

Natalie A. Griffiths

Research Staff Scientist

Climate Change Science Institute and Environmental Sciences Division, Oak Ridge National Laboratory

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Education and Training

2011 University of Notre Dame (UND), Biological Sciences, PhD. Dissertation title: Quantifying the impact of row-crop agriculture on carbon dynamics in Midwestern streams. Advisor: Dr. J.L. Tank.

2005 University of Toronto (U of T), Zoology and Physiology, Honors B.Sc. with High Distinction.

Research and Professional Experience

2013-pres. Research Staff Scientist, Climate Change Science Institute and Environmental Science Division (ESD), Oak Ridge National Laboratory (ORNL). Projects: (1) Spruce and peatland responses under climatic and environmental change (SPRUCE), (2) Environmental sustainability of short-rotation pine for bioenergy, (3) Long-term research in Walker Branch Watershed.

2010-2013 Postdoctoral Research Associate, ESD, ORNL. Advisors: Drs. P.J. Mulholland and P.J. Hanson.

2004-2009 Teaching Assistant and Co-instructor, UND and U of T.

2003-2008 Research Assistant, UND and U of T.

2002-2005 Undergraduate Theses, Dept. of Zoology and Dept. of Botany, U of T.

Publications

1. **Griffiths, N.A.**, and S.D. Tiegs. 2016. Organic matter decomposition along a temperature gradient in a forested headwater stream. *Freshwater Science* doi:10.1086/685657.
2. Du, E., C.R. Jackson, J. Klaus, J.J. McDonnell, **N.A. Griffiths**, M.F. Williamson, J.L. Greco, and M. Bitew. 2016. Interflow dynamics on a low relief forested hillslope: lots of fill, little spill. *Journal of Hydrology* doi:10.1016/j.jhydrol.2016.01.039.
3. **Griffiths, N.A.**, C.R. Jackson, J.J. McDonnell, J. Klaus, E. Du, and M.M. Bitew. 2016. Dual nitrate isotopes clarify the role of biological processing and hydrologic flowpaths on nitrogen cycling in subtropical low-gradient watersheds. *JGR-Biogeosciences* doi:10.1002/2015JG003189.
4. Shi, X., P.E. Thornton, D.M. Ricciuto, P.J. Hanson, J. Mao, S.D. Sebestyen, **N.A. Griffiths**, and G. Bisht. 2015. Representing northern peatland microtopography and hydrology within the Community Land Model. *Biogeosciences* 12:6463-6477.
5. 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.
6. 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.
7. 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. Cowl, 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.
8. **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.
9. 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.
10. **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.
11. 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.
12. **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.

13. **Griffiths, N.A.**, J.L. Tank, T.V. Royer, T.J. Warner, 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.
14. 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.
15. 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.
16. 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.
17. Tank, J.L., E.J. Rosi-Marshall, **N.A. Griffiths**, S.A. Entrekin, 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.
18. Warner, 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.
19. **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.
20. 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.
21. **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.

Awards and Recognition

1. 2011 - Eli J. and Helen Shaheen Graduate School Award to the Top Ph.D. in Science, UND.
2. 2010 - Sigma Xi Grant-in-Aid of Research.
3. 2009 - Certification of Teaching Excellence from the Kaneb Center for Teaching and Learning, UND.
4. 2009 - Kaneb Center's Outstanding Graduate Student Teacher Award for Excellence in Teaching, UND.
5. 2008-2009 - Bayer Predoctoral Research Fellowship, UND.
6. 2008-2009 - NSF Doctoral Dissertation Improvement Grant.
7. 2007-2010 - NSERC Post-Graduate Scholarship: Doctoral.
8. 2007 - North American Benthological Society Presidential Award.
9. 2005-2006 - NSERC Post-Graduate Scholarship: Masters.

Synergistic Activities

1. Reviewer for *Aquatic Sciences*, *Austral Ecology*, *Biogeochemistry*, *Ecological Modelling*, *Ecosystems*, *Forest Ecology and Management*, *Freshwater Biology*, *Freshwater Science*, *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*, *Journal of the North American Benthological Society*, *Limnology and Oceanography*, *Marine and Freshwater Research*, *New Phytologist*, *Science of the Total Environment*, *Water, Air, and Soil Pollution*, and *Water* (2008-present).
2. Reviewer for DOE's Office of Science, Environmental System Sciences proposals (2015).
3. Memberships in: American Geophysical Union, Ecological Society of America, Society for Freshwater Science (formerly the North American Benthological Society; NABS).
4. Society for Freshwater Science (SFS) Board of Directors representative (Early Career/Young Professional elected position; 2015-present), NABS 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).