

Natalie Adriana Griffiths

Staff Scientist

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Education:

- 2011 Ph.D. in Biological Sciences, University of Notre Dame (UND)
Dissertation title: Quantifying the impact of row-crop agriculture on carbon dynamics in
Midwestern streams. Advisor: Dr. J.L. Tank.
- 2005 Honors B.Sc. with High Distinction in Zoology and Physiology, University of Toronto (U of T).

Appointments and Research Experience:

- 2013-present Staff Scientist, Environmental Sciences Division, Oak Ridge National Laboratory (ORNL).
- 2010-2013 Postdoctoral Research Associate, Environmental Sciences Division, ORNL. Advisors: Drs.
P.J. Mulholland (2010-2011) and P.J. Hanson (2011-2013).
- 2005-2008 Research Assistant, Dept. of Biological Sciences, UND. Principal Investigators: Drs. J.L.
Tank, E.J. Rosi-Marshall, T.V. Royer, and M.R. Whiles.
- 2004-2005 Undergraduate Thesis, Dept. of Zoology, U of T. Advisor: Dr. H. Cyr.
- 2004-2005 Undergraduate Thesis, Dept. of Botany, U of T. Advisor: Dr. T.S. Feild.
- 2003-2005 Research Assistant, Dept. of Zoology, U of T. Supervisors: Drs. L. Rowe and F.H. Rodd.
- 2003 Research Assistant, Dept. of Biological Sciences, UND. Supervisor: Dr. J.L. Tank.
- 2002-2003 Undergraduate Thesis, Dept. of Botany, U of T. Advisors: Drs. A.A. Agrawal and P.A. Van Zandt.

Academic Honors and Awards:

- 2011 Eli J. and Helen Shaheen Graduate School Award to the Top Ph.D. Graduate in Science, UND.
- 2009 Kaneb Center's Outstanding Graduate Student Teacher Award for Excellence in Teaching, UND.
- 2005 Drew Thompson Scholarship, Trinity College, U of T.
- 2004 Kenneth C. Fisher Memorial Scholarship in Zoology, U of T.
- 2002 Provost's Scholarship, Trinity College, U of T.
- 2001-2005 Dean's List, U of T.

Research

Research Focus:

Ecosystem ecology and biogeochemistry and the impacts of anthropogenic activities on aquatic and terrestrial ecosystems

Publications:

Klaus, J., J.J. McDonnell, C.R. Jackson, E. Du, and **N.A. Griffiths**. 2015. Where does streamwater come from in low-relief forested watersheds? A dual isotope approach. *Hydrology and Earth System Sciences* 19:125-135.

Roley, S.S., J.L. Tank, **N.A. Griffiths**, R.O. Hall Jr., and R.T. Davis. 2014. The influence of floodplain restoration on whole-stream metabolism in an agricultural stream: insights from a 5-year continuous data set. *Freshwater Science* 33:1043-1059.

Dodds, W.K., S.M. Collins, S.K. Hamilton, J.L. Tank, S. Johnson, J.R. Webster, K.S. Simon, M.R. Whiles, H.M. Rantala, W.H. McDowell, S.D. Peterson, T. Riis, C.L. Crenshaw, S.A. Thomas, P.B. Kristensen, B.M. Cheever, A.S. Flecker, **N.A. Griffiths**, T. Crowl, E.J. Rosi-Marshall, R. El-Sabaawi, and E. Martí. 2014. You are not always what we think you eat: selective assimilation across multiple whole-stream isotopic tracer studies. *Ecology* 95:2757-2767.

Griffiths, N.A., and W.R. Hill. 2014. Temporal variation in the importance of a dominant consumer to stream nutrient cycling. *Ecosystems* 17:1169-1185.

Kominoski, J.S., J.J. Follstad Shah, C. Canhoto, D.G. Fischer, D.P. Gilling, E. González, **N.A. Griffiths**, A. Larrañaga, C.J. LeRoy, M.M. Mineau, Y.R. McElarney, S.M. Shirley, C.M. Swan, and S.D. Tiegs. 2013. Forecasting functional implications of global changes in riparian plant communities. *Frontiers in Ecology and the Environment* 11:423-432.

Griffiths, N.A., J.L. Tank, T.V. Royer, S.S. Roley, E.J. Rosi-Marshall, M.R. Whiles, J.J. Beaulieu, and L.T. Johnson. 2013. Agricultural land use alters the seasonality and magnitude of stream metabolism. *Limnology and Oceanography* 58:1513-1529.

Tiegs, S.D., J.E. Clapcott, **N.A. Griffiths**, and A.J. Boulton. 2013. A standardized cotton-strip assay for measuring organic-matter decomposition in streams. *Ecological Indicators* 32:131-139.

Griffiths, N.A., J.L. Tank, S.S. Roley, and M.L. Stephen. 2012. Decomposition of maize leaves and grasses in restored agricultural streams. *Freshwater Science* 31:848-864.

Griffiths, N.A., J.L. Tank, T.V. Royer, T.J. Warrner, T.C. Frauendorf, E.J. Rosi-Marshall, and M.R. Whiles. 2012. Temporal variation in organic carbon spiraling in Midwestern agricultural streams. *Biogeochemistry* 108: 149-169.

Parish, E.S., M.R. Hilliard, L.M. Baskaran, V.H. Dale, **N.A. Griffiths**, P.J. Mulholland, A. Sorokine, M.E. Downing, R.S. Middleton, and N.A. Thomas. 2012. Multimetric spatial optimization of switchgrass plantings across a watershed. *Biofuels, Bioproducts and Biorefining* 6:58-72.

Tank, J.L., E.J. Rosi-Marshall, T.V. Royer, M.R. Whiles, **N.A. Griffiths**, T.C. Frauendorf, and D.J. Treering. 2010. Occurrence of maize detritus and a transgenic insecticidal protein (Cry1Ab) within the stream

- network of an agricultural landscape. Proceedings of the National Academy of Sciences of the United States of America 107:17645-17650.
- Chambers, C.P., M.R. Whiles, E.J. Rosi-Marshall, J.L. Tank, T.V. Royer, **N.A. Griffiths**, M.A. Evans-White, and A.J. Stojak. 2010. Responses of stream macroinvertebrates to Bt maize leaf detritus. Ecological Applications 20:1949-1960.
- Tank, J.L., E.J. Rosi-Marshall, **N.A. Griffiths**, S.A. Entekin, and M.L. Stephen. 2010. A review of allochthonous organic matter dynamics and metabolism in streams. Journal of the North American Benthological Society 29:118-146.
- Warrner, T.J., T.V. Royer, J.L. Tank, **N.A. Griffiths**, E.J. Rosi-Marshall, and M.R. Whiles. 2009. Origin and bioavailability of dissolved organic carbon in agricultural headwater streams in Indiana, USA. Biogeochemistry 95:295-307.
- Griffiths, N.A.**, J.L. Tank, T.V. Royer, E.J. Rosi-Marshall, M.R. Whiles, C.P. Chambers, T.C. Frauendorf, and M.A. Evans-White. 2009. Rapid decomposition of maize detritus in agricultural headwater streams. Ecological Applications 19:133-142.
- Rosi-Marshall, E.J., J.L. Tank, T.V. Royer, M.R. Whiles, M. Evans-White, C. Chambers, **N.A. Griffiths**, J. Pokelsek, and M.L. Stephen. 2007. Toxins in transgenic crop byproducts may affect headwater stream ecosystems. Proceedings of the National Academy of Sciences of the United States of America 104:16204-16208.
- Griffiths, N.A.** and H. Cyr. 2006. Are there hot spots for *Elliptio complanata* in the shallow littoral zone of a large Canadian Shield lake? Canadian Journal of Fisheries and Aquatic Sciences 63:2137-2147.

Research Grants and Fellowships:

- 2010 Sigma Xi Grant-in-Aid of Research. Decomposition of corn leaves and native and invasive grasses in the floodplains of restored agricultural streams (\$965).
- 2008-2009 Bayer Predoctoral Research Fellowship, UND (\$8,000).
- 2008-2009 National Science Foundation (NSF) Doctoral Dissertation Improvement Grant (DDIG) (with J.L. Tank). Transport, sorption, and degradation of Cry1Ab toxins derived from genetically engineered corn crop byproducts in agricultural streams (\$11,499).
- 2008-2009 McDonald Undergraduate Research Grant (with undergraduate J. Kang), UND (\$500).
- 2007-2010 Natural Sciences and Engineering Research Council of Canada (NSERC) Post-Graduate Scholarship: Doctoral (PGS-D). The role of agricultural land use on carbon cycling in Midwestern headwater streams (\$63,000).
- 2007 North American Benthological Society Presidential Award (\$600).
- 2005-2006 NSERC Post-Graduate Scholarship: Masters (PGS-M). The role of agricultural land use on carbon cycling in Midwestern headwater streams (\$17,300).
- 2004 NSERC PGS-M (\$17,300; awarded but declined).
- 2004 NSERC Undergraduate Student Research Award. Phosphorus loading of sediments in a large Canadian Shield lake (\$6,000).

2002 Northrop Frye BIO150Y Scholarship, U of T. The impact of induced plant responses of the common milkweed (*Asclepius syriaca*) on its herbivore community (\$4,000).

Meeting Presentations:

Griffiths, N.A., and S.D. Sebestyen. Effect of deep peat warming on porewater chemistry in a northern peatland ecosystem. Ecological Society of America, Baltimore, MD, August 2015. Poster presentation.

Griffiths, N.A., C.R. Jackson, J.J. McDonnell, M. Bitew, E. Du, and J. Klaus. Effects of short-rotation pine management for bioenergy on water quality in the southeastern United States. Society for Freshwater Science (SFS) conference, Milwaukee, WI, May 2015. Oral presentation.

Follstad Shah, J., J.S. Kominoski, M. Ardón, W.K. Dodds, M.O. Gessner, **N.A. Griffiths**, S.L. Johnson, A. Lecerf, C.J. LeRoy, D.W. Manning, A.D. Rosemond, C.M. Swan, J.R. Webster, and L.H. Zeglin. Global meta-analysis of temperature effect on leaf litter breakdown rates in streams. SFS conference, Milwaukee, WI, May 2015. Oral presentation.

Zeglin, L.H., S.D. Cooper, R.M. Utz, M. Ardón, B. Bixby, A. Burdett, W.K. Dodds, **N.A. Griffiths**, T. Harms, L.T. Johnson, S.L. Johnson, J. Jones, J.S. Kominoski, W.H. McDowell, A.D. Rosemond, M. Trentman, J. Follstad Shah, D. Van Horn, and A. Ward. Synthesis of stream ecosystem responses to nutrient enrichment at multiple trophic levels. SFS conference, Milwaukee, WI, May 2015. Oral presentation.

Griffiths, N.A., and S.D. Sebestyen. Responses of peat porewater chemistry to deep peat warming in a northern peatland. Environmental System Science PI meeting, Potomac, MD, April 2015. Poster presentation.

Griffiths, N.A., C.R. Jackson, K. Vache, J.J. McDonnell, G. Starr, J.I. Blake, and B.M. Rau. Short-rotation woody biomass sustainability. Bioenergy Technologies Office 2013 Peer Review Meeting: Sustainability Platform, Alexandria, VA, March 2015. Oral presentation co-presented with C.R. Jackson.

Griffiths, N.A., C.R. Jackson, M. Bitew, D. Du, K. Vache, J.J. McDonnell, J. Klaus, and B.M. Rau. Evaluating the effects of woody biomass production for bioenergy on water quality and hydrology in the southeastern United States. Interagency Conference on Research in the Watersheds, Charleston, SC, March 2015. Oral presentation.

Griffiths, N.A., C.R. Jackson, J.J. McDonnell, M.M. Bitew, E. Due, and J. Klaus. Water quality response after two years of short-rotation pine management for bioenergy in the southeastern U.S. American Geophysical Union (AGU) fall meeting, San Francisco, CA, December 2014. Poster presentation.

Bitew, M.M., C.R. Jackson, J.J. McDonnell, K. Vache, and **N.A. Griffiths**. Dynamic downslope travel distance modeling: Interflow modeling from bottom of slope upwards. AGU fall meeting, San Francisco, CA, December 2014. Poster presentation.

Jackson, C.R., L. Hopp, J.J. McDonnell, M. Bitew, E. Du, J. Klaus, and **N.A. Griffiths**. Interflow moving over leaky impeding layers: how far can we expect it to go? AGU fall meeting, San Francisco, CA, December 2014. Poster presentation.

- Sebestyen, S.D., and **N.A. Griffiths**. Water and solute connectivity in northern peatlands of Minnesota: assessing how hydrological connectivity affects solute yields from peatland catchments and responds to climate change. AGU fall meeting, San Francisco, CA, December 2014. Poster presentation.
- Sebestyen, S.D., and **N.A. Griffiths**. Hydrological connectivity and linkages of subsurface biogeochemical processing in peats to solute yields from northern peatland catchments. Soil Science Society of America annual meeting, Long Beach, CA, November 2014. Oral presentation.
- Griffiths, N.A.**, C.R. Jackson, M. Bitew, E. Du, K.B. Vache, J.J. McDonnell, J. Klaus, and C.C. Trettin. Environmental sustainability of woody biomass production for bioenergy in the southeastern United States. Short-Rotation Woody Crops Operations Working Group Meeting, Seattle, WA, July 2014. Oral presentation.
- Griffiths, N.A.**, and S.D. Sebestyen. Vertical profiles of peat pore water chemistry in an ombrotrophic peatland and expected vulnerabilities to climate change. Joint Aquatic Sciences Meeting, Portland OR, May 2014. Oral presentation.
- Griffiths, N.A.**, C.R. Jackson, M. Bitew, E. Du, K.B. Vache, J.J. McDonnell, J. Klaus, and J.I. Blake. Assessing BMP effectiveness for woody biomass production for bioenergy in groundwater-dominated Coastal Plain watersheds. Symposium on Forestry Best Management Practice (BMP) Effectiveness in the Eastern U.S., Blacksburg, VA, May 2014. Oral presentation.
- Vache, K.B., C.R. Jackson, M. Bitew, J. Blake, J.J. McDonnell, and **N.A. Griffiths**. Potential impacts of intensive cellulosic biofuel production on water quality and quantity in the Upper Coast Plain. AGU fall meeting, San Francisco, CA, December 2013. Poster presentation.
- Griffiths, N.A.**, and S.D. Sebestyen. Spatial and temporal variation in peat pore water chemistry of a northern peatland: Reference conditions of a large-scale climate change experiment (SPRUCE). Ecological Society of America (ESA) annual meeting, Minneapolis, MN, August 2013. Oral presentation.
- Langholtz, M.H., **N.A. Griffiths**, C.R. Jackson, J.J. McDonnell, and J.I. Blake. Short-rotation woody biomass sustainability. Bioenergy Technologies Office 2013 Peer Review Meeting: Sustainability Platform, Alexandria, VA, May 2013. Oral presentation co-presented with C.R. Jackson.
- Griffiths, N.A.**, B.J. Roberts, W.R. Hill, and P.J. Mulholland. Nine years of continuous measurements reveal short- and long-term controls on ecosystem metabolism in Walker Branch, a forested headwater stream. SFS conference, Jacksonville, FL, May 2013. Poster presentation.
- Griffiths, N.A.**, P.J. Mulholland, C.R. Jackson, J.J. McDonnell, J.I. Blake, E. Du, J. Klaus, and M.H. Langholtz. Biogeochemistry of forested watersheds in the Southeastern U.S. prior to conversion to short-rotation pine for bioenergy. AGU fall meeting, San Francisco, CA, December 2012. Poster presentation.
- Jackson, C.R., E. Du, J. Klaus, **N.A. Griffiths**, J.J. McDonnell, and J.I. Blake. Whole hillslope irrigation reveals differential interflow behavior of dye tracers, conservative solutes and nutrients. AGU fall meeting, San Francisco, CA, December 2012. Poster presentation.
- Du, E., C.R. Jackson, J.I. Blake, **N.A. Griffiths**, J. Klaus, J.J. McDonnell, K. Vache, and M.H. Langholtz. Modeling water quality within biofuel production landscapes: integrating hillslope flow paths, deep groundwater dynamics, riparian groundwater interactions, and end-member chemistry. AGU fall meeting, San Francisco, CA, December 2012. Poster presentation.

- Griffiths, N.A.**, S.D. Tiegs, and P.J. Mulholland. Organic matter decomposition along a temperature gradient in a forested headwater stream. ESA annual meeting, Portland, OR, August 2012. Poster presentation.
- Griffiths, N.A.**, L.T. Johnson, and P.J. Mulholland. Influence of dual nitrogen and phosphorus additions on nutrient uptake and saturation kinetics in a forested headwater stream. Society for Freshwater Science (SFS) conference, Louisville, KY, May 2012. Oral presentation.
- Martí, E., J.L. Tank, T. Riis, P.J. Mulholland, W.K. Dodds, M.R. Whiles, B.M. Cheever, S.M. Collins, C.L. Crenshaw, T.A. Cowl, **N.A. Griffiths**, N.B. Grimm, S.K. Hamilton, S.L. Johnson, W.H. McDowell, E.J. Rosi-Marshall, K.S. Simon, S.A. Thomas, D. von Schiller, J.R. Webster, and W.M. Wollheim. Unpacking the black box of in-stream assimilatory nitrogen uptake: insights from ¹⁵N-ammonium tracer additions conducted in different biogeoclimatic regions. SFS conference, Louisville, KY, May 2012. Oral presentation.
- Davis, R.T., J.L. Tank, U.M. Mahl, S.S. Roley, and **N.A. Griffiths**. The influence of floodplain restoration on whole-stream metabolism in four midwestern agricultural streams. SFS conference, Louisville, KY, May 2012. Oral presentation.
- Follstad Shah, J., M. Ardón, J.S. Kominoski, W.K. Dodds, M.O. Gessner, **N.A. Griffiths**, S.L. Johnson, A. Lecerf, C.J. LeRoy, D.W. Manning, A.D. Rosemond, C.M. Swan, J.R. Webster, and L.H. Zeglin. MASS LOSS: a quantitative synthesis of leaf decomposition in streams and rivers. SFS conference, Louisville, KY, May 2012. Oral presentation.
- Griffiths, N.A.**, and P.J. Mulholland. Seasonal variability in nitrate and phosphate uptake kinetics in a forested headwater stream using pulse nutrient additions. AGU fall meeting, San Francisco, CA, December 2011. Poster presentation.
- Griffiths, N.A.**, and C.R. Jackson. What do we need to learn about global change effects in ecosystem science? Global Change Effects on Aquatic Systems: A symposium inspired by the work of Patrick J. Mulholland, Oak Ridge, TN, November 2011. Oral presentation.
- Griffiths, N.A.**, P.J. Mulholland, C.R. Jackson, and C.T. Garten. Biogeochemistry of forested watersheds in the Upper Coastal Plain of the Southeastern U.S. prior to conversion to short-rotation pine for bioenergy. Gordon Research Conference in Catchment Sciences, Lewiston, ME, July 2011. Poster presentation.
- Griffiths, N.A.**, and P.J. Mulholland. Quantifying seasonal variability in nutrient uptake kinetics in a forested headwater stream using pulse nutrient additions. North American Benthological Society (NABS) conference, Providence, RI, May 2011. Oral presentation.
- Roley, S.S., J.L. Tank, **N.A. Griffiths**, M.L. Stephen, L.T. Johnson, and J.J. Beaulieu. The influence of floodplain restoration on whole-stream metabolism in an agricultural stream. NABS conference, Providence, RI, May 2011. Oral presentation.
- Mulholland, P.J., **N.A. Griffiths**, C.R. Jackson, J.J. McDonnell, and J.I. Blake. Short-rotation woody biomass sustainability. Office of Biomass Program 2011 Peer Review Meeting: Feedstocks Platform, Annapolis, MD, April 2011. Oral presentation co-presented with C.R. Jackson.
- Dale, V.H., **N.A. Griffiths**, and M.R. Hilliard. Feedstock and bioenergy sustainability at a watershed scale. Office of Biomass Program 2011 Peer Review Meeting: Feedstocks Platform, Annapolis, MD, April 2011. Oral presentation co-presented with V.H. Dale.

- Mulholland, P.J., S.D. Sebestyen, **N.A. Griffiths**, P.J. Hanson, J. Warren, and R.K. Kolka. Water research within the SPRUCE experiment, a large-scale study of climate change effects on a northern peatland. AGU fall meeting, San Francisco, CA, December 2010. Poster presentation.
- Griffiths, N.A.**, J.L. Tank, S.S. Roley, and M.L. Stephen. Comparison of detrital decomposition in floodplain and main channel habitats of restored agricultural streams. North American Benthological Society (NABS) and American Society of Limnology and Oceanography (ASLO) joint conference, Santa Fe, NM, June 2010. Oral presentation.
- Griffiths, N.A.**, J.L. Tank, E.J. Rosi-Marshall, T.V. Royer, M.R. Whiles, R. Conley, T.C. Frauendorf, and J. Kang. Transport and degradation of Cry1Ab protein derived from genetically-engineered maize crop byproducts in agricultural streams. NABS conference, Grand Rapids, MI, May 2009. Oral presentation.
- Griffiths, N.A.**, J.L. Tank, J.J. Beaulieu, L.T. Johnson, S.S. Roley, and M.L. Stephen. Effect of storms on agricultural stream metabolism. ASLO conference, St. John's, NL, June 2008. Oral presentation.
- Royer, T.V., T.J. Warrner, **N.A. Griffiths**, J.L. Tank, E.J. Rosi-Marshall, and M.R. Whiles. Biogeochemistry of dissolved organic carbon in headwater agricultural streams. ASLO conference, St. John's, NL, June 2008. Oral presentation.
- Griffiths, N.A.**, J.L. Tank, E.J. Rosi-Marshall, T.V. Royer, M.R. Whiles, J.J. Beaulieu, L.T. Johnson, S.S. Roley, and M.L. Stephen. Inter- and intra-system variation in whole-stream metabolism within an agricultural landscape. NABS conference, Salt Lake City, UT, May 2008. Oral presentation.
- Griffiths, N.A.**, J.L. Tank, T.J. Warrner, T.V. Royer, T.C. Frauendorf, C.P. Chambers, J.D. Pokelsek, M.A. Evans-White, E.J. Rosi-Marshall, and M.R. Whiles. The contribution of corn detritus to metabolism and carbon cycling in Midwestern agricultural streams. NABS conference, Columbia, SC, June 2007. Oral presentation.
- Frauendorf, T.C., **N.A. Griffiths**, J.L. Tank, M.A. Evans-White, E.J. Rosi-Marshall, T.V. Royer, and M.R. Whiles. Bt leaching from corn detritus and the effects on stream sediment respiration. NABS conference, Columbia, SC, June 2007. Poster presentation.
- Chambers, C.P., M.R. Whiles, **N.A. Griffiths**, M.A. Evans-White, E.J. Rosi-Marshall, J.L. Tank, and T. V. Royer. Assessing the impacts of transgenic Bt corn detritus on macroinvertebrate communities in agricultural streams. NABS conference, Columbia, SC, June 2007. Oral presentation.
- Warrner, T.J., T.V. Royer, **N.A. Griffiths**, M.A. Evans-White, J.L. Tank, E.J. Rosi-Marshall, and M.R. Whiles. Biogeochemistry of dissolved organic carbon in Midwestern agricultural streams. NABS conference, Columbia, SC, June 2007. Poster presentation.
- Pokelsek, J.D., E.J. Rosi-Marshall, C.P. Chambers, **N.A. Griffiths**, M.A. Evans-White, J.L. Tank, M.R. Whiles, and T.V. Royer. Effects of Bt corn pollen on caddisfly growth rates in Midwestern agricultural streams. NABS conference, Columbia, SC, June 2007. Oral presentation.
- Rosi-Marshall, E.J., J.L. Tank, M. Evans-White, T.V. Royer, M.R. Whiles, J. Pokelsek, **N.A. Griffiths**, and C.P. Chambers. Crop residues and stream carbon budgets: examining the ecological significance of allochthonous carbon in Midwestern agricultural streams. ASLO conference, Santa Fe, NM, February 2007. Oral presentation.

Griffiths, N.A., C.P. Chambers, J.L. Tank, M.A. Evans-White, E.J. Rosi-Marshall, T.V. Royer, and M.R. Whiles. Microbial respiration and decomposition of corn detritus in Midwestern agricultural streams. NABS conference, Anchorage, AK, June 2006. Oral presentation.

Evans-White, M.A., J.L. Tank, M.R. Whiles, **N.A. Griffiths**, E.J. Rosi-Marshall, and T.V. Royer. The role of allochthonous carbon in the food webs of agricultural streams. NABS conference, Anchorage, AK, June 2006. Oral presentation.

Griffiths, N.A., L.C. Taylor, M.J. Bernot, and J.L. Tank. Effects of antibiotic addition on nutrient limitation in streams. NABS conference, Vancouver, BC, June 2004. Poster presentation.

Special Courses/Workshops/Working Groups:

- 2015 Continental-scale analysis of stream metabolism working group meeting (USGS Powell Center). Lead PIs: E. Stets, E. Stanley, J. Read, R. Hall.
- 2014 Incorporating Bioenergy into Sustainable Landscape Designs workshop in New Bern, NC.
- 2013 Stream ecosystem responses to nutrient enrichment at multiple trophic levels working group meeting, National Ecological Observatory Network, Inc., (LTER-funded project). Lead PIs: Drs. L. Zeglin, M. Ardón, B. Bixby, W.K. Dodds, S. Johnson, and A.D. Rosemond.
- 2011 Meta-analysis and Synthesis of Leaf Decomposition in Streams working group meeting, Coweeta Hydrologic Laboratory (LTER-funded project). Lead PIs: Drs. J.J. Follstad-Shah, J.S. Kominoski, and M. Ardón.
- 2011 ¹⁵N Food Web Modeling workshop, Konza Prairie (Kansas State University). Lead PIs: Drs. W.K. Dodds and M.R. Whiles.
- 2010 Leaf Litter Decomposition in Streams course, University of Coimbra, Portugal.
- 2009 American Institute of Biological Sciences (AIBS) science outreach and policy workshop.
- 2008 ESRI course: Introduction to Geographic Information System (GIS).
- 2008 Communications Partnership for Science and the Sea (COMPASS) communications training workshop.
- 2006 Selected participant for the Fundamentals of Ecosystem Ecology course, Cary Institute of Ecosystem Studies, Millbrook, NY.

Memberships in Professional Associations:

- American Geophysical Union (AGU)
- Ecological Society of America (ESA)
- Society for Freshwater Science (SFS), formerly the North American Benthological Society (NABS)

Teaching and Mentoring

Teaching Experience:

- 2011-2012 Guest lecturer for General Ecology (2011) and Ecosystem Ecology (2012), University of Tennessee.
- 2009 Co-instructor for Aquatic Insects with Dr. R.A. Hellenthal, UND.
- 2008 Teaching Assistant for Aquatic Ecology, UND.
- 2008 Co-instructor for Aquatic Ecosystem Ecology with Dr. G.A. Lamberti to graduate students in the NSF IGERT program (taught at UND's Environmental Research Center).
- 2008 Teaching Assistant for Biostatistics, UND.
- 2006 Teaching Assistant for General Ecology, UND.
- 2004-2005 Teaching Assistant for Animal Physiology, U of T.

Teaching Awards and Certificates:

- 2009 Certification of Teaching Excellence from the Kaneb Center for Teaching and Learning and the Department of Biological Sciences, UND.
- 2009 Kaneb Center's Outstanding Graduate Student Teacher Award for Excellence in Teaching, UND.

Students and Technicians Mentored:

- 2015 Caitlin O'Neill, Oak Ridge Associated Universities (ORAU) SULI student, ORNL. Studied litter decomposition and chemistry for the SPRUCE project.
- 2013-present Keith Oleheiser, ORAU HERE and post-BS position, ORNL. Hydrology and biogeochemistry technician for the SPRUCE project.
- 2008-2009 Jennifer Kang, Undergraduate Research Thesis, UND.
Thesis title: The leaching and degradation of Cry1Ab proteins from genetically-engineered corn in stream ecosystems.
Presented research at UND's College of Science Joint Annual Meeting, May 2009.
- 2006-2007 Therese Frauendorf, Undergraduate Research Thesis, UND.
Thesis title: Bt leaching from corn detritus and the effects on stream sediment respiration.
Presented research at the NABS conference, Columbia, SC, June 2007, and is a co-author on 2 of my publications.

Teaching Courses/Workshops Attended:

- 2009 Designing and Teaching Your First Biology or Chemistry course, UND.
- 2008 Innovative Teaching and Active Learning: Principles, Practice, and Materials. Ecological Society of America annual meeting, Milwaukee, WI.

Professional Service

- Reviewer for Aquatic Sciences, Austral Ecology, Biogeochemistry, Ecological Modelling, Ecosystems, Forest Ecology and Management, Freshwater Biology, Freshwater Science (formerly the Journal of the North American Benthological Society), Frontiers in Ecology and the Environment, Hydrobiologia, International Review of Hydrobiology, Journal of the American Water Resources Association, Journal of Environmental Quality, Journal of Freshwater Ecology, Journal of Hydrology, Limnology and Oceanography, Marine and Freshwater Research, New Phytologist, Science of the Total Environment, Water, Air, and Soil Pollution, and Water (2008-present).
- Reviewer for Department of Energy's Office of Biological and Environmental Research, Environmental System Sciences proposals (2015).
- Society for Freshwater Science (SFS) Board of Directors representative (Early Career/Young Professional elected position; 2015-present), NABS (now SFS) Executive Committee graduate student representative (2010-2011), NABS Graduate Resources Committee (GRC) Chair (2009-2010), J-NABS Strategic Planning Committee graduate representative (2008-2009), GRC student workshop organizer (2008-2009), GRC live auction committee (2007-2008).
- Member of the Program Committee for the Interagency Conference on Research in Watersheds (ICRW) in Charleston, SC in March 2015 (2014-2015).
- Contributing member to the Faculty of 1000 Marine and Freshwater Ecology section (2008-2012).
- Member of the National Ecological Observatory Network (NEON) STReam Experimental Observation Network (STREON) working group (2011-2015).
- UND Biology Graduate Student Organization (BGSO) volunteer activities coordinator (2009-2010), BGSO graduate recruitment weekend coordinator (2008-2009).
- Graduate representative on UND's College of Science Advisory Council (2008-2009), Graduate Co-chair for UND's Department of Biological Sciences faculty search (2010).
- Science judge for the Tennessee Science Bowl (2011-present), judge for UND's Graduate Research Symposium (2008) and numerous science fairs around northern Indiana (grades 1-8), including the northern Indiana Regional Science Fair (2006-2010).
- Undergraduate representative on the Biological Sciences Departmental Reorganization Group, U of T (2004-2005).