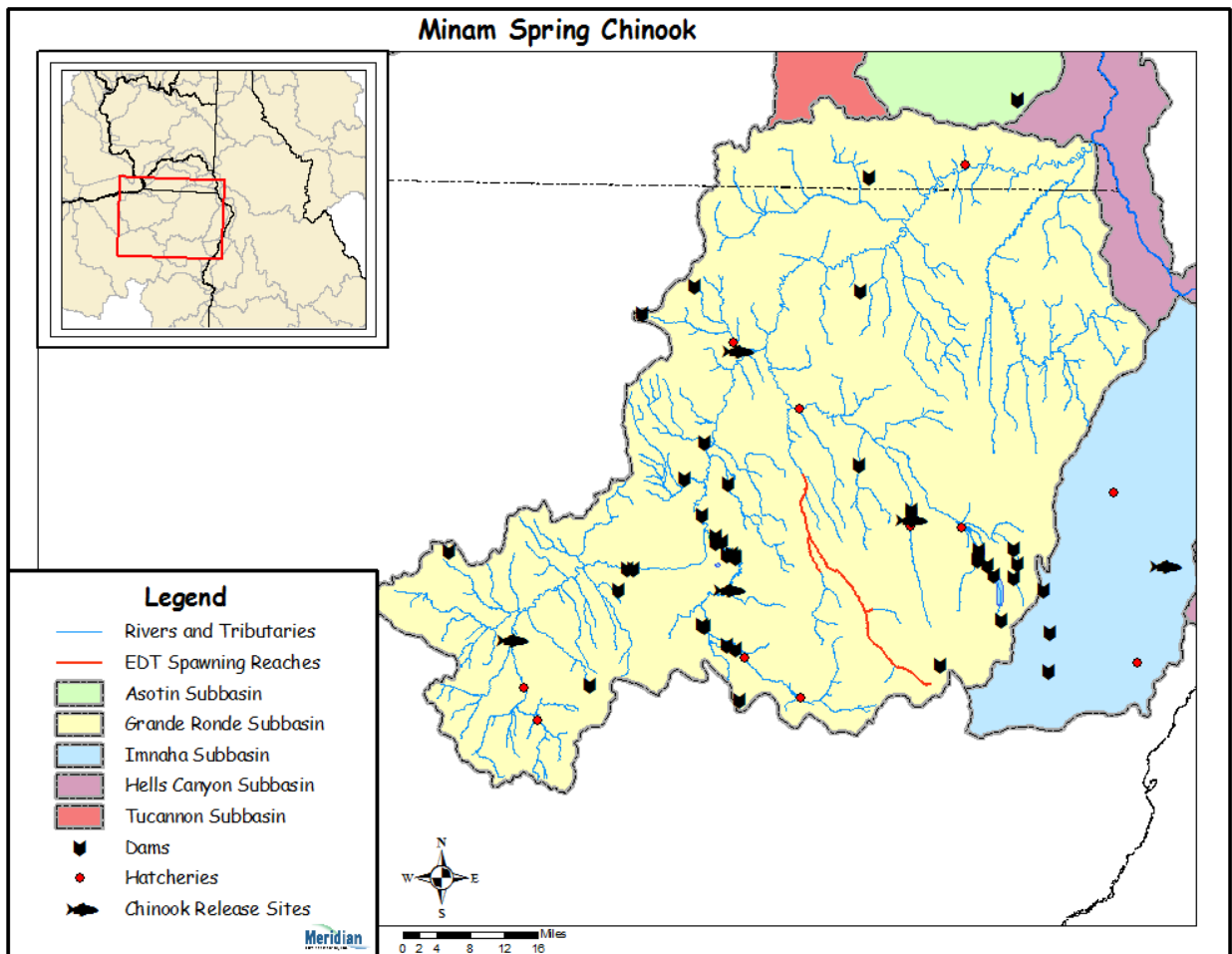


Hatchery Scientific Review Group Review and Recommendations

Grande Ronde-Minam River Spring Chinook Population and Related Hatchery Programs

January 31, 2009



1 Grande Ronde Minam River Spring Chinook

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

The Interior Columbia Technical Recovery Team (ICTRT) has classified this population of Chinook as an “Intermediate” population 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 Grande Ronde Minam River is unknown but was likely in the thousands. Spawning likely took place primarily in the mainstem Minam River.

2 Current Conditions

Minam River spring Chinook spawn in the mainstem river and major tributaries such as the Little Minam River. Population diversity and abundance has likely been reduced due to habitat degradation, harvest, and juvenile and adult mortality associated with passage through the federal Columbia River hydropower system.

Recently (1978-2005) the ICTRT reported that the abundance of age 3+ spring Chinook for this subbasin ranged from 54 to 1,446 fish, with a recent 10-year geometric run size of 337 fish. The adult abundance estimate is based on expanded redd counts. Natural-origin spawners have comprised 96% of the total spawners over the last 10 years. Out-of-ESU hatchery strays to the subbasin have averaged approximately 16%. The strays were from the Carson and Rapid rivers, which no longer release fish to the subbasin.

2.1 Current Population Status and Goals

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

- **ESA Status:** Grande Ronde Minam River Spring Chinook are part of the Snake River Spring/Summer Chinook ESU.
- **Population Description:** The Grande Ronde Minam 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 Minam River; however, any improvement in passage survival through the federal Columbia River hydropower system would increase population productivity.
- **Habitat Productivity and Capacity:** Productivity: 5.7; Capacity: 338

2.2 Current Hatchery Programs Affecting this Population

No hatchery programs release fish directly to the Minam 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 2.9 to 5.3. Average abundance of natural origin spawners (NOS) would increase from approximately 175 fish to approximately 290 fish. Harvest contribution of the natural population would go from approximately 25 fish to approximately 40 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 Minam River spring Chinook salmon that emphasizes maintaining existing natural spawning populations. Currently this population is consistent with the HSRG-defined standards of a Contributing population (pHOS = 7%). 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 4%, consistent with the standards for a Primary population.

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 Minam River 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%	7%	0.00	174	2.9	25	0
No Hatchery	None None	-	0%	0%	0%	1.00	287	5.3	42	-
HSRG Solution	None None	-	0%	0%	4%	0.00	220	3.7	32	0
HSRG Solution w/ Improved Habitat	None None	-	0%	0%	4%	0.00	261	4.3	38	0