**Marie T. Rivers, PE**

marie.rivers@gmail.com | [Website](https://marierivers.github.io/) | [GitHub](https://github.com/marierivers) | [LinkedIn](https://www.linkedin.com/authwall?trk=gf&trkInfo=AQGsb9-NU2fwnwAAAXxIgKV43ncVUuU54EB37NEXPzSsBdR_gNuM1V1XpPW_wY0ONDDw_xW2lTqmPgvf88AbMQ28VNWP1DLJYKuLG0yXW_Z0sCHoICmmIOQR80l5SrTX2_DSxeo=&originalReferer=https://marierivers.github.io/&sessionRedirect=https%3A%2F%2Fwww.linkedin.com%2Fin%2Fmarie-rivers-pe-8284b118)

**SUMMARY OF QUALIFICATIONS**

* Data science skills with Python, R, and SQL plus strong environmental domain knowledge
* 10 years of engineering consultant experience focused on hydraulic modeling and water resources
* Master’s degrees in both data science and engineering
* Strong experience analyzing, modeling, visualizing, and communicating environmental and spatial data

**EDUCATION**

**Master of Environmental Data Science** (June 2022)

**Bren School of Environmental Science & Management – University of California, Santa Barbara (UCSB)**

Highlighted Coursework: Scientific Programming, Remote Sensing, Statistics, Spatial Analysis, Machine Learning, Data Visualization, Environmental Policy Evaluation, Modeling Environmental Systems, Text and Sentiment Analysis, Ethics and Bias in Environmental Data Science

**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

**DATA ANALYSIS EXPERIENCE**

**Masters Capstone: Improving Usability of Remotely Sensed Snow Data Through Web Based Visualizations and Tutorials** (1/22–6/22)

**Role**: Data Manager | **Client**: UCSB Earth Research Institute

* Developed an interactive web application to visualize snow cover and albedo data
* Wrote technical documentation and reproducible tutorials to aide water managers, researchers, and outdoor enthusiast access data of spatial and temporal interest
* Analyzed historic snow cover statistics from remote sensing data (HDF5 format) to calculate anomalies and inform present day trends
* Presented data products to client and stakeholders to incorporate feedback into final deliverables

**EXPERIENCE**

**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 proposed scenarios using WaterGEMS software to evaluate infrastructure upgrades, operational changes and pipe configurations to improve water quality and resiliency for a municipal water utility
* 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 spatial analysis using ArcGIS and stakeholder input to identify new water infrastructure sites
* Authored a training manual for a Certified Professional in Water Pollution Control program focused on methods used to monitor, model, control and remove pollutants from surface water and pollution sources

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**EXPERIENCE (Continued)**

**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 responses to Request for Proposals to secure project work with existing and new clients

**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

**LICENSES AND CERTIFICATIONS**

Professional Civil Engineer, Water Resources – MA License # 51946

OSHA 10 Hour

**CONFERENCE PROCEEDINGS**

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)

**PUBLICATIONS**

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.

**TECHNICAL AND PROJECT MANAGEMENT SKILLS**

**Programming, Coding & Data Analysis**:R, Python, SQL, Git (GitHub), PostgreSQL, 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