

Detection & Characterization of Fish Spawning Aggregations Using a Novel, Persistent Presence Robotic Approach **\$330,795**

As part of its discretionary grantmaking, the Harbor Branch Oceanographic Institute Foundation board approved this innovative project. To develop fisheries conservation strategies and evaluate their outcomes, resource managers and researchers are interested in the locations and extent of fish spawning aggregations and the variables influencing them, all of which are highly difficult to study. The aim of this research was to create a new approach for discovering and characterizing fish spawning aggregations using an autonomous surface vehicle equipped with GPS, A suite of sensors, a towed hydrophone, and onboard processing to facilitate event detection, autonomous operations, and real-time data transmission.

Accomplished objectives of this project included:

- Procuring and training on a WaveGlider SV3 autonomous surface vehicle, establishing effective operational procedures



- Designing and fabricating a passive acoustic payload for the SV3 that could execute the developed algorithms in real-time.

Additional objectives substantially accomplished included:

- Developing fish calls detection and identification algorithms using historical data.
- Installing an off-the-shelf acoustic echosounder onto the SV3 to be used for ground-truthing the detected fish aggregations.
- Performing an initial survey with the SV3 at known spawning aggregations in Jupiter, FL, and then demo off the US Virgin Islands.

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