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Jeffrey W. Hollister

Data | Ecology | R

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Curriculum Vitae

I am an ecologist and data scientist with expertise in the spatial component of ecological sciences. The focus of my work is lakes, landscapes, R, open science, and GIS. A unifying theme to my research is using data science to benefit environmental and ecological research. My goal is to apply my expertise and research background to answer questions using data and novel technical solutions.

Skills

R	I have 20+ years experience using R for analysis, data management, and visualization, R package development, Shiny development, and reproducible research.
Geospatial Analysis	I have 25+ years using GIS (ESRI and R), conducting landscape analysis, and analyzing lake morphometry.
Data	I use columnar datasets extensively (e.g., csv, feather, parquet), build data pipelines with GitHub Actions, and use R and Tidyverse for data management.
Data science teaching and mentoring	I co-taught 25+ R workshops. I am a Data Carpentry certified instructor, University of Rhode Island Adjunct Faculty member, cofounder of rhodyRstats; colead of the U.S. EPA R User Group, founding member of Inter-Agency R User Group.
Open science	I am an avid user and evangelist of open access publishing, open source software, and open data at USEPA and beyond. I was a member of White House Office of Science and Technology Policy Year of Open Science/Engagement Subgroup.
Ecology/Environmental Science	I have 20+ years as a researcher and principal investigator on estuarine, lake, harmful algal bloom, and landscape ecology research efforts.
Communication	I contributed to 90+ presentations, poster, expert panels, and workshops and lead or coauthored 40+ scientific publications, non-peer reviewed articles, and scientific software products.

Relevant Experience

Ecologist / Environmental Data Scientist **May 2006 — Present**
U.S. Environmental Protection Agency, Atlantic Coastal Environmental Sciences Division *Narragansett, R.I.*

- Serve as principal investigator for ecology, manage research teams, prioritize research directions, publish papers, present results, and lead workshops.
- Developed and delivered 25+ R, open science, git, and GitHub trainings.
- Develop and maintain R packages, including elevatr, lakemorpho, nsink, dadjokeapi, quickmapr(archived), and lawn(archived), and several internal packages.
- Lead efforts to integrate git and GitHub to manage research projects.
- Manage and manipulate datasets (MBs to GBs) using R and consult with other research teams on their data practices, including the use of bespoke data managment systems for lab and field data collection using R, git and GitHub actions.
- Advocate for and use columnar data structures including csv, feather, and parquet.
- Analyze and visualize geospatial data in R.
- Analyze and visualize ecology data in R, inlcuding the use of Random Forests, conditional probability, geostatistical analysis, and frequentist aproaches.
- Served as Acting Supervisor and supervised 10 staff members, mentored and coached staff on research and career development, and contributed leadership to agency management teams.

Adjunct Associate/Assistant Professor **Jan 2007 — Present**
University of Rhode Island, Department of Natural Resources Science *Kingston, R.I.*

- Co-taught several courses including courses on R, Shiny, scientific computing, and landscape ecology.
- Founded rhodyRstats with goal of providing training on R and data science to Unviersity of Rhode Island and the southern Rhode Island community.
- Served on Master's committees.

Education

Doctor of Philosophy in Environmental Science, *University of Rhode Island* 2004
Masters of Environmental Management, *Nicholas School of the Environment, Duke University* 1997
Bachelor of Science in Biology (Magna Cum Laude), *Baker University* 1995

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Select Publications and Presentations

Lowndes, J., A. Holder, E. Markowitz, C. Claterbuck, A. Bradford, K. Doering, M. Stevens, S. Butland, D. Burke, S. Kross, J. W. Hollister, C. Stawitz, M. Siple, A. Rios, J. Welch, B. Li, F. Nojavan, A. Davis, E. Steiner, J. London, I. Fenwick, A. Hunzinger, J. Verstaen, E. Holmes, M. Virdi, A. Barrett, E. Robinson. (2024). Shifting institutional culture to develop climate solutions with Open Science. Ecology and Evolution. doi: 10.1002/ece3.11341

Hollister, J. W. (2022) Automating an ecological data workflow with GitHub Actions and R. Government Advances in Statistical Programming (GASP) 2022. February 2022.

Hollister, J. W., D. W. Kellogg, Q. Lei-Parent, E. Wilson, C. Chadwick, D. Dickson, A. Gold, C. Arnold (2022). nsink: An R package for flow path nitrogen removal estimation. Journal of Open Source Software, 7(71), 4039. doi: 10.21105/joss.04039 GitHub

Kreakie, B. J., S. D. Shivers, J. W. Hollister, W. B. Milstead. (2021). Predictive Model of Lake Photic Zone Temperature Across the Conterminous United States. Frontiers in Environmental Science. 10.3389/fenvs.2021.707874 GitHub

Hollister, J. W., D. W. Kellogg, B. J. Kreakie, S. D. Shivers, W. B. Milstead, E. M. Herrong, L. T. Green, A. J. Gold. (2021). Analyzing long-term water quality of lakes in Rhode Island and the northeastern United States with an anomaly approach. Ecosphere. doi: 10.1002/ecs2.3555

Hollister, J. W. and D. Smith. (2019) Scaling Data Science at the EPA. Invited RStudio webinar. November 2019. Link.

Activities

rOpenScience: Editorial Board, package reviewer, hackathon remote participant — 2014 — Present

The Carpentries: Instructor, Data Carpentry Ecology Curriculum coauthor,
Geospatial Curriculum Committee (former cochair) — 2016 — Present

R communities: Colead USEPA R User Group, Cofounder and maintainer of R-Sig-Ecology,
Inter-Agency R User Group, Colead/cofounder of 2018 Nor'eastR Conference, Providence, RI. — 2008 — Present

Open science: Mentor for two U.S. EPA Center for Measurement and Modelling Openscapes Cohorts,
Member, White House Office of Science and Technology Policy Subgroup on Year of Open Science/Engagement — 2023 — 2024