# Summary

I am an ecologist and data scientist with expertise in the spatial component of ecology and environmental sciences. The focus of my work is lakes, landscapes, R, and GIS and a unifying theme to my research is using Open Science (Open Access, Open Source, and Open Data) and data science to benefit environmental and ecological research.

## Ecology

## Data Science

## Collaboration

## Teaching

# Skills and tools

* R: 15+ years as a useR!, developed packages, maintained RStudio and Shiny servers, tidyverse acolyte
* GIS: Open Source Geospatial Stack, ESRI
* Visualization:
* Data:
* Miscellany:

# Experience

* **Aug 2008 - Present**, Research Ecologist, U.S. Environmental Protection Agency, Atlantic Ecology Division, Narragansett, RI

I serve as principle investigator and provide leadership to the division on landscape ecological research, on application of geospatial sciences to the understanding of water quality in fresh and estuarine waters, and on the use of data science, informatics and information management tools in environmental research. I am currently serving as a co-Task Lead on a project exploring cyanobacteria risk in lakes of the Northeastern US. I am also exploring the use of Open Science, data science, and computational ecology in our various research programs.

* **May 2006 – July 2008**, Postdoctoral Landscape Ecologist, U.S. Environmental Protection Agency, Atlantic Ecology Division, Narragansett, RI

Contributed to research and technology transfer of National Coastal Assessment data, analytical methods and predictive tools to Northeast States. Developed statistical and modeling tools (e.g. Conditional Probability Analysis with R and Excel) to facilitate use of defensible techniques in water quality criteria development. Provided Landscape Ecology, Spatial Statistics and GIS support to a variety of ongoing projects at the Atlantic Ecology Division and within US EPA’s Office of Research and Development. Explored linkages between landscape and downstream receiving waters and examined utility of broad scale monitoring data in identifying and assessing ecological impairment.

* **Aug 2005 – May 2006**, Postdoctoral Fellow, U.S. Coast Guard Academy, Department. of Science, Marine Sciences Section, New London, CT

Continued prior research on multi-scale interactions between landscape structure (via NLCD) and sediment metal concentrations (via EMAP) and predictive modeling of estuarine impairment. Worked with students, faculty and colleagues in the Marine Sciences Section, the International Ice Patrol, and Information Services Division on a wide variety of Geographic Information Systems projects.

* **Jan 2005 – July 2005**, Postdoctoral Associate, American Institute of Biological Sciences, National Ecological Observatory (NEON) Project Office, Washington, DC

Researched and assisted in planning of ecological observatories designed to address the National Research Council’s Environmental Grand Challenges. Made specific contributions in the design of the land use change component of NEON and design of a Multi-Scaled Remote Sensing System designed to support and develop NEON analytical tools and ecological forecasting models. Other duties included managing Geographic Information Systems operations in the Project Office, maintaining the NEON web presence (<http://www.neoninc.org>), interacting with research scientists and educators on the NEON Senior Management Team and National Network Design Committee, and assisting with the day-to-day operations of the NEON Project Office.

* **June 1998 – July 2000**, Lead Research Technician in Landscape Ecology, J.W. Jones Ecological Research Center, Landscape Ecology Lab, Newton, GA

Conducted research on ecological impacts of small wetland loss in the Southeastern United States, use of home range in the design of gopher tortoise (Gopherus polyphemus) reserves, and habitat use and landscape ecology of Northern Bobwhite Quail . Other research duties included remote sensing data analysis (e.g. Landsat Thematic Mapper, SPOT-XS, B&W and CIR Aerial Photography), analysis of vector and raster GIS data, and field data collection (e.g. GPS, vegetation data). Supervised and assisted other technicians, graduate students and summer field workers and managed day-to-day operations of the Landscape Ecology Lab.

* **Aug 1997 – Jan 1998**, Geographic Information Systems Specialist, Research Triangle Institute, Research Triangle Park, NC

Developed a GIS methodology and series of Arc Macro Language scripts to facilitate the identification of river reaches, as required by the Clean Water Act, in the states of North Dakota and Arkansas.

# Education

* **2004**, Doctor of Philosophy in Environmental Science, Department of Natural Resources Science, University of Rhode Island, Kingston, RI
* **1997**, Masters of Environmental Management, Nicholas School of the Environment, Duke University, Durham, NC
* **1995**, Bachelor of Science in Biology, Magna Cum Laude, Baker University, Baldwin City, KS

# Selected Projects

* Responsible for data management, analysis, and visualzation on [Raposa *et al.* (2018)](https://doi.org/10.7717/peerj.4876) and designed the [correlation matrix visualizations](https://doi.org/10.7717/peerj.4876/fig-4) with inspiration from several different types of heat maps. Details availble in <https://github.com/jhollist/crabs>.
* quickmapr package, June 2018
* lakemorpho package, February 2018
* elevatr Package, January 2018
* Hart, E., Barmby, P., LeBauer, D., Michonneau, F., Mount, S., Mulrooney, P., Poisot, T., Woo, K.H., Zimmerman, N., Hollister, J. W. (2016). Ten simple rules for digital data storage. PLoS Computational Biology. e1005097. [10.1371/journal.pcbi.1005097](http://dx.doi.org/10.1371/journal.pcbi.1005097) [pre-print](https://doi.org/10.7287/peerj.preprints.1448v2) [GitHub](https://github.com/emhart/10-simple-rules-data-storage)