

**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

*Advisors:* Dr. Taylor Perron (Massachusetts Institute of Technology); Dr. Andrew Ashton (Woods Hole Oceanographic Institution)

**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**

Kaufman Teaching Certificate Program (KTCP), *MIT*, Spring 2024

Earth Surface Processes Institute (ESPI), *Community Surface Dynamics Modeling System (CSDMS)*, June 2021

**HONORS & AWARDS**

MathWorks Science Fellowship, *MathWorks*, AY 2024-2025

Outstanding Student Presenter Award<sup>1</sup>, *American Geophysical Union*, 2023

Ocean Ventures Fellowship Recipient, *Woods Hole Oceanographic Institution*, 2023

Graduate Research Grant Recipient, *Geological Society of America*, 2023

Raj V. Tahlil Fellowship, *MIT Office of Graduate Education*, AY 2023-2024

Grant Recipient\*, *AGeS3-Grad Program*, 2023

Honorable Mention Recipient, *NSF Graduate Research Fellowship*, 2021

Watson Fellow, *Woods Hole Oceanographic Institution*, Spring 2021 Semester

Von Damm Fellow, *Woods Hole Oceanographic Institution*, Fall 2020 Semester

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*, Coastal Systems Group (Advisor: Dr. Andrew Ashton), **Woods Hole Oceanographic Institution (Geology & Geophysics Department)**

Woods Hole, MA, September 2020 – Current

- *Modeling lower shoreface equilibrium morphology and net transport under dynamic wave conditions (Part 1 & Part 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

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* – In Prep
- *Quantifying drivers of volcanic ocean island morphology*

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*<sup>2</sup>  
 (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**

**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](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>.

<sup>2</sup>**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>.

## **CONFERENCE PRESENTATIONS**

<sup>1</sup>**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.

<sup>3</sup>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**

**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

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

**<sup>3</sup>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 – Current

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