Megan N. Gillen

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EDUCATION

MIT-WHOI Joint Program in Oceanography & Applied Ocean Science/Engineering,
Cambridge and Woods Hole, MA
Ph.D., Marine Geology and Geophysics, September 2020-current
Advisor: Dr. Taylor Perron (Massachusetts Institute of Technology)

William & Mary, Williamsburg, VA
B.S., Summa Cum Laude, Geology with High Honors, May 2020
Minor: Data Science
Honors Thesis: "Vulnerability and Resilience of Tidal Marshes along an Estuarine Salinity Gradient"
Advisor: Dr. Matt Kirwan (Virginia Institute of Marine Science)

CERTIFICATES

Grant Writing Training Certificate, *MIT,* Spring 2025
Research Mentoring Certificate, *MIT,* January 2025
Kaufman Teaching Certificate Program (KTCP), *MIT*, Spring 2024
Earth Surface Processes Institute (ESPIn), *Community Surface Dynamics Modeling System (CSDMS)*, June 2021

GRANTS & FELLOWSHIPS

Teaching Development Fellow, *MIT Teaching + Learning Lab,* AY 2024-2025
MathWorks Science Fellowship, *MathWorks,* AY 2024-2025
Ocean Ventures Fellowship Recipient, *Woods Hole Oceanographic Institution,* 2023
Graduate Research Grant Recipient, *Geological Society of America,* 2023
Raj V. Tahil Fellowship, *MIT Office of Graduate Education,* AY 2023-2024
Grant Recipient*, *AGeS3-Grad Program,* 2023
Watson Fellow, *Woods Hole Oceanographic Institution,* Spring 2021 Semester
Von Damm Fellow, *Woods Hole Oceanographic Institution,* Fall 2020 Semester

HONORS & AWARDS

Outstanding Student Presenter Award[1], *American Geophysical Union*, 2023
Honorable Mention Recipient, *NSF Graduate Research Fellowship,* 2021
Phi Beta Kappa, *William & Mary,* 2020
Best Undergraduate Student Poster, *Coastal and Estuarine Research Federation,* 2019 Meeting
Ernst F. Hollings Scholar, *National Oceanic and Atmospheric Administration,* 2018-2020
Dean's List, *William & Mary,* 2017, 2018, 2019, 2020

RESEARCH EXPERIENCE

Graduate Research Assistant, Perron Surface Processes Group (Advisor: Dr. Taylor Perron), **Massachusetts Institute of Technology (Earth, Atmospheric, and Planetary Science Department)**
Cambridge, MA, July 2021 – Current

- *Rivers influence reef pass location in the Society Islands*[1]
- *Quantifying drivers of volcanic ocean island morphology*

Graduate Research Assistant, Coastal Systems Group (Advisor: Dr. Andrew Ashton), **Woods Hole Oceanographic Institution (Geology & Geophysics Department)**
Woods Hole, MA, September 2020 – June 2024

- *Modeling lower shoreface equilibrium morphology and net transport under dynamic wave conditions*[2] – In Prep
- *Wave-driven morphodynamics of reef islands (motu) and reef flat channels (hoa)*
- **Investigating the geologic evolution of the Cape Cod spit through geophysical and geochronological methods* – AGeS3 Funded Project

Undergraduate Research Assistant, Coastal Geomorphology and Ecology Lab (Advisor: Dr. Matt Kirwan), **Virginia Institute of Marine Science (Physical Sciences Department)**
Gloucester Point, VA, February 2017 – May 2020

- *Vulnerability and Resilience of Tidal Marshes along an Estuarine Salinity Gradient*[3] (Undergraduate Thesis with High Honors)

NOAA Hollings Research Intern, Coastal Ecology Center (Mentors: Dr. Jason Goldstein & Sue Bickford), **Wells National Estuarine Research Reserve**
Wells, ME, May 2019-July 2019

- *Ecogeomorphic Characterization of Salt Pools in a Southern Maine Tidal Marsh*

PUBLICATIONS

[1]**Gillen, M.N.,** Perron, J. T., Ashton, A. D., 2025, Rivers Influence Reef Pass Formation in the Society Islands, Geophysical Research Letters, https://doi.org/10.1029/2025GL114881.

[2]**Gillen, M.N.**, Ashton, A.D., Miselis, J. L., Wei, E.A., Ciarletta, D. J., Sherwood, C. R., 2023, Incorporating wave climate complexity into modeling lower shoreface morphology and transport, in Proceedings of the Coastal Sediments 2023, New Orleans, Louisiana, USA. https://doi.org/10.1142/9789811275135_0260

Goldstein, E.B., Buscombe, D., Lazarus, E.D., Mohanty, S.D., Rafique, S.N., Anarde, K.A., Ashton, A.D., Beuzen, T., Castagno, K.A., Cohn, N., Conlin, M.P., Ellenson, A., **Gillen, M.N.**, Hovenga, P.A., Over, J-S.R., Palermo, R.V., Ratliff, K.M., Reeves, I.R.B., Sanborn, L.H., Straub, J.A., Taylor, L.A., Wallace, E.J., Warrick, J., Wernette, P., Williams, H.E., 2021, Labeling poststorm coastal imagery for machine learning: Measurement of interrater agreement, Earth and Space Science, 8, e2021EA001896, https://doi.org/10.1029/2021EA001896.

Gillen, M. N., Messerschmidt, T. C., and Kirwan, M. L., 2021, Biophysical controls of marsh soil shear strength along an estuarine salinity gradient, Earth Surf. Dynam., 9, 413–421, https://doi.org/10.5194/esurf-9-413-2021.

[3]**Gillen, Megan**, "Vulnerability and Resilience of Tidal Marshes along an Estuarine Salinity Gradient" (2020). Undergraduate Honors Theses. Paper 1552. https://scholarworks.wm.edu/honorstheses/1552.

PRESENTATIONS

INVITED LECTURES

2025 Roger Williams University Division of Marine and Natural Sciences Seminar, *From Island Streams to Coral Seas: Mapping the Impact of River Systems on Reef Morphology*

CONFERENCE ABSTRACTS

Gillen, M.N., Perron, J.T., Ashton, A.D., 2023, Relationships between river basins and reef pass locations in the Society Islands Archipelago: presented at 2023 Fall Meeting, AGU, San Francisco, CA, 11-15 December.

Gillen, M.N., Ashton, A.D., Miselis, J. L., Wei, E.A., Ciarletta, D. J., Sherwood, C. R., 2022, Understanding shoreface equilibrium morphology: combining wave climate and geologic data with an energetics-based model: presented at 2022 CSDMS Meeting, Community Surface Dynamics Modeling System, Boulder, CO, 17-19 May.

[3]Palermo, R.V., Wallace, E.J., Joshi, S., Anarde, K.A., Ashton, A.D., Brideau, L., Cortes, I., Evans, R.L., **Gillen, M.N.**, Goldstein, E.B., Gostic, M., Housego, R., Kinsman, N., 2021, Anti-Racism in Women in Coastal Geoscience and Engineering: Abstract U35A-2236 presented at 2021 Fall Meeting, AGU, New Orleans, LA, 13-17 December.

Gillen, M.N., Ashton, A.D., Miselis, J. L., Wei, E.A., Ciarletta, D. J., Sherwood, C. R., 2021, Examining shoreface disequilibrium morphodynamics and their influence on shoreline change: Abstract EP24A-06 presented at 2021 Fall Meeting, AGU, New Orleans, LA, 13-17 December, https://www.essoar.org/doi/abs/10.1002/essoar.10509319.1.

Gillen, M.N., Messerschmidt, T.C., and Kirwan, M.L., 2020, Biophysical controls of marsh soil shear strength along an estuarine salinity gradient: Abstract B052-0012 presented at 2020 Fall Meeting, AGU, Virtual, 7-16 December.

Gillen, M.N, Messerschmidt, T.C., and Kirwan, M.L., 2019, Influence of Salinity and Vegetation on Tidal Marsh Soil Shear Strength: Abstract #7059 presented at 2019 Meeting, CERF, Mobile, AL, 3-7 November.

Gillen, M.N., Bickford, S., and Goldstein, J.S., 2019, “Ecogeomorphic Characterization of Salt Pools in a Southern Maine Tidal Marsh”, presented at 2019 NOAA Hollings Scholarship Symposium, Silver Spring, MD, 29 July – 1 August.

Gillen, M.N., Messerschmidt, T.C., and Kirwan, M.L., 2018, Influence of Salinity and Vegetation on Tidal Marsh Soil Shear Strength: Abstract EP23C-2322 presented at 2018 Fall Meeting, AGU, Washington, D.C., 10-14 December.

TEACHING EXPERIENCE

Faculty, Buzzards Bay Term Program, Gull Island Institute, May 2023 & May 2024

Graduate Teaching Trainee, *Coastal Geomorphology*, MIT-WHOI Joint Program, February - April 2024

Guest Lecturer, "Marshes & Tidal Environments", MIT-WHOI Joint Program, 9 April 2024

Guest Lecturer, "Wave Shoaling & the Shoreface", MIT-WHOI Joint Program, 22 February 2024

Guest Lecturer, "Watersheds & Island Rivers", *Introduction to Environmental Science*, College of Holy Cross, 4 April 2024

Guest Lecturer, "Coral Reef & Volcanic Ocean Island Geomorphology", *Introduction to Coastal Processes*, Boston College, 29 February 2024

Course Organizer & Instructor (Introduction to Python), WHOI Math Review for Incoming Joint Program Students, July 2021 (Instructor Only), July 2022 – August 2023

Educational Jupyter Lab Developer, *Simulating Shoreline Change using Coupled CoastSat and Coastline Evolution Model (CEM)*, CSDMS ESPin Summer Insitute, June 2021: https://csdms.colorado.edu/wiki/Lab-0027

Graduate Teaching Assistant, "Discover EAPS (DEAPS) Extreme Weather", MIT, August 2021

Undergraduate Teaching Assistant, *Earth Surface Processes*, William & Mary, Fall 2019

Guest Lecturer, "Coastal Geomorphology", William & Mary, 19 November 2019

Undergraduate Teaching Assistant, *Physical Geography*, William & Mary, Fall 2018

DIVERSITY, EQUITY, & INCLUSION

Education Chair, Towards Increasing Diversity in EAPS (TIDE) at MIT, October 2022 – October 2023

Racism, Colonialism, and Extraction in the Geosciences Seminar, Towards Increasing Diversity in EAPS (TIDE) at MIT, January – May 2021 (Participant), January 2022 – October 2023 (Course Organizer)

DEI Committee Member, Women in Coastal Geoscience and Engineering (WiCGE), September 2021 – September 2023

^{3}URGE Participant, Women in Coastal Geoscience and Engineering (WiCGE) Pod, January – May 2021

GRADUATE STUDENT COMMUNITY

Geology Representative, Joint Program Student Representatives, October 2022 – October 2023

Mentor, EAPS Application Mentorship Program, September 2021 – September 2023

Mentor, Joint Program Application Support & Knowledgebase (JP ASK), September 2020 – September 2023

Player & Uniform Chair, Boston Vice Women's Club Ultimate Frisbee, June 2022 – September 2025

Player & Coach, MIT Women's Ultimate Frisbee, September 2021 – May 2023 (Player), September 2023 – May 2025 (Coach)