

Allison M. Klein

M.S. Biology Candidate
Florida Atlantic University
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EDUCATION

In Progress- Master of Science: Biology **3.9 current**
Florida Atlantic University- Harbor Branch Oceanographic Institute, Fort Pierce FL
Proposed Thesis: *Stony Coral Tissue Loss Disease Susceptibility and Resistance: Genomic and Microbiome factors in Orbicella faveolata*
Research Advisor: Dr. Joshua Voss
Expected Graduation: May 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, Spring 2020,
Magna cum laude, General and Departmental Honors, Presidential Core Medallion Recipient
Thesis: *Localizing key bacterial members of Astrangia poculata's microbiome using florescent in situ hybridization (FISH)*
Research Advisor: Dr. Koty Sharp
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 Antibiotics*
- Research Advisor: Dr. Rachel Parsons

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 *Orbicella faveolata* 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

Coral Disease Biologist and Scientific Diver *August 31-September 10, 2021*
SCHMIR DRTO Research Cruise led by Dr. Karen Neely, MV Makai
SCTLD Intervention on the Dry Tortugas National Park reefs
- Treated and reported 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

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 associate 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)
- Designed a deployment device that would provide a natural biofilm for microplastic beads to be used in experiments
- Engineered a flow through system that was used for feeding microplastics to *A. poculata*
- Collected coral samples via SCUBA
- 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
- Set up an outdoor aquaria using natural flow through

RI-INBRE SURF Undergraduate Fellow

Summer 2019

Roger Williams University, Dr. Koty Sharp

RI-INBRE SURF Undergraduate Fellow

Summer 2018

Roger Williams University, Dr. Koty Sharp

TEACHING AND MENTORING EXPERIENCE

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

CONFERENCE/ SYMPOSIUM RESENTATIONS

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

Klein A, Howard R, Hintz L, Schickle A, Rotjan R, Sharp K (2018) "Investigating the Plasticsphere: 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

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

CERTIFICATIONS

AAUS Scientific Diver, 100+ scientific dives, 100fsw
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, roving diver surveys, 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