Roderick W. Lammers, Ph.D.

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University of Georgia
College of Engineering
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Education

Ph.D. Civil & Environmental Engineering, 2018
Colorado State University, Fort Collins, CO
Hydraulic Engineering, Stream Restoration, and River Mechanics
NSF I-WATER IGERT Fellow
Advisor: Brian Bledsoe, Ph.D., P.E.
Dissertation: *Modeling stream evolution and its consequences for watershed scale pollutant loading*

M.S. Civil & Environmental Engineering, 2015
Colorado State University, Fort Collins, CO
Hydraulic Engineering, Stream Restoration, and River Mechanics
Advisor: Brian Bledsoe, Ph.D., P.E.
Thesis: *Uncertainty and sensitivity in a bank stability model: Implications for estimating phosphorus loading*

B.S. Environmental and Ecological Engineering, 2012
Purdue University, West Lafayette, IN

B.S. Ecology and Evolutionary Biology, 2012
Purdue University, West Lafayette, IN

Professional Positions

2018 – *Now* Postdoctoral Research and Teaching Associate, University of Georgia, Athens, GA
Riverine and coastal water resources research, graduate and undergraduate level hydrology and hydraulics instructor

2014 – 2018 Graduate Research Assistant, Colorado State University, Fort Collins, CO
Modeling river channel erosion as a source of sediment and nutrient pollution.

2015 – 2018 Staff Engineer, Wright Water Engineers, Denver, CO (part time)
Provide technical support on river geomorphology, sediment transport, and stream restoration projects.

2012 – 2013 Staff Engineer, Keramida, Inc., Indianapolis, IN
Provided sustainability services for the City of Indianapolis, including preparing and winning $2.1 million in federal grants. Conducted human health risk assessment of brownfield properties.

2009 Engineer Intern, Keramida, Inc., Indianapolis, IN
Managed and analyzed data for soil and groundwater remediation projects

Teaching Experience

2019 – *Now* Instructor, Engineering Hydrology and Hydraulics, University of Georgia, Athens, GA
Created lecture material and taught this 3-credit upper level undergraduate and graduate course covering rainfall-runoff processes and modeling and open channel hydraulics

2019 – *Now* Instructor, Natural Resources Engineering, University of Georgia, Athens, GA
Co-teaching this 3-credit upper level undergraduate and graduate course introducing hydrology, water quality, and non-point source pollution

2019 Instructor, National Cooperative Highway Research Program (NCHRP) short course
Co-taught an NCHRP short course on 'Design Tools for Channel Stability at Stream Crossings'. Total of two courses and 35 participants.

Peer-Reviewed Publications

Lammers R.W., Dell, T.A., and Bledsoe B.P. 2019. Integrating stormwater management and stream restoration strategies for greater water quality benefits. *Journal of Environmental Quality*. DOI: 10.2134/jeq2019.02.0084

Lammers R.W., Bledsoe B.P. 2019. Quantifying pollutant loading from channel sources: Watershed-scale application of the River Erosion Model. *Journal of Environmental Management,* 234: 104-114. DOI: 10.1016/j.jenvman.2018.12.074

Lammers R.W., Bledsoe B.P. 2018. A network scale, intermediate complexity model for simulating channel evolution over years to decades. *Journal of Hydrology,* 566: 886-900. DOI: 10.1016/j.jhydrol.2018.09.036.

Lammers R.W., Bledsoe B.P. 2018. Parsimonious sediment transport equations based on Bagnold's stream power approach. *Earth Surface Processes and Landforms,* 43(1): 242-258. DOI: 10.1002/esp.4237.

Lammers R.W., Bledsoe B.P. 2017. What role does stream restoration play in nutrient management? *Critical Reviews in Environmental Science & Technology,* 47(6): 335-371. DOI: 10.1080/10643389.2017.1318618.

Lammers R.W., Bledsoe B.P., and Langendoen E.J. 2017. Uncertainty and sensitivity in a bank stability model: Implications for estimating phosphorus loading. *Earth Surface Processes and Landforms,* 42(4): 612-623. DOI: 10.1002/esp.4004.

Conference Papers, Presentations, and Invited Talks (*Invited)

Nag, S., Li A.S., Ravindra V., Net M.S., Cheung K-M., **Lammers R.,** Bledsoe B. 2019. Autonomous scheduling of agile spacecraft constellations with delay tolerant networking for reactive imaging. *Conference paper for the Scheduling and Planning Applications Workshop (SPARK),* Berkeley, USA.

Lammers R.W., Dell T., and Bledsoe B.P. 2019. Between the sea and a hard place: Quantifying the effects of coastal squeeze on salt marsh persistence under rising sea levels. *Poster presented at the 19th Annual Meeting of the American Ecological Engineering Society Conference: "Enabling Future Generations to Solve Our Planet's Grand Challenges",* Asheville, North Carolina, 3-6 June.

Lammers R.W., Dell T., and Bledsoe B.P. 2019. Uniting stormwater management and stream restoration strategies for greater water quality benefits. *Presented at the 19th Annual Meeting of the American Ecological Engineering Society Conference: "Enabling Future Generations to Solve Our Planet's Grand Challenges",* Asheville, North Carolina, 3-6 June.

Lammers R.W., Dell T., and Bledsoe B.P. 2019. Uniting stormwater management and stream restoration strategies for greater water quality benefits. *Presented at the 2019 Georgia Water Resources Conference,* Athens, Georgia, 16-17 April.

***Lammers R.W.** 2018. Rivers as nutrient sinks and sources. Baylor University, Department of Geology. Waco, TX.

Lammers R.W. 2018. Urban river restoration: A case study from the South Platte River, Denver, Colorado. *Presented at the 18th Annual Meeting of the American Ecological Engineering Society Conference: "Ecological Engineering: Addressing Uncertainty in a Dynamic World",* Houston, Texas, 12-14 June.

Lammers R.W. and Bledsoe B.P. 2018. Modeling watershed phosphorus and sediment loading from river erosion while accounting for uncertainty. *Poster presented at the 18th Annual Meeting of the*

American Ecological Engineering Society Conference: "Ecological Engineering: Addressing Uncertainty in a Dynamic World", Houston, Texas, 12-14 June.

Lammers R.W. and Bledsoe B. P. 2017. An intermediate complexity model for predicting channel incision and evolution at the stream network scale. *Presented at the 50th Annual Fall Meeting of the American Geophysical Union*, New Orleans, LA, 11-15 Dec.

Lammers R.W. and Bledsoe B.P. 2017. A new intermediate complexity model for predicting channel evolution in stream networks. *Presented at 17th Annual Meeting of the American Ecological Engineering Society Conference: "Ecological Engineering for Adaption in the Anthropocene"*, University of Georgia, 23-25 May.

Lammers R.W. and Bledsoe B.P. 2017. Modifying Bagnold's bedload transport equation for use in watershed-scale channel incision models. *Presented at AGU Hydrology Days 2017,* Colorado State University, Fort Collins, CO, 20-22 Mar.

Lammers R.W. and Bledsoe B.P. 2016. Modifying Bagnold's sediment transport equation for use in watershed-scale channel incision models. *Poster presented at the 49th Annual Fall Meeting of the American Geophysical Union,* San Francisco, CA, 12-16 Dec.

Bledsoe B., Jones J., Strecker E., Struck S., Leisenring M., Clary J., **Lammers R.**, McGuire A. 2016. Development of stream restoration practices database: Initial progress. *Presented at the 89th Annual WEFTEC Conference*, New Orleans, LA, 24-29 Sep.

Lammers R.W. and Bledsoe B.P. 2016. Can stream restoration remedy the nutrient pollution problem? *Presented at the 16th Annual American Ecological Engineering Society Conference: "Rooftops to Rivers: Integrating Built and Natural Systems"*, Knoxville, TN, 7-9 June.

Lammers R.W. and Bledsoe B.P. 2016. Can stream restoration remedy the nutrient pollution problem? *Presented at AGU Hydrology Days 2016*, Colorado State University, Fort Collins, CO, 21-23 Mar.

Lammers R.W. and Bledsoe B.P. 2015. Uncertainty and sensitivity in bank stability modeling: Implications for estimating phosphorus loading. *Presented at AGU Hydrology Days 2015*, Colorado State University, Fort Collins, CO, 23-25 Mar.

Struck S., Bledsoe B.P., Jones J., Strecker E., Leisenring M., Clary J., and **Lammers R.W**. 2015. Stream restoration: A new BMP database module that may support water quality crediting. *Presented at AWRA Annual Water Resources Conference*, Denver, CO, 16-19 Nov.

Online Webcast

Bledsoe B.P., **Lammers R.W**., Clary J., Leisenring M. 2016. Water Quality Crediting for Stream Restoration Projects. Water Environment & Reuse Foundation (WE&RF) Webcast, through Water Environment Federation Technical Exhibition and Conference (WEFTEC): "Watershed Management: Water Quality Crediting for Stream Restoration Projects," Online, October 26.

Selected Reports

Lammers, R.W. and Day C. 2018. Urban River Restoration: Bringing Nature Back to Cities. Institute for the Built Environment, Colorado State University, Fort Collins, CO. online PDF, 27 p.

Bledsoe, B., **Lammers R.W.**, Jones J., Clary J., Earles A., Strecker E., Leisenring M., Struck S., McGuire A. 2017. Stream Restoration BMP Database: Version 1.0 Summary Report, Project No. WERF-U5R14, Water Environment & Reuse Foundation (WE&RF), Alexandria, VA, January, online PDF, 183 p.

Bledsoe, B., **Lammers R.W.**, Jones J., Clary J., Earles A., Strecker E., Leisenring M., Struck S., McGuire A. 2016. Stream Restoration as a BMP: Crediting Guidance. Final Report, Project No. WERF-1T13, Water Environment & Reuse Foundation (WE&RF), Alexandria, VA, November, online PDF, 120 p.

Other Publications

Lammers R.W. and Anderson G.B. 2017. countyfloods: Quantifying United States county-level flood measurements. R package version 0.1.0. https://CRAN.R-project/org/package=countyfloods.

Awards and Grants

2017 – 2018 SOGES Sustainability Leadership Fellow
2017 – 2018 Institute for the Built Environment Graduate Fellow ($6,000)
2017 – 2018 Borland Chair of Water Resources Graduate Student Scholarship ($6,000)
2017 – 2018 Tipton and Kalmbach/Stantec Consulting Graduate Fellowship ($1,500)
2015 – 2018 National Science Foundation IGERT Fellowship: Integrated Water, Atmosphere, Ecosystems Education and Research (I-WATER) ($96,000)
2014 – 2015 Dr. Jeng Song Wang Memorial Scholarship ($2,500)

Professional Service

2018 – *Now* Manuscript reviewer: *Water, Transactions of the American Society of Agricultural and Biological Engineers*

Software and Programming Skills

Scripting Languages: Proficient in R, C++, and Visual Basic for Applications for numerical modeling and data management, statistical analysis, and visualization. Familiar with MATLAB, FORTRAN, and Python.
Geospatial Analysis: Proficient in ESRI GIS software and QGIS.
Numerical Models: Developed custom numerical model in C++. Proficient in HEC-RAS.