

Abby M Beilman

Pronouns: They/Them/Theirs

[linkedin.com/in/abby-b14/](https://www.linkedin.com/in/abby-b14/) • <https://sites.google.com/view/abby-m-beilman> • beilman1@msu.edu

EDUCATION

Michigan State University July 2024 – Present
PhD, Earth & Environmental Science; Ecology, Evolution, & Behavior
College of Natural Sciences

- Committee members: Drs Kelly Aho (chair), Kyla Dahlin, James Moran, & Jay Zarnetske
- 4.0 GPA

Clark University
MS, Environmental Science & Policy – Climate Change Impacts and Adaptation May 2024
Department of Sustainability and Social Justice

- Committee members: Drs Karen E. Frey (chair), Abby G. Frazier, & Timothy J. Downs
- Master's Thesis: Changes in Chromophoric Dissolved Organic Matter in the Blackstone River Watershed: Drivers, and Implications for Climate Change
- 3.97 GPA

Clark University
BA, Environmental Science - Earth System Science May 2023
Graduate School of Geography Environmental Science Program

- Thesis Advisor: Dr. Karen E. Frey
- Honors Thesis: Changes in Chromophoric Dissolved Organic Matter in the Blackstone River Watershed Driven by Hydrological Shifts.
- Summa Cum Laude, 3.92 GPA, High Honors in Environmental Science, Minor in Political Science

TEACHING AND RESEARCH INTERESTS

- Freshwater Biogeochemistry
- Climate Change & Climate Extremes
- Science Communication & Policy
- Carbon Cycling & Greenhouse Gas Fluxes
- Water-Climate Interactions
- GIS & Remote Sensing

RESEARCH EXPERIENCE

PhD Student August 2024 – Present
Michigan State University College of Natural Science

- Pursuing research on riverine/aquatic carbon cycling and related topics.
- Perform field work alongside laboratory, GIS, and statistical analyses.
- Write literature reviews and project proposals.

CASA Climate Risk Profiles GIS & Desk Research Assistant January – May 2024
Clark University Sustainability and Social Justice

- Created Köppen-Geiger climate maps for USAID country climate risk profiles covering 39 countries.
- Performed literature and data reviews to write country and subsector overviews.
- Acted as primary editor for other research assistants, compile overviews into comprehensive profiles.

Master's Thesis in Environmental Science & Policy January 2023 – April 2024
Clark University

- Took weekly water samples across 8 sites in the Blackstone River Watershed, logged data collected, completed weekly chromophoric dissolved organic matter and chlorophyll-a laboratory analysis and data post processing, measured stream discharge for select sites and dates.
- Integrated measurements with extreme event analysis to examine questions of organic matter sourcing and annual/interannual change drivers using Origin, R, and TerrSet.
- Created figures in ArcGIS, Microsoft Excel, and Origin and wrote a complete manuscript on my findings.
- Defended my thesis in a formal presentation to my committee.

Water Quality & Bacteria Monitoring Intern

April – November 2023

Lake Quinsigamond Watershed Association

- Collected water samples from 10 locations around Lake Quinsigamond on a biweekly basis for E. coli.
- Completed QA/QC, including collecting field blank and duplicate samples, randomized and single-blinded sample IDs, and maintained proper cross-contamination prevention measures.
- Managed field and laboratory data sheet upload, transcription, and entry.
- Analyzed data from all 100 individual results to determine significant and quality results and prepared a final report for submission to Massachusetts Department of Environmental Protection.

Senior Honors Thesis in Environmental Science

May 2022 – May 2023

Clark University

- Utilized previous reports on the Blackstone River Watershed and ArcGIS to identify 8 study sites for weekly water sampling and data collection (pH, conductivity, weather conditions).
- Took weekly water samples across the 8 sites, logged data collected, and completed weekly chromophoric dissolved organic matter laboratory analysis and data post processing.
- Created figures in ArcGIS, Microsoft Excel, and Origin and wrote a complete manuscript on my findings.
- Defended my thesis in a formal presentation to my advisors and program director.

Polar Science Research Lab Assistant

August – December 2022

Clark University

- Worked on the NSF & NOAA-funded Distributed Biological Observatory project under Dr. Karen E. Frey measuring suspended particulate matter from the Bering and Chukchi Seas.
- Tested the effects of user bias on suspended particulate matter measurements and established a margin of error; completed QA/QC of results, including checking if results were outside of the margin of error.
- Assisted with data entry in Microsoft Excel, as well as general lab organization and cleaning.

Energy Efficiency Research Intern

June – August 2022

Consortium for Energy Efficiency

- Researched state and federal legislation, policy, and programming relevant to energy efficiency, decarbonization, and climate change in the U.S. and Canada in all 50 states.
- Combined information from case studies and interviews with utility company employees to create profiles on utility program planning in 2 states, creating a framework for future interns to make state profiles.
- Researched implications for the energy efficiency and utilities industries following the Supreme Court Ruling in West Virginia v. EPA as well as general industry trends in federal government.
- Utilized R to create 10 graphs for the government- and industry- targeted annual industry report, navigated and resolved code issues, and helped other employees become proficient in the tool.

GWSA Natural & Working Lands Analyst Intern

January – April 2022

Massachusetts Executive Office of Energy & Environmental Affairs

- Worked on 4- and 9-person teams to complete the 2050 Clean Energy and Climate Plan for Massachusetts
- Created a state carbon budget based on land use literature using ArcGIS Pro and carbon flux calculations.
- Researched other approaches to Natural and Working Lands in 5 other states.
- Participated in professional development trainings, public hearings, and stakeholder workshops.

LEEP Fellow

June – August 2021

Clark University

- Received summer funding to independently study correlations between water quality, socioeconomic status, greenspace, forest cover, and the presence of Superfund Sites in Acton, Maynard, Westford, and Tyngsborough, MA as part of the LEEP Fellowship Program.
- Used water quality test kits, ArcGIS, and Microsoft Excel to gather and analyze data.
- Created a [weekly blog and community \(citizen\) science guide](#) on the project process and wrote a 20-page scientific report on findings.

AWARDS*Academic Honors and Scholarships***University Distinguished Fellowship (2024-2029)**

Awarded to 40 of ~500 incoming doctoral students across Michigan State University each year. Full stipend, tuition, and insurance for first year of study and professional development fellowship for first to fifth year.

College of Natural Science Recruiting Fellowship (2024-2025)

Initial admission award replaced by University Distinguished Fellowship.

5th Year Full Tuition Scholarship (2023-2024)

Awarded to approximately 30% of ADP students at Clark per year.

Environmental Science Research Excellence Award (2023)

For research excellence, exceptional interest and ability in scientific inquiry, and commitment to pursue scientific research and applications at Clark.

Traina Scholarship (2019-2023)

Awarded to incoming students at Clark who have shown a commitment to leadership, scholarship, and community.

Fellowships & Grants

Earth & Environmental Science Travel Award (2024)	\$800
In support of conference attendance.	
Earth and Environmental Sciences Alumni Fellowship (2024)	\$5,000
For relocation to Michigan in first year of PhD study.	
Earth and Environmental Sciences Alumni Computational Equipment Award (2024)	\$2,500
For purchase of a research quality laptop computer in first year of PhD study.	
College of Natural Science Summer Semester Early Start Fellowship (2024)	\$6,000
In support of beginning PhD program early & summer research activity.	
Clark University Graduate Student Council Travel Grant (2023)	\$375
In support of conference attendance.	
AGU23 Student Travel Grant (2023)	\$1,000
In support of conference attendance.	
Clark University Albert, Norma and Howard '77 Geller Endowed Research Award (2023)	\$2,180
In support of master's thesis research.	
Clark University Career Connections Cash (2023)	\$100
In support of conference attendance.	
Clark University Edwin A Weiller Summer Science Research Fellowship (2022)	\$5,000
In support of undergraduate honors thesis research.	
Clark University LEEP Fellowship, (2021)	\$2,000
In support of independent summer research.	

PUBLICATIONS*Oral Presentations*

Beilman, A. “Site Suitability Analysis for the Study of Vertical and Horizontal CO₂ Fluxes in Michigan’s Kalamazoo River Watershed.” *Graduate Climate Conference*. Eatonville, WA. October 2024.

Beilman, A. The geopolitics of the Russian Arctic in the face of climate change: An exploration of melt and freeze trends in militarily significant locations in Northeast Russia using ASCAT scatterometer data. *Russian, East European, and Eurasian Studies Northeast Network Student Conference*. Amherst, MA, April 2024.

Beilman, A. “Changes in Chromophoric Dissolved Organic Matter in the Blackstone River Watershed, their Drivers, and Implications for Climate Change” *Clark University Graduate Multidisciplinary Conference*. Worcester, MA. March 2024.

Poster Presentations

Beilman, A.M. & K.S. Aho. “The Role of Shifts in Seasonality on Aquatic Carbon Cycling: A Comparative Study of Land Surface Phenology Datasets in Select U.S. Ecoregions.” *Expected presentation at American Association of Geographers Annual Meeting*. Detroit, MI, March 2025.

Beilman, A.M. & K.S. Aho. “Vertical and Horizontal Carbon Fluxes in Michigan’s Kalamazoo River Watershed: Preliminary Results from the 2024 Field Season.” *8th Annual Earth & Environmental Sciences Student Research Symposium*. East Lansing, MI, February 2025.

Beilman, A.M., Frey, K.E, & A.G. Frazier. “Changes in Chromophoric Dissolved Organic Matter in the Blackstone River Watershed: Drivers and Implications for Climate Change.” *American Geophysical Union Fall Meeting*. San Francisco, CA, December 2023.

Beilman, A.M., Coleman, G., Kickham, B., and Liberty, M. “Bacterial Monitoring of Tributaries to Lake Quinsigamond.” *American Geophysical Union Fall Meeting*. San Francisco, CA, December 2023.

Beilman, A.M. “The geopolitics of the Russian Arctic in the face of climate change: An exploration of melt and freeze trends in militarily significant locations in Northeast Russia using ASCAT scatterometer data.” *Graduate Climate Conference*. Woods Hole, MA, November 2023.

Beilman, A.M. & K.E. Frey. “Seasonal Shifts in Chromophoric Dissolved Organic Matter in the Blackstone River Watershed in Worcester, Massachusetts.” *American Association of Geographers Annual Meeting*. Boulder, CO, March 2023.

Beilman, A. M. “Chromophoric Dissolved Organic Matter in the Blackstone River Watershed” *Clark University Clark Fest Fall*. Worcester, MA, October 2022.

Beilman, A. M. “Bridge Over Troubled Water: A Comparative analysis of environmental issues impacting water in Middlesex County, MA and their relationship to socioeconomic factors, Superfund sites, and the presence of greenery.” *Clark University Fall Fest*. Worcester, MA, October 2021.

Talks & Panels

Michigan State University Geology Club: Graduate School Applications Panel (January 2025)

American Geophysical Union: Student Travel Grant Donor Networking Lunch Invited Speaker (December 2023)

Clark University Practicing Geography Week: Geography Student Insight Panel (November 2023)

Lake Quinsigamond Commission Monthly Meeting: 2023 Water Quality Monitoring Update (November 2023)

Clark University Lavender Graduation: Student Speaker (May 2023)

Book Reviews

Beilman, A., Mitchell, J., Ryu, J., Ritts, M., and Wang, S. March 2024. “Author Meets Critics — Eric Drott’s “Streaming Music, Streaming Capital” 2024. *Antipode*. <https://antipodeonline.org/2024/03/01/streaming-music-streaming-capital/>

Online Articles

Draeger, C. & Beilman, A. "[Graduate Climate Conference 2024: A step towards interdisciplinary collaboration and dialogue in addressing the climate crisis.](#)" *University of Washington Program on Climate Change Blog*, November 2024.

Beilman, A., Davis, M., Fetkiweicz, J., Souza, K. "[A Guide to Food Resources: Clark Sustainability Action Addresses the Student Food Insecurity at Clark University.](#)" *The Scarlet*, November 2020.

Beilman, A., & Davis, M. "[Free Community Fridges – A Food Insecurity Solution.](#)" *The Scarlet*, April 2021.

Media Features

"[Uncovering the secrets of water, from Siberia to Massachusetts.](#)" *ClarkNow*, July 2022.

"[Abby Beilman - 500 Queer Scientists](#)" *500 Queer Scientists*, December 2024.

WORKSHOPS AND ADDITIONAL TRAINING

Spectral Ecology Summer School (SPEC School) Anticipated June 2025
Pembroke, VA

- Training in data science, remote sensing, ecology, field spectroscopy, and scientific leadership. One of 15 participants selected from 104 applicants.

SCIENCE POLICY, COMMUNICATION, AND ACCESSIBILITY*Community Engagement*

Campus Ambassador September 2024 – Present
COVID Safe Campus

- Distribute high quality masks and other COVID-19 safety resources to students on Michigan State University campus, create and share educational content to spread awareness of the ongoing pandemic.

Summer Orchards Intern June – August 2021
Community Harvest Project

- Worked in a team environment to grow, harvest and distribute produce to food insecure individuals, providing thousands of pounds weekly across the organization.
- Completed an independent research project looking at how food insecurity differentially impacts the LGBTQ+ community, focusing on homelessness rates and religiosity in food resources.

Project Manager October 2019 – May 2021
Clark University Sustainability Action

- Led and managed a 4-person group project to combat food insecurity on campus through writing online articles, helping develop an on-campus food pantry, and regular meetings.

Environmental Policy Intern January – May 2021
Save the Harbor/Save the Bay

- Organized a hearing on the state of diversity and inclusion on the Commonwealth of Massachusetts' beaches and wrote a preliminary report on the findings.
- Summarized reports, grants, and data relevant to Save the Harbor/Save the Bay's mission and wrote blog posts and press releases for members of the public living in the Boston area.

Trail Through Time Intern December 2020 – January 2021
Town of Acton Natural Resources Division/Friends of Pinehawk

- Managed the Trail Through Time website by adding panel writeups and independent research about the historical significance of the Trail; managed document organization.
- Helped with cleanup efforts, adding markers, and regular checks for down trees and other obstructions.

Science Accessibility

- Pen Pal** September 2024 – Present
Letters to a Pre-Scientist
- Exchange 4 sets of letters annually with a middle school student to illustrate the different pathways to a career in STEM; provide mentoring and support and nurture students natural curiosity and interests.
- Organizer** January 2024 – Present
Graduate Climate Conference
- Helping to organize the 18th annual interdisciplinary climate conference run by graduate students for graduate students as a part of the conference logistics and recording & evaluation committees and as an expert abstract evaluator
- GradCAMP Scholar** September 2023 – April 2024
United States Department of Agriculture
- Worked to develop a digital library of information and a webinar series about climate justice and equity issues facing researchers of natural and working lands and waters in the Northeast United States.
- Classifications Volunteer** August 2021 – August 2022
Zooniverse
- Classified and transcribed data related to killer whale identification, cloud, beluga whale, and plankton classification, and snow cover presence for various scientific studies.
- Blogby Science and Politics** December 2020 – August 2022
Independent Project
- Wrote biweekly [educational blogs](#) on various topics in science, politics, and food systems.
- Transcription Volunteer** August 2020 – August 2021
Smithsonian Institution
- Helped make Smithsonian collections more widely available and accessible to the public by transcribing English language documents and editing transcriptions.
- Campus Leadership*
- DEI Committee Member** February 2025 – Present
Ecology, Evolution and Behavior Program
- Assist in planning Envision EEB, a workshop for underrepresented students in STEM to learn about graduate school and career opportunities; host bi-monthly community coffee hours.
- Council of Graduate Students Departmental Representative** September 2024 – Present
Earth and Environmental Science Graduate Student Organization (EES-GSO)
- Represent the interests of Earth and Environmental Science graduate students to the graduate student council, sit on university graduate judiciary; plan and execute departmental events for community building and professional development.
- Colloquium Co-Chair** August 2024 – Present
Ecology, Evolution, and Behavior Graduate Group (EGG)
- Responsible for organizing the schedule and logistics for a biweekly colloquium to allow graduate students and post-doctoral fellows to present on their research.
- President** May 2022 – May 2023
Clark University PRISM
- Provided a source of support for LGBTQ+ students on campus through weekly meetings and events including a mixer for LGBTQ+ students in STEM and collaborative events with outdoors-oriented clubs.
- President** March 2021 – May 2023

Beekeepers of Clark University

- Provided students with the opportunity to learn about beekeeping and the challenges faced by bees in New England and beyond through weekly meetings and events.

President

August 2022 – May 2023

Clark University Arboretum Advocates

- Raised awareness of the Hadwen Arboretum and advocated for its continued presence as a place for learning, recreation, and research through weekly meetings, walks, and cleanups.

TEACHING EXPERIENCE**Writing Center Consultant**

August 2021 – May 2024

Clark University

- Provided suggestions to improve student manuscripts, research papers, case studies, and personal statements with grammar, structure, argument strength, formality, plagiarism, and following directions.
- Worked with students ranging from first year undergraduates to PhD candidates on their writing at any stage of the writing process in one-on-one, 50-minute sessions.
- Received excellent (75%), very good (2%), or good (28%) session ratings from clients.

Online Tutor

June 2020 – January 2022

Varsity Tutors

- Created and implemented learning plans for multiple students ages 5-18 in natural sciences and math.
- Ran 1.5-hour individual tutoring sessions for students on a weekly basis, helping to explain unclear concepts in science and math, and improve understanding and grades.
- Received 5-star ratings from all clients who submitted feedback.

MENTORING**Michigan State University**

- 2024-2025: 3 undergraduate students in the Aho Lab (Majors: Environmental Geoscience, Environmental Geoscience, Genomics & Molecular Genetics)

Research Girl

- 2025: 1 high school student interested in climate change research.

Disabled in STEM

- 2025: 6 STEM students/professionals in varying disciplines; Co-mentor with 3 others.

PROFESSIONAL MEMBERSHIPS

American Association of Geographers, American Geophysical Union, Gamma Theta Upsilon (Alpha Sigma Chapter), Gryphon and Pleiades, Geosciences Education and Mentoring Support, oSTEM.

LABORATORY SKILLS

Acid Washing, Centrifuge, Chemical Safety, Combustion, Filter Preparation, Fluorometry, Gas Chromatography, Glassware Preparation, Hazardous Waste Management, Mass Balance, Pipetting, Regulator Installation, Sample Extraction, Spectrophotometry, Standard Preparation (Aquatic, Gaseous), TOC/TIC/TN Analysis.

FIELD SKILLS

Boating & Water Safety, First Aid/CPR & AED, Filtration, Gas Sampling, Peristaltic Pump Operation, Water Sampling, Sediment Sampling, Wilderness First Aid.

COMPUTER SKILLS

ArcGIS Products, Google Earth Engine, Google Earth Pro, Google Suites, HOBOWare, IDRISI TerrSet/Libera GIS, Manta Control 2/Manta Mobile, MATLAB, Microsoft Office, Origin, QGIS, R & RStudio, VOSViewer, Windows OS, Zotero