Allison M. Klein

PhD. Integrative Biology Student
Florida Atlantic University
5600 US-1 Fort Pierce FL 34946
Laboratory 2 Office: 125
Kleina2020@fau.edu

EDUCATION

Ph.D., Integrative Biology GPA 4.0
Florida Atlantic University- Harbor Branch Oceanographic Institute, Fort Pierce FL
Dissertation: *Ecological and sociocultural responses to transplanting thermally resilient corals to enhance reef resilience in the wake of warming oceans*
Research Advisor: Dr. Joshua Voss
August 2022- Present

M.Sc., Biological Sciences GPA 3.9
Florida Atlantic University- Harbor Branch Oceanographic Institute, Fort Pierce FL
Thesis: *Stony Coral Tissue Loss Disease Susceptibility and Resistance: Genomic and Microbiome factors among* Orbicella faveolata *in South Florida*
Research Advisor: Dr. Joshua Voss
2020 - 2022

B.S., Marine Biology and Environmental Chemistry, Minor: Sustainability, GPA 3.8
Roger Williams University, Feinstein School of Social and Natural Sciences, Bristol RI
Thesis: *Localizing key bacterial members of* Astrangia poculata's *microbiome using florescent in situ hybridization (FISH)*
Research Advisor: Dr. Koty Sharp
2016-2020

Study Abroad: Bermuda Institute of Oceanographic Sciences (BIOS) St. Georges, Bermuda
Research Project: *Changes in the Bacterial Community of* Sargassum *when Presented with Methyl Phosphonate and Antibiotic*s
Research Advisor: Dr. Rachel Parsons
Fall 2018

RESEARCH EXPERIENCE

Graduate Research Assistant *August 2020-present*
Coral Reef Health and Molecular Ecology Lab, Dr. Joshua Voss
Harbor Branch Oceanographic Institute- Florida Atlantic University, Fort Pierce, FL

- Participate in monitoring and implementation of effective *in situ* intervention strategies to mitigate stony coral tissue loss disease (SCTLD) impacts on Caribbean corals
- Library preparation optimization for microbial samples collected from SCTLD affected corals
- Analyze intraspecies variation of *O. faveolata* in response to SCTLD susceptibility through high-resolution restriction site-associated DNA sequencing
- Library preparation for microsatellite and SNP genetic markers used to characterize population dynamics and the connectivity of both shallow and mesophotic coral communities
- Aided in coral transplantation research project lead by the Florida Fish & Wildlife Research Institute

Safety and Scientific Diver *May 13-May 20, 2023*
CYCLE Cruise led by Dr. Joshua Voss, RV Manta
Flower Garden Banks National Marine Sanctuary
- Aided as safety support for mesophotic CCR divers
- Collected coral samples for downstream genomic analysis
- Conducted all dives on CCR

Coral Disease Biologist and Lead Scientific Diver for FAU *June 2022*
DRTO Research Cruise led by Dr. Karen Neely, MV Makai
SCTLD Follow up Intervention on the Dry Tortugas National Park reefs
- Lead diver and cruise coordinator for FAU team
- Follow up on previously treated corals and retreated corals impacted by SCTLD
- Aided in post treatment processing such as data entry, photo organization, and created maps off GPS data

Coral Disease Biologist and Scientific Diver *August 31-September 10, 2021*
DRTO Research Cruise led by Dr. Karen Neely, MV Makai
SCTLD Intervention on the Dry Tortugas National Park reefs
- Treated and reported over 6,000 coral colonies impacted by SCTLD by applying amoxicillin and base 2B to disease lesions, 30+ scientific dives
- Aided in post treatment processing such as data entry, photo organization, and created maps off GPS data
- Expedition funded by National Fish and Wildlife Foundation

Undergraduate Research Assistant *January 2018-May 2020*
Microbial Ecology of Marine Invertebrates Lab, Dr. Koty Sharp
Roger Williams University, Bristol, RI
- Examined the dynamics and distributions of microorganisms associated with the coral host, *Astrangia poculata* by isolating and identifying bacterial taxa known to produce antimicrobial compounds from *A. poculata's* surface mucus layer
- Localized these bacterial members within *A. poculata's* tissue using fluorescent *in situ* hybridization (FISH)
- Engineered a flow through system that was used for feeding microplastics to *A. poculata*
- Developed protocols for spawning and reproduction of *A. poculata* and gained coral husbandry skills

Undergraduate Research Assistant *August 2018-December 2018*
Microbial Ecology Laboratory, Dr. Rachel Parsons
Bermuda Institute of Oceanographic Sciences (BIOS) St. Georges, Bermuda
- Conducted an independent research project investigating the changes in *Sargassum's* microbiome composition in the presence of Methyl Phosphonate and anti-biotics
- Utilized FISH, CARD-FISH, and DAPI staining techniques as well as confocal microscopy to monitor shifts in microbial communities pre and post treatment

TEACHING AND MENTORING EXPERIENCE

Highschool STEAM Mentor, Westwood Academy, Fort Pierce, FL *August 2021- present*
- Give classroom education sessions on the local marine ecosystems
- Help students explore various avenues of art by creating landscapes of the Indian River Lagoon

Undergraduate Academic Tutor, Roger Williams University, Bristol, RI *August 2016- May 2020*
- Tutored and mentored over 400 students in biology, chemistry and physics
- Created lesson plans and conducted in person review sessions for chemistry and physics students

PUBLICATIONS

Klein AM, Sturm AB, Eckert RJ, Neely KN, Walker BK, Voss JD (*in prep*) "The role of host genotype and symbiont type in influencing SCTLD susceptibility in *O. faveolata* corals along Florida's Coral Reef"

Eckert RJ, Sturm AB, Carreiro AM, **Klein AM**, Voss JD (*in prep*) "*Stephanocoenia intersepta* corals in Florida Keys National Marine Sanctuary exhibit depth-dependent genetic structure"

Sturm AB, Eckert RJ, Carreiro AM, **Klein AM**, Voss JD (*in review*) "Does depth divide? Variable genetic connectivity patterns among shallow and mesophotic *Montastraea cavernosa* coral populations across the Gulf of Mexico and western Caribbean". *Ecology and Evolution*.

Klein AM, Voss JD (2023) "Investigation of intraspecific factors driving resistance and/or resilience to SCTLD on Florida's Coral Reef". *Technical Report*, Florida Department of Environmental Protections

CONFERENCE/ SYMPOSIUM PRESENTATIONS

Klein AM, Sturm AB, Eckert RJ, Neely KN, Walker BK, Voss JD (2023) "Investigating potential microbial drivers behind *Orbicella faveolata* corals' variable susceptibility to stony coral tissue loss disease in South Florida Poster Presentation at the 51st Annual Benthic Ecology Meeting. Miami, Florida

Klein AM, Sturm AB, Eckert RJ, Neely KN, Walker BK, Voss JD (2022) "Stony coral tissue loss disease susceptibility and resistance: Genomic and Microbiome factors in *Orbicella faveolata*" **Oral Presentation** at the 15th International Coral Reef Symposium. Bremen, Germany.

Klein AM, Sturm AB, Eckert RJ, Neely KN, Walker BK, Voss JD (2022) "Stony coral tissue loss disease susceptibility and resistance: Genomic and Microbiome factors in *Orbicella faveolata*" **Oral Presentation** at the 50th annual Benthic Ecology Meeting. Portsmouth, NH.

Klein AM, Sharp K (2020) "Localizing key bacterial members of *Astrangia poculata's* microbiome and monitoring the changes in microbiome diversity in response to holobiont disturbance". **Live virtual Presentation** at Roger Williams Senior Thesis Symposium 2020.

Klein AM, Sharp K (2020) "Localizing key bacterial members of *Astrangia poculata's* microbiome and monitoring the changes in microbiome diversity in response to holobiont disturbance" **Poster Presentation** at Rhode Island Microbiome Symposium 2020, RI-INBRE SURF Conference 2019.

Klein AM, Sharp K (2019) "Localizing key bacterial members of the *Astrangia poculata* microbiome and monitoring changes in taxonomic diversity in response to thermal stress" **Lighting Talk** at Temperate Coral Research Conference 2019

Klein AM, Parsons R (2018) "Changes in the Bacterial Community of *Sargassum* when Presented with Methyl Phosphonate and Antibiotics" **Oral Presentation** at BIOS Fall Student Research Symposium

Klein AM<, Zaccardi Z, Sharp K (2018) "Antimicrobial activity of bacteria isolated from the coral, *Astrangia poculata"* **Poster Presentation** at RI-INBRE SURF Conference 2019

Klein AM, Howard R, Hintz L, Schickle A, Rotjan R, Sharp K (2018) "Investigating the Plastisphere: The Role of Plastic Associated Microbes on Microbead Ingestion by the coral *Astrangia poculata"* **Poster Presentation** at RI-INBRE SURF Conference 2018 and INBRE Grant Renewal Celebration 2019 attended by Senator Jack Reed

FELLOWSHIPS AND SCHOLARSHIPS

2023 Women Divers Hall of Fame Technical Dive Training Grant, $2,000
2023 FAU Graduate Research Grant, $1,200
2022-2023 FAU GPSA Grant, $800
2021-2022 FAU GPSA Grant, $800
2022 FAU Graduate Research Grant, $1,200
2021 ARPA COVID Grant, $1,400
2020 CRSSA COVID Grant, $1,129
2019 RI-INBRE SURF Undergraduate Fellow, $4,000
2018 RI-INBRE SURF Undergraduate Fellow, $4,000
2018 Roger Williams University Spiegel Center Study Abroad Scholarship, $5,000
2016-2020 Roger Williams University Presidential Scholarship, $78,000

AWARDS AND HONORS

May 2020 Roger Williams University Presidential Core Values Medallion Recipient
2018 Beta Beta Beta Biology Honors Society Member
2018 Roger Williams University Presidential Ambassador
2016-2020 Roger Williams University Class Officer
2016-2020 Roger Williams University Dean's List
2016-2020 Roger Williams University Honors College Student
2016-2020 *Magna cum laude*, General and Departmental Honors, Presidential Core Medallion Recipient

CERTIFICATIONS

AAUS Scientific Diver, open circuit and CCR, 200+ scientific dives, 130fsw
TDI Air Diluent Close Circuit Rebreather (CCR)
TDI Decompression Procedures
TDI Advanced Nitrox
PADI Nitrox
DAN Oxygen Delivery, First Aid, and CPR for scuba diving injuries
PADI Advanced Open Water Diver
Department of Interior Motorboat Operator Certification Course

SKILLS

Laboratory: FISH, CARD-FISH, molecular benchwork, PCR, qPCR DNA and RNA extraction and purification, 2bRAD-library preparation, NGS library preparation, Nanodrop and Qubit DNA quantification, gel electrophoresis, coral husbandry and aquaria maintenance, water quality analysis

Field: Coral sampling, quadrat sampling, roving diver surveys, tropical coral, fish, and algal species identification, belt transect surveying, underwater photo transects, scleractinian coral disease identification and intervention techniques, seine net sampling, plankton tows

Computing: ArcGIS Pro, R studio, Microsoft Office Suite, Adobe Acrobat, Geneious, ImageJ