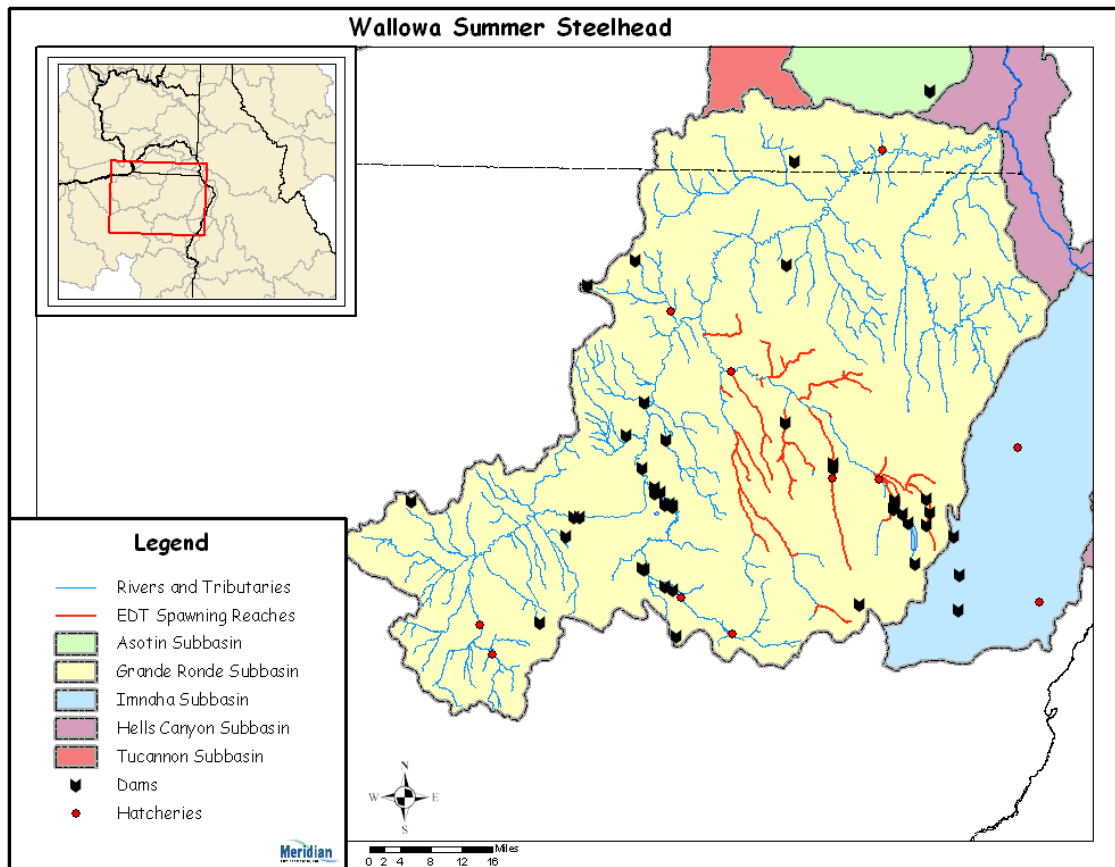


Hatchery Scientific Review Group Review and Recommendations

Grande Ronde-Wallowa Summer Steelhead and Related Hatchery Programs

January 31, 2009



1 Grande Ronde- Wallowa 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 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 Wallowa may have supported over 2,500 adult steelhead (Draft Snake River Recovery Plan 2007).

2 Current Conditions

This population includes all naturally spawned fish in the Wallowa, Minam and Lostine rivers, as well as several small tributaries. Prairie Creek is also included in this population.

Wild adult escapement to the Wallowa River and tributaries has been estimated at approximately 1,200 fish (NPPC 2004). There is currently one hatchery program that releases summer steelhead in the Wallow River to provide 9,200 adults for harvest.

The Wallowa Hatchery stock originated from adults collected during the spring at Ice Harbor (in 1976) and Little Goose (in 1977 and 1978) dams as well as embryos from Pahsimeroi Fish Hatchery in Idaho (in 1979). Since 1979, Wallowa stock adults returning to Wallowa Hatchery, Big Canyon, and Cottonwood traps have been used as broodstock.

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 basin.
- Habitat Productivity and Capacity: Productivity: 2.9; Capacity: 2,000

2.2 Current Hatchery Programs Affecting this Population

The Wallowa summer steelhead program is a segregated program with a release target of 800,000 yearling smolts (4 fpp). The program has been sized to produce approximately 9,200 adults for harvest and hatchery broodstock. All fish released under this program are adipose fin-clipped. A description of hatchery operations is presented below.

Adult Collection and Holding: Adult summer steelhead (HOR only) are collected in the Wallowa subbasin (HUC-17060105) at Wallowa Hatchery and at the Big Canyon facility and held at Wallowa Hatchery. Adults surplus to broodstock needs are released into closed waters or sent to food banks. Wallowa Hatchery is located along Spring Creek (RK 1), a tributary to the Wallowa River at RK 66.8, and one mile west of Enterprise, Oregon. Big Canyon facility is operated as a satellite to Wallowa Hatchery. It is located on Deer Creek (RK 0.1) at the confluence of Deer Creek and the Wallowa River (RK 17.7), just east of Minam, Oregon.

Spawning: Fish collected at Big Canyon Hatchery and Wallowa Hatchery are spawned at Wallowa Hatchery.

Early Incubation: Incubation of eggs from green egg to eyed egg stage occurs at Wallowa Hatchery.

Final incubation and Rearing: Final incubation (eyed egg to hatching) and rearing to smolt size occurs at Irrigon Hatchery. Irrigon Hatchery is located along the south bank of the Columbia River, above John Day Dam, near Irrigon, Oregon.

Currently, a small group (400) of eyed eggs is appropriated to a STEP program. These fish are reared from eyed-egg to fry in local classroom incubators, and are released into Marr Pond (200) and Wallowa Wildlife Pond (200) near Enterprise and Wallowa, Oregon, respectively.

Acclimation to release: Smolts are transferred from Irrigon Hatchery in February and April and acclimated at Wallowa Acclimation Pond (Wallowa Hatchery) and held for varying lengths of time, before being released into the Wallowa River. Other smolts are transferred from Irrigon Hatchery to Big Canyon Acclimation Pond in March and April, and acclimated for one month before being released into Deer Creek (a tributary to the Wallowa River).

The program has an R/S value of 15.0.

Estimated number of hatchery strays affecting this population:

- Hatchery strays from integrated in-basin 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).

Our analysis estimated that Adjusted Productivity (with harvest and fitness factor effects from AHA) would increase from 2.5 to 2.6. Average abundance of natural-origin spawners (NOS) would increase from approximately 1,220 fish to approximately 1,250 fish. The harvest contribution of the natural and hatchery populations would go from approximately 6,169 fish to approximately 142 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 Wallowa summer steelhead that emphasizes maintaining existing natural spawning populations as well as maintaining the current hatchery mitigation program. Currently the segregated hatchery program is operating consistent with the HSRG-defined standards of a Primary population (pHOS less than 0.05).

The total production objective for the Wallowa River summer steelhead program is to release 800,000 smolts (4 fpp). The program is partial fulfillment of the LSRCP adult return goal of 11,200 adult steelhead to the project area. Adult summer steelhead (HOR only) are collected in the Wallowa subbasin at Wallowa Hatchery and at the Big Canyon

facility and held and spawned at Wallowa Hatchery. Incubation of eggs from green egg to eyed egg stage also occurs at Wallowa Hatchery. Final incubation (eyed egg to hatching) and rearing to smolt size occurs at Irrigon Hatchery. Smolts are transferred from Irrigon Hatchery in February and April and acclimated at Wallowa Acclimation Pond (Wallowa Hatchery) and held for varying lengths of time, before being released into the Wallowa River. Other smolts are transferred from Irrigon Hatchery to Big Canyon Acclimation Pond in March and April, and acclimated for one month before being released into Deer Creek (a tributary to the Wallowa River). Information provided by the managers indicates this is a well segregated hatchery program. Hatchery fish contribute less than 2% of the natural spawning fish in this population. However, this hatchery stock has contributed strays to locations outside the Grande Ronde subbasin (to the mid-Columbia Distinct Population Segment).

Currently there appears to be a consistent surplus of 1,000 to 2,000 hatchery adults returning to the collection facility annually.

Recommendations

The HSRG has no specific recommendations to improve this hatchery program.

The HSRG recommends that managers continue to monitor steelhead abundance, productivity, spatial structure and diversity as well as straying of hatchery fish into natural production areas. We also recommend that the managers continue to explore ways to reduce straying to out-of-basin areas such as the Deschutes and John Day rivers.

The HSRG encourages managers to explore opportunities to increase the harvest contribution, such as increasing daily catch limits.

Table 1. Results of HSRG analysis of current condition and HSRG Solution for Wallowa 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%	1%	0.00	1,220	2.5	139	0
	Seg Harv	799.3	99%						6,030	2,523
No Hatchery	None None	-	0%	0%	0%	1.00	1,249	2.6	142	-
HSRG Solution	None None	-	0%	0%	1%	0.00	1,183	2.5	134	0
	Seg Harv	799.3	99%						6,799	1,761
HSRG Solution w/ Improved Habitat	None None	-	0%	0%	1%	0.00	1,397	2.7	159	0
	Seg Harv	799.3	99%						6,799	1,761