Jennifer C. Bowen

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EDUCATION

University of Michigan Ph.D., Earth & Environmental Science	Ann Arbor, MI	2021
Chapman University B.S., Chemistry, Environmental Science & Policy	Orange, CA	2015

PROFESSIONAL POSITIONS

2025 – current	Assistant Professor, School of Earth & Atmospheric Sciences, Georgia Institute of Technology
2025 – current	Adjunct, School of Chemistry & Biochemistry, Georgia Institute of Technology
2023 – 2025	Postdoctoral Scholar, Earth System Science, Stanford University
2023 – 2025	Visiting Scholar, Scripps Institution of Oceanography
2021 – 2023	Institutional Postdoctoral Fellow, Scripps Institution of Oceanography
2021 – 2022	Research Fellow, J. Craig Venter Institute

AWARDS

UC San Diego Certificate in Evidence-based Equitable Teaching, 2022
Scripps Postdoctoral Institutional Fellowship, Scripps Institution of Oceanography, 2021
Rackham Predoctoral Fellowship, University of Michigan, 2020
NOSAMS Graduate Student Fellowship, Woods Hole Oceanographic Institution, 2019
Susan Lipschutz Award for the Support of Women in Academia, University of Michigan, 2018
Henry N. Pollack Fellowship, University of Michigan, 2017
NSF Graduate Research Fellowship Honorable Mention, 2015, 2016, 2017

PUBLICATIONS

(* student mentee)

21. von Fromm, S.F., R.S. Winton, D.R. Vaughn, **J.C. Bowen**, S. Trumbore, et al. (2026). The International Soil Radiocarbon Database (ISRaD) version 2: Synthesis, data gaps, and future directions of soil radiocarbon data. *Preprint in Earth System Science Data, essd-2025-753.*

20. Sullivan, S.N.*****, **J.C. Bowen**, L.A. Kaplan, R.M. Cory, P.G. Hatcher (2025). Seasonal and longitudinal dynamics of dissolved organic matter within headwater streams of a tropical evergreen forest. *Water Research*, 281, 123668.

19. Rush, J.E.*, E.S. Kane, J.K. Keller, **J.C. Bowen**, C.A. Zalman, E.S. Euskirchen, K.H. Wyatt, A.R. Rober, E.S. Hinckley (2025). Direct and indirect effects of water-table levels on redox-active organic matter reduction in an Alaskan rich fen. *JGR Biogeosciences,* 130, e2025JG009000.

18. Dayanti, E.*, E. Gusmayanti, Y. Andriyani*, D. Silviani P.A.B.*, **J.C. Bowen**, R. Gates, C.R. Perryman, A.M. Hoyt, G.Z. Anshari (2025). The effect of canal blocks on several physical and chemical properties in degraded peat drainage canal water. *Jurnal Immu Lungkungan,* 23 (5), 1155-1161.

17. Ordway, E.M. et al. (2025). The PANGEA (PAN tropical investigation of bioGeochemistry and Ecological Adaptation) Scoping Study Final Report. ORNL DAAC, Oak Ridge, Tennessee, USA. doi:10.3334/ORNLDAAC/2398

16. **Bowen, J.C**., P.J. Wahyudio*****, G.Z. Anshari, L.I. Aluwihare, A.M. Hoyt (2024). Canal networks regulate aquatic losses of carbon from degraded tropical peatlands. *Nature Geoscience,* 7, 213-218.

15. **Bowen, J.C**., A.M. Hoyt, X. Xu, M. Nuriman, G.Z. Anshari, P.J. Wahyudio*****, L.I. Aluwihare (2024). Aquatic processing enhances the loss of aged carbon from drained and burned peatlands. *Global Change Biology*, 30 (7), e17394.

14. Perryman, C.R., **J.C. Bowen**, J. Shahan, D. Silvani P.A.B.*, E. Dayanti*, Y. Andriyani*, A. Asyhari, A. Gangga, N. Novita, G.Z. Anshari, A.M. Hoyt (2024). Fate of methane in canals draining tropical peatlands. *Nature Communications*, 15, 9766.

13. Novita, N., A. Asyhari, R.P. Ritonga, A. Gangga, G.Z. Anshari, J. Jupesta, **J.C. Bowen**, et al. (2024). Strong climate mitigation potential of rewetting oil palm plantations on tropical peatlands. *Science of the Total Environment*, 175829.

12. Asyhari, A., A. Gangga, C.A.S. Putra, R.P. Ritonga, R.A. Candra, G.Z. Anshari, **J.C. Bowen**, C.R. Perryman, N. Novita (2024). Quantifying the fluxes of carbon loss from an undrained tropical peatland ecosystem in Indonesia. *Scientific Reports,* 14, 11459.

11. Ward, C.P., **J.C. Bowen**, D.H. Freeman, C.M. Sharpless (2021). Rapid and reproducible characterization of the wavelength dependence of aquatic photochemical reactions using light emitting diodes (LEDs). *Environmental Science & Technology Letters,* 8(5): 437 – 442.

10. **Bowen, J.C**., C.P. Ward, G.W. Kling, R.M. Cory (2020). Arctic amplification of warming strengthened by sunlight oxidation of permafrost carbon to CO_2. *Geophysical Research Letters*, 47, e2020GL087085.

9. **Bowen, J.C**., L.A. Kaplan, R.M. Cory (2020). Photodegradation disproportionately impacts biodegradation of semi-labile DOM in streams. *Limnology and Oceanography*, 65: 13 – 26.

8. Li, A., J.D. Drummond, **J.C**. **Bowen**, R.M. Cory, L.A. Kaplan, A.I. Packman (2020). Effect of decreasing biological lability on dissolved organic matter dynamics in streams. *Water Resources Research,* 2020WR027918.

7. Clark, C.D., **J.C**. **Bowen**, W.J. De Bruyn, J.K. Keller (2019). Optical characterization of chromophoric dissolved organic matter (CDOM) and Fe(II) concentrations in soil porewaters along a channel-bank transect in a salt marsh. *Estuaries and Coasts*, 42: 1297 – 1307.

6. **Bowen, J.C**., C.D. Clark, J.K. Keller, W.J. De Bruyn (2017). Optical properties of chromophoric dissolved organic matter (CDOM) in surface and pore waters adjacent to an oil well in a southern California salt marsh. *Marine Pollution Bulletin*, 114: 157 – 168.

In Review:

5. **Bowen, J.C**., G.W. Kling, R.M. Cory. Photochemical production of ammonium from dissolved organic nitrogen in arctic surface waters. *Arctic Science (In revision)*

4. Perryman, C.R., **J.C. Bowen**, D. Silvani P.A.B.*, E. Dayanti*, Y. Andriyani*, R. Gates, N. Novita, G.Z. Anshari, A.M. Hoyt. Methane emissions from canals draining tropical peatlands: Constraining temporal variability and emissions pathways. *Limnology & Oceanography Letters (In revision)*

3. Rush, J.E.*, **J.C. Bowen**, J.K. Keller, E.S. Kane, E.S. Hinckley. Organic matter redox status strongly predicts methane production in boreal peatland ecosystems. *Ecosystems (In review)*

2. Cancelada, L.*, **J.C. Bowen**, G.Z. Anshari, I. Koester, P.C. Dorrestein, A.M. Hoyt, L.I. Aluwihare. Enhancing molecular change: Fe-mediated photochemistry increases DOM transformation in tropical peatland canals. *Environmental Science & Technology (In review)*

1. Yu, J.B.*, **J.C. Bowen**, N. Novita, A. Gangga, G.Z. Anshari, A.G. Konings, A.M. Hoyt. Prioritization strategies for peatland rewetting in Indonesia: joint control of emissions from decomposition and fire. *Global Change Biology (Prepared for submission)*

PRESENTATIONS

- The Jones Center at Ichauway Seminar, Newton, GA, Mar 2026 (*invited*)
- Department of Geosciences Seminar, Georgia State University, Atlanta, GA, Feb 2026 (*invited*)
- Department of Natural Resources Seminar, College of Coastal Georgia, Brunswick, GA, Feb 2026 (*invited*)
- The Nature Conservancy – North Carolina, Durham, NC, Jan 2026 (*invited*)
- American Geophysical Union Annual Meeting, New Orleans, LA, Dec 2025 (*invited*)
- AsiaFlux Conference, Riau, Indonesia, Oct 2025 (*award for best early career presentation*)
- Peatlands and National Climate Solutions Workshop: Science, Progress, and Partnerships for Indonesia, Jakarta, Indonesia, Aug 2025 (*invited*)
- Ocean Carbon & Biogeochemistry Workshop, Land-Ocean Connectivity, Jun 2025 (*invited*)
- Association for the Sciences of Limnology & Oceanography Aquatic Sciences Meeting, Charlotte, NC, Mar 2025
- School of Chemistry & Biochemistry Seminar, Georgia Tech, Atlanta, GA, Mar 2025 (*invited*)
- Goldschmidt Conference, Chicago, IL, Aug 2024
- Department of Geology & Geophysics Seminar, University of Utah, Salt Lake City, UT, Jun 2024 (*invited*)
- School of Earth & Atmospheric Science Seminar, Georgia Tech, Atlanta, GA, Mar 2024 (*invited*)
- Department of Earth Science Seminar, Dartmouth College, Hanover, NH, Feb 2024 (*invited*)
- Joint Hydrology Seminar, Stanford University, Stanford, CA, Jan 2024
- American Geophysical Union Annual Meeting, San Francisco, CA, Dec 2023
- C-PEAT Workshop, San Francisco, CA, Dec 2023 *(group presentation)*
- C-PEAT Annual Meeting, Pontianak, Indonesia, May 2023
- Department of Earth System Science Seminar, University of California, Irvine, CA, Mar 2023 (*invited*)
- American Geophysical Union Annual Meeting, Chicago, IL, Dec 2022
- Summertime Talks from Oceanography Postdocs, Scripps Institution of Oceanography, La Jolla, CA, Jul 2022
- Marine Chemistry & Geochemistry Seminar, Scripps Institution of Oceanography, La Jolla, CA, Jan 2022 (*invited*)
- Joint BioEnergy Institute (JBEI), Sandia National Laboratory, Emeryville, CA, Jan 2021 (*invited*)
- American Geophysical Union Annual Meeting, San Francisco, CA, Dec 2019
- Arctic LTER Annual Meeting, Woods Hole, MA, Feb 2019
- Society of Wetland Scientists Annual Meeting, Providence, RI, Jun 2015
- American Chemical Society Spring National Meeting, Denver, CO, Mar 2015
- Society of Environmental Toxicology and Chemistry Annual Meeting, Nashville, TN, Nov 2013
- EuCheMS Conference, Barcelona, Spain, Jun 2013
- American Chemical Society Spring National Meeting, New Orleans, LA, Apr 2013

+ 17 first-author presentations by student mentees

MEDIA HIGHLIGHTS

- Light on dark waters, Nature News and Views, 2024
- Drainage canals for peatlands are major source of carbon emissions, study finds, The Strait Times, 2024

- Peatland canals are hidden hotspots for carbon emissions, Earth.com, 2024
- Understanding an overlooked hotspot for carbon emissions, Stanford University, 2024
- Canals used to drain peatlands are underappreciated hotspots for carbon emissions, Scripps Institution of Oceanography, 2024
- Experiments reveal how permafrost carbon becomes carbon dioxide, EOS, 2020
- Arctic forecast: Sunny with a higher chance of carbon emissions, Grist, 2020
- Warmer, Greener Arctic Becoming a Source of Heat-Trapping Gas, Yale E360, 2020
- Carbon emission from permafrost soils underestimated by 14%, University of Michigan, 2020

ACADEMIC SERVICE

Service to scientific community

- Session Convener, American Geophysical Union, 2025. Co-conveners: A. Hoyt (Stanford), J. Loisel (UNR), C. Perryman (Stanford), W. Zhang (Univ. Glascow) "*Carbon cycling in global wetlands and peatlands*"
- Workshop Organizer, AsiaFlux Conference, Indonesia, 2025. "*Synthesizing aquatic carbon export estimates from Southeast Asian wetlands*"
- Session Chair, Association for the Sciences of Limnology and Oceanography Meeting, 2025. Co-conveners: B. Granzow (UCSD) & M. White (ETH) "*Advancing the chemical and isotopic characterization of dissolved organic matter across the land–ocean aquatic continuum*"
- Workshop Co-organizer, Stanford University, 2024. Co-organizers: A. Hoyt (Stanford) & C. Perryman (Stanford) "*Wetland Restoration for Climate Change Mitigation*"
- Session Co-convener, American Geophysical Union, 2023. Co-conveners: K. Heckmann (USDA), C.R. Lawrence (USGS), C. Hicks Pries (Dartmouth), J. Rush (CU Boulder), M. Tfaily (U. Arizona), & S. von Fromm (MPI-BGC) "*Advances in characterization of soil carbon pools and transformations*"
- Peer Reviewer: PNAS, Environmental Science & Technology, Global Change Biology, Global Biogeochemical Cycles, Limnology & Oceanography Letters, Geophysical Research Letters, Environmental Science: Processes & Impacts, Limnology & Oceanography, Biogeosciences, Journal of Hydrology, Organic Geochemistry, Journal of Geophysical Research: Biogeosciences, Journal of Geophysical Research: Oceans, Biogeochemistry

Service to academic institutions

- Member, Earth & Atmospheric Sciences Graduate Admissions Committee, Georgia Tech, 2025-
- Seminar Co-organizer, Scripps Institution of Oceanography, 2022. Co-organizers: E. Brasseale (U-W), M. Freilich (Brown), L. Keppler (Vycarb), A. Sanchez-Rios (UCSD) "*Summertime talks from oceanography postdocs*"
- Member, URGE Working Group, Scripps Institution of Oceanography, 2021.

Service to students

- Member, Faculty Steering Committee, Southeastern Biogeochemistry Symposium, 2026.
- Co-organizer, Post Baccalaureate Research Exchange, Tanjungpura University, 2021 – 2025.
- Mentor, Geosciences Education & Mentorship Support (GEMS) program, 2022 – 2023.
- Founder & Organizer, STEM Ph.D. Alumni Network, Chapman University, 2020 – 2022.
- Director of Mentorship, Association for Women in Science, University of Michigan, 2016 – 2018.
- Student Presentation Judge: AsiaFlux Conference 2025, AGU 2023, AGU 2022.

Affiliations: American Geophysical Union (AGU), Association for the Sciences of Limnology and Oceanography (ASLO), Carbon in Peat on Earth through Time (C-PEAT), International Soil Radiocarbon Database (ISRaD)

MENTORING (* student with first-author presentation) († letter writer)

Georgia Tech

- *Isabel O'Connell, Environmental Science BS student, 2026 – current
- *Abhinav Sharma, Atmospheric & Ocean Sciences BS student, 2026 – current
- *Mariana Torres, Environmental Science BS student, 2026 – current
- Avnee Mhaskar, Environmental Science BS student, 2026 – current
- Xavier Rousseau, Chemistry & Biochemistry PhD student, 2025 – current
- *Claire Riggs, Environmental Science BS student, 2025 – current
- *Parson Chan, Chemistry & Biochemistry MS student, 2025 – current

External *(mentor on thesis research project)*

- Lauren Karp, Chemistry MS student, Western Washington University, 2025 – current
- *Jessica Rush, Ecology & Evolutionary Biology PhD student, University of Colorado Boulder, 2023 – 2026 *(now postdoc at PNNL †)*
- *Samantha Sullivan, Chemistry PhD student, Old Dominion University, 2023 – 2025
- *Lucia Cancelada, Chemistry PhD student, University of California San Diego, 2022 – 2025

Scripps Institution of Oceanography & Stanford University *(co-advised project)*

- *Conner Breyer, Summer SURGE REU student, Kansas State University, 2025
- Agnes Mischelle, Soil Science BS student, Tanjungpura University, 2025
- *Rasis Putra Ritonga, Data Manager, Yayasan Konservasi Alam Nusantara, The Nature Conservancy – Indonesia, 2023 – 2025 *(now postdoc at NUS †)*
- *Erin Dayani, Soil Science MS student, Tanjungpura University, 2023 – 2025
- *Yulita Andriyani, Post Baccalaureate researcher, Tanjungpura University, 2023 – 2025
- *Desi Silviani P.A.B., Soil Science BS student & Post Baccalaureate researcher, Tanjungpura University, 2022 – 2025 *(now Indonesia LPDP scholar, MS student at Stanford †)*
- *Jevan Yu, Computational Sciences BS student, Stanford University, 2022 – 2023
- Shannon Perry, Chemistry BS student, UC San Diego, 2022
- Putri Juliandini Wahyudio, Soil Science MS student, Tanjungpura University, 2021 – 2023
- *Eleanor Walker, Civil & Environmental Engineering MS student, Stanford University, 2021 – 2022 *(now GRFP fellow, PhD student at Harvard †)*

OUTREACH

- Advancing wetland and freshwater conservation in Georgia:
  - Participant, Georgia Wetlands Day, The Jones Center at Ichauway, GA, 2026.
  - Participant, Annual GPCA Mountain Bogs Meeting, Gainesville, GA, 2026.
  - Partner, Georgia Aquarium Freshwater Conservation Workshop, Atlanta, GA, 2025.
    Highlight: Diving into Freshwater: Georgia Aquarium's Fresh Focus on Local Rivers
- Wetland Science Leader, Student Connection Afterschool Program, Ocean Discovery Institute, San Diego, CA, 2021 – 2023.
  Shared my science journey with K-5th graders and talked about how wetlands provide important ecosystem services but are being impacted by human activity (once per quarter)
- Group Leader, Saturday Science Capstone, Women+ Excelling More in Math Engineering and the Sciences (FEMMES+), University of Michigan, Ann Arbor, MI, 2019 – 2020.
  Led 4th to 6th grade girls from schools in low-income communities in southeast Michigan through hands-on STEM activities (e.g., how shells record Earth's climate, chromatography chemistry)
- Invited speaker:
  - Schmid College Senior Research Conference, Chapman University, Orange, CA, 2025.
  - Careers in Environmental Chemistry & Biochemistry, Chapman University, CA, 2021.