

PRITCHARDS ISLAND LAB REMOVAL



Beginning preparations for the lab building removal and clean up.

Notes from School Chairs:

This edition got waylaid in the bustle of the fall and winter breaks, but it's still out prior to spring! We are in the throes of multiple searches in biology, computer science and mathematics to come back in force for the fall semester. We are attracting top-notch candidates nationwide, and we hope to be able to announce their recruitment in the next edition of this newsletter.

The number of acceptances remains strong among the STEM majors for the fall semester, and we look forward to robust enrollments for the fall semester.

Joe Staton,
 Chair, Natural Sciences

Brian Canada,
 Chair, Computer Science and Mathematics

On Oct. 24, 2022, contractors began the process of removing the remaining structure of Pritchards Island Research Laboratory after its 40-year history. When the lab was dedicated, nearly 300 yards of dune system separated it from the shoreline. However, changing currents, rising tides and other modifications in sediment movements eroded away those pristine dunes until the lab was undercut at every tide. The lab was abandoned for many years, but the remaining hulk tenaciously held on, its front stairs ripped away by storm events, but its mighty pilings still supporting the thin walls and vandalized windows. The latest project sought to remove the last vestiges of what remained

before major climate events could rend large and dangerous chunks of the superstructure and send them to some violent and destructive end.

The contracting team also was engaged in removing years of abandoned light-to-heavy equipment that lay immobile and half buried in the island's shifting sands. The result, what accumulated for years or was built to stand for decades longer, was gone in a matter of days to weeks. Now again, the northeast corner of stands looking as it might have if no lab had ever been; no physical testimony to the hundreds of students, community members, scientists and faculty members who still carry fond memories of their time there.



Beachfront cleared of all traces of the building, pilings and machinery debris.

Proposed Pritchards Island Research and Outreach



Integration of historical aerial (digitized) photographs with modern LiDAR imagery.

In late September, USCB faculty and students hosted a symposium for the family of Mr. Philip Rhodes, the original benefactor who donated Pritchards Island to the University of South Carolina. Mr. Rhodes became interested in the research and associated camping/field trips by Dr. Dave McCollum and his USCB students. After multiple years, Rhodes signed Pritchards over to the USC system to serve as a living laboratory for better understanding the barrier islands of the South Atlantic Bight, as a near pristine “control” when compared to others that have experienced some degree of alteration by people. With the newly created program in Marine Biology at USCB and the growing numbers of faculty interested in coastal research, talk of revitalizing efforts on Pritchards began in earnest just in time for the onset of the shutdown due to COVID-19.

However, in just the last year, several faculty members had taken students out to the island and plans for research began anew.

Discussions among the marine biology faculty centered on getting students back to Pritchards to have it figure prominently in student/faculty research projects. Among those faculty, Drs. Mercer Brugler, Daniel “Tye” Pettay and Kim Ritchie spoke in detail about their vision to get students involved in research projects focused on Pritchards Island. More importantly, research by current biology students was already under way, with reports from the students themselves being a highlight of the symposium. Honors student Joanna Boney joined with the Beaufort County GIS office and started analyzing historical aerial photography of multiple barrier islands extending back to the late 1930s. Elizabeth Kobe, a transfer student, came to USCB to be able to work with sea turtles. She got the chance and reported on her 2022 summer work with Loggerhead turtles. All in attendance were excited about the new emphasis on Pritchards Island, and the potential for research going forward.

New Cybersecurity Lab



Dr. Brian Canada lecturing in the newly renovated cyber lab.

This fall, the Cybersecurity building in Beaufort got the first upgrade for students and faculty. In part the funds stem from the Academic Center of Excellence in Cyber Defense (CAE-CD) to purchase new computer equipment and for the City of Beaufort to make improvements in the existing building upgrades. The Boundary Street location has been leased through a long-term agreement with



Students engaging in the multimedia course display.

the City of Beaufort to help bring the Cybersecurity program to the Beaufort Campus by providing a ready-built home. Known to long-term residents as the “Boys and Girls Club,” the building was most recently the home of the Bridges Preparatory Academy. The building is a solid brick structure with ample off-street parking that spans a city block between Boundary and Congress streets.

Student Seminar presentation



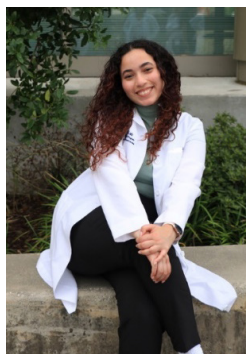
Front row (L-R) Ms. Savannah Reid, Ms. Joanna Boney. Back row (L-R): Ms. Abby Rogers, Ms. Denia Lopez, Ms. Sabrina Jones

As has become a tradition for several semesters, the last session of the seminar series is focused on student research efforts in a joint presentation of student research projects. In December, five student research projects were featured. Ms. Savannah Reid discussed her project on the effectiveness of different methods of brain tissue preparations for analysis. Ms. Joanna Boney highlighted her analysis of historical aerial photography data integration with LiDAR maps using GIS software to understand coastal changes to barrier islands since the late 1930s. The county has LiDAR (Light Detection and Ranging) map data collected several times in the last 20+ years that uses light pulses to map terrain in a system analogous to radar used to detect weather and aircraft.

Ms. Abby Rogers reported on her findings on flatworm (planarian) regeneration from her research. Flatworms can regenerate nearly infinitely and are a model system for gene regulatory networks in the laboratory. Ms. Sabrina Jones demonstrated histological methods on embryo staining to understand chicken embryo development. Lastly, Ms. Denia Lopez presented the results of her summer research experience at Mote Marine Laboratory in Florida. Congratulations to all student presenters!

STUDENT NEWS

Ms. Melfry Gonzalez



Melfry Gonzalez came to USCB to pursue a Biomedical Sciences concentration in the Biology degree program with high hopes to go to medical school. Having grown up in Santo Domingo, Dominican Republic, Ms. Gonzalez moved to New York with her family at age 14 to gain access to better educational opportunities. The family relocated to Bluffton, S.C., where she completed high school and enrolled at USCB for the first time. Her hard work got her accepted into the Beaufort College Honors program.

She was one of the first students to join a recently created mentorship program at USC Greenville Medical School called Pre-med Partners Pathway (PPP).

The PPP was created to professionally develop non-traditional applicants for submitting a competitive medical school application. Melfry Gonzalez was the first participant in the program from USCB and state-wide to gain acceptance to Medical School in Greenville. She will start this summer.

"Oh, my gosh. My family is still in disbelief! I'm the first in my family to graduate from college, and no one was sure that I'd get into Med

School!" exclaimed Ms. Gonzalez as she came by to thank her faculty mentors. Ms. Gonzalez is not only in Beaufort College Honors, but she is also President of the student Pre-Professional Association and has worked extensively with Volunteers in Medicine, translating for non-English speakers seeking medical attention. Congratulations to you, Melfry, we know that you'll make us proud!

Jicayla Johnson-Rosemond



Jicayla Johnson-Rosemond was accepted into the Ph.D. Program at the University of Alabama's Dauphin Island Sea Lab in the lab of Kenneth D. Hoadley. She graduated in the spring of 2021 and was a lab assistant to Dr. Mercer Brugler. She was recognized during the on-line POSea international

conference for giving a presentation entitled, "Bioinformatically mining next-gen capture libraries for black coral mitogenomes." She won the Best Presentation Award in the 5-minute lightning talk category. Ms. Johnson-Rosemond started her program last fall. We look forward to having her back for a USCB seminar on her new research focused on phytoplankton and feeding selectivity of oysters and corals!

Recent publications from the SCHOOL of SCIENCE and MATHEMATICS:

PUBLICATIONS:

Monczak A, McKinney B, Soueidan J, Marian A, Seder A, May E, Morgenstern T, Roumillat W, **Montie EW**. (2022). Sciaenid courtship sounds correlate with juvenile appearance and abundance in the May River, South Carolina, USA. *Marine Ecology Progress Series*, 693:1-17 (FEATURE ARTICLE). <https://www.int-res.com/abstracts/meps/v693/p1-17/>

Newton, AL, **Ritchie, KB**. (2022) Book Chapter In: Biology of Sharks & Their Relatives, CRC Press, Third Edition. Chapter 14: Elasmobranch Health, Pathology and the Host Microbiome. Pp 421-486.

Li, Y., Altamia, MA, Shipway, JR, **Brugler, MR**, Bernardino, AF, de Brito, TL, Lin, Z, da Silva Oliveira, FA, Sumida, P, Smith, CR, Trindade-Silva, A (2022) Contrasting Modes of Mitochondrial Genome Evolution in Sister Taxa of Wood-Eating Marine Bivalves (Teredinidae and Xylophagaidae). *Genome Biology and Evolution*, 14(6), p.evac089.

Opresko, DM, Stewart, R, Voza, T, Tracey, DI, **Brugler, MR** (2022) New genus and species of black coral from the SW Pacific and Antarctica (Cnidaria: Anthozoa: Antipatharia: Schizopathidae). *Zootaxa*, 5169(1), pp.31-48.

Burns, JA, Gruber, DF, Gaffney, JP, Sparks, JS, **Brugler, MR** (2022). Transcriptomics of a Greenlandic Snailfish Reveals Exceptionally High Expression of Antifreeze Protein Transcripts. *Evolutionary Bioinformatics*, 18, p.11769343221118347.

FUNDING:

Mix Family Research Endowment for USCB Marine Biology Concentration. \$50,000. For summer internships for USCB marine biology students.

Montie, E. Second year (\$100,000) NOAA Integrated Ocean Observing System (IOOS) / Southeast Coastal Ocean Observing Regional Association (SECOORA) for the project entitled, "The Estuarine Soundscape Observatory Network in

the Southeast (ESONS)". <https://secoora.org/marine-life/>

Montie, E. sub award (\$206,861) from the University of North Carolina Wilmington for the project entitled, "Testing a Novel Strategy to Measure Underwater Radiated Noise of Vessels in Shallow Coastal Oceans" funded by the Maritime Administration, U.S. Department of Transportation in the amount of \$431,235. <https://www.maritime.dot.gov/>

Pettay, DT (2022 - 2023) Establishing a Continuous Environmental Monitoring Station for the Chesapeake River in the Port Royal Sound Estuary - Port Royal Sound Foundation - \$10,000

Pettay, DT (2022 - 2023 renewal) Bacterial Source Tracking in the May River - Town of Bluffton (\$50,000)

PRESENTATIONS AND OUTREACH:

Brugler, M, Pettay, DT, Staton, JL, Alvarez, B. 2022 Beaufort Shrimp Festival; Saturday, October 8 from 11am-4pm at the Henry C. Chambers Waterfront Park

Brugler, M. Presentation to America's Boating Club of Beaufort (Beaufort Sail and Power Squadron); Tuesday, December 13 at 6pm at Gilligan's Seafood Restaurant

Montie, E. "The Estuarine Soundscape Observatory Network in the Southeast (ESONS)", to the annual Southeast Coastal Ocean Observing Regional Association (SECOORA) meeting. June 6th, 2022. <https://secoora.org/marine-life/>

Montie, E. "Bottlenose Dolphin Monitoring in the Port Royal Sound Area - Establishing a Flagship Program for the Port Royal Sound Foundation (PRSF)", to PRSF Board of Trustees. February 11th, 2022. <https://portroyalsoundfoundation.org/research-projects/>