

**Mark River**  
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www.markriver.com

## **EDUCATION**

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Ph.D. Ecology, Duke University, expected April 2018

M.S. Environmental Studies, University of Montana

B.S. Mechanical Engineering, minor in Spanish, Kansas State University

## **PEER-REVIEWED PUBLICATIONS**

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**River, M.** and Richardson, C.J. 2017. Stream Transport of Iron and Phosphorus by Authigenic Nanoparticles in Baseflow of the Southern Piedmont of the U.S. *Water Research*.  
<https://doi.org/10.1016/j.watres.2017.12.004>.

**River, M.** and Richardson, C.J. 2017. Particle Size Distribution Predicts Particulate Phosphorus Removal. *Ambio*. <https://doi.org/10.1007/s13280-017-0981-z>.

Robarge, W., Duckworth, O., Osmond, D., Smyth, J., and **River, M.** 2017. Commentary on “A Possible Tradeoff between Clean Air and Clean Water” by Smith et al. (2017). *Journal of Soil and Water Conservation* 72(6): 121A-122A.

Winton, R. S. and **River, M.** 2017. The Biogeochemical Implications of Massive Gull Flocks and Landfills. *Water Research* 122 (October): 440-46.

## **MANUSCRIPTS SUBMITTED/IN PREPARATION**

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Wang, H., **River, M.**, and Richardson, C.J. Correspondence: Does an “Iron Gate” Exist in Peatlands? *Under review at Nature Communications*.

**River, M.** and Richardson, C.J. Dissolved Iron and Phosphorus in Freshwater: Solute or Nanoparticles? *Under review at Limnology and Oceanography*.

**River, M.** and Richardson, C.J. “Dissolved” Reactive Phosphorus Loads to Lake Erie: the Hidden Influence of Nanoparticles. *Under review at Journal of Environmental Quality*.

**River, M.** and Richardson, C.J. Suspended Sediment Mineralogy in the Southern Piedmont: Insight into Turbidity Relationships. *In preparation*.

**River, M.** and Richardson, C.J. Phosphorus Controls in Porewater and Sediment of a Southern Piedmont Reservoir. *In preparation*.

**River, M.** and Richardson, C.J. Algal-available Phosphorus in Suspended Sediment and Reservoir Sediment of the Southern Piedmont. *In preparation.*

**River, M.,** Colman, B., Richardson, C.J. Bioavailability of “Dissolved” Reactive Phosphorus in an Urban and Rural Stream of the Southern Piedmont. *In preparation.*

**River, M.** and Richardson, C.J. Diatom Genera in Rural vs. Urban Streams of the Southern Piedmont. *In preparation.*

## **OTHER PUBLICATIONS**

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**River, M.** 2013. Come What May. *Boundary Waters Journal* (spring): 4-8.

**River, M.** and Kiel, A. 2012. Swan Lake Management Plan: Final Report to Iowa Department of Natural Resources.

**River, M.** 2006. M.S. Thesis: Impact of farm size, tenancy, and landowner gender on riparian buffer width.

## **TEACHING**

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Instructor of Record:

2017 Environmental Biology, Durham Tech Community College (undergraduate)  
2004 Environmental Science (online), University of Montana (undergraduate)

Teaching Assistant:

2017-18 Aquatic Field Skills, Duke University (graduate)  
2013-17 Wetland Ecology, Duke University (graduate)  
2013-17 Wetlands of North Carolina, Duke University (graduate)  
2015-16 Wetland Restoration, Duke University (graduate)  
2014 Wetland Field Skills, Duke University (graduate)

## **AWARDS AND RESEARCH FUNDING**

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2013-17 Duke Wetland Center Fellowship Program  
2014-17 Conference Travel Funding, Duke Graduate School  
2016 Water Resources Research Institute Student Research Grant  
2016 Duke Graduate Training Enhancement Grant  
2016 Virginia Tech NanoEarth Voucher  
2016 Duke Shared Materials Instrumentation Facility Voucher  
2014 Summer Research Fellowship, Duke Graduate School  
2010 Iowa Department of Natural Resources Watershed Planning Grant

## PRESENTATIONS

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**River, M.** and Richardson, C.J. “Dissolved” Iron and Phosphorus in Piedmont Streams: Solute or Nanoparticles? (oral presentation). North Carolina State University, Jan. 2018. **(invited)**

Winton R.S. and **River, M.** Biogeochemical Impact of Gulls and Piedmont Drinking Water Reservoirs (oral presentation). Durham Tech Community College, Nov. 2017. **(invited)**

**River, M.** and Richardson, C.J. Transport of Iron and Phosphorus in Baseflow by Authigenic Nanoparticles (oral presentation). Soil Science Society of America annual meeting, Tampa, FL, Oct. 2017.

**River, M.** and Richardson, C.J. “Dissolved” Iron and Phosphorus in Piedmont Streams: Solute or Nanoparticles? (oral presentation). East Carolina University, Oct. 2017. **(invited)**

**River, M.** and Richardson, C.J. Influence of Nanoparticles on “Dissolved” Reactive Phosphorus Flux in the Maumee River (oral presentation). SERA-17 annual meeting, Toledo, OH, 2017.

**River, M.** and Richardson, C.J. Particulate Phosphorus in Stormwater (poster). International Phosphorus Workshop, Rostock, Germany, Sept. 2016.

**River, M.** and Richardson, C.J. Burial and Release of Phosphorus, Carbon, and Nitrogen in Reservoir Sediments (oral presentation). Society of Wetland Scientists annual meeting, Providence, RI, June 2016.

**River, M.** and Richardson, C.J. Transport and Fate of Nitrogen and Phosphorus in the Upper Falls Lake Watershed (oral presentation). University of North Carolina, Nov. 2015. **(invited)**

**River, M.** and Richardson, C.J. Dissolved Versus Particulate Phosphorus in Stormwater: Implications for Constructed Wetlands (oral presentation). Soil Science Society of America annual meeting, Nov. 2015.

**River, M.** and Richardson, C.J. Particulate Phosphorus in Stormwater, Implications for BMP’s (oral presentation). Soil and Water Conservation Society annual conference, July 2015.

**River, M.** and Richardson, C.J. Dissolved vs. Particulate Phosphorus in Stormwater, Implications for Constructed Wetlands (oral presentation). Society of Wetland Scientists annual meeting, Providence, RI, June 2015.

**River, M.,** Flanagan, N., Richardson, C.J. Phosphorus Retention in Duke’s SWAMP (poster). Joint Aquatic Sciences Meeting in Portland, OR, May 2014.

**River, M.** and Richardson, C.J. Particulate Phosphorus in Stormwater, Implications for Constructed Wetlands (poster). Duke Ecology Symposium, Beaufort, NC, April 2014.

**River, M.** Riparian Buffer Width: Relationship to Farm Size, Tenancy, and Landowner Gender (oral presentation). Iowa Water Conference, Des Moines, IA, March 2012.

## **RELATED WORK EXPERIENCE**

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2004-2013 Executive Director, Carroll County Conservation Board, Carroll, IA

- Managed diverse projects including wetland construction, water quality monitoring, prairie restoration, public land acquisition, NRCS conservation plans for county-owned land
- Co-designed and implemented EPA-approved management plan for 303(d) impaired lake
- Managed annual budget of \$800,000 and supervised 6 full-time employees
- Fundraised over \$2,000,000 in local, state, and federal grants

2003-2004 Watershed/Fisheries Intern, Montana Dept. of Natural Resources, Missoula, MT

- Field work: survey stream channels and longitudinal profiles, substrate, fish habitat, culverts
- Timber sale fish impact assessment using GIS, hydrology modeling, fish passage modeling

## **SERVICE AND OUTREACH**

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2014-2017 Mentor, North Carolina School of Science and Math (high school students)

2012-2013 President, Iowa County Conservation Directors Association

2012-2013 Member, City of Carroll Long-Term Planning Committee

2010-2012 Volunteer Instructor, Iowa Master Gardener Class

## **RELATED SKILLS**

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Technical Expertise: ICP-AES, X-ray Diffraction, Scanning Electron Microscopy, Energy-dispersive Spectroscopy, Transmission Electron Microscopy, Selected Area Electron Diffraction, X-ray Photoelectron Spectroscopy, FT-IR, Flame/Graphite Furnace AA, Lachat

Software: R, ArcGIS, HighScore, Digital Micrograph, FishXing, WATSED, HEC-RAS, BAGS

Languages: fluent written and spoken Spanish (one-year study abroad in Mexico), basic French

## **PROFESSIONAL MEMBERSHIPS**

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Soil Science Society of America

Society of Wetland Scientists

Society of Freshwater Science

North American Mycological Society

Southern Extension and Research Activity (SERA-17)