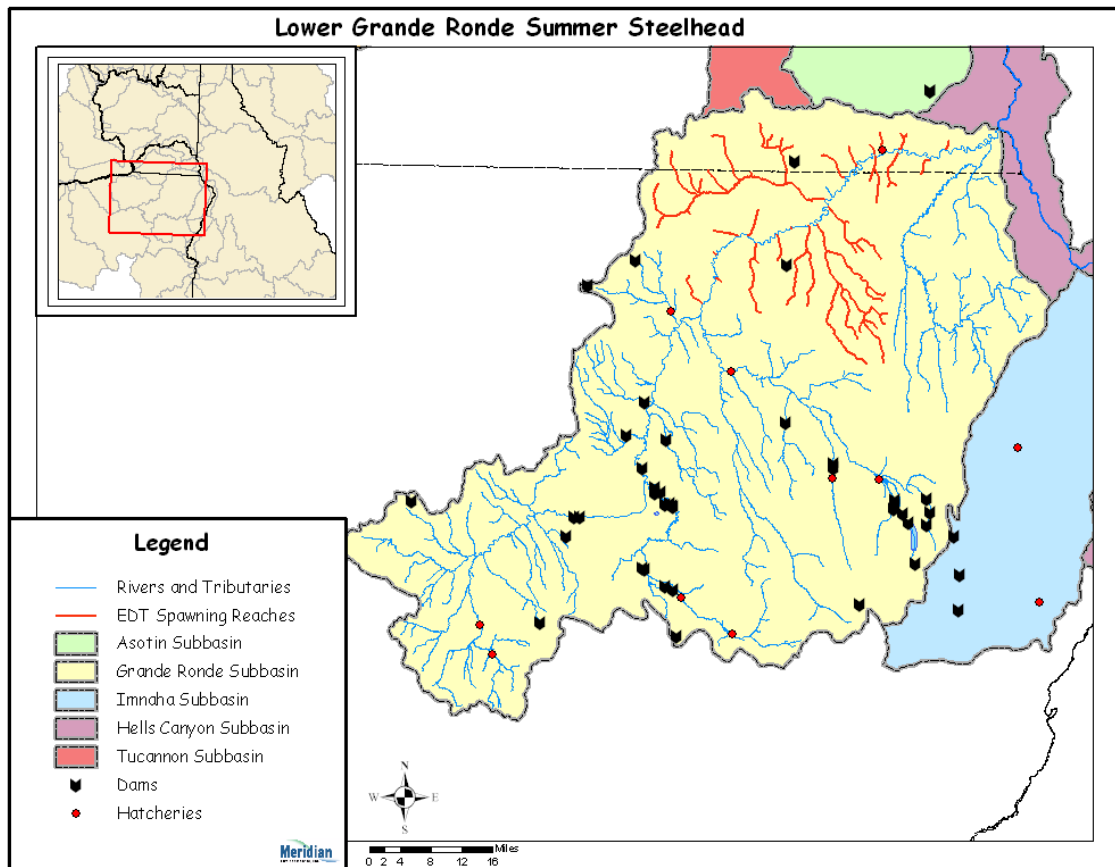


Hatchery Scientific Review Group Review and Recommendations

Grande Ronde-Lower Grande Ronde Summer Steelhead Population and Related Hatchery Programs

January 31, 2009



1 Grande Ronde- Lower Grande Ronde River Summer Steelhead

This population is considered part of the Snake River Steelhead ESU that is classified as threatened under the Endangered Species Act. Steelhead populations in the ESU include all naturally spawned fish in the Tucannon, Clearwater, Grande Ronde, Imnaha, Salmon rivers and Asotin Creek.

The Interior Columbia Technical Recovery Team (ICTRT) classified this population as “Intermediate”. An “Intermediate” population is one that requires a minimum abundance of 1,000 wild spawners and an intrinsic productivity greater than 1.15 recruits per spawner (R/S) to meet the 5% extinction risk criteria established by the ICTRT.

Historically, it was estimated that over 2 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. EDT modeling of historic habitat conditions indicates the basin may have supported over 2,500 adult steelhead (Draft Snake River Recovery Plan 2007). Additionally, it was estimated that in the late 1950s, total steelhead escapement to the Grande Ronde River was approximately 15,900 adults (NPPC 2004).

2 Current Conditions

This population includes the mainstem Grande Ronde River and all tributaries (including Mudd Creek) upstream to the confluence of the Wallowa River, except the Joseph Creek drainage. The population includes fish spawning in the Wenaha River subbasin, which is located in a designated wilderness area.

Adult escapement to the Lower Grande Ronde River and tributaries has been estimated at approximately 600 fish. There are currently two hatchery program that release summer steelhead: one from Cottonwood Acclimation Pond and an upriver hatchery program at Wallowa Hatchery. Both programs use Wallowa stock hatchery fish to provide harvest. No hatchery fish are released in the Wenaha River or Joseph Creek as both are designated as wild fish management areas.

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: The ICTRT classifies this population as Intermediate. For the HSRG review, the population has been classified as Primary.
- Recovery Goal for Abundance: 1,000 fish
- Productivity Improvement Expectation: Increase to 1.15 over time as habitat actions designed to improve the abundance and productivity of ESA listed steelhead and Chinook are implemented in the subbasin.
- Habitat Productivity and Capacity: Productivity 3.9; Capacity 1,951

2.2 Current Hatchery Programs Affecting this Population

Summer steelhead reared at Lyons Ferry Hatchery are released each year into the Grande Ronde River from Cottonwood Acclimation Pond. Broodstock for the program (originally derived from Wallowa stock) is collected at the Cottonwood Creek adult trap, where adults are held and spawned. Eggs are transferred to Lyons Ferry; juvenile rearing occurs here as well. Juvenile fish are transferred in February from Lyons Ferry to the Cottonwood Acclimation Pond. Fish are allowed to voluntarily migrate from the pond beginning around April 1 each year. Those remaining in the pond are forced out in late April. The program is designed to provide 1,500 adults for harvest in the Snake River Basin and has a release goal of 160,000 yearling summer steelhead. All fish released are marked with an adipose fin-clip. Approximately 20,000 of those are also marked with a left-ventral clip and given a coded wire-tag for program monitoring. In recent years, a portion of those have also been given a PIT-tag to better estimate full returns to the Snake River Basin.

The program has an R/S value of 19.2 (1992-2002 Brood Year average).

Estimated number of hatchery strays affecting this population:

- Hatchery strays from integrated in-basin programs: None
- Hatchery strays from in-basin segregated and out-of-basin hatchery programs: 125

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 2.9 to 3.5. Average abundance of natural-origin spawners (NOS) would increase from approximately 1,178 fish to approximately 1,420 fish. The harvest contribution of the natural and hatchery populations would go from approximately 2,955 fish to approximately 161 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

Lyons Ferry Hatchery (LFH) and Tucannon Fish Hatchery (TFH) were built/modified under the Lower Snake River Fish and Wildlife Compensation Plan to compensate for the annual loss of summer steelhead caused by hydroelectric projects on the Snake River.

The Lyons Ferry Hatchery Complex currently uses four summer steelhead stocks to produce smolts for release into the Snake (60,000 smolts of LFH stock), Tucannon (100,000 smolts of LFH stock, 50,000 smolts of Tucannon Endemic stock), Grande Ronde (160,000 smolts of Wallowa stock), Walla Walla (100,000 smolts of LFH stock), and Touchet rivers (85,000 smolts of LFH stock, 50,000 smolts of Touchet Endemic stock) to enhance recreational opportunities for steelhead anglers and for recovery purposes. All steelhead smolts for the program are planned for a release size of 4.5 fpp (about 100 g/fish). Current releases of summer steelhead smolts are lower than originally specified by the LSRCP program. Releases have periodically been reduced through the years (in 2001 the LFH and Wallowa stock programs were reduced by 37%) in partial response to Endangered Species Act (ESA) concerns and documented smolt-to-adult (SAR) survival rates far exceeding the original SAR goal of 0.5% (USACE 1975; Lyons Ferry Complex Hatchery Evaluation: Summer Steelhead Annual Report 2005 Run Year June 2007).

Managers have not assigned a population designation for the Lower Grande Ronde River summer steelhead. Currently this population appears to be managed consistent with the standards of a Primary population; however, the HSRG noted a general lack of specific information about this population.

The production goal for the Cottonwood Creek program is to release approximately 160,000 smolts designed to provide harvest. Adult trapping and smolt acclimation occur at the Cottonwood acclimation facility. Incubation and rearing occur at Lyons Ferry. All

fish in excess of broodstock needs are passed upstream of the adult trap in Cottonwood Creek (1,000 to 2,000 fish annually).

Recommendations

The HSRG recommends that managers discontinue passing hatchery fish upstream of the hatchery rack. The HSRG encourages managers to explore opportunities to increase the harvest contribution, such as increasing daily bag limits. The HSRG supports alternate uses of surplus fish such as distribution to local food banks and/or stream nitrification.

The HSRG recommends that managers improve the monitoring of steelhead abundance, productivity, spatial structure and diversity as well as straying of hatchery fish into natural production areas.

Table 1. Results of HSRG analysis of current condition and HSRG solution for Lower 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 None	-	0%	0%	5%	0.00	1,193	2.9	135	0
	Seg Harv	160.1	85%						2,821	640
No Hatchery	None None	-	0%	0%	0%	1.00	1,419	3.5	161	-
HSRG Solution	None None	-	0%	0%	4%	0.00	1,229	3.0	139	0
	Seg Harv	160.1	85%						2,944	536
HSRG Solution w/ Improved Habitat	None None	-	0%	0%	3%	0.00	1,443	3.4	164	0
	Seg Harv	160.1	85%						2,944	536