Curriculum Vitae

# Mercer R. Brugler, PhD

University of South Carolina Beaufort | Department of Natural Sciences | 1100 Boundary St, Beaufort, SC 29902
Beaufort Campus, Marine Sciences Building, Office 202, Lab 201, Office: 843-521-4166, Cell: 843-592-8962
Faculty Webpage | Research Website | Google Scholar | LinkedIn | Bluesky | Instagram | Online Press 1, 2, 3

## Professional Experience

2024-*present*. Chair and Professor of Marine Biology at the University of South Carolina Beaufort
2022-*present*. Adjunct at The City College of New York (The City University of New York [CUNY])
2020-2024. Tenure-Track Associate Professor of Marine Biology at the University of South Carolina Beaufort
2019-*present*. Lecturer at Columbia University (Ecology, Evolution & Environmental Biology [E3B] Program)
2018-2020. Tenure-Track Associate Professor of Biology at NYC College of Technology (CUNY)
2016-*present*. Adjunct at NYU's School of Professional Studies, Division of Applied Undergraduate Studies
2014-2018. Tenure-Track Assistant Professor of Biology at NYC College of Technology (CUNY)
2011-2014. Gerstner Scholar and Postdoctoral Fellow at the American Museum of Natural History

## Academic Appointments

2014-*present*. Research Associate, National Museum of Natural History-Smithsonian Institution (Washington DC)
2013-*present*. Research Associate, American Museum of Natural History (New York City)

## Federal Appointment

Awarded the only Science/Research voting seat on the Advisory Council for the proposed designation of the Hudson Canyon National Marine Sanctuary. Agency: NOAA's Office of National Marine Sanctuaries. Read more here. Decision rendered 05/08/23. Three-year term effective 05/16/23. The first Hudson Canyon sanctuary advisory council meeting was held on 07/13/23. The most recent meeting was held on 04/04/25. We have a research cruise to Hudson Canyon aboard the *PISCES* (deploying the ROV *Global Explorer*) July 28 - August 11, 2025 (port: Newport, RI).

## Education

2004-2011. Ph.D. in Environmental & Evolutionary Biology. University of Louisiana at Lafayette (Louisiana)
2001-2004. M.S. in Marine Science/Biology. College of Charleston's Grice Marine Laboratory (South Carolina)
1997-2001. B.S. in Marine Science/Biology (Chemistry Minor). University of Miami (Florida)

## Research Interests

- Evolution and diversity of marine invertebrates, with particular interest in cnidarians
- Molecular systematics and evolutionary history of black corals (antipatharians) and sea anemones (actiniarians)
- Combining morphology and DNA to elucidate and describe new species of black coral and sea anemone
- Evolution of mitochondrial gene order, gene content and genome architecture in basal metazoans
- Stress, aging and longevity in deep-sea organisms from a molecular perspective
- Using DNA barcoding to elucidate marine and freshwater leech biodiversity along the South Carolina coast
- Using eDNA to elucidate the biodiversity of oyster reefs in the Port Royal Sound (Beaufort SC)

## Distinguished Scholar Award

- **2023 Okubo Distinguished Scholar** (named in honor of Dr. Akira Okubo). Selected by the Graduate Student Club of Stony Brook University's School of Marine & Atmospheric Science (Long Island, NY). My in-person career talk was entitled *Changing Tides: Inspiring Traditionally Excluded Communities*. May 3-6, 2023. Recording available.

## Board of Trustees

Appointed to the BoT for the Haverstraw Estuary Field Station (NY). March 11, 2024. A nonprofit organization missioned to provide outstanding, experiential place-based education and support scientific research programs focused on sustaining and understanding the estuarine environment. President & CEO: Brianna Miranda Vargas.

**Funding from Private Donors**

- *Elucidating Oyster Reef Biodiversity with eDNA*. Funded by the Spring Island Trust. $25,000. Start: 05/01/21.
- *Deep-sea genomics: Elucidating the molecular mechanism behind extreme longevity in black corals.* Funded by the Katherine and John Bleckman Foundation, Inc. $25,000. Start: 03/29/21.

**State Funding**

- A yearly reoccurring allocation of $500,000 from the SC Legislature to support research and education on Pritchards Island, a pristine and uninhabited barrier island located south of Fripp Island and north of Hilton Head Island. This funding is a line item in the state budget and renews every July 1st. First allocation: July 1, 2023.

**External Funding**

- Title: *US(Sea)B(iomed): Marine Biomedical Research @ USCB*
  PI: M.R.Brugler
  Funding Agency: National Institutes of Health (NIH) IDeA Networks of Biomedical Research Excellence (INBRE)
  RFP: SC INBRE Cycle V Call for Proposals for Network Membership
  Award: $808,986
  Funds available: 09/01/2025 - 08/31/2030
- *Evaluating oyster reefs as habitat: Comparing the utility of ecological metrics to assess ecosystem function*. 2023 NERRS Science Collaborative Catalyst / Science Transfer through NOAA's Office for Coastal Management. PI: Matt Kimball. Team Member: M.R.Brugler. $199,943 (USCB: $25,593). Decision: 06/23/23.
- *Elucidating oyster reef biodiversity with eDNA.* Office of Coastal Management/NOAA/DOC through the North Inlet - Winyah Bay National Estuarine Research Reserve. $4,678. Decision: 01/12/22.

**Funding from the University of South Carolina Office of the Vice President for Research**

- *Acquisition of a hand-held multi-omics nanopore sequencer to innovate faculty research and enhance student employability*. Advanced Support Program for Infrastructure in Research Excellence-III (ASPIRE-III). $89,322. PI: Daniel 'Tye' Pettay, Co-PI: M.R.Brugler. Submitted: 02/25/21, Decision: 04/30/21. Start: 06/01/21.
- *Characterizing the biodiversity and anticoagulant repertoires of marine leeches in the Port Royal Sound*. Advanced Support Program for Innovative Research Excellence-I (ASPIRE-1, Track IV). $14,995. Submitted: 01/21/21. Decision: 04/30/21. Start: 07/01/21.
- *Deep-sea genomics: Elucidating the molecular mechanism behind extreme longevity in black corals*. Research Initiative for Summer Engagement (RISE) Senior Campuses. $6,000. Submitted: 12/04/20. Decision: 02/26/21. Start: 05/16/21.

**Funding for USCB Undergraduate Researchers**

- University of South Carolina's SMART Program. $2,000 (2021); $2,000 (2022), $2,000 (2023)
- USCB's Summer Research Experience (funded by Academic Affairs). $5,000 (2021); $2,000 (2022); $4,100 (2023), $2,000 (2024), $4,500 (2025)
- *Characterizing the diversity of ctenophores from the Port Royal Sound (Beaufort SC) using molecular barcodes.* USC Magellan Scholar Program. $3,000. Recipient: USCB undergraduate Yessenia Bledsoe-Becerra. Submitted: 10/20/21. Decision: 12/14/21.
- *Leveraging eDNA to Determine if Lionfish are Present in the Port Royal Sound*. USC Magellan Scholar Program. $2,500. Recipient: USCB undergraduate Brendan Cruz. Submitted: 02/07/24. Decision: 04/12/2024.

**External Grant Proposal - In Review**

- Title: *Understanding ecosystem function of oyster reefs across management strategies and environmental gradients*.
  PI: Matt Kimball (Baruch Marine Field Lab). Team member: M.R.Brugler.
  Funding agency: NOAA's National Estuarine Research Reserve System Science Collaborative.
  Funds requested: $999,570.
  Preproposal submitted: 12/11/24. Invited to submit full proposal: 03/04/25. Full proposal submitted: 04/18/25.

**External Grant Proposals – Declined**

- Title: *Shellfish Bed Closures: Leveraging eDNA to Determine if the Human Health-Driven Management of Oyster Reefs Impacts Community Diversity*.
  PI: M.R.Brugler. Co-PI: Daniel "Tye" Pettay.
  Funding agency: SC SeaGrant Consortium. Program: Charting Seas of Change. 2024-26 Biennial Sea Grant RFP.
  Funds requested: $159,717.
  Submitted: May 19, 2023. Declined: 09/08/23.
- Title: *Using drone-based thermal imagery to estimate the number of breeding horseshoe crabs in the Port Royal Sound and Ace Basin*
  PI: M.R.Brugler, Co-PI: Jim Cooper
  Funding Agency: Port Royal Sound Foundation
  Funding Opportunity Title: Port Royal Sound Foundation Grants Program (Funding for Research, Education, Conservation and Cultural Resources)
  Funds Requested: $18,841.98
  Submitted: 03/31/23. Declined: 05/24/23.
- Title: *Using eDNA to explore transmission dynamics of an emerging marine pathogen threatening a multi-million-dollar fishery*
  PI: Matthew Kimball (Baruch Institute), Co-PIs: Robert Dunn (Baruch) & M.R.Brugler (USCB)
  Funding Agency: Advanced Support Program for Infrastructure in Research Excellence-II (ASPIRE-II)
  Funds Requested: $99,269
  Submitted: 02/24/22. Declined: 05/09/22.
- Title: *Collaborative Research: Quantifying the role of deep-sea coral reef ecosystems in regional to global biogeochemical cycles* (#8188785)
  PI: Erik Cordes (Temple University). Collaborator: M.R.Brugler (running education & outreach)
  Funding Agency: National Science Foundation, Division of Ocean Sciences (OCE), Biological Oceanography
  Funds Requested: ~$1 million; included $13,000 per student for two USCB students in Year 2 of the program (includes a small stipend for the summer along with expenses – room, board, travel); students will be set up with an appropriate lab for the summer and sent out on a research cruise.
  Location of Project: Charleston Bump (Western North Atlantic Ocean; US East Coast off SC and GA)
  Submitted: 01/19/22. Declined: 05/07/22.
- Title: *Linking shrimp prey and black gill syndrome: Using eDNA to examine the diets of white shrimp in estuarine nursery habitats throughout coastal Georgia*
  PI: Matthew Kimball (Baruch Institute), Co-PIs: M.R.Brugler (USCB) & Robert Dunn (Baruch)
  Funding Agency: Georgia Department of Natural Resources (2021 GADNR Black Gill Research RFP)
  Funds Requested: $98,915 (Baruch: $67,307, USCB: $31,608)
  Submitted: 10/15/21. Declined: 02/04/22.
- Title: *A molecular approach to assess horseshoe crab health during processing by the biomedical industry*
  Funding Agency: Port Royal Sound Foundation
  Funding Opportunity Title: Port Royal Sound Foundation Grants Program (Funding for Research, Education, Conservation and Cultural Resources)
  Funds Requested: $57,793.93
  Submitted: 12/31/21. Declined: 01/26/22.
- Title: *How Will Coral Populations from the Wider Gulf of Mexico Influence Mesophotic and Deep Benthic Restoration?*
  PI: Erik Cordes (Temple University). Collaborator: M.R.Brugler
  Funding Agency: NOAA-NOS-NCCOS
  Funding Opportunity Title: NOAA RESTORE Science Program 2021
  Funding Opportunity Number: NOAA-NOS-NCCOS-2021-2006590
  Budget Requested: $71,823 (for FY2022)
  Submitted 12/15/20. Declined: 06/24/21.
- Title: *Elucidating Oyster Reef Biodiversity with eDNA*
  Funding Agency: USCB Sea Islands Institute
  Budget Requested: $4,978.89*
  Submitted: 01/18/21. Declined: 02/01/21.
  **Dr. Skipper (USCB's Provost & Executive Vice Chancellor) generously committed $3,478 to this project*

- Title: *Collaborative Research: Carbon sequestration & nutrient regeneration in deep-sea coral reefs*
  PI: Erik Cordes (Temple University). Collaborator: M.R.Brugler
  Funding Agency: National Science Foundation, Division of Ocean Sciences, Biological Oceanography
  Funds Requested: $1,000,000
  Award Period Covered: 01/01/2021 – 06/31/2023
  Location of Project: Charleston Bump (Western N Atlantic Ocean; US East Coast off SC and GA)
  Submitted prior to joining USCB. Declined: 08/11/2020.

**Current & Recently Expired External Funding Carried Over from NYC College of Technology (CUNY)**

- Title: *Habitability of saponite-rich hydrothermal systems of early Mars*
  PI: Roy Price, SUNY Stony Brook's School of Marine & Atmospheric Science.
  Collaborator: M.R.Brugler (education & outreach; no direct funding; travel, lodging & MEI covered)
  Funding Agency: NASA's Habitable Worlds Program (Award Number 80NSSC20K0228)
  Award Amount: $908,904 (to R. Price)
  Award Period Covered: 02/2020 – 01/2023
  Location of Project: NW Fiords of Iceland
- Title: *Connectivity of Coral Ecosystems in the Northwestern Gulf of Mexico*
  PI: Santiago Herrera, Lehigh University. Collaborator: M.R.Brugler (no direct funding)
  Funding Agency: NOAA (Award Number NA18NOS4780166)
  Award Amount: $3,747,910 (to S. Herrera)
  Award Period Covered: 09/2018 – 08/31/2023
- Title: *Sharing Flower Garden Banks National Marine Sanctuary with the World Through Telepresence*
  PI: Dave Lovalvo, Global Foundation for Ocean Exploration. Co-PI: M.R.Brugler
  Funding Agency: NOAA (Award Number NA18NOS429021609)
  Award Amount: $987,695 to GFOE (USCB: $22,693)
  Award Period Covered: 11/01/2018 – 10/31/2021
- Title: *Non-invasive deep-sea genomics and metagenomics using soft robotics*
  PI: M.R.Brugler. Co-PI: David Gruber (Baruch College)
  Funding Agency: City University of New York (CUNY)
  Award Amount: $26,000 (to M.R.Brugler)
  Award Period Covered: Open ended (~$20,000 remaining)
  Location of Project: New England Aquarium; Harvard University's Soft Robotics Lab

**Invited Textbook Chapters**

Quattrini AM, DeLeo DM, **Brugler MR** (2021). Chapter 11: *Phylum Cnidaria, Class Anthozoa*. In: Schierwater B & DeSalle R (eds) *Invertebrate Zoology, A Tree of Life Approach*. 1st Edition. Pages 173-192. Published June 30, 2021 by CRC Press / Taylor & Francis Group. ISBN 9780367685676.

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. ISBN 9781071635803. *Includes two USCB alumni co-authors (underlined)*

**Peer-Reviewed Primary Literature Articles** (n=46)

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, 579.

Cruz BA, Cappelmann A, Chutjian H, Roman JC, Reid MA, Wright J, Gonzalez AD, Keyman T, Griffith K, Appiah-Madson HJ, Distel DL, Hayes VE, Drewery J, Pettay DT, Staton JL, **Brugler MR**, 2024. Complete mitochondrial genomes of the black corals *Alternatipathes mirabilis* Opresko & Molodtsova, 2021 and *Parantipathes larix* (Esper, 1788) (Cnidaria, Anthozoa, Hexacorallia, Antipatharia, Schizopathidae). *ZooKeys* 1196: 79-93. *Includes nine USCB undergraduate co-authors (underlined)*

Horowitz H, Quattrini AM, **Brugler MR**, Miller DJ, Pahang K, Bridge TCL, Cowman PF, 2023. Bathymetric evolution of black corals through deep time. *Proceedings of the Royal Society B (Biological Sciences)* 290: 20231107.

Molodtsova TN, Opresko DM, O'Mahoney M, Simakova UV, Kolyuchkina GA, Bledsoe YM, Nasiadka TW, Ross RF, **Brugler MR**, 2023. One of the deepest genera of Antipatharia: Taxonomic position revealed and revised. *Diversity* 15(3): 436.

Tessler M, Cunningham SW, Ingala MR, Warring SD, **Brugler MR**, 2023. An environmental DNA primer for microbial and restoration ecology. *Microbial Ecology* 85: 796-808.

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: 1-9. Altmetric Score: 485

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

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, Halanych KM, Distel DL, 2022. Contrasting modes of mitochondrial genome evolution in sister taxa of wood-eating marine bivalves (Teredinidae and Xylophagaidae). *Genome Biology and Evolution* 14(6): evac089

Bledsoe-Becerra YM, Whittaker IS, Horowitz J, Naranjo KM, Johnson-Rosemond J, Mullins KH, Cunningham KM, Shetty S, Messinides SN, Behney MS, Fehsal JA, Watson AN, McKnight KE, Nasiadka T, Popa H, Pettay DT, Appiah-Madson HJ, Distel DL, **Brugler MR**, 2022. Mitogenomics reveals low variation within a trigeneric complex of black corals from the North Pacific Ocean. *Organisms Diversity & Evolution* 22: 343-353. *Includes 14 undergraduate co-authors (underlined)*

Opresko DM, Bo M, Stein DP, Evankow A, Distel DL, **Brugler MR**, 2021. Description of two new genera and two new species of antipatharian corals in the family Aphanipathidae (Cnidaria: Anthozoa: Antipatharia). *Zootaxa* 4966(2): 161–174.

McFadden CS, Quattrini AM, **Brugler MR**, Cowman PF, Dueñas LF, Kitahara MV, Paz-García DA, Reimer JD, Rodríguez E, 2021. Phylogenomics, Origin, and Diversification of Anthozoans (Phylum Cnidaria). *Systematic Biology* 70(4): 635-647.

Lansac-Tôha FM, Bini LM, Heino J, Meira BR, Segovia BT, Pavanelli CS, Bonecker CC, de Deus CP, Benedito E, Alves GM, Manetta GI, Dias JD, Vieira LCG, Rodrigues LC, do Carmo Roberto M, **Brugler MR**, Lemke MJ, Tessler M, DeSalle R, Mormul RP, Amadio S, Lolis SF, Jati S, Siqueira T, Silva WM, Higuti J, LansacTôha FA, Martens K, Velho LFM, 2020. Scale-dependent patterns of metacommunity structuring in aquatic organisms across floodplain systems. *Journal of Biogeography* 48(4): 872-885.

Gress E, Opresko DM, **Brugler MR**, Wagner D, Eeckhaut I, Terrana L, 2020. Widest geographic distribution of a shallow and mesophotic antipatharian coral (Anthozoa: Hexacorallia): *Antipathes grandis* VERRILL, 1928 confirmed by morphometric and molecular analyses. *Marine Biodiversity Records* 13(12): 1-7.

Quattrini AM, Rodriguez E, Faircloth BC, Cowman PF, **Brugler MR**, Farfan GA, Hellberg ME, Kitahara MV, Morrison CL, Paz-Garcia DA, Reimer JD, McFadden CS, 2020. Paleoclimate ocean conditions shaped the evolution of corals and their skeletons through deep time. *Nature Ecology & Evolution* 4: 1531-1538

Horowitz J, **Brugler MR**, Bridge TCL, Cowman PF, 2020. Morphological and molecular description of a new genus and species of black coral (Cnidaria: Anthozoa: Hexacorallia: Antipatharia: Antipathidae: *Blastopathes*) from Papua New Guinea. *Zootaxa* 4821(3): 553-569.

Opresko DM, Goldman SL, Johnson R, Parra K, Nuttall M, Schmahl GP, **Brugler MR**, 2020. Morphological and molecular characterization of a new species of black coral from Elvers Bank, north-western Gulf of Mexico (Cnidaria: Anthozoa: Hexacorallia: Antipatharia: Aphanipathidae: Distichopathes). *Journal of the Marine Biological Association of the United Kingdom* 100(4): 559-566.

Tessler M*, **Brugler MR***, Burns JA, Sinatra NR, Vogt DM, Varma A, Xiao M, Wood RJ, Gruber DF, 2020. Ultra-gentle soft robotic fingers induce minimal transcriptomic response in a fragile marine animal. *Current Biology* 30(4): PR157-R158. *Equal contribution

Xiao M*, **Brugler MR***, Broe MB, Gusmao LC, Daly M, Rodriguez E, 2019. Mitogenomics suggests a sister relationship of *Relicanthus daphneae* (Cnidaria: Anthozoa: Hexacorallia: *incerti ordinis*) with Actiniaria. *Scientific Reports* 9(1): 18182. *Equal contribution

Stampar SN, Broe MB, MacRander J, Reitzel AM, **Brugler MR**, Daly M, 2019. Linear mitochondrial genome in Anthozoa (Cnidaria): A case study in Ceriantharia. *Scientific Reports* 9(1): 6094.

Siddall ME, Barkdull M, Tessler M, **Brugler MR**, Borda E, Hekkala E, 2019. Ideating iDNA: Lessons and limitations from leeches in legacy collections. *PLoS ONE* 14(2): e0212226

**Brugler MR**, Aguado MT, Tessler M, Siddall ME, 2018. The transcriptome of the Bermuda fireworm *Odontosyllis enopla* (Annelida: Syllidae): A unique luciferase gene family and putative epitoky-related genes. *PLoS ONE* 13(8): p.e0200944.

**Brugler MR**, González-Muñoz RE, Tessler M, Rodríguez E, 2018. An EPIC journey to locate single-copy nuclear markers in sea anemones. *Zoologica Scripta* 47(6): 756-776

Quattrini AM, Faircloth BC, Dueñas LF, Bridge TCL, **Brugler MR**, Calixto-Botía IF, DeLeo DM, Foret S, Herrera S, Lee SMY, Miller DJ, Prada C, Rádis-Baptista G, Ramírez-Portilla C, Sánchez JA, Rodríguez E, McFadden CS, 2018. Universal target-enrichment baits for anthozoan (Cnidaria) phylogenomics: New approaches to long-standing problems. *Molecular Ecology Resources* 18(2): 281-295

Bo M, Barucca M, Biscotti MA, **Brugler MR**, Canapa A, Canese S, Lo Iacono C, Bavestrello G, 2018. Phylogenetic relationships of Mediterranean black corals (Cnidaria: Anthozoa: Hexacorallia) and implications for classification within the order Antipatharia. *Invertebrate Systematics* 32(5): 1102-1110

Simon S, Sagasser S, Saccenti E, **Brugler MR**, Schranz ME, Hadrys H, Amato G, DeSalle R, 2017. Comparative transcriptomics reveal developmental turning points during embryogenesis of a hemimetabolous insect, the damselfly *Ischnura elegans*. *Scientific Reports* 7(1): 13547.

Tessler M, Neumann JS, Afshinnekoo E, Pineda M, Hersch R, Velho LF, Segovia BT, Lansac-Toha FA, Lemke M, DeSalle R, Mason CE, **Brugler MR**, 2017. Large-scale differences in microbial biodiversity discovery between 16S amplicon and shotgun sequencing. *Scientific Reports* 7(1): 6589.

Marlow J, Borrelli C, Jungbluth SP, Hoffman C, Marlow J, Girguis PR, **AT-36 Team***, 2017. Opinion: Telepresence is a potentially transformative tool for field science. *Proceedings of the National Academy of Sciences* 114(19): 4841-4844

Tessler M*, **Brugler MR***, DeSalle R, Hersch R, Velho LFM, Segovia BT, Lansac-Toh FA, Lemke MJ, 2017. A global eDNA comparison of freshwater bacterioplankton assemblages focusing on large-river floodplain lakes of Brazil. *Microbial Ecology* 73(1): 61-74 *Equal contribution

Kolokotronis S-O*, Foox J*, Rosenfeld JA, **Brugler MR**, Reeves D, Benoit JB, Booth W, Robison G, Steffen M, Sakas Z, Palli SR, Schal C, Richards S, Narechania A, Baker RH, Sorkin LN, Amato G, Mason CE, Siddall ME, DeSalle R, 2016. The mitogenome of the bed bug *Cimex lectularius* (Hemiptera: Cimicidae). *Mitochondrial DNA Part B: Resources* 1:1, 425-427 *Equal contribution

Rosenfeld JA, Reeves D, **Brugler MR**, Narechania A, Simon S, Durrett R, Foox J, Shianna K, Schatz MC, Gandara J, Afshinnekoo E, Lam ET, Hastie AR, Chan S, Chao H, Saghbini M, Kentsis A, Planet PJ, Kholodovych V, Tessler M, Baker R, DeSalle R, Sorkin L, Kolokotronis S-O, Siddall ME, Amato G, Mason CE, 2016. Genome assembly and geospatial phylogenomics of the bedbug *Cimex lectularius*. *Nature Communications* 7, 10164. Altmetric Score: 528

Siddall ME, **Brugler MR**, Kvist S, 2016. Comparative transcriptomic analyses of three species of *Placobdella* (Rhynchodbdellida: Glossiphoniidae) confirms a single origin of blood feeding in leeches. *Journal of Parasitology* 102(1): 143-150.

Foox J, **Brugler MR**, Siddall ME, Rodriguez E, 2015. Multiplexed pyrosequencing of nine sea anemone (Cnidaria: Anthozoa: Hexacorallia: Actiniaria) mitochondrial genomes. *Mitochondrial DNA Part A* 27(4): 2826-2832.

MacRander J, **Brugler MR**, Daly, M, 2015. An RNA-seq approach to identify putative toxins from acrorhagi in aggressive and non-aggressive *Anthopleura elegantissima* polyps. *BMC Genomics* 16:221.

González-Muñoz R, Simões N, Mascaró M, Tello-Musi JL, **Brugler MR**, Rodríguez E, 2014. Morphological and molecular variability of the sea anemone *Phymanthus crucifer* (Cnidaria, Anthozoa, Actiniaria, Actinoidea). *Journal of the Marine Biological Association of the United Kingdom* 95(1): 69-79.

Rodríguez E, Barbeitos MS, **Brugler MR**, Crowley L, Grajales A, Gusmao L, Haussermann V, Reft A, Daly M, 2014. Hidden among sea anemones: The first comprehensive phylogenetic reconstruction of the order Actiniaria (Cnidaria, Anthozoa, Hexacorallia) reveals a novel group of hexacorals. *PLoS ONE* 9(5): e96998

Kvist S, **Brugler MR**, Goh TG, Giribet G, Siddall ME, 2014. Pyrosequencing the salivary transcriptome of *Haemadipsa interrupta* (Annelida: Clitellata: Haemadipsidae): anticoagulant diversity and insight into the evolution of anticoagulation capabilities in leeches. *Invertebrate Biology* 133(1): 74-98.

**Brugler MR**, France SC, Opresko DM, 2013. The evolutionary history of the order Antipatharia (Cnidaria: Anthozoa: Hexacorallia) as inferred from mitochondrial and nuclear DNA: Implications for black coral taxonomy and systematics. *Zoological Journal of the Linnean Society* 169(2): 312-361.

MacIsaac KG, Best M, **Brugler MR**, Kenchington ELR, Anstey LJ, Jordan T, 2013. *Telopathes magna* gen. nov., spec. nov. (Cnidaria: Anthozoa: Antipatharia: Schizopathidae) from deep waters off Atlantic Canada and the first molecular phylogeny of the deep-sea family Schizopathidae. *Zootaxa* 3700(2): 237-258.

*AT-36 Team: Dekas A, Skarke A, Blackman D, Fornari D, Soule A, Van Dover C, Bagge L, Barco R, Boulahanais B, Bowman K, **Brugler MR**, Bush S, Djurhuus A, Fernandez J, Fulweiler R, Kinsey J, Kocot K, McVeigh D, Navarro M, Netburn A, Pasulka A, Twing K, Wagner A, Zambon J

Lauretta D, Häussermann V, **Brugler MR**, Rodríguez E, 2013. *Isoparactis fionae* sp. nov. (Cnidaria: Anthozoa: Actiniaria) from Southern Patagonia with a discussion of the family Isanthidae. *Organisms Diversity & Evolution* 14: 31-42.

Opresko DM, Wagner D, Montgomery AD, **Brugler MR**, 2012. Discovery of *Aphanipathes verticillata* (Cnidaria: Anthozoa: Antipatharia) in the Hawaiian Islands. *Zootaxa* 3348: 24-39.

Wagner D, **Brugler MR**, Opresko DM, France SC, Montgomery AD, Toonen RJ, 2010. Using morphometrics, *in situ* observations and genetic characters to distinguish among commercially valuable Hawaiian black coral species; a redescription of *Antipathes grandis* Verrill, 1928 (Antipatharia: Antipathidae). *Invertebrate Systematics* 24(3): 271-290.

Thoma JN, Pante EG, **Brugler MR**, France SC, 2009. Deep-sea octocorals and antipatharians show no evidence of seamount-scale endemism in the NW Atlantic. *Marine Ecology Progress Series* 397: 25-35.

Van der Ham J, **Brugler MR**, France SC, 2009. Exploring the utility of an indel-rich, mitochondrial intergenic region as a molecular barcode for bamboo corals (Octocorallia: Isididae). *Marine Genomics* 2 (3-4): 183-192.

**Brugler MR**, France SC, 2008. The mitochondrial genome of a deep-sea bamboo coral (Cnidaria, Anthozoa, Octocorallia, Isididae): genome structure and putative origins of replication are not conserved among octocorals. *Journal of Molecular Evolution* 67: 125-136.

Daly M, **Brugler MR**, Cartwright P, Collins AG, Dawson MN, Fautin DG, France SC, McFadden CS, Opresko DM, Rodriquez E, Romano S, Stake J, 2007. The phylum Cnidaria: A review of phylogenetic patterns and diversity 300 years after Linneaus. *Zootaxa* 1668: 127-182.

**Brugler MR**, France SC, 2007. The complete mitochondrial genome of the black coral *Chrysopathes formosa* (Cnidaria: Anthozoa: Antipatharia) supports classification of antipatharians within the subclass Hexacorallia. *Molecular Phylogenetics and Evolution* 42(3): 776-788.

**Peer-Reviewed Primary Literature Articles (In Review)**

Bacharo KBB, **Brugler MR**, *in review*. Incorrect taxonomy confounds future interpretation of ecological data: Comment on Morgulis et al. (2022). Marine Ecology Progress Series.

Opresko DM, Molodtsova T, Bo M, **Brugler MR**, Wagner D, Bavestrello G, Horowitz J, Montgomery AD, Terrana L, Gress E, Suarez H, Breedy O, Quattrini AM, *in review*. Case XXXX - ANTIPATHIDAE Ehrenberg, 1834 and APHANIPATHIDAE Opresko, 2004: proposed conservation of usage by designating *Antipathes flabellum* Pallas, 1766, as the replacement type species for *Antipathes* Pallas, 1766. Submitted to the International Commission on Zoological Nomenclature (ICZN) on 08/17/24. Update as of 03/01/25: The new Secretary of the ICZN (Daniel Whitmore) informing us that our petition has been given Case Number 3909 and that it will be announced in the next issue of the Bulletin of Zoological Nomenclature. Recently sent to the Commissioners for their evaluation.

**Peer-Reviewed Primary Literature Articles (Rejected)**

**Brugler MR**, Cruz BA, Chutjian H, Gonzalez AD, Cappelmann A, Lopez D, Quintana L, Pettay DT, Horowitz J, Staton JL, Campbell JM, *rejected*. The Ghost of UV Past still haunts anthozoan molecular evolution. Rejected from *Nature Perspectives*. Currently reformatting for *Science* as a Commentary / Perspective.

**Peer-Reviewed Primary Literature Articles (In Prep; Anticipated Submission Summer 2025)**

Tessler M, Cunningham SW, Galen SC, Hekkala E, Warring SD, **Brugler MR**, *in prep*. Transatlantic hitchhiking: A one-way ticket to New York on a Eurasian vagrant, the corncrake. Manuscript formatted for *The American Naturalist: Natural History Miscellany Notes*.

Opresko DM, Dawes C, Bellaflores-Mejia N, Nuttall M, Hickerson E, **Brugler MR**, *in prep*. A new species of antipatharian coral from the Flower Garden Banks National Marine Sanctuary (Cnidaria: Anthozoa: Antipatharia). Manuscript formatted for *Zootaxa*.

Cruz BA, Kovalcik JM, Gonzalez AD, Chutjian H, Roman JC, Cappelmann A, Carolus M, Hutto LC, Wyant LD, Ankney JJ, Wood J, **Brugler MR**, *in prep*. The partial mitochondrial genome of the enigmatic Bermuda fireworm *Odontosyllis enopla* and its phylogenetic implications.

**Brugler MR**, Tessler M, Wood RJ, Gruber DF, *in prep*. Methuselahs of the deep: Aging, longevity, and conservation of upper-ocean and deep-sea animals.

**Handbook**

*A handbook on mentoring students in undergraduate research: proven strategies for success*. Released 10/26/16. ISBN-10: 0-692-78964-2; ISBN-13: 978-0-692-78964-3. Freely available: https://f0df47f9-3fa1-470c-bcd0-059d5e875d60.filesusr.com/ugd/093e33_416efbe90cae475da72ad1cfaf390c37.pdf

**Peer-Reviewed Primary Literature Article Highlighting USCB Undergraduate Research**

Ogden LE, 2022. The emergence of eDNA: An interdisciplinary tool helps monitor biodiversity and health. *BioScience* 72(1), 5-12.

**University of South Carolina Magazine Highlighting USCB Undergraduate Research**

Carolina CrossTalk, an Undergraduate Research Magazine. Not peer reviewed.

- Issue 4, Fall 2021, Pages 10-14. Article title: *Understanding the Value of Small Organisms: Exploring How eDNA Reveals Hidden Biodiversity in Oyster Reefs*. Featuring: Iesha Whittaker, Biomedical Sciences. Article written by Madelyn Weston.
- Issue 8, Fall 2023, Page 9. Article title: *Analysis of Mitochondrial Black Coral Genomes and Lionfish eDNA*. Featuring: Brendan Cruz, Marine Biology. Article written by Raegan Cole.

**Online News Articles** (with USCB affiliation)

- *Changing Tides: Inspiring underrepresented minorities through ocean exploration and black coral discovery.* By Marissa Garcia (NOAA's National Marine Sanctuaries). October 2020. Article freely available here.
- Axios article on black corals (published September 10, 2020)

**Invited Career Development Program**

- On 10/05/23, I was selected to participate in the Peerside Program, which focuses on broadening access to the ocean and increasing inclusivity in ocean STEAM careers, and is based at the Florida Institute of Oceanography in St. Petersburg, FL. Peerside cohort members (including three USCB students) participated in a year-round career development program, which included one week aboard the R/V Western Flyer and a second week participating in remote science from a command center at FIO (i.e., building skills to be part of the New Blue Economy). We (myself, Denia Lopez, Anneau Cappelmann, and Zinia Hampleton) also participated in the deep-sea cohort of the Diversifying Ocean Sciences (DOS) Program, which was administered by Minorities in Shark Sciences (MISS).

**Teaching Award**

- NYU School of Professional Studies Teaching Excellence Award. March 2019

**Teaching**

**University of South Carolina Beaufort (USCB)**

*Biological Principles I* Lecture & Lab (BIOL B101)
*Biological Principles II* Lecture & Lab (BIOL B102
*Ecology & Evolution* Lecture & Lab (BIOL B301 & B301L)
*Biology of Marine Organisms* Lab (BIOL B411)
*Biology Honors Seminar* (BIOL B100H)
*Marine Ecology* Lecture & Lab (BIOL B475 & B475L)
*Molecular Marine Ecology* Lecture (BIOL B480)
*Molecular Ecology Techniques* Lab (BIOL B499)

**The City College of New York (CUNY)**

*Ecology and Evolution* (BIO 228)

**Columbia University (E3B Program)**

*The Life Aquatic* (EEEB-S1115)

**NYU's School of Professional Studies, Division of Applied Undergraduate Studies**

*Darwin to DNA: An Overview of Evolution* (SCNC1-UC3218)
*Natural History of New York City* (SCNC1-UC3290)

**NYC College of Technology (CUNY)**
*Evolution* (BIO-2250)
*General Biology I* Lecture (BIO-1101)
*General Biology II* Lecture & Lab (BIO-1201 & 1201L)
**AMNH's Richard Gilder Graduate School**
*Next-Generation DNA Sequencing* Lecture & Lab (held at the New York Genome Center)
**University of Louisiana at Lafayette**
*Biological Principles and Issues I* Lecture (non-majors)
*Fundamentals of Biology I* Lecture (biology majors)

**Development and Administration of Courses for the American Museum of Natural History**

- ***Unseen Oceans In-Exhibition Course***. January 15 - February 12, 2019.
- ***Oceans Sci Viz Course***. Education Department Youth Initiatives Program. April 22-26, 2019.

**Teaching Assistantships**

- ***Advanced Invertebrate Zoology*** **Laboratory** - UL Lafayette; Fall 2008 & 2006
- ***Human Physiology*** **Laboratory** - College of Charleston; Fall 2001 through Spring 2003
- ***Evolution & Biodiversity*** **Workshop** - University of Miami; Fall 1998

**Teaching Improvement Activities**

- USCB online course entitled *Students Connected Faculty: Experiential Learning Teaching*. 03/25/22 and 04/08/22.
- City Tech GenEdge Pedagogy Workshop: When You Look, What Do You See? How Can Teaching the Skill of Observation Influence Inquiry Across Disciplines? March 7, 2017
- City Tech Workshop: Writing Across the Curriculum: Assisting ESL Writers; March 31, 2016
- CUNY Workshop: Research in the Classroom – Integrating Authentic Research into the Undergraduate Curriculum; March 11, 2016
- NYU Workshop: Teaching Effectiveness, Part II; Feb 26, 2016
- NYU Workshop: Making It Stick - Effective Strategies for Teaching & Learning; Feb 26, 2016
- NYU Workshop: Teaching Effectiveness, Part I; Feb 19, 2016
- City Tech Workshop: Knowing Brooklyn Through Place-Based Open Digital Pedagogy; Feb 18, 2016
- City Tech Workshop: Writing Across the Curriculum: The Creative Classroom; Dec 10, 2015
- AMNH Scientific Teaching Workshop: Expanding Your Teaching Toolbox; an introduction to active and scientific teaching approaches; April 10, 2015
- City Tech Workshop: Bridging the Gap: Cognitive Research & Instructional Practice; 6-part study group; March & April 2015
- City Tech OpenLab Training Workshop (Getting Started - Feb 5; Blogging w/ Students - March 5, 2015)
- City Tech 'A Living Laboratory' Associate Fellowship (Spring 2015); learned general education outcomes (Kuh's High Impact Educational Practices, place-based learning, open pedagogy and assessment)
- McGraw-Hill Education Training Courses; Oct 27 & Nov 11, 2014
- Blackboard version 9.1 Assessment Tool Workshop; Oct 8, 2014

**Research Cruises**

- August 27-September 1, 2019. Flower Garden Banks National Marine Sanctuary; GFOE Cruise, Leg 3; *Sharing Flower Garden Banks with the World Through Telepresence*; Co-PI; *R/V Manta & ROV Yogi*. Invited two City Tech students (Craig Dawes and Eliza Gonzalez) to collect corals and sponges.
- September 21-26, 2017. Flower Garden Banks National Marine Sanctuary; Cruise DFH-32; *NW GOMEX Expansion Sites I 2017*; Participating Scientist; *R/V Manta & ROV Mohawk*. Invited one City Tech student.
- July 26-August 8, 2016. UNOLS Early Career Co-Chief Scientist Deep-Submergence Training Cruise; Cruise AT-36. Utilized the *DSV Alvin* (9 dives) and *AUV Sentry* to explore deep-sea canyons and methane seeps along the North Atlantic Margin of the United States. The cruise was telepresence enabled.
- July 19-24, 2015. Flower Garden Banks National Marine Sanctuary; Cruise DFH-28; *Stetson Mesophotic Monitoring Cruise 2015*; Participating scientist; *R/V Manta* & *ROV Mohawk*. Invited one City Tech student.

- May 9-June 11, 2011. The Drake; Cruise 11-03; *Historic perspectives on climate & biogeography from deep-sea corals in the Drake Passage*; Participating scientist; *RVIB Nathaniel B Palmer*.
- September 11-16, 2005. Flower Garden Banks National Marine Sanctuary; Cruise DFH-11; *Flower Garden Banks ROV surveys: ground-truthing bathymetry data and collecting antipatharians for genetic analysis*; Participating scientist; *M/V Spree*.
- August 2-September 4, 2005. New England Seamounts; Cruise 05-03, Leg 2; *Deep North Atlantic Stepping Stones*; Participating scientist; *R/V Ronald Brown* & *ROVs Hercules + Argus*.
- May 8-24, 2004. New England Seamounts; Cruise 04-04; *Mountains in the Sea II - New England Seamount Chain Expedition*; Participating scientist; *R/V Ronald Brown* & *ROVs Hercules + Argus*.
- July 11-19, 2003. New England Seamounts; Cruise AT-8; *Mountains in the Sea - Exploring the New England Seamount Chain*; Participating scientist; *R/V Atlantis* & *DSV Alvin*; **ALVIN DIVE** (Dive 3906, July 18th, 1644m, Bear Seamount).
- May 26-June 17, 2003. New England Seamounts; Cruise AT7-35; *Collaborative Research: Ocean Ventilation Rates and Rapid Climate Change Recorded by Deep-Sea Corals: An Alvin and ABE Program to the New England Seamounts*; Participating scientist; *R/V Atlantis* & *DSV Alvin*.
- April 26-May 11, 2002. Guaymas Basin; Cruise 07-11; *The Fate of $NH_4^+$ in Hydrothermal Plumes*; Participating scientist; *R/V Atlantis* & *DSV Alvin*; **ALVIN DIVE** (Dive 3778, May 4th, 2011m).
- April 2-8, 2000. Bimini, Bahamas; Saltwater Semester: Rosenstiel School of Marine and Atmospheric Science, University of Miami, FL. Participating scientist; *R/V Coral Reef II*.

**NOAA-Funded Research Cruises for Undergraduates**

- August 28-September 1, 2019. Flower Garden Banks National Marine Sanctuary; GFOE Cruise, Leg 3; *Sharing Flower Garden Banks with the World Through Telepresence*; *R/V Manta & ROV Yogi*. Sent two students to collect black corals and sponges.
- September 5-10, 2018. Flower Garden Banks National Marine Sanctuary; Cruise DFH-37; *NW GOMEX Expansion Sites II 2018*; *R/V Manta* & *ROV Mohawk*. Sent two students to collect black corals.
- July 21-26, 2018. Flower Garden Banks National Marine Sanctuary; Cruise DFH-35; *NW GOMEX Expansion Sites I 2018*; *R/V Manta* & *ROV Mohawk*. Sent two students to collect black corals.
- September 28-October 3, 2017. Flower Garden Banks National Marine Sanctuary; Cruise DFH-33; *NW GOMEX Expansion Sites II 2017*; *R/V Manta* & *ROV Mohawk*. Sent two students to collect black corals.
- September 21-26, 2017. Flower Garden Banks National Marine Sanctuary; Cruise DFH-32; *NW GOMEX Expansion Sites I 2017*; *R/V Manta* & *ROV Mohawk*. Sent one student to collect black corals.
- September 3-8, 2016. Flower Garden Banks National Marine Sanctuary; Cruise DFH-30; *Northwestern Gulf of Mexico Cruise 2016*; *R/V Manta* & *ROV Mohawk*. Sent two students to collect black corals.
- July 19-24, 2015. Flower Garden Banks National Marine Sanctuary; Cruise DFH-28; *Stetson Mesophotic Monitoring Cruise 2015*; *R/V Manta* & *ROV Mohawk*. Sent one student to collect black corals.

**Research Cruise-Related Publicity**

- **CUNY TV.** Filming took place at the AMNH on November 6, 2019. The piece was included in the February 5, 2020 edition of CUNY TV's series entitled *Simply Science*. https://tv.cuny.edu/show/simplyscience/PR2009056
- **CUNY Matters.** https://www1.cuny.edu/sites/matters/2019/11/22/brugler/
- **The Houston Chronicle.** https://www.houstonchronicle.com/news/houston-texas/houston/article/Gulf-of-Mexico-search-for-black-coral-14483909.php

**Workshops (Designed & Taught)**

- **LSAMP Undergraduate Research Mentoring Workshop.** Held at NYC College of Technology on October 25, 2019. Included faculty from across CUNY's 25 campuses. LSAMP: New York City Louis Stokes Alliance for Minority Participation.
- **Black Coral Morphology and Molecular-Based Identification Workshop.** June 2-4, 2015. National Institute of Water & Atmospheric Research (NIWA) in Wellington, New Zealand. Co-instructed by Dr. Dennis Opresko (Smithsonian Institution) and hosted by Di Tracey (NIWA).
- **"(Phylogenetic) Tree Thinking" Workshop.** August 26, 2014. Richard Gilder Graduate School, American Museum of Natural History. Participants: RGGS PhD candidates and SICG staff.

**Workshops (Attended)**

- **Flower Garden Banks National Marine Sanctuary (FGBNMS) Climate Vulnerability Assessment, Day 2.** July 28, 2022. 10am-5pm.
- **FGBNMS Climate Vulnerability Assessment, Day 1.** July 27, 2022. 10am-5pm.
- **FGBNMS Condition Report Status & Trend Workshop (Habitat Integrity and Non-Indigenous Species).** April 7, 2022. 10am-1pm.
- **FGBNMS Condition Report Status & Trend Workshop (Biodiversity).** April 6, 2022. 3-5pm.
- **FGBNMS Condition Report Status & Trend Workshop (Keystone & Foundation and Other Focal Species).** April 6, 2022. 10am-1pm.
- **An Introduction to R.** January 13, 2020; AMNH RGGS Lecture Hall; Taught by Dr. Marcelo Gehara.
- **NGS Summer Course 2015: Analyzing Next-Generation Sequencing Data.** August 10-21, 2015; W.K. Kellogg Biological Station (Michigan State University), Hickory Corners, MI.
- **UNOLS Deep Submergence Science Committee (DeSSC) New-User (Early Career Scientist) Program.** December 13-14, 2014; Golden Gate University, San Francisco, CA.
- **Next Generation Population Genomics for NonModel Taxa: A Hands-on Workshop.** July 23-24, 2013; Cornell University, Ithaca, NY.
- **NESCent (National Evolutionary Synthesis Center) Academy Next-Generation Sequence Analysis Course.** June 11-19, 2012; Durham, NC.
- **Coral Identification Seminar/Workshop.** December 8, 2008; National Institute of Water and Atmospheric Research (NIWA): Wellington, New Zealand.
- **A Short-Course in Taxonomy and Ecology of Gorgonians and Black Corals**. July 23-August 2, 2007; Smithsonian Tropical Research Institute, Bocas del Toro, Panama. Oral presentations. 1) *Order Antipatharia (black corals): Analysis of mitochondrial variation and the development and application of novel genetic markers*. 2) *SEM photomicrographs of deep-sea black coral spines.*

**Professional Activities**

***Moderator***

- Virtual COVID-19 panel discussion held by New York University (NYU)
- World Oceans Week 2018 - Coral Reefs Panel held at The Explorer's Club (New York City)

***Panelist***

- NASA Exobiology Program - Advanced Life (NNH18ZDA001N-EXO; August 5-10, 2018 in San Diego, CA)

***Forums***

- FGBNMS Climate Vulnerability Assessment. Hosted by NOAA. July 27-28, 2022.
- *Deepwater Horizon* Mesophotic & Deep Benthic Communities (MDBC) Coral Propagation Techniques (CPT) focus group meeting on coral species prioritization. Hosted by NOAA. December 3, 2021.
- *Deepwater Horizon* Mesophotic & Deep Benthic Communities (MDBC) restoration forum. Hosted by NOAA. October 21 2021.

***Honors***

- Nominated for the 2022 Distinguished Undergraduate Research Mentor Award. Award application submitted to UofSC's Office of Undergraduate Research on 11/15/21. Application not selected.
- Associate Fellowship: "A Living Laboratory (Brooklyn's Waterfront): Revitalizing General Education for a 21st-Century College of Technology;" a major initiative funded by the U.S. Department of Education's Strengthening Hispanic-Serving Institutions (Title V) program. May 15, 2015: *Awarded first place for the most engaging open pedagogical practices in a course segment or assignment.*

***Referee: Peer-Reviewed Journals***

Biological Journal of the Linnean Society, Coral Reefs, Frontiers in Marine Science (Marine Systematics & Taxonomy), Gene, Genome Biology & Evolution, ICES Journal of Marine Science, Journal of the Marine Biological Association of the United Kingdom, Limnology and Oceanography, Marine Biodiversity, Marine Ecology Progress Series, Mediterranean Marine Science, Mitochondrial DNA, Molecular Ecology, Molecular Ecology Resources, Molecular Phylogenetics and Evolution, Museum of Comparative Zoology at Harvard University, The Italian Journal of Zoology, Zootaxa

***Referee: Grants and Proposals***
AMNH Lerner Gray Marine Research Grants, NOAA's Ocean Exploration & Research (OER), NSF's Research Experiences for Undergraduates (Biology & Physical Sciences), Schmidt Ocean Institute, UofSC Magellan Scholar Program, UofSC RISE Program, West Coast & Polar Regions Undersea Research Center
***Reviewer: Textbooks***
- *Biology: Life on Earth* by Audesirk, Audesirk & Byers (11th Edition)

**Invited Seminars / Lectures**

- **Hudson Canyon talk for AMNH students (9-12th graders).** January 21, 2025.
- **Oldfield Travel and Outdoor Club Event.** September 11, 2024.
- **St Peter's Catholic School (preschool to 6th graders).** May 3, 2024.
- **Annual career day at St. Helena Elementary.** April 26, 2024.
- **Hudson Canyon talk for AMNH students (9-12th graders).** April 18, 2024.
- **SC Department of Natural Resources' Fort Johnson seminar series presentation.** April 15, 2024.
- **Hudson Canyon talk for AMNH students (8-9th graders).** April 13, 2024.
- **Stony Brook University's School of Marine & Atmospheric Science (SoMAS).** May 4-5, 2023.
- **Travel & Outdoor Club at the Oldfield Community in Okatie.** January 11, 2023.
- **America's Boating Club of Beaufort.** Gilligan's Seafood Restaurant. December 13, 2022.
- **Osher Lifelong Learning Institute (OLLI).** USC Beaufort Campus. February 3, 2022.
- **Hilton Head Coastal Discovery Museum.** January 12, 2022.
- **Sound Vision Webinar Series.** November 16, 2021. Port Royal Sound Foundation's Maritime Center.
- **The Rotary Club of Hilton Head Island-VanLandingham.** July 27, 2021. Oyster reef eDNA and leeches.
- **Palmetto Bluff Conservancy.** June 23, 2021.
- **American Museum of Natural History volunteer corps**. April 14, 2021.
- **The Rotary Club of Hilton Head Island-VanLandingham.** March 23, 2021. Deep-sea black corals.
- **Coastal Discovery Museum on Hilton Head Island.** November 2, 2020.
- **Columbia University's Department of Ecology, Evolution and Environmental Biology.** October 6, 2020.
- **NOAA's Flower Garden Banks National Marine Sanctuary Advisory Council.** Presentation to the Advisory Council (which consists of commercial fisherman, representatives of major oil and gas companies, etc.) on research being conducted in the FGBNMS. Galveston, TX. February 13, 2020.
- **NOAA "Seaside Chat".** Presentation to the Galveston community and online followers about ocean topics associated with the Flower Garden Banks National Marine Sanctuary and the Gulf of Mexico. Galveston, TX. February 12, 2020.
- **Cold Spring Harbor Laboratory's DNA Learning Center** (at NYC College of Technology). Presentation to 15 high school students taking a *Conservation Genetics* course. January 22, 2020.
- **AMNH Oceans Science Visualization Course.** Presentation to 30 high school students. City Tech undergraduates Nadia Alomari and Naomi Chery each gave a 5-minute presentation as well. January 18, 2020.
- **Stony Brook University's (SUNY) School of Marine & Atmospheric Sciences Colloquium Series.** November 8, 2019.
- **AMNH SciChat: Exploring the Deep Sea.** 100 6-8th graders and their caregivers. Held in the AMNH's Hayden Planetarium. November 2, 2019.
- **The Felicity House - Mysteries of the Ocean.** The Felicity House is a free social community space just for women with autism. 25 E 22nd St, NY. September 20, 2019.
- **Queens College (CUNY) Biology Colloquium.** September 18, 2019.
- **Smithsonian Institution's National Museum of Natural History, Department of Invertebrate Zoology**. Washington, D.C. April 24, 2019.
- **NYU Liberal Studies.** March 11, 2019.
- **Biology on Tap - Commotion Under the Ocean.** The Way Station (Brooklyn, NY). August 15, 2018.
- **AMNH Discovery Room Meet the Scientist Program.** AMNH Discovery Room. June 2, 2018.
- ***Unseen Oceans* Trivia Night at the AMNH** (part of the World Science Festival). AMNH Hall of Ocean Life. May 31, 2018.
- **39th New York State Marine Education Association's (NYSMEA) Conference.** Kingsborough Community College. May 19, 2018. Keynote speaker.

- **Harvard University** (Cambridge, MA). *"It's just a flesh wound": Minimally-destructive genomics in the deep sea.* Harvard's Soft Robotics Lab. May 4, 2018.
- **New York Taste of Science Festival – Hidden Depths.** Flagship Brewery, Staten Island. April 28, 2018.
- **Wildlife Conservation Society's Hudson Canyon Professional Development Training Course.** New York Aquarium. April 2, 2018.
- ***Person, Place, Thing* with Randy Cohen** (live podcast). AMNH Linder Theater. March 29, 2018.
- **Milstein Science Series: Ocean Technology.** AMNH Hall of Ocean Life. February 25, 2018.
- **Submerge! Marine Science Festival.** Hudson River Park (Pier 26). September 16, 2017.
- **NYC Atheists Organization.** SLC Conference Center (New York City). $10 admission. April 27, 2017.
- **AMNH Content Seminar for the *Unseen Oceans* exhibit.** Lead Curator: John Sparks. April 18, 2017.
- **Exploring New York Waters: Hudson Canyon.** New York Aquarium (Professional Development Course for high school teachers; sponsored by the Wildlife Conservation Society & NY Seascape). April 10, 2017.
- **The Metropolitan Society of Natural Historians: Notes from the Field**. AMNH. December 4, 2016.
- **The Secret Science Club** (Brooklyn, NY). Bell House. September 20, 2016.
- **NYC College of Technology (CUNY)** (Brooklyn, NY). Biological Science Dept. April 4, 2014.
- **Pace University** (Pleasantville, NY), Department of Biology. March 5, 2014.
- **Mercyhurst University** (Erie, PA), Department of Biology. February 26, 2014.
- **California State University Fullerton**, Department of Biological Science. February 19, 2014.
- **Brooklyn College (CUNY)** (Brooklyn, NY), Biology Department. February 5, 2014.
- **Rivier University** (Nashua, NH), Department of Biology. October 19, 2012.
- **AMNH Richard Gilder Graduate School Comparative Biology Seminar Series**. Feb 14, 2011.
- **TRUST Summer Institute in Life Science**. August 10, 2011; Gottesman Center for Science Teaching & Learning (AMNH). *Why is biodiversity important?*
- **Coral: Symbol, Substance & Significance**. October 29-31, 2009; The Graduate School, The City University of New York: NY. Hosted by Initiatives in Art & Culture. *What is a coral?*

**Conferences / Symposia / Seminars**

- **Capitol Hill Ocean Week (CHOW) Conference.** Hosted by the National Marine Sanctuary Foundation (Theme: *Leadership*). Attended online. June 5-6, 2024.
- **52nd Annual Benthic Ecology Meeting (Charleston SC).** *Complete mitogenomes of the black corals Alternatipathes mirabilis Opresko & Molodtsova, 2021 & Parantipathes larix (Esper, 1788) (Cnidaria, Anthozoa, Hexacorallia, Antipatharia, Schizopathidae)*. Poster presentation by three USCB students. April 10-14, 2024.
- **2024 Port Royal Sound Monitoring and Research Symposium.** March 25, 2024.
- **ACE Basin Symposium 2024 ("Water Connects Us All").** Held at the Walterboro Wildlife Center. *Characterizing oyster reef biodiversity using eDNA*. Poster presentation by three USCB students. March 1, 2024.
- **UofSC Summer Research Symposium.** Thomas Cooper Library (Columbia, SC). July 27, 2023.
- **CHOW.** Hosted by the National Marine Sanctuary Foundation (Theme: Ocean x Climate). Attended online. June 6-8, 2023.
- **13th Annual USCB Student Research & Scholarship Day.** Bluffton Campus Rec Center. April 17, 2023.
- **Port Royal Sound Foundation 'State of the Sound' Symposium.** January 23, 2023.
- **POSea 2021 Conference** (a virtual joint conference for the marine science BIPOC community). Attended online. October 1-3, 2021.
- **CHOW.** Hosted by the National Marine Sanctuary Foundation (Theme: Justice, Equity, Diversity and Inclusion – Sustaining our Ocean and Great Lakes). Attended online. June 8-10, 2021.
- **Academic Affairs Winter Meeting (Walking the Talk, Leading the Equity-Centered University).** Attended online. February 3-5, 2021. Sponsored by AASCU (American Association of State Colleges & Universities).
- **17th Annual Poster Session of Faculty and Student Research**. November 21, 2019. City Tech (CUNY). Poster: *The impact of an ultra-gentle soft robot on jellyfish transcriptomic response during handling*.
- **15th Deep-Sea Biology Symposium**. September 9-14, 2018; Monterey, CA. Poster. *Partnering with the Ocean Genome Legacy to Advance our Understanding of Black Corals (Order Antipatharia).*
- **4th Annual National Ocean Exploration Forum (Beyond the Ships: 2020-2025)**. October 20-21, 2016. Hosted by The Rockefeller University (NYC). We published a 34-page report based on our discussions on February 23, 2017. Invited by Dr. Alan Curry on 10/06/16.

- **6th International Symposium on Deep-Sea Corals.** September 11-16, 2016; Boston, Massachusetts. Posters. 1) *Molecular characterization of the black coral Telopathes cf. magna from deep waters around New Zealand, Antarctica (Ross and Somov Seas) and Hawai'i*. 2) *Molecular characterization of mesophotic black corals (antipatharians) from the NW Gulf of Mexico.*
- **Evolution 2015.** June 26-30, 2015; Guaruja, Brazil. Oral presentation. *Sequencing the genome of Relicanthus daphneae (Cnidaria:Anthozoa:Hexacorallia:incerti ordinis)*. Poster. *Phylogenomics of the Anthozoa (Cnidaria): new approaches to long-standing problems*.
- **The Society for Integrative & Comparative Biology (SICB) Annual Meeting.** January 3-7, 2014; Austin, Texas. Oral presentation. *Next-gen sequencing of legacy collections at the American Museum of Natural History*. Poster. *Evaluation of intra- and interspecific variation within the Antarctic sea anemone genus Actinostola (Cnidaria: Anthozoa: Actiniaria) using morphology and novel nuclear DNA markers*.
- **Evolution 2013.** June 21-25, 2013; Snowbird, Utah. Oral presentation. *Evaluation of nuclear introns in sea anemones (Cnidaria: Anthozoa: Hexacorallia: Actiniaria).* Poster. *A nuclear intron reveals population-level variation within deep-sea black corals (Cnidaria: Antipatharia).*
- **Deep Metazoan Phylogeny 2011: New Data, New Challenges.** October 11-14, 2011; Munich, Germany. Posters. 1) *Anthozoans are characterized by extremely low rates of mitochondrial DNA sequence evolution and variable nuclear markers remain elusive*. 2) *Are sea anemones (Cnidaria, Actiniaria) monophyletic? First phylogenetic higher-level classification for the order.* Abstracts published in *Zitteliana* (Series B30).
- **4th International Symposium on Deep-Sea Corals.** December 1-5, 2008; Wellington, New Zealand. Posters. 1) *Mitochondrial genome studies of the black coral family Leiopathidae Haeckel, 1896*. 2) *Deep-sea corals show no evidence of endemism on northwestern Atlantic seamounts.*
- **UL Lafayette Biology Department Seminar.** September 25, 2008. Oral presentation. *Progress in antipatharian (black coral) phylogenetics and mitogenomics.*
- **2008 Cnidarian Tree of Life Annual Meeting.** July 19-24, 2008; Hotel Los Arcos, La Paz, Mexico. Oral presentation. *Progress in antipatharian phylogenetics and mitogenomics.*
- **8th Annual Department of Biology Graduate Student Symposium.** November 16, 2007; University of Louisiana at Lafayette, Lafayette, LA. Oral presentation. *Black coral phylogenetics: utilizing molecular morphometrics of the internal transcribed spacer 2 (ITS2, rDNA).*
- **7th Annual Department of Biology Graduate Student Symposium**. October 13, 2006; University of Louisiana at Lafayette. Oral presentation. *Analyzing complete mitochondrial genomes: advantages of gene order and genome content when inferring ancient evolutionary relationships.*
- **2006 Cnidarian Tree of Life Annual Meeting.** June 28-29, 2006 at SUNY Stony Brook (NY).
- **Evolution 2006.** June 23-27, 2006; SUNY Stony Brook, Stony Brook, NY. Oral presentation. *Have we discovered a "fountain of variation?" An analysis of non-coding regions within the black coral (Cnidaria: Anthozoa) mitochondrial genome.* Poster. *Deep-sea bamboo corals break rank: Mitochondrial gene order is not conserved among octocorals (Cnidaria: Octocorallia: Isididae).*
- **3rd International Symposium on Deep-Sea Corals.** November 28-December 2, 2005; Rosenstiel School of Marine and Atmospheric Science, Miami, FL. Oral presentation. *Low sequence variability within anthozoan mitochondrial genomes: Are antipatharian non-coding regions the exception?* Poster. *Distribution and abundance of black corals (Antipatharia) in relation to depth and topography on the New England Seamounts (Northwest Atlantic).*
- **8th Annual Sigma Xi Student Research Symposium** (UL Lafayette Chapter). March 14, 2005; University of Louisiana at Lafayette, Lafayette, LA. Oral presentation (1st place award). *The mitochondrial genome of an antipatharian (black coral) and ceriantharian (tube anemone): Implications for cnidarian phylogeny.*
- **2005 Graduate Student Symposium**. January 28-30, 2005; LUMCON (Louisiana Universities Marine Consortium), Cocodrie, LA. Oral presentation. *Mitochondrial genome of an antipatharian (black coral) & ceriantharian (tube anemone): Implications for cnidarian phylogeny.*
- **5th Annual Dept of Biology Graduate Student Symposium**. October 21-22, 2004; UL Lafayette, Lafayette, LA. Oral presentation (1st place award). *The mitochondrial genome of an antipatharian (black coral) & ceriantharian (tube anemone): Implications for cnidarian phylogeny.*
- **10th Deep-Sea Biology Symposium**. August 25-29, 2003; Southwestern Oregon Community College, Coos Bay, OR. Poster. *Do antipatharians belong in the subclass Ceriantipatharia? Inferring phylogeny from mitochondrial gene order of a deep-sea black coral.*

- **Marine Biology Graduate Student Research Colloquium** (Grice Marine Laboratory). February 21-22, 2003; Department of Natural Resources, Charleston, S.C. Oral presentation. *Sequencing the complete mitochondrial genome of an antipatharian (black coral) and a ceriantharian (tube anemone) for use in phylogenetics of the class Anthozoa.*
- **Annual Meeting of the South Eastern Population Ecology and Genetics Group**. September 20-22, 2002; Duke Marine Laboratory, Beaufort, N.C.

**Community Service / Outreach**

- YMCA "Mad Scientist" Summer Camp (co-led by Drs. Jena Chojnowski, Kathryn Madden, Butch Alvarez and Anna Meriwether); July 12-16, 2021 from 9am-12pm daily. The camp included 12 participants ages 9-12 years old. Activities included kayaking in the Beaufort River, surveying the dock fouling community at Fish Camp in Port Royal, a live creature showcase by Tony Mills, inspection of owl pellets, and invertebrate dissections. *The YMCA camp was held again on July 11-15, 2022, July 10-14, 2023, and June 24-28, 2024.*
- Worked with the Bluffton Public Library to create and administer content for their 'Ocean of Possibilities' program. Bluffton Public Library 'creature feature' presentation held on 06/21/22. Beaufort Public Library 'creature feature' presentation held on 06/23/22. Collaborators: Drs. Jena Chojnowski and Joe Staton. The *Library Summer Camp was run again on June 6, 2023 (Bluffton) and June 15, 2023 (Beaufort); theme: "All Together Now" or "Mutualism."*
- Collaborated with faculty from the Department of Mathematics (Drs. Volkan Sevim, Davide Fusi and Morgin Jones Williams) to integrate a "Science Day" into a two 2-week-long USCB Math Summer Camps for high school students. Dr. Jena Chojnowski co-led the science team onboard the shrimping trawler *Tammy Jane* (Vagabond Shrimping Exhibition; Sea Pines, Hilton Head). I provided a lecture to students in Bluffton prior to the field trip. July 17 and 31, 2021. Integrated USCB undergraduate Jicayla Johnson-Rosemond into the second "Science Day." *"Science Day" was held again on July 16, 2022 and July 15, 2023 at Hunting Island State Park (Tree Boneyard).*
- Beaufort Oyster Festival. Held at the Henry C. Chambers Waterfront Park in downtown Beaufort. Advertised USCB's Marine Biology Program. January 21, 2023 and January 20, 2024.
- Beaufort Shrimp Festival. Held at the Henry C. Chambers Waterfront Park in downtown Beaufort. Advertised USCB's Marine Biology Program. October 2, 2021, October 8, 2022, and October 5, 2024.
- Lang Science Program: Presentation to 25 high school students about how to communicate concepts about deep-sea biology through show-&-tell carts in the AMNH's Hall of Ocean Life. 01/12/19.
- AMNH Marine Biology Internship Program: Presentation to 30 students from Frank McCourt HS. 12/19/18.
- Ran a deep-sea themed booth at the AMNH's 25$^{th}$ Annual Family Party (afterhours fundraiser). 10/16/18.
- Lang *Unseen Oceans* Course: Presentation to 40 HS students (How scientists study the ocean). 07/17/18.
- Participated in the opening ceremony of the NY Aquarium's *Ocean Wonders: Sharks!* exhibit. 06/28/18.
- Hosted a live telepresence event that connected audience members at the AMNH's *2016 Annual REU Symposium* to scientists on the research vessel *Atlantis* (who were using the submersible *Alvin* to explore deep-sea canyons and seamounts in the NW Atlantic Ocean) and scientists at the University of Rhode Island's Inner Space Center; the latter included Robert Ballard, the founder of the *RMS Titanic*. 08/04/16.
- Presentation & show-and-tell to ~60 2$^{nd}$ grade students and 15 educators from NY Public School 234 in Tribeca. Held in the AMNH's Linder Theater on 4/15/16. Title: Exploring Deep-Sea Coral Communities.
- AMNH's Ocean Adventures Summer Camp. Presentation to 30 2$^{nd}$ and 3$^{rd}$ grade students and 10 educators. Title: Exploring Deep-Sea Coral Communities. 07/16/15, 08/25/15 & 02/16/16.
- Milstein Science Series: Incredible Oceans (in conjunction with the *Life at the Limits* exhibit). Held in the AMNH's Hall of Ocean Life on April 19 from 11:00am-4:30pm. Created and implemented a hands-on activity for >4,500 visitors that featured actual animals from the museum's collection.
- Lang Science Program (AMNH): Presentation to 30 high school students and 5 educators Title: Exploring Deep-Sea Coral Communities. 08/16/12.
- King-Chavez Summer Conservation Academy (San Diego, CA.): Presentation to 20 6-8$^{th}$ grade students. Title: Exploring Deep-Sea Coral Communities. 03/09/12.
- Saltz Internship Program (AMNH): Presentation. Title: What is a coral? 03/21/11.
- Regularly identify illegally imported precious red coral and black coral for the US Fish & Wildlife Service
- Expert adviser in a U.S. Department of Justice case that convicted two individuals of illegally trading CITES-protected black corals (www.justice.gov/opa/pr/taiwanese-couple-sentenced-prison-illegally-trading-protected-black-coral)

- Judge at the NYC Science & Engineering Fair (NYCSEF). Finals round. Held annually at the AMNH.
- Judge at NYCSEF. Preliminary round. Held annually at The City College of NY (CUNY).
- Judge at the 47th Annual Fall Metropolitan Association of College & University Biologists (MACUB) Conference. Held annually at Molloy College in Rockville Centre, NY.

**City Tech Library Exhibits**

- Showcased the entire range of undergraduate research at City Tech; June - September 2018
- Image-based showcase of undergraduate research cruises; March - April 2017

**Skills / Abilities**

***Next-Generation DNA Sequencing***

- 2011-2015: Operated a Roche 454 GS Junior for the AMNH (wet chemistry and bioinformatic pipeline; included whole genome shotguns, transcriptomics, amplicon libraries & multiplexed mitogenomes)

***Field / Lab***

- SCUBA diving (PADI: advanced open water certified, NAUI: nitrox certified).
- Knowledge of basic lab chemistry, reagent preparation, histological techniques, DNA extraction, fluorometry, polymerase chain reaction, thermal cyclers, gel electrophoresis, PCR purification, cycle sequencing, sequencing using Applied Biosystems/Beckman chemistry, gas chromatography, high performance liquid chromatography, spectrometry, & GC-mass spectrometry.
- Experienced in RNA isolation, first/second strand cDNA synthesis and cloning using Invitrogen's TOPO TA system (blue/white colony screening using ampicillin selection); proficient using the Agilent 2100 BioAnalyzer.
- Can operate traditional Sanger sequencers (Beckman Coulter CEQ 8000 and ABI 3100/3130xl), Next-Gen sequencers (e.g., 454) and scanning electron microscopes (Hitachi S-3000N Thermionic; AMRAY 1810).

***Software***

- Proficient on both Mac and PC operating systems; MS Word, Excel, and PowerPoint; File Maker Pro; ABI and Beckman Coulter CEQ 8000 Genetic Analysis System software; various phylogenetic analysis software programs (*e.g.*, Sequencher, Se-Al, PAUP*, MAFFT, Phylobayes, PhyML) and databases (GenBank).
- Intermediate knowledge of the Unix command line and R.

**Certifications**

- Responsible Conduct of Research (RCR) for CUNY Researchers. Online coursework provided by the Collaborative Institutional Training Initiative (CITI Program) - Univ of Miami. Completed 11/27/2019.

**Pertinent Past Employment**

- **The Dallas World Aquarium**, *Aquarist and Life Support* (May - August 2000 and 2001)
- **U.S. Army Corps of Engineers - Lewisville Aquatic Ecosystem Research Facility**, *Restoration and Maintenance* (December 1998 - January 1999, May - August 1999)

**Committee Member**

- Master's Thesis: Nicholas Ferry. USCB Computer Science Program. Proposal presentation held on 02/10/21. Thesis defense held on 09/07/21.
- Dissertation: Jeremy Horowitz. ARC Centre of Excellence for Coral Reef Studies, James Cook University (Townsville, Australia). Reviewed dissertation proposal and submitted edits/comments on 12/15/20. Dissertation submitted March 2022.