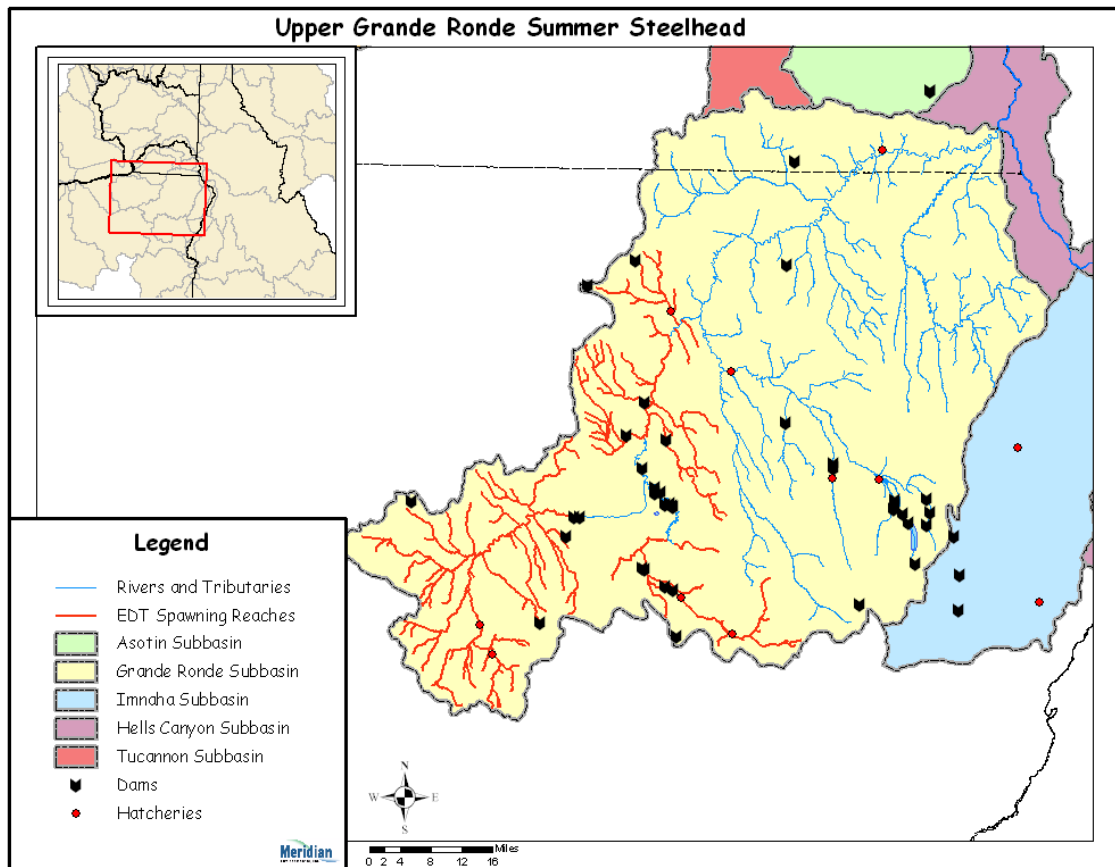


# Hatchery Scientific Review Group Review and Recommendations

## Grande Ronde-Upper Grande Ronde River Summer Steelhead Population and Related Hatchery Programs

January 31, 2009



## 1 Grande Ronde- Upper Grande Ronde River Summer Steelhead

The Upper Grande Ronde River steelhead population is part of the Snake River Basin Steelhead Distinct Population Segment (DPS) that includes all naturally spawned populations of steelhead in streams in the Snake River Basin of southeast Washington, northeast Oregon, and Idaho (62 FR 43937; August 18, 1997). Several artificial propagation programs are considered part of the DPS: the Tucannon River natural stock, the North Fork Clearwater River stock reared at Dworshak National Fish Hatchery (NFH) and Clearwater Fish Hatchery and released in the Clearwater and Salmon Rivers<sup>1</sup>, East Fork Salmon River local stock, and the Little Sheep Creek/Imnaha River Hatchery steelhead hatchery programs.

The DPS has six major population groupings (MPGs): Lower Snake River, Clearwater River, Grande Ronde River, Salmon River, Hells Canyon, and the Imnaha River (ICTRT 2006), and contains both A- and B-run steelhead (based on migration timing, ocean-age and adult size).

The Interior Columbia Technical Recovery Team (ICTRT) classified the Upper Grande Ronde River population as “Large” based on historical habitat potential. A steelhead population classified as Large has a mean minimum abundance threshold of 1,500 naturally produced spawners with sufficient intrinsic productivity to achieve a 5% or less risk of extinction over a 100-year timeframe.

According to the Draft Snake River Steelhead Recovery Plan, Snake River steelhead enter fresh water from June to October and spawn the following spring, from March to June. Emergence occurs by early June in low elevation streams and as late as mid-July at higher elevations. Snake River steelhead usually smolt at age 2 or age 3 years and reside in marine waters for 1 to 3 years prior to returning to their natal stream to spawn at 4 or 5 years of age.

## 2 Current Conditions

This population consists of all naturally spawned fish in the upper Grande Ronde River, Lookingglass Creek, Catherine Creek, Indian Creek and Dry Creek. No hatchery steelhead are released in these areas.

Recent estimates have put steelhead escapement at a little over 1,800 fish (Draft Snake River Recovery Plan). The watershed is currently managed for wild fish production only; therefore, no hatchery fish are released to the stream.

Strays from the Wallowa Hatchery program are a concern. Three tributaries are monitored for the proportion of hatchery-to-wild-origin fish: Catherine Creek, Lookingglass Creek, and the Upper Grand Ronde.

A total of 1,165 adult summer steelhead were captured in Catherine Creek from 2002 to 2008. Of these, only four adults were of hatchery origin. From 1997-2003, the most hatchery fish observed at the weir was 50 (in 2001). All of these fish were destroyed. A total of 1,210 adult summer steelhead were captured in Lookingglass Creek from 2002 to 2008. Of these, only 17 adults were of hatchery origin. All of these fish were destroyed. At the Upper Grande Ronde adult collection facility, a total of 290 adults were captured

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<sup>1</sup> Artificial propagation programs for steelhead in the Clearwater River subbasin are based on the North Fork Clearwater stock trapped at the foot of Dworshak Dam when its construction blocked access to the North Fork in 1969.

from 2002 to 2008. One hatchery adult was observed at the trap and it was destroyed (McLean et al 2008 per comm.). Overall, strays in Upper Grande Ronde tributaries are estimated at 0.77% since 2002.

## 2.1 Current Population Status and Goals

This section describes the current population, status, and goals for the Upper Grande Ronde River steelhead population.

- **ESA Status:** The Snake River Basin steelhead DPS was listed as threatened on August 18, 1997; the threatened status was reaffirmed on January 5, 2006.
- **Population Description:** The ICTRT classified the Upper Grande Ronde River population as a “Large” population based on historical habitat potential (ICTRT 2005). For the HSRG review, the population has been classified as Primary.
- **Recovery Goal for Abundance:** 1,500 fish
- **Productivity Improvement Expectation:** The 100-year geometric mean for abundance and productivity (i.e. growth rate) of steelhead in Upper Grande Ronde River will be improved to exceed the 5% extinction-risk (viability) curves developed by the ICTRT (e.g., ~ 1,500 spawners at a productivity of 1.1).
- **Habitat Productivity and Capacity:** Productivity: 1.8; Capacity: 3,665

## 2.2 Current Hatchery Programs Affecting this Population

Currently, there are no hatchery programs for steelhead in Upper Grande Ronde 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 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).

Since this population currently experiences very little hatchery impact, removing hatchery effects makes no change to productivity, abundance, or natural spawning. Our analysis estimated that Adjusted Productivity (with harvest and fitness factor effects from AHA) would stay at 1.6, average abundance of natural-origin spawners (NOS) would remain at approximately 1,350 fish, and the harvest contribution of the natural population would remain at approximately 150 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 Upper Grande Ronde summer steelhead that emphasizes maintaining existing natural spawning populations. Currently this population is being managed for natural production consistent with the HSRG-defined standards of a Primary population (pHOS less than 0.05). Three weirs are operated in the basin to monitor the steelhead population trend and distribution. The few hatchery strays that have been observed are removed at the weirs.

#### **Recommendations**

The HSRG recommends that the managers continue operating the three weirs to collect information about this population. These three weirs provide one of the few locations for consistent monitoring of long-term steelhead population trends in the Snake River Basin.

Table 1. Results of HSRG analysis of current condition and HSRG Solution for Upper Grande Ronde Summer Steelhead. 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	-	0%	0%	0%	1.00	1,310	1.6	149	0
	None									
No Hatchery	None	-	0%	0%	0%	1.00	1,394	1.6	158	-
HSRG Solution	None	-	0%	0%	0%	1.00	1,392	1.6	158	0
	None									
HSRG Solution w/ Improved Habitat	None	-	0%	0%	0%	1.00	1,770	1.8	201	0
	None									