Sebastian **Rowan**

Ph.D Candidate in Civil and Environmental Engineering

University of New Hampshire, Durham, NH

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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

Ph.D. Candidate, Civil and Environmental Engineering
2024 (Expected)

University of New Hampshire — *Durham, New Hampshire*

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

B.S. Environmental Engineering
2016

University of New Hampshire — *Durham, New Hampshire*

Experience

ORISE Graduate Research Fellow
Sep. 2020 - Present

U.S. Army Corps of Engineers, Engineer Research Development Center — *Vicksburg, MS (Remote)*

- Contributed to research efforts to quantify impacts of floods not typically included in cost-benefit analyses for flood risk management projects.
- Lead systematic literature review and metasummary to identify risk factors for mental health impacts of floods
- Contributed to Tier 1 Other Social Effects/Environmental Justice Analysis for the USACE New York/New Jersey Harbors and Tributaries Coastal Storm Risk Management Feasibility Study
- Contributed to social vulnerability analysis of future flooding in the Mississippi River Valley

Research Assistant
Fall 2018, Spring 2020

University of New Hampshire — *Durham, NH*

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

Teaching Assisstant
2019 - 2020

University of New Hampshire — *Durham, NH*

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

Civil Engineer I-II
2016 - 2018

New Hampshire Department of Transportation, Bureau of Planning and Community Assistance — *Concord, NH*

- Contributed to the development of statewide asset management system for culvert and closed drainage systems in partnership with UNH Technology Transfer Center/SADES.

10 Gigabit Ethernet Technician
2014-2017

University of New Hampshire InterOperability Laboratory — *Durham, NH*

Summer Intern
2015

New Hampshire Department of Environmental Services, Air Resources Division — *Concord, NH*

Open Source Projects

svibuildr — *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 basic plugin for QGIS that downloads data from the USACE National Structures Inventory for a specified region and adds it to a map.

useeio_py — *Active*

- A Python translation of the USEPA's useeior R package for building and using USEEIO models for life cycle analysis.

Publications

- **Rowan, S.**, Bell, E., Weiwei, M. (2024) Estimating the Greenhouse Gas Emissions of Flood Damages. Resources, Conservation, and Recycling [Under Review].
- Memarsadeghi, N., **Rowan, S.**, Sisco, A., Tavakoly, A. (2024). Enhancing Resilience: Integrating Future Flood Modeling and Socio-Economic Analysis in the Face of Climate Change Impacts. Science of The Total Environment [Under Review].
- 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%20OSE_EJ_HATS.pdf`
- 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`
- **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.**, 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 Fransisco, 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.**, Kwiatkowski, K. Assessing the Relationship Between Social Vulnerability, Social Capital, and Housing Resilience. *46th 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.