

Kimberly Van Meter

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EMPLOYMENT

2017 Postdoctoral Fellow/Research Associate
Department of Earth and Environmental Sciences
University of Waterloo, Waterloo, Ontario

EDUCATION

2017 Department of Earth and Environmental Sciences
University of Waterloo, Waterloo, Ontario
Doctor of Philosophy
Advisor: Dr. Nandita Basu
Thesis: The Nitrogen Legacy: Understanding Time lags in Catchment Response as a Function of Hydrologic and Biogeochemical Controls

2012 Department of Civil and Environmental Engineering
University of Iowa, Iowa City, IA
Master of Science

1996 Department of Chemistry
University of Iowa, Iowa City, IA
Master of Science

1989 Department of English
University of Iowa; Iowa City, IA
Bachelor of Arts

RESEARCH

In my research, I explore the ways in which climate, land use and management practices impact surface water and groundwater quality in anthropogenic landscapes. I am also interested in interactions and feedbacks between human and natural systems. In recent work, I have focused on the long-term impacts of intensive agricultural practices on water quality. I am interested in the development of parsimonious modeling frameworks to explore biogeochemical nutrient dynamics across a range of scales, to link watershed, lake, and coastal systems, and to explore short- and long-term impacts of nutrients and other contaminants on water quality within both rural and urban landscapes.

PUBLICATIONS

Journal Articles (Published)

- 2018 Van Meter, K.J., P. Van Cappellen, N.B. Basu, "Legacy nitrogen may prevent achievement of water quality goals in the Gulf of Mexico," **Science**, 22 Mar 2018, doi 10.1126/science.aar4462, **Impact Factor (IF) 37.2**
- 2018 Maavara, T., S. Slowinski, F. Rezanezhad, K. Van Meter, P. Van Cappellen, "The role of groundwater discharge fluxes in Si:P ratios in a major tributary to Lake Erie," **The Science of the Total Environment** 622. Elsevier: 814-24, doi 10.1016/j.scitotenv.2017.12.024, **IF 4.9**
- 2017 Van Meter, K.J., N.B. Basu, "Time Lags in Watershed-Scale Nutrient Transport: An Exploration of Dominant Controls," **Environmental Research Letters** (2017), doi 10.1088/1748-9326, **IF 3.9**
- 2017 Vero, S.E., K.G. Richards, P. Mellander, K.J. Van Meter, N.B. Basu, M.G. Healy, O. Fenton, "The environmental status and implications of the nitrate time lag in Europe and North America," **Hydrogeology Journal**, doi 10.1007/s10040-017-1650-9, **IF 1.7**
- 2017 Thorslund, J., J. Jarsjo, F. Jaramillo, J.W. Jawitz, S. Manzoni, N.B. Basu, S. Chalov, M. Cohen, I. Creed, R. Goldenberg, A. Hylin, Z. Kalantari, A. Koussis, S. Lyon, K. Mazi, J. Mard, K. Persson, J. Pietron, C. Prieto, A. Quin, K.J. Van Meter, "Wetlands as large-scale nature-based solutions: Status and challenges for research, engineering and management," **Ecological Engineering**, doi: 10.1016/j.ecoleng.2017.07.012, **IF 3.5**
- 2017 Van Meter, K.J., N.B. Basu, P. Van Cappellen, "Exploring Nitrogen Legacies and Time Lags: A 150-year Longitudinal Study of the Susquehanna and Mississippi River Basins," **Global Biogeochemical Cycles** 31 (2017) 2016GB005498, **IF 3.8**
- 2016 Bitterman, P., E. Tate, K.J. Van Meter, N.B. Basu, "Water Security and Rainwater Harvesting: A Conceptual Framework and Candidate Indicators," **Applied Geography** 76 (2016):75-84, **IF 2.6**
- 2016 Van Meter, K.J., N.B. Basu, J.J. Veenstra, C.L. Burras, "The Nitrogen Legacy: Emerging Evidence of Nitrogen Accumulation in Anthropogenic Landscapes," **Environmental Research Letters** 11 035014, doi: 10.1088/1748-9326/11/3/035014. Included in *ERL's Highlights of 2016* collection, **IF 3.9**
- 2016 Van Meter, K.J., N.B. Basu, D. McLaughlin, M. Steiff, "The Socio-ecohydrology of Rainwater Harvesting in India: Understanding Water Storage and Release Dynamics at Tank and Catchment Scales," **HES** 20.7 (2016): 2629, **IF 4.4**

- 2015 Van Meter, K.J. & N.B. Basu, "Catchment Legacies and Time Lags: A Parsimonious Watershed Model to Predict the Effects of Legacy Storage on Nitrogen Export," ***PLoS one*** 10.5 (2015): e0125971, **IF 2.8**
- 2015 Van Meter, K.J., N.B. Basu, "Signatures of Human Impact: Size Distributions and Spatial Organization of Wetlands in the Prairie Pothole Landscape," ***Ecological Applications*** 25.2 (2015): 451-465, **IF 4.3**
- 2014 Van Meter, K.J., N.B. Basu, E. Tate, J. Wyckoff, "Monsoon Harvests: The Living Legacies of Rainwater Harvesting Systems in South India," ***Environmental Science & Technology*** 48.8 (2014): 4217-4225, **IF 6.2**

Journal Articles (Submitted or In Preparation)

- 2018 Van Meter, K.J., N.B. Basu, "Changing Waters: Are climate-driven changes in discharge regimes increasing eutrophication risk in the Great Lakes Basin?" in preparation
- 2018 Van Meter, K.J., S. Chowdhury, N.B. Basu "Biogeochemical asynchrony: Ecosystem drivers of concentration-discharge dynamics across temporal scales," in preparation
- 2018 Attinger, S., K.J. Van Meter, N.B. Basu, "Heterogeneity and Hysteresis: Legacy nutrient dynamics and patterns of catchment response under changing land use and management," in preparation
- 2018 A. Werenka, Van Meter, K.J., N.B. Basu, "Mitigating nutrient runoff from excess manure application: A country-scale optimization approach," in preparation
- 2018 M. Samson, Van Meter, K.J., N.B. Basu, "The Urban Metabolism of the Greater Toronto Area: Water and nutrients across an urban, suburban, and rural continuum," in preparation

Book Chapters

- 2016 Van Meter, K.J., S. Thompson, N.B. Basu, "Human Impacts on Stream Hydrology and Water Quality," in *Stream Ecosystems in a Changing Environment*, eds. Emily Stanley & Jeremy B. Jones, Academic Press (2016).
- 2014 Basu, N.B., K.J. Van Meter, "Sustainability of Groundwater Resources," *Reference Module in Earth Systems and Environmental Sciences*, from *Comprehensive Water Quality and Purification*, Volume 4, Pages 57-75

PRESENTATIONS

- 2018 Van Meter, K.J., P. Van Cappellen, N.B. Basu, "Landscape Legacies: Long-Term Nitrogen Trajectories in the Chesapeake Bay and Beyond," 2018 Chesapeake Community Research and Modeling Symposium, Annapolis, MD (*Invited Talk*)
- 2018 Werenka, A., K.J. Van Meter, B. Tolson, N.B. Basu, "Too Much Phosphorous: Is Investment in Biogas Plants a Viable Alternative for Water Quality Improvement?" 2018 Joint Meeting of the Canadian Geophysical Union and Canadian Soil Science Society, Niagara Falls, ON (oral presentation)
- 2018 Byrnes, D.K., K.J. Van Meter, S. Chowdry, N.B. Basu, "Biogeochemical Asynchrony: Anthropogenic and landscape controls on nutrient seasonality in the Great Lakes and beyond," 2018 Joint Meeting of the Canadian Geophysical Union and Canadian Soil Science Society, Niagara Falls, ON (oral presentation)
- 2018 Samson, Melani-Ivy, K.J. Van Meter, N.B. Basu, "Urban Metabolism of the Greater Toronto Area: A Study of Nitrogen and Phosphorus Across an Urban, Suburban, Rural Continuum," 2018 Joint Meeting of the Canadian Geophysical Union and Canadian Soil Science Society, Niagara Falls, ON (oral presentation)
- 2018 Van Meter, K.J., S. Chowdry, D.K. Byrnes, N.B. Basu, "Biogeochemical Asynchrony: Ecosystem Drivers of Seasonal Concentration Dynamics, Global Water Futures 2018 Annual Science Meeting, Hamilton, ON (oral presentation, *Winner of Best Postdoctoral Presentation Award*)
- 2018 Samson, Melani-Ivy, K.J. Van Meter, N.B. Basu, "Urban Metabolism of the Greater Toronto Area: A Study of Nitrogen and Phosphorus Across an Urban, Suburban, Rural Continuum," Global Water Futures 2018 Annual Science Meeting, Hamilton, ON (poster)
- 2018 Liu, Joy, K.J. Van Meter, N.B. Basu, "Past, Present, and Future: Quantification of Long-Term Phosphorus Legacies in the Grand River Watershed," Global Water Futures 2018 Annual Science Meeting, Hamilton, ON (poster)
- 2018 Van Staden, T., K.J. Van Meter, P. Van Cappellen, N.B. Basu, "Targeting Phosphorus Legacies in the Great Lakes Watersheds," Global Water Futures 2018 Annual Science Meeting, Hamilton, ON (poster)
- 2018 Van Meter, K.J., S. Chowdry, D.K. Byrnes, N.B. Basu, "Biogeochemical Asynchrony: Ecosystem Drivers of Concentration-Discharge Dynamics Across Temporal Scales, Society for Freshwater Science 2018 Annual Meeting, Detroit, MI (oral presentation)

- 2018 Byrnes, D.K., K.J. Van Meter, N.B. Basu, "Time's up! The Tale of Nitrogen Time Lags in Canada and US," World Wetlands Day, February 2018, Waterloo, ON (poster)
- 2017 Van Meter, K.J., N.B. Basu, P. Van Cappellen, "Legacies of Human Impact: Long-Term Nitrogen Dynamics, from the Mississippi to the Mekong," American Geophysical Union 2016 Fall Meeting, San Francisco, USA (**Invited Talk**)
- 2017 Van Meter, K.J., N.B. Basu, P. Van Cappellen, "Changing Waters: Are climate-driven changes in discharge regimes increasing eutrophication risk in the Great Lakes Basin?" American Geophysical Union 2018 Fall Meeting, San Francisco, USA (oral presentation)
- 2017 Attinger, S., K.J. Van Meter, N.B. Basu, "Legacy nutrient dynamics and patterns of catchment response under changing land use and management," American Geophysical Union 2017 Fall Meeting, San Francisco, USA (poster)
- 2017 Byrnes, D., K.J. Van Meter, N.B. Basu, "Nutrient Legacies and time lags in Eastern U.S. and Southern Ontario," American Geophysical Union 2017 Virtual Poster Showcase (poster)
- 2017 Werenka, A., K.J. Van Meter, N.B. Basu, "Mitigating Phosphorus Runoff from Excess Manure Application," American Geophysical Union 2017 Virtual Poster Showcase (poster)
- 2017 Van Meter, K.J., N.B. Basu, P. Van Cappellen, "Food, Fodder, and Phosphorus: A Quantification of Long-Term Nutrient Legacies in Human-Impacted Watersheds," Helmholtz-Centre for Environmental Research, UfZ, August 2017, Leipzig, Germany (**Invited Talk**)
- 2017 Van Meter, K.J., N.B. Basu, P. Van Cappellen, "Food, Fodder, and Phosphorus: A Quantification of Long-Term Nutrient Legacies in Human-Impacted Watersheds," Goldschmidt 2017, Paris, France (oral presentation)
- 2017 Van Meter, K.J., N.B. Basu, "Changing waters: Are climate-driven changes in discharge regimes increasing eutrophication risk in the Great Lakes Basin?" IAGLR 2017 Annual Conference on Great Lakes Research, Detroit, Michigan (oral presentation)
- 2017 Cheng, F.C., K.J. Van Meter, N.B. Basu, "Biogeochemical hot spots: The role of small water bodies in landscape nutrient processing," IAGLR 2017 Annual Conference on Great Lakes Research, Detroit, Michigan (oral presentation)
- 2017 Cheng, Frederick, K.J. Van Meter, N.B. Basu, "Size matters! Small wetlands as biogeochemical hotspots in landscape nutrient cycles,"

Canadian Geophysical Union 2017 Student Conference, University of Guelph, Guelph, Ontario (oral presentation)

- 2017 Werenka, Alex, K.J. Van Meter, N.B. Basu, "Concentration-Discharge Relationships in Intensively Managed Watersheds" Canadian Geophysical Union 2017 Student Conference, University of Guelph, Guelph, Ontario (oral presentation)
- 2017 Cheng, Frederick, K.J. Van Meter, N.B. Basu, "Size matters! Small wetlands as biogeochemical hotspots in landscape nutrient cycles" 2017 World Wetlands Day Symposium, University of Waterloo, Waterloo, Ontario (**Invited Talk**)
- 2016 Van Meter, K.J., N.B. Basu, Spatio-Temporal Controls on Concentration-Discharge Relationships in Intensively Managed Catchments: An Exploration of High-Resolution Nitrate Data from the U.S. Midwest, American Geophysical Union 2016 Fall Meeting, San Francisco, USA
- 2016 Van Meter, K.J., N.B. Basu, P. Van Cappellen, Exploring Nitrogen Legacies and Time Lags: A 200-Year Longitudinal Study of the Mississippi and Susquehanna Watersheds, American Geophysical Union 2016 Fall Meeting, San Francisco, USA (**Invited Talk**)
- 2016 Van Meter, K.J. Legacies and Time Lags: Development of a parsimonious modeling framework to explore long-term nutrient trajectories, 2016 University of Bordeaux/LabEx COTE/University of Waterloo Water Institute Joint Workshop on Water Research, Bordeaux, France
- 2016 Basu, N.B., K.J. Van Meter, F. Cheng, Down Under: The Critical Role of the Subsurface in Controlling Surface Water Pollution, Farvolden Day 2016, University of Waterloo, Waterloo, Ontario (**Invited Talk**)
- 2016 Van Meter, K.J., N.B. Basu, P. Van Cappellen, Exploring Nitrogen Legacies and Time Lags: A 200-Year Longitudinal Study of the Mississippi and Susquehanna Watersheds, Goldschmidt 2016, Yokohama, Japan (**Invited Talk**)
- 2016 Van Meter, K.J., N.B. Basu, Confounding Complexity or Emergent Simplicity: Biogeochemical Regimes in Anthropogenic Watersheds, IAGLR 2016 Annual Conference on Great Lakes Research, Ontario, Canada
- 2016 Basu, N.B., K. Van Meter, Long-Term Effects of Anthropogenic Nutrient Inputs on Nutrient Fluxes: A Statistical Approach to Quantifying Watershed Lag Times, IAGLR 2016 Annual Conference on Great Lakes Research, Ontario, Canada
- 2016 Schiff, S., M. Shafii, M., K.J. Van Meter, N.B. Basu, R. Elgood, A. Dove, M. Anderson, M. English, H. Durr, D. Rudolph, D. O'Connell, W. Taylor,

Do Catchment Hotspots Control Phosphorus and Nitrogen Export to Lake Erie During an Extreme Snowmelt Event? IAGLR 2016 Annual Conference on Great Lakes Research, Ontario, Canada

- 2016 Van Meter, K.J., N.B. Basu, P. Van Cappellen, Exploring Nitrogen Legacies and Time Lags: A 200-Year Longitudinal Study of the Mississippi and Susquehanna Watersheds, Canadian Geophysical Union Joint Annual Meeting with CMOS, New Brunswick, Canada (*Invited Talk*)
- 2016 Van Meter, K.J., N.B. Basu, Biogeochemical Regimes in Intensively Managed Watersheds: Confounding Complexity or Emergent Simplicity? Canadian Geophysical Union 2016 Student Conference, Eastern Section, Hydrology and Biogeosciences, Waterloo, ON (oral presentation)
- 2015 Van Meter, K.J., N.B. Basu, P. Van Cappellen, Exploring Nitrogen Legacies and Time Lags: A 150-year Longitudinal Study of the Susquehanna and Mississippi River Basins. American Geophysical Union 2015 Fall Meeting, San Francisco, USA (poster)
- 2015 Basu, N.B., K.J. Van Meter, Biogeochemical Regimes in Intensively Managed Catchments: Confounding Complexity or Emerging Simplicity? American Geophysical Union 2015 Fall Meeting, San Francisco, USA (*Invited Talk*)
- 2015 Basu, N.B., K.J. Van Meter, D. McLaughlin, Rainwater Harvesting in South India: Understanding Water Storage and Release Dynamics at Tank and Catchment Scales. American Geophysical Union 2015 Fall Meeting, San Francisco, USA (oral presentation)
- 2014 Van Meter, K.J., N.B. Basu, Nutrient Legacies and Time Lags: Understanding Catchment Biogeochemical Responses in Anthropogenic Landscapes. American Geophysical Union 2014 Fall Meeting, San Francisco, USA (poster)
- 2014 Basu, N.B., K.J. Van Meter, K.J., N.B. Basu, Signatures of Human Impact: Size Distributions and Spatial Organization of Wetlands in the Prairie Pothole Landscape. American Geophysical Union 2014 Fall Meeting, San Francisco, USA (poster)
- 2014 Van Meter, K.J., N.B. Basu, People, Water, Climate: Exploring Spatiotemporal Trajectories of Sustainability in Semi-Arid South India. Workshop on Water-related Impacts of Climate Change Workshop, Waterloo, Canada (oral presentation)
- 2014 Van Meter, K.J., N.B. Basu, Landscape Nutrient Legacies and Time Lags: A Conceptual Framework. IAGLR's 2014 Conference on Great Lakes Research, Hamilton, Canada (oral presentation)

- 2014 Van Meter, K.J., N.B. Basu, Signatures of Human Impact: Size Distributions and Spatial Organization of Wetlands in a Prairie Pothole Landscape. Water Institute 2014 Research Symposium, University of Waterloo, Waterloo, Canada (***Invited Talk***)
- 2014 Basu, N.B., K.J. Van Meter, Nutrient Legacies in Anthropogenic Landscapes: Understanding Time lags in Catchment Response as a Function of Hydrologic and Biogeochemical Controls. Water Institute 2014 Research Symposium, University of Waterloo, Waterloo, Canada (***Invited Talk***).
- 2013 Basu, N.B., K.J. Van Meter, K. Stunkel, Size Distribution of Geographically Isolated Wetlands: Geomorphic vs Anthropogenic Controls. Society of Wetland Scientists Annual Meeting, Duluth, USA (***Invited Talk***).
- 2013 Van Meter, K.J., M. Steiff, N.B. Basu, Assessing the Impact of Rainwater Harvesting Ponds on Subsistence-Level Agriculture in the Gundar Basin, Tamil Nadu, India. American Geophysical Union 2013 Fall Meeting, San Francisco, California (oral presentation)
- 2013 Van Meter, K.J., N.B. Basu, The Nitrogen Legacy: Understanding Time lags in Catchment Response as a Function of Hydrologic and Biogeochemical Controls. American Geophysical Union 2013 Fall Meeting, San Francisco, USA (oral presentation)
- 2013 Basu, N.B., K.J. Van Meter, K. Stunkel, Anthropogenic Landscape Homogenization: Size-distribution of Wetlands in Midwestern Prairie Landscapes. American Geophysical Union 2013 Fall Meeting, San Francisco, USA (***Invited Talk***)
- 2012 Van Meter, K.J., N.B. Basu, Down Under: Organic Nitrogen Accumulations in Agricultural Landscapes. American Geophysical Union 2012 Fall Meeting, San Francisco, USA (poster)
- 2012 Van Meter, K.J., N.B. Basu, E. Tate, Salty or Sweet: Exploring the Challenges of Groundwater Salinization Within a Sustainability Framework. American Geophysical Union 2012 Fall Meeting, San Francisco, USA (poster).
- 2012 Van Meter, K.J., N.B. Basu, Groundwater salinization within a sustainability framework in Haryana. 2012 Midwest Student Conference on Sustainable Development in India, India Development Service, Chicago, USA (oral presentation)

WORKSHOPS

- 2016 University of Bordeaux/LabEx COTE/University of Waterloo Water Institute Joint Workshop on Water Research, October 2016, Bordeaux, France

- 2016 “Linking watershed biogeochemistry and coastal ecology: Challenges for modeling and environmental policy,” Ecohydrology Research Symposium, July 2016, Waterloo, Ontario
- 2015 Global Wetland Ecohydrology Network Perspective Workshop on Wetland-Hydrological Interactions, Navarino Environmental Observatory, Costa Navarino, Peloponnesos, Greece
- 2014 International Institute for Sustainable Development/University of Waterloo Joint Workshop on the Future of the Experimental Lakes Area (ELA), July 2014, Waterloo, Ontario

HONORS & AWARDS

- 2018 Best Postdoctoral Oral Presentation, 2018 Global Water Futures Annual Meeting, Hamilton, Ontario
- 2018 Best Graduate Student in Hydrology Poster Award (Danyka Byrnes), World Water Day 2018, University of Waterloo, Waterloo, Ontario
- 2017 **W.B. Pearson Medal, in recognition of creative research in science, as presented in the PhD dissertation**, University of Waterloo, Waterloo, ON
- 2017 Best Graduate Student in Hydrology Poster Award (Frederick Cheng), 2017 Canadian Geophysical Union Student Conference, University of Guelph, Guelph, Ontario, Canada
- 2017 **Winner of the *Environmental Research Letters* “Best Early Career Article of 2016” award for “The Nitrogen Legacy: Emerging Evidence of Nitrogen Accumulation in Anthropogenic Landscapes”**
- 2015 Best Graduate Student in Hydrology Poster Award, World Water Day, Wilfrid Laurier University, Waterloo, Ontario, Canada
- 2014 Best Graduate Student Oral Presentation, Workshop on Water-Related Impacts of Climate Change, Balsillie School of International Affairs, University of Waterloo Interdisciplinary Centre on Climate Change, Waterloo, Ontario, Canada
- 2014 Best Student Poster Award, World Wetlands Day Symposium, University of Waterloo, Waterloo, Ontario, Canada
- 2013 Best Graduate Student in Hydrology Poster Award, World Water Day, Wilfrid Laurier University, Waterloo, Ontario, Canada
- 2013-2016 International Doctoral Student Award, University of Waterloo, Canada

- 2013 Provost Doctoral Entrance Award for Women, University of Waterloo, Canada
- 2012 Conference Travel Award, Center for Global and Regional Environmental Research, Iowa City, USA
- 2012 IDS Scholar Award, Best Doctoral Student Oral Presentation, “Groundwater salinization within a sustainability framework in Haryana,” Midwest Student Conference on Sustainable Development in India, India Development Service, Northwestern University, Chicago, USA

POLICY ENGAGEMENT

- 2018 Invitation to speak to and advise the Gulf of Mexico Hypoxia Task Force on issues and policy options for management of legacy nitrogen within the Mississippi River Basin.
- 2016 Selected to be member of expert panel convened by the Environmental Defense Fund in Washington D.C. to address opportunities to improve sustainability in the food supply chain, specifically in reducing nitrogen losses from crop production. The panel was assembled to assess the utility of using nitrogen surplus values as a scalable indicator of N losses to the environment as a means of leveraging action from the farm to the regional scale to increase N efficiency.

FUNDED PROJECTS

Project Title: “Legacies of Agricultural Pollutants (LEAP)”

Role: Co-Writer of Grant, Postdoctoral Fellow on Project

Funding Source: Joint Programming Initiative ‘Water Challenges for a Changing World’ (Water JPI) launched by Council of the European Union

Amount: €1.6 million

Project Title: “Lake Futures”

Role: Co-Writer of Grant, Research Associate on Project

Funding Source: Funded through ‘Global Water Futures: Solutions to Water Threats in an Era of Global Change,’ a research program led by University of Saskatchewan and funded in part by the Canada First Research Excellence Fund

Amount: \$1.5 million

Project Title: “Monsoon Harvests: Assessing the Impact of Distributed Storage Tanks on the Vulnerability of Subsistence-Level Agriculture in Tamil Nadu, India

Role: Co-Writer of Grant, Mentor to Graduate Student Hired on Project

Funding Source & Amount: NSF (\$249,919)

TEACHING

- 2018 Guest Lecturer
Earth 491, Ecohydrology
University of Waterloo
- 2017 Instructor
Earth 651, Watershed Biogeochemistry: Human Impacts vs
Natural Controls
University of Waterloo
- 2015 Teaching Assistant
Earth 359, Flow Through Porous Media
University of Waterloo
- 2015 Guest Lecturer
Earth 692, Ecohydrological Modeling
University of Waterloo
- 2014 Guest Lecturer
Civil & Environmental Engineering 240, Engineering and Sustainable
Development

REVIEWS

Served as reviewer for *Water Resources Research* (March 2016; October 2016; November 2016; March 2018); *Hydrologic Processes* (September 2016; January 2017; February 2017; July 2017); *Hydrology and Earth System Sciences* (November 2015, March 2018); *Agriculture, Ecosystems and Environment* (March 2016); *Journal of Hydrology* (January 2016, March 2017, July 2017, January 2018), *Wetlands* (July 2017), *Biogeosciences* (September 2017, December 2017), *Biogeosciences* (April 2018), *Water Resources Research* (May 2018), *Environmental Research Letters*, (June 2018).

STUDENT SUPERVISION

- Danyka Byrnes, Masters of Science Student, Quantifying Nitrate Time Lags Under Changing Management Regimes across the US Eastern Seaboard, Fall 2017-present
- Joy Liu, Masters of Science Student, Modeling Long-Term Nutrient Legacies in the Grand River Watershed, Fall 2017-present
- Alex Werenka, Masters of Science Student, Optimization of Manure Biogas Locations across the U.S. and Canada, Spring 2017-present

Tori Groetjen, Undergraduate Co-op student, Reservoir Phosphorus Dynamics: Watershed Drivers and Management Controls, Spring 2018-present

Nicole Khun, Undergraduate Co-op student, Global Nitrogen Legacies: Spatial Patterns and Long-Term Trajectories, Spring 2018-present

Linea Miller, Undergraduate Co-op student, Biogeochemical asynchrony: Ecosystem drivers of concentration-discharge dynamics across temporal scales, Winter 2018

Chloe Nevin, Undergraduate Co-op student, Legacies of Human Impact: Long-Term Nutrient Dynamics, from the Mississippi to the Mekong, Winter 2018

Samreet Singh Kang, Senior Thesis Student (Earth and Environmental Sciences), Spatial and Temporal Trends in U.S. Groundwater Nitrate, Fall 2017-present

Guy Thierry Tenkouano, Research Assistant, Reservoir Nutrient Dynamics under Changing Climate and Management Controls, Fall 2017-present

Sara Dechant, Undergraduate Co-op Student, German Groundwater Nitrate Legacies, Fall 2017-present

William Sellier, Research Assistant, Spatial Identification of Biogeochemical Functional Zones in Ontario Great Lakes Watersheds, Spring 2016

Cody Wheeler, Senior Thesis Student (Earth and Environmental Sciences), Canadian Trends in Water Quality, Fall 2016-present

Melani Samson, Masters of Science Student, The Coupling and Decoupling of Biogeochemical Cycles in an Urban System: A Case Study of the Greater Toronto Area, Fall 2016-present

Alex Werenka, Undergraduate Co-Op Student and Undergraduate Research Assistant, An Analysis of Concentration-Discharge Relationships under Intensive Agriculture using High-Resolution Nitrate Data, Summer 2016-January 2017

David Hah, Undergraduate Co-op Student, The Global Nitrogen Legacy: Spatial and Temporal Variations in Soil Nitrogen Dynamics, Winter 2016

Elyse Dickson, Undergraduate Co-op Student, Exploration of Soil Organic Nitrogen Trajectories using the CENTURY Model, Fall 2015

Danyka Byrnes, Undergraduate Research Assistant, Spatially Varying Controls on Soil Organic Nitrogen Storage in Soil-Landscape Systems, Fall 2015

Alwish Ranjith, Mitacs Student, Exploration of Soil Organic Nitrogen Trajectories using the CENTURY Model, Spring 2015

John Ryue, Undergraduate Co-op Student, Long-Term Analysis of Nitrogen Dynamics in the Mississippi and Susquehanna River Basins, Summer 2015

Taha Jibril, Undergraduate Co-op Student, Undergraduate Research Assistant, The Global Nitrogen Legacy: Spatial and Temporal Variations in Soil Nitrogen Dynamics, Winter 2015/Spring 2015

Garima Lakhanpal, Mitacs Student, Estimating Stream Nutrient Loads in the Grand River Watershed, Winter/Spring 2014

Frederick Cheng, Undergraduate Co-op Student and Undergraduate Research Assistant, Temporal Dynamics in Soil Organic Nitrogen Levels in the Mississippi River Basin, Spring 2015

Helena Diao, Undergraduate Research Assistant, Developing Passive Flux Meters for Phosphorus Loads, Winter 2014

Xiaoyi Zhang, Undergraduate Thesis student, Net Anthropogenic Nitrogen Inputs in the Iowa-Cedar Watershed, Fall 2013/Winter 2014

SERVICE

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| 2017 | Session Coordinator, American Geophysical Union 2018 Annual Meeting, Washington D.C., USA |
| 2017 | Session Coordinator, American Geophysical Union 2017 Annual Meeting, New Orleans, USA |
| 2017 | Session Coordinator, Goldschmidt 2017 Annual Meeting, Paris, France |
| 2017 | Session Coordinator, IAGLR 2017 Annual Conference on Great Lakes Research, Detroit, Michigan |
| 2016 | World Wetland Day 2017 Planning Committee, Communications and Outreach, Ecohydrology Group, University of Waterloo |

SELECTED INTERVIEWS AND MEDIA MENTIONS

Van Meter, K.J., Van Cappellen, Basu N.B., (2018) Legacy nitrogen may prevent achievement of water quality goals in the Gulf of Mexico, Science

- *New York Times*, "Study: 'Legacy' nitrogen also feeds Gulf of Mexico dead zone," <https://goo.gl/r4eJdH>
- *Chicago Tribune*, "Study: 'Legacy' nitrogen also feeds Gulf of Mexico dead zone," <https://goo.gl/cLRWEA>
- *ABC News*, "Gulf of Mexico 'dead zone' will persist for decades," <http://goo.gl/1NUeD3>

- *Boston Herald*, “Study: ‘Legacy’ nitrogen also feeds Gulf of Mexico dead zone,” <https://goo.gl/a6pvKA>
- *The Guardian*, “‘Dead zone’ in Gulf of Mexico will take decades to recover from farm pollution,” <https://goo.gl/CGoCnX>
- *American Association for the Advancement of Science*, “Marine Dead Zones in Gulf of Mexico are Expected to Last Decades,” <http://goo.gl/CMxJdF>
- *PhysOrg*, “Gulf of Mexico dead zone not expected to shrink anytime soon,” <https://goo.gl/dZUKTt>

Legacy N Publications in association with newly funded Legacies of Agricultural Pollutants (LEAP) project featured on the Pan European Networks website

- *Pan European Networks*, “Reconciling Agriculture and Water Quality,” <https://tinyurl.com/y7zfm2no>

Van Meter, K.J., Basu N.B., (2017) Time Lags in Watershed-Scale Nutrient Transport: An Exploration of Dominant Controls, Environmental Research Letters

- *Waterloo Record*, “A Grand Challenge: As population in the watershed booms, it is more important than ever to keep the river clear and clean,” <https://www.therecord.com/news-story/7975783-a-grand-challenge/>
- *CBC*, “Pollution reduction work can take decades to see results,” <https://tinyurl.com/y8jkuc8e>
- *Western Producer*, “Watershed cleanup could take decades,” <http://www.producer.com/2017/08/watershed-cleanup-could-take-decades/>
- *University of Waterloo Water Institute Newsletter*, “Efforts to reduce pollution from agriculture paying off slowly,” <https://uwaterloo.ca/water-institute/news/efforts-reduce-pollution-agriculture-paying-slowly-0>

*Van Meter, K.J. *, Basu, N.B., Veenstra, J. and Burras, L. (2016) Evidence of Soil Nitrogen Accumulation in Anthropogenic Landscapes, Environmental Research Letters, doi:10.1088/1748-9326/11/3/035014*

- *CBC Quirks and Quarks*, “Nitrogen fertilizer leaves legacy in deep soils” <https://tinyurl.com/h3jqgry>
- *Newsweek*, “Nitrogen from farm fertilizers remains in soil and could pollute drinking water for decades” <https://tinyurl.com/hnnmqak>

- *Science Daily*, “Fertilizer applied to fields today will pollute water for decades <https://tinyurl.com/zlyeclm>
- *Environmental Research Web*, “Is missing nitrogen hiding out in plant roots?” <https://tinyurl.com/z47ssoa>
- *Gizmodo*, “We have a 30-year Nitrate Legacy that no one wants to pay for” <https://tinyurl.com/jbbjtn>
- *Blacklocks Reporter*, “Study warns On Fertilizers,” <https://tinyurl.com/hn2bu3y>
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