

## Chris DeRolph, M.S., GISP

Geospatial Scientist

Environmental Sciences Division - Oak Ridge National Laboratory

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### Web Presence

ORNL staff profile: <https://www.ornl.gov/staff-profile/christopher-r-derolph>

ResearchGate profile: [https://www.researchgate.net/profile/Christopher\\_Derolph2](https://www.researchgate.net/profile/Christopher_Derolph2)

LinkedIn profile: <https://www.linkedin.com/in/chrisderolph/>

### Education:

**North Carolina State University** Raleigh, NC

**Master of Science** in GIS/Natural Resources, August 2010

**Ohio State University** Columbus, OH

**Bachelor of Science** in Environmental Science, December 2001

### Work Experience:

**Geospatial Scientist – Oak Ridge National Laboratory** 06/2013 – present Oak Ridge, TN

**Perform and support publishable research.** Lead subtasks and contribute to various projects in the aquatic ecology, hydropower, biofuels, and wildlife ecology groups/teams within BESD and F&O to publish original research in peer-reviewed journals.

**Identify and fill impactful capacity gaps.** Continually seek to identify impactful capacity gaps where I can add value to research thrusts and projects.

**Lead complex GIS and data analysis tasks.** Lead GIS analysis, modeling, and webmapping tasks on numerous projects for aquatic ecology, hydropower, biofuels, and wildlife ecology groups/teams.

**Training and technical support.** Provide technical support and training to coworkers on GIS concepts, techniques, software, and hardware.

**Field data collection.** Assist staff scientists with field collection of data for various ecology projects.

**GIS & Remote Sensing Analyst - Environmental Services, Inc.** 07/2010 – 05/2013 Raleigh, NC

**Collaborate with co-workers to develop GIS projects.** Worked with natural and cultural resource project managers to establish GIS analysis goals and discuss analysis feasibility in consideration of deadlines and budgets.

**GIS analysis.** Supported natural and cultural resource management with GIS analysis. Independently developed and implemented geospatial analytical techniques to fulfill project requirements within budgetary constraints.

**Develop maps and data visualizations.** Prepared charts, maps, reports, tables, and graphics for both technical and non-technical audiences that document analytical techniques and present and interpret results of GIS analyses.

**Training and technical support.** Provided technical support and training to team members on GIS and GPS concepts, techniques, software, and hardware.

**Maintain effective working relationships with clients and internal staff.** Dealt tactfully and courteously with clients and co-workers when managing requests for maps, data, analyses, and interpretation of analysis results.

**Field data collection.** Assisted staff scientists with field collection of natural and cultural resource data and record feature locations using mapping grade GPS technology. Integrated GPS data into GIS upon return from field.

**Research Assistant - North Carolina State University 08/2007 – 06/2010 Raleigh, NC**

**Conduct GIS-based research.** Lead research assistant on grant-funded project aimed at using geospatial analysis to predict the distribution of wild, self-sustaining populations of trout in the mountain streams of western NC.

**Modeling and statistical analysis.** Used GIS-derived landscape-scale natural and anthropogenic predictor variables to develop statistical models that allowed for analysis of variable influences on trout populations and prediction of trout species distribution.

**Prepare thesis and peer-reviewed journal article.** Research results submitted for publication and are currently in review. Prepared Master's thesis for submission to graduate committee.

**Deliver oral presentations and professional meetings.** Presented results of research via oral paper presentations at two international conferences and at several meetings with project grantors.

**Literature reviews.** Review pertinent literature to inform the research process and aid in project decision making.

**Environmental Scientist I/II - Lessard Environmental, Inc. 11/2002 – 08/2007 Dover, NH**

**Assist with project management.** Managed certain aspects of projects, including proposal preparation, subcontractor bid requests and selections, work order preparation, deadline tracking, and field task coordination. Required collaboration with co-workers, clients, regulators.

**Technical writing.** Lead author on numerous status, comprehensive site assessment, and site closure reports for contaminated sites in New Hampshire and Massachusetts.

**Field crew leader.** Supervised junior staff and subcontractors in the field while performing various types of field work related to contaminated site assessment and remediation.

**CAD technician.** Performed site surveys and used the survey data to prepare scaled site plans in AutoCAD. Modeled groundwater flow and contaminant transport.

**Watershed Mgmt. Assistant - MA Dept. of Environ. Protection Summer 2002 Worcester, MA**

**Biological sample collection in streams.** Collected benthic macroinvertebrate samples in streams across the state as part of watershed planning process. Performed riparian and river habitat assessments as a supplement to biological data collection.

**Watershed Mgmt. Assistant - NH Dept. of Environ. Services Summer 2001 Portsmouth, NH**

**Nonpoint pollution source investigations.** Conducted shoreline surveys to identify actual and potential sources of pollution and performed investigations of suspected pollution sources.

**Air Quality Intern – Ohio Environmental Protection Agency Summer 2000 Columbus, OH**

**Assist environmental specialists** with site inspections and consultations for small businesses that emit a variety of airborne pollutants and are proactively seeking to come into compliance.

**Awards:**

Outstanding Research Support Award, Environmental Sciences Division, 2016. The Award recognizes critical contributions to science in areas of laboratory, field, and data support.

**Certifications:**

Certified Geographic Information Systems Professional (GISP). GIS Certification Institute. Certification Number 90556. Expires 04/25/2020.

**Peer-reviewed publications:**

**DeRolph, C.R., R.A. McManamay, A.M. Morton, S.S. Nair.** 2019. City energysheds and renewable energy in the United States. *Nature Sustainability*. <https://doi.org/10.1038/s41893-019-0271-9>

**Parish, E.S., B.M. Pracheil, R.A. McManamay, S.L. Curd, C.R. DeRolph, B.T. Smith.** 2019. Review of environmental metrics used across multiple sectors and geographies to evaluate the effects of hydropower development. *Applied Energy*. <https://doi.org/10.1016/j.apenergy.2019.01.038>

- McManamay, R.A., **C.R. DeRolph**. 2019. A stream classification system for the conterminous United States. Nature Scientific Data. <https://doi.org/10.1038/sdata.2019.17>
- Jager, H.I., A.W. King, S. Gangrade, A. Haines, **C.R. DeRolph**, B.S. Naz, and M. Ashfaq. 2018. Will future climate change increase the risk of violating minimum flow and maximum temperature thresholds below dams in the Pacific Northwest? Climate Risk Management. <https://doi.org/10.1016/j.crm.2018.07.001>
- McManamay, R.A., M.J. Troia, **C.R. DeRolph**, A. Olivero Sheldon, A.R. Barnett, S.C. Kao, and M.G. Anderson. 2018. A stream classification system to explore the physical habitat diversity and anthropogenic impacts in riverscapes of the eastern United States. PLOS One. <https://doi.org/10.1371/journal.pone.0198439>
- McManamay, R.A., N.A. Griffiths, **C.R. DeRolph**, and B.M. Pracheil. 2018. Synopsis of Global Mapping of Freshwater Habitats and Biodiversity: Implications for Conservation. In book: Pure and Applied Biogeography. <https://doi.org/10.5772/intechopen.70296>
- McManamay, R.A., S.S. Nair, **C.R. DeRolph**, B.L. Ruddell, A.M. Morton, R.N. Stewart, M.J. Troia, L. Tran, H. Kim, and B.L. Bhaduri. 2017. US cities can manage national hydrology and biodiversity using local infrastructure policy. PNAS. <https://doi.org/10.1073/pnas.1706201114>
- Pracheil, B.M., R.A. McManamay, M.S. Bevelhimer, **C.R. DeRolph**, and G.F. Cada. 2016. A Traits-based approach for prioritizing species for monitoring and surrogacy selection. Endangered Species Research. <https://doi.org/10.3354/esr00766>
- DeRolph, C.R.**, M.P. Schramm, and M.S. Bevelhimer. 2016. Predicting Environmental Mitigation Requirements for Hydropower Projects through the Integration of Biophysical and Socio-Political Geographies. Science of the Total Environment. <https://doi.org/10.1016/j.scitotenv.2016.05.099>
- Schramm, M.P., M.S. Bevelhimer, and **C.R. DeRolph**. 2016. A synthesis of environmental and recreational mitigation requirements at hydropower projects in the United States. Environmental Science and Policy. <https://doi.org/10.1016/j.envsci.2016.03.019>
- Pracheil, B.M., **C.R. DeRolph**, M.S. Bevelhimer, and M.P. Schramm. 2016. A fish-eye view of riverine hydropower systems: understanding the biological response to turbine passage. Reviews in Fish Biology and Fisheries. <https://doi.org/10.1007/s11160-015-9416-8>
- DeRolph, C.R.**, S.A. Nelson, T.J. Kwak, and E.F. Hain. 2015. Predicting Fine-Scale Distributions of Peripheral Aquatic Species in Headwater Streams. Ecology and Evolution. <https://doi.org/10.1002/ece3.1331>