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U.S. MILITARY TECHNOLOGY PROTECTS CRITICALLY ENDANGERED GOLIATH GROUPER

High Tech Sonogram Finds Baby Giants Tucked Away In Mangrove Nurseries

Ft. Pierce, Florida - November 19, 2008 | The Ocean Research & Conservation Association (ORCA) and its collaborators announced today the world's first use of an acoustic underwater camera to survey juveniles of goliath grouper in mangrove habitats.

Goliath grouper, *Epinephelus itajara*, currently is listed as critically endangered by the IUCN (International Union for the Conservation of Nature). The largest grouper fish in the Atlantic Ocean, goliaths can exceed six feet (2 meters) in length, weigh more than 1,000 pounds and can live more than 40 years. Juveniles (up to 3 feet, or 1 meter in length) spend almost the first decade of their lives in red mangrove nurseries.

ORCA adjunct scientist Dr. Sarah Frias-Torres and her colleagues at the University of Miami successfully demonstrated how this camera system, originally developed for the U.S. Department of Defense, can be used to conduct visual underwater surveys to evaluate the recovery of the species in the US (where it is protected) or the decline of the species in the Caribbean (where protection is lacking). In the past, such observations were often hindered by murky waters and low visibility typical of red mangrove habitat.

Similar to the sophisticated sonar of dolphins, the acoustic camera (referred to as DIDSON, or dual-frequency sonar) can "see" individual fish species and habitat by using sound waves, without the need of light or good visibility conditions. The resulting image resembles a medical prenatal ultrasound used for monitoring the development of human babies. In a way, it is an ultrasound of Mother Nature.

"This technology allows me to see where human eyes can't," said Dr. Sarah Frias-Torres, ORCA adjunct scientist and lead author of the study. "It's important to be able to show how the babies hide in the mangrove roots, because it provides critical information for protecting the species and a much stronger argument for protecting the habitat."

The study was conducted in the fringing red mangrove shorelines of the Florida Keys National Marine Sanctuary. This technique has previously been used to monitor salmon migrations entering rivers and detecting fish under ice. This is the first time this system has been used in mangrove habitat.

Coastal mangroves are an important nursery and habitat for many fish and invertebrate

species that eventually migrate to nearby coral reefs. Mangrove habitat is often threatened by coastal development and pollution.

DIDSON offers great potential to complement underwater fish surveys in low visibility conditions, due to high turbidity, or during nocturnal surveys.

“This is a wonderful example of how cutting edge technology can be used to protect the ocean and the species that live there,” said Dr. Edith Widder, ORCA president and senior scientist.

The research was funded by NOAA’s Coral Reef Conservation Program, and conducted by researchers from the Ocean Research & Conservation Association (ORCA) and the University of Miami’s Rosenstiel School of Marine and Atmospheric Sciences.

The full scientific article can be seen here:

<http://www.int-res.com/articles/esr2008/theme/Goliath/goliathpp4.pdf>

Learn more about ORCA’s innovative conservation technologies at www.teamorca.org

The Ocean Research & Conservation Association (ORCA) is dedicated to the study and protection of marine ecosystems and the species they sustain through the development of innovative technologies and science based conservation action. An IRS 501(c)(3) nonprofit corporation, ORCA operates from two Florida locations: the Duerr Laboratory for Marine Conservation housed within the Indian River State College on the Fort Pierce Inlet and ORCA’s Conservation Technology Center in Port St. Lucie.

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