LAND-GRANT UNIVERSITY RESEARCH HELPS MANAGE FISHERIES & AQUACULTURE

Salmon, shrimp, catfish, and other fish provide a significant source of protein, economic activity, and recreation, but the nation's capture fisheries and aquaculture (cultivating fish on "farms") face numerous challenges, including:

- Climate change, hurricanes, oil spills, and other environmental shocks
- Growing demand for recreational fishing and seafood
- Changing consumer preferences
- Competition from imported seafood
- Aging marinas and other infrastructure
- Changes in the supply chain
- Price fluctuations
- Sustainability

These challenges have led to economic stress and uncertainty for aquaculture and fisheries in the U.S. To survive, the industries need to understand markets and know how to improve production efficiency in an environmentally sustainable and socially responsible way.

Scientists from land-grant universities across the U.S. are studying management, trade, and marketing issues in the aquaculture and fishery industries to:

- Enhance and sustain fishery and aquaculture production
- Increase organizational and institutional efficiency within the industries
- Expand seafood markets and increase value

PROJECT FUNDING & PARTICIPATION

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Learn more: bit.ly/W-3004

RESEARCH HIGHLIGHTS

New Markets for Fish

- Explored the potential to market Alaskan seafood to local school cafeterias
- Led chefs on tours of Indiana aquaculture operations, increasing use of local products in restaurants
- Taught fishermen and consumers in the U.S. Virgin Islands how to catch, handle, and cook lionfish, an invasive species impairing reef systems and the supply of other fish

Fish Labeling

- Consumers react to health risk information (like mercury levels), but have almost no reaction to health benefit information (such as omega-3 content)
- Studied consumers' willingness to pay higher prices for local products and products with certifications or labels and whether fishermen benefit from price premiums
- Examined consumers' acceptance of genetically modified seafood and predicted the effects of a proposed labeling policy for genetically modified fish

Managing Fisheries and Aquaculture

- Provided critical information for forecasting and managing fish stocks
- Advanced methods and models used to analyze fisheries and fishery management
- Examined the benefits and challenges of different fishery management and conservation approaches
- Found ways to improve cost-effectiveness of fisheries and aquaculture systems

Lower Cost Feed for Farmed Fish

- Replacing feed ingredients with enriched soybean meals can reduce costs
- Using microphones to detect shrimp feeding noises allows producers to feed shrimp until they stop, resulting in larger, higher-value shrimp than manual or timed feeding

Aquaponics

- Studied the effectiveness of various systems where fish waste and uneaten feed provide nutrients to grow plants
- Workshops educated aquaponics practitioners on system types, fish and plant combinations, pest control, economics, marketing, and food safety

Fish Safety and Quality

- Identified ways to reduce odors, off-flavors, and yellow color in channel catfish
- Developed vaccines to reduce disease mortalities among farm-raised catfish
- Examined ways oyster farmers can shield themselves from adverse impacts when a neighboring farm is linked to a foodborne illness outbreak
- Estimated the socioeconomic impacts of aquatic diseases and remediation, justifying government programs and regulations

Fishing and the Environment

- Studied the impacts of the Deepwater Horizon oil spill on commercial and recreational fishing in the Gulf of Mexico (e.g., among Mississippi businesses, sales dropped 50%, and employment declined 33% from the previous year)
- Studied environmental issues related to capture fisheries, including invasive species, ecosystem services, and stocking programs designed to satisfy demand for recreational fishing