

Notes from School Chairs:

Now firmly ensconced in the new academic year, Natural Science, Computer Science and Mathematics continue to lead the way to a successful recruitment effort. USCB gained a new Maritime Cybersecurity grant, another major grant for Computer Science to kickstart the fall 2023 inaugural year. We had an increase in applicants for the fall semester, and, by all indications, we should be on the rebound toward higher enrollments for the coming year in STEM fields. The Marine Biology program received a huge boost with a new funding initiative from the legislature earmarking funding to carry out and sustain research efforts on Pritchards Island, a pristine barrier island under the stewardship of USCB and the USC system since the late 1980s.

Joe Staton,
Chair, Natural Sciences

Brian Canada,
Chair, Computer Science and Mathematics



USCB-led Public/Private Partnership Gains Grant Funding for Maritime Cybersecurity Planning Grant

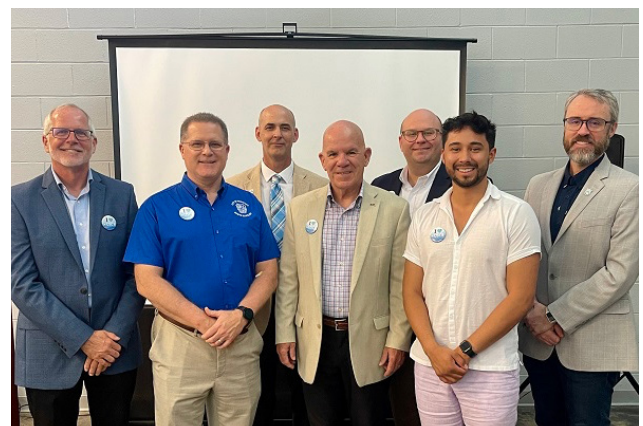
A team led by Dr. Eric Skipper, Dr. Ron Erdei, and others wrote a proposal titled “South Coast Regional Innovation Engine: Cybersecurity Solutions for The Maritime Transportation Ecosystem,” with total funding of approximately \$1 million for an NSF Regional Innovation Engine Type I (Planning) grant. The National Science Foundation has completed its merit review of USCB’s grant application that focuses specifically on Maritime Cybersecurity, and the proposal has been recommended for funding!

The South Coast Regional Innovation Engine will conduct research to understand the interdependencies, vulnerabilities and risks in the maritime transportation ecosystem in order to develop technologies to materially improve cybersecurity through partnerships with academia, industry and government.

The Development Award will work to clearly define the maritime cybersecurity needs in the area and identify gaps that exist by suggesting innovations and solutions to address them while establishing a pipeline for innovation, technology and workforce development plans to address industry

needs. These efforts will serve as a foundation for a subsequent Regional Innovation Engine award by the NSF to translate the initial planning efforts into execution.

The USCB team envisions a world-class Innovation Engine for maritime cybersecurity education, research, experimentation, investment and commercialization of products with regional and national impact. The project’s initial focus will be the Port of Charleston. Locally, the project will be known as “Maritime Cybersecurity Institute (MCI)”.



Dr. Canada, right, participated in a press event in Beaufort announcing the university’s Maritime Cybersecurity grant

USCB Garner's State-level Funding to Support Pritchards Island



In late session conference, the South Carolina legislature voted to award line-item funding to USCB to facilitate the support of research at Pritchards Island. The late Dr. David McCollum and his students started making treks to Pritchards Island in the 1980s to observe nesting of the loggerhead turtle, *Caretta caretta*, South Carolina's state reptile. Encounters with the owner of the island, Mr. Philip Rhodes (of Atlanta), fostered an alliance between Rhodes and USCB to give stewardship over the island to preserve, educate and conduct research to lead to broader understanding of the nature and history of Pritchards Island. It is, arguably, one of the least impacted barrier islands in the state.

Pritchards Island is a two-and-a-half-mile-long barrier island on the edge of Beaufort County. In 1994, Rhodes funded the construction of a marine laboratory on the island to assist with research and education efforts. After many years, the lab was undercut by the Atlantic Ocean, and its remaining edifice was removed in the fall of 2022.

Public notice of this event and other related activities rekindled USCB faculty and students to meet with the Rhodes family to discuss current and future research planned for the island. USCB's marine biology program was building toward increased activities on the island when the pandemic indefinitely postponed many of those plans. In the spring of 2021, USCB faculty and students rejuvenated efforts to start regular field trips and reconnect with a historic shoreline mapping project and sea turtle nest monitoring. These initial talks, coupled with a public outcry over potentially losing the island due to a failure to honor the state's role in meeting the terms of the original custodial agreement, eventually brought about negotiations in Columbia involving the legislature and university officials. The net result was \$500,000 in annual recurring state funding budgeted to USCB to promote research, education and stewardship of the island.

Not all requests were met; several one-time major expenditures still required funding. Establishing permanent research facilities on the island while providing efficient transportation to ferry larger groups and research equipment to and from the island will be primary topics for future fundraising. More information on how to contribute can be found here: <https://giving.uscb.edu/sfp/cas/pritchards-island-project>



Clockwise from left: USCB students Denia Lopez, Hope Chutjian, Aydanni Gonzalez, Brendan Cruz, with Dr. David Matolak (UofSC Electrical Engineering), Patrick Murphy (graduate student in David Matolak's lab at UofSC), Jacob 'Eli' Wright (USCB), Rohan Preis (Sophomore, Furman Univ.), Liza Jones (High School Senior; dual enrollment at USCB).

Dr. Mercer Brugler Named Okubo Scholar by Stony Brook Graduate Students

Every year, the Graduate Students of the School of Marine and Atmospheric Sciences of Stony Brook University, New York, award a faculty member with The Okubo Distinguished Scholar Award, named for Akira Okubo, a beloved former faculty member. This spring, the SoMAS graduate student body selected our own Dr. Mercer Brugler as the 2023 Okubo Distinguished Visiting Scholar. He was invited to visit the Stony Brook campus to present the annual Okubo Scholar seminar. The selected award recipient will give two talks—a formal presentation on the scientific topic of his choice and a less formal talk which focuses on their career path, followed by a brunch with select students and a reception one evening hosted by the students.

Okubo scholars are selected not only for their scholarship, but also for their broad research interests and their demonstrated skill at mentoring students. “As a department with interdisciplinary research interests, we were particularly intrigued with your research projects and your work to increase diversity in the field of marine science,” said Madison Muehl, a graduate student representative.

To our knowledge, this is the first such honor bestowed on any USCB faculty member in our 20-year history as a four-year, degree-granting institution. The honor is certainly well deserved!

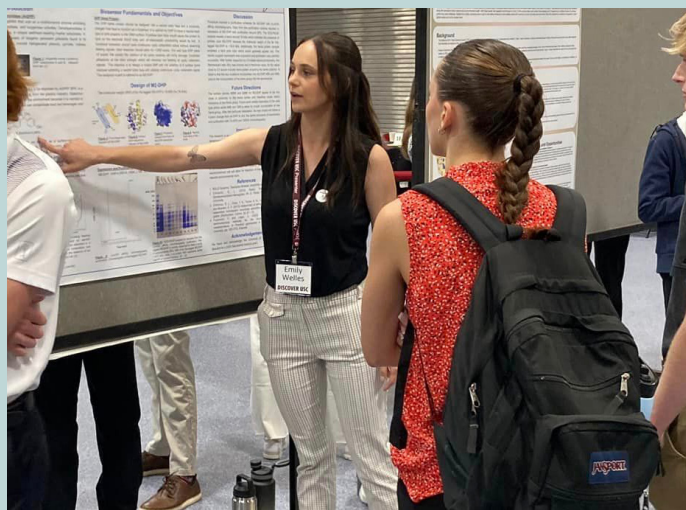


USCB Students Win First-Place Awards at USC Discovery Day



Ms. Lindsay Baker, Biology major and Beaufort Honors College undergrad, won first place in her division at USC-Columbia’s Discovery Day this past spring.

Every spring, USCB has a Student Research and Scholarship Day (SRSD) that highlights the research and scholarship efforts of our undergraduates. Upwards of 3 percent of our undergraduates participate each April. For the past several years, a few of our undergraduates also have presented their work at Discover USC at USC Columbia, a day that often falls in the same week as SRSD.



Ms. Emily Welles, Biology and Beaufort Honors College graduate (Spring 2023) won first place in her division at USC-Columbia’s Discovery Day this past spring.

This year, two of Dr. Edward D’Antonio’s students, Lindsey Baker and Emily Welles, traveled to Columbia to present their research projects. Both students are in our Beaufort College Honors program. This year, the two students won first place in their divisions at Discover USC, which is predominantly attended by and participated in by USC Columbia students. We are proud that our Sand Shark students could show so well at this statewide forum. Ms. Welles graduated in the spring, but Ms. Baker is a continuing undergrad in our Honors Biomedical Science program.

USCB Summer Programs were in Full Swing This Year

“MAD” SCIENTIST Summer camp



The science camp motto is “Let’s Go Explore.” It was guided by scientists from the University of South Carolina Beaufort who specialize in chemistry, marine and coastal ecology, and cell biology. The students discover our Lowcountry through hands-on activities and experimenting, including a kayaking trip, making “elephant toothpaste,” live animal exploration, and more. The camp was advertised to include multiple disciplines of science while providing an enriching environment for your children to grow, learn, and ask ALL the right questions.

Over the course of a week, students worked in Bluffton in labs and the creator space doing 3-D printing of their ideas or ventured out on the water in kayaks to experience the nature of the Lowcountry.

USCB’S MOS Inspires High School Students for Its Third Year

Mathematics Opportunities in the Summer (MOS) is an exciting, residential summer mathematics program for rising junior and senior high school students in the rural and underserved counties surrounding USCB.

MOS broadens participants’ perspectives and educational experiences while helping them identify their interests through experience-based learning opportunities in math, science and technology.

MOS was created in the summer of 2021. Two groups of students participated in two 10-day residential summer sessions. In July 2022, MOS’ leadership offered one 10-day residential summer session.

To get an authentic experience of college life, MOS campers live in university residence halls on USCB’s Bluffton Campus. Participants travel daily to USCB’s Hilton Head Island Campus to explore math concepts in hands-on, informal sessions led by USCB Mathematics faculty. Participants also learn how to code and write basic computer programs, led by Drs. Volkan Sevim, Davide Fusi, and Morgin Jones Williams, all mathematics faculty in Computer Science and Mathematics at USCB.

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USCB Summer Programs

A Trip to Poznań, Poland, with USCB students

In July, Dr. Joe Staton led a group of seven USCB students on a trip to Poznań University of Medical Sciences (PUMS) to visit a European-style medical school and gain a cultural appreciation of Poland and its long history of education. PUMS is relatively new, having been formed in the 20th century. It was actually an offshoot of older institutions in Poznań.

Of the seven students, four were biology majors and the remaining three were in Public Health. Over the course of a long week, students worked in accident simulation labs, got a taste of molecular biology, visited a modern morgue, and enjoyed many of the cultural aspects of one of the older cities in Poland.

This was our first visit there, and we hope to create an avenue whereby students can attend medical school at PUMS (which is all in English) for a significantly lower cost than medical school in the United States.

Front row: Ms. Darniece Calistro (Pub. Health), Ms. Logan Stewart (Biology), Ms. Ashley Duggan (Biology); Middle row: Ms. Milla Wojciechowski (Biology), Milla's "Babcia" Mariola, Ms. Isabel Cannon (Biology); Back row: Ms. Kari Hill (Pub. Health), Dr. Joe Staton, Ms. Tameika Lynard, (Pub. Health)



Dr. Mercer Brugler Selected for Hudson Canyon National Marine Sanctuary Advisory Council



Dr. Mercer Brugler has been selected to serve on the advisory board for the proposed Hudson Canyon National Marine Sanctuary. NOAA's Office of National Marine Sanctuaries is designating a national marine sanctuary for the Hudson Canyon, a deep-water extension of the Hudson River off the coast of New York and New Jersey. This sanctuary would enable NOAA to partner with and connect diverse communities in the Mid-Atlantic region with the goal of heightening awareness of ocean conservation and sustainable

use. NOAA started the sanctuary designation process in June 2022. Hudson Canyon is the largest submarine canyon along the U.S. Atlantic coast and one of the largest in the world. Beginning approximately 100 miles southeast of New York City, the canyon extends some 350 miles seaward, reaching depths of 2 to 2.5 miles, and up to 7.5 miles in width. Hudson Canyon's grand scale and diverse structure—steep slopes, firm outcrops, diverse sediments, flux of nutrients and areas of upwelling—make it an ecological hotspot for a vast array of marine wildlife.

Hudson Canyon provides habitat for a range of protected and sensitive species, including sperm whales, sea turtles and deep-sea corals. The area's rich biodiversity is integral to the regional economy, underpinning commercial and recreational fisheries, recreational diving, whale watching, and birding. Hudson Canyon could also serve as a sentinel site for NOAA to monitor the impacts of climate change on submarine canyons, which are vulnerable to the effects of ocean acidification and oxygen depletion.