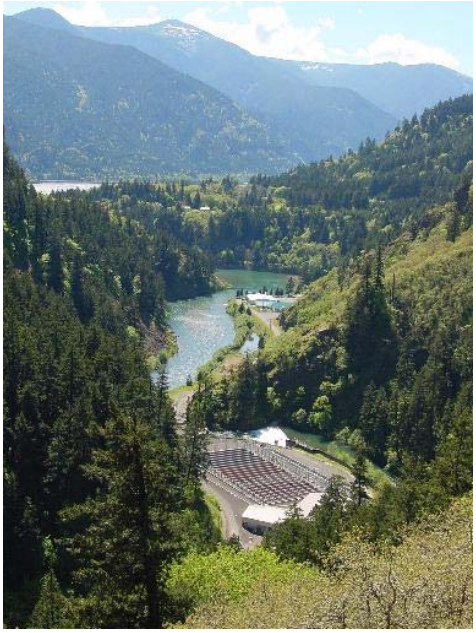
Hatchery Update

Little White Salmon National Fish Hatchery



About Little White Salmon National Fish Hatchery

The Little White Salmon National Fish Hatchery (NFH) was established in 1896 and is the oldest federal hatchery on the Columbia River. Congressional authorization was based on the intent to supplement the commercial fishing industry and to address the decline of tule fall Chinook, the native salmon stock that returned to the Little White Salmon River. The completion of Bonneville Dam in 1938 was probably the most significant event that occurred in the first 42 years of operation. Not only was the hatchery flooded by the rising Bonneville Pool, but the average annual egg take of tule fall Chinook declined by 44%. The natural spawning grounds of this fish were lost as habitat at the mouth of the river was inundated by the Bonneville pool. The original mouth of the Little White Salmon River extended nearly an additional half mile out and downstream of its current location on the Columbia River. This prime spawning habitat essential to the survival of naturally spawning tule fall Chinook was permanently lost following the completion of Bonneville Dam in 1938. The original spawning gravel is now covered by excessive silt allowed to settle in the slack water of the Bonneville Pool. It was during this time that the hatchery became part of the Mitchell Act program, producing fish to mitigate for lost habitat that resulted from the construction and operation of the fledgling Columbia River hydropower system.

Reimbursable funds from other agencies accounted for a majority of the operational budget at the Little White Salmon/Willard National Fish Hatchery Complex with most of these funds (46.3% in fiscal year 2009) coming from NOAA - Fisheries Mitchell Act appropriation. Remaining reimbursable funds are for fish reared for specific programs such as the Bonneville Power Administration reimbursed Mid-Columbia Coho Reintroduction Project, U.S. Army Corps of Engineers John Day mitigation program, and the Grant County PUD-funded White River Recovery program.

The hatchery is located in south-central Washington on the Little White Salmon River approximately one mile upstream from the Columbia River. The Little White Salmon River joins the Columbia River at river mile 162 and is located approximately 12 miles east of Stevenson, Washington. Drano Lake, a natural impoundment at the mouth of the river, is a popular sport and tribal fishing area. The hatchery is located on 432 acres of land including easements.

Current Fish Production Program

The current Complex production program is guided by specific fish production goals identified in the recently negotiated 2008-2017 United States *v.* Oregon Management Agreement. The purpose of the Management Agreement is to provide a framework within which the Parties (the State of Washington, the State of Oregon, the State of Idaho, the United States, the Shoshone Bannock Tribes, the Confederated Tribes of the Warm Springs Reservation of Oregon, the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe, and the Confederated Tribes and Bands of the Yakama Nation) may exercise sovereign powers in a coordinated and systematic manner in order to protect, rebuild, and enhance upper Columbia River fish runs while providing harvests for both treaty Indian and non-treaty fisheries. The primary goals of the Parties are to rebuild weak runs to full

productivity and fairly share the harvest of upper river runs between treaty and non-treaty fisheries in the ocean and Columbia River Basin. As a means to accomplish this purpose, the Parties intend to use habitat protection authorities, enhancement efforts, and artificial production techniques as well as harvest management to ensure that Columbia River fish runs continue to provide a broad range of benefits in perpetuity. Fish production goals specific to the hatchery and agreed to by the Parties include:

- 600,000 yearling spring Chinook salmon released on site.
- 150,000 endangered White River spring Chinook pre-smolts for transfer, acclimation, and release into the White River, Washington.
- 4,500,000 sub-yearling URB fall Chinook released on site.
- 1,700,000 sub-yearling URB fall Chinook released off site on the Yakima Indian Reservation as mitigation for John Day Dam.
- 4,500,000 million URB fall Chinook eggs for transfer to the Yakama Nation Klickitat Hatchery.
- 1,700,000 sub-yearling tule fall Chinook salmon released on site.
- 3 year classes of endangered White River spring Chinook captive brood stock for spawning, second generation juvenile production, and to prevent the extinction of this population of fish.

Cultural Values

The Columbia River Treaty Tribes (Yakama Nation, Confederated Tribes of the Warm Springs Reservation of Oregon, Nez Perce, and Confederated Tribes of the Umatilla Indian Reservation) share the in-river harvest of spring Chinook, URB fall Chinook, and coho returning to the Little White Salmon NFH. Surplus fish are provided to the Yakama Nation to support the tribal nutrition program and for ceremonial use. The cultural significance of these fish to the tribes is best characterized by the following quotation:

"Salmon was presented to me and my family through our religion as our brother. The same with the deer. And our sisters are the roots and berries. And you would treat them as such. Their life to you is just as important as another person would be."
Margaret Saluskin, Yakama Nation, Columbia River Inter-Tribal Fish Commission.

Adult Escapement Goals

A total of 3,862 adult URB fall Chinook salmon and 967 spring Chinook salmon are necessary to collect enough eggs for full production at the facility and to meet additional egg requests as mandated in the Columbia River Fish Management Plan.

Coded-Wire Tag Marking Program

Marking of fish using an adipose fin clip and/or coded-wire tagging technology makes determining survival rates and contribution of salmon to the various fisheries in and out of the Columbia River possible. At present all spring Chinook salmon are fin clipped with 75,000 being coded-wire tagged. This mass marking of spring Chinook complies with selective fisheries management practices now instituted for hatchery releases into the Columbia River.

All spring Chinook and URB fall Chinook salmon released from the hatchery are 100% adipose fin clipped and a portion are additionally coded-wire tagged to access survival and fisheries contribution. This change from past Chinook salmon releases represents an effort to mark all hatchery salmon reared and released into the Columbia River. This marking effort is dependent on annual funding and equipment availability.

PIT Tagging Program

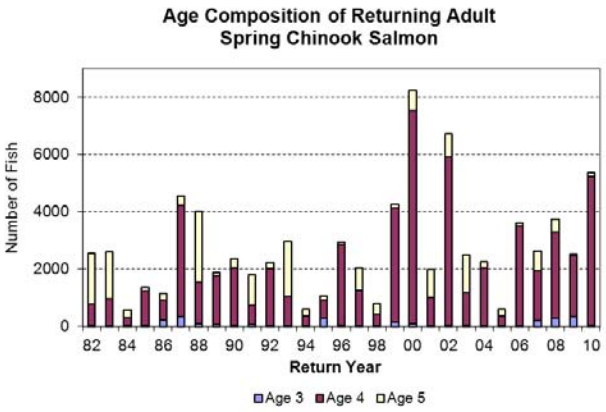
Both spring and fall Chinook salmon released on station include a representative PIT (passive integrated transponder) tag to provide real-time harvest management in the Columbia River and Drano Lake. A total of 15,000 spring Chinook salmon and 25,000 URB fall Chinook salmon received PIT tags during 2010.

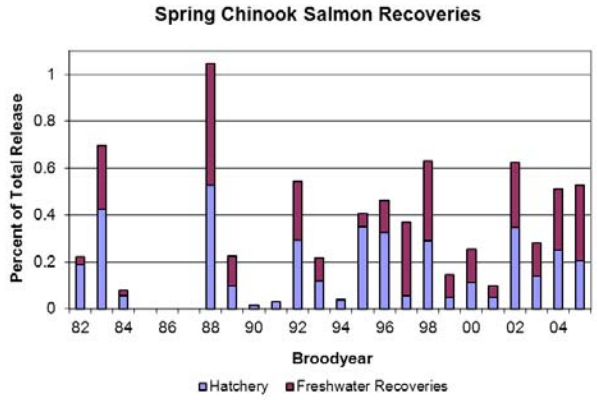
Sampling of Returning Fish

A proportion of returning adults are sampled at each hatchery. Sex and length are recorded and scales are collected to determine age. By using sample information and the number of returning fish, it is possible to calculate the number of returning fish for each age group and, consequently, the number of fish returning from each brood year or release year.

Spring Chinook Salmon

Most returning adult spring Chinook salmon return as 4 year olds. Almost all spring Chinook are harvested in fresh water in the Columbia River. The majority are harvested in the sport fishery in Drano Lake, just below the hatchery. Washington Department of Fish and Wildlife estimates that 10,147 adult spring Chinook salmon were harvested by sport and tribal fisherman in Drano Lake in 2010.





Mitigation Production – Producing Fish for Tribal Harvest

Producing fish for tribal harvest is an important goal of the hatchery mitigation program. To help minimize excess fish at the hatchery, the Yakama Nation scheduled a fall tribal gillnet fishery in Drano Lake targeting fish returning to Little White Salmon NFH. A total of four days of fishing occurred during October resulting in the harvest of 3,461URB fall Chinook, 1,217Coho, and 446 Steelhead.

The annual spring tribal fishery in Drano Lake resulted in the harvest of 10,147fish. The Service has encouraged the Yakama Nation to hold these Drano Lake lottery gillnet fisheries to help reduce the number of fish that are excess to hatchery escapement goals. In addition, terminal area fisheries similar to the Drano Lake spring and fall tribal fisheries emphasize the harvest of hatchery fish while avoiding the potential impacts on wild and endangered fishes that occurs in mainstem Columbia River mixed stock fisheries. The Yakama Nation lottery fishery occurs one day per week (Tuesday night thru Wednesday noon) coincident with a one day sport fishing closure. A total of 20 randomly drawn tribal fishermen are limited to 150-feet of gillnet during each fishing period.

In addition, 10,207 spring Chinook, fall Chinook and coho salmon carcasses were donated to the Yakama Nation, Confederated Tribes of the Warm Springs Reservation, and Grays Harbor Food Bank.

Restoration of Native Forest and Grassland Habitat

After several years of planning, Phase I of the Restoration of Native Forest and Grassland Habitat at Little White Salmon NFH began following the Finding of No Significant Impact (FONSI) issued in April 2010. Three alternatives were considered and environmental consequences analyzed in an Environmental Assessment (EA) for the project. Alternative B was selected for implementation because it is most likely to meet the goals and objectives identified in the Little White Salmon NFH Habitat Stewardship Plan as well as those mission-defined goals of the Service, and specifically the Fisheries Program. It has the most potential for achieving desired future conditions that will benefit a variety of species. An estimated 111 bird species, 14 amphibian species, 12 reptiles, and 44 mammal species may occur on the hatchery property. Included in this total are 11-Federal and 16-State listed or candidate species.

Other Alternatives considered included Alternative A, a no-action scenario where habitats on the property would remain unmanaged. As a result, natural processes already influenced by a human altered environment would continue. Alternative C described habitat restoration activities without the use of herbicides. Ironically, many of the recommended forest restoration treatments

necessary to achieve desired future condition (e.g. tree thinning and removal of encroaching conifer in oak habitats) create favorable conditions for the spread of noxious weed species. The use of herbicides will be most useful in the early implementation of habitat restoration activities and most likely used infrequently in the future once initial control of noxious weeds is achieved. The tenacity

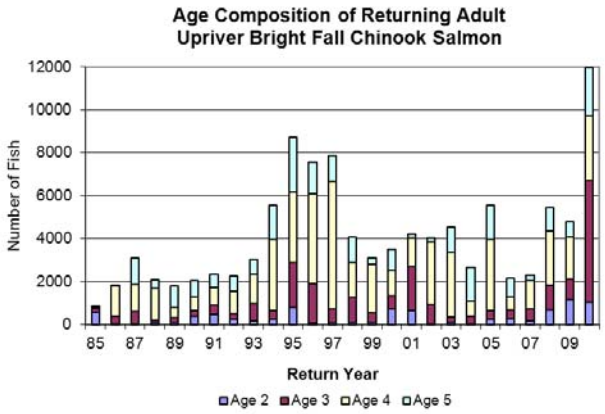
associated with non-native noxious weeds makes the achievement of desired future conditions very difficult, if not impossible without the use of herbicides. As a result, the effective control of noxious weeds is a critical component of the overall habitat restoration plan for the ownership.

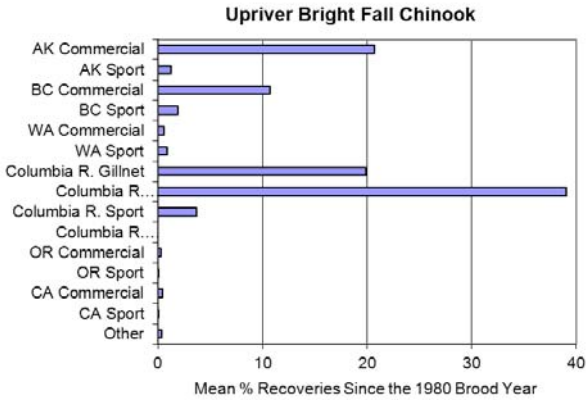
As described in detail in the EA, Alternative B recognizes that habitats on the hatchery property have significant conservation value, though are degraded and require active management to achieve several priority management goals. Upland habitats will be managed to provide clean, cold water for hatchery operations and maintain the current high standard of water quality. Restoration activities will focus on the achievement of Desired Future Conditions, a balance of habitat needs of focal and other rare, declining, and threatened and endangered wildlife species using pre-European settlement conditions as a template for restoration. Restoration of desired function also includes the reduction of accumulated fuels and associated risk for catastrophic fire. Fragile and rare habitats such as talus, riparian areas, and remnant bunchgrass and moss/lichen communities on rock outcrops and springs will be maintained and enhanced as necessary.

Habitat restoration offers an excellent opportunity to partner with the Columbia Land Trust and other neighboring private landowners to conserve, restore, and monitor lands in the vicinity on a landscape level. Hatchery owned roads on the property will be managed to reduce adverse impacts to fish and wildlife populations and to enhance public safety. The hatchery habitat project also offers the opportunity to use the hatchery property as a model to demonstrate cutting edge restoration strategies and techniques; and as a research site for public and private agencies to evaluate active, passive, and minimal stewardship approaches.

Upriver Bright Fall Chinook

Most URB fall Chinook salmon return and are harvested at age 4. These fish have contributed to commercial and sport fisheries along the west coast of the U.S. and Canada from Alaska to California. Commercial fisheries in Alaska, British Columbia and gillnet fisheries in the Columbia River harvest the majority of the fish. In 2009, Washington Department of Fish and Wildlife estimated 350 adults were harvested in the Drano Lake sport fishery. In 2008-2009, over 4,541 upriver bright fall Chinook salmon were harvested in the Drano Lake tribal fishery. Little White Salmon NFH production annually contributes significantly to the sport fisheries in the U.S. and Canada.





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