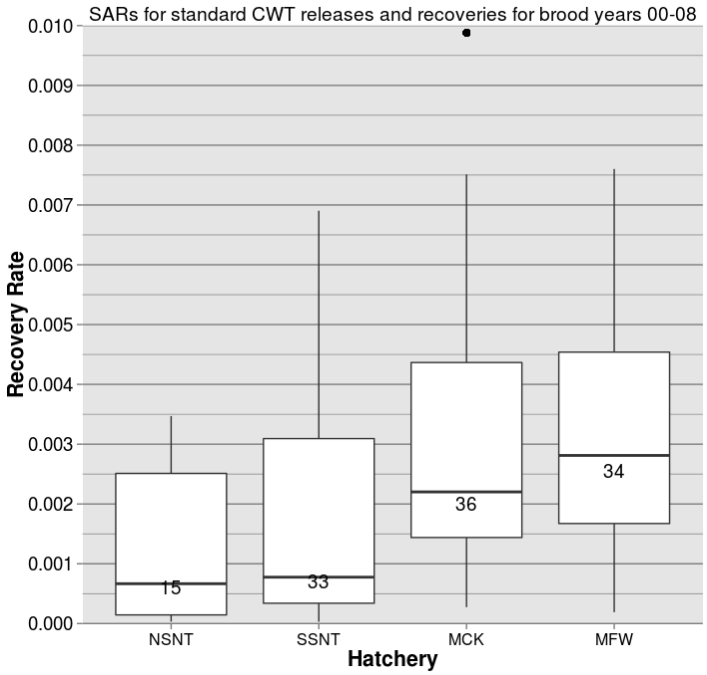

Figure 1: Smolt to adult return rates of coded wired tagged upper Willamette spring Chinook salmon by hatchery, for brood years 2000 – 2008. The numbers within the box plots are N values, and the solid horizontal lines are median values.

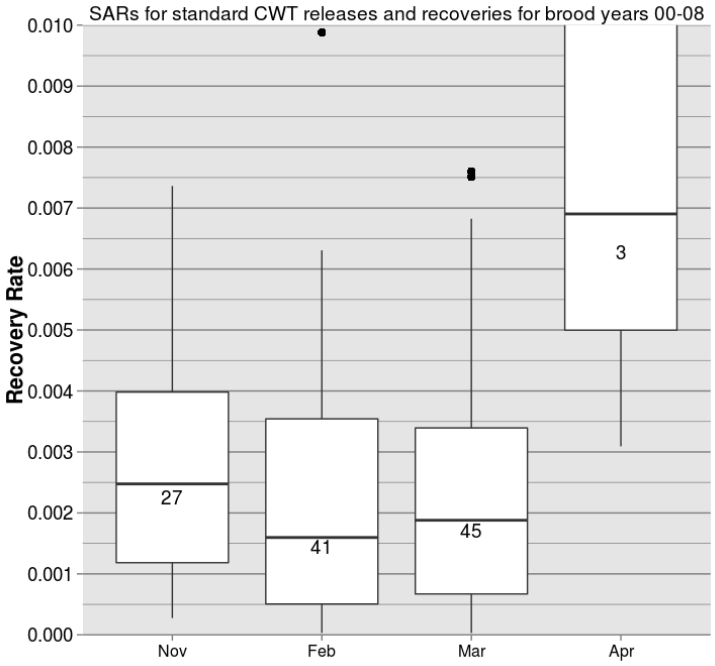

Figure 2: Smolt to adult return rates of coded wired tagged upper Willamette spring Chinook salmon by release group, for brood years 2000 – 2008. The numbers within the box plots are N values, and the solid horizontal lines are median values.