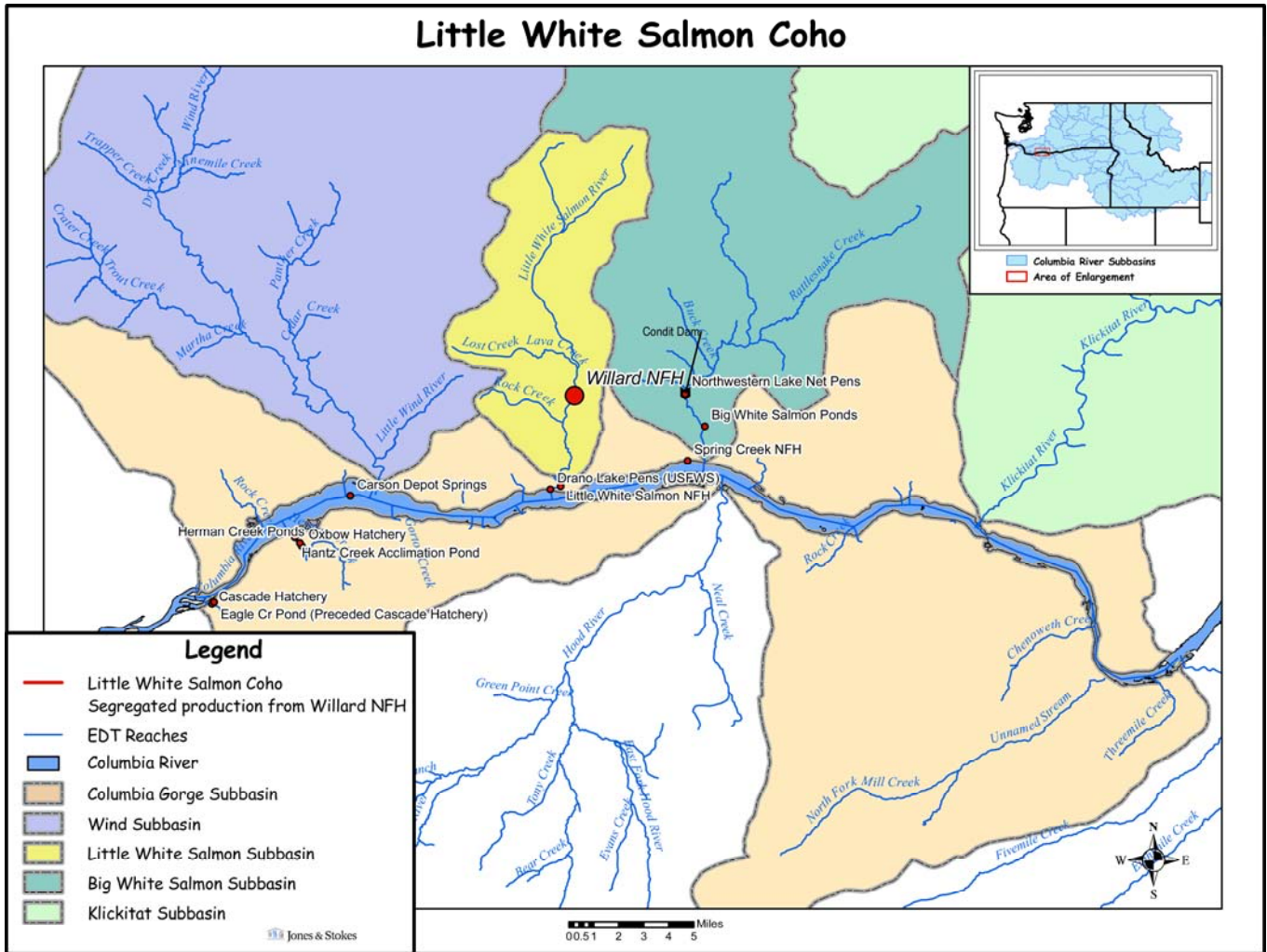


Hatchery Scientific Review Group Review and Recommendations

Little White Salmon River Coho Population and Related Hatchery Programs

January 31, 2009



1 Little White Salmon Coho

There is no naturally reproducing population of coho in the Little Salmon River. An impassable falls immediately upstream from the Little White Salmon National Fish Hatchery (NFH) site in the lower Little White Salmon River precludes anadromous fish passage into the upper basin. There is very little, if any, productive spawning habitat below Little White Salmon NFH at the mouth of the Little White Salmon River (Drano Lake). Historic coho habitat was inundated by Bonneville Pool in 1938 (Bryant 1949).

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: The Little White Salmon -Wind River coho are part of the Lower Columbia River Coho ESU, which was listed as Threatened under the ESA in 2005.
- Population Description: The Little White Salmon coho population is not designated by the Lower Columbia Salmon Recovery and Subbasin Plan (LCSR&SP 2004).
- Recovery Goal for Abundance: Unknown
- Productivity Improvement Expectation: Unknown
- Habitat Productivity and Capacity (e.g., from EDT): Productivity: 0; Capacity: 0

2.2 Current Hatchery Programs Affecting this Population

The Little White Salmon River coho hatchery program was discontinued in 2004. For many years prior to 2004, approximately one million coho were released on-station from broodstock collected at the hatchery. Currently the hatchery is used to support coho reintroduction in the Wenatchee 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: 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).

There is no natural population here.

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

The hatchery program was eliminated in 2004.

Recommendations

Managers might consider establishing net pens to acclimate hatchery coho in Drano Lake to provide additional harvest to ocean and Zone 1-6 fisheries. A new terminal fishery for tribal and sport fishermen could be created with little potential conflict with natural populations. Coho transferred to the net pens could come from multiple sources.

Table 1. Results of HSRG analysis of current condition and HSRG Solution for Little White Salmon 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 | | | | | | | | | | |
| | Seg Harv | - | 90% | | | | | | - | - |
| No Hatchery | | | | | | | | | | |
| HSRG Solution | | | | | | | | | | |
| | Seg None | 1,059 | 90% | | | | | | 19,657 | 1,103 |
| HSRG Solution w/ Improved Habitat | | | | | | | | | | |
| | Seg None | 1,059 | 90% | | | | | | 19,657 | 1,103 |