**Jonathan William Miller**

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**Education**

**Ph.D. Civil Engineering**  graduation date 05/2019

*Focus in Environmental and Water Resources Engineering* completion date 12/2018

North Carolina State University

**MS Civil Engineering** 2014

North Carolina State University

**BA Mathematics and Religious Studies** 1997

University of North Carolina at Chapel Hill

**Major Research Experience**

**Post-Doctoral Research position, North Carolina State University**  2019-present **(Advisor: Dr. Dan Obenour)**

* Constructing a nutrient loading model for watersheds in the Jordan Lake reservoir (NC Piedmont) as part of the *Jordan Lake Nutrient Management Study*.
* Using a hybrid approach (mechanistic and statistical) to determine export coefficients from major land covers and in-stream loss coefficients while coordinating with lake modelers.
* Simulating current and future scenarios for watershed management and their effect on nutrient loading.

**Graduate Student, North Carolina State University**  2015-2018 **(Advisor: Dr. Dan Obenour)**

* Modeled fish presence in Gulf of Mexico estuaries using a generalized linear hierarchical modeling approach and ranked Gulf of Mexico estuaries based on their biological condition for NOAA's 2015 National Fish Habitat Assessment “Through a Fish’s Eye.”
* Modeled water quality and the ecological health of wadeable streams in the North Carolina piedmont using hierarchical modeling as part of an EPA water quality grant.
* Collaborated with water quality professionals to determine how to integrate modeling techniques for water quality in NC piedmont streams (co-PI: Dr. Roger von Haefen, NCSU).
* Performed hierarchical modeling of Arsenic bioaccessibility consulting for the EPA. (co-PI: Clay Nelson, EPA)

**Employment**

**Teaching Assistant Professor, NCSU** 2020-

**Post-doctoral researcher, NCSU** 2019 - Present

**Research Assistant** , NCSU (Advisor: Dr. Dan Obenour) 2014 - 2018

**Teaching Assistant**, NCSU 2015 – 2016

**High School Math Teacher**, Department Head; Guilford County Schools 2005 - 2012

**Teacher/Missionary**, Hermandad de Presbiterianas Mayas, Guatemala 2001 - 2005

**Carpenter/Electrician**, Stan Boland Construction Company 1997 – 1999

**Scholarly Works**

Miller, J., P.C. Esselman, I. Alameddine, K. Blackhart, D.R. Obenour. (2018) Hierarchical modeling assessment of the influence of watershed stressors on fish and invertebrate species in Gulf of Mexico estuaries. *Ecological Indicators,* *90(7)*, pp. 142-153.

Nelson, C. M., Li, K., Obenour, D. R., Miller, J., Misenheimer, J. C., Scheckel, K., ... & Bradham, K. D. (2018). Relating soil geochemical properties to arsenic bioaccessibility through hierarchical modeling. *Journal of Toxicology and Environmental Health, Part A*, 1-13.

Miller, J.W., Paul, Michael J., & D.R. Obenour. 2019. Assessing potential anthropogenic drivers of ecological health in Piedmont streams using hierarchical modeling. *Freshwater Science* 38(4)

Miller, J.W., Karimi, K., Arumugam, S., & D.R. Obenour. 2019. Jordan Lake Watershed Model. *The University of North Carolina Jordan Lake Study*. NC Policy Collaboratory. The University of North Carolina at Chapel Hill. <http://nutrients.web.unc.edu/resources/>

Miller, J.W. and D.R. Obenour. Forecasting water quality in urban streams under future management scenarios through hierarchical modeling. (In Preparation)

**Collegiate Teaching Experience**

**CE 383: Hydrology and Urban Water Systems (Mentor: Dr. Sankar Arumugam)**  2016

* Teacher of Record as part of Preparing the Professoriate program
* Created all lectures, homework, quizzes, projects and exams
* Taught 90% of lectures

**Supervised Graduate Research Assistants** 2018-present

* Oversee watershed nutrient modeling (ArcGIS, WRTDS, R)
* Oversee data collection and manuscript preparation

**Supervised Undergraduate Research Assistant** 2017-18

* Taught ArcGIS, Excel and R processing
* Oversaw data collection and proposal writing

**Presentations**

Miller, J.W., Paul, Michael J., & D.R. Obenour. “Forecasting water quality in urban streams under future management scenarios through hierarchical modeling.” Center for Watershed Protection (CWP) Annual Conference. Charleston, SC. May 2019.

Miller, J.W., Paul, Michael J., & D.R. Obenour. “Forecasting water quality in urban streams under future management scenarios through hierarchical modeling.” Water Resource Research Institute (WRRI) Annual Conference. Raleigh, NC. March 2019.

Obenour, D.R., Arumugam, S., Aupperle, M.B., & Miller, J.W. "Jordan Lake Watershed & Water Quality Modeling to Assess Historical and Projected Eutrophication." Jordan Lake Nutrient Management Study Research Symposium, NC Policy Collaboratory, Chapel Hill, NC. April, 2019.

Miller, J.W., D.R. Obenour. “Assessing drivers of ecological health in NC piedmont streams and quantifying variations in macroinvertebrate sites and sampling programs using hierarchical modeling.” Water Resource Research Institute (WRRI) Annual Meeting. Raleigh, NC. March 2018.

Miller, J.W., D.R. Obenour. “Assessing drivers of ecological health in NC piedmont streams and quantifying variations in macroinvertebrate sites and sampling programs using hierarchical modeling.” Water Resource Research Institute (WRRI) Annual Meeting. Raleigh, NC. March 2018.

Miller, J.W. and D.R. Obenour. “Assessing and Predicting the Biological Health of NC Piedmont streams using Bayesian Hierarchical Modeling” The Society of Freshwater Science (SFS) Annual Meeting, Raleigh, NC. June 2017.

Miller, J.W. and D.R. Obenour. “Do estuary-level stressors in the Gulf of Mexico affect fish and invertebrate species? “ NCSU Water Resources and Environmental Research Symposium. Raleigh, NC. March 2016.

Miller, J.W., P.C. Esselman, I. Alameddine, K. Blackhart, D.R. Obenour. “Using Hierarchical Modeling to Assess Anthropogenic Watershed Stressors in Gulf of Mexico Estuaries”. Coastal and Estuarine Research Federation (CERF) Annual Conference. Portland, OR, November 2015.

Miller, J.W. and D.R. Obenour. “Determining the effect of Watershed Stressors on Fish Habitats in Gulf Estuaries using Hierarchical Modeling Research” NCSU Water Resources and Environmental Research Symposium. Raleigh, NC. March 2015.

Miller, J.W, A. Holcombe, L. Sonicker, T. Howell. “Mission Possible Success: Improvements in Math Learning in Guilford County” Learning Forward Annual Conference. Seattle WA, July 2010.

**Conferences Attended**

Water Resources Research Institute (WRRI) 3/2019

Water Resources Research Institute (WRRI) 3/2018

Society for Freshwater Science (SFS) 6/2017

Water Resources Research Institute (WRRI) 3/2017

Coastal and Estuarine Research Federation (CERF) 11/2015

Learning Forward 7/2010

**Service**

**Traveling Mentor on EWB trip to Guatemala**, Engineers without Borders 2017

* Advised student group and consulted with villagers in Panhux, Guatemala
* Assessed drinking water quality of local sources
* Analyzed storage necessary for water collection units

**Leadership Team** for *Water Resources and Environmental Research Symposium* 2017

* Co-chair of the Logistic Committee

**Licensures and Certifications**

**EIT,** NC Board of Examiners for Engineers and Surveyors 2017

**GIS Certificate**, NCSU 2014

**Awards and Honors/Fellowships**

**Freese and Nichols Graudate Award ($1,000),** NCSU CCEE Department 2019

**2nd place in 3 Minute Thesis Competition,** NCSU CCEE Department 2018

**3rd place in Poster Presentation,** NCSU CCEE Department Symposium 2018

**Recognition for Excellence in Classroom Teaching**, NCSU Graduate School 2017

**Preparing the Professoriate**, NCSU 2015 - 2016

**Smallwood Fellowship ($500)**, NCSU CCEE Department 2015

**Skills**

**Watershed Analysis-** Statistical modeling, ArcGIS, SWAT, Qual2k

**Productivity Software-** R, Microsoft Office

**Spanish-** fluent