

# Sebastian Rowan

PH.D CANDIDATE IN CIVIL AND ENVIRONMENTAL ENGINEERING

University of New Hampshire, Durham, NH

📞 He/Him | ✉️ [sebastian.rowan@unh.edu](mailto:sebastian.rowan@unh.edu) | 🏠 [sebastianrowan.github.io](https://sebastianrowan.github.io) | 📷 [sebastianrowan](#) | 🌐 [sebastian-rowan-72490170](#)

*I am Ph.D. candidate in civil and environmental engineering researching the impacts of flood events and climate change on people and communities. The goal of my research is to develop a more comprehensive understanding of the risks posed by floods to enable the development of mitigation efforts that prioritize long-term sustainability and community well-being rather than maximizing financial return on investment.*

## Education

### University of New Hampshire

Durham, New Hampshire

PH.D. CANDIDATE, CIVIL AND ENVIRONMENTAL ENGINEERING

2025 (Expected)

- Dissertation Title: Towards Sustainable Flood Risk Management: Incorporating Uncertainty and Environmental Impacts
- Advisor: Dr. Weiwei Mo

### University of New Hampshire

Durham, New Hampshire

B.S. ENVIRONMENTAL ENGINEERING

2016

## Experience

### U.S. Army Corps of Engineers, Engineer Research Development Center

Vicksburg, MS (Remote)

ORISE GRADUATE RESEARCH FELLOW

Sep. 2020 - Present

- Contributed to the development of USACE consequence analysis tools go-consequences and Generation II Coastal Resilience Model (G2CRM)
- Co-lead economic consequence and social vulnerability analysis of future flooding in the Mississippi River Valley
- Lead systematic literature review and meta-analysis to assess the effect of home damage on post-flood psychiatric morbidity to support USACE effort to comprehensively assess "Other Social Effects" of floods for planning studies
- Performed data analysis using social vulnerability and other geospatial data to support Tier 1 Other Social Effects/Environmental Justice Analysis for the USACE New York/New Jersey Harbors and Tributaries Coastal Storm Risk Management Feasibility Study

### University of New Hampshire

Durham, NH

RESEARCH ASSISTANT

Fall 2018, Spring 2020

- Resilient Bridge Planning in Mozambique - Bridge Failure Risk from Flooding and Climate Change
- PI: Dr. Kyle Kwiatkowski

### University of New Hampshire

Durham, NH

TEACHING ASSISTANT

2019 - 2020

- CEE 705: Introduction to Sustainable Engineering (Fall 2019, Fall 2020)
- CEE 502: Project Engineering (Spring 2019)

### New Hampshire Department of Transportation, Bureau of Planning and Community Assistance

Concord, NH

CIVIL ENGINEER I-II

2016 - 2018

- Contributed to the development of statewide asset management system for culvert and closed drainage systems in partnership with UNH Technology Transfer Center/SADES.
- Developed data analysis pipelines to produce standard reports to support Department-wide operations and assess progress on key performance metrics

### University of New Hampshire InterOperability Laboratory

Durham, NH

10 GIGABIT ETHERNET TECHNICIAN

2014-2017

### New Hampshire Department of Environmental Services, Air Resources Division

Concord, NH

ENVIRONMENTAL TECHNICIAN

2015

## Awards

UNH 3-MINUTE THESIS (3MT) COMPETITION

2025

- 3rd Place

## Publications

Rowan, S., Yeates, E., (2024) The effect of home damage on post-flood psychiatric morbidity: A systematic review and meta-analysis. (Protocol), PROSPERO, <https://www.crd.york.ac.uk/PROSPERO/view/CRD42024618891>

Memarsadeghi, N. P., **Rowan, S.**, Sisco, A. W., Tavakoly, A. A., (2024). Enhancing resilience: Integrating future flood modeling and socio-economic analysis in the face of climate change impacts. *Science of the Total Environment*, <https://doi.org/10.1016/j.scitotenv.2024.174893>

Seigerman, C. K., McKay, S. K., Basilio, R., Biesel, S. A., Hallemeier, J., Mansur, A. V., Piercy, C., **Rowan, S.**, Ubiali, B., Yeates, E., & Nelson, D. R. (2023). Operationalizing equity for integrated water resources management. *JAWRA Journal of the American Water Resources Association*, 59(2), 281–298. <https://doi.org/10.1111/1752-1688.13086>

Galaitsi, S., Kurth, M., **Rowan, S.**, Yeates, E., & Kalaidjian, E. (2022). New York—New Jersey Harbor and Tributaries Coastal Storm Risk Management Feasibility Study—Tier 1 Other Social Effects/Environmental Justice Analysis. U.S. Army Corps of Engineers New York District. [https://www.nan.usace.army.mil/Portals/37/Appendix%20A12\\_Tier%201%20SE\\_EJ\\_HATS.pdf](https://www.nan.usace.army.mil/Portals/37/Appendix%20A12_Tier%201%20SE_EJ_HATS.pdf)

**Rowan, S.**, & Kwiatkowski, K. (2020). Assessing the Relationship Between Social Vulnerability, Social Capital, and Housing Resilience. *Sustainability*, 12(18), 7718. <https://doi.org/10.3390/su12187718>

## Presentations

**Rowan, S.**, Measuring what matters for flood risk management. *University of New Hampshire 3MT (3-Minute Thesis) Competition Finals*; March 2025; Durham, NH. Oral Presentation. [https://media.unh.edu/media/Sebastian%20Rowan%20-%20UNH%203MT%20Finals%202025%20-%20Third%20Place/1\\_da4qt06x](https://media.unh.edu/media/Sebastian%20Rowan%20-%20UNH%203MT%20Finals%202025%20-%20Third%20Place/1_da4qt06x)

**Rowan, S.**, Memarsadeghi, N., Sisco, A., Tavakoly, A. An Assessment of the Socio-Economic Impacts from Climate Change and its Relationship with Vulnerability. *AGU23; December 2023; San Francisco, CA*. Oral Presentation.

**Rowan, S.**, Yeates, E., Mo, W. Estimating the Greenhouse Gas Emissions of Flood Damages. *AEESP Research & Education Conference*; June 2023; Boston, MA. Poster.

**Rowan, S.**, Yeates, E. Predicting the Mental Health Impacts of Floods. *47th Annual Natural Hazards Research and Applications Workshop*; July 2022; Virtual. Poster.

**Rowan, S.**, Yeates, E., Wells, E. Quantifying the Health Impacts of Floods - A Systematic Literature Review. *2021 UNC Water and Health Conference*; October 2021; Virtual. Poster.

**Rowan, S.**, Kwiatkowski, K. Assessing the Relationship Between Social Vulnerability, Social Capital, and Housing Resilience. *45th Annual Natural Hazards Research and Applications Workshop*; July 2020; Virtual. Poster.

**Rowan, S.**, Kwiatkowski, K., Qiao, Y. Resilient Bridge Planning in Mozambique: Bridge Failure Risk from Flooding and Climate Change. *2nd International Conference on Transportation System Resilience to Natural Hazards and Extreme Weather Events (TR2019)*; November 2019; Washington, D.C. Oral Presentation.

## Open Source Projects

### SVIBUILD

Active

- An R package that allows users to download or construct the CDC's Social Vulnerability Index as a tidyverse or simple features data frame.
- Enables greater flexibility in region selection for SVI analyses than is possible with state- or national-level datasets hosted by CDC.

### NSI DATA QGIS PLUGIN

Active

- A QGIS plugin that downloads data from the USACE National Structures Inventory for a specified region and adds it to a map.

### NSIPY

Active

- A Python package to download data from the U.S. Army Corps of Engineers National Structures Inventory using the NSI API.

## Skills

### PROGRAMMING LANGUAGES

- Python, R, Go, SQL, MATLAB

### SOFTWARE

- QGIS, ArcGIS, go-consequences, Vensim, NVivo