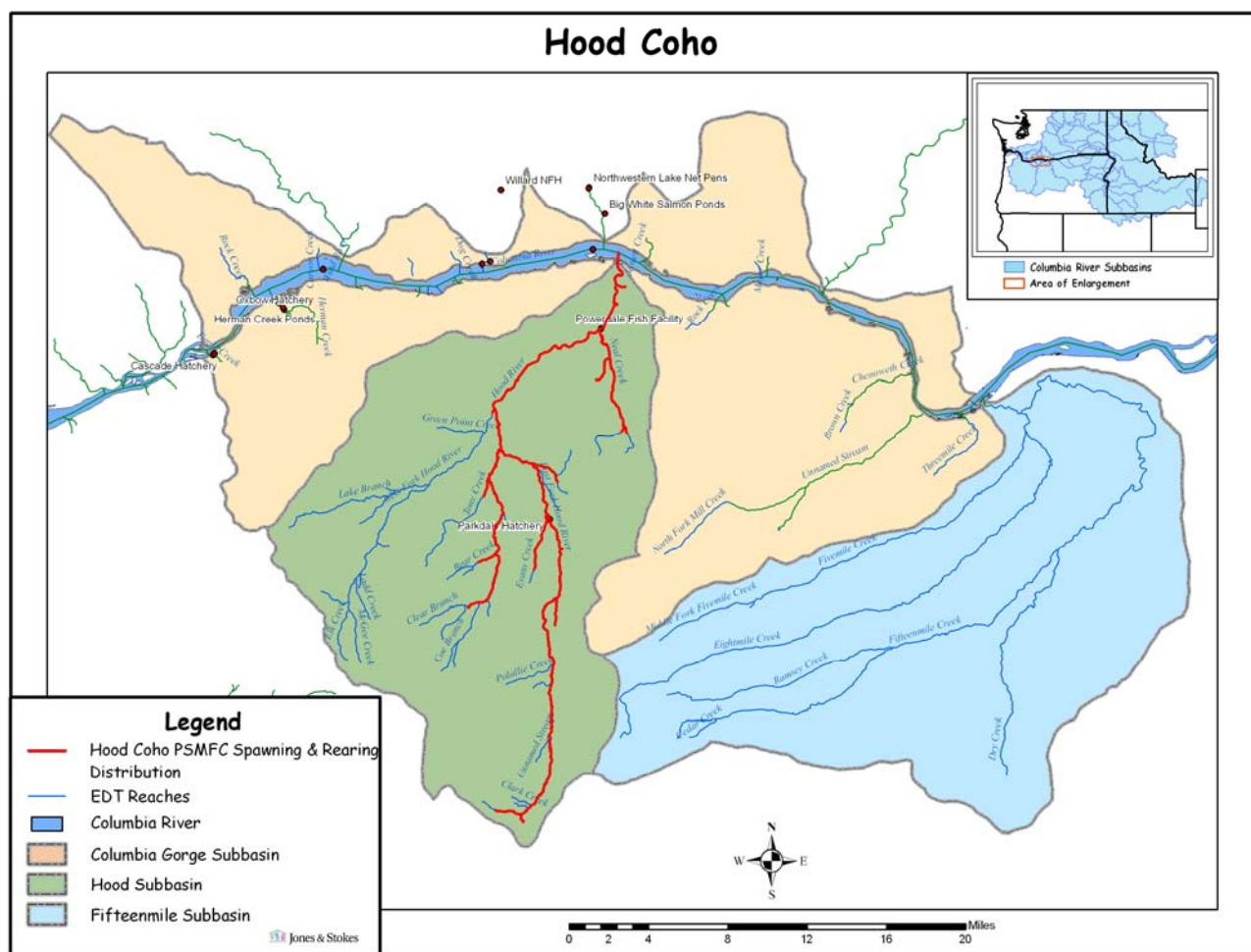


Hatchery Scientific Review Group Review and Recommendations

Hood River Coho Population and Related Hatchery Programs

January 31, 2009



1 Hood River Coho

Coho are indigenous to the Hood River subbasin. They are found throughout the basin except for the West Fork Hood River above the Punchbowl Falls (impassable barrier). Run-timing data suggests that Hood River coho are an early returning Type S population, with peak passage past Powerdale Dam in September and October (Howell et al. 1985, Olsen et al. 1992).

Coho counted at the Powerdale Dam fish ladder in 2002 and 2003 numbered 27 and 31, respectively. Powerdale Dam is currently located at ~RM 4.0 but may be removed by PacifiCorp in 2010.

NOAA estimates that 100 percent of the 35 river miles of potential historic coho spawning habitat are still intact (NOAA 2005). Currently 66.8 miles of habitat in the Hood River subbasin are designated as coho spawning and rearing habitat (PSFMC GIS data 2007).

About 0.25 mile of spawning habitat for steelhead and coho salmon was inundated by the construction of Clear Branch Dam in 1965, eliminating the native coho salmon population in the Middle Fork Hood River.

2 Current Conditions

2.1 Current Population Status and Goals

This section describes the current population, status, and goals for the natural population.

- **ESA Status:** Hood River coho are part of the Lower Columbia River Coho ESU, listed as Threatened under the ESA in 2005.
- **Population Designation:** The Hood River coho population is designated as a Contributing population in the Lower Columbia Salmon Recovery and Subbasin Plan (LCSR&SP 2004).
- **Current Viability Rating:** The LCSR&SP describes current viability as Unknown with a viability goal of Medium.
- **Recovery Goal for Abundance:** Unknown
- **Productivity Improvement Expectation:** Unknown
- **Habitat Productivity and Capacity:** Productivity: 1.5; Capacity: 100

2.2 Current Hatchery Programs Affecting this Population

No coho hatchery programs are currently operating in the Hood River subbasin and no releases have occurred since 1977. Hatchery coho juveniles were released in 1967, 1971 and 1977 in numbers ranging from 230,000 to 970,000 fish. An early release was made in 1958 in Lost Lake. Between 225 and 1,480 adult coho from the Bonneville Hatchery were released into Clear Branch and Neal Creek and the East and Middle Forks of the Hood River in 1966, 1968, and 1970 (Hood Subbasin Plan 2004).

Estimated number of hatchery strays affecting this population:

- **Hatchery strays from in-basin segregated and out-of-basin hatchery programs:** 82 fish, estimated to make up 66% of the natural spawning population.

3 HSRG Review

The HSRG has developed guidelines for minimal conditions that must be met for each type of program as a function of the biological significance of the natural populations they affect. For populations of the highest biological significance, referred to as Primary, the proportion of effective hatchery origin spawners (pHOS) should be less than 5% of the naturally spawning population, unless the hatchery population is integrated with the natural population. For integrated populations, the proportion of natural-origin adults in the broodstock should exceed pHOS by at least a factor of two, corresponding to a proportionate natural influence (PNI) value of 0.67 or greater. For Contributing populations, the corresponding guidelines are: pHOS less than 10% or PNI greater than 0.5. It is important to note that these represent minimal conditions, not targets. For example, the potential for fitness loss when effective pHOS is 5% is significantly greater than it would be at 3%. For Stabilizing populations, we assume the current pHOS or PNI would be maintained.

The HSRG analyzed the current condition and a range of hatchery management options for this population, including the effect of removing all hatchery influence, and arrived at one or more proposed solutions intended to address the manager's goals consistent with the HSRG guidelines for Primary, Contributing, and Stabilizing populations. The solution included in the cumulative analysis is the last option described in the Observations and Recommendation box below.

In order to highlight the importance of the environmental context, two habitat scenarios were considered: current conditions and a hypothetical 10% habitat quality improvement.

See HSRG Observations and Recommendations in the box below for more information.

3.1 Effect on Population of Removing Hatchery

The No Hatchery scenario is intended to look at the potential of the natural population absent all hatchery effects with projected improved fish passage survival in the Snake and Columbia mainstem (FCRPS Biological Opinion May 5, 2008).

Our analysis estimated Adjusted Productivity (with harvest and fitness factor effects from AHA) would increase from 0.6 to 1.3. Average abundance of natural origin spawners (NOS) would decrease from approximately 34 fish to approximately 18 fish. Harvest contribution of the natural and hatchery populations would go from approximately 6 fish to 3 fish.

3.2 HSRG Observations/Recommendations

In the Observation and Recommendation box below we describe elements of the current situation (Observations) that were important to evaluate the natural population and where applicable, the hatchery program(s) affecting that population. We also describe a solution (Recommendations) that appeared to be consistent with manager's goals; however, this is not the only solution. In some cases more than one solution is described.

Summary results of this analysis are presented in Table 1. The adjusted productivity values reported for each alternative incorporates all factors affecting productivity (i.e., habitat quality, hatchery fitness effects, and harvest rates).

Observations

No coho hatchery programs are currently operating in the Hood River subbasin and no releases have occurred since 1977. This population has been designated a Contributing population. Few natural or hatchery-origin fish are observed at Powerdale Dam. It is unclear whether habitat exists to sustain a natural coho population. It is unclear if this population has the potential to meet the standards for a Contributing population designation.

Recommendations

Although the HSRG did not preclude the possibility, we did not consider this a candidate for coho reintroduction because of evidence that indicates low production of coho from adult spawners in the basin. Habitat improvements may make a difference.

Table 1. Results of HSRG analysis of current condition and HSRG Solution for Hood River Coho. The light green row indicates the natural population and yellow indicates the segregated hatchery population, if applicable. A 10% habitat improvement is applied to the HSRG Solution to evaluate the additional effect of improved habitat towards conservation objectives.

Alternative	Type and Purpose	Prog Size (/1000)	HOR Recapture	Additional Weir Efficiency	Effective pHOS	PNI	NOS Esc	Adj Prod	Harvest	Hatchery Surplus
Current	None None	-	0%	0%	66%	0.00	34	0.6	6	0
No Hatchery	None None	-	0%	0%	0%	1.00	18	1.3	3	-
HSRG Solution	None None	-	0%	0%	45%	0.00	14	0.6	3	0
HSRG Solution w/ Improved Habitat	None None	-	0%	0%	42%	0.00	17	0.7	3	0