Chris DeRolph, M.S., GISP

Geospatial Scientist
Environmental Sciences Division - Oak Ridge National Laboratory
PO Box 2008, Oak Ridge, TN 37831
Email: derolphcr@ornl.gov Phone: 865-574-0974

Web Presence

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

McManamay, R.A., E.S. Parish, **C.R. DeRolph**, A.M. Witt, W.L. Graf, A. Burtner. 2020. Evidence-based indicator approach to guide preliminary environmental impact assessments of hydropower development. Journal of Environmental Management. https://doi.org/10.1016/j.jenvman.2020.110489

McManamay, R.A., E.S. Parish, **C.R. DeRolph**, A.M. Witt, W.L. Graf, A. Burtner. 2020. A dataset of eco-evidence tools to inform early-stage environmental impact assessments of hydropower development. Data in Brief. https://doi.org/10.1016/j.dib.2020.105629

Nair, S.S., R.A. McManamay, **C.R. DeRolph,** M. Allen-Dumas. 2019. Methods for integrating high-resolution land, climate, and infrastructure scenarios in a hydrologic simulation model. MethodsX. https://doi.org/10.1016/j.mex.2019.10.010

McManamay, R.A., **C.R. DeRolph,** S.S. Nair, M. Allen-Dumas. 2019. Spatially explicit land-energy-water future scenarios for cities: Guiding infrastructure transitions for urban sustainability. Renewable and Sustainable Energy Reviews. https://doi.org/10.1016/j.rser.2019.06.011

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