

# IAN R. COMBS

Coral reef ecology, coral health and disease



## 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  
|  
Dec  
2019



### Research Technician

FAU, Harbor Branch Oceanographic Institute

📍 Ft. Pierce, FL

Voss Laboratory

Dr. Joshua Voss

Lead field research operations for local southeast Florida stony coral tissue loss disease related projects including disease monitoring, fate-tracking, disease intervention, and tissue sampling. Responsible for sample processing, data entry, data analysis, and database management of southeast Florida projects. Maintain lab and field supplies, chemical inventory, and lab equipment. Mentor interns and assist students in the lab. Assist with report and publication writing.

Dec  
2019  
|  
Aug  
2017



### Graduate Research Assistant

FAU, Harbor Branch Oceanographic Institute

📍 Ft. Pierce, FL

Voss Laboratory

Dr. Joshua Voss

Executed fieldwork for southeast Florida stony coral tissue loss disease projects, collected and analyzed roving diver disease survey data, adapted and optimized 3D photogrammetry technique to assess surface area of fate-tracked coral colonies, processed and analyzed 3D photogrammetry data, intervened on diseased, fate-tracked coral colonies. Participated in 2 research cruises totalling 20+ days at sea.

2017



### Coral Restoration Intern

Mote Marine Laboratory

📍 Summerland Key, FL

Elizabeth Moore International Center for Coral Reef Research & Restoration

Chris Page

Maintained land-based coral nursery including water quality, raceway maintenance, and microfragmentation



Research technician specializing in coral health and disease, coral reef ecology, and 3D photogrammetry.

## CONTACT INFO

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🌐 [Ian Combs](#)

🔗 [icombs2017](#)

🐦 [Scleractinian\\_](#)

## SKILLS

Coral reef ecology

Coral health and disease

160+ Scientific Dives

Multivariate data analysis

3D Photogrammetry

- 2016

● **Coral Health and Disease Research Intern**  
 Mote Marine Laboratory  
 Coral Health and Disease Laboratory  
 Dr. Erinn Muller  
 Sarasota, FL

Collected, processed, and analyzed data to better understand genotypic responses to ocean acidification and temperature in *Acropora cervicornis*
- 2014

● **Research Assistant**  
 University of Delaware  
 Team Benthic Habitat Mapping  
 Dr. Douglas Miller  
 Lewes, DE

Processed over 1,000 benthic AUV photographs assessing incidental mortality of sea scallops from commercial fishing dredges

## TEACHING EXPERIENCE

- 2018

● **Graduate Teaching Assistant**  
 FAU Harbor Branch Oceanographic Institute  
 Marine Biodiversity  
 Ft. Pierce, FL

Gathered specimens, set up experiments, assisted students in the field and in the laboratory, proctored exams, graded and provided feedback on end of semester project
- 2017

● **Research-based After-school Program for Students**  
 Mote Marine Laboratory  
 Summerland Key, FL

Assisted high school students with designing, implementing, and analyzing their own research projects
- 2015  
|  
2014

● **Alumni Service Corps**  
 Gonzaga College High School  
 Washington, D.C.

Substitute taught a wide variety of classes, coached rugby and water polo, coordinated volunteering, meal preparation, and meal delivery at Gonzaga's chapter of Campus Kitchen

## STUDENTS AND INTERNS MENTORED AND CO-SUPERVISED

- present  
|  
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*



## MANUSCRIPTS IN PREPARATION

- **Characterizing the impacts of stony coral tissue loss disease on corals in southeast Florida using 3D photogrammetry**  
*PLoS* (in prep).  
**Combs IR**, Studivan MS, Voss JD








## TECHNICAL REPORTS

- 2019 ● **Intervention and fate tracking for corals affected by stony coral tissue loss disease in the northern Florida Reef Tract**  
Florida Department of Environmental Protection  
Voss JD, Shilling E, **Combs I**



## PRESENTATIONS

- 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 Juan, 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**
- 2019 ● **Understanding coral disease through 3D Modeling**  
HBOI Ocean Discovery Visitors Center  Ft. Pierce, FL.  
Marine Science Fridays  
**Combs IR**  
**Oral presentation**
- 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

2019  
|  
2018

- **Indian River Lagoon Graduate Research Fellowship**  
\$7,947

2019  
|  
2018

- **FAU GPSA Travel Awards**  
\$1,600

## CERTIFICATIONS

- **AAUS Scientific Diver**  
100'
- **PADI Enriched Air Nitrox Certification**
- **DAN Oxygen delivery, First Aid, and CPR for scuba diving injuries**
- **USFWS Motorboat Operator Certification Course**

## MEMBERSHIP AND SERVICE

2018

- **Association for the Studies of Limnology and Oceanography**

2018










- **Benthic Ecology Meeting Society**

## SKILLS

- **Field research planning, logistics, and execution**
- **Coral sampling, benthic surveys, photography, navigation and mapping**
- **3D photogrammetry, 3D model generation using Agisoft Metashape, 3D model analysis using Rhinoceros 3D**
- **Data visualization using R statistical software and R Markdown**
- **Multivariate statistical analyses**
- **Python**

- **Data management using GitHub**
- **Scientific SCUBA diving**

## REFERENCES

- **Dr. Joshua Voss**  
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CIOERT Executive Director  
M.Sc. Advisor  
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 [jvoss2@fau.edu](mailto:jvoss2@fau.edu)  
 Florida Atlantic University
- **Jeff Beal**  
Marine/Estuarine Habitat Restoration Coordinator  
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 Florida Fish and Wildlife Conservation Commission
- **Dr. M. Dennis Hanisak**  
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