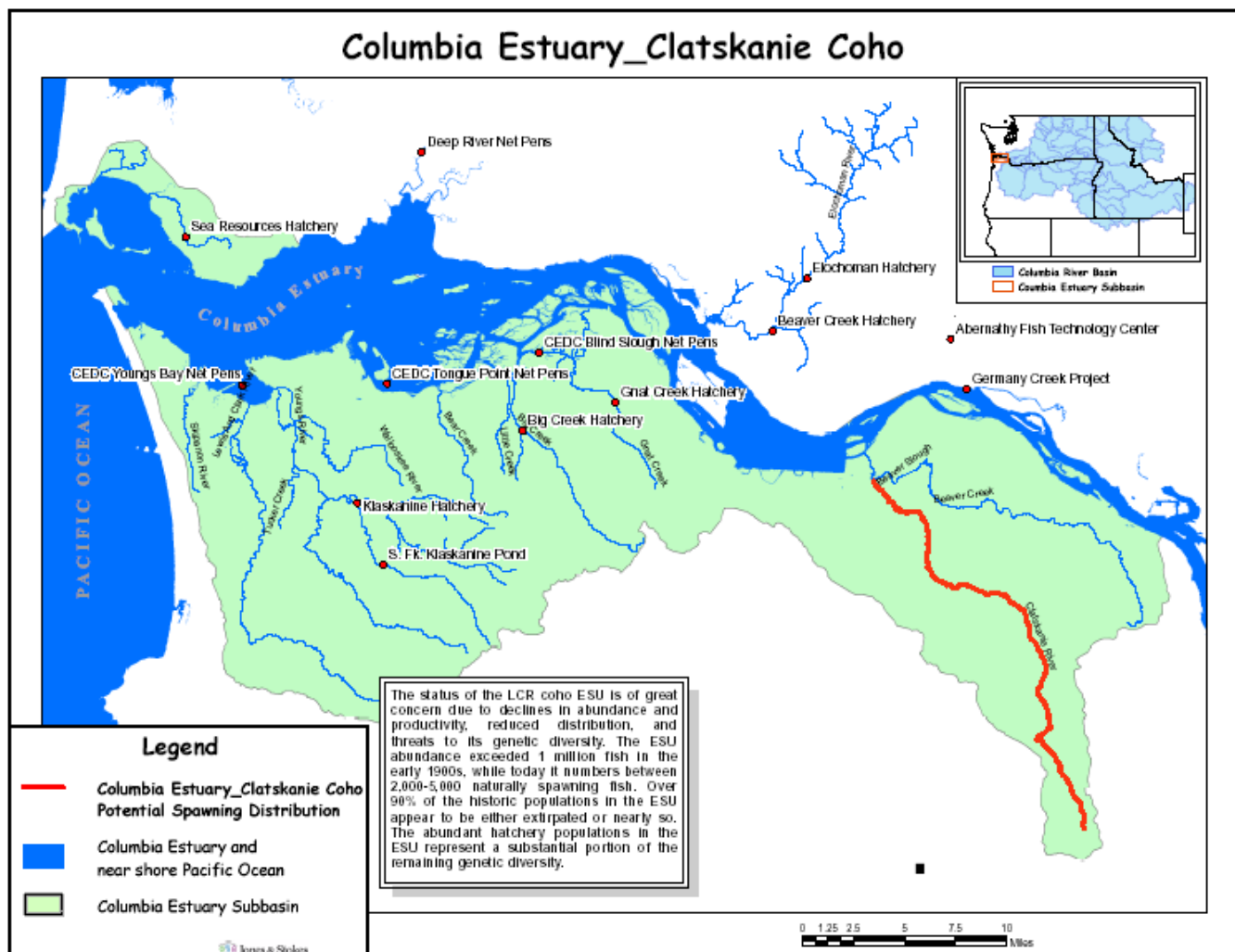


# Hatchery Scientific Review Group Review and Recommendations

## Clatskanie River Coho Population and Related Hatchery Programs

January 31, 2009



# 1 Clatskanie River Coho

The Columbia Estuary Clatskanie coho population is a natural component of the Lower Columbia River Coho ESU. There are no hatchery programs in the Clatskanie River and little information is available to describe population status and trends. As part of their implementation plan for managing lower Columbia River coho, the Oregon Department of Fish and Wildlife (ODFW) reported that 94 and 808 naturally spawning coho were identified in the Clatskanie River in 2002 and 2003, respectively. The population is believed to have been at low abundance for many years. The proportion of the population made up of hatchery-origin spawners is highly variable. The ODFW also reported that up to 60 percent of the adults enumerated in some years were likely of hatchery origin ([http://www.dfw.state.or.us/agency/commission/minutes/04/apr/b\\_2.pdf](http://www.dfw.state.or.us/agency/commission/minutes/04/apr/b_2.pdf)).

## 2 Current Conditions

### 2.1 Current Population Status and Goals

- ESA Status: This population is listed as threatened and is part of the Lower Columbia River Coho ESU.
- Population Description: Clatskanie coho are a Stabilizing population.
- Current Viability Rating: Very Low. The population is persisting at a minimum abundance threshold.
- Recovery Goal for Abundance: No goal established
- Productivity Improvement Expectation: Unknown
- Habitat Productivity and Capacity: Productivity: 4.0; Capacity: 400
- Populations Affected by this Hatchery Population: NA
- Hatchery Populations of the Same Species that Affect this Population: Hatchery populations in the Lower Columbia River Coho ESU that could adversely affect this population (primarily through straying) include the Columbia Estuary Select Area Fishery Enhancement (SAFE) Program, the Bonneville Hatchery program, and releases from Grays River and Elochoman River programs in Washington.

### 2.2 Current Hatchery Programs Affecting this Population

No coho salmon hatchery program currently operates in the Clatskanie River; however, coho from other programs stray into the Clatskanie River. About 16 adult coho are estimated to stray into this system annually. Under the current scenario, pHOS is estimated at 8 percent even though no hatchery coho are released in the Clatskanie River. Annually, approximately 150 natural-origin adults are estimated to return to the Clatskanie River.

Estimated number of hatchery strays affecting this population:

- Hatchery strays from in-basin segregated and out-of-basin hatchery programs: 16 fish

### 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 1.9 to 3.4. Average abundance of natural-origin spawners (NOS) would increase from approximately 150 fish to approximately 268 fish. Harvest contribution of the natural and hatchery populations would go from approximately 25 fish to approximately 45 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**

This population is designated Stabilizing and has no hatchery program.

**Recommendations**

The HSRG recommends that this population continue to be managed for natural production as a Stabilizing population. Focus actions on habitat protection and improvement that will increase productivity and capacity of the system.

Table 1. Results of HSRG analysis of current condition and HSRG Solution for Clatskanie 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	-	0%	0%	8%	0.00	150	1.9	25	0
	None									
No Hatchery	None	-	0%	0%	0%	1.00	268	3.4	45	-
	None									
HSRG Solution	None	-	0%	0%	6%	0.00	161	2.1	28	0
	None									
HSRG Solution w/ Improved Habitat	None	-	0%	0%	5%	0.00	212	2.5	36	0
	None									