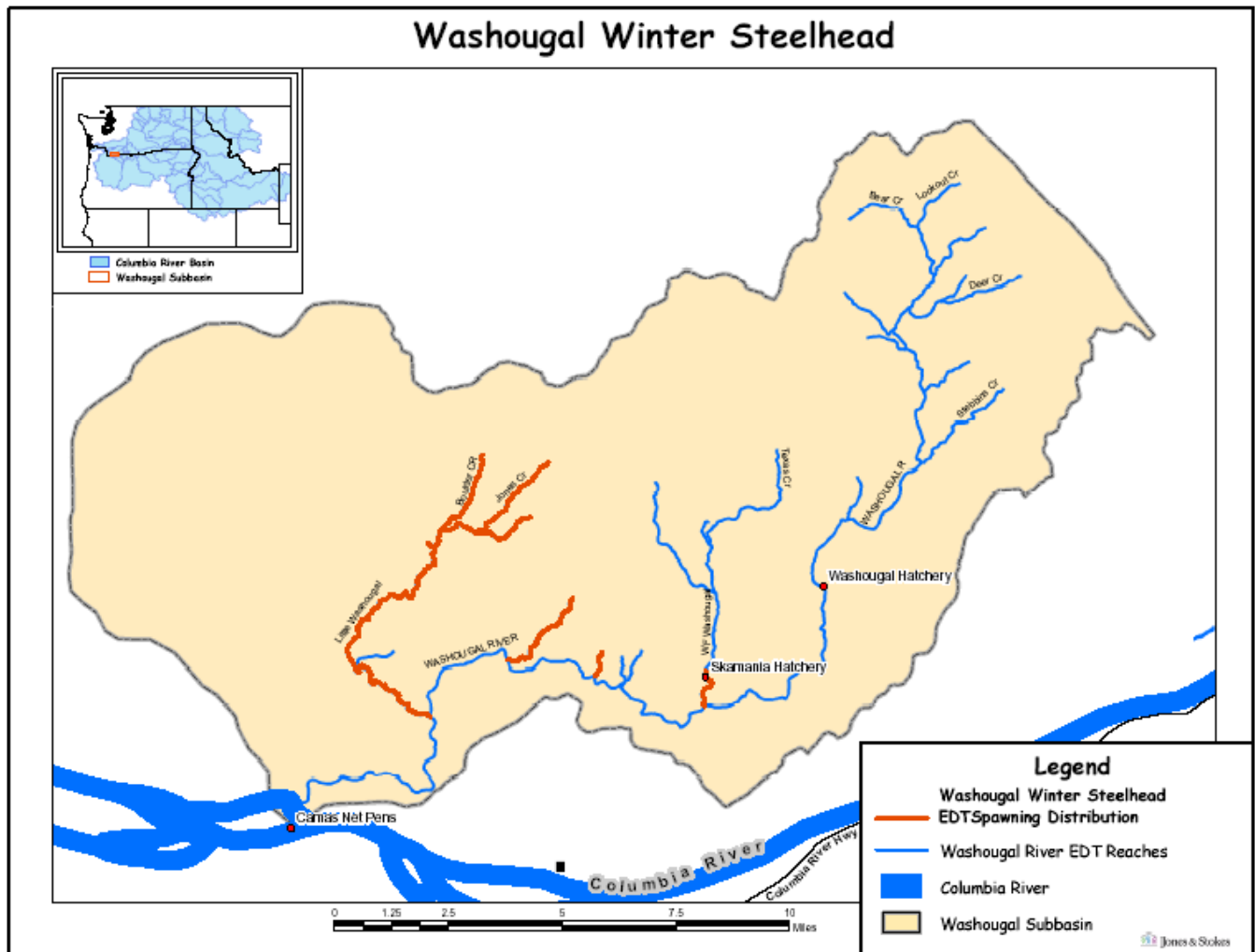


Hatchery Scientific Review Group Review and Recommendations

Washougal River Winter Steelhead Population and Related Hatchery Programs

January 31, 2009



1 Washougal River Winter Steelhead

The “late” winter steelhead population is thought to be effectively segregated (with respect to spawning) from the “early” winter steelhead that are propagated at the Skamania Hatchery. The late winter steelhead population in the Washougal River is considered endemic and included in the Lower Columbia DPS.

Washougal winter steelhead were identified as a stock based on their distinct spawning distribution and later run timing. Spawning takes place in the mainstem Washougal River, its forks and tributaries from early March through early June.

No genetic analysis has been done on Washougal 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 Steelhead DPS.
- Population Description: The late winter Washougal steelhead population is designated as a Contributing population (LCSR&SP 2004).
- Current Viability Rating: Low+
- Recovery Goal for Abundance: 350
- Productivity Improvement Expectation: 15%
- Habitat Productivity and Capacity (from EDT): Productivity: 3.87; Capacity: 522

2.2 Current Hatchery Programs Affecting this Population

There is currently no hatchery program associated with this population. However, an early-winter run steelhead program that is based on a broodstock that has been heavily influenced by introductions of out-of-basin steelhead does operate out of the Skamania Hatchery on the Washougal River. The late-run winter steelhead population discussed in this narrative is effectively segregated from this hatchery program. Integrated options discussed in this narrative for the late-natural steelhead population rely on taking fish from this late, natural component (not the early-hatchery component) into the hatchery.

- PNI and pHOS Estimates (include straying from all hatchery programs): The pHOS value for the current program is 1%; PNI was not calculated.
- Estimated Productivity (with harvest and fitness factor effects from AHA): 3.0
- Projected Average Natural Origin Escapement: 336 adults
- Average harvest contribution: 305 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 3.0 to 3.3. Average abundance of natural origin spawners (NOS) would increase from 336 to 372. Harvest contribution of the natural and hatchery populations would go from 305 to 61.

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 Washougal has an indigenous population of winter steelhead that has been designated as a Contributing population. There are two segregated harvest programs that affect this population (a Skamania Hatchery stock summer run steelhead program releasing approximately 60,000 smolts that produce enough adults to support the in-basin program and harvest objectives as well as the export of 450,000 eggs for release at many locations around the region. In addition, there is a 60,000 smolt segregated Skamania early winter steelhead program that supports this in-basin program as well as harvest goals and provides 130,000 eggs/smolts for export to other locations around the region. This population has room for increased hatchery production.

Recommendations

The HSRG recommends continuing the segregated early winter hatchery program to support segregated programs in other basins. The HSRG has no specific recommendations to improve this program.

Table 1. Results of HSRG analysis of current condition and HSRG Solution for Washougal Winter Steelhead (Late-Natural). 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%	1%	0.00	336	3.0	55	0
	Seg Harv	59.4	75%						250	13
No Hatchery	None None	-	0%	0%	0%	1.00	372	3.3	61	-
HSRG Solution	None None	-	90%	0%	1%	0.00	367	3.2	60	0
	Seg Harv	63.0	90%						265	10
HSRG Solution w/ Improved Habitat	None None	-	90%	0%	1%	0.00	421	3.6	69	0
	Seg Harv	63.0	90%						265	10