Sam Muir

smuir@bren.ucsb.edu | Goleta, CA | shmuir.github.io

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 and Remote Sensing, Analytical Workflows, Math for Data Science, Statistics, Ethics in Data Science

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, All-America Sailing Team Honors (2022 & 2023)
>Highlighted Coursework: Ecology & Evolution, Genetics, Organic Chemistry, Plant Physiology, Calculus, Biostatistics, Conservation Biology, Environmental Justice, Coastal Ecology, Marshland Field Ecology

PROJECTS

Using DIY pressure gauges to measure wave attenuation in a restored oyster reef in the St. Mary's River
Undergraduate Senior Thesis
- Studied the impact of constructed 3D oyster reefs on wave energy and performed statistical analyses in R to determine their effectiveness as a coastal erosion mitigation strategy.
- Built low-cost pressure gauges using PVC, Arduino, and pressure sensors and used Matlab to program the pressure gauge sampling specifications.

MaxEnt modeling predicts a range decrease of *Warnstorfia fluitans* in 2070 high emissions warming scenario
- Used GBIF data and CMIP5 climate predictions to model the future predicted range of *Warnstorfia fluitans* in Oceania and Europe.

DATA SCIENCE EXPERIENCE

Arnhold Environmental Fellow - emLab at UCSB, Santa Barbara, CA (10/23–Present)
- Analyzing elephant movement and connectivity in Namibia under climate change using geospatial packages in R and various modeling methods.
- Investigating the change in wildlife corridors and their effect on human-elephant conflict, in collaboration with Conservation International and the University of Namibia.

Research Assistant, Data and Field – St. Mary's College of Maryland, St. Mary's City, MD (5/22–2/23)
- Sampled river sediment, water properties, and aquatic vegetation, and performed laboratory analyses including sediment composition, biomass, and chlorophyll-a levels.
- Analyzed data using R, created an interactive data dashboard using RShiny, and collaborated using GitHub for version control & communication.

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 30-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 and kept logs of lab materials.

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.

SKILLS

Computational: R, Python, Git & GitHub, Markdown, Microsoft Office (Word, Excel); familiar with SQL and QGIS
Field and Laboratory: Chemical stock preparation, autoclaving, aseptic technique, bacterial plating, micro & stereological pipetting, microscopy, greenhouse maintenance, DNA extraction, GPS, plant measurement, soil sampling

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