

Alexandra M. Schaffer

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Research Interests: Aqueous geochemistry, hydrothermal vents, mid-ocean ridges

EDUCATION

Duke University, Durham, NC

Expected May 2027

GPA: 3.988, Dean's List

B.S. Earth & Climate Sciences, Minor in Biology

Relevant Coursework: Isotope Geochemistry, Geologic Field Mapping, Depositional Environments and Stratigraphy, Groundwater and Geothermal Systems, Rocks and Minerals, Integrative Oceanography, Invertebrate Paleontology, Evolving Earth and Life, Organismal Evolution, Dynamic Earth, Biogeography in an Australian Context, Marine Ecology, Sensory Physiology of Marine Animals, Biology of Marine Mammals, General Physics 1 and 2, Multivariable Calculus, General Chemistry 1, Intro to Computer Science

RESEARCH EXPERIENCE

Independent Researcher, Lithium Isotopes in Biogenic Carbonates

Jan 2025-present

Supervisor: Dr. Michael Kipp, Duke University

- Completed two semester-long research independent studies for course credit (spring 2025 and fall 2025) and worked at the lab through summer 2025 (May-August).
- Led independent project analyzing Lithium isotope ratios, carbon and oxygen isotope ratios, and various element ratios as they relate to salinity in the Eastern Oyster, *Crassostrea virginica*.
- Subjected shell samples to a rigorous physical cleaning process, ammonium acetate leach, and Li purification columns before assisting with measuring Li isotope and element ratios on a Nu Sapphire MC-ICP-MS and a Thermo X-series ICP-MS.
- Presented posters based on this work at Goldschmidt geochemistry conference in 2025 and 2026.
- Completed a first-authored manuscript describing findings and interpretations that was submitted to and accepted by *Geochimica et Cosmochimica Acta* (currently in press).
- Assisted PhD students in lab upkeep and sample preparation.

Independent Researcher, Shell Morphology of the Eastern Oyster

Aug. 2024 – Dec. 2024

Supervisor: Dr. Tom Schultz, Duke University Marine Lab

- Discovered significant differences in shell thickness, tissue mass, and other growth measurements between oysters from two aquafarms near Beaufort, NC.
- Conducted normalization and statistical analysis to determine potential impact of wave energy on growth.
- Presented completed work as a first-authored poster at Geological Society of America Southeastern Section Meeting in Harrisonburg, VA, in March 2025.

Supervisor: Dr. Brian McAdoo, Duke University

- Examined North Carolina newspaper articles dating back several decades to understand misrepresentation of heat waves in public media over time, culminating in an ArcGIS Story Map.
 - Recorded and analyzed extreme weather dates to determine patterns in duration of heat waves and storms.
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FIELDWORK & SEAGOING EXPERIENCE

Research Cruise on *R/V Shearwater*, near North Carolina

July 2025

- Participated in a five-day research cruise in the Northern Atlantic ocean along the shelf-break east of North Carolina. Vessel was based out of the Duke Marine Lab.
- Led a project collecting seawater samples with a CTD Rosette from above a methane seep in the Bodie Island Seep Field east of Cape Hatteras, NC.
- Assisted in operating and maintaining the CTD, monitored CTD measurements during descent and ascent, and filtered water samples with a peristaltic pump while onboard the vessel.
- Assisted PhD students and *Shearwater* crew in vessel upkeep and various projects, serving a supporting role in tagging, playback, and biopsy experiments on pilot whales and common bottlenose dolphins.

Fieldwork During Term Abroad, University of Canterbury, New Zealand

Feb. 2026-present

- Participated in a geologic field mapping course (GEOL240), which included mapping exercises throughout the semester and culminated in a 5-day trip spent mapping the geology of the Glens of Tekoa field area (South Island). Produced a geologic map, cross-sections, rock descriptions and interpretations, and a geologic column for this main assignment.
- Participated in a sedimentology and stratigraphy course (GEOL243), which included day trips to a braided river bed and a local estuary and required students to describe sediments and sedimentary rocks, interpret depositional environments, and create cross-sections.

Summer Biogeography Field Course, Australia

July 2024

- Completed a month-long field course in Sydney, the Blue Mountains, the Northern Territory, and the Daintree Rainforest. Identified plant and animal species, learned geologic history, and discussed interactions between Aboriginal and European cultures throughout the course.

Oyster and Water Sampling, Newport River Estuary, North Carolina

Nov. 2024, Aug. 2025

- Collected water samples and fifty wild oysters from eight sites along an estuarine salinity gradient.
 - Conducted sampling on a small boat, using the navigational equipment onboard to locate and access sites.
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PUBLICATIONS

In press: **Schaffer AM.**, Williams GDZ., Dwyer GS., Hyland EG., Wong JM., Osterberg JS., Schultz TF., Kipp MA. (2026). Environmental and vital effects on lithium isotopes and trace element ratios in biogenic carbonates: Insights from an estuarine salinity gradient. Submitted to *Geochimica et Cosmochimica Acta* Special Issue: The Development and Calibration of Emerging Geochemical Proxies Using Modern Archives.
<https://doi.org/10.1016/j.gca.2026.06.025>

PRESENTATIONS

Schaffer AM., Kipp MA., Dwyer GS., Williams GDZ., Hyland EG., Wong JM., Osterberg JS., Schultz TF. (2026). Environmental and vital effects on isotope and trace element ratios in biogenic carbonates: Insights from lithium isotopes across an estuarine salinity gradient. [Poster](#), Goldschmidt Geochemistry Conference, Montreal, Canada.

Schaffer AM., Schultz TF. (2025). The Eastern Oyster (*Crassostrea virginica*) Grows a Thicker Calcium Carbonate Shell in Strong-Wave-Energy Aquaculture Environments. [Poster](#), Geological Society of America Southeastern Section Meeting, Harrisonburg, VA.

LEADERSHIP EXPERIENCE

Founder and Co-President, Duke Geology Club, Durham, NC Aug. 2025-present

- Organized a club offering field trips, peer presentations, upperclassmen mentorship and faculty connections to undergraduate students interested in geology.
- Run weekly meetings, plan and lead field trips, organize carpooling and catering, and disseminate research/internship/graduate school opportunities to club members.

Actions Team Lead, Duke Climate Coalition (DCC), Durham, NC Aug. 2023-Jan. 2025

- Led project team in coordinating campus-wide events to advocate for climate justice.
- Co-authored article calling for decisive climate action at the university level.
- Represented DCC in the international Campus Climate Network, working with climate groups at various universities to exchange knowledge, strategize, and synchronize climate action.

Team Leader, Bedford 2030 Greenlight Project, Bedford, NY Oct. 2022 – May 2023

- Led student team in partnering with Healthy Home energy company to disseminate an online Carbon Tracker tool and educational material to 2,888 customers in 8 countries.
 - Disseminated a youth climate survey that received over 100 responses and published a letter promoting carbon literacy in *The Gazette*, a local newspaper.
 - Presented project and earned award: Boldest Greenhouse Gas Reduction Idea.
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WORK EXPERIENCE

Field Crew Intern, Hilltop Hanover Farm, Yorktown Heights, NY May 2024 – Aug. 2024

- Worked 35 hours per week caring for crop fields by landscaping, pruning/weeding, and cleaning.
- Sustainably grew produce for local donation through techniques including gleaning and cover-cropping.

Cashier/Maintenance Employee, Westchester Parks, Cortlandt Manor, NY Summers 2022, 2023

- Worked around 40 hours per week cashiering, maintaining landscape, and filing office paperwork.
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COMMUNITY SERVICE

Author and Volunteer, Sunrise Durham, NC Jan. 2024 – April 2024

- Interviewed co-founder of 7 Directions of Service, an environmental advocacy organization, and wrote an [article](#) on indigenous resistance to extensions to the Mountain Valley Pipeline.

Volunteer, Boys and Girls Club, Morehead City, NC Sept. 2024 – Dec. 2024

- Participated weekly in afterschool homework help, games, and discussion with middle school students.
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AWARDS AND SCHOLARSHIPS

- SMIF Undergraduate User Program: \$2,000 to Use Mass Spectrometry Equipment at Duke University (2025)
 - Duke University Climate Scholars Program (\$5,500, 2024)
 - Duke Green Devils Sustainability Ambassador Program (2024)
 - Duke University SPIRE Fellowship for STEM Students (2023)
 - National Merit Scholarship (\$2,500, 2022)
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MEMBERSHIPS

Student Member, Geological Society of America Aug. 2024 – Present

Member, Duke University Chorale Aug. 2023 – Present

TECHNICAL SKILLS

Programming Languages: R, Python, MATLAB

Digital Tools: ImageJ, Microsoft Office, Google Workspace

Lab Work: Lithium purification columns, ammonium acetate leach procedure, geochemistry and clean lab upkeep, oyster tissue sampling, titration, hemocytometer analysis

Instrumentation: Training in progress on ICP-MS and MC-ICP-MS systems

Certifications: PADI Open Water Diver (2026)

Languages: Spanish (classroom study)

REFERENCES

Dr. Michael Kipp

Assistant Professor in the Division of Earth and Climate Sciences, Duke University

Email: michael.kipp@duke.edu

Relationship: Research advisor

Dr. Alex Glass

Senior Lecturer in the Division of Earth and Climate Sciences, Duke University

Email: alex.glass@duke.edu

Relationship: Lecturer for several geology courses