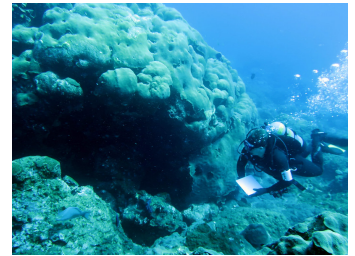


# IAN R. COMBS

Large Area Imaging, Structure-from-Motion photogrammetry,  
Coral Restoration, Coral Reef Ecology



[Download CV as PDF](#)

## EDUCATION

2019  
|  
2017

### **M.Sc. in Biological Sciences**

Florida Atlantic University

 Boca Raton, FL

Thesis: Characterizing the impacts of stony coral tissue loss disease on coral in  
southeast Florida using 3D photogrammetry

Advisor: Dr. Joshua Voss

2014  
|  
2010

### **B.Sc. in Marine Science**

University of Delaware

 Newark, DE

## RESEARCH EXPERIENCE

Present  
|  
2024

### **Senior Biologist, Lower Keys Coral Restoration Operations Supervisor**

Mote Marine Laboratory

 Summerland Key, FL

Coral Restoration Program

Supervisor: Dr. Jason Spadaro

2024  
|  
2023

### **Senior Biologist, Coral Nursery Manager**

Mote Marine Laboratory

 Summerland Key, FL

Coral Restoration Program

Supervisor: Dr. Jason Spadaro

2023  
|  
2022

### **Senior Biologist, Coral Reef Ecosystems**

Mote Marine Laboratory

 Summerland Key, FL

Coral Restoration Program

Supervisor: Dr. Jason Spadaro

2021  
|  
2020

### **Staff Biologist, Coral Reef Ecosystems**

Mote Marine Laboratory

 Summerland Key, FL

Coral Restoration Program

Supervisor: Dr. Erinn Muller

2020  
|  
2019

### **Research Technician**

FAU, Harbor Branch Oceanographic Institute

 Ft. Pierce, FL

Coral Reef Health and Molecular Ecology Lab

Supervisor: Dr. Joshua Voss

2019  
|  
2017

### **Graduate Research Assistant**

FAU, Harbor Branch Oceanographic Institute

 Fort Pierce, FL

Coral Reef Health and Molecular Ecology Lab

Supervisor: Dr. Joshua Voss

2014

### **Research Assistant**


University of Delaware

 Lewes, DE

Team Benthic Habitat Mapping


Supervisor: Dr. Douglas Miller

## CONTACT

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33040

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 [combsi9892@gmail.com](mailto:combsi9892@gmail.com)

 [ScleractinIan\\_](#)

 [icombs2017](#)

 [Ian R Combs](#)

## SKILLS

Structure-from-Motion

photogrammetry

Large-Area Imagery

Coral Restoration Ecology

Coral Reef Ecology

Coral Health and Disease

800+ Scientific Dives

Multivariate Data Analysis

## LANGUAGE SKILLS

R

Bash

Python



## TEACHING EXPERIENCE

- 2018 **Graduate Teaching Assistant**  
FAU, Harbor Branch Oceanographic Institute 📍 Fort Pierce, FL  
Marine Biodiversity
- 2017 **Research-based After-school Program for Students**  
Mote Marine Laboratory 📍 Summerland Key, FL
- 2015 **Alumni Service Corps**  
|  
2014 Gonzaga College High School 📍 Washington, D.C.



## STUDENTS MENTORED

- 2025 **Jayla Pleasant**  
Mote URE Intern  
Assessing the effectiveness Hydrogen Peroxide for invasive tunicate mitigation.
- 2024 **Ashley Binstock**  
Mote URE Intern  
Comparing fusion spacing of microfragmented coral using Strucutre-from-Motion Photogrammetry
- 2024 **Alana Boirie**  
Mote URE Intern  
Comparing fusion spacing of microfragmented coral using Strucutre-from-Motion Photogrammetry
- 2024 **Nathaniel Hand**  
Mote URE Intern  
Comparing fusion spacing of microfragmented coral using Strucutre-from-Motion Photogrammetry
- 2023 **Amber Morera**  
Mote REU Intern  
Quantifying changes in biodiversity in an experimentally ouplanted reef site in the Florida Keys, FL
- 2023 **Lily Gullett**  
Mote REU Intern  
Assessing coral restoration success and changes in benthic community composition following the removal of non-protected organisms within Eastern Dry Rocks, Key West, FL
- 2022 **Kamryn Blake**  
Mote REU Intern  
Assessing if microfragmentation promotes accelerated growth in massive stony corals using Structure-from-Motion photogrammetry
- 2021 **Gabrielle D'Alonzo**  
Coral Restoration Intern  
Assessing coral restoration's impacts on herbivorous fish communities.
- 2021 **Ryan Rogers**  
Mote REU Intern  
Does microfragmentation enhance the tissue growth and skeletal deposition of brain corals?

|      |   |
|------|---|
| 2021 | <b>Briana Matthews</b><br>Coral Restoration Intern<br>Assessing changes in microfragmentation on skeletal deposition and tissue growth.   |
| 2020 | <b>Ashley Carreiro</b><br>Coral Reef Health and Ecology Lab<br>Determining stony coral tissue loss disease intervention success on <i>Montastraea cavernosa</i> using 3D photogrammetry             |
| 2019 | <b>Mckenna Rayburn</b><br>Link Fellowship Intern<br>Intervention methods and rate of tissue loss on stony coral tissue loss disease-affected <i>Montastraea cavernosa</i> in the Florida Reef Tract |
| 2018 | <b>Diana Perez</b><br>Link Fellowship Intern<br>Zooxanthellae characterization and connectivity in <i>Montastraea cavernosa</i>   |



## REFEREED PUBLICATIONS

|      |   |                            |
|------|---|----------------------------|
| 2025 | <b>5. Coral restoration can drive rapid increases in reef accretion potential</b><br><i>Scientific Reports</i> (2025). doi:10.1038/s41598-025-04818-3<br>Toth LT, Jonson SA, Lyons EO, Spadaro J, Stathakopoulos A, Bloomer S, Mallon J, Jenkins CM, Williams, SD, Combs IR, Craig Z, Muller E  |                            |
| 2024 | <b>4. Assessment of nutrient amendments on stony coral tissue loss disease in Southeast Florida</b><br><i>Frontiers in Marine Science</i> (2024). doi:10.3389/fmars.2024.1384534<br>Carreiro AM, Eckert RJ, Sturm AB, Ingalls TR, Combs IR, Walker BK, Voss JD  | Citations: 137             |
| 2023 | <b>3. Large-area imaging in tropical shallow water coral reef monitoring, research, and restoration: A practical guide to survey planning, execution, and data extraction.</b><br>NOAA Technical Memorandum NOS NCCOS 313. (2023). doi:10.25923/5n6d-kx34<br>Edwards CB, Viehman TS, Battista T, Bollinger MA, Charendoff J, Cook S, Combs IR, Couch C, Ferrari R, Figueira W, Gleason ACR, Gordon S, Greene W, Kuester F, McCarthy O, Oliver T, Pedersen NE, Petrovic V, Rojano S, Runyan H, Sandin SA, Zgliczynski BJ | h-index: 4<br>i10-index: 3 |
| 2021 | <b>2. Quantifying impacts of stony coral tissue loss disease on corals in Southeast Florida through surveys and 3D photogrammetry</b><br><i>PLoS ONE</i> (2021). doi:10.1371/journal.pone.0252593<br>Combs IR, Studivan MS, Eckert RJ, Voss JD  |                            |
| 2021 | <b>1. Assessing the effectiveness of two intervention methods for stony coral tissue loss disease on <i>Montastraea cavernosa</i></b><br><i>Scientific Reports</i> (2021). doi:10.1038/s41598-021-86926-4<br>Shilling EN, Combs IR, Voss JD   |                            |



## PRESENTATIONS

|      |   |
|------|---|
| 2024 | <p><b>Using Structure-from-Motion photogrammetry for the identification and monitoring of coral recruits produced via Assisted Sexual Reproduction</b></p> <p>Reef Futures 2024 <span>📍 Riviera Maya, Mexico</span></p> <p>Gullett, L., Combs, I.R., Leto, C., D'Alonzo, G.L., Spadaro, A.J., Muller, E.M., Koch, H.R.</p> <p>Oral Presentation</p> |
| 2023 | <p><b>Assessing coral restoration's effects on benthic community composition using Structure-from-Motion photogrammetry</b></p> <p>Association of Marine Labs of the Caribbean 40th Scientific Meeting <span>📍 St. Kitts &amp; Nevis</span></p> <p>Combs IR, D'Alonzo GL, Muller EM, Bartels E, Spadaro AJ</p> <p>Oral Presentation</p>             |
| 2022 | <p><b>Does microfragmentation accelerate the grow-out phase of asexually propagated brain corals?</b></p> <p>Reef Futures 2022 <span>📍 Key Largo, FL</span></p> <p>Combs IR, Hamlyn SB, Matthews B, Rogers R, Muller EM</p> <p>Oral Presentation</p>  |
| 2019 | <p><b>Characterizing impacts of scleractinian tissue loss disease on corals in southeast Florida with photogrammetry and 3D modeling</b></p> <p>48th Annual Benthic Ecology Meeting <span>📍 St. John's, NL, Canada</span></p> <p>Combs IR, Beal J, Voss JD</p> <p>Oral Presentation</p>   |
| 2019 | <p><b>Characterizing the impacts of scleractinian tissue loss disease on corals in southeast Florida</b></p> <p>ASLO Aquatic Sciences Meeting <span>📍 San Jaun, PR</span></p> <p>Combs IR, Beal J, Voss JD</p> <p>Poster Presentation</p>   |
| 2019 | <p><b>Impacts of scleractinian tissue loss disease on corals in southeast Florida</b></p> <p>Indian River Lagoon Symposium <span>📍 Ft. Pierce, FL</span></p> <p>Combs IR, Beal J, Voss JD</p> <p>Poster Presentation</p> <p>Outstanding Presentation Award</p>  |
| 2019 | <p><b>Undersatnding coral disease through 3D modeling</b></p> <p>HBOI Ocean Discovery Visitor Center Marine Science Fridays <span>📍 Ft. Pierce, FL</span></p> <p>Combs IR</p> <p>Oral Presentation</p>  |
| 2018 | <p><b>Eulogy for the St. Lucie Reef</b></p> <p>3MT-Three Minute Thesis Competition <span>📍 Ft. Pierce, FL</span></p> <p>Combs IR</p> <p>OralPresentation</p> <p>Heat 7 Runner-Up, 4th Place Overall</p>   |
| 2018 | <p><b>White blotch disease impacts on corals in southeast Florida</b></p> <p>47th Annual Benthic Ecology Meeting <span>📍 Corpus Christi, TX</span></p> <p>Combs IR, Beal J, Voss JD</p> <p>Poster Presentation</p>  |

## FUNDING

2023

|

2023

**Mote Marine Laboratory POR Grant Program**

\$30,691

2019

|

2018

**Indian River Lagoon Graduate Research Fellowship**

\$7,947

2019

|

2018

**FAU GPSA Travel Awards**

\$1,600

## CERTIFICATIONS

**AAUS Scientific Diver**

**PADI Enriched Nitrox Certification**

**DAN Oxygen Delivery, First Aid, and CPR for SCUBA diving injuries**

**USFWS Motorboat Operator Certification Course**

## SKILLS

**Large-Area Imaging, Structure-from-Motion photogrammetry, Agisoft Metashape**

**Analysis of LAI and SfM products using Viscore, TagLab, MeshLab, and Rhinoceros 3D**

**Field research planning, logistics, and execution**

**Data visualization using R statistical software and R Markdown**

**Data mangement using GitHub**

**Coral sampling, benthic surveys, photography, navigation and mapping**

**Caribbean Coral ID, Caribbean Fish ID**

**Multivariate statstical analyses**


**Scientific SCUBA diving**

## REFERENCES

### **Dr. Jason Spadaro**

Program Manager of Mote's Coral Reef Restoration Research Program


+1 305-745-2729 ext. 713

 Mote Marine Laboratory  
[jspadaro@mote.org](mailto:jspadaro@mote.org)

### **Dr. Erinn Muller**

Associate Vice President for Research, Program Manager for Coral Health & Disease, and Senior Scientist


+1 (947) 388-4441 ext. 310

 Mote Marine Laboratory  
[emuller@mote.org](mailto:emuller@mote.org)

### **Dr. Joshua Voss**

Associate Research Professor, CIOERT Executive Director

+1 (772) 242-2538

 Florida Atlantic University  
[jvoss2@fau.edu](mailto:jvoss2@fau.edu)