

A team of scientists from Florida Atlantic University's Harbor Branch Oceanographic Institute (HBOI) and the University of the Virgin Islands' Center for Marine and Environmental Studies have developed a novel sensing approach using a water drone to listen in on groupers mating. The sensor package and grouper acoustic recognition computer algorithms, developed by HBOI, have been installed on a Liquid Robotics Wave Glider, which is the first readily available ocean drone of its kind.

Project lead Laurent Chérubin, Ph.D. and members of the HBOI research team, Fraser Dalgleish, Ph.D., Anni Vuorenkoski-Dalgleish, Ph.D., and Bing Ouyang, Ph.D., in collaboration with Richard Nemeth, Ph.D., University of the Virgin Islands, and Michelle Schärer-Umpierre, Ph.D., University of Puerto-Rico Mayaguez, set out to better understand the relationship between vocalization frequency and fish abundances. The group has been conducting work over the past year in a number of areas, including the Florida Keys, the Virgin Islands and the east Florida shelf.

Spawning season for many commercially important groupers including the Nassau, Warsaw, black, yellowfin and red hind groupers are concentrated within a couple of months each year. The concentrated nature and short duration of their spawning season makes them especially vulnerable to heavy fishing and as a result, many of the spawning aggregations have disappeared or shrunk in the abundance of spawners. Overfishing at these sites can reduce grouper populations significantly, and findings from this study are helping to inform fisheries managers where protective measures are necessary.

The new robotic sensing technology is assisting researchers with important conservation measures and making data collection easier and less costly than ever before. The purchase of the HBOI wave glider and their engineering efforts to develop and test the sensor package was funded by a grant from the Harbor Branch Oceanographic Institute Foundation (HBOIF).