Marie T. Rivers, PE

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SUMMARY OF QUALIFICATIONS

- Data scientist with in-depth renewable energy and environmental domain knowledge
- 2 years of research scientist experience focused on geospatial components of siting renewable energy
- 10 years of engineering consultant experience focused on hydraulic modeling and water resources
- Strong experience analyzing, modeling, visualizing, and communicating environmental and geospatial data

EDUCATION

Master of Environmental Data Science (June 2022)
Bren School of Environmental Science & Management – University of California, Santa Barbara (UCSB)
> Capstone: Improving Usability of Remotely Sensed Snow Data Through Web Based Visualizations and Tutorials

Master of Science in Environmental Engineering (May 2011)
Department of Civil and Environmental Engineering – University of Massachusetts, Amherst
> Thesis: Annual, Monthly, and Storm Scale Analysis of Chloride Fluxes from Highway Deicing Agents to the Cambridge Reservoir

Bachelor of Environmental Engineering (May 2009)
Department of Civil and Environmental Engineering – University of Delaware, Newark
> Concentration: Water Resources and Water Quality; Minors: Civil Engineering and Geology

EXPERIENCE

Geospatial Research Scientist – National Renewable Energy Laboratory, Golden, CO (12/22–present)
- Modeled wind and solar energy technical potential to quantify the quantity, quality, and cost of renewable resource for numerous siting scenarios and social, regulatory, and environmental constraints
- Developed wind, utility scale solar, and floating photovoltaic supply curves and generation profiles for national and regional renewable energy studies
- Used Python and HPC resources to process large geospatial datasets and evaluate the siting of renewable energy technologies

Water Resources Engineering Professional Associate – Jacobs Engineering, Boston, MA (1/20–7/21)
- Managed a combine sewer overflow program by reviewing regulatory requirements, writing compliance reports and advising the city on measures to reduce flow in combined sewers
- Modeled drinking water systems to evaluate scenarios for proposed infrastructure upgrades, operational changes and pipe configurations to improve water quality and resiliency for municipal utilities
- Presented the hydraulic effects of water storage changes using model outputs, graphs and maps to inform decision makers within a municipal water utility
- Completed a geospatial analysis to identify new water infrastructure sites based on system hydraulics, siting constraints, and stakeholder input

Principal Engineer – Hazen and Sawyer, Boston, MA (11/17–1/20)
- Prepared technical memoranda, design plans, technical specifications, health and safety plans and inspection reports for water infrastructure design and rehabilitation projects
- Coordinated project status, budget and schedule with project team, client contact, and contractor
- Created Geographic Information System (GIS) maps and summary tables using ArcGIS and Excel for reports and client presentations
- Cowrote proposals to secure project work with existing and new clients

EXPERIENCE (Continued)

Project Engineer – Tata & Howard, Marlborough, MA (6/11–11/17)
- Built, calibrated and verified over 10 hydraulic models in WaterGEMS and InfoWater software using historic records, GIS data and hydrant flow tests to allow clients to evaluate existing and future conditions
- Modeled 20+ water distribution systems to provide water utilities with solutions to hydraulic deficiencies
- Wrote water distribution system reports to communicate existing and future conditions, critical components, prioritized infrastructure replacement recommendations, and multi-decade budget estimates
- Designed over 40,000 feet of new and rehabilitated water main projects to improve reliability of community drinking water distribution systems

ADDITIONAL EXPERIENCE

Research Assistant – UMass Environmental Engineering Department, Amherst, MA (6/09–5/11)
- Modeled transport of road salt in stormwater runoff from highways to water supply reservoirs using continuously logged water quality data and Microsoft Excel Visual Basic to quantify pollutant loading

Engineering Intern – Geosyntec Consultants, Acton, MA (6/08–8/08)
- Quantified infiltration rates for porous pavement, bioretention cells, and raingarden systems to monitor Low Impact Development system performance

Water Resource Intern – Delaware Water Resource Center, Newark, DE (9/07–5/08)
- Analyzed groundwater field data and modeled groundwater flow in an unconfined aquifer

Engineering Aide – Massachusetts Dept of Environmental Protection, Worcester, MA (6/06–8/06, 6/07–8/07)
- Assisted in writing Water Quality Assessment Reports and prepared GIS figures for selected watersheds to document environmental conditions

TECHNICAL AND PROJECT MANAGEMENT SKILLS

Programming, Coding & Data Analysis: R, Python, SQL, Git (GitHub), PostgreSQL, QGIS, ArcGIS, Google Earth Engine, Tableau, data visualization, machine learning, remote sensing, markdown, hydraulic modeling
Project Management & Computing: Microsoft Office Suite (Word, Excel, PowerPoint), Zotero, Slack, ZenHub

LICENSES AND CERTIFICATIONS

Professional Civil Engineer, Water Resources – MA License # 51946
OSHA 10 Hour

PUBLICATIONS AND CONFERENCE PROCEEDINGS

Rosenlieb, Evan, **Marie Rivers**, and Aaron Levine. "Floating Photovoltaic Technical Potential: A Novel Geospatial Approach on Federally Controlled Reservoirs in the United States." *Solar Energy* 287 (February 1, 2025): 113177. https://doi.org/10.1016/j.solener.2024.113177.

Lopez, Anthony, Gabriel Zuckerman, Pavlo Pinchuk, Michael Gleason, **Marie Rivers**, Owen Roberts, Travis Williams, et al. "Renewable Energy Technical Potential and Supply Curves for the Contiguous United States: 2024 Edition," January 8, 2025. https://doi.org/10.2172/2500362.

Gleason, Michael, Anthony Lopez, and **Marie Rivers**. "Mapping and Characterizing the Visual Impacts of the Existing US Wind Turbine Fleet." *Applied Energy* 378 (January 15, 2025): 124801. https://doi.org/10.1016/j.apenergy.2024.124801.

Pastor, Angela Ortega, Grant Ellwood, Maya Fein-Cole, Jal Desai, Larson Lovdal, Evan Rosenlieb, **Marie Rivers**, Ben Rakov, and Gail Mosey. "Assessing the Solar Photovoltaic Potential in Puerto Rican Brownfields and Reservoirs: Analysis and Modeling," June 2024.

Pastor, Angela Ortega, Grant Ellwood, Maya Fein-Cole, Jal Desai, Larson Lovdal, Evan Rosenlieb, **Marie Rivers**, Ben Rakov, and Gail Mosey. "Assessing the Solar Photovoltaic (PV) Potential in Puerto Rican Brownfields and Reservoirs: Detailed Results and Methodology Annex," June 2024.

Lopez, Anthony, Pavlo Pinchuk, Michael Gleason, Wesley Cole, Trieu Mai, Travis Williams, Owen Roberts, **Marie Rivers**, et al. "Solar Photovoltaics and Land-Based Wind Technical Potential and Supply Curves for the Contiguous United States (2023 Edition)," January 25, 2024. https://doi.org/10.2172/2283517.

Rivers, Marie and Marc Morin. (2019), "An Alternate Approach to Painting and Structural Improvements to the Bellevue 2 Steel Water Tank" New England Water Works Association 138th Annual Conference, September 22-25, Rockport, Maine. (conference proceeding)

Rivers, M.T. 2011 (Masters Thesis). Annual, Monthly, and Storm Scale Analysis of Chloride Fluxes from Highway Deicing Agents to the Cambridge Reservoir. University of Massachusetts, Amherst.