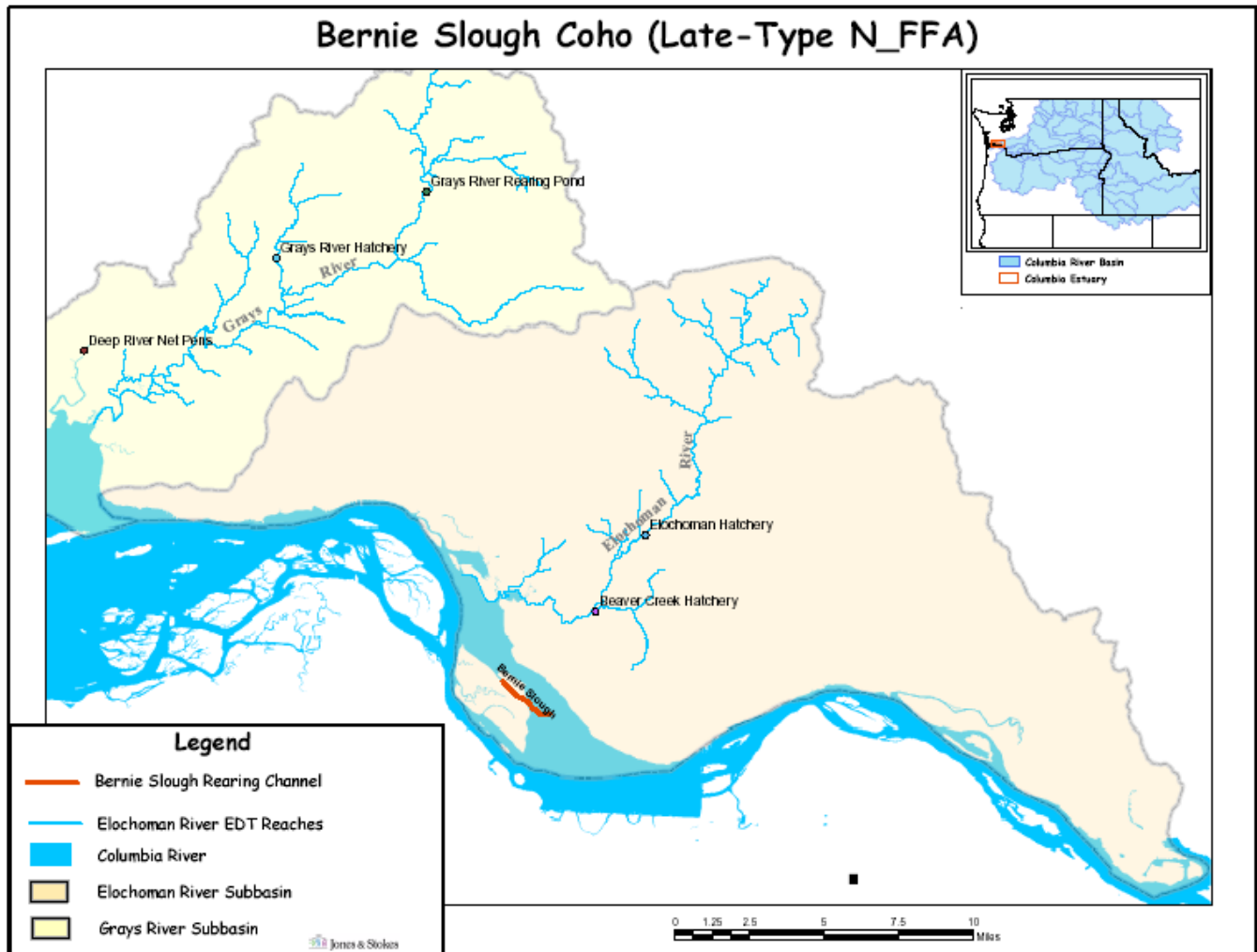


Hatchery Scientific Review Group Review and Recommendations

Columbia Estuary - Bernie Creek FFA Coho Population and Related Hatchery Programs

January 31, 2009



1 Columbia Estuary - Bernie Creek FFA Coho

This is an education program for the Wahkiakum High School chapter of Future Farmers of America (FFA) in Cathlamet, Washington. Bernie Creek is a very small stream that enters the Columbia River at Cathlamet. The stream flows into a pond prior to exiting through a recently refurbished ladder directly into the Columbia River.

Fingerling Type N coho at about 20 fish per pound (fpp) are transferred to the FFA pond in early March from the Elochoman Hatchery. Coho smolts are reared and released from mid-April to early May at about 17 fpp. Current production should provide the maximum number of escaping adults needed for this small stream with current and future habitat conditions.

2 Current Conditions

2.1 Current Population Status and Goals

This program is for educational purposes only with little, if any, management implications.

- ESA Status: This population is not listed. Elochoman Hatchery coho are part of the Lower Columbia Coho ESU which has been listed as a threatened.
- Population Description: Bernie Creek likely provides very limited, if any, habitat for natural coho production.
- Current Viability Rating: Likely Very Low, at best.
- Recovery Goal for Abundance: Bernie Creek likely doesn't provide any habitat for coho.
- Productivity Improvement Expectation: None
- Habitat Productivity and Capacity (from EDT): None
- Populations Affected by this Hatchery Population Include: Smolts leaving the FFA pond could prey upon chum salmon fry in the lower Columbia River.

2.2 Current Hatchery Programs Affecting this Population

Seventeen thousand smolts from Elochoman Hatchery are transferred to the FFA pond on Bernie Creek for acclimation.

- PNI and pHOS Estimates (include straying from all hatchery programs): The HSRG is not aware of any returning adults to Bernie Creek.
- Estimated Productivity (with harvest and fitness factor effects from AHA): None
- Projected Average Natural Origin Escapement: The feasibility of escapement into Bernie Creek is not known, but expected to be very low, if any.
- Average Harvest Contribution: 148 adults

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: N/A

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).

Without the hatchery program, Bernie Creek likely would not support any natural coho production.

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 is an educational program.

Recommendations

This coho program should continue to be operated and sized for educational purposes only. The educational value of the program might be improved by incorporating spawner surveys, smolt assessment/enumeration, and habitat assessments to determine carrying capacity of Bernie Creek.

The FFA and WDFW should consider using the program to raise chum salmon for recovery purposes.

The program objectives should not be altered, but education/management should be consistent with HSRG principles.

Table 1. Results of HSRG analysis of current condition and HSRG Solution for Bernie Creek 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										
	Seg Harv	16.5	10%						148	19
No Hatchery										
HSRG Solution										
	Seg Harv	16.5	10%						255	8
HSRG Solution w/ Improved Habitat										
	Seg Harv	16.5	10%						255	8