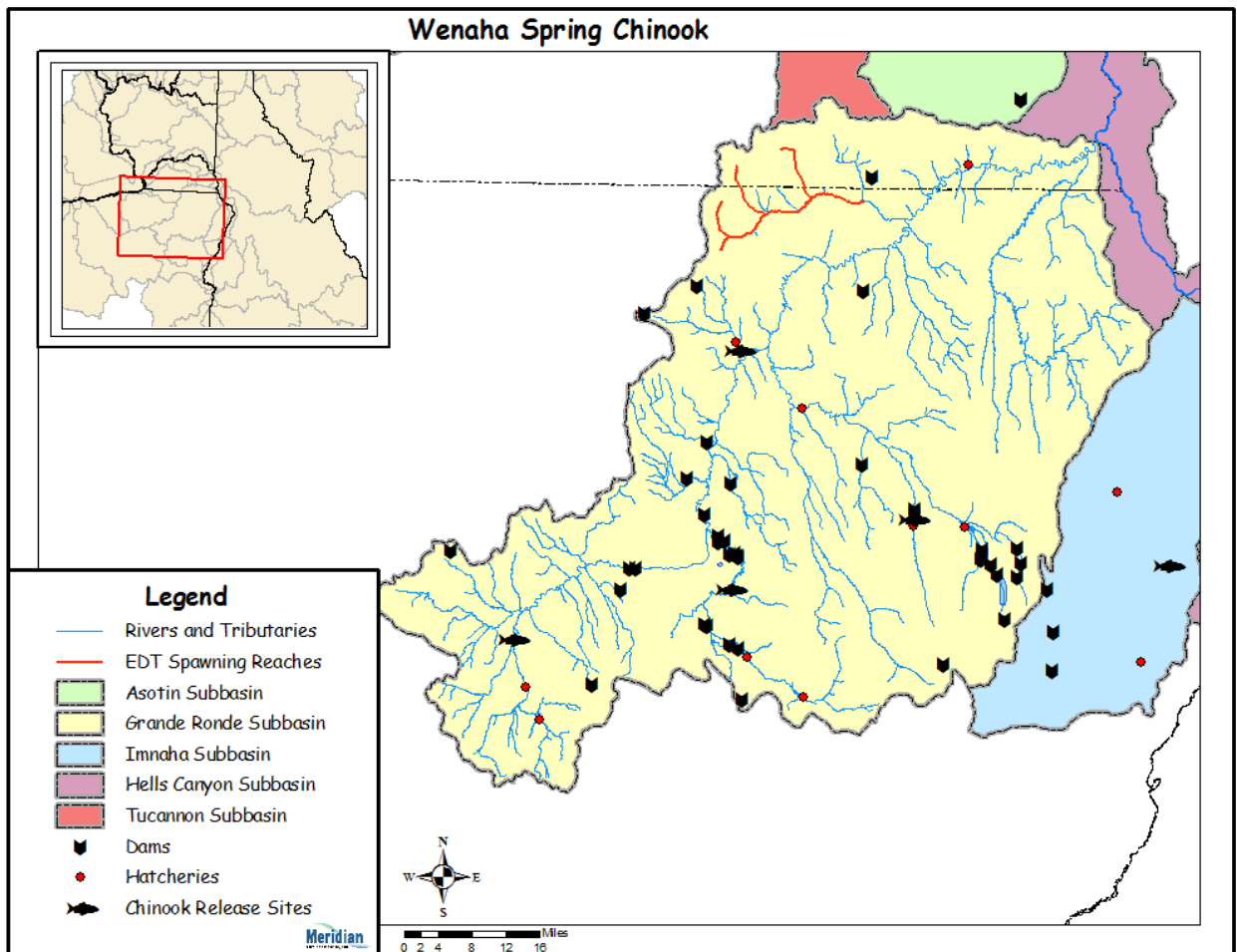


Hatchery Scientific Review Group Review and Recommendations

Grande Ronde- Wenaha Spring Chinook Population and Related Hatchery Programs

January 31, 2009



1 Grande Ronde Wenaha River Spring Chinook

The Grande Ronde Wenaha River Spring/Summer Chinook population is part of the Snake River Spring/Summer Chinook ESU that is classified as threatened under the Endangered Species Act. This ESU has five major population groupings (MPGs), including: Lower Snake River, Grande Ronde/Imnaha, South Fork Salmon River, Middle Fork Salmon River, and the Upper Salmon River group. The ESU contains both spring and summer run chinook.

The Wenaha River population is a spring run, and is one of seven extant populations in the Grande Ronde/Imnaha River MPG.

The Interior Columbia Technical Review Team (ICTRT) has classified this population of Chinook as “Intermediate” in size based on its historic habitat potential. An “Intermediate” population is one that requires a minimum abundance of 750 wild spawners and an intrinsic productivity of 1.8 recruits per spawner (R/S) to be viable at the 5% extinction risk threshold.

Historically, it is estimated that anywhere from 2-3 million spring/summer Chinook returned to the entire Snake River each year (NPPC 2004). The portion returning to the Wenaha River is unknown, but was likely in the thousands. Spawning likely took place primarily in the mainstem Wenaha River, Butte Creek and the North Fork Wenaha.

2 Current Conditions

Wenaha River spring Chinook spawn in the mainstem river and major tributaries such as Butte Creek and North Fork Wenaha. Population diversity and abundance has likely been reduced due to harvest, and juvenile and adult mortality associated with passage through federal Columbia River hydropower system. The vast majority of the Wenaha River lies in wilderness managed by the USFS.

The ICTRT reports that the abundance of 3+ spring Chinook for this subbasin has ranged from 47 to 2,545 fish (1964-2005). Natural-origin spawners have comprised a total of 85% of total spawners since 1964, with this value increasing to 95% in recent years. Out-of-ESU hatchery strays comprised about 23% of the total spawners in the Wenaha River. Most of these strays were from Carson and Rapid River stock which are no longer released in the Grande Ronde River.

2.1 Current Population Status and Goals

This section describes the current population, status, and goals for Wenaha Spring Chinook.

- **ESA Status:** Wenaha River Spring Chinook are part of the Snake River Spring/Summer Chinook ESU which is listed as Threatened.
- **Population Description:** The Grande Ronde Wenaha River population is classified by the ICTRT as an “Intermediate” population. For the HSRG review, the population has been classified as Primary.

- Recovery Goal for Abundance: 750 wild spawners
- Productivity Improvement Expectation: 0%. No habitat actions are proposed for the Wenaha River; however, any improvement in passage survival through the federal Columbia River hydropower system would increase population productivity.
- Habitat Productivity and Capacity: Productivity: 5.2; Capacity: 488

2.2 Current Hatchery Programs Affecting this Population

No hatchery programs release fish directly to the Wenaha River.

Estimated number of hatchery strays affecting this population:

- Hatchery strays from in-basin integrated programs: NA
- Hatchery strays from in-basin segregated and out-of-basin hatchery programs: 17 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 PNI (proportionate natural influence) 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 3.1 to 4.9. Average abundance of natural origin spawners (NOS) would increase from approximately 275 fish to approximately 400 fish. Harvest contribution of the natural population would go from approximately 40 fish to approximately 60 fish.

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

Managers have identified a strategy for Wenaha spring Chinook salmon that emphasizes maintaining the existing natural spawning population. Currently this population is consistent with the HSRG-defined standards of a Primary population (pHOS less than 0.05). With implementation of HSRG recommendations for other programs, it is estimated that the proportion of hatchery strays spawning with this natural population will be reduced to approximately 2%.

Recommendations

The HSRG recommends that managers continue to accurately and precisely monitor status and trend information for this natural population as well as the proportion of hatchery fish in natural production areas.

Table 1. Results of HSRG analysis of current condition and HSRG Solution for Wenaha Spring 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%	5%	0.00	278	3.1	41	0
No Hatchery	None None	-	0%	0%	0%	1.00	405	4.9	59	-
HSRG Solution	None None	-	0%	0%	3%	0.00	342	3.9	50	0
HSRG Solution w/ Improved Habitat	None None	-	0%	0%	2%	0.00	400	4.4	59	0