

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
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2010

B.Sc. in Marine Science

University of Delaware

📍 Newark, DE



RESEARCH EXPERIENCE

Present
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2020

Coral Reef Ecosystems Biologist

Mote Marine Laboratory

📍 Summerland Key, FL

Dr. Erinn Muller, Erich Bartels

Established Mote Marine Laboratory's photogrammetry program, created and optimized rigorous methods for obtaining broad-scale ecological information to better inform monitoring and restoration practices. Incorporated Structure-from-Motion photogrammetry across all scales of restoration from large-area imaging on the macro-scale (500m²) and single colony fate-tracking on the micro-scale (100cm²).

2020
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2019

Research Technician

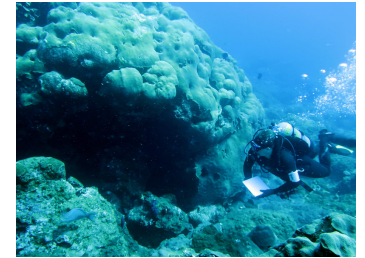
FAU, Harbor Branch Oceanographic Institute

📍 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.



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

CONTACT INFO

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✉ combsi9892@gmail.com

🌐 [Ian Combs](#)

🌐 [icombs2017](#)

🐦 [Scleractinian_](#)

SKILLS

Coral reef ecology

Large Area Imagery

Coral health and disease

160+ Scientific Dives

Multivariate data analysis

Structure-from-Motion

Photogrammetry

2019
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2017

Graduate Research Assistant

FAU, Harbor Branch Oceanographic Institute
Voss Laboratory

📍 Ft. Pierce, FL

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

2016

Coral Health and Disease Research Intern

Mote Marine Laboratory

📍 Sarasota, FL

Coral Health and Disease Laboratory

Dr. Erinn Muller

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

2014

Research Assistant

University of Delaware

📍 Lewes, DE

Team Benthic Habitat Mapping

Dr. Douglas Miller

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
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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

2022

Kamryn Herbison
Mote REU Intern

2022

Brooke Pohlman
Mote College Intern

2021

Ryan Rogers
Mote REU Intern

2021

Brielle D'Alonzo
Mote College Intern

2021

Brianna Matthews
Mote College Intern

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

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

PLoS 2021.

Combs IR, Studivan MS, Eckert, RJ, Voss JD

Assessing the effectiveness of two intervention methods for stony coral tissue loss disease on *Montastraea cavernosa*

Scientific Reports 2021.


Shilling EN, Combs IR, 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
Outstanding Presentation Award
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
Eulogy for the St. Lucie Reef
3MT - Three Minute Thesis Competition  Ft. Pierce, FL
Heat 7 Runner-Up
4th Place Overall
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
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2018
Indian River Lagoon Graduate Research Fellowship
\$7,947

2019
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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. Erinn Muller

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

📍 Mote Marine Laboratory

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Erich Bartels

Staff Scientist
Program Manager Coral Reef Monitoring & Assessment
Supervisor

📍 Mote Marine Laboratory

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Dr. Joshua Voss

Associate Research Professor
CIOERT Executive Director
M.Sc. Advisor

📍 Florida Atlantic University

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