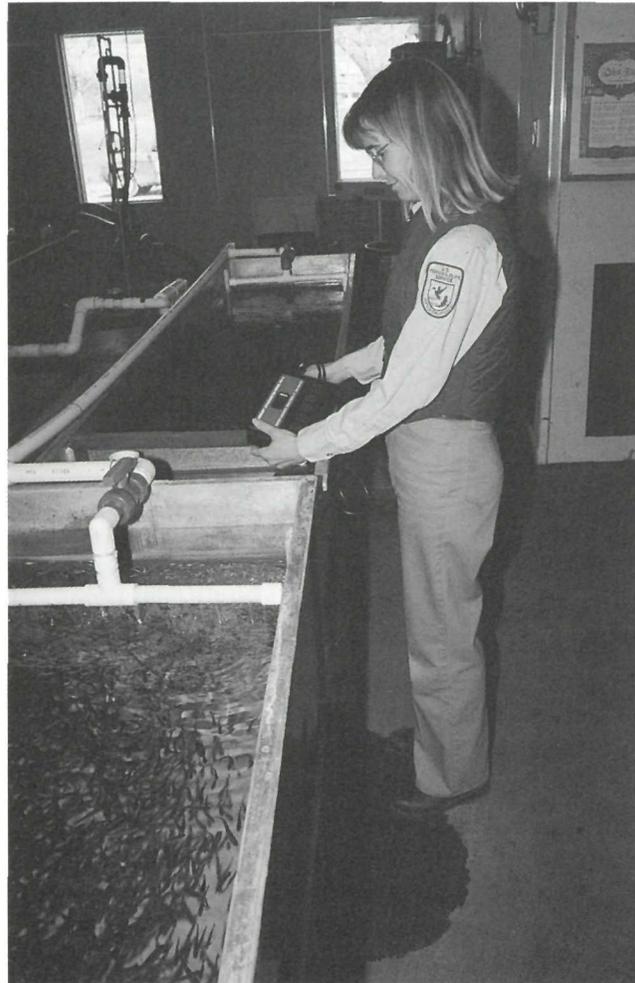


## Summary

**F**ish Technology Centers were established to provide leadership and guidance to the fish culture community. Over the years, fish culture studies focused on reducing costs, enhancing fish quality, and improving overall fish culture operations. The importance of Fish Technology Centers became clear as fishery managers became increasingly aware of the need to produce fish that are healthy, genetically diverse, and well-adapted to fishery management objectives.

Correspondingly, Fish Technology Center roles and responsibilities have grown, and areas of specialty have expanded to include technical support to fishery resource programs such as interjurisdictional fishes, estuarine and riverine fishes, nonindigenous aquatic nuisance species, threatened and endangered species and other high priority aquatic resource issues. Functioning as a cohesive system, each Technology Center strengthens the others, taking full advantage of various geographic differences to ensure that study results will successfully support a broad range of users. Through their partnership role with other Service programs and federal agencies, States, tribes, the private sector, and international cooperation, Fish Technology Centers provide a vital link in the Service's commitment to conservation of our Nation's aquatic resources.

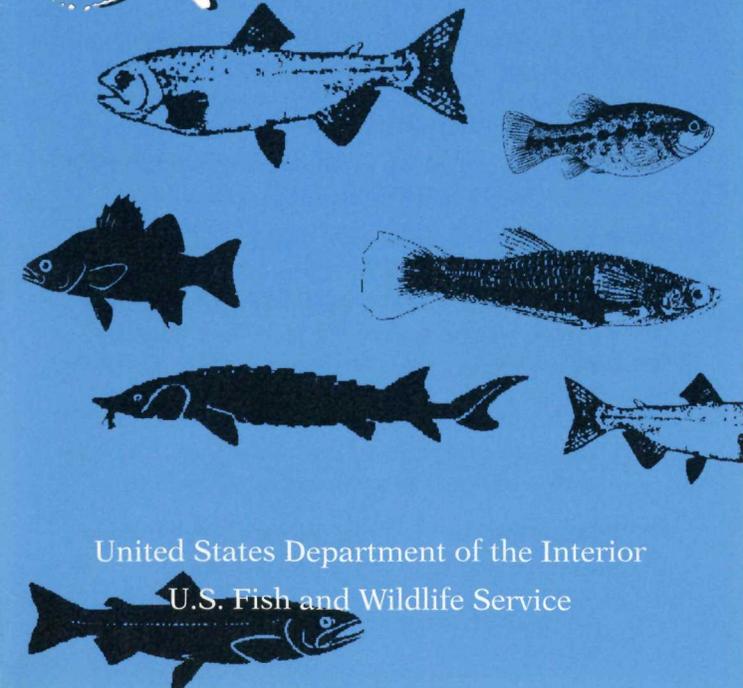
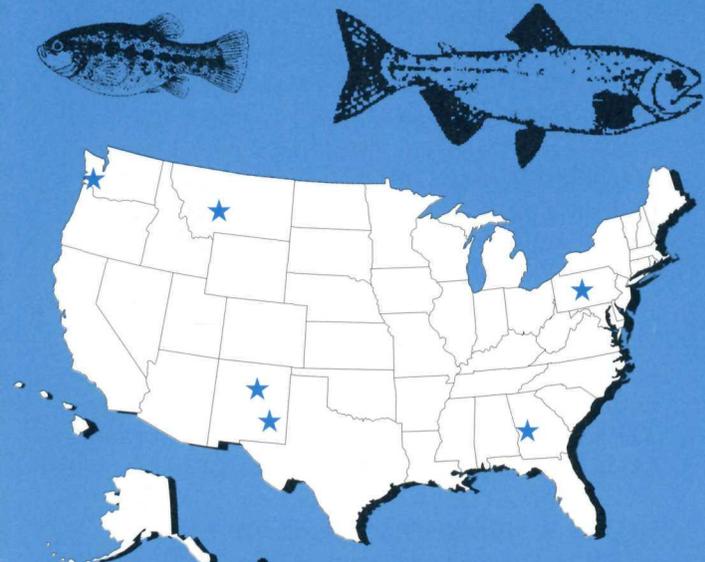


For additional information contact:

U.S. Fish & Wildlife Service  
4401 N. Fairfax Drive, Room 830  
Arlington, VA 22203  
703/358-1715



# Fish Technology Centers



United States Department of the Interior

U.S. Fish and Wildlife Service

## Sustaining the Nation's Fisheries

**T**he United States has an unparalleled richness and diversity of natural resources, among which are our valuable fishery resources. Unfortunately, human pressures on fish and their habitats have increased to the point where many stocks are being depleted, with some listed and others considered for listing under the Endangered Species Act. Many once-thriving fisheries are no longer commercially or recreationally viable, straining the economic, social, and cultural fabric of the Nation.

It has become clear that in order to restore depleted stocks, the health of the aquatic systems that fish (and humans) depend on must be restored and maintained. To achieve this goal, the U.S. Fish and Wildlife Service has adopted an ecosystem-based approach to fishery restoration. This approach is based on scientific management, conservation of natural diversity, effective partnerships, and enhanced public awareness and stewardship.

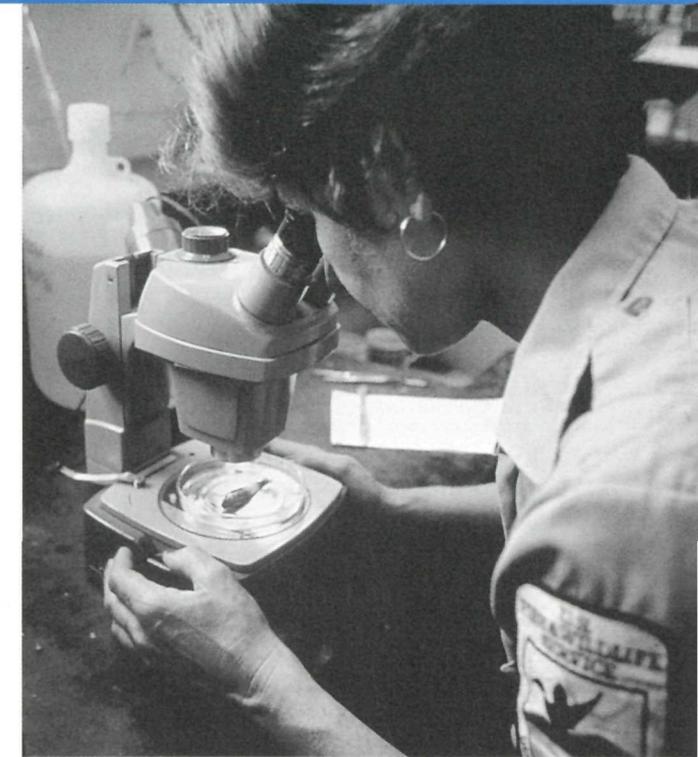
A key element in fishery restoration and management is technology development. The Service's Fish Technology Centers provide cutting-edge technology and scientific information to fish hatcheries and fishery managers — knowledge critical to their ability to continue to manage fishery resources. The Fish Technology Centers (FTCs) comprise a national network, each complementing the other in the effort to conserve and restore the Nation's fisheries.

## Serving the Fish Culture Community

**F**ish Technology Centers were established in 1965 to develop and improve fish culture techniques and provide assistance and advice on fish culture to National Fish Hatcheries, other Federal and State agencies, Tribes, other Nations, and the aquaculture industry. The Centers developed culture techniques and fish diets now used around the world, including the dry, long-lasting feeds that revolutionized the fish-rearing industry. Technology developed by FTCs provided the foundation of the aquaculture industry, which contributes millions of dollars annually to the U.S. economy.

Today the Service's six Fish Technology Centers continue to provide technical support to the National Fish Hatchery System and the fish culture community, with emphasis on:

- Improving the quality, genetic diversity, and post-release survival of captive-reared fish
- Identifying and reducing any detrimental effects of hatchery releases on wild fish populations
- Developing technologies to reduce water consumption and pollution in hatcheries
- Developing and improving diets to meet nutritional requirements of captive-reared fish



## Recovering Endangered Species

**T**he roles and responsibilities of Fish Technology Centers have grown to include the recovery of endangered, threatened, and declining fish stocks. The Centers develop culture techniques and diets for endangered and threatened species, maintain captive populations and broodstocks, and assist in monitoring the success of reintroductions. A database of the genetic fingerprints of many wild stocks is being assembled and used as a baseline for characterizing and comparing wild and hatchery stocks. Cryopreservation techniques to safeguard the genetic material of threatened and endangered fishes are also being developed.

### Abernathy Salmon Culture Technology Center

Abernathy Salmon Culture Technology Center  
1440 Abernathy Road  
Longview, WA 98632  
Tel: 360-425-6072 Fax: 360-636-1855

Part of the Abernathy National Fish Hatchery, the Abernathy Salmon Culture Technology Center was established in 1972. The Center develops new salmon culture techniques, equipment, and feeds; develops techniques to improve the quality of hatchery-reared salmon; and evaluates the effects of various rearing and disease control techniques on the survival of hatchery-reared salmon in the wild. In the future there will be an increasing emphasis on studying the genetics of wild salmon and interactions between wild and hatchery fish. Abernathy SCTC provides advice and technical assistance in fish culture and disease diagnosis to fish biologists and aquaculturists in the public and private sectors. The Center also oversees quality control of fish feeds used in the National Fish Hatchery System.

#### Objectives/Emphasis

- Restoration of Columbia River salmon, steelhead, and sturgeon populations
- Developing fish culture methods, systems, facilities, and equipment to enhance efficient production of healthy/quality fish
- Providing Federal leadership in scientifically based management of national fishery resources through assessment and development of methodology for the evaluation of hatchery products
- Developing and conducting a fish food quality assurance program to maintain the nutritional value of feeds purchased for fish culture
- Evaluating the genetic interactions between hatchery and wild fish populations

### Northeast Fishery Center

Lamar Fish Technology Center  
P.O. Box 75  
Lamar, PA 16848  
Tel: 717-726-4247 Fax: 717-726-7247

The Lamar Fish Technology Center, established in 1965, is part of the Northeast Fishery Center, which also includes the Lamar National Fish Hatchery and the Lamar Fish Health Unit. The Lamar FTC provides fish cultural information, advice, and technical assistance to fishery managers and fish culturists in the northeastern United States. The Center develops rearing techniques for imperiled fish species such as Atlantic salmon and sturgeon, clears drugs and chemicals for use in fish husbandry, and oversees quality control of fish feeds used in the region's fish hatcheries. Areas of staff expertise include fish culture, health, ecology, and water chemistry.

#### Objectives/Emphasis

- Developing culture and management techniques for threatened, endangered, and other imperiled aquatic species and ensuring functional and genetic compatibility of propagated species with existing wild populations
- Developing and providing technological assistance for implementation of approved management plans for interjurisdictional fisheries, including development of methodology to evaluate hatchery products through population dynamics, stock identification, and stock assessment
- Evaluating alternate, cost-effective methods of water use and re-use that conserve water resources and are compatible with propagation of threatened, endangered, and imperiled aquatic species

### Bozeman Fish Technology Center

Bozeman Fish Technology Center  
4050 Bridger Canyon Road  
Bozeman, MT 59715-8713  
Tel: 406-587-9265 Fax: 406-586-5942

The Bozeman Fish Technology Center has operated as a Federal facility for over 100 years. Originally established as a fish hatchery in 1892, it was designated a Fish Culture Development Center in 1966. As research needs expanded, the facility became the Bozeman Fish Technology Center in 1983. The work of the Center focuses on developing and refining rearing techniques for cold-and-coolwater fish (both sport fish and endangered, threatened, and declining species), improving hatchery trout and walleye strains, and maintaining the genetic diversity of captive-reared grayling and sturgeon. Staff expertise includes fish culture, nutrition, health, reproduction, and water chemistry.

#### Objectives/Emphasis

- Development of feeds, health management, and propagation/maintenance systems and techniques for high priority species
- Develop and test new and alternative fish culture systems and techniques to improve the quality and efficiency fish propagation
- Operate the National Investigational New Animal Drug (INAD) Office for the Fish and Wildlife Service. Test efficacy of new therapeutic drugs for fish
- Provide scientific support and technical assistance to operational programs, including recovery/restoration programs for sturgeon, salmonid, castostomid, and cyprinid fishes
- Develop and test new feed formulations to meet special needs for larval fish nutrition, imperiled species, and pollution abatement
- Provide fish disease diagnostic and health management services for Federal, State, and private sector cooperators

### Mora Fish Technology Center

Mora National Fish Hatchery and Technology Center  
P.O. Box 689  
Mora, NM 87732  
Tel: 505-248-6022 Fax: 505-387-9030

The Mora Fish Technology Center is the newest FTC in the Service and is presently in the development and construction phase. When operational, the FTC will investigate high density fish production using water conservation methods. Water treatment systems will be flexible, reliable, and reasonable in cost, and will be capable of producing and developing technology for cold-and-coolwater species of sport fish and threatened and endangered species. Mora FTC will be the focal point for drug and chemical registration in the Southwestern Region.

#### Objectives/Emphasis

- Evaluating national and international fish culture, aquaculture technology, and propagation techniques
- Conserving genetic resources through genetic initiatives, management guidelines, and protocols
- Developing national and international water conservation technology; developing procedures and techniques for high density fish production with limited water resources

### Dexter Fish Technology Center

Dexter National Fish Hatchery and Technology Center  
P.O. Box 219  
Dexter, NM 88230  
Tel: 505-734-5910 Fax: 505-734-6130

Associated with Dexter National Fish Hatchery, Dexter Fish Technology Center is the hub of the Service's efforts to preserve the imperiled native fishes of the Colorado River Basin, such as the Colorado squawfish, razorback sucker, and bonytail chub. The Center's mission is to help maintain the genetic diversity of these and other species, develop culture techniques for them and conduct biological studies to increase our understanding of these unique native fishes. Dexter FTC works with many Federal and State agencies, universities, Indian Tribes, and several Mexican states. An ongoing expansion of laboratory facilities will increase the Center's research capabilities.

#### Objectives/Emphasis

- Maintain captive populations of native threatened and endangered fishes from Western America, including Chihuahua and Sonora Mexico
- Genetically identify and characterize all Southwestern native threatened and endangered fishes
- Develop cryopreservation technology for native threatened and endangered species management
- Develop genetics management methods and culture techniques to minimize captive propagation influence on post-stocking/re-introduction behavior of native threatened and endangered species

### Warm Springs Fish Technology Center

Warm Springs Fish Technology Center  
Route 1, Box 515  
Warm Springs, GA 31830  
Tel: 706-655-3382 Fax: 706-655-9034

Established in 1993, the Warm Springs Fish Technology Center is part of the Warm Springs Regional Fisheries Center, which includes the Warm Springs National Fish Hatchery (established in 1898), the Bears Bluff Field Station, and the Warm Springs Fish Health Laboratory. The Regional Fisheries Center provides technical support to fishery managers and fish culturists in the southeastern United States. Warm Springs FTC refines and develops new approaches for fish management and rearing, with the goal of re-establishing self-sustaining populations of depleted native fish species in the southeastern U.S. The Center's biologists also work with other Federal, State, and Tribal agencies to monitor populations of, and assess the effects of contaminants on, wild fish. Areas of staff expertise include fish ecology, genetics, reproduction, water recirculation systems, and water chemistry.

#### Objectives/Emphasis

- Developing fish management and culture methods for depleted native fishes and other aquatic species, with particular focus on interjurisdictional freshwater and estuarine species
- Developing alternatives to the traditional use of fishery drugs and chemicals
- Evaluating water treatment technologies with emphasis on water conservation and physiological requirements of fish
- Developing and applying cryogenic techniques used for reproductive biology, as applied to recovery and restoration of depleted fishery resources