

## Message from the Chairs:

It is an exciting fall upcoming for USCB. We have the largest cohort of freshmen arriving on our campuses, and we are looking forward to a busy and productive fall semester. This fall will be the beginning of many firsts for USCB. We have the largest number of students ever at the university, exceeding growth projections for the first time since the pandemic. All four dorms at the Beaufort Campus are open for the first time, and they are all full. We have one of the largest honors cohorts in Biology for the first time, the majority of whom are coming with a focus on marine biology. Our biology majors in all programs number nearly 300 students this fall for only the second time in the school's history, an increase of nearly 23 percent over last year's numbers. Bluffton campus dorms at the are overfull, and a few students are sharing space in some dorms. It's no wonder they're popular; their design and amenities earned USCB accolades ranking us #11 nationwide in housing by [@nichesocial](#), the only South Carolina school to make the list.

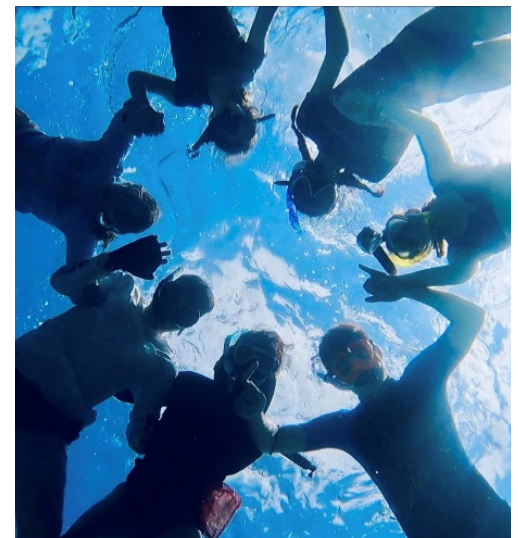
Brian Canada,  
*Chair of Computer Science and Mathematics*

Joe Staton,  
*Outgoing Chair of Natural Sciences*

## USCB Biology Holds First Study Abroad Course in the Bahamas



In May, USCB Faculty led our inaugural study abroad trip to San Salvador, Bahamas. A small group of USCB and Furman University students, accompanied by Drs. Kimberly Ritchie and Joe Staton, participated in "The Natural History of the Bahamas," a course that covered the physical marine geology, biogeography, biotic diversity, and cultural anthropology of the Bahamas. Several lectures and pre-course meetings were presented as an online hybrid before leaving, and we spent 11 days at the Gerace Research Institute in San Salvador as we explored the diverse island habitats. The students created final reports and presentations on their field work. Two students minoring in Communications developed and filmed a documentary about the region and the founding of the Gerace Research Institute, highlighted by an interview with Mrs. Kathy Gerace, widow of the Institute's founder Dr. Donald T Gerace. The two students are currently working with Dr. Caroline Sawyer in the Communications program. She joined us in the Bahamas to photo-document the trip.



# Morgin Jones Williams Named Academic Advisor of the Year for USCB



Dr. Morgin Jones Williams was honored this spring by being named Advisor of the Year at USCB—which is quite a feat for an Assistant Professor of Mathematics! Dr. Jones Williams teaches a wide array of courses at USCB from College Algebra to Calculus. A graduate of Spelman College,

she earned a master's degree at Hampton University (recently featured in the book/film "Hidden Figures") and completed her Ph.D. at Georgia State University. Her interests are broad. She's working on a play with fellow faculty member Libby Ricardo that draws attention to the issues young women of color face and overcome to succeed in the field of Mathematics. Her passion for teaching math is infectious. She has inspired more than one student to excel in her courses. Congratulations, Dr. Morgin Jones Williams!

## Mercer R. Brugler Named New Head of Natural Sciences

Professor Mercer R. Brugler was appointed Chair of Natural Sciences at the end of the former chair's (Joe Staton) three-year term. Since his arrival four years ago, Dr. Brugler has been a leader in developing student research scholars and has helped to build the prominence and popularity of the young Marine Biology Program at USCB. Even with his active research and numerous extracurricular commitments, Dr. Brugler has served as a dedicated recruiter for the Marine Biology Program and the unofficial ambassador of the Beaufort Campus. He frequently interrupts work in his research lab to give impromptu tours to families that stop at the campus on their way to Fripp Island or some other local destination. We look forward to his strong, visionary leadership. We know he can take the department to the next level. Congratulations, Dr. Mercer Brugler!



## Student Research and Scholarship Day 2024

USCB held its annual Student Research and Scholarship Day (SRSD) <http://researchday.uscb.edu> April 14. The day highlights student research campuswide over the last year. Several students in the Biology Program won honors in multiple categories:

### Hypothesis-driven research:

"Investigating the Potential Factors of Identifying Novel Sources of Antibiotics from White Sharks" by Matthew Holt, Elizabeth Jones, Danielle Freedman, Anabella Platt, Diego Gil (postdoc), Daniel Conrad (alum), Emily Chamblee, Rohan Preis, Suchir Shetty, Jenna McCarty and Lauryn Carrington – First Place

"Understanding the Multifaceted Threats to *Opuntia* spp. Survival in Dune Ecosystems" by Jenna McCarty – Second Place

### Issue-based research:

"Listening to Vessel Noise – Have Recreational Boats Increased in the May River Estuary Over the Last 10 Years?" by Warren McClellan, Michael Martello, Alyssa Marian (technician), Katherine Doyle, Lily Blake, Garrett Willford, Jessica Miller, Hayden Greenwalt, Joseph Ballenger and Brock Renkas – First Place

### Descriptive research:

"Characterization of the Phytoplankton Community in The Port Royal Sound Estuary" by Lauren Kippes, Zinia Hambleton and Lauryn Carrington.

*Congratulations to all who participated!*

# USC DISCOVER SPRING 2024

Several of the students and faculty who participated in SRSD at USCB took their “show on the road” and attended research day at the USC Columbia campus later that same week.

**BIOLOGY AND ENVIRONMENTAL SCIENCES C – First Place – The death of *Opuntia* spp. in the dunes, a multifaceted front from habitat degradation and erosion to the invasive moth *Cactoblastis cactorum*.**

Jenna McCarty, Biology (major) – Senior; Dr. Steve Borgianini, Department of Natural Sciences; USCB

**BIOLOGY AND ENVIRONMENTAL SCIENCES D – First Place – Early-Stage Therapeutic Drug Discovery of Chagas’ Disease: Investigation of Gossypol-based Inhibitors of *Trypanosoma cruzi* Glucokinase.**

Destiny O’Neill, Biology (major) – Junior; Carson Frey, Biology (major) – Senior; Dr. Edward D’Antonio, Department of Natural Sciences; USCB

**ARTS, HUMANITIES, AND SOCIAL SCIENCES EE – Second Place – Implementing Stereolithography in Figurative Ceramic Sculpture.**

Tatiana Zalapskaia, Studio Art (major) – Senior; Prof. James Sidletsky, Department of Visual Art & Design; USCB

**BIOLOGY AND ENVIRONMENTAL SCIENCES AA – Second Place – Bottlenose Dolphin Surveys in the Port Royal Sound Area (PRSA), South Carolina Indicate the Existence of Resident and Migratory Populations.**

Isabella DuBois, Biology (major) - Junior; Dr. Eric Montie, Ms. Alyssa Marian, Department of Natural Sciences; USCB

**BIOLOGY AND ENVIRONMENTAL SCIENCES CC – First Place – Temporal Synchrony in Courtship Behavior of Sound-Producing Fish Across Estuaries in South Carolina.**

Garrett Willford, Biology (major) – Junior; Dr. Eric Montie; Ms. Alyssa Marian, Department of Natural Sciences; USCB

**HEALTH SCIENCES EE – Second Place – Assessing Dollar Store Food Environments in Alignment to Nutrition Support Programs in the Lowcountry.**

Kari Hill, Public Health (major) – Senior; Dr. Hadis Elyaderani, Dept. of Public Health and Human Services; USCB

Congratulations to all who went!



Front row (L to R): Dr. Ed D’Antonio, Dr. Steve Borgianini, Mr. Warren McClellan, Ms. Jenna McCarty, Ms. Jessica Miller, Ms. Aubrey Boswell, Ms. Andrea Santibanez, Ms. Destiny O’Neill, Dr. Carmen Farrell, Ms. Kalli Harden Back Row: Mr. Tucker Czech, Hayden Greenwalt, Mr. Garrett Willford, Dr. Eric Montie, Ms. Lindsey Baker, Ms. Lily Blake, Mrs. Carson Frey, Ms. Kari Hill, Dr. Richard Osbaldiston.

# USCB Kicks off a New Era of Loggerhead Nest Monitoring and Research

USCB began a new era of surveying loggerhead sea turtle (*Caretta caretta*) nests on Pritchards Island recently. Bolstered by new funding for research on Pritchards Island from the State of South Carolina, Dr. Kim Ritchie was able to assemble a group of student interns and local volunteers into a dedicated team to conduct daily surveys, actively monitor loggerhead sea turtle beach crawls by females, and to regularly check on the success of their nests. When nests are created below the high-tide range, the team would dig up and relocate them to protected/higher ground, carefully maintaining each egg's orientation as it was moved to the new location. As part of the study, the team monitored temperatures at nests and developed several hypotheses about nest health. The team has plans now to develop experiments for next summer to examine aspects impacting nest health and predator behaviors. Pritchards Island turtles are lucky in that the island has a raccoon-management program that limits one of the major nest predators on sea turtle nests.



*L to R: Matthew Holt, Jenna McCarty, Addison Crump, Dr. Kim Ritchie and Kathy Haught (volunteer)*



*Taylor DeSilva and Addison Crump inspecting a turtle nest for hatched eggs.*

# Cybersecurity Project Hopes for \$160 Million Grant Success

*A USCB-led cybersecurity project is in review for a \$160 million grant from the National Science Foundation.*



The team of public and private partners was previously awarded a \$1 million planning grant from NSF in May 2023, which is the first step in securing the current request. The team is now seeking a full NSF Regional Innovation Engine award of up to \$160 million over 10 years.

The grant would establish and grow the region's maritime cybersecurity network by addressing maritime transportation system cybersecurity issues with regional, state and even national impact. The project will identify and develop viable maritime cybersecurity technology to sustainable economic growth of regional ports, which is a key priority for the workforce development in the region. In anticipation of securing the grant, the Maritime Cybersecurity Institute – a 501(c)(3) tax-exempt organization – was established in Beaufort, South Carolina. The MCSI is engaging with the South Carolina Ports Authority and the Georgia Ports Authority to better understand the needs of the industry and its extensive ecosystem.

One of the early actions of the USCB Development Engine was the establishment of the Maritime Cybersecurity Institute, based in Beaufort. Earlier this year, the Institute secured 501(c)(3) tax-exempt status from the IRS, and then, in a significant show of support from the state, the South Carolina legislature included \$1 million in its FY2024 budget for maritime cybersecurity.



# Kenneth Brandt, Adjunct in Astronomy for USCB, Named Fellow of the International Planetarium Society



Kenneth Brandt has been named a Fellow of the International Planetarium Society (IPS). He is the Director of the Robeson Planetarium

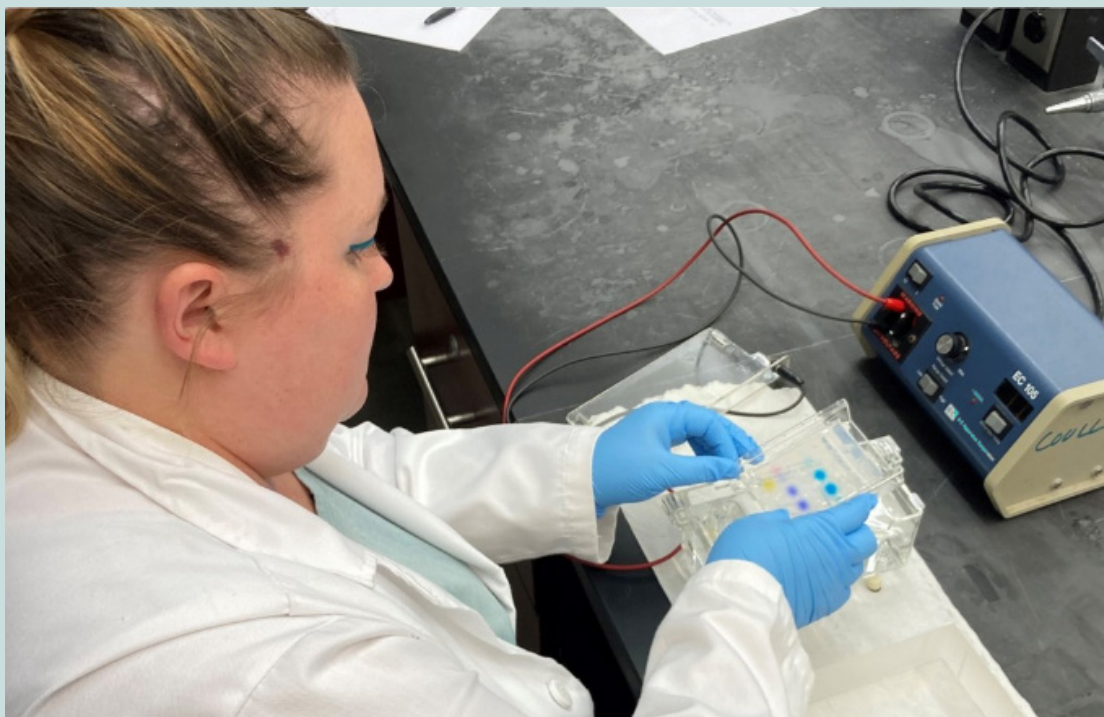
in Lumberton, N.C., where more than 10,000 students and teachers each year attend his presentations. For the last four years, Brandt has taught online Astronomy courses at USCB that are well-subscribed by USCB students. This honor is one of the highest that can be given to a planetarian. To become an IPS Fellow, a candidate must be a member in good standing in IPS for at least five years and make substantial contributions in at least two of the following respects:

Service the society; have relevant and significant publications and/or conference presentations; cooperate with professional societies, organizations and groups which bring attention to the importance of planetariums' existence; or develop new methods in the field. We are proud to count Ken Brandt as a valued faculty member serving our students!

*Congratulations, Ken Brandt!*

## STUDENT FOCUS **Anna L. Husted**

Ms. Anna L. Husted graduated USCB with a B.S. in Biology and a minor in Chemistry in the Spring of 2024. She worked in the D'Antonio Laboratory since January of 2023 on benthic marine worm research. She developed a set of protocols to identify the sea worm *Amphitrite ornata* by molecular taxonomy using DNA barcoding and confirm enzyme activity of the worm's hemoglobin from the coelom. Anna will be lead author on the upcoming paper entitled "The Multifunctional Catalytic Hemoglobin from *Amphitrite ornata*: Protocols on Isolation, Taxonomic Identification, Protein Extraction, Purification, and Kinetic Characterization." As a result of her hard work, Anna was recently accepted, and is now attending, Clemson University for graduate school. She is pursuing her M.S. in Studies in Biochemistry and Molecular Biology.



# USCB Biologists Partner with Other Agencies in new Terrapin Survey in Beaufort County



Jake Zadik, John Alexander, Ty Tobias, and Katalaya Brandenburg search for terrapins during the survey. Courtney Kimmel/Port Royal Sound Foundation

A small turtle that lives in the salt marsh recently drove scientists from the University of South Carolina Beaufort, the Port Royal Sound Foundation and other institutions above their waist in pluff mud.

On August 2, 20 volunteers conducted the first terrapin survey in Beaufort County, using seine nets to catch seven terrapins (four males and three females, all adults) in two hours. The group photographed the animals and then weighed, measured and notched the shell of each before releasing them. In future surveys, unique shell notches will identify previously caught individuals.

The turtle trackers included USCB marine biologist Tye Pettay and several of his students, a graduate student from Clemson University, and staff from the Port Royal Sound Foundation, Lowcountry Ecological LLC, Coastal Expeditions, and Fripp Island. Their survey site was Wards



Creek, near Coastal Expeditions' headquarters on St. Helena Island.

The exercise was a trial run that participants hope will become a long-term Diamondback Terrapin (*Malaclemys terrapin*) monitoring project.

"The Marine Biology Program is planning for this monitoring to be a biannual event," Pettay said. "Terrapins are long-lived animals so we should see the same terrapins year after year. Additional terrapin surveys could include pristine Pritchards Island, which is owned by USCB.

"We are hoping to replicate this out at Pritchards Island and potential other sites in the Port Royal Sound ecosystem," said Chris Keher, science program manager at the Port Royal Sound Foundation and a graduate of USCB. "It's an understudied animal and an animal that is susceptible to changes in its environment. It's an indicator species."

# Publications, Grants and Presentations: SCHOOL of SCIENCE and MATHEMATICS

## PUBLICATIONS:

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 *Alternipathes 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](https://doi.org/10.1007/978-1-0716-3581-0_10)

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>

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>.

## GRANTS:

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.

2024 RISE Grant (\$6,000.00). "Mapping Spawning Aggregations of Sciaenid Species in the May River Estuary Using Passive Acoustics, Molecular Taxonomy, and Quantitative PCR." Awarded to PIs Prof. Edward L. D'Antonio and Dr. Eric W. Montie.

NOAA IOOS/SECOORA Inflation Reduction Act (IRA) (2024 – 2029). (Total subaward \$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.

NOAA IOOS/SECOORA Core Funding (2024-2025). (Total subaward \$20,370). "Estuarine Soundscape Observatory Network in the Southeast". PI – Eric Montie (USCB). Collaborator – Joseph Ballenger (SCDNR).

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:

D'Antonio, EL (2024) "Exploration of 3-Nitro-2-Phenyl-2H-Chromene Analogues for Potent Antitrypanosomal Activity" The Center for Tropical & Emerging Global Diseases; 33rd Annual Molecular Parasitology & Vector Biology Symposium **Poster Presenter**. (University of Georgia; Athens, GA) on May 2024. (Additional Note: Undergraduate research students Anna L. Husted and Destiny M. O'Neill presented their posters at this conference).

D'Antonio, EL (2024) "Electrochemical Evaluation of *Amphitrite ornata* Dehaloperoxidase for the Development of Biosensor and Bioelectrocatalytic Applications" **Invited Speaker**. Fort Johnson Marine Science Seminar Series 29 January 2024 (SCDNR, MRRI, Charleston, SC).

D'Antonio, EL (2024) "Take a Walk on the Lab Side" Invited Speaker. 16 May 2024 (ISNTD Online, London, England). <https://www.isntd.org/isntd-connect>

Brandt, K (2024) Teaching Astronomy Online-How to Engage Students. International Planetarium Society: 7/25/24

Brandt, K (2024) Simple Kinesthetic Astronomy that You Can Do. Astronomical Society of the Pacific: 8/24/24