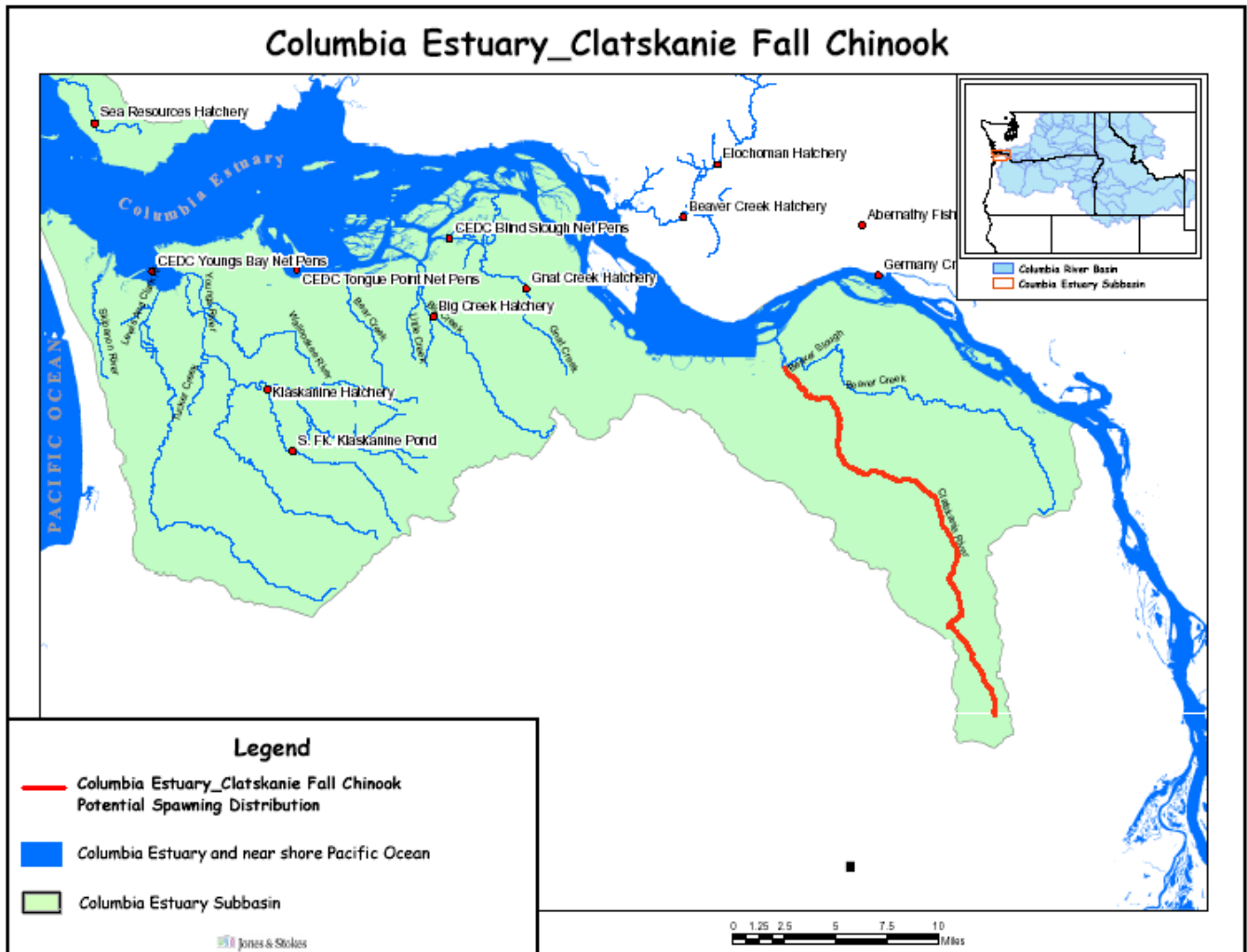


Hatchery Scientific Review Group Review and Recommendations

Clatskanie Fall Chinook Population and Related Hatchery Programs

January 31, 2009



1 Clatskanie Fall Chinook

This population is listed as threatened and is part of the Lower Columbia Chinook ESU. The Clatskanie population is one of twenty fall Chinook (tule) populations in the ESU, and is designated as a Primary population (LCSR&SP 2004). Escapement has been consistently low, and redd counts have been critically low, suggesting that few fish successfully reproduce. Little life history information is available about this population, but age structure and run timing are consistent with tule fall-run Chinook. Current habitat quality may not be sufficient to sustain the population (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 Chinook ESU.
- Population Description: The Clatskanie population is one of twenty fall Chinook (tule) populations in the ESU, and is designated as a Primary population (LCSR&SP 2004).
- Current Viability Rating: Low, with an objective of a High rating
- Recovery Goal for Abundance: Goal not established.
- Productivity Improvement Expectation: Unknown.
- Habitat Productivity and Capacity (from ODF&W): Productivity 44; Capacity 290.
- Populations Affected by this Hatchery Population Include: NA.

2.2 Current Hatchery Programs Affecting this Population

No Chinook hatchery program currently operates in the Clatskanie River; however, about 41 adult Chinook from other programs are estimated to stray into this system annually. Under the current scenario, pHOS is estimated at 24% even though no hatchery Chinook are released in the basin. Annually, approximately 107 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 11.0 to approximately 21.9. Average abundance of natural-origin spawners (NOS) would increase from approximately 110 fish to approximately 150 fish. Harvest contribution of the natural and hatchery populations would go from approximately 110 fish to approximately 150 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

This population is reported to have high productivity; however, it is a capacity-limited system and therefore is unlikely to meet the standards for a Primary population.

If managed as a Primary population, then hatchery fish should be controlled on the spawning grounds and a conservation hatchery could be considered. This population will not meet the 5% pHOS condition for a Primary population without installation of a weir or instituting a more selective fishery.

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 capacity of the system.

Table 1. Results of HSRG analysis of current conditions and HSRG solution for Clatskanie 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 None	-	0%	0%	24%	0.00	107	11.0	107	0
No Hatchery	None None	-	0%	0%	0%	1.00	154	21.9	154	-
HSRG Solution	None None	-	0%	0%	8%	0.00	157	16.7	70	0
HSRG Solution w/ Improved Habitat	None None	-	0%	0%	8%	0.00	176	18.9	79	0