



## U.S. Fish & Wildlife Service

### The National Fish Hatchery System - FY 2004 Budget

# Fisheries Science

## *New Answers to New Problems*

The Fisheries Program of the U.S. Fish and Wildlife Service has long been recognized as a leader in cutting-edge science; it has also been a program looked to by other resource managers throughout the world for developments that improve both the efficiency and effectiveness of fishery management. The agency's patriarch, Spencer Fullerton Baird, was a leader in fish culture when he was selected to head the first Fish Commission, and his brand of sound, exacting and progressive science remains a fundamental piece of the Fisheries Program foundation.

Science in the Fisheries Program carries a 130-year history, and it continues to benefit Americans and the American economy to this day.

Consider:

- A water recirculation system that allows efficient fish production in arid climates was developed by scientists at the Service's seven Fish Technology Centers. This system is now being used by commercial fish hatcheries in the United States and abroad, and by other Federal and State agencies.
- Fisheries biologists are working to develop a fast, economical and efficient way to vaccinate channel catfish against a debilitating yellow grub. Successful completion of this work could have enormous positive implications for the private aquaculture industry in the United States.
- Service research is showing promise in the use of ultrasound for the delivery of chemicals and antibiotics to fish; the University of Maryland is a partner in this project, along with the Department of Defense, which is looking for an application that would minimize the effect of sound waves from ships on marine mammals.

- Service biologists worked to develop new diets and diet formulation methods that resulted in new patents; the feed is in widespread use today in the private aquaculture industry and elsewhere.

The complete list of discoveries, inventions and technology advanced by the Fisheries Program and shared with the private sector, as well as with academics and other Federal and State agencies, is a long one, and has always been a big part of the Federal fisheries story. (And the story includes all aquatic species, not just fish). While the Fisheries Program doesn't fill all the needs of the fisheries community, it is designed to fill many of the needs that are beyond the reach of States, Tribes and private industry.

Fishery biologists are at work every day, using the best science at their command to find new ways to tackle new problems. And in finding myriad ways that contribute to healthier fish, they are finding new ways to help American industry and the American economy and State resource managers — while at the same time, making the National Fish Hatchery System more effective.

The sound science that has always been the bedrock of the Service Fisheries Program has never operated in a vacuum. It is part of the scientific advances that touch all our lives every day. *Polymerase Chain Reaction* may be a tongue-twister, but it has other chain reactions beyond trying to untwist genetics to unlock the causes of whirling disease and the largemouth bass virus. Both ailments have the potential for widespread ecological damage, which can in turn lead to serious economic problems.

The relevancy of leading-edge science is underscored further in the National Wild Fish Health Survey, developed by the Fish and Wildlife Service Fisheries Program and the first of its kind in the United States. The survey is on-line and available



to virtually anyone; the States have already found it immense value in helping local resource managers make the right decisions.

The Fisheries Program has long been a leader in working to restore aquatic species where the populations have been depleted. Some of the Program's work seems invisible at times, for the biologists who labor to restore habitat are seldom seen by members of the public, and their efforts are usually far from any population center. Their challenge is to see fish and other wildlife coming back to live where they once thrived, and knowing that that kind of revived environment lessens the likelihood of a future problem for people. It is a long and tedious effort, but the path to success — like that of the lake trout restoration program in the Great Lakes — is there, and it's working, and lake trout are now reproducing at levels not seen since prior to the invasion of the sea lamprey. The road maps for these kinds of successes are available for the asking, and are often of great use by State and Tribal fisheries managers, as well as those in other Federal agencies.

It has been said that each generation is given a new set of problems, for which it must find a new set of answers. New conservation problems arise constantly, and the Fisheries Program has demonstrated repeatedly that its scientific expertise has kept pace, making the Program a model to address problems generated by a growing population, limited resources and a sometimes fragile environment.

Service Director Steve Williams recently noted that fisheries program of the 21<sup>st</sup> century are about far more than just fish. But the greater truth is that fisheries programs of *any* century have been far more than just fish. Living things are arguably the most complex systems that science attempts to understand. As life and all that it depends upon keeps changing, science changes with it. That is where the Service's fisheries program has always been and where it will always remain — unlocking those new answers to the next set of new problems.

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