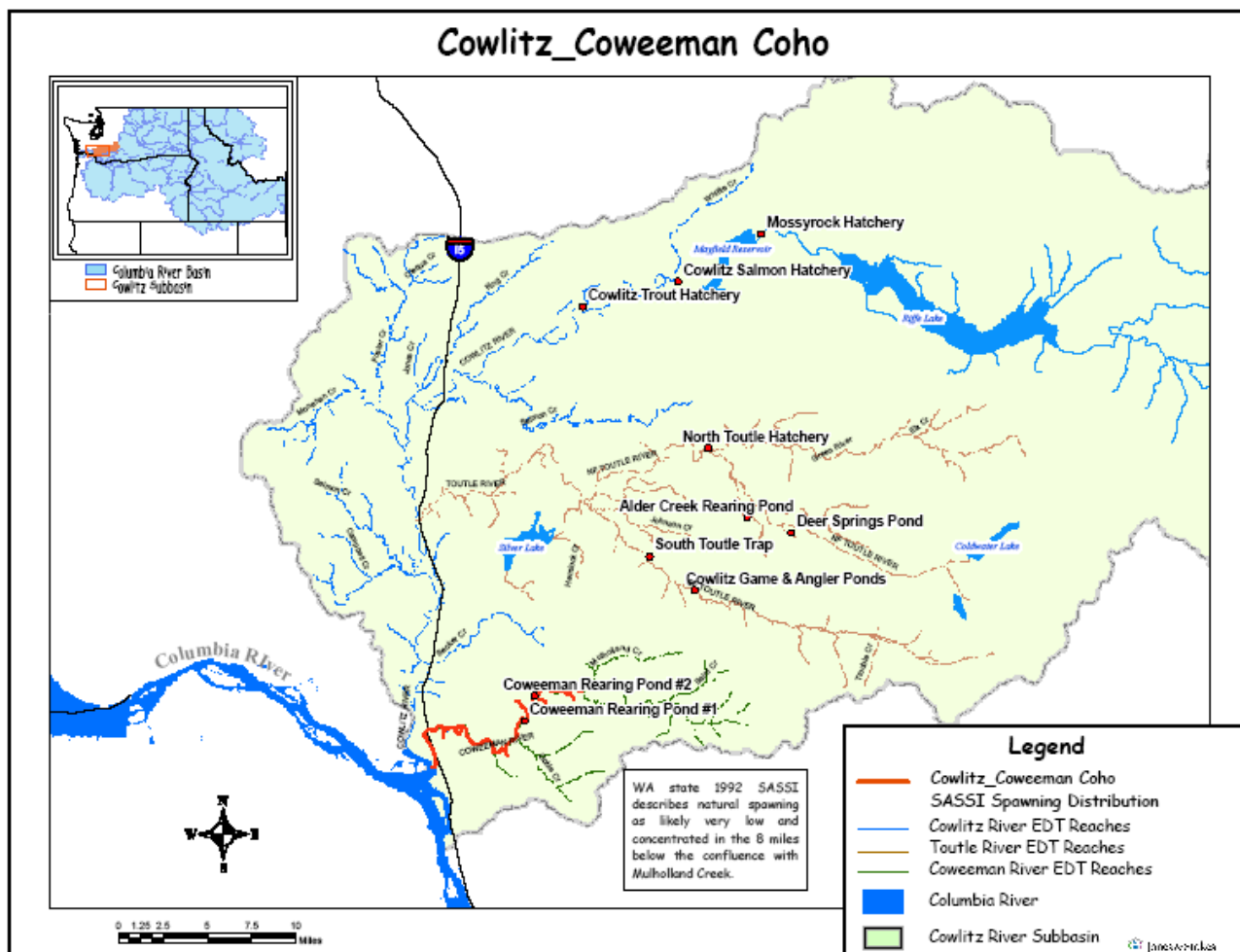


Hatchery Scientific Review Group Review and Recommendations

Coweeman River Coho Population and Related Hatchery Programs

January 31, 2009



1 Coweeman River Coho

Natural spawning in the Coweeman River subbasin is primarily in tributaries downstream of the confluence of Mulholland Creek. Most coho spawning in the Coweeman takes place in the mainstem Coweeman River and in tributaries such as Goble, Baird and Mulholland creeks. Spawning generally occurs from late October through February. Peak spawning occurs in December to early January.

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: Coweeman coho are a primary population.
- Recovery Goal for Abundance: Unknown
- Productivity Improvement Expectation: Unknown
- Habitat Productivity and Capacity (e.g., from EDT): Productivity: 3.37; Capacity: 2,665
- Populations Affected by this Hatchery Program Include: Cowlitz Type N coho and Toutle Type S coho.

2.2 Current Hatchery Programs Affecting this Population

Cowlitz Game and Anglers use remote site incubators (RSI) to seed habitat areas in conjunction with some habitat restoration work in Cowlitz subbasin tributaries, such as the Coweeman River. This program is covered under a HGMP entitled "Draft Hatchery and Genetic Management Plan (HGMP), Cowlitz Game and Anglers Lower Cowlitz River Tributaries- Coho Fry Releases Program."

No smolt release hatchery programs are operating in the Coweeman River.

Estimated number of hatchery strays affecting this program:

- Hatchery strays from in-basin integrated hatchery program: N/A
- Hatchery strays from in-basin segregated and out-of-basin hatchery programs: 48 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 2.3 to 2.8. Average abundance of natural origin spawners (NOS) would increase from 1,265 to 1,586. Harvest contribution of the natural and hatchery populations would go from 245 to 307.

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 a Primary population that appears to be productive and abundant. There are no hatchery releases in the Coweeman River.

Recommendations

The HSRG recommends that managers monitor the contribution of hatchery strays in spawning escapement. In addition, the RSI projects should be reviewed and managed consistent with the Primary population designation. Returns from RSI projects should be included when considering the pHOS for the population.

Table 1. Results of HSRG analysis of current condition and HSRG Solution for Coweeman 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%	3%	0.00	1,265	2.3	245	0
No Hatchery	None None	-	0%	0%	0%	0.00	1,586	2.8	307	-
HSRG Solution	None None	-	0%	0%	1%	0.00	1,524	2.7	298	0
HSRG Solution w/ Improved Habitat	None None	-	0%	0%	1%	0.00	1,783	3.0	348	0