

COLIN BELL, PHD

Curriculum vitae

Department of Civil and Environmental Engineering, Colorado School of Mines
225 Coolbaugh Hall, Colorado School of Mines, 1012 14th Street, Golden, CO 80401

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RESEARCH AREAS

Urban hydrology; decision support systems; water quality; hydro-ecological modeling; stormwater management; stream ecology;

EDUCATION

- 08/2016 PhD, Purdue University, Department of Agricultural and Biological Engineering
Advisor: Dr. Sara K. McMillan
Dissertation Title: *Influence of Stormwater Control Measures on Watershed Hydrology and Biogeochemical Cycling*
- 05/2013 MSE, University of North Carolina at Charlotte, Department of Civil and Environmental Engineering
Advisor: Dr. Sara K. McMillan
Masters Project Title: *Export Patterns of Nutrients and Carbon from Urban Watersheds with Stormwater Control Measures*
- 05/2011 BS, SUNY College of Environmental Science and Forestry at Syracuse (SUNY ESF), Department of Forest Engineering

RESEARCH APPOINTMENTS

- 2016-Pres. Postdoctoral Researcher, Civil and Environmental Engineering, Colorado School of Mines. Funded by EPA National Priorities Grant on Life Cycle Cost of Water Infrastructure Alternatives (i-dst.mines.edu).
- 2014-2016 Research Assistant, Ecology and Biogeochemistry of Watersheds Lab, Purdue University
- 2011-2014 Research Assistant, Ecology and Biogeochemistry of Watersheds Lab, University of North Carolina at Charlotte
- 2010-2011 Green Infrastructure and Green Collar Jobs, SUNY ESF
- 2009 Undergraduate Researcher for Dr. Stewart Diemont, SUNY ESF

TEACHING EXPERIENCE

- 2018 **Instructor:** Watershed Systems Modeling, Colorado School of Mines
- 2017 **Instructor:** Stochastic Hydrology, Colorado School of Mines
- 2017 **Lecturer:** Watershed Systems Modeling, Colorado School of Mines

- 2014 **Co-Instructor:** Stormwater Design, Purdue University
2012-2013 **Teaching Assistant:** Environment and Water Resources Engineering,
University of North Carolina at Charlotte
2008-2009 **Coach:** Physics 212, Syracuse University

AWARDS AND FELLOWSHIPS

- 2015-2016 Bilsland Dissertation Fellowship, College of Engineering, Purdue University
2015 International study travel grant (Korea University), Department of
Agricultural and Biological Engineering, Purdue University
2014 American Ecological Engineering Society annual meeting student travel
grant
2013 Research mentorship travel grant (to University of California at Santa
Barbara), Infrastructure and Environmental Systems Program, University of
North Carolina at Charlotte
2012 First place at the North Carolina Water Resources Research Institute annual
meeting student poster competition
2008-2009 ESF Alumni Memorial Scholarship

PEER-REVIEWED PUBLICATIONS

Bell, C.D., Tague, C.L., McMillan, S.K. (2017). A model of hydrology and water quality in stormwater control measures. *Environmental Modelling and Software*. 95(C): 29-47

Bell, C.D., McMillan, S.K., Clinton, S.M., Jefferson, A.J., (2017). Characterizing the effect of stormwater mitigation on nutrient export and stream concentrations. *Environmental Management*. 59(4): 604-618.

Bell, C.D., McMillan, S.K., Clinton, S.M., Jefferson, A.J., 2016. Hydrologic response to stormwater control measures in urban watersheds. *Journal of Hydrology*.

Jefferson, A.J., **Bell, C.D.**, Clinton, S.M., McMillan, S.K., 2015. Application of isotope hydrograph separation to understand contributions of stormwater control measures to urban headwater streams. *Hydrological Processes*, 29(25): 5290-5306.

Bowen, J.D., Perry, D.N., **Bell, C.D.**, 2014. Hydrologic and water quality model development using Simulink. *Journal of Marine Science and Engineering*, 2(4): 616-632.

PUBLICATIONS IN REVIEW:

Bell, C.D., Stokes-Draut, J., Spahr, K., Grubert, E., Gallo, E., McCray J.E., Hogue, T.S. (*In Review*). Decision making on the grey-green stormwater infrastructure continuum. *Journal of Sustainable Water in the Built Environment*

Rivers, E.L., McMillan, S.K., **Bell, C.D.**, Clinton, S.M. (*In Review*) Effects of urban stormwater

control measures on instream denitrification in receiving streams. *Freshwater Science*.

Wolfand, J., **Bell, C.D.**, Boehm, A.B., Hogue, T.S., Luthy, R.G., (*In Review*) Predicting bacteria removal by enhanced stormwater Best Management Practices (BMPs) at the watershed scale. *Environmental Science and Technology*.

PUBLICATIONS IN PREPARATION:

Bell, C.D., Tague, C.L., McMillan, S.K. (*In Preparation*). Hydro-ecological model of nitrate runoff from urban surfaces connected to stormwater control measures.

Bell, C.D., Li, Y., Lopez, E., Hogue, T.S. (*In Preparation*). Regionalization of urban runoff water quality and treatment performance by stormwater control measures (SCMs) in the contiguous United States for decision support tools.

Scarlett, R.D., **Bell, C.D.**, McMillan, S.K., Jefferson, A.J. (*In Preparation*). Influence of stormwater control measures on water quality in a small suburban watershed.

PRESENTATIONS

Bell, C. D.; Li, Y.; Lopez, E.; Hogue, T.S.; Development and exploration of a regional stormwater BMP performance database to parameterize an integrated decision support tool (i-DST). Poster Presentation. American Geophysical Union Annual Meeting 2017, New Orleans, LA.

Bell, C. D.; Spahr, K.; McCray, J.E; Hogue, T.S.; An integrated decision support tool (i-DST) for life cycle cost assessment of grey and green stormwater infrastructure. Oral Presentation. Environmental and Water Resources Institute Operation & Maintenance of Stormwater Control Measures 2017 Conference. Denver, CO.

Hogue, T.S.; **Bell, C. D.**; Geza, M.; Stokes-Draut, J. Integrated Decision Support Tool (i-DST) for Life Cycle Cost Assessment of Grey and Green Stormwater Management Infrastructure. EPA Safe and Sustainable Water Research Program Monthly Webinar. October, 2017.

Hogue, T.S.; **Bell, C. D.**; Spahr, K.; Gallo, E.; McCray, J.E. Development of an integrated decision support tool (i-DST) for grey-green infrastructure planning across diverse climates. 2017 Canadian Water Network Blue Cities Conference. Toronto, Canada.

Bell, C. D.; Spahr, K.; McCray, J.E.; Hogue, T.S.; Framework and parameterization of a decision support tool for stormwater infrastructure. Oral Presentation. 2017 UCOWR/NWIR Conference, Fort Collins, CO.

Bell, C. D.; Tague, C. L; McMillan, S. K. Development of a Model of Nitrogen Cycling in Stormwater Control Measures and Application of the Model at the Watershed Scale. Oral Presentation. American Geophysical Union Annual Meeting 2016, San Francisco, CA.

Bell, C. D.; McMillan, S. K.; Clinton S. M.; Jefferson, A. J. Urban best management practices affect stormwater quality. Oral Presentation. American Society of Agricultural and Biological Engineering International Meeting 2016, Orlando, FL.

Bell, C. D.; McMillan, S. K.; Clinton S. M.; Jefferson, A. J. Hydrologic response to watershed metrics describing urban development and mitigation with stormwater control measures. Oral Presentation. American Ecological Engineering Society Annual Meeting 2016, Knoxville, TN.

Bell, C. D.; McMillan, S. K.; Clinton S. M.; Jefferson, A. J. Hydrologic response to watershed metrics describing urban development and mitigation with stormwater control measures. Oral Presentation. Geological Society of America Annual Meeting 2015, Baltimore, MD.

Bell, C. D.; McMillan, S. K.; Clinton S. M.; Jefferson, A. J. Identifying controls on stormflow, nutrient and carbon export from urban watersheds in the Southeastern U.S. with Sustainable Drainage Systems (SUDS). Oral Presentation. British Hydrological Society National Symposium 2014. Birmingham, UK.

Bell, C. D.; McMillan, S. K.; Clinton S. M.; Jefferson, A. J. Controls on stormflow, nutrient and carbon export from urban watersheds with stormwater control measures. Oral Presentation. American Ecological Engineering Society Meeting 2014, Charleston, SC.

Bell, C. D.; McMillan, S. K.; Clinton S. M.; Jefferson, A. J.; Tague, C. L. Water and Nitrogen Export Patterns of Urban Watershed with Stormwater Control Measures. Poster Presentation. American Geophysical Union Fall Meeting 2013, San Francisco, CA.

Bell, C. D.; McMillan, S. K.; Clinton S. M.; Jefferson, A. J. Urban Stream Nutrient and Carbon Quality Responses to Stormwater Control Measures. Poster Presentation. North Carolina Water Resources Research Institute Annual Meeting 2013, Raleigh, NC.

Bell, C. D.; McMillan, S. K.; Tague, C. L.; Clinton S. M.; Jefferson, A. J. Using Modeling to Assess Hydraulic Parameter Transferability from an Undeveloped to an Urban Watershed with Stormwater Infrastructure. Poster Presentation. Geological Society of America Fall Meeting 2012, Charlotte, NC.

Bell, C. D.; McMillan, S. K.; Clinton S. M.; Jefferson, A. J.; Tague, C. L. Using Watershed Modeling to Optimize Management of Urban Stormwater to Control Nitrogen. Poster Presentation. American Ecological Engineering Society Meeting 2012, Syracuse, NY.

OTHER PRODUCTS

Green infrastructure outreach website and bioretention design calculator available online at: <http://www.esf.edu/ere/endreny/GICalculator/index.html> - June 2011

SERVICE

2017 Bethany House Rochester, NY: House of Hospitality
Adjunct Board of Directors Member – Digital Strategy and Support

PROFESSIONAL SERVICE

Manuscript Review Water, WIRES Water, Freshwater Science, Environmental Modelling and Software, Hydrology and Earth Systems Sciences

Session Convener 2017 American Geophysical Union Fall Meeting. Sessions H11C and H14C: Connecting Environment, Technology, and Society: Decision Support Tools for Built Environments. New Orleans, LA

STUDENT MENTORING

Ali Shojaei Zadeh	South Dakota School of Mines and Technology	PhD Dissertation Committee Member
Elizabeth Gallo	Colorado School of Mines	PhD Dissertation Committee Member (non-voting)
Jacob Brown	Colorado School of Mines	Masters Thesis Committee Member
Jordyn Wolfand	Stanford University	PhD Research Mentor
Rachel Scarlett	Purdue University	PhD Research Mentor
Emiley Lopez	Colorado School of Mines	Undergraduate Research Mentor
Wenli Dickinson	Colorado School of Mines	Undergraduate Research Mentor
Charles Safrit	University of North Carolina at Charlotte	Undergraduate Research Conference Mentor
Christopher Jordan	University of North Carolina at Charlotte	Undergraduate Research Conference Mentor

PROFESSIONAL CERTIFICATIONS

NCEES Engineer in Training, New York State

PROFESSIONAL ASSOCIATIONS

American Ecological Engineering Society

Geological Society of America
American Geophysical Union
American Society of Civil Engineers