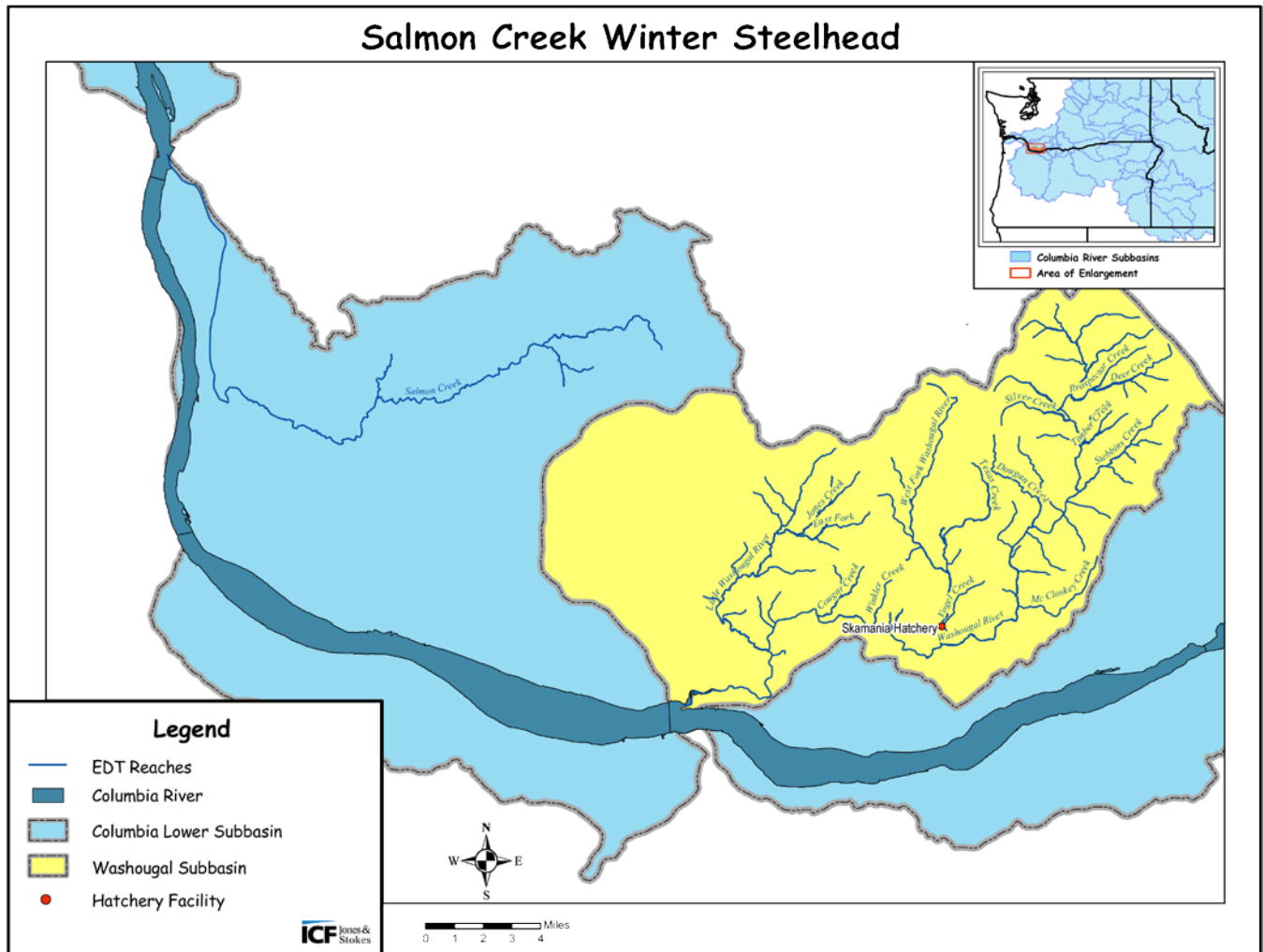


Hatchery Scientific Review Group Review and Recommendations

Salmon Creek Winter Steelhead Population and Related Hatchery Programs

January 31, 2009



1 Salmon Creek Winter Steelhead

Salmon Creek winter steelhead were identified as a stock based on their distinct spawning distribution. Spawning takes place in Salmon Creek (Clark County) and tributaries from early March through early June. There are no adequate abundance trend data available for Salmon Creek winter steelhead, so their status is Unknown. An escapement goal of 400 fish has been established for this stock (SaSSI 2002).

No genetic analysis has been done on Salmon Creek winter steelhead.

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 DPS.
- Population Description: Stabilizing
- Current Viability Rating: Very Low
- Recovery Goal for Abundance: Unknown
- Productivity Improvement Expectation: Unknown
- Habitat Productivity and Capacity (from EDT): Productivity: 2.40; Capacity: 64

2.2 Current Hatchery Programs Affecting this Population

The broodstock for this program is obtained from the Skamania Hatchery on the Washougal River. Adults are captured at Skamania Hatchery, where incubation and rearing occur. Currently, Skamania Hatchery provides 20,000 adipose-clipped pre-smolts for the Salmon Creek net pen program. The program is operated as a segregated-harvest program, but no collection of surplus returned adults at the net pen release site is possible.

- Projected pHOS Estimates (includes strays from all hatchery programs): 30%
- Estimated Adjusted Productivity (with harvest and with fitness factor effects from AHA): 1.12
- Projected Average Natural Origin Escapement: 19
- Hatchery strays from in-basin integrated hatchery program (from AHA summary): N/A
Hatchery strays from in-basin segregated and out-of-basin hatchery programs (from AHA summary): 43

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 1.1 to 2.2. Average abundance of natural-origin spawners (NOS) would increase from 19 to 48. Harvest contribution of the natural and hatchery populations would go from 256 to 3.

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 has been designated as a Stabilizing population. The currently operated hatchery program is consistent with that designation. One segregated hatchery program affects this population. A plant of 20,000 early winter steelhead from Skamania Hatchery is transferred to Kline Pond for acclimation and release into Salmon Creek. Salmon Creek has no adult collection facilities.

Recommendations

The HSRG has no specific recommendations for this program.

Table 1. Results of HSRG analysis of current condition and HSRG Solution for Salmon Creek Winter Steelhead. 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 | - | 75% | 0% | 30% | 0.00 | 19 | 1.1 | 1 | 0 |
| | Seg Harv | 24.7 | 75% | | | | | | 255 | 119 |
| No Hatchery | None None | - | 0% | 0% | 0% | 1.00 | 48 | 2.2 | 3 | - |
| HSRG Solution | None None | - | 75% | 0% | 16% | 0.00 | 20 | 1.1 | 1 | 0 |
| | Seg Harv | 24.7 | 75% | | | | | | 255 | 119 |
| HSRG Solution w/ Improved Habitat | None None | - | 75% | 0% | 14% | 0.00 | 24 | 1.3 | 1 | 0 |
| | Seg Harv | 24.7 | 75% | | | | | | 255 | 119 |