

1 Scappoose Fall Chinook

This population is listed as threatened and is part of the Lower Columbia Chinook ESU. The Scappoose population is one of twenty fall Chinook (tule) populations in the ESU, and is designated as a Stabilizing population (LCSR&SP 2004). There is little information available about this population aside from anecdotal reports of Chinook being present. Distribution is probably limited by poor habitat conditions, particularly in lower stream reaches (McElhany et al., 2004).

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 Fall Chinook ESU.
- **Population Description:** The Scappoose population is one of twenty fall Chinook (tule) populations in the ESU, and is designated as a Stabilizing population (LCSR&SP 2004).
- **Current Viability Rating:** Low, with no goal for improvement.
- **Recovery Goal for Abundance:** None established.
- **Productivity Improvement Expectation:** Unknown.
- **Habitat Productivity and Capacity (from EDT):** The current habitat in Scappoose Creek is estimated to have a productivity of 3.0 recruits/spawner and a capacity of 300 fish. This estimate, however, is a default value used in this review alone.
- **Populations Affected by this Hatchery Population Include:** None.

2.2 Current Hatchery Programs Affecting this Population

No Chinook hatchery program currently operates in Scappoose Creek; however, about 41 adult Chinook from other programs are estimated to stray into this system annually. Under the current scenario, pHOS is estimated at 46% even though no hatchery Chinook are released in the basin. Annually, approximately 39 natural-origin adults are estimated to return to Gnat Creek.

Estimated number of hatchery strays affecting this population:

- Hatchery strays from in-basin segregated and out-of-basin hatchery programs: 41 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 Recommendations 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 0.7 to 1.5. Average abundance of natural-origin spawners (NOS) would increase from approximately 40 fish to approximately 50 fish. Harvest contribution of the natural and hatchery populations would go from approximately 40 fish to 50 fish.

3.2 HSRG Observations/Recommendations

In the Observations and Recommendations 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 incorporate all factors affecting productivity (i.e., habitat quality, hatchery fitness effects, and harvest rates).

Observations

There is no hatchery on this system, but it receives strays from nearby hatchery programs.

Recommendations

The HSRG recommends that this population continue to be managed for natural production as a Stabilizing population. Focus actions on habitat protection and improvement that will improve productivity and capacity of the system.

Table 1. Results of HSRG analysis of current conditions and HSRG solution for Scappoose Fall Chinook. 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	-	0%	0%	46%	0.00	39	0.7	39	0
	None									
No Hatchery	None	-	0%	0%	0%	1.00	52	1.5	52	-
	None									
HSRG Solution	None	-	0%	0%	23%	0.00	47	1.0	21	0
	None									
HSRG Solution w/ Improved Habitat	None	-	0%	0%	20%	0.00	58	1.2	26	0
	None									