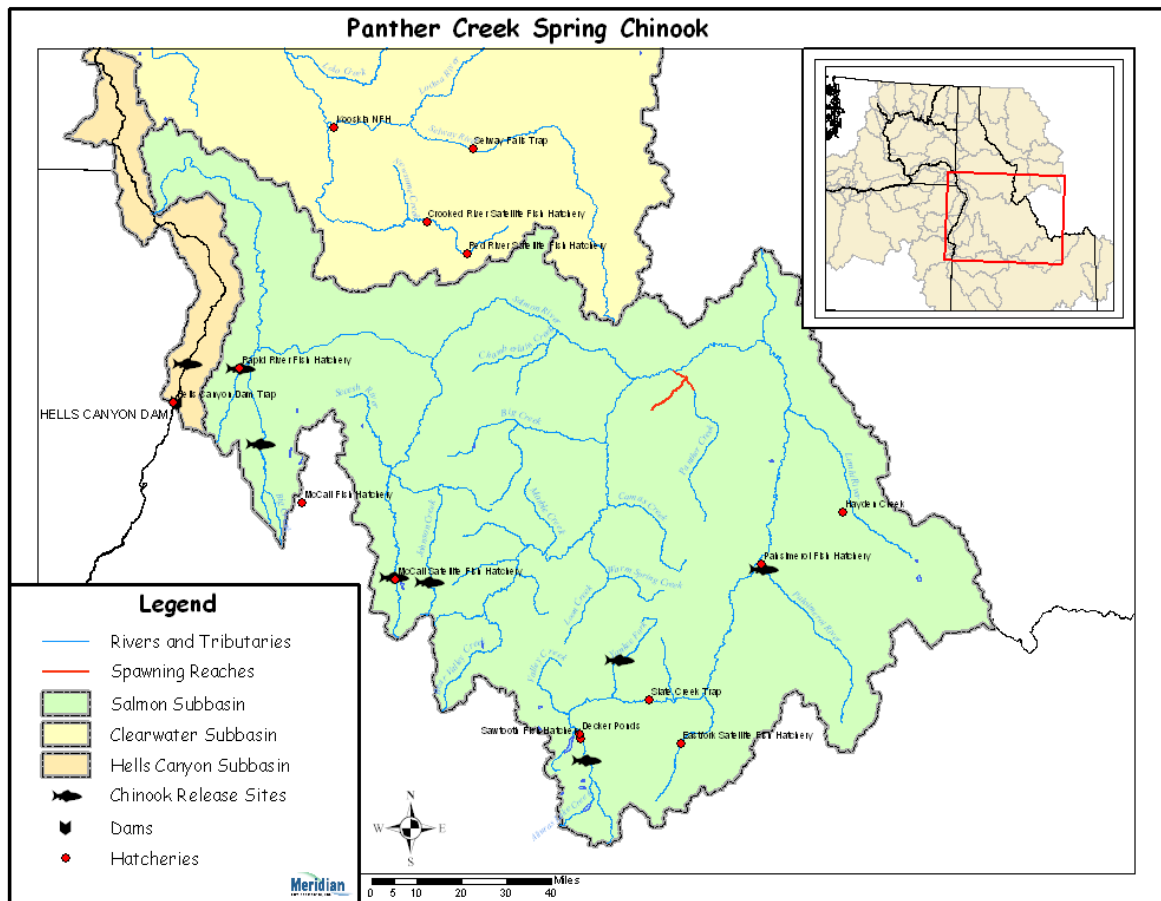


Hatchery Scientific Review Group Review and Recommendations

Salmon Panther Creek Spring Chinook Population and Related Hatchery Programs

January 31, 2009



1 Salmon-Panther Creek Spring Chinook

This Panther Creek population is part of the Snake River Spring/Summer Chinook ESU that is classified as threatened under the Endangered Species Act. The Interior Columbia Technical Recovery Team (ICTRT) has classified this population of Chinook as Extirpated. This population was extirpated from the Panther Creek drainage in the 1960s primarily due to mining activities.

2 Current Conditions

The Panther Creek drainage downstream of and including Blackbird Creek has been impacted by chemical contamination and is under a U.S. Environmental Protection Agency supervised cleanup. Concerns upstream of Blackbird Creek include altered riparian habitat, increased sediment and fish passage barriers (NPCC 2004).

By the 1970s, the endemic Chinook were extirpated due to acid and heavy metal pollution from cobalt mining operations. Panther Creek has since been stocked several times with hatchery fish from a variety of stocks. This creek has been determined to be sufficiently distant from other spawning aggregates and has sufficient available habitat to be considered a separate, independent population (ICTRT 2003) but at this time is classified as extirpated.

Habitat quality in Panther Creek and tributaries appears to be relatively good as the stream supports some bull trout and steelhead.

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; however, this population has been extirpated.
- **Population Description:** For the purpose of this review, the HSRG assigned this population as Stabilizing. The population currently meets the broodstock criteria for this population designation.
- **Recovery Goal for Abundance:** The ICTRT defined the Panther Creek population as “intermediate” and identified a minimum abundance threshold of 750 natural-origin adults.
- **Productivity Improvement Expectation:** Increase to 1.8 over time as habitat actions designed to improve the abundance and productivity of ESA listed steelhead, sockeye and Chinook are implemented.
- **Habitat Productivity and Capacity:** Productivity: 0.10; Capacity: 1,200

2.2 Current Hatchery Programs Affecting this Population

No Chinook salmon hatchery programs operate in the vicinity of Panther Creek. AHA modeling indicates however that some hatchery strays from the following programs have the potential to spawn in Panther Creek:

- 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)

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: 4 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 zero to 0.1. Average abundance of natural-origin spawners (NOS) would be unchanged at 0 fish. The harvest contribution of the natural and hatchery populations would remain at 0 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).

<p>Observations</p> <p>This population is extirpated.</p> <p>Recommendations</p> <p>The HSRG has no specific recommendations for Panther Creek.</p>

Table 1. Results of HSRG analysis of current condition and HSRG Solution for Panther 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 addition 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%	94%	0.00	0	0.0	0	0
No Hatchery	None None	-	0%	0%	0%	1.00	0	0.1	0	-
HSRG Solution	None None	-	0%	0%	94%	0.00	0	0.0	0	0
HSRG Solution w/ Improved Habitat	None None	-	0%	0%	93%	0.00	0	0.1	0	0