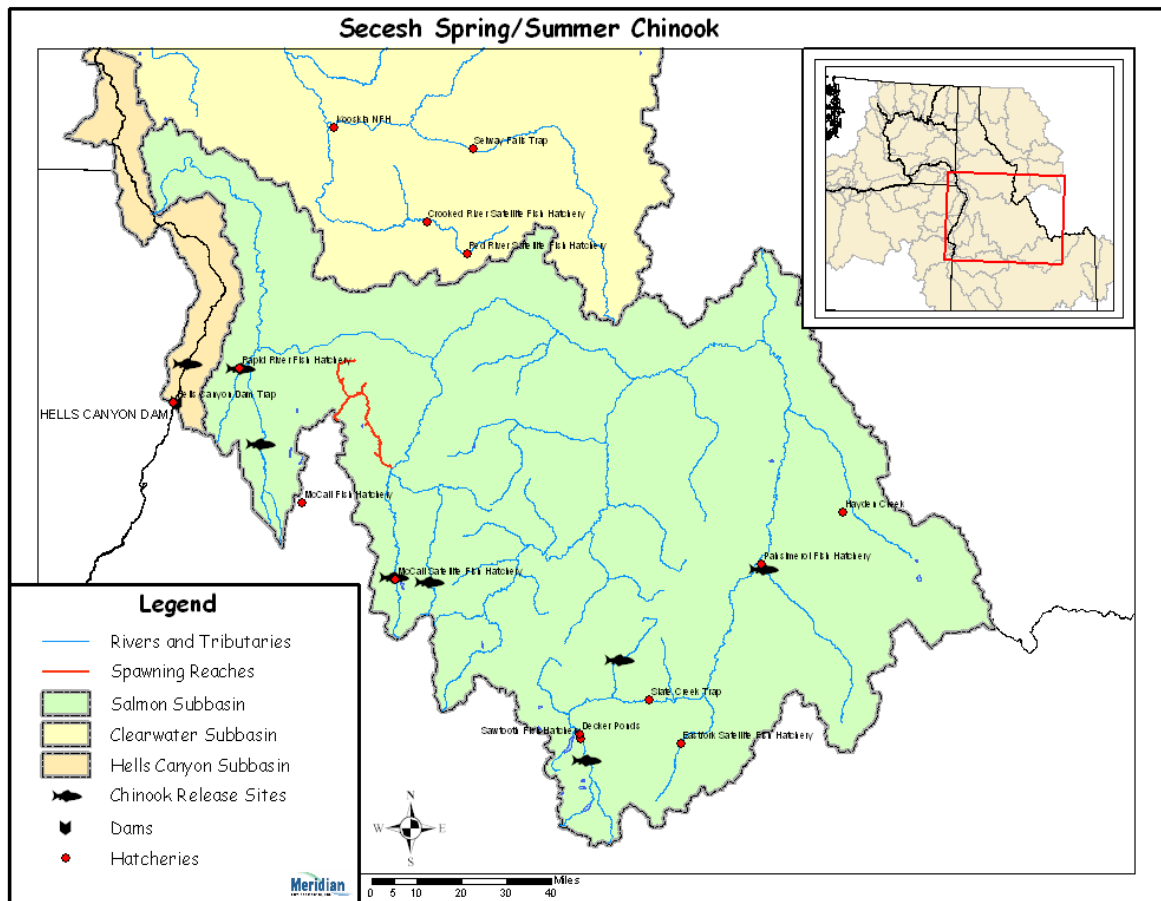


Hatchery Scientific Review Group Review and Recommendations

Salmon - Secesh River Spring Chinook Population and Related Hatchery Programs

January 31, 2009



1 Salmon Secesh River Spring/Summer Chinook

The Secesh Chinook population is part of the Snake River Spring/Summer Chinook ESU. The Secesh River population is a summer run and is classified as threatened under the Endangered Species Act. The Interior Columbia Technical Recovery Team (ICTRT) listed this population as “Intermediate” based on its historic habitat potential. An “Intermediate” population is one that requires a minimum abundance of 750 natural spawners and an intrinsic productivity greater than 1.76 recruits per spawner (R/S) to be viable.

Historically, it is estimated that anywhere from 2-3 million spring/summer Chinook returned to the entire Snake River each year (NPCC 2004). The portion returning to the Secesh River is unknown, but was probably in the thousands.

2 Current Conditions

Adult spring/summer Chinook returns to the subbasin consist of both natural-origin and a few hatchery-origin strays from outside the population. Both natural- and hatchery-origin (except strays from Rapid River Hatchery) components of this population are listed as Threatened. Spawning occurs from mid-July through late October in the Secesh River, Lake Creek and Lick Creek.

Current (1957 to 2003) natural abundance (number of adult spawning in natural production areas) has ranged from 71 fish (1975 and 1995) to 1,178 fish in 1960. Abundance in recent years has been variable. The most recent 10-year geomean number of natural spawners was 304 fish (NOAA Draft Recovery Plan). Annual adult spawner abundance in the Secesh River generally has been less than 500 fish from 1990-2001 (NPCC 2004).

AHA modeling data submitted by IDFG estimate current adult escapement and adjusted productivity for this population at 372 and 1.38, respectively. Riparian habitat in the subbasin is degraded and sediment levels are relatively high due to legacy mining.

2.1 Current Population Status and Goals

This section describes the current population, status, and goals for the natural population.

- **ESA Status:** Snake River Spring/Summer Chinook are listed as threatened under ESA.
- **Population Description:** For the purpose of this review, the HSRG assigned this population as Primary. The population currently meets the broodstock criteria for this population designation.
- **Recovery Goal for Abundance:** The ICTRT defined the Secesh River Chinook population as “Intermediate” and identified a minimum abundance threshold of 750 natural-origin adults.
- **Productivity Improvement Expectation:** The ICTRT productivity standard associated with a population defined as “Intermediate” is 1.76.
- **Habitat Productivity and Capacity:** Productivity: 1.62; Capacity: 1,350

2.2 Current Hatchery Programs Affecting this Population

There is no hatchery stock associated with this Chinook population; however, AHA modeling indicates that some hatchery strays from the following programs may spawn in the Secesh River:

- Salmon/ Little Salmon Spring Chinook (Rapid River Hatchery)
- Salmon/ East Fork/South Fork Johnson Creek Summer Chinook
- Salmon/ South Fork Salmon Summer Chinook (McCall Hatchery)
- Salmon/ Pahsimeroi Summer Chinook (Pahsimeroi Hatchery)

The IDFG, the Nez Perce Tribe, the Shoshone-Bannock Tribes, and the USFWS initiated a large-scale Chinook salmon supplementation study that will continue through 2012. The study incorporates treatment and control streams in the Clearwater and Salmon subbasins. The Secesh River is a Control stream for this program. “Treatments” include the development and release of “supplementation” smolts (hatchery x natural parents) and the release of “supplementation” adults to treatment spawning streams (50:50 hatchery and natural-origin release design). In 2004, juvenile treatments ended in all but three study streams. In 2007, adult treatments ended. The study will conclude in 2014 following a five-year period of “no treatment” evaluation.

Estimated number of hatchery strays affecting this population:

- Hatchery strays from integrated in-basin programs: 0 fish.
- Hatchery strays from in-basin segregated and out-of-basin hatchery programs: Four 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 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 that Adjusted Productivity (with harvest and fitness factor effects from AHA) would increase from 1.4 to 1.6. Average abundance of natural-origin spawners (NOS) would increase from approximately 371 fish to approximately 496 fish. The harvest contribution of the natural and hatchery populations would go from approximately 41 fish to approximately 54 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 Secesh River Chinook salmon that emphasizes maintaining existing natural spawning populations. Currently this population is consistent with the HSRG-defined standards of a Primary population (pHOS less than 0.05).

Recommendations

The HSRG recommends that managers continue to 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 Secesh River Spring/Summer 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%	1%	0.00	371	1.4	41	0
No Hatchery	None None	-	0%	0%	0%	1.00	496	1.6	54	-
HSRG Solution	None None	-	0%	0%	1%	0.00	411	1.4	45	0
HSRG Solution w/ Improved Habitat	None None	-	0%	0%	1%	0.00	592	1.6	65	0