

# College of Education News

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Georgia Southern University

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# Gray's Reef National Marine Sanctuary partners with COE for science educator workshop

August 3, 2017



Participants of the 2017 underwater remotely operated vehicle (ROV) workshop

The College of Education's Institute for Interdisciplinary STEM Education (i<sup>2</sup>STEM<sup>e</sup>) and Gray's Reef National Marine Sanctuary hosted an underwater remotely operated vehicle (ROV) workshop July 11-12.

Attended by 15 science educators from across Georgia and Florida, the workshop included activities ranging from basic engineering and design to testing the ROVs in pools at Georgia Southern University's Recreation Activity Center (RAC).

"During the workshop, teachers worked on prototype development, soldering circuit boards and buoyancy," said i<sup>2</sup>STEM<sup>e</sup> Coordinator Kania Greer, Ed.D. "Underwater ROVs are crucial to the monitoring of our coastal resources, and this professional development will allow teachers to bring relevant place-based education to their classrooms that incorporates engineering design, technology, science and math in one hands-on project that is suitable for many age groups."

Students from the University's Department of Electrical Engineering worked collaboratively with teachers during the workshop to lend advice on design and creation of the ROVs.

“The teachers and electrical engineering students both enjoyed the experience as they worked through the engineering design process—from concept drawing to building,” said Greer. “The teachers were challenged by the problem solving experience of figuring out the right buoyancy and ballast to keep their ROV neutrally buoyant in the water while also sharpening soldering and electrical skills. Each design was so different, but each group had a specific reason they built their design the way they did.”



Participants test their ROV as Associate Professor of electrical engineering Rocio Alba-Flores, Ph.D. (on right) observes.

Beginning in 2004, [Gray's Reef National Marine Sanctuary](#) partnered with the [Marine Advanced Technology Education \(MATE\) Center](#) to offer underwater robotics as a vehicle to teach science, technology, engineering and math (STEM). Since the creation of that partnership, Gray's Reef hosts an annual Southeast Regional MATE ROV competition for middle and high school students that serves as a qualifier for the international championship.

The competition consists of designing and piloting underwater remotely operated vehicles through simulated real-world situations.

“An intent for this workshop was to expose teachers to the design elements of ROVs but also to encourage them to have teams compete in the 2018 regional competition,” said Greer.

Gray's Reef National Marine Sanctuary is an underwater park located on Sapelo Island, GA. The natural live-bottom reef is teeming with marine life and is part of the endangered North Atlantic right whale's calving ground. Loggerhead turtles rest at the reef, where scientists have identified more than 200 fish species.

Gray's Reef was designated as a sanctuary on January 16, 1981 and is the only protected natural reef area on the continental shelf off the Georgia coast. The 22 square miles of the Reef protects an area that is both nationally and internationally recognized.

For more information about available i<sup>2</sup>STEM<sup>e</sup> workshops for pre-service and in-service educators, please contact [stem@georgiasouthern.edu](mailto:stem@georgiasouthern.edu) or visit <https://coe.georgiasouthern.edu/stem/>

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