



# Hatchery Update

## *Willard National Fish Hatchery*



### **About Willard National Fish Hatchery**

Willard National Fish Hatchery (NFH), established in 1952, is part of the Little White Salmon/Willard NFH complex. The Willard hatchery is located five miles north of Highway 14 up the west end of the Cook-Underwood Road on the Little White Salmon River.

### **Mid-Columbia Coho Reintroduction: Willard NFH Coho for the Wenatchee River Basin**

Willard NFH is an integral component of the Yakama Nation Mid-Columbia coho salmon reintroduction effort with a goal of reestablishing self-sustaining populations of coho salmon in the Wenatchee River Basin of north central Washington. A total of 650,000 coho salmon, derived from a locally adapted stock of fish returning and spawned in the Wenatchee River, WA. They are reared at Willard NFH and transferred to the Wenatchee River watershed for acclimation and release by the Yakama Indian Nation. This partnership is a cost share production program and by agreement, the Yakama Nation provides 60% of the operational costs at Willard National Fish Hatchery using Bonneville Power Administration funds while the Service contributes the remaining 40% with reimbursed Mitchell Act funds administered by NOAA-Fisheries.

Initially, lower Columbia River stock coho from Willard NFH were used for the reintroduction effort with the hope of transitioning to a more locally adapted stock in the future. This came to fruition in the early 2000's when sufficient adult coho returned to the Wenatchee River. Collected at Dryden Dam by Yakama Nation staff, eggs from these fish are now transferred to Willard NFH for hatching and early rearing. After 18 months the fish are transferred back to release sites within the Wenatchee and Methow River Basins by tribal staff.

This Service and Tribal partnership is more than just a harvest augmentation program; it exemplifies the use of new science to transition to locally adapted fish stocks for reintroductions. These stocks pose less risk of harmfully interacting with naturally spawning and endangered species act (ESA)-listed fish within the Basin. This Mid-Columbia coho reintroduction effort has received praise from the congressionally-mandated Hatchery Scientific Review Group and the Service's Hatchery Review Team. Both groups supported the science behind this program and did not recommend any changes. Once again, coho salmon are returning to the waters of north central Washington due to the wise use of a Service hatchery in combination with tribal fish and habitat restoration efforts.

### **Drano Lake Spring Chinook: Mitchell Act Funded Mitigation**

A total of 400,000 spring Chinook are reared and released from Willard National Fish Hatchery with funds provided by the National Marine Fisheries Service under authority of the Mitchell Act. Adult fish returning to Drano Lake, an impoundment at the mouth of the Little White Salmon River, are the perfect example of a successful mitigation program. In this case, mitigation funding secured through the authority of the Mitchell Act is used to produce spring Chinook at both Willard and Little White Salmon NFHs. These fish are released into Little White Salmon River and Drano Lake where the returning adults provide sport and tribal harvest opportunity by mitigating for fisheries lost due to the construction and operation of the Columbia River Hydro System.

These adult salmon provide an intensive sport fishery that also "shares the wealth" with a one-day per week tribal gillnet fishery. The Drano Lake fisheries focus effort on a hatchery produced stock of fish returning to a terminal area. Tribal gillnets are set in Drano Lake, reducing the potential incidental take of wild and ESA-listed fish in the mainstem Columbia River. In this case fish produced at a Mitchell Act-funded mitigation hatchery allows harvest of fish in a terminal fishery while minimizing impact to wild fish that migrate further up the Columbia River. Few hatchery programs can espouse the benefit of simultaneously providing tribal harvest and conservation opportunities for ESA listed fishes.



## Endangered Species Recovery: A Partnership for the Future

Willard National Fish Hatchery has played a critical role in establishing future F1 captive broodstocks using eggs and fry collected from the White River (WA). The White River spring Chinook spawning aggregation is severely depressed and persistently experiences escapement levels below critical population thresholds. This population is within the Upper Columbia River Spring-run Chinook salmon ecologically significant unit (ESU) which is listed as Endangered (FR Vol. 64, No. 56, March 24, 1999). The goal of this program is to prevent the extinction of, conserve, and ultimately restore the naturally spawning White River spring Chinook salmon spawning aggregation in the Wenatchee River watershed.

This recovery program has been incorporated into the mitigation responsibilities of Public Utility District No. 2 of Grant County (Grant County PUD) through their Biological Opinion (dated May 3, 2004). Grant County PUD, through the Priest Rapids Coordinating Committee – Hatchery Subcommittee, requested U.S. Fish & Wildlife Service (FWS) assistance to rear fish for this program. Due to recent changes at Willard NFH, the Little White Salmon/Willard NFH

Complex had adequate space to assume responsibility for rearing up to 150,000 White River spring Chinook pre-smolts and multiple brood years of captive broodstock to assist with recovery efforts.

The White River spring Chinook captive brood program was initiated in 2008 following the transfer of eggs collected from wild fish redds on the White River in north central Washington. These fish will be reared to maturity in captivity, spawned, and the juvenile fish reared for future release back into their natal stream..

A portion of the Willard NFH nursery area was retrofitted with individual rearing tanks and isolation screening to quarantine and rear wild eggs and fry until fish health inspections are completed. Grant County PUD is fully reimbursing the FWS for fish production, fish health services, and marking to support this recovery program. As a result, in addition to the Little White Salmon/Willard NFH Complex, the Columbia River Fishery Resource Office and Lower Columbia River Fish Health Center provide support for the White River spring Chinook program. FWS involvement in the multi-partner White River spring Chinook program is aligned with ESA recovery objectives that are an essential component of the FWS mission. This has diversified a traditional mitigation facility to include the production of an ESA-listed stock to promote species recovery.

## Bull Trout: Experimental Investigation and Adaptive Management

Naturally fertilized bull trout eggs have been collected from the Metolius River Basin, Oregon and transferred to Willard NFH and Oregon State University's (OSU) Fish Performance and Genetics Laboratory. The goal of this project is to investigate the potential for NFHs to support recovery efforts of this native trout. This work is consistent with hatchery review, hatchery reform and FWS conservation principles. Willard NFH is an ideal facility for this research because it provides a cold water source and the ability to quarantine effluent.

Bull trout are listed as threatened under the ESA and populations are depressed over their entire range. They require clean, cold water for spawning and early rearing and highly connected, complex habitats to express their diverse life history. Recent literature suggests that significant portions of bull trout habitat could be lost due to climate change in the next 50 years and current populations may serve as donor stocks for reintroduction efforts. Suitable habitat can be reconnected and restored to promote the successful reintroduction of this keystone species.

Few robust donor populations exist to support reintroduction efforts and maximizing the recovery

benefits from these valuable resources is paramount. Young life stages experience the highest mortality in the wild. As such, collecting eggs for a captive rearing program will have a minimal impact on recruitment of the donor population while at the same time maximize per capita juvenile production for a reintroduction program.

Bull trout captive rearing, recovery, and reintroduction are uncertain. The best method to understand management actions shrouded in uncertainty is with a Structured Decision Model (SDM) utilizing Adaptive Management. This program will combine our current knowledge of bull trout performance in captivity, impacts of removals to donor populations, and the pros and cons of alternative reintroduction strategies to determine the best reintroduction strategy to meet FWS conservation and recovery objectives. Additional research will be conducted in areas of high uncertainty, thereby continually adapting and refining the SDM, ultimately resulting a biologically sound and enduring bull trout reintroduction and recovery program.



## Willard NFH Volunteers



The Willard Fish Hatchery volunteers are individuals who want to give back to their communities, who want to be good stewards of the land and set examples for others. They are concerned citizens of all ages who want to learn more about conservation, and are passionate people who enjoy the outdoors and want to spread the word about America's greatest natural treasures.

Volunteers at the Willard Hatchery contributed over 230 hours in 2011 performing a broad range of activities including lands and habitat work, facilities and grounds maintenance, and assisting with fish culture activities.

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