

Roderick W. Lammers, Ph.D.

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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
- Parker S.R., Adams S.K., **Lammers R.W.**, Stein E.D., and Bledsoe B.P. 2019. Targeted hydrologic model calibration to improve prediction of ecologically-relevant flow metrics. *Journal of Hydrology*, 573: 546-556. DOI: 10.1016/j.jhydrol.2019.03.081
- 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.

Software Developed

Lammers R.W. 2019. River Erosion Model (REM) version 0.1.0.
<https://github.com/rodlammers/REMreleases>.

Lammers R.W. and Anderson G.B. 2017. countyfloods: Quantifying United States county-level flood measurements. R package version 0.1.0.9000 <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.