

Phone: (864) 328-6559

Email: willisz2025@fau.edu

LinkedIn: [linkedin.com/in/zoe-willis-research](https://www.linkedin.com/in/zoe-willis-research)

Zoe Willis

RESEARCH INTERESTS

I am driven by a desire to understand and mitigate anthropogenic impacts on corals. I am interested in how coral disease, eutrophication, and warming are changing corals and coral reefs. I am also interested in understanding how the interplay of these factors with restoration efforts can help achieve successful restoration on a changing planet. My goal is to utilize my research to develop strategies that benefit the coastal communities most vulnerable to coral decline.

EDUCATION

Florida Atlantic University, Harbor Branch Oceanographic Institute, Fort Pierce, FL

Master of Science, Marine Science & Oceanography

Expected 2027

College of Charleston, Honors College, Charleston, SC

Bachelor of Science, Marine Biology

May 2025

Bachelor of Arts, Chemistry

GPA 4.0

Relevant Coursework: Analytical Chemistry, Biochemistry, Biology of Coral Reefs, Biology of Invertebrates, Computer Programming, Data Science, Data Structures and Algorithms, Ecology, Genetics, Marine Botany, Molecular Biology, Oceanography, Organic Chemistry, Statistical Methods

RESEARCH EXPERIENCE

College of Charleston, Grice Marine Laboratory

Bachelor's Essay, August 2024 – April 2025

Advisor: Dr. Robert Podolsky

- Determined the relationship between mud crab *Panopeus herbstii* pinching force generation and specific mechanical traits such as size, cuticle stiffness, and calcium content.
- Sampled crabs from multiple field sites across four months.
- Analyzed and visualized large dataset in R Studio.
- Communicated research findings through a talk, poster, and 27-page scientific manuscript, integrating statistical modeling and field data.

NOAA Department of Fisheries, UPR Mayagüez, Puerto Rico Department of Natural and Environmental Resources

NOAA Hollings Scholar Internship, June 2024 – July 2024

Advisors: Helena Antoun, Dr. Maria Vega-Rodriguez, Dr. Roy Armstrong

- Determined baseline water quality parameters at multiple SCTL treatment sites using a Manta bio-optical sensor.
- Analyzed treatment data from yearlong SCTL intervention efforts in comparison to temperature.
- Presented findings to a broad scientific audience at the 2024 NOAA Science and Education Symposium and AGU24.

College of Charleston, Grice Marine Laboratory and Chemistry Department

Undergraduate Researcher, January 2022 – April 2024

Advisors: Dr. Robert Podolsky, Dr. Katherine Mullaugh

- Designed experiment testing how projected ocean acidification conditions affect the cuticle stiffness and carapace chemistry of the green porcelain crab *Petrolisthes armatus*.
- Monitored crabs daily: photographed, fed, filtered water, monitored water chemistry.
- Analyzed cuticle sample stiffness using IMADA force testing equipment and calcium content using Flame Atomic Absorption Spectroscopy.
- Used ImageJ software to map biological landmarks and track crab growth.
- Trained and mentored novice researchers in animal care.

College of Charleston, MANTA British Virgin Islands

Study Abroad Research Project, June 2022

Advisor: Dr. Rusty Day

SCUBA surveyed high-risk coral species for disease and presented a comparison to historical disease prevalence data from the region.

- Trained in Caribbean coral and coral disease identification.
- Trained in transect, roving diver, and quadrat underwater survey methods.
- Practiced sailing and navigation techniques.

OTHER EXPERIENCE

College of Charleston, Grice Marine Laboratory

Aquarist, August 2022 – May 2025

- Responsible for six tanks including touch tanks, coral tanks, and brackish tanks.
- Fed and attended to the health of fish, turtles, coral, and other invertebrates.
- Maintained all aspects of aquaria including water quality testing, cleaning, equipment maintenance, and educational signage.
- Educated visitors about local aquatic species and marine conservation.

Bali Conservation Diving, Indonesia

Coral and Fish Survey Volunteer, June 2023

- Deployed artificial reef structures.
- Trained in Indo-Pacific coral and fish identification.
- Surveyed fish and coral populations of multiple natural and artificial reefs.

SKILLS

Technical: Java, R, Python, website design, Adobe Creative Cloud Software Suite, Office & Google Suite, Chimera, Ocean Data View, ImageJ

Laboratory: Spectroscopy (FTIR, NMR, AAS), chromatography (HPLC, TLC, GC-MS, ion exchange), water quality analyses, carbonate chemistry analysis

Practical: Scientific diving, field survey techniques, aquarium care, algal ID, algae pressing, coral ID, fish ID

PADI Advanced Diving Certification, PADI Rescue Diving Certification

German (intermediate), Spanish (beginner)

P R E S E N T A T I O N S

College of Charleston EXPO, Charleston, SC, April 2025. “In a Pinch: Examining the Relationship Between Claw Structure and Force Generation in *Panopeus herbstii*” (poster).

AGU24, Washington, DC, December 2024. “Heat Extremes and Coral Disease: Understanding Bleaching and Stony Coral Tissue Loss Disease Observations in Puerto Rico” (poster).

Benthic Ecology Meeting, Charleston, SC, April 2024. “Impacts of ocean acidification on green porcelain crab (*P. armatus*) intermolt growth, cuticle strength, and calcification” (poster).

College of Charleston EXPO, Charleston, SC, April 2024. “Impacts of ocean acidification on green porcelain crab (*P. armatus*) intermolt growth, cuticle strength, and calcification” (poster).

NOAA Science and Education Symposium, Silver Spring, MD, July 2024. “The Water Quality Factor: Why is Water Quality Important for Stony Coral Tissue Loss Disease Interventions in Puerto Rico?” (oral).

A W A R D S / H O N O R S

Biology Outstanding Student Award and Departmental Honors, EXPO (2025)

Best in Biology and Marine Biology, EXPO (2024)

Lowcountry Phi Beta Kappa Scholarship (2024)

NOAA Ernest F. Hollings Undergraduate Scholarship (2023)

Colonial Scholarship, College of Charleston full scholarship (2021 – 2025)

L E A D E R S H I P / S E R V I C E

Cougar Changemaker Environmental Committee

Committee member, September 2021 – April 2025

- Served as case manager for student-proposed projects to make the campus more sustainable.
- Mentored students as they go through the submission process.
- Connected students with campus partners and stakeholders.
- Decided which projects received funding through connection with campus sustainability goals.

Sustainable Ocean Alliance College of Charleston

President, Social Media Liaison, January 2023 – April 2025

- Founding executive member of this SOA branch.
- Connected students with opportunities in sustainable ocean action.
- Engaged and educated community members on restoration efforts/sustainability issues.

Charleston Fellows Executive Board

President, Vice President, August 2022 – May 2024

- Led weekly meetings with Executive Council.
- Worked with Honors College staff to ensure Fellow's interests were represented.
- Coordinated social and professional development events.
- Spearheaded initiatives such as increasing community and leadership within Fellows.

MEMBERSHIP

Alpha Chi Sigma, Professional Chemistry Fraternity (November 2022 – present)

Sustainable Ocean Alliance (January 2023 – present)

Charleston Fellows, College of Charleston Top Scholars (August 2021 – May 2025)