

# SCIENCE & EDUCATION Impact

Benefits from USDA/Land-Grant Partnership

---

## Go Fish

Growing fish and shrimp in the backyard.

*Aquaculture, or cultivated fish/shellfish farming, is one of the fastest growing segments of U.S. agriculture. As demand for fish and related products increases worldwide because of their health benefits, harvesting naturally grown fish from oceans and fresh water is coming close to reaching its maximum production. Growing fish in managed water areas will help meet this demand, but fish grown in these systems are more susceptible to disease, and not all fish species perform well under these conditions. The U. S. Department of Agriculture (USDA) and Land-Grant university researchers are devising new production management techniques and developing hardier fish and shellfish that will thrive on these “fish farms.”*

### Payoff

- **Ponder this.** **South Carolina State** and **Tennessee** are helping landowners in their states revitalize small, poorly managed ponds. Their efforts have increased the value of fish production by around \$580,000 in each state. **Oklahoma State** is helping to improve pond quality on more than 200,000 small farm and recreational ponds in the state. **Auburn** researchers also have improved Alabama’s ponds by developing better water quality and soil management techniques.
- **Education for profits.** **Tennessee** researchers and extension specialists have educated thousands of fish farmers about effective production methods and business management. As a result, producers have seen increased profits of around \$300,000 annually. **North Carolina State’s** research and education efforts have helped striped bass producers see profits of \$3 million for mature fish.
- **Making baby feel better.** The baby catfish that were used to restock commercial ponds in Mississippi were constantly threatened by bacterial diseases. **Mississippi State** researchers developed a treatment system that allowed producers to use iodine or other antibacterial and antifungal materials that don’t harm young fish. This inexpensive solution saves the Mississippi catfish industry nearly \$500,000 annually.

**RESEARCH,  
EXTENSION AND  
EDUCATION  
AT WORK**

# SCIENCE & EDUCATION Impact

Benefits from USDA/Land-Grant Partnership

- **Bringing disease to its knees.** **Kentucky State** offers free disease diagnostic services to fish farmers in Kentucky and surrounding states. Over the past five years, producers in these states have collectively saved \$63,000 in reduced fish deaths and treatments. **Georgia, Florida** and **Auburn** researchers found that fathead minnows stocked in commercial ponds eat the agent that causes a gill disease. **Louisiana State** researchers found a gene that will increase the ability of fish to naturally resist bacterial infection by up to 50 percent. **Texas A&M** researchers responded rapidly to an outbreak of a viral disease that greatly reduced the state's cultured shrimp populations. They identified management techniques to control the disease. As a result, the shrimp farming industry was rebuilt and now accounts for \$30 million in farm sales.
- **Clean water wizards.** **Mississippi State** researchers developed a constructed wetlands model for filtering fish pond water, allowing producers to reuse the water or safely release it into the environment. **Virginia Tech** scientists devised various water quality management techniques that have helped fish producers clean an estimated 50 miles of streams and eliminate costs associated with monitoring and water quality violations.
- **Food for the best.** The cost of catfish feed is the largest production expense for catfish farmers. Researchers at Oklahoma's **Langston University** discovered that producers can reduce feed costs by more than 60 percent by giving fish efficient high-protein feed rather than feeding a low-protein feed more frequently. **Kentucky State** researchers found that substituting soybean meal or meat and bone meal for expensive fish meal in hybrid striped bass feed can save farmers \$20 to \$80 per ton of feed and maintain high fish production.
- **Sorting made simple.** When catfish are harvested, producers and processors try to capture only fish of a certain size. Inevitably, undersized catfish slip into the harvest, making processing more difficult. Researchers at the **University of Arkansas - Pine Bluff** developed a prototype floating platform grader that effectively sorts fish in the pond, reducing fish stress and economic losses from harvesting undersized fish. The system is being adapted for harvesting other fish species.
- **Yellow perch for less.** There is a large potential market for yellow perch, a favorite food fish in the Upper Midwest. The high cost of perch fingerlings, or baby fish, has limited expansion of the yellow perch aquaculture industry. **Wisconsin** researchers have found ways to produce two to eight times more perch fingerlings per acre from ponds, reducing production costs 50 percent.
- **Fantastic fish.** Researchers at **Virginia Tech** have developed a fast-growing, silvery-white tilapia and new brood stock of striped and white bass. **Auburn** scientists are using a wide variety of genetic techniques to develop new strains of catfish and tilapia.



**Cooperative State Research, Education,  
and Extension Service**  
United States Department of Agriculture

Cooperative State Research, Education, and Extension Service in cooperation with the Extension Committee on Organization and Policy, the Experiment Station Committee on Organization and Policy, the Academic Programs Committee on Organization and Policy, the International Programs Committee on Organization and Policy, and the Louisiana State University Agricultural Center.

The United States Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.)