

Annabel M. Hughes

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EDUCATION

- Fall 2023-Present **Northeastern University**, Boston, Massachusetts, USA
Ph.D., Marine and Environmental Sciences
Advisor: Dr. Remy Gatins
- January 2020-January 2023 **Boston University**, Boston, Massachusetts, USA
B.A., Cum Laude with Honors in Marine Science
GPA on 4.0 scale: 3.78
Honors Thesis: *“Sponges as biodiversity multipliers in Belizean mangroves - Macro-symbionts of fire sponge (Tedania ignis) and garlic sponge (Lissodendoryx isodictyalis) in mangrove ponds and creeks”*
- Fall 2019 **Pratt Institute**, Brooklyn, New York, USA
Foundation Semester
GPA on 4.0 scale: 3.73
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RESEARCH EXPERIENCE

- May 2022-August 2023 **Research Technician, Davies Marine Population Genomics Lab**
Advisor: Dr. Sarah W. Davies
Perform molecular laboratory techniques to help predict future coral symbiosis interactions under global change stressors. Train and supervise high school and undergraduate researchers.
Relevant Skills: 2b-RAD genotyping, preparing metabarcoding (16S and ITS2) libraries for Illumina Miseq and Sanger sequencing, algae culture maintenance
- December 2022 **Honors Thesis in Marine Science, Boston University**
Advisor: Dr. John Finnerty
Characterized the macro-symbiont communities of Belizean mangrove sponges to disentangle the influences of sponge host species and micro-environmental variability on sponge-dwelling organism biodiversity.
Relevant Skills: taxonomic identification of marine invertebrates via morphology, operation of dissecting microscope, DNA extraction from formalin-fixed tissue, degenerate primer design, PCR profile design
- May 2022-October 2022 **Research Assistant, Boston University Earth and Environment Dept.**
Advisor: Dr. Alyssa Novak
Harvested and transplanted eelgrass to restore damaged eelgrass beds in Massachusetts, specifically in Essex and on Nantucket.
Relevant Skills: eelgrass identification, task loading while scuba diving, organization of a team of divers

February 2021-September 2021 **Finnerty Lab Research Assistant, Boston University**

Advisors: Dr. John Finnerty, Dr. Karina Scavo Lord

Assisted in molecular laboratory sample preparation for coral microbiome analyses.

Relevant Skills: prepared metabarcoding (16S and ITS2) libraries for Illumina Miseq and Sanger sequencing, DNA extraction and quantification, PCR amplification, gel electrophoresis

November 2018 **Fundación Dominicana de Estudios Marinos, Inc. (FUNDEMAR)**

Volunteer, Bayahibe, Dominican Republic

Collected data via snorkel regarding populations of fish species in coral reefs to help with marine research. Built buoys and coral garden structures to aid in nursery construction.

PUBLICATIONS

Bove CB, Greene K, Sugierski S, Kriefall NG, Huzar AK, **Hughes AM**, Sharp K, Fogarty ND, Davies SW (2023). Exposure to global change and microplastics elicits an immune response in an endangered coral. *Frontiers in Marine Science* 9:1037130.

Castillo KD, Bove CB, **Hughes AM**, Powell ME, Ries JB, Davies SW (in review: *Scientific Reports*). Coral gene expression plasticity facilitates acclimation across divergent reef environments.

Fifer JE, Candelario K, Gan Y, Huzar AK, Aichelman HE, Bove CB, Epps AM, Osterberg J, Ahuja V, Bussiere G, Feng J, Karadimitriou N, Thompson K, **Hughes AM**, Bahr KD, Baums IB, McAlister JS, Rotjan RD, Hellberg ME, Davies SW (in prep). Distinct lineages of facultative corals and their algal symbionts exhibit unique thermal performance, distributions, and adaptations. Target journal: *Molecular Biology and Evolution*

Scavo Lord K, Lee JC, Kriefall NG, Aichelman HE, Chan E, Gilbert E, **Hughes AM**, Madhav K, Prokopyeva N, Reyes S, Barcala A, Finnerty JR (in prep). Microbiome varies by species and environment in two widespread Caribbean corals (*Porites astreoides* and *Siderastrea siderea*) from mangrove and lagoon habitats. Target journal: *Frontiers in Ecology and Evolution*

AWARDS & RECOGNITION

2023 **NSF Graduate Research Fellowship** - \$111,000
National Science Foundation Graduate Research Fellowship Program (NSF GRFP)

November 2022 **Lara D. Vincent Research Assistance Fund** - \$500
Boston University Marine Program

May 2022 **2022 Lara Vincent Prize for Outstanding Undergraduate Research** - \$500
Boston University Marine Program

PROFESSIONAL PRESENTATIONS

September 2023 **Primary Research Interests**
Lightning talk at Gloucester Marine Genomics Institute, Gloucester, MA

MENTORSHIP

July 2022-August 2023 **Greater Boston Area Research Opportunities for Young Women (GROW)**
Research Mentor

January 2022-May 2022 **Introductory Biology at Boston University**
Teaching Assistant

March 2021-May 2022 **Strong Women Strong Girls at Boston University**
Youth Mentor

OUTREACH

December 3, 2022 **Reef Music: Family Concert & Workshop**
Volunteer, Watertown, Massachusetts
Led a SCUBA gear education booth for children ages 5-12 participating in the Reef Music event presented by the Multiverse Concert Series.

March 2021-August 2022 **The Urban Garden Initiative: Boston**
Partnerships Coordinator/Founder, Boston, Massachusetts
Worked in a team to begin Boston's chapter of The Urban Garden Initiative. Reached out to local businesses, schools, and organizations to help us engage with the Greater Boston community. Wrote a curriculum to teach youth about urban gardening, sustainability, and outdoor education.

April 30, 2022 **Jump Into Spring - Strong Women Strong Girls**
Youth Mentor/Volunteer, Boston, Massachusetts
Designed and led team-bonding activities for mentees who are part of Strong Women Strong Girls across the Greater Boston area.

November-December 2018 **Outreach360**
Volunteer/Teacher, Monte Cristi, Dominican Republic
Facilitated English language instruction for classes of 30-40 children in Monte Cristi public schools. Improved English language skills of students at the Outreach360 facility.

SELECTED RESEARCH EXPERIENCE IN COURSEWORK

Fall 2021 **Marine Physiology and Climate Change Research Project**
Ran tank experiment focused on characterizing the response of mesophotic *Orbicella faveolata* to thermal stress.
Relevant Skills: aquarium maintenance, coral husbandry, data collection (symbiont density, photochemical efficiency via Junior-PAM), data analysis in R Statistical Environment

Fall 2021 **Bio-Optical Oceanography Research Project**
Created algorithms to predict chromophoric dissolved organic matter (CDOM) using band ratios from remote sensing reflectance data and field data.
Relevant Skills: operation of CTD rosette, YSI analyzer, and compact optical profiling system (C-OPS), data analysis in MATLAB

WORK EXPERIENCE

June 2020-August 2021

New Logic Marine Science Camp

Support Staff, Lavallette, New Jersey

Led groups of children grades K-8. Independently conducted lessons and ocean-related educational games and activities. Handled gear and equipment necessary for seining, kayaking, and other water activities.

February-March 2019

Woolax

Design Intern, Madrid, Spain

Designed shipping methods and packaging labels for the company with Autodesk programs, as well as multiple virtual reality experiences using Tilt Brush.

RELEVANT INFORMATION

Relevant Coursework:

Marine Biology, Introduction to Oceanography, Marine Genomics, Scientific Diving, Bio-Optical Oceanography, Tropical Marine Invertebrates, Marine Physiology and Climate Change, Marine Biogeochemistry, Paleoclimatology and Paleoceanography, & Foundations of Programming, Data Analytics, and Machine Learning in Python

Certifications:

Fall 2021 AAUS Scientific Diver (30 ft.) - Boston University
Fall 2021 NAUI Rescue Diver
Fall 2021 Diving First Aid for Professional Divers: First Aid and CPR - Divers Alert Network
Fall 2020 PADI Advanced Open Water Diver
Summer 2022 FleetDefense Large Passenger Van certification

Programming Languages:

R – *intermediate*
Python – *beginner*
MATLAB – *beginner*

Language Skills:

Spanish - *advanced proficiency*