

Message from the Chairs:

Spring is upon us and already it's obvious that Science, Computer Science and Math are having a banner year! With record recruitment last fall at USCB, we also had our largest winter graduation ever with 20 students across the STEM disciplines marching on December 14, our second winter graduation ever. Although applications for fall 2025 are roughly equal in number to those of last year, we have a 12.5% increase in deposits for the coming fall semester from interested new students.

Dr. Brian Canada,
Chair of Computer Science and Mathematics

Dr. Mercer Brugler,
Chair of Natural Sciences

The New Statewide INBRE Grant Recommended for Funding, and USCB is a New Member!

USCB answered a call for proposals to be included in the statewide IDeA Network of Biomedical Research Excellence (INBRE) that will fund faculty and student researchers for the next six years. INBRE will offer opportunities for network participants to compete and collaborate on other research projects as well. INBRE is funded by the National Institutes of Health in Washington, DC; it's been available to participating states since its formation in 1993. The new grant will fund not only faculty summer research, but also multiple student researchers year-round. In addition, it

SCINBRE

South Carolina IDeA Networks of Biomedical Research Excellence

makes available a small pool of money to renovate research space to enhance current research projects. USCB's proposal bridges biomedical and molecular marine biology projects in a focused effort we call US"Sea"Biomed: Marine Biomedical Research @ USCB. Initially proposed as a five-year

program, the network was approved for six years of funding, bringing nearly \$550K in funds to USCB over the entire cycle of the grant. As a bonus, USCB was awarded an additional \$65K to renovate lab space in the Marine Sciences building to add walk-in refrigeration and other amenities.

STEAM Artists Present Curated Show and Visit Pritchards Island with USCB Students



L to R: Dr. Kim Ritchie (Pritchards Research Director), April Flanders, and Eveline Kolijn on a brisk day trip.

Eveline Kolijn is a printmaker and installation artist living and working in Calgary, Alberta. Growing up in the Caribbean, she witnessed the gradual demise of the coral reefs of her youth. Ms. Kolijn, with both an MA—Cultural Anthropology, Leiden University, Netherlands; and BFA—Alberta College of Art+Design, strongly believes that the arts should inform society. She wants to share her passion about these environmental changes through learning environments and community engagement. April Flanders is a studio artist living and making art in the mountains of western North Carolina. She is a professor

of studio art at Appalachian State University in Boone, N.C. A keen naturalist, her work features marine-invading species to educate and inform the observer about the arrival of introduced species—whether they come directly via human transport or through changes in currents and climate.

While here, they accompanied USCB studio art and science students on a chilly weekend trip to Pritchards Island (23 February), to both inspire the art students with the pristine beauty of a barrier island, and to partner them with other students in the sciences.



Collaborative Drama on the Barriers to Success

Dr. Morgin Jones Williams, Mathematics, and Ms. Libby Ricardo, Theater and Fine Arts, have collaborated on a dramatic reading focusing on the barriers faced by women of color in STEM graduate fields. This First Public Workshop by USCB Theater, the reading of “Audacious Minds,” is a collaboration with information gathered by Dr. Jones Williams as part of her Ph.D. research on the lives of women of color who became mathematicians while overcoming racial barriers existing from the past century to the present. Student actors presented the reading December 3rd in the Hargray Building lobby to a small but attentive audience. The student actors included Markayla Miller (Biology), Tyler Thompson (Hospitality), Taylor Brown (Psychology), Traliya Mitchell (Psychology/IDST), and Jalia Fields (Psychology).



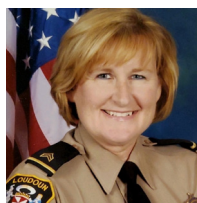
Dr. Morgin Jones Williams speaking with attendees of the performance



Left to right— Markayla Miller, Tyler Thompson, Taylor Brown, Traliya Mitchell, and Jalia Fields.

USCB Partners with Smithsonian's Ocean Traveler Program

Dr. Mercer Brugler and students in the Marine Biology program are busy doing regular surveys of plastic debris that washes up on Pritchards Island as part of a global program affiliated with the Smithsonian Institution's *Ocean Traveler* Program. Before the modern era, small organisms would attach to driftwood, floating coconuts, hulls of great masted ships or even large marine animals to often travel great distances. These “epibionts” now ride on non-biodegradable plastics that unfortunately are found to some extent nearly worldwide from the Arctic to the Antarctic and from Pacific atolls to the Marianas Trench. By collecting these waste items and their “passengers,” the program is compiling a catalogue of species to track the numbers of new invaders in the modern era.



Lynette Wyant

the ocean longer and travel farther. It is even possible for the epibionts on marine litter to travel to new continents and potentially become invasive species. This project aims to better understand the origins, abundances, and identities of the epibionts that are traveling on marine litter in hopes of preserving and protecting local marine communities.”

The work at Pritchards Island was featured on the *Ocean Traveler* Instagram account which highlighted the leadership of Lynette Wyant, a retired sergeant from the Loudoun County, Virginia, Sheriff's Office.

She is now a nontraditional sophomore at USCB working on this and other projects with Dr. Brugler. Thus far, the team has catalogued the finding of *Amphibalanus amphitrite*, an invasive species, and a South Carolina native, *Chthamalus fragilis*, which is expanding its range toward New England.

From the Smithsonian's website: “On these pieces of marine litter, epibionts can be in

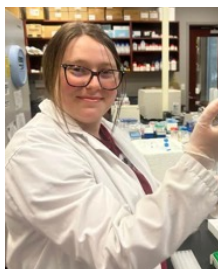
\$8M Renovation of the Sandstone Building in Beaufort



Architect's conception of new Sandstone Building after planned renovations. The taller structure in the historic Beaufort College building, which faces Carteret Street

The State Legislature approved monies to upgrade the Beaufort campus, particularly the Sandstone Building on Carteret Street in Beaufort. The original building was built in 1965, and it was last renovated 27 years ago. In recent years, the Sandstone Building was home to the Beaufort Campus Library, several classrooms, a computer lab and administrative offices for the Beaufort Campus. USCB now occupies the 1100 Boundary Street location (the former Boys and Girls Club facility for the City of Beaufort), which now serves Computational Sciences, ISAT and Cybersecurity programs, most recently the administrative offices have moved there. The latest plans for the Sandstone Building will completely renovate the library into a modern library/collaborative space and create 21st century Biology and Chemistry labs to better serve the ever-growing Marine Biology and honors Biology and the Nursing programs. The new design for the biology teaching lab will be a flex space that will allow for the area to be more useful in much differing teaching and research settings, especially during our summer research season. The new chemistry lab will also serve to have up-to-date appointments and 21st century equipment with shared prep space with biology to help alleviate the crowded and currently space-limited facilities.

STUDENT FOCUS – 2025 Spring Graduates



Lindsey Baker

Lindsey Baker will graduate from USCB with a B.S. in Biology in the spring of 2025. Lindsey worked in the D'Antonio Laboratory since her sophomore year, conducting colorimetric assays for biochemical detection, Chagas disease enzyme inhibitors, and the evolution of worm blood pigments that also detoxify marine sediments. Lindsey began a Ph.D.

program at USC-Columbia this fall working on the biodiversity and evolution of the intestinal microbiome.



Piper Davis

Piper Davis, a Biology major with a concentration in Coastal Ecology & Conservation, excelled in and out of the classroom. In 2022, she was awarded a Department of Energy (DOE) Internship to work at the Savannah River. For two summers, Piper worked with

Dr. Daniel Kaplan on microbial biogeochemistry and assisted Dr. Mercer Brugler on oyster reef diversity research using eDNA. She served as President of the USCB Student Ambassadors and as a Resident Assistant. This summer, Piper will continue working with Dr. Kim Ritchie as a Pritchards Island intern monitoring sea turtle nesting. Last fall, Piper enrolled at Georgia Southern University to pursue a master's degree in biology with Dr. John Carroll. She is focusing on oyster reefs along the east coast.



Garrett Willford

Garrett Willford will graduate from USCB with a B.S. in Biology this spring. Garrett spearheaded a project in Dr. Eric Montie's lab studying the synchrony and seasonality of sound-producing estuarine fish. The student presentation on his research won first place in his division at the statewide DiscoverSC conference at USC-Columbia. Garrett

will begin work on his master's degree this fall at the Grice Marine Lab at the College of Charleston.

STUDENT FOCUS – Past Graduates

"where are they now?"

Three former alumni participated in our spring semester seminar series, reaching out to our current students to tell them about their individual paths to success and to field their questions about how they might follow in their successful footsteps.



Denia Y. Lopez

Denia Y. Lopez, a 2023 graduate of USCB. Denia is enrolled in Columbia University's prestigious INSPIRE Bridge-to-PhD Scholars Program, based at Columbia's Lamont-Doherty Earth Observatory (LDEO) in New York City. It is designed to bridge the gap between undergraduate studies and

doctoral programs. The INSPIRE program includes a salaried research position, professional development workshops, funding for conference and educational expenses, and guidance in preparing for graduate school.

research focuses on phytoplankton and the feeding selectivity of oysters and corals.



Sam Messinides

Sam Messinides, a USCB alumnus, pursuing a Ph.D. at Arkansas State University with Dr. Kyle Gustafson. Sam studies the effects of trematode parasites on their host populations and community dynamics funded by the National Science Foundation.



Jicayla Johnson-Rosemond

Jicayla Johnson-Rosemond, a USCB alumna pursuing a Ph.D. at the University of Alabama's Dauphin Island Sea Lab with Kenneth D Hoadley. Jicayla conducted research on a wide range of topics from bat roosting habits to dolphin bioacoustics. Her current

Publications, Grants and Presentations: SCHOOL of SCIENCE and MATHEMATICS

PUBLICATIONS:

Carey, S.M.; O'Neill, D.M.; Conner, G.B.; Sherman, J.; Rodriguez, A.; D'Antonio, E.L.* (2024) Discovery of Strong 3-Nitro-2-phenyl-2H-chromene Analogues as Antitrypanosomal Agents and Inhibitors of *Trypanosoma cruzi* Glucokinase. *Int. J. Mol. Sci.*, 25, 4319. <https://www.mdpi.com/1422-0067/25/8/4319>.

Cruz BA, Cappelmann A, Chutjian H, Roman JC, Reid MA, Wright J, Gonzalez AD, Keyman T, Griffith KM, Appiah-Madson HJ, Distel DL, Hayes VE, Drewery J, Pettay DT, Staton JL, Brugler MR. Complete mitochondrial genomes of the black corals *Alternatipathes mirabilis* Opresko & Molodtsova, 2021 and *Parantipathes larix* (Esper, 1788) (Cnidaria, Anthozoa, Hexacorallia, Antipatharia, Schizopathidae). *Zookeys*. 2024 Mar 22;1196:79-93. doi: 10.3897/zookeys.1196.116837. PMID: 38560095; PMCID: PMC10980879

Cunningham, SW, Tessler, M, Johnson-Rosemond, J, Whittaker, IS, Brugler, MR (2024). Environmental DNA Isolation, Validation, and Preservation Methods. In: DeSalle, R. (eds) DNA Barcoding. Methods in Molecular Biology, vol 2744. Humana, New York, NY. https://doi.org/10.1007/978-1-0716-3581-0_10

Husted, A.L.; Sutton, V.R.; Presnar, L.A.; Blackburn, R.K.; Staton, J.L.; Borgianini, S.A.; E.L.* (2024) The Multifunctional Catalytic Hemoglobin from *Amphitrite ornata*: Protocols on Isolation, Taxonomic Identification, Protein Extraction, Purification, and Characterization. *Methods Protoc.* 7, 100. <https://doi.org/10.3390/mps7060100>.

Jett, C. C., & Jones Williams, M. (2025). Facilitating Black Students' Career Development in the Mathematical Sciences: A Closer Look at Two HBCUs. *PRIMUS*, 35(2), 135–151. <https://doi.org/10.1080/10511970.2025.2456807>

Ji Y, Marian AD, Montie EW (2024) Deep- Learning-Based detection of recreational vessels in an estuarine soundscape in the May River, South Carolina, USA. *PLoS ONE* 19(7): e0302497. <https://doi.org/10.1371/journal.pone.0302497>

Lera-Lozano, D, JS Ruiz-Toquica, MW Holt, EK Jones, KB Ritchie M Medina, R.A Gonazalez-Pech (2024) The Potential of CCA-associated Bacteria to Fight Antimicrobial-Resistant Pathogens: a Genomic Survey. *bioRxiv* 2004.11.26.625565.

Pham, TM, Howard, MG, Carey, SM, Baker, LR, D'Antonio, EL (2024) Novel Tetrazolium-based Colorimetric Assay for Helicase nsp13 in SARS-CoV-2. *BioChem*, 4, 115-125. <https://www.mdpi.com/2673-6411/4/2/6>.

Pham, T.M.; Howard, M.G.; Carey, S.M.; Baker, L.R.; D'Antonio, E.L.* (2024) Novel Tetrazolium-based Colorimetric Assay for Helicase nsp13 in SARS-CoV-2. *BioChem*, 4, 115-125. <https://www.mdpi.com/2673-6411/4/2/6>.

PATENT APPLICATIONS:

D'Antonio, E. L. and Mercaldi, G. F. (2024) Método e Kit de Ensaio Colorimétrico para Determinar a Eficiência de um Candidato a Inibidor de Enzima. Filed with the Brazilian Patent Office.

D'Antonio, E.L.; Mercaldi, G.F. (2024) Tetrazolium-Based Colorimetric Assay. US Patent App. 18/601,112. <https://patents.google.com/patent/US20240310288A1/en>.

GRANTS:

SC INBRE grant application IDEa Network -- ~\$550,000 (over six years starting summer 2025)

NOAA IOOS/SECOORA IRA Grant Awarded: (\$495,000). "Inflation Reduction Act: Sharing Passive Acoustic Monitoring Data from the Estuarine Soundscape Observatory Network in the Southeast (ESONS) with the IOOS Association". PI – Eric Montie.

2023/2024 Pritchards Island Research Grant (\$10,000.00). "Marine Worms *Amphitrite ornata* and *Lepidasthenia commensalis*: Investigation of the Relationship Between Chemical Ecology and Commensalism. Awarded to PI Prof. Edward L. D'Antonio.

2024 Sea Islands Institute Grant (\$5,000.00). "Rapid Wound Healing Observed in the Great White Shark: Identification and Molecular Characterization of a Key Antibiotic Produced from a Symbiotic Bacterium." Awarded to PI Prof. Edward L. D'Antonio and Co-PI Dr. Kimberly B. Ritchie.

Port Royal Sound Foundation (2025): (\$15,000). "Bottlenose Dolphin Monitoring in the Port Royal Sound Area (PRSA)". PI – Eric Montie.

7. Pritchard's Island Initiative (2025): (\$15,000). "Expanding Bottlenose Dolphin Monitoring to the Tidal Creeks and Inlets of Pritchards Island". PI – Eric Montie.

NOAA IOOS/SECOORA Bipartisan Infrastructure Law (BIL) Funding (2025-2028). (Total subaward \$70,000). "Infrastructure Needs for the Estuarine Soundscape Observatory Network in the Southeast (ESONS)". PI – Eric Montie (USCB).

SC Sea Grant (\$160,000) - "Determining bacteria and turbidity sources to inform management and outreach across the Edisto Island Watershed", 2024 to 2026, DT Pettay is co-PI, Lead PI and co-PI are Clemson University Baruch Institute collaborators. (First USCB funding from Sea Grant)

Spring Island (\$10,000) - "Understanding nutrient cycling and its influence on phytoplankton abundance in the PRS"-- DT Pettay PI

PRESENTATIONS:

Invited Speaker: Tye Pettay; "Development of New Markers to Track Fecal Contamination in the May River", Town of Bluffton, Bluffton, SC (Fall 2024).

Invited Speaker: Tye Pettay; "Summertime and the Living is Easy: Summer Science Experience in Beaufort", USCB, Bluffton, SC (Fall 2024).

Invited Speaker: Loren Quintana (Andy Jones, Dan Morgan, Ian deNeeve Tye Pettay); "Mapping Shoreline Change & Prescribed Burns Using ArcGIS", USCB, Bluffton, SC (Fall 2024).

South Carolina Water Resources Conference: Sumner B, Scaroni AE, Whitmire S, Pettay DT, Anderson JT; "Impaired waters: Exploring bacteria and turbidity challenges across the Edisto Island Watershed", Columbia, SC (Fall 2024, Poster).