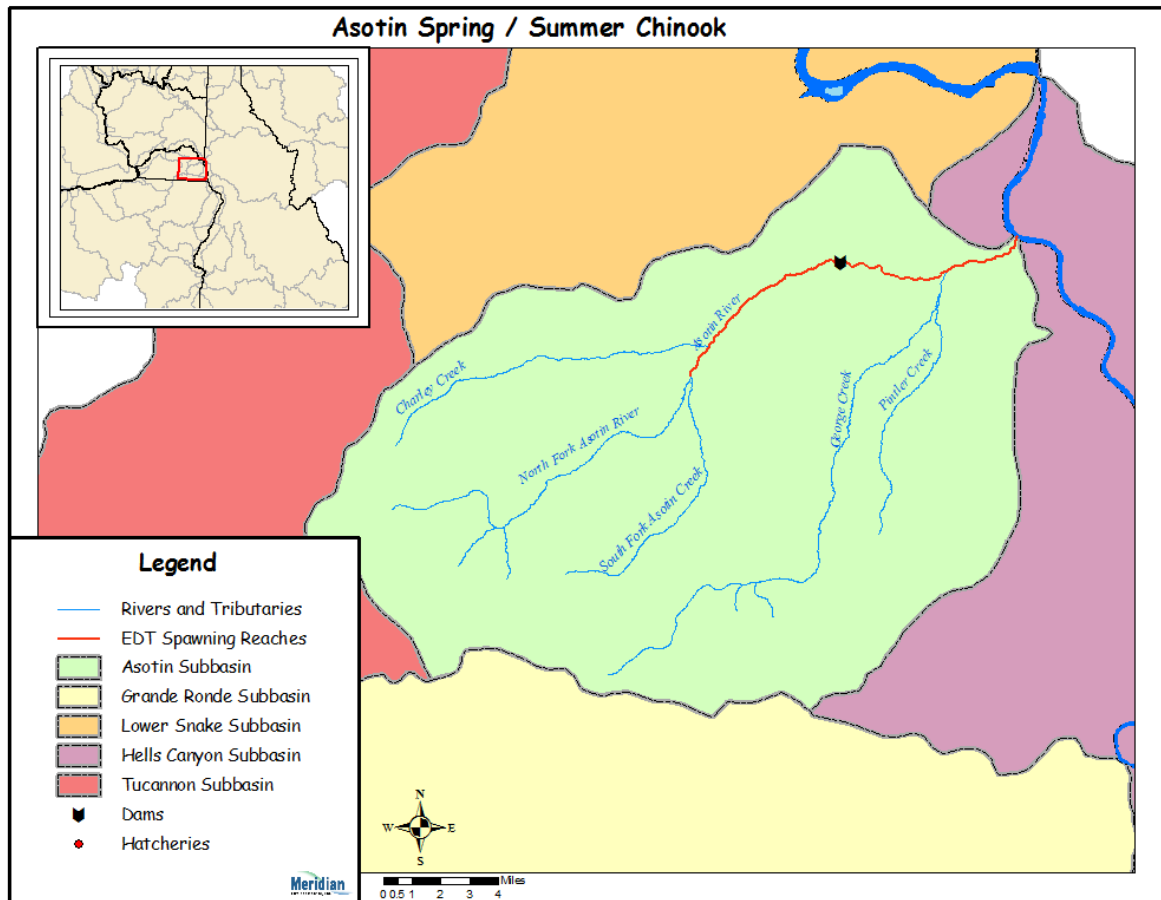


Hatchery Scientific Review Group Review and Recommendations

Asotin Creek Spring Chinook Population and Related Hatchery Programs

January 31, 2009



1 Asotin Creek Spring Chinook

The Asotin Creek 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 Asotin population is a spring/summer run, and is one of two historic populations in the Lower Snake River MPG. The other is the Tucannon River population. The Asotin Creek population was recently classified by the Interior Columbia Technical Recovery Team (ICTRT) as functionally extirpated.

The ICTRT has classified this population of Chinook as a “Basic” population in size based on its historic habitat potential. A “Basic” population is one that requires a minimum abundance of 500 wild spawners and an intrinsic productivity greater than 2.3 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 Asotin Creek is unknown, but was likely in the thousands. Spawning likely took place primarily in the mainstem Asotin Creek.

2 Current Conditions

Asotin Creek spring/summer Chinook spawn in the North Fork Asotin Creek. Small numbers of juvenile spring Chinook have been observed in the South Fork and upper mainstem. The Asotin Creek population diversity and abundance has been reduced by in-basin habitat degradation, harvest, and juvenile and adult mortality associated with passage through federal Columbia River hydropower system.

According to the Asotin Creek Subbasin Plan (NPPC 2004) and the Snake River Salmon Recovery Plan for southeast Washington, adult spring Chinook abundance has been less than 10 fish per year. Adult abundance has been at or near zero for several years in the past 15 years. No hatchery spring Chinook are released to the Asotin Creek, although hatchery adult spring Chinook have been documented in the past 3-4 years.

2.1 Current Population Status and Goals

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

- ESA Status: Asotin Creek Spring Chinook are part of the Snake River Spring/Summer Chinook ESU.
- Population Description: The Asotin Creek population is classified by the ICTRT as a “Basic” population. For the HSRG review, the population has been classified as Stabilizing.
- Recovery Goal for Abundance: 500 wild spawners
- Productivity Improvement Expectation: 10%

- Habitat Productivity and Capacity: Productivity 2.3; Capacity 467

2.2 Current Hatchery Programs Affecting this Population

No hatchery spring Chinook are currently released to the Asotin River basin.

Estimated number of hatchery strays affecting this population:

- Hatchery strays from in-basin integrated programs: 0
- Hatchery strays from in-basin segregated and out-of-basin hatchery programs : 15

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 1.1 to 2.1. Average abundance of natural origin spawners (NOS) would increase from approximately 77 fish to approximately 258 fish. Harvest contribution of the natural and hatchery populations would go from approximately 11 fish to approximately 38 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
 This population is extirpated and managers have plans to reintroduce spring Chinook into this river.

Recommendations
 The HSRG has no specific recommendations for this population.

Table 1. Results of HSRG analysis of current condition and HSRG Solution for Asotin Creek 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%	14%	0.00	77	1.1	11	0
No Hatchery	None None	-	0%	0%	0%	1.00	258	2.1	38	-
HSRG Solution	None None	-	0%	0%	3%	0.00	188	1.7	28	0
HSRG Solution w/ Improved Habitat	None None	-	0%	0%	2%	0.00	256	2.0	38	0