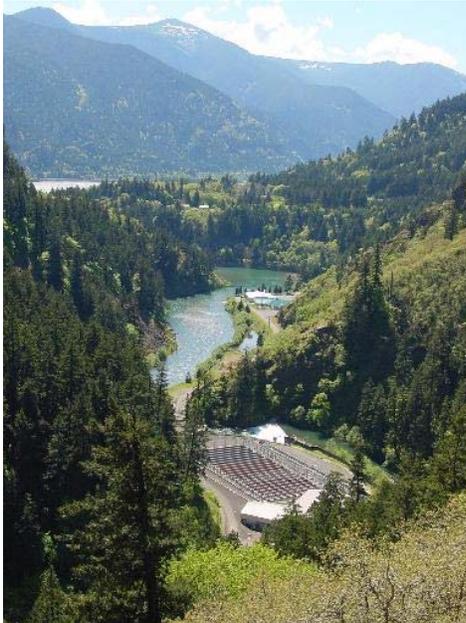




Hatchery Update

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. The hatchery's role expanded during the 1930's with the enactment of the Mitchell Act and further amendments in 1946. The Mitchell Act was enacted to mitigate for fisheries lost due to the construction and operation of Columbia River hydroelectric projects.

The hatchery is located 12.5 miles east of Stevenson, Washington, off State Highway 14, Columbia River mile 162. The hatchery is located on 410 acres of Service land.

Rearing facilities at the Little White Salmon NFH include 9 – 8' X 79' covered raceways, 22 – 10' X 110' open raceways, 2 – 10' X 235' open raceways, and 1 – 41' X 150' acclimation pond. The total nursery capacity is 11.25 million eggs.

Little White Salmon NFH became the first hatchery in the Nation to receive the U.S. Fish and Wildlife Service Environmental Leadership Award in 2004.

Hatchery Mandates

Little White Salmon NFH operations ensure that the U.S. Fish & Wildlife Service meets mandated Treaty Trust responsibilities. The current production program is guided by specific fish production goals identified in the Columbia River Fish Management Plan. This plan was developed as a result of the *U.S. v Oregon* agreement, to address Native American fishery concerns. Fish production goals include:

- 1,000,000 yearling spring Chinook salmon released on site.
- 150,000 endangered White River spring Chinook for transfer as presmolts for acclimation and release into the White River.
- 4,500,000 subyearling upriver bright (URB) fall Chinook salmon released on site.
- 1,700,000 subyearling URB fall Chinook salmon released off site on the Yakama Indian Reservation as part of mitigation for John Day Dam and to restore this stock to historic levels.
- 4,500,000 URB fall Chinook salmon eggs for transfer to the Yakama Nation Klickitat Hatchery.
- 1,700,000 subyearling tule fall Chinook salmon released on site.
- 3 year classes of endangered White River 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.

Starting with the 2005 URB fall Chinook salmon, fall Chinook salmon releases 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 URB fall 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.

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 2008.

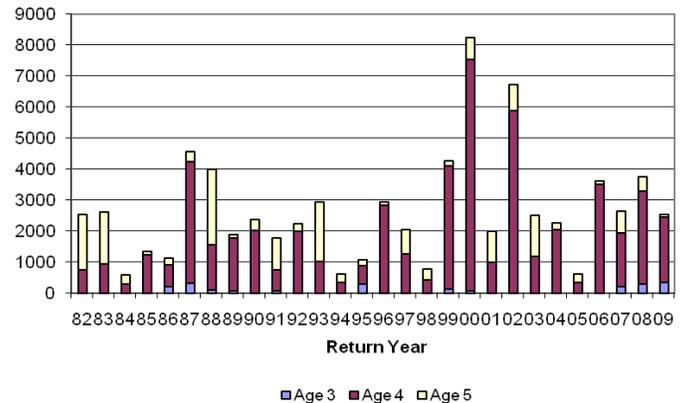
Sampling of Returning Fish

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.

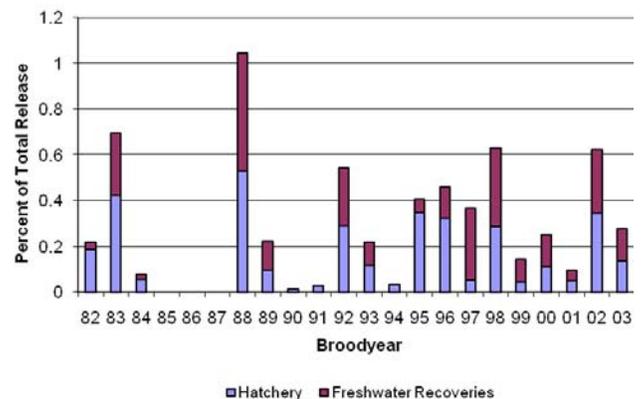
Spring Chinook Salmon

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 1098 adult spring Chinook salmon were harvested by sport fisherman in Drano Lake in 2009 and the Yakama Nation reported a total of 6,497 adult spring Chinook salmon harvested by tribal fisherman.

Number and Age Composition of Returning Adults Spring Chinook Salmon



Little White Salmon Spring Chinook Salmon Percent Recoveries



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. The first fishery was held on October 8 and resulted in the harvest of 1,080 URB fall Chinook, 439 Coho, and 274 Steelhead. The Tribe opted to not hold subsequent fisheries during the month to assure that sufficient numbers of adult fish were collected and spawned to provide an additional 4.5 million URB eggs for the Klickitat Hatchery.



The annual spring tribal fishery in Drano Lake resulted in the harvest of 6,497 fish. 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-foot of gillnet during each fishing period.

In addition, 7,074 fall Chinook and coho salmon carcasses were donated to the Yakama Nation and Grays Harbor Food Bank.

Keeping our Fish Healthy –The Use of Cutting Edge Fish Health Technology

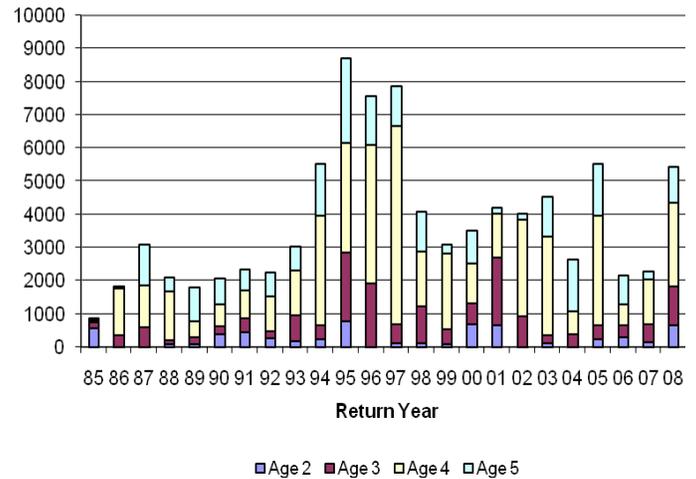
Kidney samples are collected from all spawned spring Chinook females to help determine the incidence of bacterial kidney disease. Historically the enzyme linked immunosorbent assay (ELISA) laboratory technique allowed categorization of progeny from all spawned female spring Chinook to assist with the segregated rearing of the various kidney disease titer groups. ELISA segregated rearing has been used at the hatchery for years and the results have recently come to fruition. Years of healthy fish releases, the result of isolating eggs and fish with a high risk for contracting bacterial kidney disease, have dramatically reduced the numbers of returning adults from the higher titer (risk) categories. The reduced incidence of returning high titer adults allowed the hatchery spring Chinook rearing program to transition from segregated rearing of the various ELISA titer groups to culling (destroying) eggs from females with detections over the Not Detected and Very Low categories. The use of cutting edge fish health technology has essentially eliminated one of the most problematic fish diseases from the hatchery spring Chinook rearing program.

More importantly, the historic use of ELISA-based segregation and culling has led to a dramatic reduction in the use of antibiotics at the hatchery. The practice of prophylactic feeding of erythromycin medicated feed has been abandoned for non-endangered fishes. Hatchery staff continue to inject returning adult spring Chinook with erythromycin 30-days before spawning to protect maturing adult fish and their newly hatched fry. However, the successful use of the ELISA technique and management concern for the unnecessary accumulation of antibiotics within fish tissue and the environment has led to a greatly reduced use of drugs at the hatchery.





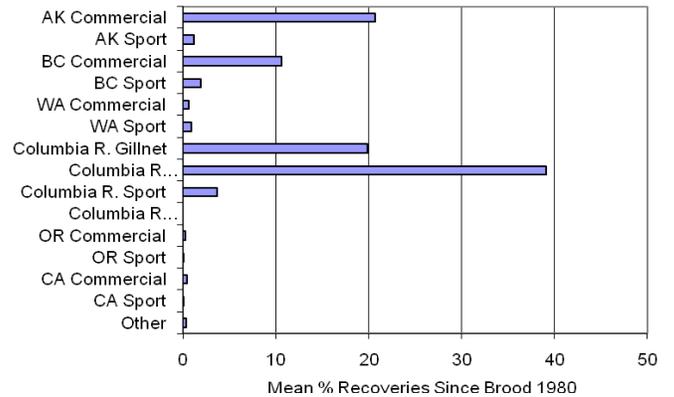
Number and Age Composition of Returning Adults
Upriver Bright Fall Chinook



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.

Upriver Bright Fall Chinook



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