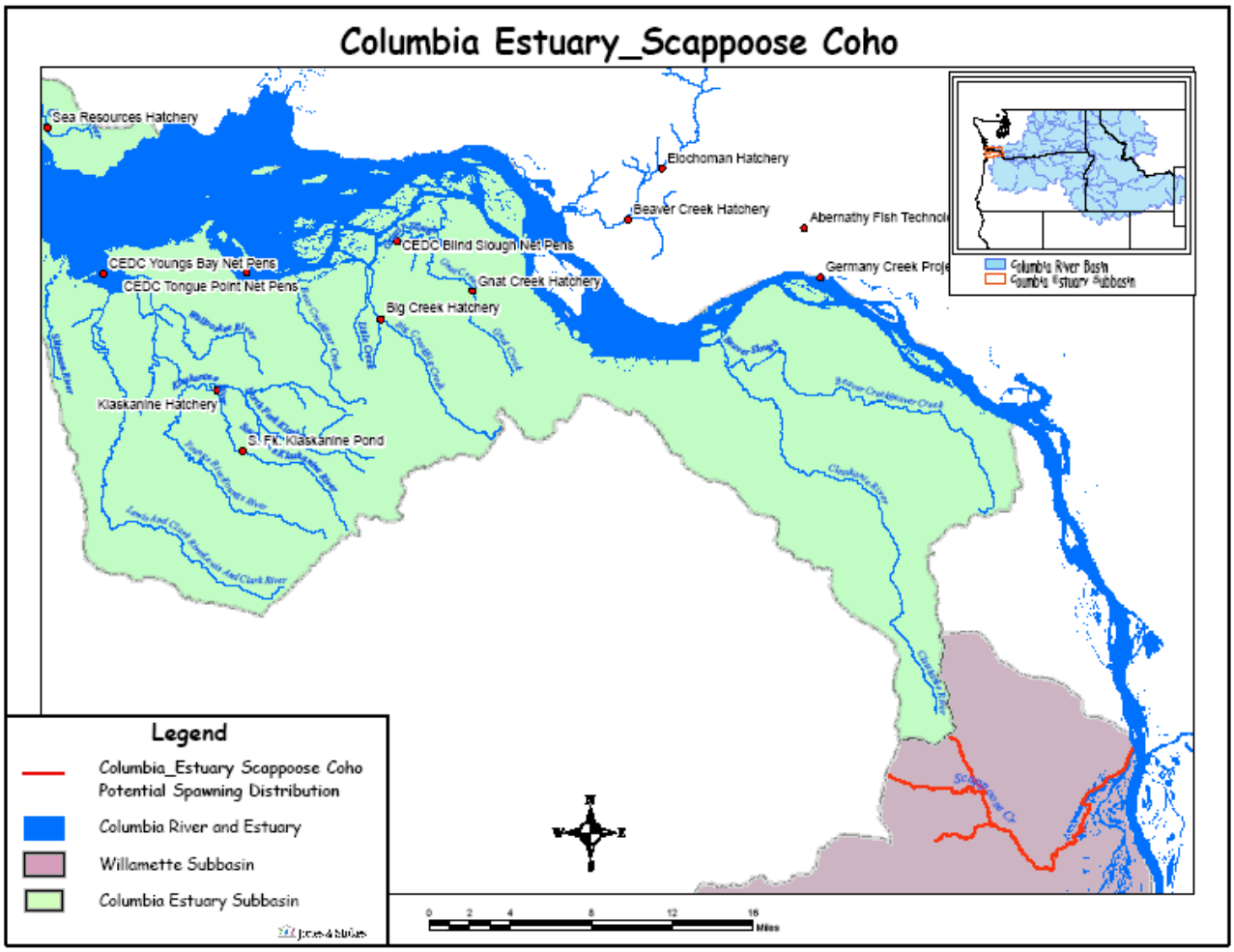
Hatchery Scientific Review Group
Review and Recommendations

Scappoose Creek Coho
Population and Related Hatchery Programs

January 31, 2009



1 Scappoose Creek Coho

The Scappoose coho population includes the Tide, Goble, Milton, McNulty and Scappoose creek sub-populations. The population is believed to be at low abundance and has likely dropped to double or single digits in the recent past. Coho salmon in the lower Columbia generally enter the Columbia River beginning in September, with peak spawn timing generally in late November and December.

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: This population is listed as threatened and is part of the Lower Columbia River Coho ESU.
- Population Description: Scappoose coho is a Primary population.
- Recovery Goal for Abundance: Unknown
- Productivity Improvement Expectation: Unknown
- Habitat Productivity and Capacity: Productivity: 4.0; Capacity: 400
- Populations Affected by this Hatchery Program Include: Not applicable

2.2 Current Hatchery Programs Affecting this Population

- No coho hatchery programs are operating in the watersheds that make up the Scappoose population.
- Modeling indicates hatchery strays from the nearby hatchery programs may be affecting this population. Under the current scenario, pHOS is estimated at 32 percent even though no hatchery coho are released in Scappoose Creek.

Estimated number of hatchery strays affecting this population:

- Hatchery strays from in-basin segregated and out-of-basin hatchery programs: 97 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 1.7 to 3.4. Average abundance of natural origin spawners (NOS) would increase from approximately 165 fish to 268 fish. Harvest contribution of the natural and hatchery populations would go from approximately 28 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

Given the habitat information provided, it does not appear that there is potential for this population to achieve the abundance standards of a Primary designation. This population could contribute to recovery as a stabilizing population. No coho hatchery programs operate within the watershed.

Recommendations

The HSRG recommends that managers review the current Primary designation of this population.

Table 1. Results of HSRG analysis of current condition and HSRG Solution for Scappoose 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%	32%	0.00	165	1.7	28	0
No Hatchery	None None	-	0%	0%	0%	1.00	268	3.4	45	-
HSRG Solution	None None	-	0%	0%	18%	0.00	145	1.7	25	0
HSRG Solution w/ Improved Habitat	None None	-	0%	0%	16%	0.00	170	1.9	29	0