

FISHERIES

Because Florida is surrounded by salt water on three sides and possesses the third-largest amount of inland surface water in the U.S., it's only natural that the state supports a great deal of commercial activity related to its fisheries.

Florida hosts more recreational fishing than any other state: Each year, 2.4 million people participate in saltwater fishing here, creating an economic impact of \$7.6 billion. Freshwater fishing involves 1.2 million people annually and contributes \$1.7 billion in economic impact.

Commercial fishing, including harvest of marine and freshwater food and bait species, accounts for about \$200 million in dockside value each year. Much of the catch is destined for markets outside Florida and even outside the U.S., strengthening Florida's economy.

To keep these fisheries sustainable and profitable, UF/IFAS scientists are conducting research studies on a broad range of issues related to seafood harvesting, angling techniques and fisheries management.

NATURAL
RESOURCES



HUMAN
SYSTEMS



AGRICULTURE

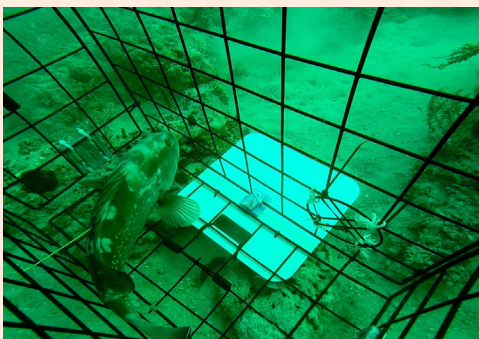


Ongoing Research



CITIZEN SCIENCE

Fisheries monitoring requires a great deal of effort, sometimes more than agency personnel can provide. But additional data can be acquired through citizen science — information provided by laypeople through websites and mobile device apps. Robert Ahrens, an assistant professor with the UF/IFAS Fisheries and Aquatic Sciences Program, leads an effort to understand how data contributed by saltwater anglers can be used to help manage fish stocks. The team, which includes personnel with the National Oceanic and Atmospheric Administration and the Florida Fish and Wildlife Conservation Commission, is reviewing existing apps to understand the limitations of angler-contributed data and to evaluate how the data could supplement agency efforts.



IMPROVING GROUPEL SURVIVAL

To keep populations sustainable, Florida enforces size limits, bag limits and closed seasons for the marine game fish gag grouper, *Mycteroperca microlepis*, and red grouper, *Epinephelus morio*. When these species are caught in deep water and pulled to the surface their swim bladders expand, causing internal trauma that may kill the fish, which is a problem if they need to be released alive. Debra Murie, an associate professor with the UF/IFAS Fisheries and Aquatic Sciences Program, is part of a team evaluating two methods for helping the fish survive — venting the swim bladder to release gas, or using devices called descenders that return fish to deep water and recompress the gas. The researchers hope to determine which method is more effective, so that policy makers can improve fisheries regulations.



CATCH SHARE MANAGEMENT

For decades, commercial fishing operations in U.S. waters have been required to follow guidelines aimed at keeping fish populations sustainable. These guidelines traditionally involved seasonal closings and gear restrictions, but a new approach known as catch share management has emerged, where individual fishing operations own the privilege to harvest a specific amount of fish and may use or sell that privilege. This approach can improve harvest efficiency, increase fish quality and price, and promote safety by eliminating the need to fish in bad weather. Sherry Larkin, a professor with the UF/IFAS Department of Food and Resource Economics, leads a team analyzing how social networks influence the market for catch shares and how the program influences fishing strategies and management outcomes.

Research with Impact



GULF STURGEON RECOVERY

The Gulf sturgeon, *Acipenser oxyrinchus desotoi*, has been federally classified as a threatened species since 1991. The apparent success of conservation efforts has led to a dilemma — how to determine when special protection is no longer necessary. Robert Ahrens, an assistant professor with the UF/IFAS Fisheries and Aquatic Sciences Program, is part of a team that developed an approach for setting realistic recovery goals for sturgeon populations in the coastal river systems where these huge, armored fish spawn. Unlike other models used to estimate future stock populations, the team’s approach considers changes in the river environment that have occurred over time. These new modeling results are available for federal officials to use in upcoming decisions on the sturgeon’s protection status.



ARTIFICIAL REEF HABITAT

Fisheries scientists often debate whether artificial reefs increase fish populations, or simply attract fish from other areas. Bill Lindberg, an associate professor with the UF/IFAS Fisheries and Aquatic Sciences Program, leads a team that has long investigated the issue, focusing on gag grouper, *Mycteroperca microlepis*, a popular marine game fish. The team’s findings indicate that artificial reefs may attract or produce fish, depending on specific factors. To attract fish and benefit anglers, reefs should be readily accessible from key ports and have their locations advertised; however, to increase populations, reefs should provide shelter for young fish and not be advertised. These findings helped convince state officials to refrain from advertising the exact locations of artificial reefs meant to increase gag grouper production in the Gulf of Mexico.



FISHING LURE AVOIDANCE

The Florida bass, *Micropterus floridanus*, is the state’s most popular game fish and is pursued using a wide range of angling strategies. Micheal Allen, a professor with the UF/IFAS Fisheries and Aquatic Sciences Program, has discovered that this species can learn to avoid artificial lures. In a recent study, Allen and his colleagues collected and weighed adult bass in a small, seldom-fished Florida lake, then spent several days trying to catch the bass using two popular lures. The number of bass caught per hour steadily declined after the fish were exposed to catch-and-release fishing, indicating that individual bass recognized the lures and learned to avoid them. The results have been reported by fishing media and now anglers are seeking new lures and ways to outsmart bass!

UNIT LEADERS

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