



U.S. Fish & Wildlife Service

The National Fish Hatchery System - FY 2004 Budget

Restoring America's Fisheries

Expertise and dedication come to the rescue of the nation's most prized, and, too often, most imperiled fishery resources...

The National Fish Hatchery System (NFHS) is committed to restoring self-sustaining interjurisdictional stocks and recovering aquatic species listed under the Endangered Species Act (ESA) through the production and stocking of healthy and genetically appropriate animals to re-establish wild populations, technical support in areas such as biometrics and genetics, disease management and diagnostics, and habitat restoration.

Restoring depleted populations and their habitat involves a number of different tasks, including forging partnerships that make restoration programs work efficiently and effectively. The Service is committed to coordination with State, Federal, Tribal and private sector partners at every level of the restoration process, under the guidance of multi-State fishery management and restoration plans, and Endangered Species Recovery Plans.

Self-Sustaining Fisheries Provide Lasting Fishing Opportunities.

Healthy fish stocks mean more and better fishing. Improved fishing opportunity is one of the many benefits of restoring depleted fish stocks, such as Coaster Brook Trout, Lake Trout, Striped Bass, and Pacific and Atlantic salmon. From the "behind the scenes" work on fish health and genetics, to stocking hatchery-reared fish that meet the stringent requirements of recovery and management plans, to honing our ability to evaluate program success with innovative marking techniques, the NFHS is working hard to deliver!

Last year, for example, the NFHS released 187,000 coaster brook trout fry and fingerlings into Lake Superior



The Coaster Brook trout is one of several imperiled native trout propagated by the Service to help restore wild populations and prevent listing under the ESA. USFWS photo.

to help restore wild spawning populations and to keep this species off the endangered species list. This work was conducted under a multi-agency restoration plan, implemented with the other arm of the Service's Fisheries Program, Fish and Wildlife Management Assistance (FWMA), that includes habitat restoration, genetic assessment, harvest control and stocking. In 2004, the NFHS will establish another Coaster broodstock, uniquely adapted to the target habitat, to further assist in meeting restoration goals.

Listed species are not excluded from the realm of potential renewed fishing opportunities! Hatchery efforts have been successful for a number of listed species, including the threatened Apache and endangered Gila trout in the Southwest. As a result of coordinated habitat restoration and captive propagation, recovery plan targets for re-establishing self-sustaining populations for these unique, native species are within several populations of meeting recovery goals. These species are slated for de-listing and down-listing, respectively, in the near future, and recreational fishing opportunities for Apache trout have already been renewed.

In another example, more than 70,000 pallid sturgeon reared by the NFHS last year, were marked and released into the Missouri River in accordance with state-of-the-art protocols developed by the NFHS in coordination with the Recovery Team. The individually marked fish are being tracked by FWMA to meet further Recovery Plan objectives to determine habitat preferences, growth rates, movement patterns, and population size. If recovery is successful, the pallid sturgeon will once again thrive in the Missouri River, and provide a valuable renewed fishery.

To stock or not to stock?

Interjurisdictional fishery management and restoration plans, and endangered species recovery plans recommend stocking only after careful determination by State, Federal, and other partners that stocking hatchery produced fish is an appropriate management tool for restoration. The NFHS works with FWMA and other partners to ensure that habitat restoration, genetic considerations, fish health issues, and other aspects of the restoration program are in place and well coordinated prior to stocking.



San Marcos Fish Technology Center in TX works with partners to restore habitat, while recovering a listed species, through propagation of the endangered Texas Wild Rice. USFWS photo.

Beyond the hatchery gate, where fish meet habitat, is the true test of a hatchery restoration program. Hatcheries work to ensure that captively reared fish are able to compete, feed, interact, and reproduce in the wild. To this end, hatcheries are being retrofitted to accommodate special needs of native species. Last year, NFH's in the Pacific Northwest began experimenting with natural rearing systems for salmon that replicate native habitat. These techniques encourage wild behavior and may improve survival. In the Southwest, Mora Fish Technology Center (NM) similarly established natural rearing units for Gila trout that incorporates species found in its native habitat.

Fish Technology Centers (FTC's) play a pivotal role in these and other hatchery innovations, as the NFHS's science support arm. In 2004, the Lamar FTC in PA will use an "instream" laboratory to compare growth rates, predator avoidance and other traits in hatchery-reared vs. wild fish. Results will be used to advance current practices.



Pallid sturgeon are propagated by Service hatcheries and released into restored native habitat to rebuild wild, self-sustaining populations of this endangered species. USFWS photo.

In addition to ensuring the fish are ready for the habitat, hatcheries also work with partners to ensure the *habitat is ready for the fish*. At San Marcos FTC and Uvalde NFH in TX, for example, the Service propagates an endangered plant, Texas Wild Rice, for planting in native streams. In VA, wild celery and redhead grass grown at Harrison Lake NFH, in partnership with the Chesapeake Bay Foundation and the Alliance for the Chesapeake Bay, serve as a dependable source of plant propagules for restoring submerged aquatic vegetation in the Chesapeake Bay, where there has been

an 88 percent decline in such plants. Hatcheries, working with FWMA and other cooperators, are also monitoring radio-tagged fish to help document important feeding and spawning habitats, and assist in determining basic life history and habitat needs of rare species.



Samples of fish gametes are prepared for cryopreservation (freezing), for later use in hatchery propagation and to preserve genetic diversity. USFWS photo.

Preserving Genetic Diversity! With little to no natural recruitment in the wild for some species, many hatcheries serve as refugia for depleted stocks, preserving the genetic diversity needed to recolonize restored habitats. Similarly, gene banks are being established for species such as the pallid sturgeon, using cryopreserved sperm. Geneticists at FTC's develop genetics management plans to ensure that both refugia populations and broodstocks are genetically appropriate for restoring native stocks. For example, hybridization of pallid sturgeon with the shovelnose sturgeon in the wild, presents a challenge to pallid sturgeon recovery and a threat to the pallid's gene pools. Careful genetic screening and planning on the part of NFH's in collaboration with FTC's has been paramount to preserving genetic diversity.

In 2004, an interactive relational database will be developed by Service geneticists, that will provide hatchery managers with a method of integrating genetic information into daily operations, thus improving management of hatchery populations for restoration and recovery.

Fish Health Management Plans are crucial to restoration and recovery efforts. NFHS Fish Health biologists develop comprehensive plans for fish health management as part of all captive propagation programs. The combination of prompt disease

diagnosis and recommendations for corrective actions reduce mortality during rearing, increase survival after release, and help protect wild fish from hatchery disease and hatchery fish from diseases brought in from the wild.

Measuring Success and Adaptive Management — The FWMA works closely with the NFHS, playing a key role in evaluating hatchery program results making programs more efficient and effective. From assessment of wild stocks, to fish passage and other habitat restoration, to gathering basic information regarding habitat use and preferences, to monitoring propagated fish in the wild, the success of NFHS restoration and recovery work is closely linked with support provided by FWMA.

The Service's unique contribution of on-the-ground expertise, capabilities, and facilities across the nation has forged strong bonds and alliances with Federal Agencies, Tribes, States, and the private sector in the joint effort to restore America's Fisheries and provide renewed fishing opportunities for the American people.

Working Towards Recovery

- Nearly 3/4 of all ESA Recovery Plans for fish recommend using captive propagation technology.
- The NFHS is currently addressing tasks specified in approved Recovery Plans for 45 fish species.
- NFHS expertise is helping to meet recovery targets for 14 other listed aquatic species, representing mollusks, amphibians, and plants.

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