Sheila Frances Christopher

Research Interests

Watershed Management/Conservation, Hydrology, Biogeochemistry, and Soil Science; hydrologic modeling; Linkages between terrestrial soil solute cycling, hydrologic solute transport through watersheds, and stream chemistry; Climate and land use change effects on water resources; conservation practices and restoration effects on water quality; communication and outreach to stakeholders

Education

Ph.D., State University of New York, College of Environmental Science and Forestry, Syracuse, NY G. P. A.: 3.98/4.0 Advisor: Dr. Myron Mitchell
Catchment of the Adirondack Park, NY
B.S. (<i>Cum Laude</i>), Allegheny College, Meadville, PA Major: Biology, Minor: Communications
Semester spent at Duke University Marine Laboratory Concentration: Marine Biology
Research Assistant Professor, University of Notre Dame, South Bend, IN
Postdoctoral Researcher, Buffalo State College, Buffalo, NY
Postdoctoral Researcher, The Ohio State University, Columbus, OH Postdoctoral Fellow, Hokkaido University, Hokkaido, Japan

Teaching

Student advising of research projects/theses:

- •Lana Parker, undergraduate student, Project: 'Quantifying Climate Variability on Winter Hydrological and Biogeochemical Processes,' Virginia tech (2011-2012)
- •*Andy Neal*, graduate student, Project: 'Optimization of Southeastern Forest Biomass Crop Production: A Watershed Scale Evaluation of the Sustainability and Productivity of Dedicated Energy Crop and Woody Biomass Operations,' Virginia Tech (2010-2012)
- •*Karen Huang*, undergraduate student, Project: 'Linking cover crops to improved stream water quality via field-scale soil sampling, in Shatto Ditch Watershed, IN,' University of Notre Dame (2013-2015)
- •*Benjamin Israel*, undergraduate student, Project: 'Linking cover crops to improved stream water quality via field-scale soil sampling, in Shatto Ditch Watershed, IN,' University of Notre Dame (Summer 2014)
- •*Kevin Fink*, undergraduate student, Project: 'Linking cover crops to improved stream water quality via field-scale soil sampling, in Shatto Ditch Watershed, IN,' University of Notre Dame (Summer 2014)
- •Tommy Davis, undergraduate student, Project: 'Linking cover crops to improved stream water quality via field-scale soil sampling, in Shatto Ditch Watershed, IN,' University of Notre Dame (2014-2015)
- •*Caleb Bomske*, NSF REU Student, Project: 'Effect of substrate on transport of corn pollen in streams at LEEF' University of Notre Dame (Summer 2014)
- •*Elizabeth Berg*, undergraduate student, Project: 'Preventing nutrient loss from Indiana farms: watershed-scale pairing of cover crops and the two-stage ditch.' University of Notre Dame (Summer 2015)
- •*Erik Maag*, undergraduate student, Project: 'Preventing nutrient loss from Indiana farms: watershed-scale pairing of cover crops and the two-stage ditch.' University of Notre Dame (2015-2016)
- •Joseph Mueller undergraduate student, Project: 'Linking cover crops to improved stream water quality via field-scale soil sampling, in Shatto Ditch Watershed, IN,' University of Notre Dame (2015-2016)
- •*Rebecca Chmiel* Visiting undergraduate student, Colby College Project: 'Linking cover crops to improved stream water quality via field-scale soil sampling, in Shatto Ditch Watershed, IN,' University of Notre Dame (J-term January 2016)
- •*Kevin Fick* Undergraduate student project exploring the role of POXC as a soil health metric, University of Notre Dame (Summer 2016).
- •*Edward Lopez* Undergraduate student project exploring the role of POXC as a soil health metric, University of Notre Dame (Summer 2016-Summer 2017).
- •*Kyle White* undergraduate technician: 'Linking cover crops to improved stream water quality via field-scale soil sampling, in Shatto Ditch Watershed, IN,' University of Notre Dame (2017)
- 2007 Environmental Biology. Invited lecturer for multiple classes in water resources and pollution, Department of Biology, Buffalo State College, ~100 students.
- 2005 Watershed Hydrology. Invited Lecturer, Kyoto University.
- 2004 Forest Biogeochemistry Class. Invited lecture, Hokkaido University
- 2003-2004 Teaching Assistant, General Chemistry, SUNY ESF

- 1999-2003 Oversaw/taught crews of students assisting with my field research during summers
- **1995** Teaching Assistant, Evolution, Behavior, and Ecology, Allegheny College Biology Department

Professional Experience

2012-2017 Research Assistant Professor, Environmental Change Initiative, University of Notre Dame

Developed Soil Water Assessment Tool (SWAT) model to assess water resources impact of conservation management practices in agricultural watersheds
Assessed efficacy of watershed-scale conservation practices on soil and water nutrient dynamics via field research for the Indiana Watershed Initiative (http://www.indianawatershedinitiative.com/)

•Cultivated and established partnerships with appropriate stakeholders to promote conservation practice implementation

•Collaborated with colleagues to write and submit grants to secure external funding

•Supervised undergraduate and graduate student research

2009-2012 Research Scientist, Virginia Tech

Developed a Soil Water Assessment Tool (SWAT) model to assess environmental impact of intercropping switchgrass in pine plantations
Collaborated with colleagues/stakeholders to write and submit grants to secure external funding

•Supervised undergraduate and graduate student research

2006-2009 Postdoctoral Researcher, Buffalo State College

•Oversaw hydrology and biogeochemical research conducted at the experimental watershed research site, including instrumentation installation and field-data collection

•Lectured in Environmental Biology

•Continued publications associated with this watershed

•Wrote and submitted grants to secure external funding

2005-2006 Postdoctoral Researcher, The Ohio State University

Participated in the Midwest Regional Carbon Sequestration Partnership, to study carbon sequestration in agricultural fields for mitigating climate change
Designed and conducted a field-based project in farms across 7 mid-western states

•Gained experience writing a review paper and several other manuscripts

•Established partnerships with appropriate stakeholders to promote conservation tillage

2004-2005 Postdoctoral Fellow, Japanese Society for the Promotion of Science, Hokkaido, Japan

Awarded postdoctoral fellowship for a research proposal first peer-reviewed and approved by the U.S. National Science Foundation
Lectured in classes at Hokkaido University and Kyoto University.
Planned and conducted a soil study examining how variability in snow pack depth affects soil freezing and nitrogen cycling
Gained experience in soil and water sampling and N and C chemical analyses
Promoted international discourse in the fields of hydrology and biogeochemistry

2003-2004 Teaching Assistant, General Chemistry, SUNY College of Environmental Science and Forestry

Responsible for teaching two laboratory sections of General Chemistry.
Planned and carried out pre-laboratory lectures
Corrected exams and supervised 50-60 students

1999-2003 Research Assistant, SUNY College of Environmental Science and Forestry

 Conducted collaborative hydrology and biogeochemical research while funded by a National Science Foundation grant
 Planned and implemented an intensive field-based catchment study upstate NY
 Gained experience in hydrological and water quality field instrumentation and usage
 Became familiar with many chemical analysis techniques

Research Grants, Fellowships, and Activities

- 2017-2020 Environmental Protection Agency (EPA): Cover crops prevent nutrient runoff and promote climate resiliency in Great Lakes watersheds. PI: Jennifer Tank CoPIs: Sheila Christopher, Todd Royer (Indiana University), Alan Hamlet (CEES), Ashish Sharma (ECI/CEES), Erin Fuller (Van Buren Cons. Dist.), Colleen Forestieri Van Buren Cons. Dist.). *\$515,325*.
- 2017-2018 Indiana Corn Marketing Council/Indiana Soybean Alliance: Indiana Watershed Initiative (IWI): Continued quantification of water quality and economic benefits from the watershed-scale pairing of cover crops and the two-stage ditch through the Indiana Watershed Initiative. PI: Jennifer Tank CoPIs: Sheila Christopher, Todd Royer (Indiana University), John Tyndall (Iowa State University). *\$81,956*.
- 2017-2018 Indiana Corn Marketing Council/Indiana Soybean Alliance: Continued quantification of water quality and economic benefits from the watershed-scale pairing of cover crops and the two-stage ditch through the Indiana Watershed Initiative. PI: Jennifer Tank CoPIs: Sheila Christopher, Todd Royer (Indiana University), John Tyndall (Iowa State). *\$81,957*.
- **2016-2018** Walton Family Foundation: Integrating environmental and economic outcomes from cover crop adoption in Indiana. PI: Jennifer Tank CoPI: **Sheila Christopher** *\$300,000*.

- 2016-2017 Indiana Corn Marketing Council/Indiana Soybean Alliance: Indiana Watershed Initiative (IWI): Quantifying water quality responses from the watershed-scale pairing ov cove crops and the two-stage ditch, PI: Jennifer Tank CoPIs: Sheila Christopher, Todd Royer (Indiana University), John Tyndall (Iowa State University). \$77,234.
- **2015-2016** Indiana Corn Marketing Council/Indiana Soybean Alliance: Watershed scale adoption of cover crops and the two-stage ditch in Indiana: responses in water quantity and quality, PI: Jennifer Tank CoPIs: **Sheila Christopher** and Todd Royer. *\$67,234*.
- 2015-2019 U.S. Department of Agriculture (USDA) Regional Conservation Partnership Program (RCPP): Preventing nutrient loss from Indiana farms: watershed-scale pairing of cover crops and the two-stage ditch, PI: Jennifer Tank CoPIs: Sheila Christopher and Todd Royer. *\$2,247,003 (includes match)*. See project website: Indiana Watershed Initiative: http://www.indianawatershedinitiative.com/
- **2014-2016** Indiana Water Resources Research Center: Linking improved soil health to water quality via the planting of cover crops in the Shatto Ditch Watershed, Kosciusko Co, IN. PI: **Sheila Christopher**, Co-PI: Jennifer Tank. *\$56,843*.
- 2013-2015 University of Michigan Water Center: Watershed-scale assessment of stacked drainage practices in the Western Lake Erie Basin to improve water quality. PI: Sheila Christopher, Co-PIs: Scott Sowa and Jennifer Tank. Collaborators: Gust Annis, Jeff Arnold, Jane Frankenberger, Kimberly Hall, Matthew Herbert, Kevin King, Jon Witter. \$168,520.
- **2013-2014** Indiana Water Resources Research Center: Linking cover crops to improved stream water quality via field-scale soil sampling, in Shatto Ditch Watershed, IN. PI: **Sheila Christopher**, Co-PI: Jennifer Tank. *\$23,296*.
- 2010-2015 U.S. Department of Energy: Optimization of Southeastern Forest Biomass Crop Production: A Watershed Scale Evaluation of the Sustainability and Productivity of Dedicated Energy Crop and Woody Biomass Operations. PI: George Chescheir, North Carolina State University (NC State), Co-PIs from NC State, Virginia Tech, Weyerhaeuser Co, U.S. Forest Service, and National Council for Air and Stream Improvement. Co-PIs: Sheila Christopher and Stephen Schoenholtz: \$199,977 via a subcontract with Virginia Tech.
- **2009-2012** Weyerhaeuser Co.: Water Quality Implications of Biofuel Intercropping at a Watershed Scale. PI: Stephen Schoenholtz, Research Scientist: **Sheila Christopher**. *\$250,000*.

- 2007-2008 New York Great Lakes Protection Fund Small Grant Program (Funding by the N.Y. State, Department of Environmental Conservation): Phosphorus and nitrogen monitoring and modeling in the Cattaraugus Creek Watershed, a major tributary to Lake Erie. PI: Sheila Christopher, Collaborators: Phil Evans, Christopher Renschler, and Gordon Fraser, *\$7535*.
- 2006-2007 SUNY Buffalo State Research Foundation Incentive Grant: Soil nitrogen processes and export during winter, Point Peter Brook Watershed, Gowanda, NY. PI: Sheila Christopher, \$4000.
- **2006-2007** U.S. Army Corps of Engineers: Sediment modeling and assessment for the Cattaraugus Creek Watershed. PI: Christopher Renschler, PI: Gordon Fraser, Research Scientist: **Sheila Christopher**, *\$120,000*.
- **2004-2005** Japanese Society for the Promotion of Science Postdoctoral Fellowship (the proposal was first peer-reviewed and approved by the National Science Foundation). PI: **Sheila Christopher**, *\$57,959*.

Publications and Presentations

1. Refereed Journals

- Hanrahan, B.R, Tank, J.L., Christopher, S.F., Royer, T.V., Trentman, M.T., Mahl, U.H. 2017. Winter cover crops reduce nitrogen loss from an agricultural watershed in the central U.S., Environmental Science and Technology, *Submitted*.
- Christopher, S.F., Tank, J.L., Mahl, U.H., Hanrahan, B.R. 2017. Linking soil health to improved water quality via the planting of cover crops in the Shatto Ditch Watershed, Kosciusko Co, IN. *In Prep*.
- Gökkaya, K., Budhathoki, M., **Christopher, S.F.**, Hanrahan, B.R. and Tank, J.L. 2017. Subsurface Tile Drained Area Detection Using GIS and Remote Sensing in a Midwest Agricultural Watershed. Ecological Engineering 108 Part B: 370-379.
- Christopher, S.F., Tank, J.L., Mahl, U.H., Yen, H., Arnold, J.G., Trentman, M.T., Sowa, S.P., Herbert, M. E., Ross, J.A., White, M.J., Royer, T.V. 2017. Modeling nutrient removal using watershed-scale implementation of the two-stage ditch. Ecological Engineering 108 Part B: 358-369.
- Ross, J.A., Herbert, M. E., Sowa, S.P., Frankenberger, J.R., King, K.W., Christopher, S.F., Tank, J.L., Arnold, J.G., White, M.J., Yen, H. 2016. A synthesis and comparative evaluation of factors influencing the effectiveness of drainage water management. Agricultural Water Management 178: 366-376.
- Christopher, S.F., Schoenholtz, S.H., Nettles, J. 2015. Water Quantity Implications of Regional-Scale Switchgrass Production in the Southeastern U.S. Biomass and Bioenergy 83: 50-59.

- Kröger, R., Czarnecki, J., Tank, J.L, **Christopher, S.F.**, Witter, J. 2015. Implmenting innovative drainage management practices in the Mississippi River Basin to enhance nutrient reductions. Journal of American Water Resources Research 51: 1020-1028.
- Christopher, S.F. and S.H. Schoenholtz. 2012. Water quality implications of regional-scale switchgrass production in the Southeastern U.S. Technical Report to Weyerhaeuser Co., 27 December 2012.
- Kerr, J.G., Eimers, M.C., Creed, I.F., Adams, M.B., Beall, F., Burns, D., Campbell, J.L., Christopher, S.F., Duchesne, L., Fernandez, I., Houle, D., Jeffries, D.S., Likens, G.E., Mitchell, M.J., Shanley, J., Yao, H. 2012. The effect of seasonal drying on sulphate dynamics in stream across southeastern Canada and northeastern USA. Biogeochemistry DOI 10.1007/s10533-011-9664-1.
- Christopher, S.F., Lal, R., Mishra, U. 2009. Response to "Comments on 'Regional Study of No-till Effects on Carbon Sequestration in the Midwestern United States." Soil Science Society of America Journal 73: 1436.
- Piatek, K., Christopher, S.F., and Mitchell, M. J. 2009. Spatial and temporal dynamics of stream chemistry in a forested watershed impacted by atmospheric deposition. Hydrology and Earth System Sciences 13: 423-439.
- Christopher, S.F., Lal, R., Mishra, U. 2009. Regional Study of No-till Effects on Carbon Sequestration in the Midwestern United States. Soil Science Society of America Journal 73: 207-216. Listed in top 10 most cited papers over the past three years in Soil Science Society of America Journal (https://www.soils.org/publications/sssaj/most-cited)
- Campbell, J.L., Rustad, L.E., Boyer, E.W., Christopher, S.F., Driscoll, C.T., Fernandez, I.J., Groffman, P.M., Houle, D., Kiekbusch, J., Magill, A.H., Mitchell, M.J., Ollinger, S.V. 2009. Consequences of climate change for biogeochemical cycling in forests of eastern North America. Canadian Journal of Forest Research 39: 264-284.
- Christopher, S.F., Mitchell, M.J., McHale, M.R., Boyer, E.W., Burns, D.A., Kendall, C. 2008a. Factors controlling nitrogen release from two forested catchments with contrasting hydrochemical responses. Hydrological Processes 22: 46-62.
- Christopher, S.F., Shibata, H., Ozawa, M., Nakagawa, Y. 2008b. The effect of soil freezing on N cycling: Comparison of two headwater subcatchments with varying snowpack, Hokkaido, Japan. Biogeochemistry 88: 15-30.
- Vermette, S. and Christopher, S.F. 2008. Using the rate of accumulated freezing and thawing degree days as a surrogate for determining freezing depth in a temperate forest soil. Journal of the Middle States Geographer 41: 68-73.

- Christopher, S.F. and Lal, R. 2007. Nitrogen Management Effects Carbon Sequestration in North American Cropland Soils. Critical Reviews in Plant Sciences 26: 45-64.
- **Christopher, S.F.**, Page, B.D., Mitchell, M.J., Campbell, J.L. 2006. Contrasting stream water NO₃⁻ and Ca²⁺ in two nearly adjacent catchments: The role of soil Ca and forest vegetation. Global Change Biology 12: 364-381.
- Mitchell, M.J., Piatek, K., **Christopher, S.F.**, Mayer, B., Kendall, C., McHale, P. 2006. Solute sources in stream water during consecutive fall storms in a northern hardwood forest watershed: A combined hydrological, chemical and isotopic approach. Biogeochemistry 78: 217-246.
- Inamdar, S.P., **Christopher, S.F.**, Mitchell, M.J. 2004. Export for dissolved organic carbon and nitrate during storm events in a glaciated forested catchment in New York, USA. Hydrological Processes 18: 2651-2661.
- Park, J., Mitchell, M.J., McHale, P.J., Christopher, S.F., McHale, M.R., Raynal, D.J., Myers, T.P. 2003. Interactive effects of changing climate and atmospheric deposition on N and S biogeochemistry in a forested watershed of the Adirondack Mountains, New York State. Global Change Biology 9: 1-18.

2. Professional Presentations/Published Conference Abstracts (* student presentation)

- *Hanrahan, B.R., Tank, J.L., **Christopher, S.F.,** Trentman, M.T., Mahl, U.H. 2017. Quantifying changes in nutrient export from an agricultural watershed following the planting of winter cover crops. UCOWR/NIWR Annual Conference, Water in a Changing Environment, Fort Collins, CO, June 13-15, 2017.
- Mahl, U.H., Christopher, S.F., Tank, J.L., Hanrahan, B.R., Trentman, M.T., Prior, K.E. Speir, S.S., Royer, T.V. 2017. Linking soil health to improved water via the planting of cover crops in two Indiana Watersheds. UCOWR/NIWR Annual Conference, Water in a Changing Environment, Fort Collins, CO, June 13-15, 2017.
- *Prior, K.E., Royer, T.V., Tank, J.L., Christopher, S.F., Hanrahan, B.R., Mahl, U.H., Speir, S.S., Trentman, M.T., 2017. Response in dissolved organic carbon dynamics and greenhouse gas emissions to watershed-scale implementation of winter cover crops. UCOWR/NIWR Annual Conference, Water in a Changing Environment, Fort Collins, CO, June 13-15, 2017.
- *Speir, S.S., Tank, J.L., Royer, T.V., Mahl, U.H., Trentman, M.T., Hanrahan, B.R., Prior, K.E. Christopher, S.F. 2017. Real-time monitoring provides insight into nitrate-n export during storms in two agricultural watersheds. UCOWR/NIWR Annual Conference, Water in a Changing Environment, Fort Collins, CO, June 13-15, 2017.

- *Trentman, M.T., Tank, J.L., Christopher, S.F., Hanrahan, B.R., Mahl, U.H., Prior, K.E., Speir, S.S., Royer, T.V. 2017. Comparing the Effectiveness of Increased Winter Land Cover on Nutrient Export Across Two Indiana Agricultural Watersheds. UCOWR/NIWR Annual Conference, Water in a Changing Environment, Fort Collins, CO, June 13-15, 2017.
- Christopher S.F., Tank J.T., Mahl, U.M. 2016. Modeling nutrient removal using watershedscale implementation of the two-stage ditch, Society of Wetland Scientists Annual Conference, Puerto Rico, June 6-9, 2017.
- *Prior, K.E., Royer, T.V., Tank, J.L., Speir, S.S., Trentman, M.T., Hanrahan, B.R., Christopher, S.F., Mahl, U.H. 2017. In-stream carbon cycle impacts from watershed-scale implementation of winter cover crops: DOC and greenhouse gas dynamics. Society of Freshwater Science Annual Meeting, Raleigh. NC, June 4-8, 2017.
- Tank, J.L., Christopher, S.F. Mahl, U.H., Trentman, M.T., Royer, T.V. 2017. Quantifying water quality benefits of floodplain restoration in agricultural streams at both the reach-and watershed-scale. Society of Freshwater Science Annual Meeting, Raleigh. NC, June 4-8, 2017.
- Tank, J.L., Hanrahan, B.R., **Christopher, S.F.** 2017. Webinar: Water Quality Targeting Success Stories Report Launch. Featuring The Indiana Watershed Initiative, May 24, 2017.
- Tank, J.L., Hanrahan, B.R., Christopher, S.F. 2017. Changes in watershed land cover and floodplain connection reduce nutrient export from agroecosystems, Kent State University, Biological Seminar Series, April 14, 2017.
- Tank, J.L., Hanrahan, B.R., Christopher, S.F., Trentman, M.T., Royer, T.V., Prior, K.E. 2017. Watershed-scale land cover change alters stream ecosystem function and reduces nutrient export from agricultural landscapes, Association for the Sciences of Limnology and Oceanography 2017 Aquatic Sciences Meeting - Mountains to the Sea, March 1, 2017 (Abstract ID: 29985).
- Christopher, S.F. and Willows, E. 2016. Indiana watershed initiative. Environmental Change Initiative Brown Bag Lunch Series, Innovation Park at University of Notre Dame, November 2016.
- Christopher S.F., Tank J.T., Mahl, U.M., Hanrahan, B.R., Trentman, M., Pitts, E. 2016. Linking soil health to improved water quality via the planting of cover crops in the Shatto Ditch Watershed, Kosciusko County, IN., American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America 2015 Annual Conference, Phoenix, AZ, November 6-9, 2016.
- *Hanrahan, B.R., Tank, J. L., Christopher, S.F., Mahl, U.H. 2016. Can changes in floodplain connection and land cover alter nutrient export from agricultural watersheds? International Water Association Regional Meeting on Diffuse Pollution and Catchment Management. Dublin, Ireland, October 24, 2016.

- Tank, J.T., **Christopher, S.F.,** Mahl, U.H. Floodplain restoration via with the two-stage ditch alter nutrient export from agricultural watersheds. Indiana Association for Floodplain and Stormwater Management, Florence, IN, September 9, 2016
- *Trentman, M. T., Tank, J.L., #Hanrahan, B.R., **Christopher, S.F.,** Prior. K., Royer, T.V. 2016. Can Changes in Land Cover and Floodplain Connection Alter Nutrient Export from Agricultural Watersheds? National Non-point Source Pollution Workshop. Salt Lake City, UT. August 22, 2016.
- *Trentman, M.T., Tank, J. L., #Hanrahan, B.R., **Christopher, S.F.,** Prior. K., Royer, T.V. 2016. Can watershed-scale cover crops reduce nutrient export from agricultural watersheds? North American Manure Expo. London, OH. August 3, 2016
- Tank, J.T., Christopher, S.F., Mahl, U.H. Floodplain restoration via with the two-stage ditch alter nutrient export from agricultural watersheds. EcoSummit Meeting, Montpellier, France, August 31, 2016
- Christopher S.F., Tank J.T., Hanrahan, Mahl, U.M., B.R., Trentman, M. 2016. Linking soil health to improved water quality in the Shatto Ditch Watershed, Kosciusko County, IN. 37th Annual Indiana Water Resources Research Association Annual Conference, Pokagon State Park, Angola, IN, June 8, 2016
- *Hanrahan, B.R., Tank, J.L., Christopher, S.F., Mahl, U.H. 2016. Does the planting of winter cover crops at the watershed-scale reduce nutrient loss from agricultural watersheds?
 37th Annual Indiana Water Resources Association Conference, Angola, IN, June 8, 2016.
- Tank, J.T., **Christopher**, **S.F.**, Mahl, U.H. Can floodplain restoration achieved with the twostage ditch alter nutrient export from agricultural watersheds? UCOWR-NIWR annual conference, Pensacola, FL, June 2016
- *Mueller, J., Christopher, S.F., Maag, E., Pitts, E., Mahl, U.H., Tank. J.L. 2016. Cover crops improve soil health in the Shatto Ditch Watershed, Kosciusko Co, IN, College of Science Joint Annual Meeting, University of Notre Dame, May 2016.
- Tank, J.T., Hanrahan, B.R., **Christopher, S.F.,** Trentman, M. 2016. Using cover crops to improve water quality in agricultural watersheds. Review of nitrogen management, cover crops, and other BMPs on multiple scales, Illinois State University, January 25, 2016.
- Royer T., Tank J.L., Christopher S.F. 2016. Indiana Watershed Initiative (IWI): Quantifying Water Quality Responses from the Watershed-Scale Pairing of Cover Crops and Two-Stage Ditch, Indiana Soybean Association Research Meeting, January 21, 2016.

- Christopher, S.F., Hanrahan, B.R., Tank, J.L. 2015. Cover Crops Improve Soil Health in the Shatto Ditch Watershed, Kosciusko County, IN. Healthy Soils for Healthy Water Workshop at the Nutrient Management and Edge of Field Monitoring Conference: From the Great Lakes to the Gulf. Soil and Water Conservation Society, December 1-3 2015., Memphis, TN INVITED
- Christopher, S.F., Tank, J.L., Hanrahan, B.R., Mahl, U.H. 2015. Cover Crops improve soil health in the Shatto Ditch Watershed, Kosciusko Co, IN (356-8). American Society of Agronomy, Crop Science Society of America, and Soil Science Society of America 2015 Annual Conference, November 15-18, 2015, Minneapolis, MN.
- Christopher S.F., Tank J.T., Sowa, S. et al. 2015. Watershed-scale assessment of stacked drainage practices in the Western Lake Erie Basin to improve water quality. University of Michigan Water Center Annual Meeting, July 21, 2015.
- *Hanrahan, B.R., Tank, J.L., Christopher S.F. 2015. How do changes in conservation alter hotspots of nutrient export in agricultural watersheds? Society for Freshwater Science, Annual Meeting, Milwaukee, WI, May 17-21, 2015.
- Tank, J.L., Hanrahan, B.R., Christopher S.F. 2015. Can we solve coastal "dead zones" from a distance? Watershed-scale conservation reduces nutrient export from agricultural landscapes? Society for Freshwater Science, Annual Meeting, Milwaukee, WI, May 17-21, 2015.
- *Huang, K., Davis, T., **Christopher, S.F.,** Mahl, U.H., Hanrahan, B.R., Tank. J.L. 2015. The influence of cover crops on soil health in Shatto Ditch Watershed, IN, College of Science Joint Annual Meeting, University of Notre Dame, May 2015.
- Tank, J.L., Royer, T. Christopher, S.F. Watershed Scale Adoption of Cover Crops and the Two-Sage Ditch in Indiana: Responses in Water Quality & Quantity. Indiana Soy Bean Association: Production and Environment Research Meeting, Indianapolis, IN, March 4, 2015.
- Christopher, S.F., Tank, J.L., Hanrahan, B.R., Mahl, U.H. 2014. Linking Soil Health to Improved Water Quality Via the Planting of Cover Crops in the Shatto Ditch Watershed, Kosciusko Co, in. American Society of Agronomy, Crop Science Society of America , and Soil Science Society of America 2014 Annual Conference, November 2-5 2014, Long Beach, CA.
- Tank J.T., Christopher S.F., Hanrahan, B.R. 2014 Linking cover crops to improved stream water quality via field-scale soil sampling, in Shatto Ditch Watershed, IN, Conservation Innovation Grant Proposal Meeting August 14, 2014.
- *Bomske, C.M., Shogren, A.J., Tank, J.L., **Christopher, S.F.** 2014. Effect of substrate on transport of corn pollen in streams at LEEF. NSF REU Final Symposium, August 1, 2014

- Christopher, S.F., Tank, J.L., Hanrahan, B.R., Mahl, U.H. 2014. Linking Soil Health to Improved Water Quality Via the Planting of Cover Crops in the Shatto Ditch Watershed, Kosciusko Co, in. Soil and Water Conservation Society 2014 Annual Conference, July 27-30, 2014, Lombard, IL.
- **Christopher S.F.**, Tank J.T., Sowa, S. et al. 2014. Watershed-scale assessment of stacked drainage practices in the Western Lake Erie Basin to improve water quality. University of Michigan Water Center Advisory Board Meeting for Tier II Grants, June 24, 2014.
- Christopher, S.F., Sowa, S., Herbert, M., Arnold, J. 2014. Watershed-scale assessment of stacked drainage practices in the Western Lake Erie Basin to improve water quality. Great Lakes SWAT modeling workshop, March 18-19, 2014. Ann Arbor, MI.
- Tank, J.L., Hanrahan, B.R., Dee, M., Christopher, S.F. 2014. Management Strategies to Reduce Nutrient Pollution from Agricultural Land Use to Improve Water Quality. Report to USDA-NRCS Indiana, March 21, 2014, Indianapolis, IN.
- Christopher, S.F., Tank, J.L., Hanrahan, B.R., Mahl, U.H., Huang, K. Linking the planting of cover crops to soil and water nutrient dynamics in Shatto Ditch Watershed, IN. American Geophysical Union Fall 2013 Meeting, Abstract No. B33F-0543.
- Tank J.T., **Christopher, S.F.** 2013 Linking cover crops to improved stream water quality via field-scale soil sampling, in Shatto Ditch Watershed, IN, Quarterly Conservation Innovation Grant Proposal Meeting November 18, 2013.
- **Christopher S.F.**, Tank J.T., Sowa, S. et al. 2013. Watershed-scale assessment of stacked drainage practices in the Western Lake Erie Basin to improve water quality. University of Michigan Water Center Advisory Board Meeting for Tier II Grants, June 27, 2013.
- Christopher, S.F., Schoenholtz, S.H., Nettles, J. 2013. Water resources implications of regional-scale switchgrass production in the Southeastern U.S. American Water Resources Association Spring Specialty Conference: Agricultural Hydrology and Water Quality II, St. Louis, MO, March 25-27, 2013.
- **Christopher, S.F.**, Schoenholtz, S.H., Nettles, J. 2012. The effect of cellulosic biofuel production on water resources at a regional scale. American Geophysical Union Fall 2012 Meeting, Abstract No. H51O-03.
- **Christopher, S.F.**, Schoenholtz, S.H., Nettles, J. 2011. Water resources implications of cellulosic biofuel production at a regional Scale. American Geophysical Union Fall 2011 Meeting, Abstract No. H13E-1263.

- Kerr, J., Eimers, M.C., Creed, I., Adams, M.B., Beall, F., Burns, D., Campbell, J., Christopher, S. F., Clair, T., Courchesne, F., Dushesne, L., Fernandez, I., Houle, D., Jeffries, D., Likens, G., Mitchell, M., Shanley, J., Yao, H. 2011. A comparison of SO₄²⁻ drought response in streams across southeastern Canada and northeastern USA. American Geophysical Union Fall 2011 Meeting, Abstract No. H21K-07.
- Kerr, J., Eimers, M.C., Creed, I., Adams, M.B., Beall, F., Burns, D., Campbell, J., Christopher, S. F., Clair, T., Courchesne, F., Dushesne, L., Fernandez, I., Houle, D., Jeffries, D., Likens, G., Mitchell, M., Shanley, J., Yao, H. 2011. The effect of seasonal drying on sulphate dynamics in streams across southeastern Canada and northeastern USA. Gordon Conference Summer 2011
- Christopher, S.F., Schoenholtz, S.H., Nettles, J. 2010. Water Quality and Quantity Implications of Biofuel Intercropping at a Regional Scale. American Geophysical Union Fall 2010 Meeting, Abstract No. B22D-03. INVITED
- Christopher, S.F., Schoenholtz, S. 2010. Water Quality and Quantity Implications of Biofuel Intercropping at a Regional Scale. Soil Science Society of America Fall Meeting, Abstract No. 56-19.
- Schoenholtz, S.H., Christopher, S.F., Nettles, J. 2010. Growing short-rotation woody crops for bioenergy: environmental considerations. Soil Science Society of America Fall Meeting, Abstract No. 250-2. INVITED
- **Christopher, S.F.**, Burns, D., Campbell, J., Shanley, J. 2010. Effects of Climate Change on Streamflow and Solute Loads in Small Watersheds: Trends and Patterns in Soil Frost and Snowmelt, Working group on 'Hydroclimatic Effects on Ecosystem Response', Trent University, Peterborough, Ontario, Canada.
- Christopher, S.F., Schoenholtz, S.H. 2010. Water Quality and Quantity Implications of Biofuel Intercropping at a Regional Scale. A Watershed Perspective on Bioenergy Sustainability: A Workshop at Oak Ridge National Laboratory, Oak Ridge, TN 3-4 February 2010. INVITED.
- Christopher, S.F., Mitchell, M.J., Inamdar, S. 2009. The effect of soil freezing on nitrogen dynamics: A snow manipulation study in a forested watershed in the snow belt of western New York, USA. Soil Science Society of America Fall Meeting, Abstract No. 2009.55879.
- **Christopher, S.F.**, Mitchell, M.J., Inamdar, S. 2009. Factors controlling differences in nitrate release during hydrologic events in a forested watershed in western New York. American Geophysical Union Fall 2009 Meeting, Abstract No. H53D-0956.

- Christopher, S.F., Mitchell, M.J. Inamdar, S., 2009. The soil N source to stream runoff during snow melt is affected by soil freezing. Virginia Water Resources Research Center Annual Conference: Water Resources in Changing Climates, October 15-16, Richmond, VA.
- **Christopher, S.F.**, Inamdar, S., Mitchell, M.J. 2009. The soil N source to stream runoff during snow melt is affected by soil freezing: A snow manipulation study in a forested watershed in the snow belt of western New York. Gordon Conference Summer 2009.
- **Christopher, S.F.**, Mitchell, M.J., Inamdar, S. 2008. The soil N source to stream runoff during springmelt is affected by soil freezing: A snow manipulation study in a forested watershed in the snow belt of western New York, USA American Geophysical Union Fall 2008 Meeting Abstract No. H11D-0791.
- **Christopher, S.F.**, Inamdar, S., Mitchell, M.J. 2008. The soil N source to stream runoff during springmelt is affected by soil freezing: A snow manipulation study in a forested watershed in the snow belt of western New York, USA. Northeastern Ecosystem Research Cooperative Conference, New England Center, Durham, NH, November 12-13.
- Vermette, S. and Christopher, S.F. 2008. Using the rate of accumulated freezing and thawing degree days as a surrogate for determining freezing depth in a temperate forest soil. Association of American Geographers Middle State Division Annual Conference Nov. 7-8, Millersville University of Pennsylvania, Millersville, PA.
- **Christopher, S.F.**, Inamdar, S., Mitchell, M.J. 2008. The soil N source to stream runoff during springmelt is affected by soil freezing: A snow manipulation study in a forested watershed in the snow belt of western New York, USA. 9th Annual Faculty and Staff Research and Creativity Fall Forum. Buffalo State College, Buffalo, NY. October 30, 2008.
- **Christopher, S.F.**, Mitchell, M.J., Inamdar, S. 2007. The effect of soil freezing on nitrogen dynamics: A snow manipulation study in a forested watershed in the snow belt of Gowanda, NY. American Geophysical Union Fall 2007 Meeting Abstract No. B31A-0066.
- **Christopher, S.F.**, Mitchell, M. J. 2007. The effect of soil freezing on nitrogen dynamics: A snow manipulation study in a forested watershed in the snow belt of Gowanda, NY. 8th Annual Faculty and Staff Research and Creativity Fall Forum. Buffalo State College, Buffalo, NY. November 8, 2007.
- Christopher, S.F., Shibata, H., Ozawa, M., Nakagawa, Y. 2006. The effect of soil freezing on N cycling: Comparison of two headwater subcatchments with varying snowpack, Hokkaido, Japan. American Geophysical Union Fall 2006 Meeting Abstract No. B41E-0239.

- Christopher, S.F., Shibata, H., Ozawa, M., Nakagawa, Y., Mitchell, M.J. 2006. The Effect of Soil freezing on N Cycling: Comparison of Two Headwater Subcatchments with Varying Snowpack, Hokkaido, Japan. 7th Annual Faculty and Staff Research and Creativity Fall Forum. Buffalo State College, Buffalo, NY. October 19, 2006.
- Christopher, S.F., Shibata, H., Ozawa, M., Nakagawa, Y. 2005. The effect of soil freezing on N cycling: Comparison of two headwater subcatchments with varying snowpack, Hokkaido, Japan. American Geophysical Union Fall 2005 Meeting Abstract No. H23D-1446.
- Christopher, S.F., Shibata, H., Ozawa, M., Nakagawa, Y., Mitchell, M.J. 2005. The Effect of Soil freezing on N Cycling: Comparison of Two Headwater Subcatchments with Varying Snowpack, Hokkaido, Japan. A Synthesis of Climate Change Research in the Northeastern U.S. and Eastern Canada, Climate Variability and Change Synthesis Working Group, November 1-2, 2005
- Christopher, S.F., Shibata, H., Ozawa, M., Nakagawa, Y. 2005. The effect of soil freezing on N cycling: Comparison of two headwater subcatchments with varying snow pack, Hokkaido, Japan. US-Japan Workshop on Biogeochemistry and Hydrology in forested watersheds associated with LTER March 2005.
- Christopher, S.F., Page, B.D., Mitchell, M.J., Campbell, J.L. 2004. Contrasting stream water nitrate concentration in two nearly adjacent catchments located in the Adirondacks, NY: Investigating the role of hydrology. American Geophysical Union Spring 2004 Meeting Abstract No. H22A-01.
- **Christopher, S.F.**, Page, B.D., Mitchell, M.J., Campbell, J.L. 2004. Contrasting stream water NO₃⁻ in two nearly adjacent catchments: The role of soil Ca and forest vegetation. US-Japan Workshop on Biogeochemistry and Hydrology in forested watersheds associated with LTER.
- Christopher, S.F., Mitchell, M.J., Inamdar, S., Page, B.D. 2003. Contrasting stream water nitrate patterns in two adjacent catchments: the role of hydrologic flowpaths. Gordon Conference Summer 2003.
- Christopher, S.F., Mitchell, M.J., Inamdar, S., Page, B.D. 2002. Patterns of nitrate removal from two hydrologically similar catchments. American Geophysical Union Fall 2002 Meeting Abstract No. H52D-0915.
- Christopher, S.F. 2002. Comparison of Two Subcatchments of Archer Creek Watershed. Archer Creek Conference Fall 2002.
- **Christopher, S.F.**, Inamdar, S., Mitchell, M.J. 2002. Spatial patterns in surface water chemistry in a glaciated catchment of the Adirondack Park, NY: Investigating the roles of topography and hydrologic flow paths. Spotlight on Student Research, SUNY-ESF Spring 2002.

- **Christopher, S.F.**, Inamdar, S., Mitchell, M.J. 2002. Spatial and seasonal patterns in surface and subsurface water chemistry: implications for hydrologic flowpaths. Salt City Chapter of the American Water Resources Association, Student Symposium Spring 2002.
- **Christopher, S.F.**, Inamdar, S., Mitchell, M.J. 2002. Spatial and Seasonal patterns in surface and subsurface water chemistry: implications for hydrologic flowpaths. Geological Society of America Northeastern Conference Spring 2002, Abstract No. 31420.
- Christopher, S.F., Inamdar, S., Mitchell, M.J. 2001. Spatial pattern in surface water chemistry in a glaciated catchment of the Adirondack Park, NY. State-of-the-art in Hillslope Hydrology, Chapman Conference Fall 2001.
- **Christopher, S.F.** 2001. Evidence of subsurface flow mechanisms and sources of solutes in the Archer Creek Catchment: Preliminary results and hypotheses. Archer Creek Conference Fall 2001.
- Christopher, S.F., Inamdar, S., Mitchell, M.J. 2001. Export of DOC and nitrate from a forested catchment in the Adirondack Park, NY. Gordon Conference Summer 2001.
- Christopher, S.F., Inamdar, S., Mitchell, M.J. 2001. Export of DOC and nitrate from a forested catchment: Influence of water sources and flowpaths American Geophysical Union Spring 2001 Meeting Abstract No. H21B-10.
- **Christopher, S.F.** 2000. Well installation and other field activities within the Archer Creek Catchment. Archer Creek Conference Fall 2000.
- **Christopher, S.F.** and Mitchell, M.J. 2000. Hydrometric, hydrochemical, and isotopic evidence in support of the transmissivity feedback hypothesis within the Archer Creek catchment of the Adirondack Mountains. Spotlight on Student Research Spring 2000.

3. Other Publications

Reports:	*Poole, H. and S.F. Christopher. 2010. A Study of Water Infrastructure and Sustainability at Local Level. Virginia Water Resources Research Center Special Report, SR50-2010.
	Christopher, S.F. , Christopher Renschler. 2009. Phosphorus and nitrogen monitoring and modeling in the Cattaraugus Creek Watershed, a major tributary to Lake Erie. Final Report to New York Great Lakes Protection Fund Small Grant Program.
Newsletters:	Christopher, S. F. 2005. Japanese scientists host a successful U.SJapan Workshop. LTER Network News, Spring 2005

Web Interview:	'Water center scientist studies environmental impact of using switchgrass
	as a biofuel.' Visit: http://www.vt.edu/spotlight/innovation/2010-12-13-
	biofuel/biofuels.html

Professional Service and Distinctions

1. Outreach and Professional Service:	
2017	Hosted <u>Townhall Meeting</u> for the Indiana Watershed Initiative in the Kirkpatrick Ditch Watershed, Jasper County, IN, June 27, 2017 22 Participants (Producers, SWCD, Univ. Notre Dame, TNC)
2017	Hosted <u>Townhall Meeting</u> for the Indiana Watershed Initiative in the Shatto Ditch Watershed, Kosciusko County, IN, June 26, 2017 22 Participants (Producers, SWCD, Univ. Notre Dame, TNC)
2017	Hired in spring 2016 and 2017 to sample soil at a demonstration farm field for the Soil Health Partnership (http://soilhealthpartnership.org/index.html), a national program that is measuring and communicating the economic and environmental benefits of different soil management strategies.
2017	Invited talk for Jasper County, IN SWCD Annual Meeting: Tank J.T., Royer, T.V., Christopher S.F., Hanrahan B.R., Trentman M. 2017. Indiana Watershed Initiative Project Overview. February 28, 2017. 84 Participants
2017	Invited talk for Fulton County, IN SWCD Annual Meeting: Tank J.T., Royer, T.V., Christopher S.F., Hanrahan B.R., Trentman M. 2017. Indiana Watershed Initiative Project Overview. February 6, 2017. 84 Participants
2016	Participated in strategic planning for University of Notre Dame, Environmental Change Initiative. Workshop held October 2016 and planning continues.
2016	Assisted river rafting expeditions with high school students to teach them about their local natural history on Tippecanoe River. September 2016. 100 Participants
2016	Demonstrated "best management practices" in a watershed model to school children at The Notre Dame Linked Experimental Ecosystem Facility, Science Sunday, open to the public, September, 2016 170 Participants

2016	Taught middle school girls aquatic science concepts at Girls Ambitious about Learning Science (GALS) program, St. Joseph County Parks, September, 2016.
2016	Hosted <u>Townhall Meeting</u> for the Indiana Watershed Initiative. Gave talk entitled: "Cover Crops Improve Soil Health in the Shatto Ditch Watershed, Kosciusko County, IN: Looking ahead to Kirkpatrick." Kirkpatrick Watershed, IN, April 14, 2016. 27 Participants (Producers, SWCD, Univ. Notre Dame, County Surveyors)
2016	Indiana Watershed Initiative featured at the White House Summit (March 22, 2016)
2016	Hosted <u>Rebecca Holwerda</u> , Assistant to U.S. Senator Dan Coates. Gave a tour of Shatto Ditch Watershed (part of Indiana Watershed Initiative) and talked about research findings, March 10, 2016.
2016	Invited talk for Steuben County SWCD Annual Meeting: Tank J.T., Hanrahan B.R., Christopher S.F., Trentman M. 2016. Using cover crops to improve water quality in agricultural watersheds. March 3, 2016. 75 Participants
2016	Hosted <u>Townhall Meeting</u> for the Indiana Watershed Initiative. Gave talk entitled: "Cover Crops Improve Soil Health in the Shatto Ditch Watershed, Kosciusko County, IN. Shatto Ditch Watershed, IN, February 26, 2016. 22 Participants (Producers, SWCD, Univ. Notre Dame, TNC)
2016	Invited talk for Kosciusko County, IN SWCD Annual Meeting: Tank J.T., Hanrahan B.R., Christopher S.F., Trentman M. 2016. Using cover crops to improve water quality in agricultural watersheds. Kosciusko County SWCD Annual Meeting, February 16, 2016. 100 Participants
2016	Invited talk for Marshall County SWCD Annual Meeting: Tank J.T., Hanrahan B.R., Christopher S.F., Trentman M. 2016. Using cover crops to improve water quality in agricultural watersheds. Marshall County SWCD Annual Meeting, January 27, 2016. 75 Participants
2016	Invited to contribute to the report by Michelle Perez, "Water Quality Targeting Success Stories: Achieving measurably cleaner water through U.S. farm conservation watershed projects", World Water Institute, January 2016.
2016	Invited Outreach Demonstration of soil and water quality sampling and analysis for our funded USDA RCPP project, Indiana Watershed Initiative Soil Health Partnership Summit Jan 21-22 2016, Indianapolis, IN. 130 Participants (Producers, Agronomists, Resource Managers, Researchers)

2016	Invited Talk for Center for Excellence Crop Day: Christopher, S.F., Hanrahan, B.R., Tank, J.L. 2016. Watershed Scale Adoption of Cover Crops in Indiana: Responses in Water and Soil Quality, Adrian MI, January 8, 2016. 250 Participants (Producers, Resource managers, Crop Consultants)
2015	Demonstrated "best management practices" to school children at The Notre Dame Linked Experimental Ecosystem Facility, Science Sunday, open to the public, September, 2015 70 Participants
2015	<u>Field Day</u> at Shatto Ditch Watershed to describe the Indiana Watershed Initiative project to area farmers and resource conservationists with Dan Towery, Field Manger for the Soil Health Partnership (http://soilhealthpartnership.org/index.html) who specializes in continuous no-till, cover crops and soil health. September 16, 2015. 15 Participants
2015	Hosted <u>Congresswoman Jackie Walorski</u> (IN, 2 nd District) and staffers at the Shatto Ditch Demonstration Project in to describe the Indiana Watershed Initiative and current partnership with IN farmers. August 2015. 15 participants
2015	Hosted Janet Perry, from USDA NRCS in Washington DC, along with Indianapolis NRCS staff and local SWCD partners at the Shatto Ditch Watershed to describe the USDA RCPP project. July 29 2015.
2015	Invited Talk at Conservation Tillage and Technology Conference: Tank, J.T., Christopher, S.F., Hanrahan, B.R. 2015 Using cover crops to prevent nutrient loss and improve water quality, Ada. OH, March 3, 2015.
2015	Hosted <u>Townhall Meeting</u> for the Indiana Watershed Initiative. Kirkpatrick Watershed, IN, February 25, 2015. 15 Participants (Producers, SWCD, Univ. Notre Dame, County Surveyors)
2015	Hosted <u>Townhall Meeting</u> for the Indiana Watershed Initiative. PI gave talk: Tank J.T., Christopher S.F., Hanrahan, B.R. 2015 Linking cover crops to improved stream water quality via field-scale soil sampling, in Shatto Ditch Watershed, IN", Shatto Ditch Watershed, IN February 3, 2015. 15 Participants (Producers, SWCD, Univ. Notre Dame, TNC)
2015	Working Group Member: "Beginning Regional Conservation Partnership Program (RCPP) Watershed Projects," 5 th Annual Leadership for Midwestern Watersheds Meeting. Goal: To bring together watershed project directors and key stakeholders from five Upper Midwestern states to compare notes and share lessons learned about project design and implementation, January 21-22, 2015, Sycamore, IL.

2014	Demonstrated "best management practices" at The Notre Dame Linked Experimental Ecosystem Facility, Science Sunday, October 5, 2014
2014	Working Group Member: "Healthy Soils for Healthy Waters" Workshop. Goal: To create an integrated science, education, economic, and extension- based framework that results in agricultural producers using adaptive systems management approaches that maintain or enhance productivity and profitability while reducing the nutrient exports that cause adverse water quality impacts such as hypoxia and harmful algal blooms. The Ohio State University, September 14-15, 2014, Columbus, OH.
2014	Working Group Member and invited presenter: "Great Lakes SWAT modeling workshop." Goal: To present the latest research in the region and to discuss major SWAT challenges and needed improvements. University of Michigan, March 18-19, 2014. Ann Arbor, MI.
2014	Working Group Member: "Phosphorus along the Land-River-Lake Continuum" Research Planning and Coordination Workshop. Goal: to bring together researchers from the sequential habitat zones extending from land, through streams and rivers, and into bays, nearshore zones and open waters of Lake Erie, Heidelberg University, March 12-14, 2014, University, Tiffin, OH.
2013	Co-session chair, "The effect of land use on nutrient dynamics of the Great Lakes: Patterns, processes, and solutions, Great Lakes Restoration and Resiliency," International Association of Great Lakes Research Annual Conference, West Lafayette, IN June 2-6.
2013	Student Presentation Judge, Great Lakes Restoration and Resiliency, International Association of Great Lakes Research Annual Conference, West Lafayette, IN June 2-6.
2013	Recruitment Weekend, Biology Department, University of Notre Dame, February 9, 2013
2012	Student Presentation judge, Graduate Student Assembly's 28 th Annual Research Symposium, Virginia Tech, March 28, 2012
2011	Co-convener, "Seasonal Effects of Climate Variability and Change on Hydrological and Biogeochemical Processes," Fall 2011 American Geophysical Union Meeting, San Francisco, CA.
2011	Co-convener, "Nitrogen Export From Headwater Catchments: Integrating Biogeochemical Processing With Hydrologic Transport," Fall 2011 American Geophysical Union Meeting, San Francisco, CA.

2011	Coordinator of audio-visual component of the Virginia Water Resources Research Center Annual Conference: 'Coal and Water in Central Appalachia: The Challenge to Balance,' November 2011, Virginia Tech.
2011	Student Presentation judge, Graduate Student Assembly's 27 th Annual Research Symposium, Virginia Tech, March 23, 2011
2009-2012	<i>Working Group</i> member: "The Nitrogen Group", at Virginia Tech. Members include: Mary Beth Adams, John Barrett, Charlene Kelly, Jennifer Knoepp, Kevin McGuire, Karin Rebel, Stephen Schoenholtz, Durelle, Scott, Brian Strahm, Jack Webster. Write institutional and National Science Foundation grants on nitrogen cycling and transport through forested watersheds
2010	Coordinator of student presentations and judging, Virginia Water Resources Research Center Annual Conference: "Navigating Changes in Stormwater Technology and Policy," October 21 2010, Richmond, VA.
2010	Student Presentation judge, 2 nd Annual Forest Resources and Environmental Science Graduate Research Symposium, Virginia Tech, March, 2010
2010-2012	<i>Working group</i> member, "Hydroclimatic Effects on Ecosystem Response", funded by Northeastern States Research Cooperative. I Represent the Fernow Experimental Forest (USDA Forest Service)
2009-2012	Member Research Group, "Environmental Impact of Forest Biofuel Production", (http://catchlight.bae.ncsu.edu:7777/welcome_page.html). Conducting regional scale hydrologic modeling examining the effects of large scale land use change on water resources
2009-2011	Volunteer technical advisement to the media, American Geophysical Union climate science Q&A project for the 2009 Climate Conference, Copenhagen, Denmark and beyond
2009	Student Presentation judge, Virginia Water Resources Research Center Annual Conference: 'Water Resources in Changing Climates,' October 15-16, 2009, Richmond, VA.
2007-2009	Member of Technical Advisory Group for a Watershed Management Plan along the Cattaraugus Creek (southwestern, NY, 5 counties)
2007-2008	Mentor underprivileged kids through NSF funded, Science Firsthand, Buffalo, NY. This is a nonprofit organization dedicated to promoting scientific learning through direct experience

2005-2009	<i>Working group</i> member, "Climate Variability and Change (CVC)," Northeastern Ecosystem Research Cooperative
2005	Helped plan a workshop in Japan, a U.SJapan Workshop on long-term ecological research. This workshop helped Japanese scientists interact with and learn from US scientists and promoted their involvement in international watershed science, a field in which they are largely under- represented, Spring 2005
2002	Head planner for the AWRA Student Symposium
1999, 2000, 2001	Committee for the annual AWRA Student Symposium
1998	Member of the planning and steering committee for the "Caring For Creeks Symposium," sponsored by the Great Lakes Community Foundation Collaborative and the Rochester Area Community Foundation
2. Membership:	

- •American Geophysical Union (since 2000)
- •Soil Science Society of America (since 2009)
- •American Water Resources Association (since 2013)

3. Proposal Review:

2008 USDA-NRI; 2009 Agriculture and Agri-Food Canada (AAFC); US CSREES FY 2009 Food and Agricultural Sciences National Needs Graduate and Postgraduate Fellowship Grants Program; 2009 USDA-NRI, USDA internal manuscript review, USDA CSREES 2009

4. Journal Review:

Advances in Water Resources, American Society of Agricultural and Biological Engineers, Ecological Applications, Ecosystems, Environmental Modeling and Software, Environmental Science and Technology, Global Change Biology, Hydrological Processes, Hydrology and Earth System Science, Journal of Plant Nutrition and Soil Science, Journal of Environmental Quality, Journal of Geophysical Research, Journal of Hydrology, Physical Geography, Plant and Soil, Soil Biology and Biochemistry, Soils Science Society of America Journal, Wetlands

5. Officer of Professional Organization

9/00-1/03President, Salt City Chapter American Water Resources Association8/99-8/00Vice President, Salt City Chapter American Water Resources Association

6. Honors and Awards:

2012	Christopher et al. 2009 listed in top 10 most cited papers over the past three years
	in Soil Science Society of America Journal
	(https://www.soils.org/publications/sssaj/most-cited)
2003	Outstanding Student Research, Graduate Student Association (SUNY ESF)
2001-2002	Outstanding Student Chapter Award, American Water Resources Association
1996	Doane Scholar (maintained at least a 3.8 G.P.A.)
1995-1996	Endowment Scholarship from Kappa Alpha Theta
1995	Varsity letter achieved in lacrosse
1992-1995	Alden Scholar every semester, Allegheny College
1992-1996	Provost Merit Scholarship, Allegheny College

Other Professional Training/Workshops

June 2016	PRIMER 7 multivariate statistics package training, Raleigh, NC
March 2007 November 2009	SWAT (Soil and Water Assessment Tool) workshop
February 2003	Snowmelt and Storm Events: Biogeochemical and Hydrological Responses.
March 2002	Dissolved Organic Carbon (DOC), Organic Matter Characterization and Hydrological Relationships
Nov. 2001	End-Member Mixing Analysis (EMMA)
March 2001	Use of Stable Isotopes As Tracers of Hydrological, Chemical and Biological Processes in Aquatic Ecosystems and Watersheds

Collaborators (last 5 years)

Adams, MB (USFS) Amatya, D (USFS) Appelboom (NC St) Arnold J (USDA-ARS) Barett, J (VT) Bilby, B (Weyerhaeuser) Birgand, F (NC St) Busby, D (Weyerhaeuser) Chen, C-M (UND) Chescheir, G (NC St) Czarnecki, J (Miss. State) Frankenberger, J (PU) Hamlet, A (UND) Herbert, M (TNC) Kelly, C (USGS) King, K (USDA) Knoepp, J (USFS)

Kröger, R. (Covington Civil & Env.) Lal, R (Postdoc Advisor, OSU) McGuire, K (VT) Mitchell, MJ (PhD Advisor, SUNY-ESF) Nettles, J (Weyerhaeuser) Ross, J (TNC) Royer, T (IU Bloomington) Schoenholtz, S (VT) Sharma, A (UND) Shibata, H (Postdoc Advisor, Hokkaido U, Japan) Skaggs, RW (NC St) Sowa, S (TNC) Strahm, B (VT) Tank, J (UND) Tyndall, J (IA State) Ward, A (OSU) Webster, J (VT)

Ward, A (OSU) White, M (USDA-ARS) Witter, J. (OSU)

Yen, H (USDA-ARS) Youssef, M (NC St)

<u>Other Skills and Training</u> •Violinist •Intermediate in Turkish •Conference planning skills