Fall 2025

Skidaway Campus NOTES

Published by the University of Georgia Skidaway Institute of Oceanography

The new flow-through system aboard the R/V Savannah uses more than a dozen instruments to continuously measure biogeochemical parameters on the ocean's surface. (Photo by Jackson K. Schroeder)

R/V Savannah outfitted with real-time ocean sampling flow-through system

The Research Vessel Savannah has been outfitted with a new flow-through system featuring more than a dozen instruments that continuously measure key biogeochemical parameters on the ocean's surface as the ship travels. A corresponding online platform streams the live data to scientists, students and technicians both aboard the ship and on shore.

"The system effectively transforms the Savannah into a continuous sampling platform," explained Sara Rivero-Calle, an assistant professor at the UGA Skidaway Institute of Oceanography (SkIO), who received a grant from the National Science Foundation (NSF) for the purchase and installation of the new system. "This includes the most comprehensive and state-of-the-art set of oceanographic instruments and sensors that you can have on a flow-through system. It has taken us several years to piece it together. It was a much bigger effort than we thought, but it is now ready for everyone's benefit."

In addition to temperature, salinity, chlorophyll and colored dissolved organic matter, the new system's instruments actively measure turbidity, dissolved gases, nitrates, pH, CO_2 concentration, light scattering, particle size distribution and more.

The new system provides high-quality oceanographic data in real time to both researchers on the ship and beyond. The R/V Savannah averages 144 days per year at sea and has operated as far away as Long Island, NY, and the coast of South America.

"The other advantage is that we can bring it into the classrooms," said Rivero-Calle, a faculty member in the Department of Marine Sciences at UGA's Franklin College of Arts and Sciences. "The R/V Savannah has limited space in terms of how many people can be on it. But I could be holding a class on Skidaway Island, and through the software, called CORIOLIX, we can see exactly what they're seeing on the ship. I can bring that sea-going experience to the students."

The new instruments are part of the NSF's shared-use program, expanding access to cutting-edge technology and high-resolution data on an unprecedented scale. The project, called BiOME, will complement and enhance ongoing and future projects in the Southeastern United States and beyond, Rivero-Calle explained.

The data presence system CORIOLIX was first developed by scientists at Oregon State University for implementation on the National Science Foundation's three new Regional Class Research Vessels. The R/V Savannah is the most-recent University-National Oceanographic Laboratory System (UNOLS) vessel to use CORIOLIX and the only coastal class vessel with it.

Skidaway Marine Science Day

Date: Oct. 11, 10 a.m. - 3 p.m.

Location: UGA Skidaway Marine Science campus

Join us for Skidaway Marine Science Day, a can't-miss event for all ages. The campus-wide open house will be presented by UGA Marine Extension and Georgia Sea Grant, UGA Skidaway Institute of Oceanography and Gray's Reef National Marine Sanctuary. As part of Skidaway Marine Science Day, the UGA Aquarium will be open to visitors with no admission fee. Aquarium educators will offer an afternoon full of activities, including a hands-on reptile exhibit, behind-the-scenes peeks of the aquarium and lab demos on the dock behind the facility. Marine Extension and Georgia Sea Grant's Shellfish Research Lab will provide hands-on activities and educational information about sustainable aquaculture and oyster restoration! The UGA Skidaway Institute of Oceanography's 104-foot ocean-going Research Vessel Savannah will be open for tours and will exhibit science displays. Gray's Reef National Marine Sanctuary's 52-foot Research Vessel Gannet will be available for tours.

Alexander Lab helps Tybee monitor erosion, inform beach nourishment plans

Every six or seven years, sand is pumped onto Tybee Island's beaches to counteract natural erosion caused by waves, tides, wind and human activity. Since the last nourishment was completed in early 2020, researchers in Director Clark Alexander's lab at the University of Georgia Skidaway Institute of Oceanography (SkIO) have been monitoring the shoreline and creating detailed maps to help guide future nourishment projects.

Claudia Venherm, a research professional in Alexander's lab, flies a LiDAR drone over the island's publicly accessible beaches every three months and after major storms. Her maps show patterns of erosion and accretion at each section of the beach over time.

The data are compiled and presented twice a year to City of Tybee officials, who use the information to inform the U.S. Army Corps of Engineers (USACE) on where sand needs to be placed.

"Because of SkIO's data, we know for a fact, since the last beach nourishment, where it is eroding, where it is accreting, and how fast it has been eroding," said Alan Robertson, who manages beach nourishment projects for Tybee. "That informs the Corps in their template and informs the design of the beach. I take a lot of pride in the fact that the Corps is using our data, provided by Skidaway, in the design."

Since 1975, USACE has periodically nourished Tybee's beaches, covering a significant share of the costs. They do this because the Corps' maintenance of the shipping channel leading into the Port of Savannah disrupts the natural flow of sediment from the north that would otherwise help replenish Tybee's beaches.

For the first 45 years of USACE's partnership with Tybee, the Corps focused solely on building a flat, wide beach by pumping sand to a pre-planned design width. But in 2020, USACE added extra sand at Tybee's request that the city used to create a complete row of dunes as well. Dunes serve as natural barriers, guarding Tybee's community and infrastructure from potential storms and hurricanes.

"People hadn't created dunes for the purpose of protecting against storm damage in the state of Georgia before," said Alexander, a professor in the Department of Marine Sciences at UGA's Franklin College of Arts and Sciences. "These were functional dunes to provide sacrificial sources of sand if we had high sea levels and intense storms. This was the city being very proactive."

Claudia Venherm (center), Mike Robinson (left) and Kyle Krezdorn prepare to fly a LiDAR drone on Tybee Island in April 2025. (Photo by Jackson K. Schroeder)

Initially, Tybee brought the Alexander Lab on to monitor the new dunes. But after clear signs the dunes were stable, the project grew to include the full beach profile.

As Venherm flies the drone, Research Professional Mike Robinson walks along the beach with a real-time kinematic (RTK) GPS system, which works in conjunction with the LiDAR drone to improve the accuracy of the geospatial data the drone collects. Kyle Krezdorn, also a research professional in the Alexander Lab, monitors the drone as it flies.

"What we are trying to do is see the changes," said Venherm. "I measure the elevation of the beach and the dunes and look at how that changes every three months. And then I can say if there is erosion or accretion of sand."

Venherm has found that erosion is most prominent near the bend where Highway 80 becomes Butler Avenue. Since March 2020, the stretch of beach

(Continued inside)

Associates of Skidaway Institute

The Associates of Skidaway Institute (ASI) is part of the University of Georgia Foundation, a 501(c)3 tax-exempt organization. ASI provides a broad range of support for the research and education activities on the campus of the University of Georgia (UGA) Skidaway Institute of Oceanography.

The institutions and organizations represented on campus include:

UGA Skidaway Institute of Oceanography
UGA Marine Extension and Georgia Sea Grant
NOAA Gray's Reef National Marine Sanctuary
Georgia Southern University
Savannah State University
Georgia Institute of Technology
Georgia Department of Natural Resources

Skidaway Campus NOTES
Associates of Skidaway Institute
10 Ocean Science Circle
Savannah, Georgia 31411

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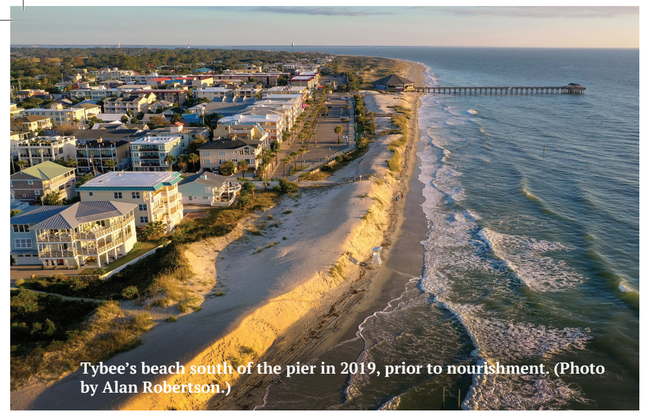

Tybee's beach south of the pier in 2019, prior to nourishment. (Photo by Alan Robertson.)

Tybee Beach nourishment *(continued)*

facing the Atlantic Ocean, along with the south end, has lost more than 260,000 cubic meters of sand. However, the dunes have gained nearly 30,000 cubic meters — likely due to wind carrying sand inland, where vegetation helps trap and hold it in place.

In addition to informing USACE about where to pump sand, having the SkIO reports helps inform and build confidence and trust in the public, whose tax dollars help fund the nourishment projects, Robertson explained.

"The other benefit of this is, now that we have five years of data, we can start to project," said Robertson. "We can tell the public 'here's where you can expect there to be no beach next summer season at high tide.' We can get ahead of that. We don't have to be reactive."

With insights from the SkIO reports, the City of Tybee is working with USACE on developing the plans for a new beach nourishment, currently scheduled to start in November 2026.

SkIO welcomes 2025 Semester at Skidaway students

The University of Georgia Skidaway Institute of Oceanography (SkIO) is excited to welcome 13 students participating in the 2025 Semester at Skidaway Field Study Program.

Each fall, Semester at Skidaway places undergraduate students majoring in Ocean Science through the Department of Marine Sciences in UGA Franklin College of Arts and Sciences on the Georgia coast for a unique, hands-on learning experience.

Students take courses on the SkIO campus taught by SkIO faculty members, participate in field trips to scientifically and culturally relevant locations, explore the coastal area on SkIO's fleet of small vessels, and cruise on the R/V Savannah for an overnight research expedition.

Clark Alexander, director of SkIO, talks to 2025 Semester at Skidaway students during the welcome event. (Photo by Jackson K. Schroeder.)

Gray's Reef team has returned from the Southeast Regional Ecosystem Assessment

The Gray's Reef National Marine Sanctuary science and dive team has returned from a two-week long expedition aboard NOAA Ship Nancy Foster! This research mission brought together NOAA scientists, the Georgia Aquarium, NOAA National Centers for Coastal Ocean Science (NCCOS), university partners and NOAA Ship Nancy Foster crew to collect high-resolution underwater mapping data at night and conduct scientific diving during the day.

Below the waves, divers were busy documenting species at unexplored live-bottom habitats through underwater transect surveys. While these sites are not in Gray's Reef National Marine Sanctuary, they are important habitats to discover and are teeming with similar marine life.

While divers were sleeping, NOAA Ship Nancy Foster scientists and crew were using multibeam and split-beam sonar and CTDs to explore the seafloor. Multibeam sonar scans the ocean floor and creates maps of underwater landscapes. Split-beam sonar detects fish and observes their movements through the water column. CTDs are instruments that measure conductivity, temperature, and depth.

Tune into Gray's Reef social media or check out the visitor center to learn more about this awesome mission.

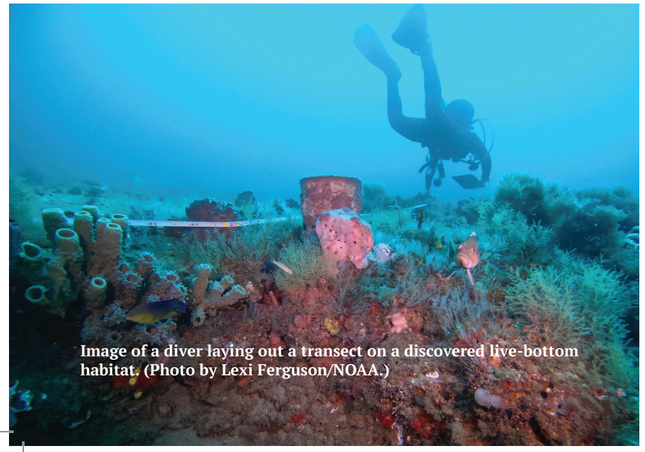

Image of a diver laying out a transect on a discovered live-bottom habitat. (Photo by Lexi Ferguson/NOAA.)

Credit: Danielle Oxman/NOAA

Image of NOAA scientist preparing a CTD cast.

SkIO hosts new graduate students for week of experiential learning

From August 4-8, 2025, the newest cohort of graduate students from the Department of Marine Sciences at the University of Georgia's Franklin College of Arts and Sciences gathered at the UGA Skidaway Institute of Oceanography (SkIO) for a weeklong course in basic oceanographic methods and data analysis.

Through a series of hands-on experiential learning activities, the annual course is designed to give graduate students new to the Department of Marine Sciences a glimpse into oceanographic field work and provide them with a better understanding of how the data they collect is obtained, processed and interpreted.

"The course was created to fill a perceived need for better communication between students based in Athens and in Savannah, and to help introduce students from a variety of backgrounds to Georgia's coastal ecosystems," said Jay Brandes, a professor in the Department of Marine Sciences based at SkIO, who led the course. "The course is also meant to help the newcomers connect with their peers, who may become their career-long colleagues."

Throughout the week, students participate in field sampling and sample processing, meet with and listen to talks delivered by SkIO professors and graduate students, and bond through community events.

The pinnacle of the week is a daylong trip to Wassaw Island, an undeveloped barrier island off of Savannah's coast that is only accessible via boat. This year, students had the opportunity to practice beach seining, a fishing technique using a long net, with weights on the bottom and floats on the top, that gets pulled through the water along a beach to catch marine life.

Dorothea Sanders, an educator at UGA Marine Extension and Georgia Sea Grant, co-led the trip to Wassaw and seining activity.

New graduate students carry a seine net along the beach on Wassaw Island. (Photo by Fran Lapolla.)

Gray's Reef Ocean Discovery Center welcomes new exhibits

After over a year of patience and anticipation, the Gray's Reef Ocean Discovery Center's brand new interpretive exhibits arrived in late August. The Gray's Reef team has worked closely with the National Marine Sanctuary Foundation, Office of National Marine Sanctuaries, and the contractor, Universal Services Associates (USA) Inc. to bring the sanctuary to visitors and locals of Savannah, Georgia. The exhibits were designed and fabricated in early 2025 and are currently being installed with a grand reopening date set for Oct. 18th, 2025. Join Gray's Reef and local partners at the grand reopening party to enjoy a day of hands-on activities, food and music as the new exhibits are unveiled! This event is free and open to the public. The event will begin at 11:00 a.m. and end at 3:00 p.m. The Gray's Reef Ocean Discovery Center is located at 340 Martin Luther King Jr. Blvd, Savannah, GA.

Credit: Elliott Lam/NOAA

Sneak peek of the new exhibits at the Gray's Reef Ocean Discovery Center.

Celebrate Seafood Month with tours, tastings and outdoor adventures

This October, UGA Marine Extension and Georgia Sea Grant will celebrate National Seafood Month by hosting a series of events along the Georgia coast that highlight the connections between healthy coastal ecosystems, sustainable fisheries, and the seafood we eat.

"Seafood Month is a chance to celebrate not only the incredible bounty of Georgia's coast, but also the ecosystems and people who make fresh, local seafood possible," said Shannon Matzke, public program coordinator at Marine Extension and Georgia Sea Grant. "Through these events, we hope to inspire a deeper appreciation for the role seafood plays in our environment, our economy, and our communities."

The month-long celebration features boat excursions, cooking demos, restaurant collaborations and more.

Event Highlights:

Sorry Charlie's Oyster Fundraiser | Oct. 1–31

Bull River oyster orders will benefit the UGA Shellfish Research Lab.

Sea Dawg Trawl | Oct. 7 | $20

Board the R/V Sea Dawg for a guided trawl in Wassaw Sound.

Crabbing 101 | Oct. 18 | $25

Learn about crab species while crabbing from the dock.

Taste of the Coast | Oct. 20 | $45

Learn about the seafood industry and enjoy a cooking demo and tasting.

Curated Catch: Stories of the Sea Wine Dinner | Oct. 29 | $180

Additional programs and partner events will take place throughout the month of October, including oyster art workshops and boat tours of oyster farms. A full schedule with registration links and additional details is available at: https://gacoast.uga.edu/events/category/seafood-month/

Marine Extension and Georgia Sea Grant's Seafood Month celebration is made possible through partnerships with coastal businesses, educators, and community organizations dedicated to connecting people with Georgia's coast.