

CURRICULUM VITAE

Updated October 2017

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Education

Ph.D., Limnology and Marine Science, University of Wisconsin – Madison, 2009
M.S., Biological Sciences, Virginia Polytechnic Institute and State University, 2005
B.S. Legal Studies and Biological Sciences, University of Wisconsin – Superior, 2003

Professional Experience

North Temperate Lakes Long Term Ecological Research Program

- 2013-Present: Assistant Scientist and Trout Lake LTER Site Manager
- 2009-2013: Trout Lake LTER Site Manager and Postdoctoral Research Associate

University of Wisconsin Center for Limnology

- 2005-2009: Graduate Research Assistant

Virginia Polytechnic Institute and State University – Department of Biological Sciences

- 2003-2005: Graduate Research Assistant

Pending Proposals

- National Science Foundation – “Collaborative Proposal: MSB-FRA-ECA: Understanding lakes across space: A multi-scaled predictive framework for fish individuals, and populations” \$680,664 (UW portion to N.R. Lottig and G. Hansen \$143,840). 2018-2020

Research Funding

- National Science Foundation – “Collaborative Research-FRA: A macrosystems ecology framework for continental-scale prediction and understanding of lakes” \$4,249,947 (UW portion to E.H. Stanley and N.R. Lottig, \$1,104,886). 2016-2021.
- Wisconsin Groundwater Coordinating Council & UW Water Resources Institute – “Using climatic data and historic water levels from lakes, groundwater wells, and streams to model lake levels” \$107,770. Grant awarded to N.R. Lottig (PI), C.L. Hein, A. Rypel, M. Diebel, E. Booth, P. Juckem, E.H. Stanley. 2016-2018.
- National Science Foundation – LTER: “Comparative Study of a Suite of Lakes in Wisconsin” \$7,745,661. Grant awarded to E.H. Stanley (PI), S.R. Carpenter, C. Gries, T.K. Kratz, M.G. Tuner, 2014-2020. N.R. Lottig (Co-PI).
- National Science Foundation – Biological Field Stations and Marine Labs: “Next-generation instrumented buoys for the University of Wisconsin Trout Lake Station” \$211,562. Grant

awarded to N.R. Lottig (PI), T.K. Kratz, S.R. Carpenter, P.C. Hanson, and E.H. Stanley. 2014-2017.

- National Science Foundation – Macrosystems Biology: “Collaborative Research: The effects of cross-scale interactions on freshwater ecosystem state across space and time” \$2,204,670 (UW portion: E.H. Stanley and N.R. Lottig, \$591,461). 2011-2015.

Recent Science Service

- Reviewer for manuscripts submitted to the Boreal Environment Research, Ecological Applications, Ecosystems, Journal of Environmental Quality, Freshwater Science, Frontiers in Ecology and the Environment, Journal of Geophysical Research – Biogeosciences, Geophysical Research Letters, Hydrobiologia, Proceedings of the National Academy of Sciences.
- Reviewer proposals submitted to the National Science Foundation.
- Student presentation judge and session chair at annual meetings for North American Lake Management Society, Society for Freshwater Scientists, Association for Sciences of Limnology and Oceanography, Long-Term Ecological Research Program.
- Co-Guest Editor for GigaScience's new thematic series on data-intensive ecology, 2015-present.
- Member of the Science on Tap Minocqua (<http://www.scienceontapminocqua.org>) organizing committee, 2013-present.
- National Science Foundation Advisory Panel, Division of Environmental Biology, 2016.
- American Geophysical Union Joint Assembly – Co-organized “Carbon Linkages Between Terrestrial and Aquatic Ecosystems: Magnitude, Mechanisms, and Biogeochemical Consequences” 2009.

Working Groups

- National Center for Ecological Analysis and Synthesis: “Ecology under lake ice” working group member, 2014-2015.

Academic Mentoring

Research Experience for Undergraduates

- Ellen Albright (2015-2017)
 - Undergraduate Research Thesis: Albright, E. 2017. Natural and anthropogenic drivers of freshwater macrophyte community composition in Vilas County, Wisconsin. Macalester College
- Michaela Kromrey (2015)
- Allison Kuehn (2015)
- Tyler Prest (2015)
- Michael Webber (2015)
- Benjamin Kranner (2014-2015)
- Willis Perley (2014)
- Loren Reinhardt (2004-2005)

Manuscripts in Review/Revision

1. **Lottig**, N.R., R.D Batt, C.T. Solomon, T.K. Kratz, S.R. Carpenters, D.E. Armstrong, P.C. Hanson, and T.W. Meinke. In Revision. Estimating primary production in lakes: Comparisons of ¹⁴C incubations and free-water O₂ approaches.
2. Stow, C.A., K.E. Webster, T. Wagner, N.R. **Lottig**, P.A. Soranno, and YK. Cha. In Review. Small values in big data.

Published Works*

*manuscript co-led by 1st and 2nd authors

1. **Lottig**, N.R., P-N. Tan, T. Wagner, K.S. Cheruvellil, P.A. Soranno, E.H. Stanley, C.E. Scott, C.A. Stow, and S. Yuan. In Press. Macroscale patterns of synchrony identify complex relationships among spatial and temporal ecosystem drivers. *Ecosphere*
2. Powers, S.M., H.M. Baulch, S.E. Hampton, S.G. Labou, N.R. **Lottig**, and E.H. Stanley. In Press. Nitrification contributes to winter oxygen depletion in seasonally frozen forested lakes. *Biogeochemistry*.
3. Soranno, P.A., L.C. Bacon, M. Beauchene, K.E. Bednar, E.G. Bissell, C.K. Boudreau, M.G. Boyer, M.T. Bremigan, S.R. Carpenter, J.W. Carr, K.S. Cheruvellil, S.T. Christel, M.Claucherty, S.M.Collins, J.D. Conroy, J.A. Downing, J. Dukett, C.E. Fergus, C.T. Filstrup, C. Funk, M.J. Gonzalez, L.T. Green, C. Gries, J.D. Halfman, S.K. Hamilton, P.C. Hanson, E.N. Henry, E.M. Herron, C. Hockings, J.R. Jackson, K. Jacobson-Hedin, L.L. Janus, W.W. Jones, J.R. Jones, C.M. Keson, K.B.S. King, S.A. Kishbaugh, J-F. Lapierre, B.Lathrop, J.A. Latimore, Y. Lee, N.R. **Lottig**, J.A. Lynch, L.J. Matthews, W.H. McDowell, K.E.B. Moore, B.P. Neff, S.J. Nelson, S.K. Oliver, M.L. Pace, D.C. Pierson, A.C. Poisson, A.I. Pollard, D.M. Post, P.O. Reyes, D.O. Rosenberry, K.M. Roy, L.G. Rudstam, O. Sarnelle, N.J. Schuldt, C.E. Scott, N.K. Skaff, N.J. Smith, N.R. Spinelli, J.J. Stachelek, E.H. Stanley, J.L. Stoddard, S.B. Stopyak, C.A. Stow, J.M. Tallant, P-N. Tan, A.P. Thorpe, M.J. Vanni, T. Wagner, G. Watkins, K.C. Weathers, K.E. Webster, J.D. White, M.K. Wilmes, S. Yuan. In Press. LAGOS-NE: A multi-scaled geospatial and temporal database of lake ecological context and water quality for thousands of U.S. lakes. *GigaScience*. doi:10.1093/gigascience/gix101
4. Björnerås, C., G. A. Weyhenmeyer, C. D. Evans, M. O. Gessner, H.-P. Grossart, K. Kangur, I. Kokorite, P. Kortelainen, N. **Lottig**, H. Laudon, J. Lehtoranta, D. T. Monteith, P. Nöges, T. Nöges, F. Oulehle, A. Räike, G. Riise, J. A. Rusak J. Sire, S. Sterling, E. Kritzberg. In Press. Widespread increases in iron concentration in European and North American freshwaters. *Global Biogeochemical Cycles*. doi:10.1002/2017GB005749
5. Powers, S.M., S.G. Labou, H.M. Baulch, R.J. Hunt, N.R. **Lottig**, J. F. Walker, S.E. Hampton, and E.H. Stanley. 2017. Ice duration drives winter nitrate accumulation in north temperate lakes. *Limnology and Oceanography Letters* doi: 10.1002/lol2.10048
6. Oliver, S., S. Collins, P. Soranno, T. Wagner, E.H. Stanley, J. Jones, C. Stow, N.R. **Lottig**. 2017. Unexpected stasis in a changing world: lake nutrient and chlorophyll trends since 1990. *Global Change Biology* doi: 10.1111/gcb.13810
7. Hampton S.E., A.W. Galloway, S.M. Powers, T. Ozersky, K.H. Woo, R.D. Batt, S.G. Labou, C.M. O'Reilly, S. Sharma, N.R. **Lottig**, E.H. Stanley, R. North, J.D. Stockwell. R. Adrian. G. Weyhenmeyer, L. Arvola, H. Baulch. I. Bertani. L.L. Bowman Jr. C. Carey, J. Catalan. W. Colom-Montero. L.M. Domine, M. Felip, I. Granados, C. Gries, H.-P. Grossart, J. Haberman,

- M. Haldna, B. Hayden, S.N. Higgins, J.C. Jolley, K.K. Kahilainen, E. Kaup, M.J. Kehoe, S. MacIntyre, A.W. Mackay, H.L. Mariash, R.M. McKay, B. Nixdorf, P. Noges, T. Noges, M. Palmer, D.C. Pierson, D.M. Post, M.J. Pruett, M. Rautio, J.S. Read, S.L. Roberts, J. Rucker, S. Sadro, E.A. Silow, D.E. Smith, R.W. Sterner, G.E.A. Swann, M.A. Timofeyev, M. Toro, M.R. Twiss, R.J. Vogt, S.B. Watson, E.J. Whiteford, and M.A. Xenopoulos. 2017. Ecology under lake ice. *Ecology Letters* 20:98-111. doi: 10.1111/ele.12699
8. Watras, C.J., K.A. Morrison, N.R. **Lottig**, T.K. Kratz. 2015. Comparing the diel cycles of dissolved organic matter fluorescence in a clear-water and two dark-water Wisconsin lakes: potential insights into lake metabolism. *Canadian Journal of Fisheries and Aquatic Sciences*, 2016, 73(1): 65-75. doi:10.1139/cjfas-2015-0172
 9. Soranno, P., E. Bissell, K. Cheruvilil, S. Christel, S. Collins, C Fergus, C. Filstrup, J.-F. Lapierre, N.R. **Lottig**, S. Oliver, C. Scott, N. Smith, S. Stopyak S. Yuan, M. Bremigan, J. Downing, C. Gries, E. Henry, N. Skaff, E. Stanley, C. Stow, P.-N. Tan, T. Wagner, and K. Webster. 2015. Building a multi-scaled geospatial temporal ecology database from disparate sources: fostering open science and data reuse. *GigaScience* 4:28. doi:10.1186/s13742-0067-4
 10. *McDonald, C.P., N.R. **Lottig**, J.L. Stoddard, A.T. Herlihy, S. Lehmann, S.G. Paulsen, D.V. Peck, A.I. Pollard, and R.J. Stevenson. 2014. Comment on Bachmann et al. (2013): A non-representative sample cannot describe the extent of cultural eutrophication of natural lakes in the United States. *Limnology and Oceanography* 56:226-2230. doi:10.4319/lo.2014.59.6.2226
 11. **Lottig**, N.R., T. Wagner, E.N. Henry, K.S. Cheruvilil, K.E. Webster, J.A. Downing, and C.A. Stow. 2014. Long-Term Citizen-Collected Data Reveal Geographical Patterns and Temporal Trends in Lake Water Clarity. *Plos One*, doi:10.1371/journal.pone.0095769
 12. Crawford, J.T., N.R. **Lottig**, E.H. Stanley, J.F. Walker, P.C. Hanson, J.C. Finlay, and R.G. Striegl. 2014. CO₂ and CH₄ emissions from streams in a lake-rich landscape: Patterns, controls, and regional significance. *Global Biogeochemical Cycles*, doi:10.1002/2013GB004661
 13. Soranno, P.A., K. Spence Cheruvilil, E.G. Bissel, M Tate Bremigan, J.A. Downing, C.E. Fergus, C.T. Filstrup, E. Norton Henry, N.R. **Lottig**, E.H. Stanley, C.A. Stow, P.-N. Tan, T. Wagner, K.E. Webster. 2014. Cross-scale interactions: a conceptual framework for understanding multi-scaled cause-effect relationships in macrosystems. *Frontiers in Ecology and the Environment* 12:65-73. doi:10.1890/120366
 14. Levy, O., B.A. Ball, B. Bond-Lamberty, K. Spence Cheruvilil, A.O. Finley, N.R. **Lottig**, S. W. Punyasena, J. Xiao, J. Zhou, L.B. Buckley, C.T. Filstrup, T. Keitt, J.R. Kellner, A. Knapp, A.D. Richardson, C. Stow, D. Tchong, M.Toomey, R. Vargas, J.W. Voordeckers, T. Wagner, J.W. Williams. 2014. Approaches to advance scientific understanding of macrosystems ecology. *Frontiers in Ecology and the Environment* 12:15-23. doi:10.1890/130019
 15. **Lottig**, N.R., I. Buffman, and E.H. Stanley. 2013. Comparisons of wetland and drainage lake influences on stream dissolved carbon concentrations and yields in a north temperate lake-rich region. *Aquatic Sciences* 75:619-630, doi:10.1007/s00027-013-0305-8
 16. **Lottig**, N.R., E.H. Stanley, and J.T. Maxted. 2012. Assessing the influence of upstream drainage lakes on fluvial organic carbon in a wetland-rich region. *Journal of Geophysical Research Biogeosciences* 117. doi:10.1029/2012JG001983

17. **Lottig**, N.R. and S.R. Carpenter. 2012. Predicting annual lake characteristics with comparative and temporal models: the importance of neighboring lakes and lake history. *Limnology and Oceanography* 7:1113-1125. doi:10.4319/lo2012.57.4.1113
18. Shade, A., J.S. Read, N.D. Youngblut, N.Fierer, R. Knight, T.K. Kratz, N.R. **Lottig**, E.E. Roden, E.H. Stanley, J.Stombaugh, R.J. Whitaker, C.H. Wu, and K.D. 2012. McMahon. Microbial communities are resilient after a novel whole-ecosystem disturbance. *The ISME Journal*, doi:10/1038/ismej.2012.56
19. Stanley, E.H., S.M. Powers, N.R. **Lottig**, I. Buffam, and J.T. Crawford. 2012. Contemporary changes in dissolved organic carbon of human dominated rivers: is there a role for DOC management? *Freshwater Biology* doi:10.1111/j.1365-2427.2011.02613.x
20. **Lottig**, N.R., E.H. Stanley, P.C. Hanson, and T.K. Kratz. 2011. Comparison of regional stream and lake chemistry: Differences, similarities, and potential drivers. *Limnology and Oceanography* 56:1551-1562. doi:10.4319/lo.2011.56.5.1551
21. Buffam, I., M.G. Turner, A.R. Desai, P.C. Hanson, J.A. Rusak, N.R. **Lottig**, E.H. Stanley, and S.R. Carpenter. 2011. Integrating aquatic and terrestrial components to construct a complete carbon budget of a north temperate lake district. *Global Change Biology* doi:10.1111/j.1365-2486.2010.02313.x
22. Stanley, E.H., S.M Powers and N.R. **Lottig**. 2010. The evolving legacy of disturbance in stream ecology: concepts, contributions, and coming challenges. *The Journal of the North American Benthological Society* 29:67-83.
23. Powers, S.M., E.H. Stanley and N.R. **Lottig**. 2009. Quantifying phosphorus uptake using pulse and steady state approaches in streams. *Limnology and Oceanography Methods* 7:498-508.
24. **Lottig**, N.R., H.M. Valett, M.E. Schreiber and J.R. Webster. 2007. Flooding and arsenic pollution: influences on stream ecosystem structure and function. *Limnology and Oceanography* 52:1991-2000.
25. **Lottig**, N.R. and E.H. Stanley. 2007. Benthic sediment influence on phosphorus concentrations in a headwater stream. *Biogeochemistry* 84:297-309.
26. **Lottig**, N.R. and J.M Fox. 2007. A potential mechanism for disturbance mediated channel migration in a southeastern salt marsh. *Geomorphology* 86:525-528.

Presentations^{1,+} and Posters^{1,+}

¹underline indicates that the co-author is an undergraduate student under my supervision

⁺only 1st author presentations and posters listed. All co-authored presentations and posters excluded.

1. **Lottig**, N.R., P.-N. Tan, T. Wagner, K.S. Cheruvilil, C.E. Scott, P.A. Soranno, E.H. Stanley, C.A. Stow, S. Yaun. Long-term patterns and drivers of water clarity at sub-continental spatial scales. Association for the Sciences of Limnology and Oceanography. June 2016.
2. **Lottig**, N.R. To constrain or not to constrain: forcing metabolism parameters towards ecologically feasible values [Presentation]. Society for Freshwater Science. May 2015.
3. **Lottig**, N.R. Leveraging Big Data and Citizen Science to Understand Sub-Continental Scale Ecological Patterns [Invited Presentation]. Wisconsin Lakes Convention. April 2015.
4. **Lottig**, N.R., P-N. Tan, T. Wagner, K.S. cheruvilil, C.E. Scott, P.A. Soranno, C.A. Stow, and S. Yaun. Taxonomy of change: using cluster analysis to identify temporal patterns in limnological data [Presentation]. Joint Aquatic Sciences Meeting. May 2014

5. **Lottig**, N.R., T. Wanger, K. Spence Cheruvellil, E. Norton Henry, C.A. Stow, J.A. Downing, K.E. Webster. Non-monotonic trends in citizen-based regional water clarity [Poster]. North American Lake Management Society. November 2012
6. **Lottig**, N.R., E.H. Stanley, and T. Wagner. Long-term changes in lake chemistry related to sulfate deposition and climate [Poster]. North American Lake Management Society. November 2012.
7. **Lottig**, N.R. Carbon dynamics of northern Wisconsin hydrosapes [Presentation]. Science in the Northwoods Conference. 2010
8. **Lottig**, N.R., E.H. Stanley, P.C. Hanson, and T.K. Kratz. Integrating lakes and streams to understand biogeochemical drivers of a northern Wisconsin aquatic landscape [Presentation]. American Society of Limnology and Oceanography Summer Meeting. 2010.
9. **Lottig**, N.R. and E.H. Stanley. The Importance of Hydroscape Complexity in Regional Aquatic Carbon Dynamics [Presentation]. American Geophysical Union Joint Assembly. 2009.
10. **Lottig**, N.R. and S.R. Carpenter. Predicting annual lake characteristics with comparative and temporal models: the importance of neighboring lakes and lake history in minimizing prediction errors [Poster]. LTER All Scientists Meeting. 2009.
11. **Lottig**, N.R., E.H. Stanley and J.T. Maxted. Influence of hydroscape complexity on watershed biogeochemistry [Presentation]. Ecological Society of America Annual Meeting. 2008.
12. **Lottig**, N.R., E.H. Stanley and J.T. Maxted. Influence of hydroscape configuration on watershed biogeochemistry [Presentation]. International Association of Landscape Ecology Annual Meeting. 2008
13. **Lottig**, N.R. and E.H. Stanley. Prairie restoration along Midwestern USA streams: influences on nutrient retention and ecosystem metabolism [Presentation]. North American Benthological Society Annual Meeting. 2006
14. **Lottig**, N.R., E.H. Stanley, and J.T. Maxted. Influence of hydroscape position on biogeochemical signatures of NTL streams [Poster]. LTER All Scientists Meeting. 2006.
15. Reinhardt, L.P., N.R. **Lottig**, H.M. Valett, and M.E. Schreiber. Influence of elevated levels of arsenic on leaf decomposition and microbial structure and function in a headwater stream. [Presentation]. North American Benthological Society Annual Meeting. 2006.
16. **Lottig**, N.R., H.M. Valett, J.R. Webster and M.E. Schreiber. Flooding and arsenic contamination: influences on ecosystem structure and function in an Appalachian headwater stream. [Presentation]. Center for Limnology, University of Wisconsin Madison. 2005.
17. **Lottig**, N.R., H.M. Valett, J.R. Webster and M.E. Schreiber. Influence of multiple disturbance regimes on ecosystem structure and function [Presentation]. North American Benthological Society. 2005.
18. Reinhardt, L.P., N.R. **Lottig**, H.M. Valett and M.E. Schreiber. Influence of elevated arsenic concentrations on microbial respiration and phosphorus uptake in a headwater stream [Poster]. North American Benthological Society. 2005.
19. **Lottig**, N.R. and H.M. Valett. Influence of elevated arsenic concentrations on nutrient retention in a headwater stream [Presentation]. North American Benthological Society. 2004.

20. **Lottig**, N.R., E.H. Stanley. Benthic sediment influence on spatial heterogeneity of soluble reactive phosphorus concentrations in Boulder Creek [Presentation]. North American Benthological Society. 2003
21. **Lottig**, N.R. Nutrient dynamics of Boulder Creek [Invited Presentation]. Department of Limnology and Oceanography, University Wisconsin Madison. 2002.