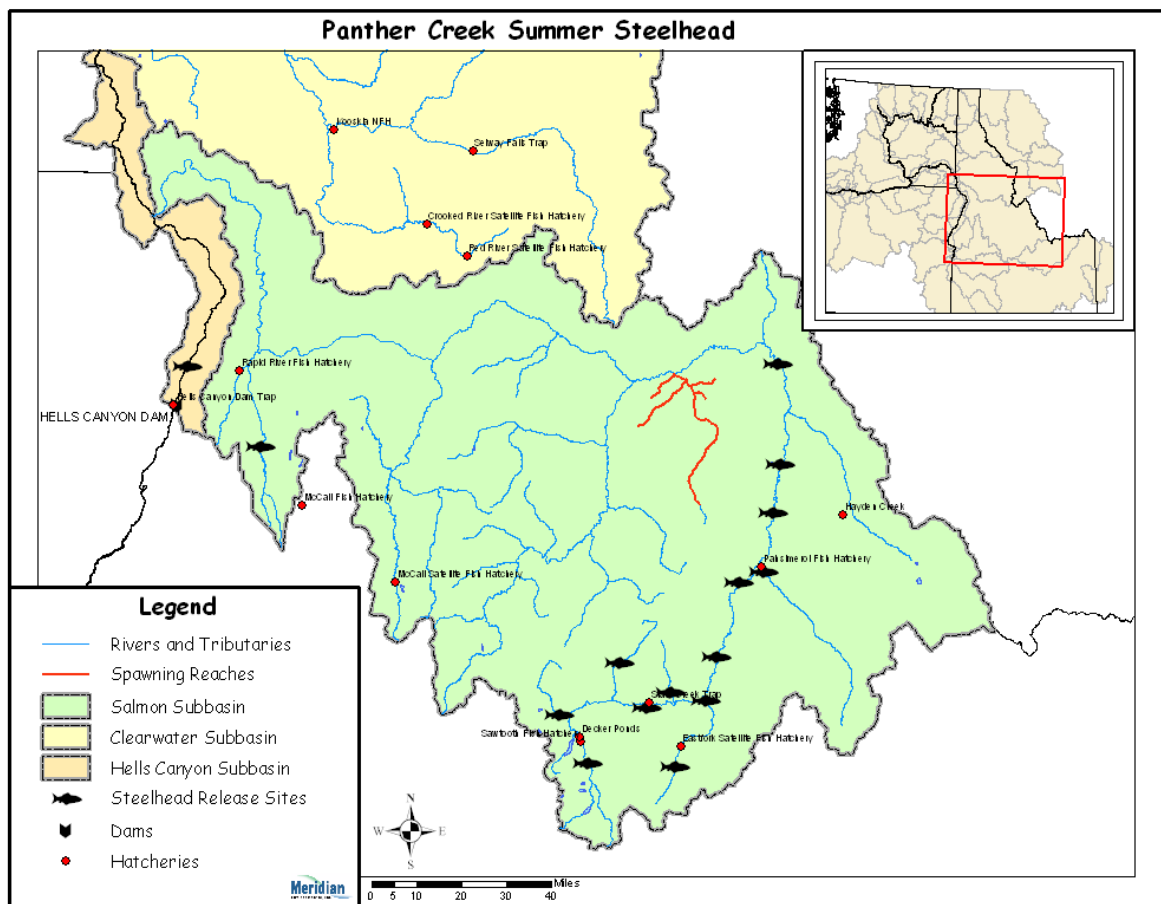


Hatchery Scientific Review Group Review and Recommendations

Salmon River Panther Creek Summer Steelhead A-Run Population and Related Hatchery Programs

January 31, 2009



1 Salmon Panther Creek Summer Steelhead (A-Run)

The Panther Creek steelhead population is part of the Snake River Steelhead Distinct Population Segment (DPS). The DPS contains both A and B-run steelhead. The Panther Creek population is an “A” run, classified as threatened under the Endangered Species Act, and as “Basic” by the ICTRT. A “Basic” population is one that requires a minimum abundance of 500 natural-origin spawners and an intrinsic productivity greater than 1.30 recruits per spawner (R/S) to meet the 5% extinction risk criteria established by the ICTRT.

Historically, it was estimated that over two million steelhead returned to the Columbia River Basin, with about 25% of these originating from the Snake River. Ice Harbor Dam counts indicate that over a 100,000 steelhead returned to the Snake River in the early 1960s. There are no reliable estimates of the percentage of fish that have returned historically to the Panther Creek.

2 Current Conditions

This population includes all steelhead spawning in the Panther and Owl creek drainages as well as the mainstem Salmon River and tributaries downstream to the mouth of Chamberlin Creek. By the 1950s, steelhead were likely extirpated in Panther Creek due to mining activities; however, these activities had little effect on the Owl Creek steelhead population. Spawning occurs from mid-March through mid-June. Juveniles emigrate from the system in the spring at ages 1-4, with most emigrating at ages 2 and 3.

Current population abundance (number of adults spawning in natural production areas) is unknown. For Snake River steelhead “A” run populations lacking in direct abundance and productivity data, the ICTRT developed preliminary estimates representing an average population of this run type using Lower Granite wild dam counts. Abundance for the average “A” run steelhead in recent years has been moderately variable. The most recent 10-year geometric mean number of natural spawners was 456 fish. The most recent 13-year SAR adjusted and delimited geometric mean of returns per spawner was 1.69.

For AHA modeling, IDFG estimated natural-origin fish escapement and adjusted productivity for this population was 183 and 1.76, respectively.

2.1 Current Population Status and Goals

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

- ESA Status: Snake River Steelhead are listed as threatened under ESA.
- Population Description: For the purpose of this review, the HSRG assigned this population as Stabilizing. The population currently meets the broodstock criteria for a Primary population designation.
- Recovery Goal for Abundance: The ICTRT defined the Panther Creek A-run steelhead population as “Basic” and identified a minimum abundance threshold of 500 natural-origin adults
- Productivity Improvement Expectation: The ICTRT productivity standard associated with a population defined as “Basic” is 1.30.
- Habitat Productivity and Capacity: Productivity: 2.0; Capacity: 428

2.2 Current Hatchery Programs Affecting this Population

No hatchery programs currently release smolts in this area. Although little information is available, the number of stray steelhead in Panther Creek is thought to be low. There is a streamside incubator (SSI) program that plants eyed-eggs in Panther Creek. This program is described below.

Shoshone Bannock Tribes SSI Program. Approximately 1.0 million eyed steelhead eggs from Sawtooth and Pahsimeroi fish hatcheries are transferred to remote upwellers where they are incubated on river water to mimic natural hatch timing in the system. Eggs are planted in Yankee Fork, Basin Creek, Morgan Creek, Indian Creek and Panther Creek. Broodstock for the program is collected at Sawtooth and Pahsimeroi hatcheries (about 500,000 from each facility).

AHA modeling indicates however that some hatchery strays from the following programs may also spawn in Panther Creek:

- Salmon/Little Salmon Summer Steelhead (A-Run programs)

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: three 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 1.7 to 1.8. Average abundance of natural-origin spawners (NOS) would decrease from approximately 183 fish to approximately 181 fish. The harvest contribution of the natural and hatchery populations would go from approximately 27 fish to approximately 26 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 Panther Creek A-run steelhead that emphasizes maintaining existing natural spawning populations and using hatchery-origin steelhead in an attempt to augment natural production. Currently this population is not operating consistent with the HSRG-defined standards of either a Primary or Contributing population (pHOS greater than 0.10). There are no releases of hatchery-origin steelhead within Panther Creek, Chamberlain Creek, the Middle Fork Salmon River, or South Fork Salmon River drainages of the Salmon River Major Population Group. However, Panther Creek is one of several streams that receive eyed steelhead eggs as part of the program operated by the Shoshone-Bannock Tribes.

Recommendations

The HSRG notes that there is a general lack of information related to steelhead abundance, productivity, spatial structure and diversity as well as straying of hatchery fish into natural production areas. An effort should be made to improve this information base.

Table 1. Results of HSRG analysis of current condition and HSRG Solution for Salmon- Panther Creek Summer Steelhead A-Run. 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%	0%	1.00	183	1.7	27	0
No Hatchery	None None	-	0%	0%	0%	1.00	181	1.8	26	-
HSRG Solution	None None	-	0%	0%	0%	1.00	183	1.7	27	0
HSRG Solution w/ Improved Habitat	None None	-	0%	0%	0%	1.00	227	1.9	33	0