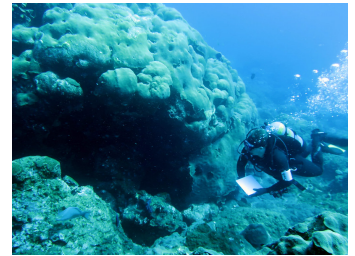




# IAN R. COMBS

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








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## 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  
|  
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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Summerland Key, FL 33042  
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 [combsi9892@gmail.com](mailto:combsi9892@gmail.com)  
 [ScleractinIan\\_](#)  
 [icombs2017](#)  
 [Ian R Combs](#)




## SKILLS

Structure-from-Motion  
photogrammetry  
Coral Restoration Ecology  
Coral Reef Ecology  
Coral Health and Disease  
200+ 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

- 2023 **Amber Morera**  
**Mote REU Intern**  
Quantifying changes in biodiversity in an experimentally outplanted 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 **Briana Matthews**  
**Coral Restoration Intern**  
Assessing changes in microfragmentation on skeletal deposition and tissue growth.
- 2020 **Ashley Carreiro**  
**Coral Reef Health and Ecology Lab**  
Determining stony coral tissue loss disease intervention success on *Montastraea cavernosa* using 3D photogrammetry
- 2019 **Mckenna Rayburn**  
**Link Fellowship Intern**  
Intervention methods and rate of tissue loss on stony coral tissue loss disease-affected *Montastraea cavernosa* in the Florida Reef Tract
- 2018 **Diana Perez**  
**Link Fellowship Intern**  
Zooxanthellae characterization and connectivity in *Montastraea cavernosa*

## REFEREED PUBLICATIONS

- 2021 **2. Quantifying impacts of stony coral tissue loss disease on corals in Southeast Florida through surveys and 3D photogrammetry**  
*PLoS ONE* (2021). doi:10.1371/journal.pone.0252593  
Combs IR, Studivan MS, Eckert RJ, Voss JD

- 2021 **1. Assessing the effectiveness of two intervention methods for stony coral tissue loss disease on *Montastraea cavernosa***  
*Scientific Reports* (2021). doi:10.1038/s41598-021-86926-4  
Shilling EN, Combs IR, Voss JD

Citations: 66

h-index: 3

i10-index: 3

## PRESENTATIONS

- 2023 **Assessing coral restoration's effects on benthic community composition using Structure-from-Motion photogrammetry**  
Association of Marine Labs of the Caribbean 40th Scientific Meeting  
St. Kitts & Nevis  
Combs IR, D'Alonzo GL, Muller EM, Bartels E, Spadaro AJ  
Oral Presentation

- 2022 **Does microfragmentation accelerate the grow-out phase of asexually propagated brain corals?**  
Reef Futures 2022  
Key Largo, FL  
Combs IR, Hamlyn SB, Matthews B, Rogers R, Muller EM  
Oral Presentation

- 2019 **Characterizing impacts of scleractinian tissue loss disease on corals in southeast Florida with photogrammetry and 3D modeling**  
48th Annual Benthic Ecology Meeting  
St. John's, NL, Canada  
Combs IR, Beal J, Voss JD  
Oral Presentation

- 2019 **Characterizing the impacts of scleractinian tissue loss disease on corals in southeast Florida**  
ASLO Aquatic Sciences Meeting  
San Jaun, PR  
Combs IR, Beal J, Voss JD  
Poster Presentation

- 2019 **Impacts of scleractinian tissue loss disease on corals in southeast Florida**  
Indian River Lagoon Symposium  
Ft. Pierce, FL  
Combs IR, Beal J, Voss JD  
Poster Presentation  
Outstanding Presentation Award

- 2019 **Undersatnding coral disease through 3D modeling**  
HBOI Ocean Discovery Visitor Center Marine Science Fridays  
Ft. Pierce, FL  
Combs IR  
Oral Presentation

2018

### **Eulogy for the St. Lucie Reef**

3MT-Three Minute Thesis Competition

📍 Ft. Pierce, FL

**Combs IR**

**Oral Presentation**

Heat 7 Runner-Up, 4th Place Overall

2018

### **White blotch disease impacts on corals in southeast Florida**

47th Annual Benthic Ecology Meeting

📍 Corpus Christi, TX

**Combs IR, Beal J, Voss JD**

**Poster Presentation**

## FUNDING

2023

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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 statistical analyses**


**Scientific SCUBA diving**

## REFERENCES

### **Dr. Erinn Muller**

Program Manager and Science Director of the Elizabeth Moore International Center for Coral Reef Research and Restoration


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

### **Erich Bartels**

Coral Reef Monitoring and Assessment Program Manager


+1 (305) 395-8729

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