

Curriculum Vitae Nora Jessie Casson

Department of Geography
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Education

PhD, Environmental and Life Sciences, Trent University, 2013

Thesis: Climatic and topographic controls on winter nutrient export from forested catchments in south-central Ontario. Supervisors: Dr. Catherine Eimers and Dr. Shaun Watmough

M.Sc., Biology (Environmental Science), University of Western Ontario, 2008

Thesis: Rain induced bursts of denitrification activity account for differences in dissolved nitrogen export from forested catchments. Supervisors: Dr. Irena Creed

Graduate Diploma of Education (Secondary), University of Auckland, 2005

Teachable subjects: General Science and Biology

B.Sc., Honors Specialization in Biology, University of Western Ontario, 2005

Honors Thesis: Defining the character of dissolved organic matter leached from forest floor substrates of varying age: Do standard methods apply? Supervisors: Dr. Irena Creed and Dr. Rick Bourbonniere

Employment

Assistant Professor, University of Winnipeg, Department of Geography, 2014 – present

Post-doctoral researcher, University of Wisconsin-Madison, Center for Limnology, 2013-2014

Advisors: Dr. Emily Stanley, Dr. Steve Sebestyen and Dr. Randy Kolka

Research assistant, Trent University, Department of Geography, 2009

Supervisor: Dr. Catherine Eimers

Research Assistant, University of Western Ontario, Department of Biology, 2004

Supervisor: Dr. Irena Creed

Contributions

* indicates a student supervised or co-supervised by N.J.C.

Peer Reviewed Publications

1. Crossman, J., M.C. Eimers, **N.J. Casson**, D.A. Burns, J.L. Campbell, G.E. Likens, M.J. Mitchell, S.J. Nelson, J.B. Shanley, S.A. Watmough, K.L. Webster (in press) Regional meteorological drivers and long term trends on winter-spring nitrate dynamics across watersheds in northeastern North America. *Biogeochemistry*. doi: 10.1007/s10533-016-0255-z
2. Enanga, E.M., I.F. Creed, T. Fairweather, **N.J. Casson** (2016) Snow covered soils produce N₂O that is lost from forested catchments prior to snowmelt. *Journal of Geophysical Research – Biogeosciences*. 121:2356–2368
3. Stanley, E.H., **N.J. Casson**, S.T. Christel, J.T. Crawford, L.C. Loken, S.K. Oliver (2016). The ecology of methane in streams and rivers: patterns, controls, and global significance. *Ecological Monographs*. 86(2):146-171.
4. Enanga, E.M., I.F. Creed, **N.J. Casson**, F.D. Beall (2016) Summer storms trigger soil N₂O efflux episodes in forested catchments. *Journal of Geophysical Research – Biogeosciences*, 121:95-108.
5. Crawford, J.T., L.C. Loken, **N.J. Casson**, C. Smith, A.G. Stone, and L.A. Winslow (2015) High-Speed Limnology: Using Advanced Sensors to Investigate Spatial Variability in Biogeochemistry and Hydrology, *Environmental Science and Technology*. 49(1):442-450.
6. **Casson, N.J.**, M.C. Eimers, and S.A. Watmough (2014) Controls on soil nitrification and stream nitrate export at two forested catchments, *Biogeochemistry*, 121(2): 355-368.
7. **Casson, N.J.**, M.C. Eimers, and S.A. Watmough (2014) Sources of nitrate export during rain-on-snow events at forested catchments, *Biogeochemistry*, 120(1-3): 23-36.
8. O'Brien H.D., M.C. Eimers, S.A. Watmough and **N.J. Casson** (2013) Spatial and temporal patterns in total phosphorus in south-central Ontario streams: the role of wetlands and past disturbance, *Canadian Journal of Fisheries and Aquatic Sciences*, 70(5): 766-774.
9. **Casson, N.J.**, M.C. Eimers, and S.A. Watmough (2012) Impact of winter warming on the timing of nutrient export from forested catchments, *Hydrological Processes*, 26: 2546–2554.
10. **Casson, N.J.**, M.C. Eimers and S.A. Watmough (2012) An assessment of the nutrient status of sugar maple in Ontario: indications of phosphorus limitation. *Environmental Monitoring and Assessment*. 184(10): 5917-5927.
11. **Casson, N.J.**, M.C. Eimers and J.M. Buttle (2010) The contribution of rain-on-snow events to nitrate export in the forested landscape of south-central Ontario, Canada. *Hydrological Processes*, 24: 1985-1993.

Publications Currently in Review

1. Enanga, E.M., **N.J. Casson**, T. Fairweather, I.F. Creed (in review) Nitrous Oxide and Dinitrogen: The Missing Flux in Nitrogen Budgets of Forested Catchments? *Environmental Science and Technology*.

2. *Laing, J.L., G. Ali., **N.J. Casson**, S. Bansah, J. Belanger, M. Hanson (in review) Plant water usage in a Canadian Prairie context: Using stable water isotopes to identify uptake sources. *Ecohydrology*

Non-Peer Reviewed Contributions

1. *Peterson, H.M., **N.J. Casson** (2016) Lake Manitoba and its Watershed: Knowledge Gaps & Next Steps. Technical report submitted to Environment Canada. <http://hdl.handle.net/1993/31144>
2. Stanley E.H., L.C. Loken, J.T. Crawford, **N.J. Casson**, S.K. Oliver, C. Gries, S.T. Christel S (2015) A global database of methane concentrations and atmospheric fluxes for streams and rivers. Long Term Ecological Research Network. <http://dx.doi.org/10.6073/pasta/21f5bd6642e9689baf90262f3c85ac4a>

Selected Presentations and Posters

1. *Robichaud, H., **N.J. Casson** (2016) Impacts of climate change on seasonal watershed flow patterns in the Canadian boreal forest. SETAC-PNC, Winnipeg, MB, June 17-18, 2016.
2. *Peterson, H.M., **N.J. Casson**, P. Badiou, S. Forbes, G. Goldsborough, S. Higgins, D.O. Orihel, E. Watchorn (2016) Lake Manitoba and its Watershed: Knowledge Gaps & Next Steps. SETAC-PNC, Winnipeg, MB, June 17-18, 2016.
3. **Casson, N.J.**, D.O. Orihel, C.T. Parsons, H.M. Baulch, J.J. Venkiteswaran, D. Seckar, R.L. North (2016) The danger in the deep: internal phosphorus loading in Canadian water bodies. Canadian Geophysical Union, Fredericton, NB, May 29-June 1, 2016.
4. **Casson, N.J.**, S.D. Sebestyen, R.K. Kolka, E.H. Stanley (2016) Controls on variability in seepage lake dissolved organic carbon concentrations across northern Wisconsin. Canadian Geophysical Union, Fredericton, NB, May 29-June 1, 2016.
5. *Laing, J., G. Ali, **N.J. Casson**, D. Moore, M. Hanson, J. Belanger, M. Walker, L. Blunden, C. Ross (2016) Plant water usage in a Canadian Prairie context: Using stable water isotopes to identify uptake sources. Canadian Geophysical Union, Fredericton, NB, May 29-June 1, 2016.
6. Bertolet, B.L., J.R. Corman, **N.J. Casson**, S.D. Sebestyen, R.K. Kolka, E.H. Stanley (2016) Effects of temperature and water availability on the watershed leachate potential of lakes in northern Wisconsin. Association for the Sciences of Limnology and Oceanography, Santa Fe NM, June 5-10, 2016.
7. Corman, J.R., B.L. Bertolet, **N.J. Casson**, S.D. Sebestyen, R.K. Kolka, E.H. Stanley (2016) From whence the carbon: watershed leachate potential of lakes in northern Wisconsin. Association for the Sciences of Limnology and Oceanography, Santa Fe NM, June 5-10, 2016.
8. Baulch, H.M., R.L. North, M. Armstrong, **N.J. Casson**, E. Cavaliere, J. Hudson, D. Orihel, D. Seckar, C. Westbrook. (2016) Winter, water chemistry and the potential implications of declining ice cover. Association for the Sciences of Limnology and Oceanography, Santa Fe NM, June 5-10, 2016.

9. Baulch, H.M., D.O. Orihel, **N.J. Casson**, R.L. North, C.D. Parsons, D.M. Seckar, J.J. Venkiteswaran (2016) Internal phosphorus loading in Canadian freshwaters. 69th Canadian Conference for Fisheries Research, St. John's NL, January 7-9, 2016
10. Corman, J.R., **N.J. Casson**, S.D. Sebestyen, R.K. Kolka, E.H. Stanley (2015) Watershed leachate potential in lakes of northern Wisconsin. 9th International Conference on Acid Deposition, Rochester NY, October 19-23, 2015
11. *Kanik N, **N.J. Casson**, W.M. Buhay (2015) Lake Winnipeg (99900) Core 8: A Geochemical Investigation of Paleo Environmental and Climatic Indices of Drought. Prairie Division of the Canadian Association of Geographers, Kenora, ON, September 25-27, 2015.
12. *Laing, J., G. Ali, **N.J. Casson**, D. Moore, M. Hanson (2015) Plant Water Usage in a Canadian Prairie Context: Usable Stable Water Isotopes to Identify Uptake. Prairie Division of the Canadian Association of Geographers, Kenora, ON, September 25-27, 2015.
13. *Robichaud, H., **N.J. Casson** (2015) Impacts of Climate Change on Seasonal Watershed Flow Patterns in the Canadian Boreal Forest. Prairie Division of the Canadian Association of Geographers, Kenora, ON, September 25-27, 2015.
14. Stanley E.H., **N.J. Casson**, S.T. Christel, J.T. Crawford, C. Gries, L.C. Loken, S.K. Oliver (2015) A new methane database and revised global estimates of methane efflux from fluvial ecosystems. Society for Freshwater Sciences, Milwaukee WI, May 17-21, 2015.
15. **Casson N.J.**, S.D. Sebestyen, R.K. Kolka, E.H. Stanley. (2014). Sensitivity of seepage lakes in northern Wisconsin to acid deposition. Society for Freshwater Sciences, Milwaukee WI, May 17-21, 2015
16. Loken L.C., J.T. Crawford, **N.J. Casson**, V. Butita, E.H. Stanley (2015) Spatial variability in a eutrophic lake during fall turnover. Society for Freshwater Sciences, Milwaukee WI, May 17-21, 2015
17. **Casson, N.J.**, M.C. Eimers, S.A. Watmough, M.C. Richardson (2015) Predicting seasonal stream chemistry from catchment topography: the importance of the near-stream zone. Canadian Geophysical Union, Montreal QC, May 7-10, 2015
18. **Casson, N.J.** (2015) Climatic and landscape controls on winter stream nutrient export from forested catchments. Northeastern Ecosystem Research Cooperative, Saratoga Springs NY, March 22-24, 2015 *Invited talk*
19. Loken L.C., J.T. Crawford, E. Childress, **N.J. Casson**, E.H. Stanley (2014). Nitrate dynamics within a stream-lake network through time and space. American Geophysical Union, San Francisco CA, December 15-19, 2014
20. Crawford J.T., L.C. Loken, **N.J. Casson**, E.H. Stanley, R. Striegl, L.A. Winslow (2014). High-Speed Limnology: A Sensor Platform for Investigating Processes and Spatial Variability in Hydrology and Biogeochemistry. American Geophysical Union, San Francisco CA, December 15-19, 2014
21. Stanley E.H., J.T. Crawford, L.C. Loken, **N.J. Casson**, N Gubbins, S.K. Oliver (2014). Fluxes of carbon dioxide and methane from diverse aquatic environments in an agricultural landscape. American Geophysical Union, San Francisco CA, December 15-19, 2014

22. **Casson N.J.**, S.D. Sebestyen, R.K. Kolka, E.H. Stanley. (2014). Hydrological and landscape controls on the chemical response of lakes in northern Wisconsin to environmental pressures. American Geophysical Union, San Francisco CA, December 15-19, 2014
23. **Casson, N.J.**, S.D. Sebestyen, E.H. Stanley, R.K. Kolka (2014) Landscape controls on the sensitivity of seepage lake chemistry to environmental change. Joint Aquatic Sciences Meeting, Portland OR, May 18-23, 2014
24. **Casson, N.J.**, S.D. Sebestyen, R.K. Kolka, E.H. Stanley, D. Higgins, S. Reinecke, S. Sommer, J. Mineau, T. Wickman (2014) Resilience of lake chemistry to acid deposition in the Chequamegon-Nicolet National Forest. US Forest Service Air Quality Meeting, Park Falls, WI, March 18, 2014.
25. **Casson, N.J.** (2014) Blame it on the rain: Hydroclimatic and spatial controls on stream nutrient export from forested catchments. Department of Limnology Seminar, University of Wisconsin-Madison, January 22, 2014
26. **Casson, N.J.**, M.C. Eimers and S.A. Watmough (2013) Temporal and spatial controls on winter nitrate export from forested catchments in south-central Ontario. Canadian Geophysical Union, Saskatoon SK, May 26-29, 2013.
27. **Casson, N.J.**, M.C. Eimers and S.A. Watmough (2013) Environmental controls on seasonal rates of nitrification in forested catchments in south-central Ontario. Northeastern Ecosystem Research Cooperative Conference, Saratoga Springs, NY, March 19-20, 2013.
28. **Casson, N.J.**, M.C. Eimers, S.A. Watmough, M.C. Richardson (2013) Predicting seasonal stream chemistry from catchment topography: how important is the near-stream zone? Northeastern Ecosystem Research Cooperative Conference, Saratoga Springs, NY, March 19-20, 2013.
29. **Casson, N.J.**, M.C. Eimers and S.A. Watmough (2012) The role of winter rain events in nutrient export from forested catchments. Biogeomon, Belfast, ME. July 15-19, 2012.
30. **Casson, N.J.**, M.C. Eimers and S.A. Watmough (2011) Implications of winter warming on the timing of nitrate export from forested catchments. Gordon Research Conference, Lewiston, ME, July 10-15, 2011.
31. **Casson, N.J.**, M.C. Eimers and S.A. Watmough (2011) Climatic controls on the timing and magnitude of nitrate export during spring snowmelt from forested catchments in south-central Ontario. Eastern Snow Conference, Montreal QC, June 2011. (*Runner-up, Wiesnet Medal for Best Student Paper*)
32. **Casson, N.J.**, M.C. Eimers and S.A. Watmough (2010) Climatic controls on the timing of winter-spring water and nutrient export from forested catchments in south-central Ontario. Northeastern Ecosystem Research Cooperative Conference, Saratoga Springs, NY, November 7-9, 2010.
33. **Casson, N.J.**, M.C. Eimers and S.A. Watmough (2010) Hydrologic controls on winter carbon, nitrogen and phosphorus export from forested catchments. Canadian Geophysical Union, Ottawa ON, May 31-June 4, 2010
34. **Casson, N.J.**, M.C. Eimers, and J.M. Buttle (2009) Regional assessment of the contribution of rain-on-snow events to NO₃-N export in a forested landscape. Eastern Snow Conference, Niagara-on-the-Lake ON. June 9-11, 2009.
35. Eimers, M.C., **N.J. Casson** and H. O'Brien (2009) Sources and controls of winter nitrate export at two adjacent forested catchments. Eos Trans. AGU, 90(22), Jt. Assem. Suppl., Abstract B32A-02.

36. **Casson, N.J.** and I.F. Creed (2008) Where did the nitrogen go? Exploration of process controls on nitrous oxide production during summer storms in a forested catchment. Environmental Research Western Colloquium, London, ON. April 21, 2008.
37. **Casson, N.J.** and I.F. Creed (2008) Blame it on the rain: Rain induced bursts of nitrous oxide account for differences in dissolved nitrogen export from forested catchments. Northeastern Ecosystem Research Cooperative Conference, Durham, New Hampshire, November 12-13, 2008.
38. **Casson, N.J.** (2008) Community Perceptions of Ecosystem Health: Lake Naivasha, Kenya. Spotlight on East Africa. The University of Western Ontario, London ON. January 24, 2008.
39. **Casson, N.J.** and I.F. Creed (2007) Where did the nitrogen go? Discovery of nitrous oxide bursts and exploration of process controls in a forested catchment. Gordon Research Conference on Catchment Science: Interactions of Hydrology, Biology and Geochemistry, New London, NH. July 8-13, 2007.
40. Sorichetti, R., **N.J. Casson**, and A. Awaysheh (2007) The Campus Sustainability Assessment Framework. Youth Encounter with Sustainability Conference (YES Africa). Egerton University, Njoro, Kenya. November 9-26, 2007.
41. **Casson, N.J.** and I.F. Creed (2007) Abiotic vs. biotic immobilization of nitrate in forest soils. Environmental Research Western Colloquium. The University of Western Ontario, London, ON. April 20, 2007.

Teaching experience

Undergraduate courses taught

GEOG-1202	Introductory Earth Science
GEOG-2214	Soil Vegetation Systems
GEOG-2218	Fluvial and Hillslope Processes
GEOG-3210	Hydrology
GEOG-3218	Global Biogeochemical Cycles

Teaching assistantships

Trent University, Department of Geography, 2009-2013

University of Western Ontario, Department of Biology, 2006-2008

M.Sc. students

- Adrienne Ducharme (2016-present)

Honours thesis students

- Jeremy Leathers (2016-present)
- Stephanie Higgins (2016-present); co-supervised with Dr. Henry Wilson (Agriculture and Agrifood Canada)
- Hailey Robichaud (2015-2016)
- Janelle Laing (2015-2016); co-supervised with Dr. Genevieve Ali (University of Manitoba)

- Alexandra Goodman (2014-2015); co-supervised with Dr. LeeAnn Fishback (Churchill Northern Studies Centre)

Research assistants

- Stephanie Higgins (2015-present)
- Marliese Peterson (2015-2016)
- Ryan Shirtliffe (2015)
- Nadine Kanik (2015)
- Robyn Ploquin (2014-2015)
- Paige Witek (2013); University of Wisconsin-Madison
- Denis Sweeney (2010-2012); Trent University

Secondary school teaching

Durham District Board of Education, 2006

Science teacher at Dr. F. J. Donevan Collegiate Institute in Oshawa, Ontario

Awards

2014	Governor General's Academic Gold Medal
2013	Queen Elizabeth II Graduate Scholarship in Science and Technology (\$15,000)
2010-2012	Trent University Dean's Excellence Scholarship (\$4,000 per year)
2009-2012	NSERC Canada Graduate Scholarship (D) (\$35,000 per year)
2011	Runner-up, Wiesnet Medal for Best Student Paper, Eastern Snow Conference
2008	NSERC Postgraduate Scholarship (M) (\$17,300)
2008	Ontario Graduate Scholarship (declined) (\$15,000)
2007	AUCC Students for Development Internship (\$10,000 over four months)
2006-2008	Western Graduate Research Scholarship (\$5,800 per year)
2006-2008	Environmental Science Entrance and In-Stream Awards (\$2,500 per year)
2002-2004	University of Western Ontario Dean's Honor List
2001-2005	University of Western Ontario National Scholarship (\$20,000 over four years)

Professional Service

- Secretary: Canadian Geophysical Union, Biogeosciences Section (2015-present)
- Guest editor: Ecological Applications (2015-2016)
- Session chair: Canadian Geophysical Union (2016), Society for Freshwater Sciences (2015)
- Peer reviewer: Hydrological Processes, Environmental Monitoring and Assessment, Science of the Total Environment, Canadian Journal of Water Resources, Environmental Pollution, Inland Waters, Mitacs Elevate, Czech Science Foundation
- Member: Canadian Geophysical Union, American Geophysical Union, Society for Freshwater Sciences