

# Sam Muir

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## EDUCATION

### **Master of Environmental Data Science** (Expected June 2024)

Bren School of Environmental Science & Management – University of California, Santa Barbara (UCSB)

Leadership: Master's Curriculum Committee Student Representative, Dean's Advisory Council Member

Highlighted Coursework: Geospatial Analysis, Analytical Workflows, Data Justice, Math for Data Scientists

### **Bachelor of Science in Biology & Bachelor of Arts in Environmental Studies**, magna cum laude (May 2023)

St. Mary's College of Maryland

Minor: International Languages and Cultures – French

Honors: Biology Honors Society, French Honors Society, Student-Athlete Honors Society, All-America Sailing Team Honors (2022 & 2023)

Highlighted Coursework: Ecology & Evolution, Genetics, Organic Chemistry, Plant Physiology, Calculus, Biostatistics, Conservation Biology, Environmental Justice, Coastal Ecology

## PROJECTS

### **Using DIY pressure gauges to measure wave attenuation in a restored oyster reef in the St. Mary's River**

Undergraduate Senior Thesis

- Built low-cost pressure gauges using PVC and Arduino to study the impact of 3D oyster reefs on wave energy and quantified the differences across the reef using R.

### **MaxEnt modeling predicts a range decrease of *Warnstorfia fluitans* in 2070 high emissions warming scenario**

- Synthesized GBIF data and CMIP5 climate predictions to model the future predicted range of *Warnstorfia fluitans* and identified the significant contributing bioclimatic variables to range prediction.

## DATA SCIENCE EXPERIENCE

### **Arnhold Environmental Fellow - Environmental Markets Lab at UCSB**, Santa Barbara, CA (10/23–Present)

- Analyzing elephant movement and connectivity in Namibia under climate change using geospatial and distribution modeling packages in R.
- Investigating the change in elephant corridors and their effect on human-elephant conflict, in collaboration with Conservation International.

### **Research Assistant (Data & Field) – St. Mary's College of Maryland**, St. Mary's City, MD (5/22–2/23)

- Analyzed data using R, created an interactive data dashboard using RShiny, and used GitHub for version control & communication with project collaborators.
- Sampled river sediment, water properties, and aquatic vegetation, and performed laboratory analyses including sediment analysis, biomass, and chlorophyll-a water levels.

### **NSF Climate Science REU Researcher – Pennsylvania State University**, State College, PA (6/21–8/21)

- Performed regression analyses using R to evaluate the relationship between temperature and apple bloom dates over a 50-year period in the Mid-Atlantic region.
- Evaluated the change in growing degree days for apple trees and reviewed historical reports of historical winter warming events along with their impacts on crop yield.

## MANAGEMENT AND RESEARCH EXPERIENCE

### **Laboratory Manager – St. Mary's College of Maryland**, St. Mary's City, MD (12/22–5/23)

- Supervised and trained a team of 8 undergraduate students in Dr. Lorena Torres-Martinez's plant ecology laboratory, optimizing research precision and quality by implementing new protocols.
- Monitored the long-term growth of research plants in the greenhouse, collected seed pods, and maintained logs of lab materials.
- Conducted research on the presence of *Phytophthora* in Southern Maryland coastal forests by performing serial dilutions of soil, plating samples, and quantifying differences between sites using R.

**Teaching Assistant - St. Mary's College of Maryland, St. Mary's City, MD, (8/21–5/23)**

- Led weekly TA review sessions, involving comprehensive explanations of complex biological and environmental concepts and answering questions, overall increasing student engagement.

**Climate Research and Journalism Intern - The Years Project, Remote (8/2020-12/2020)**

- Collaborated with a team of writers in daily writer's room discussions, developed unique climate content ideas, and created engaging media pieces for publication across the organization's sites.

**SKILLS**

**Computational:** R, Python, Git & GitHub, Markdown, Microsoft Office (Word, Excel, PowerPoint)

**Field and Laboratory:** Reagent & stock preparation, autoclaving, aseptic technique, bacterial plating, micro & stereological pipetting, microscopy, greenhouse maintenance, DNA extraction, GPS

**CONFERENCE PRESENTATIONS**

Muir, S. H., Manns, J., Byrne, M., and \*Torres-Martinez, L. 2023. Seawater intrusion influences *Phytophthora* abundance in Southern Maryland coastal soils. *Ecological Society of America*. (Poster)

\*Muir, S. H., and Gurbisz, C. 2022. Using DIY pressure gauges to measure wave attenuation in a restored oyster reef in the St. Mary's River. *Southern Maryland Marine Science*. (Poster)

\*Muir, S. H., Marini, R. P., and Polasky, A. 2021. Apple bloom dates in the Mid-Atlantic region in a changing climate. *American Meteorological Society*. (Poster)

\* denotes presenting author