USCB
UNIVERSITY OF SOUTH CAROLINA BEAUFORT

USCB DEPARTMENT OF
SCIENCE & MATHEMATICS
NEWSLETTER

Vol. 7 • No. 2 — *The Official Newsletter of the USCB School of Science and Mathematics.* — FALL 2025/WINTER 2026

Message from the Chairs:

When fall semester was approaching, we were predicting a great turnout for the STEM fields as we had a 12% increase in freshman acceptances for the biology degree and similar deposits for Computational Science from last year. As the season continued, applications were similar to last year (Fall 2024) when we experienced a much greater final enrollment. We had record recruitment at USCB in all 2025 and ended up having nearly 300 students (new and returning) in the biology program, alone. We assume the early surge to be a sign that USCB is becoming many students' first choice as our enrollments/deposits are reaching large numbers earlier in the season. We had spring 2025 graduation with 53 students across the STEM disciplines walking on May 2nd. Combined with last winter graduates for a total of 73 STEM graduates for this academic year.

Dr. Mercer Brugler,
Chair of Natural Sciences

Dr. Brian Canada,
Chair of Computer Science and Mathematics

Dr. Ritchie to receive ICRS Eminence in Research Award

The International Coral Reef Society has chosen USCB Associate Professor Dr. Kim Ritchie as the recipient of their **2026 ICRS Eminence in Research Award** in recognition of excellence in research. The official presentation will occur during the 16th International Coral Reef Symposium in Auckland, New Zealand, in July 2026. The award names her as a fellow of the society. Dr. Ritchie did ground-breaking work throughout her career, as an undergraduate researcher reporting early accounts of coral bleaching in the Caribbean and essentially founded an entire subdiscipline of research examining the microbiota associated with marine animals and their effect on health of the associated organism.

Dr. Kim Ritchie

"Kim's research career has been marked by exceptional impact," said Dr. Mónica Medina, Professor of Organismal Biology at UCLA. "At a time when coral disease research largely focused on identifying pathogens in isolation, she introduced a transformative conceptual shift: corals must be understood as complex biological systems whose health is governed by dynamic microbial communities."

According to Medina, Ritchie was one of the first researchers to demonstrate that corals are protected by beneficial microbes that actively suppress disease. This breakthrough lay the foundation for what is now widely known as coral probiotics.

"This paradigm-shifting insight has since influenced countless studies and inspired novel, nature-based approaches to coral conservation and restoration," Medina said.

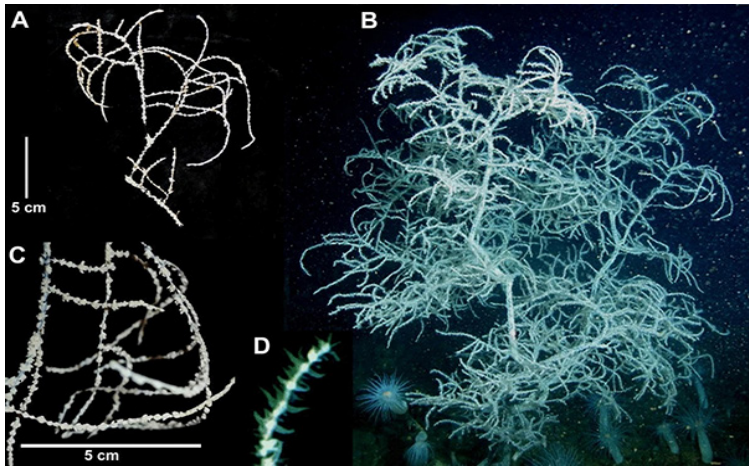
New Species of Deep Sea Coral Named for Dr. Mercer Brugler

Dr. Mercer R. Brugler

The species, *Leiopathes brugleri*, was recently described by scientists from the Smithsonian Institution's National Museum of Natural History and international collaborators as part of an effort to better understand the biodiversity of the deep Gulf of Mexico and Atlantic Ocean.

Dr. Mercer Brugler is Chair of USCB's Department of Natural Sciences and Professor of Marine Biology.

The new species was found on the continental slope and mound habitats from Texas to Florida and in the Azores between 244–488 meters depth. The coral forms impressive tree-like colonies (can exceed 2 m in width and height) that provide habitat for a wide variety of marine life and can live for at least 4,265 years, making them valuable indicators of ocean health.



Leiopathes brugleri

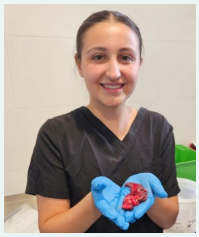
The living tissue is primarily white, but can also be red-to-orange in color. The discovery was published in the journal *Coral Reefs* on June 15, 2026.

Dr. Brugler's research has focused on the evolution and conservation of black corals for more than two decades.

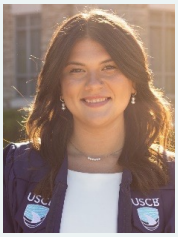
STUDENT SUCCESS NEWS

Hayden Dunning (Spring 2026) graduated from the Beaufort College Honors Program with a concentration in Marine Biology. Hayden was recognized as the biology undergraduate student of the year for the spring 2026 graduating class. Hayden was a student researcher with Dr. Eric Montie, and her research on the effects of engine noise on fish populations was recognized, campus-wide, at USCB Student Research and Scholarship Day, as well as system-wide at Discover USC 2026 in Columbia, SC. Hayden was recently awarded the 2026 Vembu Subramanian Ocean Scholars Award. Way to go, Hayden!

Lexie Castro (Spring 2026) finished in the Beaufort College Honors Program with a concentration in Biomedical Sciences. Lexi traveled to Poland to visit to the Poznań University of Medical Sciences for their summer program in 2025. She has been accepted into Furman University's Master of Science in Community Engaged Medicine program, which starts this June. Congratulations, Lexie!



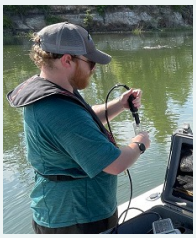
Eli Wright (Spring 2026) graduated from the Beaufort College Honors Program and was accepted into the University of South Carolina's School of Medicine for a Master in Arts in Counseling and Rehabilitation with a focus on Clinical Addiction Counseling. This program is CACREP accredited (Council for Accreditation of Counseling and Related Educational Programs). He will begin the program in Fall 2026. Way to go, Eli!



Sarah Bourne (Spring 2026) finished her degree with a concentration in Marine Biology. Sarah participated in the sea turtle inventory field seasons on Pritchards Island and participated in USCB's study abroad course Natural History of the Bahamas on San Salvador Island, Bahamas. Starting this May, Sarah will begin a position as a marine educator for Seacamp Association, a non-profit organization at Big Pine Key, Florida. Excellent news, Sarah!

Matty Holt (Spring 2026) received an offer from Iowa University to be an ICARE Post-Baccalaureate Fellow in the laboratory of Dr. Christina Cho in the Department of Internal Medicine Division of Hematology/Oncology. Congratulations, Matty!

STUDENT FOCUS – PAST GRADUATES



Patrick Jones (2025 graduate; USCB M.S. in Computational Science) was accepted into the Ph.D. Marine Science program at the University of South Carolina in Columbia. This is one of the nation's most competitive programs in the field. Jones will join the laboratory of Dr. Erin Meyer-Gutbrod, where his research will focus on acoustics of the critically endangered North Atlantic right whale. We look forward to more success for Patrick.

Loren Quintana has officially been accepted to the MS program at Coastal Carolina University. She will be pursuing her master's degree in Coastal Marine and Wetland Science at CCU with Dr. Matthew Grisnik. She will be investigating the fungal pathogen *Ophidiomyces ophiodiicola*, which is the causative agent of Snake Fungal Disease. She will focus on cottonmouths (Agkistrodon piscivorus) in the Lowcountry of South Carolina starting in fall 2026.

Lily Blake completed a South Carolina Aquarium (Sea Turtle Care Center) Internship for the Fall/Winter 2025 season and will be completing another summer internship at Mystic Aquarium (Animal Rescue Program) this coming summer (2026). Her hard work has resulted in her being accepted to the Veterinary Nursing Program at Michigan State University beginning in fall 2026. Congratulations, Lily!

Austin Carter (third from left) and David Barnes (third from right) in the fall class of 2025 at Tuskegee University.

David Barnes (USCB Biology 2018) and **Austin Carter** (USCB Biology 2025) both started in the veterinary program this past fall (2025) at Tuskegee University. David was our first intern at Nemour's Plantation and later earned his Master of Science in Animal Science at Tuskegee University in Alabama. Austin, a graduate of the Beaufort College Honors program, is following in his family's footsteps as both of his parents are graduates of the veterinary program at Tuskegee University.

Ashley Duggan (USCB Biology 2025) will start medical school at MUSC in fall of 2026 after graduating in the previous spring. Ashley was in the first cohort of students to travel to Poland for a visit to the Poznań University of Medical Sciences for their summer program in 2024 after her junior year. Congratulations, Ashley!

Caelan Sammy (USCB 2024) graduated as Biology Student of the Year and was also a standout on the USCB Men's Golf Team. Caelan was accepted to attend Michael G. DeGroote School of Medicine, the medical school of McMaster University in Hamilton, Ontario, Canada.

In 2021, the DeGroote School of Medicine ranked 11th in the world and was tied for second in Canada in the clinical and health category of the Times Higher Education World University Rankings. In 2012, the program at DeGroote School of Medicine ranked 14th in the world and 1st in Canada in medicine, according to the Times Higher Education Rankings. Outstanding achievement, Caelan!

Highlights of Student Research Presentations (2025/2026)

Our students involved in research are encouraged to present publicly their findings at a research conference. The USCB Student Research and Scholarship Day (SRSD) is held every spring during the last week of class as a venue for all programs at USCB to give a forum for students to present their findings in a professional setting. Some students also travel to Columbia, SC, for USC Discover, a similar system-wide event.

USCB Student Research and Scholarship Day (SRSD)

This year, multiple biology research students/groups presented their research at SRSD, and these STEM projects were recognized as "best in category" for each group.

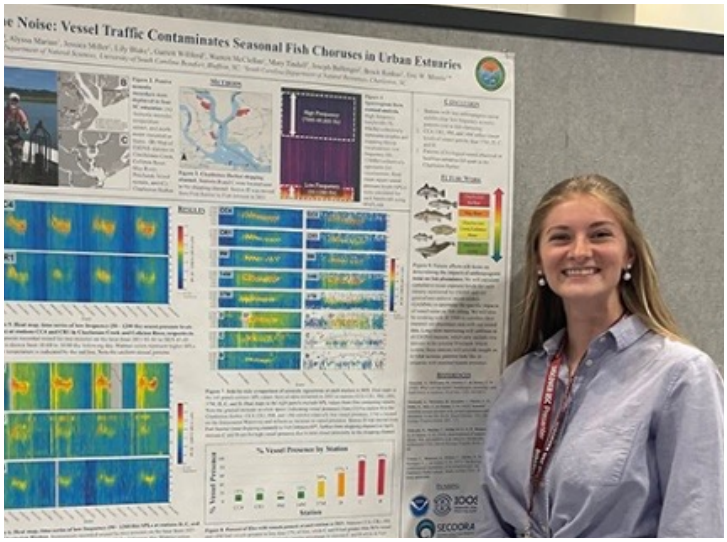
Ricard, Serria, and Eli Wright (Dr. Emily Webb, advisor). Sustainable mosquito control: novel techniques for reducing mosquito-borne disease risk while preserving environmental integrity sustainable mosquito control: novel techniques for reducing mosquito-borne disease risk while preserving environmental integrity. 1st place Group 1 Descriptive Research

Dunning, Hayden, Alyssa Marian, Jessica Miller, Lily Blake, Garrett Willford, Warren McClellen, Joseph Ballenger, and Brock Renkas (Dr. Eric Montie, advisor). Lost in the noise: vessel noise contaminates seasonal fish choruses in urban estuaries. 1st place Group 2 Descriptive Research

Reid, Mason, Gino Caccese, Matthew Grisnik (Dr. Ryan Hanscom, advisor). Effects of snake fungal disease on the spatial ecology of *Agkistrodon piscivorus*. 1st place Group 1 Hypothesis-driven Research

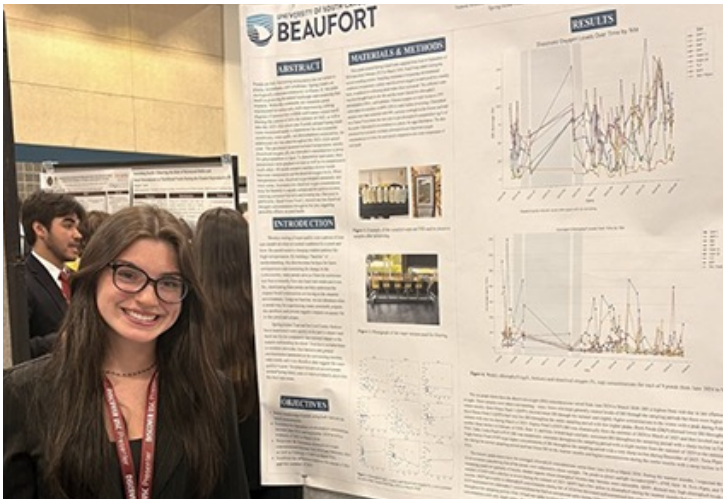
Umsted, Laney, Alyssa Marian, Jessica Miller, Hayden Dunning, Sarah Bourne, Lydia Norris, Timothy Sullivan, Aidan Potter (Dr. Eric Montie, advisor). The presence of skin conditions in Tamanend's bottlenose dolphins (*Tursiops erebennus*) in the May River, South Carolina from 2016 to 2025. 1st place Issue-based research

Discover USC 2026 (Columbia, SC)



Dunning, Hayden (Dr. Eric Montie, mentor). "Lost In the noise: vessel traffic contaminates seasonal fish choruses in urban estuaries." 1st place in Environmental Sciences (Session BB)

Discover is a USC system-wide research day taking place at the Columbia Campus at the end of the spring semester. Several of our biology student researchers presented there, and these projects were recognized as best in category group in the system-wide event.



Mullinax, Chloe (Dr. Tye Pettay, mentor). "Characterization of pond functioning on Spring Island." 2nd place in Environmental Sciences (Session A)

Also presenting at USC Discover (2026) from the Sciences:

Matheson J. Bray and Noah E. McCoy "Towards Drug-Target Validation of Trypanosoma cruzi Glucokinase: Alanine Scanning Mutagenesis for the Inhibitor Binding Affinity Assessment of Benzoyl Glucosamine" (Dr. Edward D'Antonio, mentor, Natural Sciences)

Daniel Scheer "SQL Injection Detection and Prevention in the Age of AI: A Review of Current Literature" (Dr. Ron Erdei, mentor. Computer Science & Mathematics)

Jude Roman "Characterizing the seasonal dynamics and diversity of the Sea Wasp and Cannonball Jellyfish with the Calibogue Sound" (Dr. Tye Pettay, mentor, Natural Sciences)

Serria Ricard and Eli Wright "Sustainable Mosquito Control: Novel Techniques for Reducing Mosquito-Borne Disease Risk While Preserving Environmental Integrity" (Dr. Emily Webb, mentor, Natural Sciences)

Lexie Castro and Sophia Stalford "Arbovirus Surveillance in South Carolina: Monitoring Mosquito Species Diversity and Viral Activity Using State-Level Data" (Dr. Emily Webb, mentor, Natural Sciences)

Ashley Perdomo and Mariel Baker "Eastern Equine Encephalitis Virus: Pathogenesis, Epidemiology, and Public Health Implications" (Dr. Emily Webb, mentor, Natural Sciences)

USCB undergraduates at USC Discover: (left to right) Ashley Perdomo, Mariel Baker, Eli Wright, Serria Ricard, Dr. Emily Webb (mentor, Natural Sciences) and Lexie Castro.

Publications, Grants and Presentations:

SCHOOL of SCIENCE and MATHEMATICS

PUBLICATIONS:

Flem S, Berns G, Inglis B, Niederhut D, **Montie E**, Deacon T, Miller KL, Tyack P, Cook PF. (2025) Lateralized cerebellar connectivity differentiates auditory pathways in echolocating and non-echolocating whales. Plos one. 6;20(6):e0323617. doi.org/10.1371/journal.pone.0323617

Goyzueta-Mamani LD, Pagliara Lage D, Barazorda-Ccahuana HL, Paco-Chipana M, Candia-Puma MA, Davila-Del-Carpio G, Galdino AS, Machado-de-Avila RA, Cordeiro Giunchetti R, **D'Antonio EL**, Ferraz Coelho EA. (2025) Exploring the potential of Malvidin and Echiodinin as probable Antileishmanial agents through in Silico analysis and in vitro efficacy. Molecules. 30(1):173.

Hao W, Han J, Baliński A, **Brugler MR**, Wang D, Wang X, Ruthensteiner B, Komiya T, Sun J, Yong Y, Song X. (2025) Unveiling the early evolution of black corals. Communications Biology. 8(1):579. https://doi.org/10.1038/s42003-025-08022-x

Lera-Lozano D, Ruiz-Toquica JS, Kratman SA, **Holt MW***, McIntyre CA, **Jones EK***, Lopez-Victoria M, **Ritchie KB**, Medina M, González-Pech RA. (2025) Genomic potential of crustose coralline algae-associated bacteria for the biosynthesis of novel antimicrobials. Microbial genomics. 11(7):001456. doi.org/10.1099/mgen.0.001456

Maag DW, **Hanscom RJ**, Fischer CG, Marcantonio VP, McAndrews EC, Kabat KL, Hill JL, Clark RW. (2025) Spatial Ecology of North American Pitvipers (Viperidae: Crotalinae): A Review and Meta-Analysis. Herpetological Monographs. 39(1):35-55. doi.org/10.1655/HERPMONOGRAPHS-D-25-00003.1

Remington MJ, Clark RW, **Hanscom RJ**, Higham TE, Sukumaran J. (2025) Thermal Dynamics of Ectotherm Behavioral Strategies: Insights from Agent-Based Simulations. bioRxiv. 6:2025-04 doi.org/10.1101/2025.04.30.651512

Romer AS, Grisnik M, Dallas JW, Sutton W, Murray CM, Hardman RH, Blanchard T, **Hanscom RJ**, Clark RW, Godwin C, Alexander NR (2025) Effects of snake fungal disease (ophidiomycosis) on the skin microbiome across two major experimental scales. Conservation Biology. 39(2):e14411. doi.org/10.1111/cobi.14411

Strebler, M, Grisnik M, White M, **Hanscom RJ** (2025) Herpetofauna of Catoosa Wildlife Management Area and species-area relationships of reptiles and amphibians across Tennessee, USA. Herpetological Conservation and Biology, 20(1), pp.158-166.

Wall CC, McKenna MF, Hatch LT, Van Parijs SM, Bochenek R, Dugan P, Parcerisas C, Ryan J, Anderson CD, Becker K, Berchok C, Biddle M, Boebel O, Canino A, Canonico G, Cline D, Davis GE, Frasier K, Gedamke J, Haver SM, Khazmutdinova K, Kinneging N, Kumar A, **Marian A**, Miksis-Olds JL, **Montie EW**, Ponirakis D, Rice AN, Rowell TJ, Rueda C, Shumchenia E, Shyka T, Staaterman E, Thomisch K (2025) Big data, sound science, lasting impact: a framework for passive acoustic monitoring. Big Earth Data. 1-35. DOI: 10.1080/20964471.2025.2583505.

PATENTS:

D'Antonio EL (2025) Methods for inhibiting parasitic glucokinase and/or hexokinase - US Patent App. 18/906,487

GRANTS:

SC INBRE grant application IDeA Network: $808,986 (summer 2025, Six years). PI – Joe Staton.

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.

2023/2025 Pritchards Island Research Grant ($10,000.00). "Marine Worms *Amphitrite ornata* and *Lepidasthenia commensalis*: Investigation of the Relationship Between Chemical Ecology and Commensalism. PI – Edward L. D'Antonio.

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

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.

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

PRESENTATIONS:

Baker, LR*, Bray MJ*, Husted AL*, D'Antonio EL. (2025) Development of a novel fluorometric enzyme-coupled arginase assay for Leoimaniasis target-based therapeutic drug discovery. 13th Annual Cellular Biology of Eukaryotic Pathogens Annual Meeting at Clemson University 13 October 2025 (*student researchers)

Bray, MJ* (2025) Novel fluorometric enzyme-coupled arginase assay for target-based therapeutic drug discovery. International Society for Neglected Tropical Diseases meeting 3 December 2025. (*Student researcher)

D'Antonio, EL (2025) Exploration of 3-nitro-2-phenyl-2h-chromene analogues for potent anti-trypanosomal activity. International Society for Neglected Tropical Diseases meeting 3 December 2025.

D'Antonio, DL (2025) Discovery of anti-trypanosomal gossypol derivatives targeting the glucose kinases: insights from biochemical, molecular docking, and in-vitro biological methods. 5th International Symposium on Frontiers in Molecular Science, 3 August 2025 Kyoto Japan

Hanscom, RJ, JL Hill, T Higham, J Sukumaran, RW Clark (2025) Exploring the intersection of behavior and physiology in *Crotalus viridis* across their range through biologging. Biology of Pitvipers 5. Rodeo, NM, USA.