

# HANNAH-MARIE LAMLE

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Miami, FL - 33167, USA

## RESEARCH INTERESTS

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trait-based ecological modelling, coral macroalgal competition, reefscape ecology

## EDUCATION

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- **Florida International University** August 2023 - May 2028  
Miami, FL, USA  
*P.h.D. Biological Sciences*
  - Advisor: Dr. Rolando Santos
  - Dissertation: "Quantifying colorful communities: Community assembly, function and resilience of corals throughout South Florida using spectral traits"
- **Indiana University** August 2018 - May 2022  
Bloomington, IN, USA  
*B.S. Environmental Science*
  - Certification: Underwater Resource Management
  - Honors Thesis: "Coral Reefs under Threat: Could Repopulating the West Indian Spider Crab Help?"

## RESEARCH EXPERIENCE

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- **Graduate Research Assistant [🌐]** August 2023 - Present  
Miami, FL, USA  
*Florida International University Santos Seascapes Ecology Lab*
  - Conducting relevant literature reviews and experimental design for dissertation chapters
- **Research Associate [🌐]** August 2022 - July 2023  
Bloomington, IN, USA  
*Indiana University Center for Underwater Science*
  - Field monitoring of IUCN recognized endangered coral species on shipwreck sites in Dominican Republic
  - Management of biological resource conservation of archaeological sites
- **Research Assistant [🌐]** August 2021 - May 2022  
Bloomington, IN, USA  
*Indiana University Geobiology of Invertebrates Lab*
  - Curated datasets with 20+ years of coral abundance data across 6 archaeological sites in the Florida Keys and Dominican Republic
- **Research Assistant [🌐]** August 2020 - May 2022  
Bloomington, IN, USA  
*Indiana University Center for Underwater Science*
  - Assisted with archaeological artifact research and maintenance (conservation, historical data collection, field excavation and maintenance)
  - Created government reports and interpretive materials for underwater archaeological sites
- **Intern [🌐]** May 2021 - August 2021  
Summerland Key, FL, USA  
*Mote Marine Laboratory International Center for Coral Reef Research and Restoration*
  - Responsible for over 500 coral fragments, including day-to-day husbandry activities and preparation of fragments to be out-planted
  - Assisted with growth experiments using photogrammetry techniques to monitor coral growth
- **Research Assistant [🌐]** August 2020 - May 2021  
Bloomington, IN, USA  
*Indiana University Maxwell Research Lab*
  - Responsible for priming, sampling and measuring of tulip tree core samples to aid in identification of historical climate events
- **Intern [🌐]** October 2018 - May 2019  
Bloomington, IN, USA  
*Indiana University Integrated Program in the Environment*
  - Conducted guided research with a mentor assessing persistence of document preservation centers in the anthropocene
  - Presented research at annual Indiana University sustainability symposium

## PROJECTS

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- **Show me your colors: Using hyperspectral analysis to quantify coral health** August 2024 - Present
  - Tools: spectroscopy, laboratory analysis (spectrophotometer, hemocytometer), coral husbandry, R
  - Designed and developed an experimental framework to investigate influence of physiological trait values on coral spectral reflectance profile
  - Established protocols and methodologies for data collection, scheduled for Summer 2025
  - Coordinating logistics and preparations for implementation, including coral acquisition, methodological refinements, collaborations.
- **Stream Flow Reduction Experiment (StreamFRE)** February 2024 - Present
  - Tools: Animal tagging equipment (PIT tags, elastomer)
  - Conducted bi-annual field sampling for the Luquillo LTER, utilizing PIT tags and colored elastomer to track shrimp movement in mountain step-pools.
- **Fish In Seagrass Habitats: Seascape Connectivity Across Protected Ecosystems (FISHSCAPE)** January 2024 - Present
  - Tools: Underwater quadrat photography
  - Supported the use of GPS technology and ground-truthing to train machine learning models for mapping seagrass habitats.
- **Restoring the three-dimensional structure of hurricane-impacted coral reefs in Puerto Rico** August 2023 - Present
  - Tools: Coralnet, TagLab, R
  - Assisted with data analysis tracking coral colony growth and survivorship across multi-year observational study
  - Assisted with data analysis estimating benthic community coverage in large area images created via photogrammetry
  - Assisted with statistical analysis of population modeling
- **RAPID: Here we go again - The fate of Diadema antillarum and Caribbean reefs in the 21st century** August, 2023 - December, 2024
  - Tools: Coralnet, TagLab
  - Assisted with data analysis tracking coral colony growth and survivorship across multi-year observational study
  - Assisted with data analysis estimating benthic community coverage in large area images created via photogrammetry
- **Assessing Functional Trait Dynamics of Caribbean Scleractinia Communities in Puerto Rico's Northeast Marine Corridor** January 2024 - May 2024
  - Tools: Data curation
  - Assisted with the creation of regional trait database for selected species and traits of interest
- **Identification of the 16th Century Punta Espada Shipwreck** January 2022 - July 2023
  - Tools: underwater photogrammetry, magnetometer use, underwater survey methods for archaeology
  - Conducted archaeological survey and site assessment, including mapping of site and associated features
  - Assisted with field expedition planning and equipment management
  - Restored artifacts taken from the site to aid in pursuits of shipwreck discovery

## PUBLICATIONS

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### Submitted:

- [1] Lamle, H.M., Mucherheide, S.M., Divish, C., Baelz, J.D. (*submitted*). **Biodiversity of coral species in selected Caribbean Regions**. Manuscript submitted for publication in the *Indiana University Journal for Undergraduate Research*.

## PRESENTATIONS

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### Talks:

- [1] Bautista, V., Rivas, N., Lamle, H., Nation, C., James, R., Santos, R. (April 12, 2024). **Assessing functional trait dynamics of Caribbean Scleractinia communities in Puerto Rico's Northeast Marine Corridor**. *Benthic Ecology Meeting*, in Charleston, SC, USA

### Posters:

- [1] Lamle, H.M., Santos, R.O. (2025). **Show me your colors: Using spectroscopy to quantify coral health**. *FIU Biosymposium* in Miami, FL, USA.
- [2] Lamle, H.M., Santos, R.O. (2025). **Show me your colors: Using spectroscopy to quantify coral health**. *Reef Futures* in Rivera Maya, Mexico.

- [3] Lamle, H.M., Bautista, V., Rivas, N.I., James, W.R., Santos, R.O. (April 13, 2024). **Exploring the inter- and intra-species pattern of spatial aggregation of coral recruits in Culebra, Puerto Rico.** *Benthic Ecology Meeting* in Charleston, SC, USA
- [4] Lamle, H.M., Baelz, J.D., Johnson, C., Beeker, C.D. (January 2, 2023). **Biology of Shipwrecks in the Dominican Republic: How submerged cultural resources facilitate the growth of endangered and threatened coral species.** *Society of Historical Archaeology Conference* in Lisbon, Portugal.
- [5] Lamle, H.M., Baelz, J.D., Johnson, C., Beeker, C.D. (January 3, 2022). **An updated report for the biology of shipwrecks in the Florida Keys National Marine Sanctuary.** *Society of Historical Archaeology Conference* in Philadelphia, PA, USA.
- [6] Lamle, H.M., Morrison, K., Montoya, R.D. (May 2, 2019). **Document centers and environmental sustainability.** *Indiana University Sustainability Symposium* in Bloomington, IN, USA.

## FUNDING

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### Current:

- **South Florida Program** August 2025 - August 2028  
*Environmental Protection Agency, Region 4: \$750,000* [⊕]
  - Three year grant funding proposed novel coral monitoring technique utilizing hyperspectral imaging to non-invasively assess coral health
  - Assisted with proposal development and writing, creation of conceptual diagrams, and budget planning
- **Graduate Student Coastal and Ocean Research Fellowship** August 2024 - August 2025  
*Florida SeaGrant: \$25,000* [⊕]
  - One year fellowship to fund graduate research activities in coastal/marine science

### Completed:

- **Student Travel Award** December 2024  
*FIU CREST CACHe: \$500*
  - Travel funding to Reef Futures Conference
- **Student Travel Award** December 2024  
*FIU Graduate and Professional Student Council: \$700*
  - Travel funding to Reef Futures Conference
- **Student Travel Award** March 2024  
*FIU CREST CACHe: \$500*
  - Travel funding to 52nd the Benthic Ecology Meeting
- **Blue World/Oceanic Research Group Undergraduate Marine Conservation Scholarship** March 2022  
*Women Divers Hall of Fame: \$1000*
  - Scholarship to fund undergraduate research activities
- **Provost's Scholarship** August 2018 - January 2022  
*Indiana University Office of Scholarships: \$4500/semester*
  - Scholarship to fund undergraduate tuition
- **Scholar's Award** August 2018 - January 2022  
*Indiana University O'Neill School of Public and Environmental Affairs: \$1500/semester*
  - Scholarship to fund undergraduate tuition
- **Sustainability Scholarship** January 2019  
*Indiana University Integrated Program in the Environment: \$1000*
  - Scholarship to fund undergraduate research experience

## SKILLS AND CERTIFICATIONS

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### SCUBA diving:

- AAUS Scientific Diver (Florida International University)
- Indiana University Scientific Diver
- PADI Open Water Scuba Instructor (#523283)
- PADI Enriched Air Diver

- PADI Underwater Photography
- PADI Search and Recovery
- PADI Cavern
- TDI Ice Diver

- DAN Emergency Oxygen Provider
- DAN First Aid for Hazardous Marine Life Injuries Provider
- DAN CPR and First Aid (BLS)
- DAN Emergency Oxygen for Scuba Diving Injuries (EO2)

### First Aid:

- DAN Neurological Assessment Provider

## **Programming & Data Analysis:**

- Proficient in R and PRIMER for statistical analysis, modelling, and processing
- Proficient in PRIMER for ecological statistical analysis
- Proficient in html and css for website development

## **Technology**

- ArcGIS Pro
- Adobe Photoshop

## • Adobe Illustrator

- VISCORE
- TagLab
- CoralNet
- Agisoft Metashape Pro

## • coral disease surveys

- underwater archaeological survey
- underwater magnetometer survey

## **Field Work:**

- Small vessel operations
- Florida boating license
- photogrammetry

## **Laboratory Skills:**

- microscopy, cell counting via hemocytometer
- spectrophotometry
- coral microfragmentation

## **TEACHING**

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### **• Graduate Teaching Assistant**

*Florida International University Department of Biological Sciences*

- Marine Protected Areas Online; Summer 2024 - Current
- General Biology II Lab Section (2 sections/semester); Spring 2024
- General Biology I Lab Section (2 sections/semester); Fall 2023

*August 2023 - Present*

*Miami, FL, USA*

### **• Visiting Lecturer**

*Indiana University Academic Diving Program*

- PADI Open Water Diving Course (Certified 60+ students)

*August 2022 - June 2023*

*Bloomington, IN, USA*

## **OUTREACH AND VOLUNTEERING**

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### **Early Career Researcher (ECR) Committee Member**

*International Coral Reef Society (ICRS) Student and Early Career Chapter (SECC)*

*January 2025 - Present*

### **MAST @ FIU Career Day**

*Representing FIU Marine Biology Program*

*February 26, 2025*

### **Family Science Night at Citrus Grove K-8 Center**

*Representing the Santos Seascape Ecology Lab*

*March 14, 2024*

## **PROFESSIONAL MEMBERSHIPS**

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### **• International Coral Reef Society Student & Early Career Chapter**

*January 2025 - Present*

### **• American Society for Photogrammetry and Remote Sensing (ASPRS), FIU Chapter**

*February 2024 - Present*

### **• Women Divers Hall of Fame, Associate Member**

*March 2022 - March 2023*

## **REFERENCES**

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### **1. Dr. Rolando O. Santos**

Assistant Professor, Department of Biological Sciences

Florida International University

Email: rsantosc@fiu.edu

Phone: +1 (305)-348-3095

*Major Advisor*

### **2. Dr. W. Ryan James**

Research Assistant Professor, Department of Biological Sciences

Florida International University

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*Committee Member*

### **3. Dr. Charles Beeker**

Director, Center for Underwater Science

Indiana University

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Phone: +1 (812) 855-5748

*Project Supervisor*