

Allyson DeMerlis

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ORCID: 0000-0002-6408-187X

EDUCATION

- 2019 – 2024
(Expected) **Doctor of Philosophy in Marine Biology and Ecology**
University of Miami Rosenstiel School for Marine, Atmospheric, and Earth Science
(Miami, FL)
Advisors: Dr. Ian Enochs (NOAA/AOML) and Dr. Nikki Traylor-Knowles (UM)
Thesis: Molecular mechanisms of enhancing coral resilience to thermal stress
- 2013 – 2017 **Bachelor of Science in Biology**
McGill University (Montreal, Quebec, Canada)

RESEARCH EXPERIENCE

- 2019 – 2024 **Graduate Research Assistant**, University of Miami Rosenstiel School for Marine, Atmospheric, and Earth Science | National Oceanic and Atmospheric Administration Atlantic Oceanographic and Meteorological Laboratory (Miami, FL)
Project: “Evaluation of mechanisms to increase resilience of outplanted coral fragments”
- May – Aug 2019 **Research Intern**, Mote Marine Laboratory’s International Center for Coral Reef Restoration and Research (Summerland Key, FL)
Project: “Optimizing protocol for use of 3D scanner to measure coral growth”
Advisors: Dr. Hanna Koch and Dr. Abigail Clark
- Feb – May 2019 **Coral Health and Disease Intern**, Mote Marine Laboratory’s International Center for Coral Reef Restoration and Research (Summerland Key, FL)
Project: “Development of *in-situ* spawning nursery for *Acropora cervicornis*”
Advisors: Dr. Hanna Koch and Dr. Abigail Clark
- Jan – April 2017 **Research Intern**, Parque Natural Metropolitano (Panama City, Panama)
Project: “Population assessment and management strategies following introduction of invasive species of freshwater turtle, *Trachemys scripta*”
Advisor: Dr. Javier Mateo-Vega
- Jan – June 2016 **Research Intern**, Roy Lab at McGill University Department of Biological Sciences (Montreal, Canada)
Project: “Fatty acids as signaling molecules in lipolysis: Investigating change in lipid abundance in relation to KIN-2 and ATGL-1 activity in *Caenorhabditis elegans*”
Advisor: Dr. Richard Roy

PROFESSIONAL EXPERIENCE

- Sept – Dec 2018 **Marine Conservation Intern**, Reef Environmental Education Foundation (REEF) (Key Largo, FL)
Supervisor: Ellie Splain

Feb – May 2019 **Essential Fish Habitats Intern**, NOAA Fisheries Pacific Island Regional Office
(Honolulu, HI)
Supervisor: Ian Lundgren

PEER-REVIEWED PUBLICATIONS

1. **DeMerlis A**, Kirkland A, Kaufman ML, Mayfield AB, Formel N, Kolodziej G, Manzello DP, Lirman D, Traylor-Knowles N, Enochs IC (2022) Pre-exposure to a variable temperature treatment improves the response of *Acropora cervicornis* to acute thermal stress. *Coral Reefs*. <https://doi.org/10.1007/s00338-022-02232-z>
2. Traylor-Knowles N, Connelly MT, Young BD, Eaton K, Muller EM, Paul VJ, Ushijima B, **DeMerlis A**, Drown MK, Goncalves A, Kron N, Snyder GA, Martin C, Rodriguez K (2021) Gene expression response to stony coral tissue loss disease transmission in *M. cavernosa* and *O. faveolata* from Florida. *Frontiers in Marine Science* 8, 791. <https://doi.org/10.3389/fmars.2021.681563>
3. Koch HR, Wallace B, **DeMerlis A**, Clark AS, Nowicki RJ (2021) 3D scanning as a tool to measure growth rates of live coral microfragments used for coral reef restoration. *Frontiers in Marine Science*. <https://doi.org/10.3389/fmars.2021.623645>

PUBLICATIONS IN PREPARATION

1. **DeMerlis A**, Beasley S, Rodriguez K, Traylor-Knowles N. Molecular signatures of the innate immune response in the early hours of wound healing in *Pocillopora damicornis*.

GRANTS AND AWARDS

2022	University of Miami Graduate Student Organization Travel Fund (\$500)
2022	University of Miami Graduate Student Association Academic Excellence Award (\$650)
2022	Capt. Harry D. Vernon, Jr. Scholarship (\$200)
2020	David Rowland Fellowship (\$3500)
2019	Research Experience for Undergraduates Scholarship (\$6000)
2017	McGill University Dean's Multidisciplinary Undergraduate Research List

Total funding received = \$10,850

TEACHING ASSISTANTSHIPS

2021	Saltwater Semester: Cnidarian Microbiology and Immunology, University of Miami
2020	Marine Biology Laboratory, University of Miami

ORAL PRESENTATIONS

2023	DeMerlis A , Studivan M, Snyder G, Soderberg N, Ehrens D, Isma L, Rosing K, Coscon K, Thomas R, Dvorkin D, Chakraborty M, Kiel P, Babbitz H, Unsworth J, D'Alessandro M, Palacio-Castro A, Lirman D, Traylor-Knowles N, Enochs IC. Evaluating the efficacy of a variable temperature treatment to stress-harden threatened reef-building corals in Florida. Benthic Ecology Meeting, Miami, Florida
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- 2022 **DeMerlis A**, Kirkland A, Kaufman ML, Mayfield AB, Formel N, Kolodziej G, Manzello DP, Lirman D, Traylor-Knowles N, Enochs IC. Variable temperature treatments alter a coral's response to acute thermal stress. International Coral Reef Symposium, Bremen, Germany
- 2022 **DeMerlis A**, Kirkland A, Kaufman ML, Mayfield AB, Formel N, Kolodziej G, Manzello DP, Lirman D, Traylor-Knowles N, Enochs IC. Prolonged exposure to a variable, elevated temperature regime as a tool for stress-hardening nursery-raised *Acropora cervicornis*. Reef Futures, Key Largo, Florida
- 2022 **DeMerlis A**, Beasley S, Rodriguez K, Traylor-Knowles N. Early-hour molecular signatures of wound healing in *Pocillopora damicornis*. Cnidofest, Davis, California
- 2021 **DeMerlis A**, Kirkland A, Kaufman ML, Mayfield AB, Formel N, Kolodziej G, Manzello DP, Lirman D, Traylor-Knowles N, Enochs IC. International Coral Reef Symposium (virtual).

INVITED LECTURES

- 2021-2023 Marine Biology and Ecology Department Seminar at University of Miami Rosenstiel School
- 2022 Biology Course at Yale University
- 2020 Boston University Marine Program
- 2019 Osher Lifelong Institute, University of Miami
- 2019 Mote Marine Laboratory's International Center for Coral Reef Research and Restoration

MENTORING

- 2022 Katrina Cocson, University of Miami Undergraduate
- 2022 Katrina Rosing, University of Miami Master of Professional Science
- 2022 Samantha Beasley, University of Miami Master of Professional Science

PROFESSIONAL SERVICE AND ASSOCIATIONS

- Reviewer: Journal of Experimental Biology, Coral Reefs
- Associations: International Society for Reef Studies

EDUCATIONAL OUTREACH

- 2022 University of Miami Rosenstiel School Ocean Explorers event
- 2022 Scientists For Every School in Florida presentations (virtual)
- 2021 University of Miami Rosenstiel School Graduate Program Open House (virtual)
- 2020 University of Miami Rosenstiel School Students for Students presentations (virtual)
- 2019-2022 Skype a Scientist presentations (virtual)

2019 Mote Marine Laboratory Ocean Fest

CERTIFICATIONS

2020 Motorboat Operators Certification Course (MOCC)
2019 AAUS (American Academy of Underwater Sciences) Diver
2018 PADI Rescue Diver
2018 PADI Enriched Air Diver
2018 PADI Advanced Open Water Diver
2018 PADI Open Water Certification
2018 DAN CFAPro First Aid

WORKSHOPS

2023 Dallas Murphy Scientific Writing Workshop
2019 University of Miami Libraries Data Management Workshop

PRESS AND RESEARCH FEATURES

1. [Threats to coral reefs: Identifying and addressing threats to reef communities.](#) (2023). *National Oceanic and Atmospheric Administration (NOAA)'s Atlantic Oceanographic and Meteorological Laboratory.*
2. [NOAA scientists return to Cheeca Rocks, find reef completely bleached.](#) (2023). *National Oceanic and Atmospheric Administration (NOAA)'s Atlantic Oceanographic and Meteorological Laboratory.*
3. [Florida's rising water temperatures raise concerns for health of coral reefs, scientists say.](#) (2023). *Reuters.*
4. [AOML Coral Program demonstrate the importance of teamwork, tackling coral conservation from various angles.](#) (2022). *National Oceanic and Atmospheric Administration (NOAA)'s Atlantic Oceanographic and Meteorological Laboratory.*
5. [Surprise coral rescue mission uncovered during Don't Trash Our Treasure report.](#) (2022). *Local 10 News.*
6. [Coral Rescue at Miami Beach.](#) (2022). *National Oceanic and Atmospheric Administration (NOAA)'s Atlantic Oceanographic and Meteorological Laboratory.*
7. [Heat Resilience for Coral Reef Restoration.](#) (2022). *EarthxTV.*
8. ['Sign of Hope': Rare sighting of two endangered sawfish in Biscayne Bay.](#) (2022). *Miami New Times.*
9. [Corals can be 'trained' to tolerate heat stress, study finds.](#) (2022) *University of Miami Rosenstiel School News.*
10. [Building endurance to beat the heat: New study preps corals for warming waters.](#) (2022) *National Oceanic and Atmospheric Administration (NOAA)'s Atlantic Oceanographic and Meteorological Laboratory.*
11. [New technique shows promise to restore Florida's threatened coral.](#) (2022) *NBC News WFLA Tampa.*

12. [Two coral experts work to save Miami's briny deep.](#) (2021) *The Jumpstart Journal*.
13. [Tackling A Coral Health Crisis: Investigating the Immunology Behind Bleaching.](#) (2021) *Eco Magazine*.
14. [Research Breakthrough Finds Hope For Corals Infected With Stony Coral Disease — They Can Fight Back.](#) (2021) *NPR WLRN South Florida*.
15. [Coral Reef Restoration at Mote Marine Laboratory.](#) (2019) *Nightsea - Bringing fluorescence to light*.

SKILLS

- Scientific Diving, Field Work, Scientific Boating and Surface Support
- Programming Languages: R, Bash
- Bioinformatics for transcriptomics
- Visual Software: Adobe Illustrator, Adobe Photoshop, Flourish, Tableau
- Image Software: ImageJ, FlexScan3D
- Data Software: Microsoft Office Suite (Excel), SAS, RStudio
- Laboratory Techniques: DNA and RNA extractions, qRT-PCR, RNAi, FACS
- Animal Husbandry: *Acropora cervicornis* (staghorn coral) in-situ/ex-situ (Mote Marine Laboratory), *Pocillopora damicornis* (Pacific stony coral) ex-situ and *Nematostella vectensis* (University of Miami), *Caenorhabditis elegans* (McGill University)