DARREN L. BADE

I. Biographical Information

Name:	Darren Lee Bade
Date of Birth:	November 7, 1974
Citizenship:	United States

II. Educational Background

A. Degrees

2002-2004 Ph.D., Limnology and Marine Sciences, University of Wisconsin – Madison
Advisor: Stephen R. Carpenter
Dissertation: Ecosystem Carbon Cycles: Whole-lake Fluxes Estimated with Multiple Isotopes

2000-2002 M.S., Limnology and Marine Sciences, University of Wisconsin – Madison
Advisor: Stephen R. Carpenter
Thesis: Predicting Stable Isotope Signatures of Dissolved Inorganic Carbon in Lakes: Models to Aid in the Understanding of Carbon Cycling Across Many Lakes

1993-1997 B.S., Soil Science (Soil and Water Quality Specialization), University of Wisconsin - Madison

B. Assistantships, Fellowships, etc.

2004-2006 Postdoctoral Associate, Institute of Ecosystem Studies.

2000-2004 Graduate Research Assistantship, University of Wisconsin – Madison.

Fall ’01, ’02 Graduate Teaching Assistant, Department of Zoology, University of Wisconsin –Madison.

C. Awards, etc.

2003 Outstanding Student Paper Award, Biogeosciences Section, American Geophysical Union (Fall Meeting 2003).

2003 Nomination to University of Wisconsin-Madison Teaching Assistant Fellowship (2003).

III. Non Academic Work Experience

1997-2000 Associate Research Specialist, Center for Limnology, University of Wisconsin-Madison.

IV. Academic AppointmentsExperience

2007-present Assistant Professor, Department of Biological Sciences
Kent State University,
Member of the Graduate Faculty (F4 status)

2011-present Adjunct Graduate Faculty, University of Toledo
2013-present Adjunct Scientist, Holden Arboretum

V. Evidence of Scholarly Activity

A. Accepted Peer Reviewed Publications († denotes undergraduate participant)
19 total manuscripts, 937 total cites, h-index = 12, (accessed from ISI on 7/17/2013. Papers marked with * published since starting at Kent State University.

*Clevinger C.C., R.T. Heath and D.L. Bade. Accepted. Oxygen use by nitrification in the hypolimnion and sediments of Lake Erie. Journal of Great Lakes Research.

*Chaffin, J.D., T.B Bridgman and D.L. Bade. Accepted. Nitrogen constrains the growth of late-summer cyanobacterial blooms in Lake Erie. Advances in Microbiology, Special Issue - Cyanobacteria.

*Warren, D.R., K.E. Judd, D.L. Bade, G.E. Likens, C.E. Kraft. 2013. Effects of wood removal on stream habitat and nitrate uptake in two northeastern US headwater streams. Hydrobiologia 717:119–131. DOI 10.1007/s10750-013-1578-6

*Leff, L.G., D.L. Bade, J. Scaffidi, C.E. Williamson, C. Woolverton. 2013. Environmental Aquatic Resource Sensing: Basic Sciences, Business Education, and Outreach. Journal of Contemporary Water Research & Education 150:63-71.

*Van de Bogert, M.C., D.L., Bade, S.R. Carpenter, J.J. Cole, M.L. Pace, P.C. Hanson, O.C. Langman. 2012. Spatial heterogeneity strongly affects estimates of ecosystem metabolism in two north temperate lakes. Limnology and Oceanography 57(6):1689-1700.

*Staehr, P.A., D. Bade, M.C. Van de Bogert, G.R. Koch, C. Williamson, P. Hanson, J.J. Cole, T. Kratz. 2010. Lake metabolism and the diel oxygen technique: State of the science. Limnology and Oceanography: Methods 8:628-644. (20 cites)

*Cole, J.J., D.L. Bade, D. Bastviken, S.R. Carpenter, M.L. Pace and M. Van de Bogert. 2010. Multiple approaches to estimating air-water gas exchange in small lakes. Limnology and Oceanography: Methods 8:285-293. (9 cites)

*Bade, D.L., K. Bouchard†, G.E. Likens. 2009. Algal co-limitation by N and P persists after 30 years in Mirror Lake (New Hampshire, USA). Verh. Internat. Verein. Limnol. 30(7): 1121-1123. (1 cite)

*Bade. D.L., S.R. Carpenter, J.J. Cole, M.L. Pace, E. Kritzberg, Mathew C. Van de Bogert Rose M. Cory, and Diane M. McKnight. 2007. Sources and fates of dissolved organic carbon in lakes as determined by whole-lake carbon isotope additions. Biogeochemistry 84: 115-129, DOI: 10.1007/s10533-006-9013-y (15 cites)

Bade, D.L., M.L. Pace, J.J. Cole, and S.R. Carpenter. 2006. Can algal photosynthetic inorganic carbon isotope fractionation be predicted in lakes using existing models? Aquatic Sciences 68: 142-153, DOI: 10.1007/s00027-006-0818-5 (31 cites)

Bade, D.L. and J.J. Cole. 2006. Impact of chemically enhanced diffusion on dissolved inorganic carbon stable isotopes in a fertilized lake. Journal of Geophysical Research, 111, C01014, DOI: 10.1029/2004JC002684. (13 cites)

Carpenter, S.R., J.J. Cole, M.L. Pace, M. Van de Bogert, D.L. Bade, D. Bastviken, C. Gille, J.R. Hodgson, J.F. Kitchell and E.S. Kritzberg. 2005. Ecosystem subsidies: terrestrial support of aquatic food webs from 13C addition to contrasting lakes. Ecology 86: 2737-2750. (112 cites)

Bade, D.L., S.R. Carpenter, J.J. Cole, P.C. Hanson, and R.H. Hesslein. 2004. Controls of δ13C-DIC in lakes: geochemistry, lake metabolism, and morphometry. Limnology and Oceanography 49(4): 1160-1172. (52 cites)

Hanson, P.C., A. I. Pollard, D. L. Bade, K. Predick, S.R. Carpenter, and J. A. Foley. 2004. A model of carbon evasion and sedimentation in temperate lakes. Global Change Biology 10: 1285-1298. (65 cites)

Pace, M.L., J.J. Cole, S.R. Carpenter, J.F. Kitchell, J.R. Hodgson, M. Van de Bogert, D.L. Bade, E.S. Kritzberg, and D. Bastviken. 2004. Whole-lake carbon-13 additions reveal terrestrial support of aquatic food webs. Nature 427: 240-243. (216 cites)

Kritzberg, E., J.J. Cole, M.L. Pace, W. Granéli, and D.L.Bade. 2004. Autochthonous versus allochthonous carbon sources to bacteria – Results from whole-lake 13C addition experiments. Limnology and Oceanography 49: 588-596. (78 cites)

Hanson, P.C., D.L. Bade, S.R. Carpenter, and T.K. Kratz. 2003. Lake metabolism: Relationships with dissolved organic carbon and phosphorus. Limnology and Oceanography 48:1112-1119. (119 cites)

Houser, J.N., D.L. Bade, M.L. Pace, and J.J. Cole. 2003. The dual influences of dissolved organic carbon on hypolimnetic metabolism: Organic substrate and photosynthetic reduction. Biogeochemistry 64 (2): 247-269. (22 cites)

Carpenter, S.R., J.J. Cole, J.R. Hodgson, J.F. Kitchell, M.L. Pace, D. Bade, K.L. Cottingham, T.E. Essington, J.F. Houser, and D.E. Schindler. 2001. Trophic cascades, nutrients and lake productivity: Whole-lake experiments. Ecological Monographs 7(2):163-186. (184 cites)

B. Publications in Review

Chaffin, J.D, T.B. Bridgeman, D.L. Bade, and C.N. Mobilian. In Review. Summer phytoplankton nutrient limitation in Maumee Bay of Lake Erie during high-flow and low-flow years. Journal of Great Lakes Research Special Issue on Lake Erie.

Clevinger C.C., R.T. Heath and D.L. Bade. In review. Abundance and distribution of ammonia oxidizing bacteria and archaea in Lake Erie. Inland Waters.

Martin, L.A, and D.L. Bade. In review. A spatio-temporal comparison of nutrient deficiency indicators in Lake Erie. Journal of Great Lakes Research Special Issue on Lake Erie.

Moitra, M., D.L. Bade, S. Gosh, J.D. Conroy, R.T. Heath and L.G. Leff. In Review. Free-living and particle-attached bacteria in Lake Erie: Bacterial community composition and function during a Microcystis bloom. Aquatic Ecology.

C. Publications in Preperation

Ali, K.A; Witter, D.L, Ortiz, J.D, and Bade, D.L. In prep. Feature Extraction using Wavelets, PCA and Neural networks from hyperspectral data for retrieval of optically active constituents in Case 2 waters.

Bade, D.L., C.C. Clevinger, L.A. Martin, R. Schoeneman. In prep. A spatio-temporal comparison of algal and bacterial productivity in Lake Erie. To be submitted to Journal of Great Lakes Research Special Issue on Lake Erie.

Kirkpatrick, H, and D.L. Bade. In Prep. The ecological influence of the non-indigenous zooplankter *Eubosmina coregoni* in lake ecosystems. To be submitted to Journal of Plankton Research.

Chaffin, J.D., T.B Bridgman and D.L. Bade. In Prep. Can nitrogen limitation be induced in the eutrophic Maumee Bay, Lake Erie? To be submitted to Journal of Applied Limnology.

D. Book Chapters

*Bade, D.L. 2010. Gas exchange at the air-water interface. In: Biogeochemistry of Inland Waters Vol. 1. G.E. Likens [ed.]. Elsevier. (This is a derivative book containing a reprint of the chapter by the same name from 2009)

*Buso, D., G.E. Likens, J.W. La Baugh, D.L. Bade. 2009. Nutrient Dynamics. Pages 69-204. In: Mirror Lake: Interactions among Air, Land, and Water. T.C. Winter & G.E. Likens [eds.]. University of California Press.

*Bade, D.L. 2009. Freshwater carbon and biogeochemical cycles. Pages 347-357. In: The Princeton Guide to Ecology. S.A. Levin [ed.]. Princeton University Press.

*Bade, D.L. 2009. Gas exchange at the air-water interface. Pages 70-78. In: Encyclopedia of Inland Waters Vol. 1. G.E. Likens [ed.]. Elsevier.

Bade, D.L. 2006. Lake ecosystems (stratification and seasonal mixing processes, pelagic and benthic coupling). In: The Encyclopedia of Hydrologic Sciences. M. G. Anderson [ed.]. John Wiley & Sons. DOI:10.1002/0470848944.hsa114

Cottingham, K.L., D.L. Bade, Z.G. Cardon, C.M. D'Antoinio, C.L. Dent, S.E.G. Findlay, W.K. Lauenroth, K.M. LoGiudice, R.S. Stelzer, and D.L. Strayer. 2003. Increasing modeling savvy: Strategies to advance quantitative modeling skills for professionals within ecology. Pages 428-436. In: The Role of Models in Ecosystem Science. Canham, C.D., J.J. Cole, and W.K. Lauenroth, [eds.] Princeton University Press.

E. Other Publications

*Reutter, J.M., J. Ciborowski, J. Depinto, D. Bade, D. Baker, T.B. Bridgeman, D.A. Culver, S. Davis, E. Dayton, D. Kane, R.W. Mullen, C.M. Pennuto. 2011. Lake Erie Nutrient Loading and Harmful Algal Blooms: Research Findings and Management Implications. Final Report of the Lake Erie Millennium Network Synthesis Team. Ohio Sea Grant College Program, The Ohio State University, Technical Summary Number: OHSU-TS-060. June 14, 2011. http://go.osu.edu/ts-060

Bade, D., J. Houser, and S Scanga. 1998. Methods of the Cascading Trophic Interactions Project. Fifth edition. Center for Limnology Library, University of Wisconsin-Madison, Wisconsin, USA.

F. Invited Presentations

*Bade, D.L. Should we care about nitrogen in Lake Erie? Stone Laboratory Summer Seminar Series. Put-in-Bay, OH. 10 Aug 2011

*Bade, D.L. Phosphorus limitation in Lake Erie. 2nd Millennium Meeting to Summarize Phosphorus Research. Lake Erie Center, U. of Toledo. Toledo, OH. 28 March 2011

*Bade, D.L. Should we care about nitrogen in Lake Erie? The Ohio State University. Columbus, OH. 10 Feb 2011

*Bade, D.L. Mirror Lake and the ecosystem approach. Stone Laboratory Summer Seminar Series. Put-in-Bay, OH. 8 Aug 2008

Bade, D.L., S.R. Carpenter, J.J. Cole, M.L. Pace, E. Kritzberg, M.C. Van de Bogert, R.M. Cory and D.M. McKnight. Quantifying terrestrial and aquatic sources of dissolved organic carbon in lakes. Pioneering Studies of Young Scientists on Chemical Pollution and Environmental Changes, Ehime University, Matsuyama, Japan. 17-19 November 2006.

Bade, D.L. Terrestrial carbon in aquatic ecosystems: Insights from whole-lake tracer studies. University of Maryland, Center for Environmental Science, Appalachian Laboratory. 10 March 2006

G. Abtracts, Posters, and Presentations at Scientific Conferences

Martin, L.A. and Bade, D.L. Indicators of phosphorus limitation in nearshore to offshore transects in Lake Erie. International Association for Great Lakes Research Annual Conference. June 2013, West Lafayette, IN.

†Ndinga Muniania, C., Clevinger, C.C., and Bade, D.L., Kent State University. Response of Nitrification to Ammonium Additions and its Relation to Oxygen Consumption in Lake Erie. International Association for Great Lakes Research Annual Conference. June 2013, West Lafayette, IN.

Bade, D.L. Important negative impacts of the nitrogen cycle are ignored in the debate about managing eutrophication. Biogeochemistry of the Great Lakes Systems Symposium. Mar. 2013. Detroit, MI.

Bade, D.L., C.C. Clevinger, R.T. Heath, C Ndinga Muniania. Nitrification contributes significantly to oxygen consumption in Lake Erie. Association for the Sciences of Limnology and Oceanography, Aquatic Sciences Meeting Feb 2013, New Orleans.

Bade, D.L., L.A. Martin, J.D. Chaffin, C.C. Clevinger. An Assessment of Nutrient Limitations in Lake Erie. North American Lake Management Society 32nd International Symposium. Nov. 2012, Madison, WI.

Lu, X., D. Bade, L. Leff and X. Mou. Microbially mediated nitrogen removal processes in hypoxic water of Lake Erie. International Association for Great Lakes Research Annual Conference. May 2012, Cornwall, Canada.

Pennuto, C.M., L.E. Burlakova, A.Y. Karatayev, A. Perez-Fuentetaja, J.W. Kramer, G. Matisoff, D.L. Bade, C. Mayer, and T.B. Bridgeman. Benthos and Water Column Correlations in Nearshore Lake Erie. International Association for Great Lakes Research Annual Conference 2011. May 2012, Cornwall, Canada.

Martin, L.A., and D.L. Bade. Indicators of phosphorus limitation in Lake Erie. 121st Annual Meeting The Ohio Academy of Science; Special Symposium – Water Quality of Ohio's Lakes. Ashland, OH. April 2012.

†Arroyo, N.A., and D.L. Bade. Effects of nitrogen dilution on algal growth in Lake Erie water samples. 121st Annual Meeting The Ohio Academy of Science; Special Symposium – Water Quality of Ohio's Lakes. Ashland, OH. April 2012.

Heath, R., X. Mou, L. Leff, D. Bade, C. Clevinger and X. Lu. Nitrification, denitrification, and anammox in the Central Basin of Lake Erie. Coastal and Estuarine Research Federation, 6-10 Nov. 2011, Daytona Beach, FL.

Bade D.L., J.D. Conroy, C.M. Pennuto, D.A. Culver, D.D. Kane, L.E. Burlakova, A.Y. Karatayev, A. Perez-Fuentetaja, J.W. Kramer, G. Matisoff, and W.J. Edwards. Biological phosphorus uptake in Lake Erie's tributaries and offshore sites. 54th Annual Conference on Great Lakes Research. Duluth, MN. June 2011.

Lu, X., D.L. Bade, L. Leff, R.T. Heath, and X. Mou. Denitrification Is More Important Than Anammox In Microbially-Mediated N Removal In Lake Erie. 54th Annual Conference on Great Lakes Research. Duluth, MN. June 2011.

Chaffin, J.D., T.B. Bridgeman, and D.L. Bade. Seasonal Nitrogen Limitation in Western Lake Erie. 54th Annual Conference on Great Lakes Research. Duluth, MN. June 2011.

Kane, D.D., J.D. Conroy, D.L. Bade, W.J. Edwards, and D.A. Culver. Re-Eutrophication of Lake Erie: Multiple Contributions by Two Agricultural Tributaries. . 54th Annual Conference on Great Lakes Research. Duluth, MN. June 2011.

Moitra, M., D.L. Bade, S. Ghosh, R.T. Heath, and L.G. Leff. Composition and nutrient dynamics of bacterial communities associated with Microcystis blooms in Lake Erie. 95th Annual Conference, Ecological Society of America. Pittsburgh, PA. Aug. 2010.

Smemo, K.A., C.B. Blackwood, D.L. Bade. Transient redox gradients, trace-gas dynamics, and soil microbial communities in a vernal pool-rich temperate forest. 95th Annual Conference, Ecological Society of America. Pittsburgh, PA. Aug. 2010.

Bade, D.L. Signals of autumnal mixing events assessed using a vertical array of sensors. Joint meeting of The American Society of Limnology and Oceanography and the North American Benthological Society. Santa Fe, NM. June 2010.

Perez-Fuentetaja, A., C. Pennuto, A. Karatayev, L. Burlakova, J. Conroy, J. Kramer, D. Bade, G. Matisoff. Biological influence on the nearshore and offshore nutrient dynamics of Lake Erie. Joint meeting of The American Society of Limnology and Oceanography and the North American Benthological Society. Santa Fe, NM. June 2010.

Bade, D.L., C.C. Clevinger, and R.T. Heath. A review of nitrification and its role in Lake Erie. 53rd Annual Conference on Great Lakes Research. Toronto, ON, CA. May 2010.

Clevinger, C.C., D.L. Bade, and R.T. Heath. *AmoA* gene quantification, nitrification, and oxygen demand in the Central Basin of Lake Erie. 53rd Annual Conference on Great Lakes Research. Toronto, ON, CA. May 2010.

Kane, D.D. J.D. Conroy, D.L. Bade, W.J. Edwards, and D.A. Culver. The problem starts earlier and farther upstream than expected: *Microcystis* upstream in Lake Erie tributaries early in the year. 53rd Annual Conference on Great Lakes Research. Toronto, ON, CA. May 2010.

Perez-Fuentetaja, A., C. Pennuto, A. Karatayev, L. Burlakova, J. Conroy, J. Kramer, D. Bade, G. Matisoff. Biological Production and Nutrient Fate in Nearshore and Offshore Lake Erie. 53rd Annual Conference on Great Lakes Research. Toronto, ON, CA. May 2010.

Kirkpatrick, H.R., C.C. Clevinger, M. Moitra, D.L. Bade, J.D. Conroy, D.A. Culver, W.J. Edwards, D.D. Kane, Evaluating phosphorus limitation from the Maumee and Sandusky Rivers into Lake Erie. 119th Annual Meeting The Ohio Academy of Science. Ada, OH. April 2010.

Conroy, J.D., D.L. Bade, W.J. Edwards, D. D. Kane, T.R. Gover, K.M. Hershey, D.A. Culver. Determining Microcystis bloom trigger points in the Maumee and Sandusky Ecosystems. 119th Annual Meeting The Ohio Academy of Science. Ada, OH. April 2010.

Clevinger, C.C., Bade, D.L., and Heath, R.T. Potential impacts of nitrification on the formation of hypoxia in Lake Erie. 52nd Annual Conference on Great Lakes Research. Toledo, OH. May 2009.

Clevinger, C.C., Bade, D.L., and Heath, R.T. Causes of Hypoxia in Lake Erie: Potential Role of Nitrification. 51st Annual Conference on Great Lakes Research. Peterborough, Ontario, Canada. May 2008.

†Marcarello, K.T., Clevinger, C.C., Bade, D.L., and Heath, R.T., Alkaline Phosphatase Activity as an Indicator of P-Limitation in Sandusky Bay/Subbasin. 51st Annual Conference on Great Lakes Research. Peterborough, Ontario, Canada. May 2008.

Van de Bogert, M. C., O.C. Langman, D.L. Bade, S.R. Carpenter; J.J. Cole, M.L. Pace, T.K. Kratz and P.C. Hanson. 2008. Confronting within-lake heterogenerity: How many sensors does it take to measure whole lake metabolism. Meeting of the American Society of Limnology and Oceanography, St. John's Newfoundland. 8-13 June, 2008.

Bade, D.L., K. Bouchard†, G.E. Likens. Algal co-limitation by N and P persists after 30 years in Mirror Lake (New Hampshire, USA). International Limnology Society Meeting, 2007.

Bade, D.L., M.L. Pace, J.J. Cole, and S.R. Carpenter. Whole-lake inorganic 13C additions and comparative studies reveal difficulties in predicting algal isotope signatures in lakes. Northeast Algal Society Annual Meeting, April 21 – 23, 2006, Poughkeepsie, NY, USA.

Bade, D.L. and G.E. Likens. Declining sulfate burial in Mirror Lake. American Society of Limnology and Oceanography International Meeting, June 19-24, 2005. Santiago de Compostela, Spain.

Pace, M.L., D.L. Bade, S.R. Carpenter, J.J. Cole, E. Kritzberg and M. Van de Bogert. Pathways of allochthony in food webs. DOC to bacteria to zooplankton is not the main road. American Society of Limnology and Oceanography. Santiago de Compostela, Spain

Bade, D.L. and J.J. Cole. Chemically enhanced diffusion influences dissolved inorganic carbon stable isotope cycling in a highly productive aquatic ecosystem. American Society of Limnology and Oceanography Aquatic Sciences Meeting, Feb. 20-25, 2005 Salt Lake City, Utah, USA.

Bade, D.L., S.R. Carpenter, J.J. Cole, M.L. Pace, E. Kritzberg, and M. Van de Bogert. 2004. Isotopic response of DOC to a whole-lake inorganic 13-C addition. American Society of Limnology and Oceanography. Savannah, GA.

Pace, M. L., S. R. Carpenter, J. J. Cole, J. F. Kitchell, J. R. Hodgson, D. L. Bade, M. C. Van de Bogert, C. M. Gille. 2004. Terrestrial subsidies of aquatic food webs: Results of ^{13}C additions to lakes contrasting in dissolved organic matter and nutrients. Ecological Society of America Annual Meeting, Portland, Oregon. p. 386. August 2004.

Gille, C. M., J. F. Kitchell, D. L. Bade, S. R. Carpenter, J. J. Cole, J. R. Hodgson, M. L. Pace, and M. C. Van de Bogert. 2004. Modeling 13C uptake and allochthony in fishes using bioenergetics. Ecological Society of America Annual Meeting, Portland, Oregon. p. 178. August 2004.

Cole, J. J., D. L. Bade, D. Bastviken, M. Van de Bogert, S. R. Carpenter, and M. L. Pace. 2004. Multiple approaches to estimating gas exchange at the air water interface. American Society of Limnology and Oceanography Meeting, Savannah Georgia. June 2004.

Cole, J. J., M. L. Pace, S. R. Carpenter, J. F. Kitchell, J. Hodgson, D. L. Bade, M. Van de Bogert, and C. M. Gille. 2004. INVITED. Does terrestrial C fuel the aquatic food web? Further results from whole lake 13C additions. Ocean Science Meeting (ASLO-TOS), Honolulu, Hawaii. February 2004.

Cole, J.J., M. Van de Bogert, D. Bastviken, D.L. Bade, M.L. Pace and S.R. Carpenter. 2004. Multiple approaches to estimating gas exchange at the air water interface. American Society of Limnology and Oceanography. Savannah, GA.

Bade, D.L., S.R. Carpenter, J.J. Cole, M.L. Pace, P.C. Hanson, and R.H. Hesslein. 2003. Inter-Lake Variations in the Isotopic Signatures of Dissolved Inorganic Carbon in Lakes: Within-Lake Processing Versus Watershed Loading. American Geophysical Union. San Francisco, CA. *Outstanding Student Paper Award

Pace, M. L., J. J. Cole, S. R. Carpenter, M. Van de Bogert, D. L. Bade. 2003. Significant Terrestrial carbon contribution to lake POC and Daphnia, revealed by whole-lake carbon-13

additions. INVITED. Aquatic Science Meeting of the American Society of Limnology and Oceanography. Salt Lake City. p. 101. February 2003

Roberts, B. J, J. J. Cole, M. L. Pace, D. L. Bade, and M. Van de Bogert. 2003. Diel respiration measured using stable oxygen isotopes in fertilized, clear, and colored lakes. Aquatic Science Meeting of the American Society of Limnology and Oceanography. Salt Lake City. p. 108. February 2003.

Hanson, P.C., A. I. Pollard, D. L. Bade, K. Predick, S.R. Carpenter, and J. A. Foley. Fall 2003 A model of carbon evasion and sedimentation in temperate lakes. American Geophysical Union. San Francisco, CA.

Bade, D.L., S.R. Carpenter, J.J. Cole, and M.L. Pace. Summer 2003. Exogenous and endogenous origins of DOC in lakes: surprising results from whole lake 13C additions. Ecological Society of America. Savannah, GA.

Fankhauser†, C.L., D.L. Bade, and S.R. Carpenter. Summer 2003. Carbon sources for invertebrate predators in a whole-lake experiment. Ecological Society of America. Savannah, GA.

Roberts, B.J., J.J. Cole, M.L. Pace, D.L. Bade, and Van de Bogert. Summer 2003. Diel respiration measured using oxygen stable isotopes in fertilized, clear, and colored lakes. Ecological Society of America. Savannah, GA.

Pace, M.L., J.J. Cole, S.R. Carpenter, Van de Bogert, M., and D.L. Bade. Summer 2003. Significant terrestrial carbon contribution to lake POC and Daphnia revealed by whole-lake carbon-13 additions. American Society of Limnology and Oceanography. Salt Lake City, UT.

Bade, D.L., S.R. Carpenter, J.J. Cole, M.L. Pace, and E. Kritzberg. Poster. 2002. Terrigenous and aquatic origins of dissolved organic carbon in lakes: results from comparative and whole lake experimental approaches. American Society of Limnology and Oceanography. Victoria, B.C., Canada.

Bade, D.L., S.R. Carpenter, J.J. Cole, M.L. Pace, and P.C. Hanson. 2001. Predicting isotope signatures of dissolved inorganic carbon in lakes. Ecological Society of America. Madison, WI.

Houser, J.N., D.L. Bade, and S.R. Carpenter. Summer 2001. Dissolved organic carbon, algae, light, and lake thermal structure: Whole-lake experiments and a comparative study show how nutrient and DOC inputs affect lake thermal structure. Ecological Society of America, Madison, WI.

H. Grant Proposals

Altered state of phosphorus loading and river chemostatic behavior: Improving restoration effectiveness for mitigating nutrient loading to Lake Erie. Co-PI. Requested $114,687.12 from NOAA Ohio Sea Grant. Preproposal invited for full submission July 2013. Full proposal not submitted.

Unraveling the nitrogen cycle: the influence of organic matter on dissimilatory nitrogen reduction. Co-PI. Requested $690,049.80 from National Science Foundation. Submitted Aug. 2012. Not funded.

Rate and influential factors of Efflux N_2O gas from the Laurentian Great Lakes. NOAA Climate Program Office FY2013 – pre-proposal 8/29/2012. Co-PI. Not invited for full submission.

Detection of toxins in water quality monitoring. Co-PI 20% effort. Requested $40,000. KSU Collaborative Research Incentive Program. Submitted 5/11/12. Not funded

Place-based education as a tool for encouraging student-centered instruction in the Biological Diversity Laboratory. Undergraduate Teaching Council Summer Teaching Development Grant. Summer 2012. $3250

Should Nitrogen Be Managed in Lake Erie? The Potential Role of Nitrogen Fixing Cyanobacteria. PI. Requested $114,895.82 from NOAA-Ohio Sea Grant. Funded beginning Feb 2013.

Nitrogen Fixation in Lake Erie. NSF-RAPID. Submitted 6/24/2011. Not Accepted.

Dimensions: Environmental Induction of Coupling and Uncoupling of Taxonomic and Functional Gene Diversity in Denitrifying Microbial Communities. Co-PI. Requested $829,436 from National Science Foundation. Submitted 3/28/2011. Not Funded

Effect of microbial community structure on nitrogen limitation for plant growth. Co-PI. Requested $1,205,599 from US-DOE. Not funded

Dimensions: Environmental Induction of Coupling and Uncoupling of Taxonomic and Functional Gene Diversity in Microbial Communities. Requested $886,920 from National Science Foundation. Submitted 6/8/10. Not Funded.

Nitrogen Removal by Microbial-Mediated Processes under Hypoxic Conditions in Lake Erie. Ohio Water Resources Center, USGS. Requested $22,832 Funded March 2010.

Linking stream restoration practices to nitrogen and phosphorus dynamics in Lake Erie tributaries. Requested $681,668 from US-EPA GLRI. Submitted 1/28/2010. Not Funded.

The Lake Erie Nearshore and Offshore Nutrient Study (LENONS). Requested $615,813 from US-EPA GLRI ($59,910 to KSU). Funded

Microbial-dependent Nitrogen Loss under Hypoxic Conditions in the Laurentian Great Lakes. Requested $121,991 from Ohio Sea Grant. Not Funded.

Ecosystem Management Survey: Lake Erie and other Large Aquatic Ecosystems (submitted by Doctoral Student, Greg Wilson). Requested $1,898 from Ohio Sea Grant. Funded.

IGERT: Environmental Aquatic Resource Sensing: Basic Science, Business Education and Outreach. Requested $2,752,156 from the National Science Foundation. Funded Aug 2009.

The Nearshore – Offshore Lake Erie Nutrient Study. $150,000 to Buffalo State College. Subaward to Kent State $18,750. US EPA Great Lakes National Program Office. Funded May 2009.

Connecting Phosphorus Load, Transport and Biological Use in Lake Erie. $167,040 to Ohio State University. Subaward to Kent State $13,500. Lake Erie Protection Fund. Funded May 2009.

Causes and Consequences of Hypoxia in Lake Erie: The Role of Nitrogen. Requested $108,922 from Ohio Sea Grant. Funded Feb. 2007.

IGERT: Environmental Sensing: Basic Science, Product Development and Business Outreach. Requested $2,752,156 from the National Science Foundation. This application was not funded. Oct 2007.

I. Society Memberships (Currently)

American Society of Limnology and Oceanography
International Association of Great Lake Research
American Geophysical Union
Ecological Society of America
International Limnology Society
North American Lake Management Society
Ohio Lake Management Society

VI. Teaching and Advising Experience

A. Courses Taught

Kent State University

Biological Diversity (F09, F10, F11, F12)
Introduction to Environmental Sensors (S10, F11, F12)
Ecological Modeling (S07, S09)
Limnology (F07)
Aquatic Ecology (F08, S11, S12, S13)

Aquatic Ecology Lab (F08, S11, S12)
Populations, Communities and Ecosystems (S08, S10)
Communities/Ecosystems Ecology (S11, S13)
Career Pathways in Biology (S13)

Course Evaluations
Biological Diversity (F09, F10,F11, F12)
Introduction to Environmental Sensors (S10, F11, F12)
Ecological Modeling (S07, S09)
Limnology (F07)
Aquatic Ecology (F08, S11,S12, S13)
Aquatic Ecology Lab (S11,S12)
Populations, Communities and Ecosystems (S08, S10)
Communities/Ecosystems Ecology (S11, S13)
Career Pathways in Biology (S13)

The Ohio State University – Stone Laboratory

Limnology (Summer 08, 09, 10, 11; renamed Aquatic Ecosystems Summer 12, 13)

B. Direction and Co-Direction of Graduate Research

Ryan Scheoneman (Ph.D. candidate)	2012-present
Margaret Gaglione (Ph.D. candidate)	2011-present
Leigh Martin (M.S.)	2011-2013 Grad
Ashley Bantelman (Ph.D. candidate)	2011 (left program)
Heather Kirkpatrick (M.S.)	2008-2011 Grad.
Curtis Clevinger (Ph.D. candidate)	2007-present

C. Service on Thesis and Dissertation Committees

Dissertation Committees

Deshawn Johnson (Biology)	2012-present
Anna Ormiston (Biology)	2012-present
Nicholas Bonini (Geology)	2011-present
David Widner (Geography)	2010-present
Xinxin "Lucy" Lv (Biology)	2009-present
Justin Chaffin (Univ. of Toledo)	2011-2013
Moumita Moitra (Biology)	2009-2012
Harishchandra Subedi (Chemistry and Biochemistry)	2010-present
Greg Wilson (Biology)	2008-2011
Khalid Ali (Geology)	2009-2011

Thesis Committee

Nathan Yaussy (Biology)	2009-present

Erin Manis (Biology)	2010-2012
Alyssa Baxter (Biology)	2009-2010
Mandy Razzano (Geology)	2007-2011

D. Undergraduate Research Advisees

Lauren Herlache (Gonzaga)	2013
Stephanie Harpster (OSU-Lima)	2013
Cedric Ndinga Muniania (KSU)	2011-2013
Nathan Arroyo (OSU)	2011
Shunya Yagi (KSU)	2010-2011
Tim Malanich (OSU)	2009
Lisa Schaller (OSU)	2008
Kyle Marcarello (KSU)	2008-2009
Dustin Chandler (KSU)	2008
Alison Bugg (KSU)	2008
Annie Roberts (Hartwick College)	2006
Christopher Mayack (SUNY-Geneseo)	2005
Krystle Bouchard (Wells College)	2005
Crystal Fankhouser (UW-Madison)	2002

D. High School Science Projects

Michael Baker and Larry Beaver, Louisville High School Ohio
3rd place team competition ($1000), 2009 International Science and Engineering Fair, Reno NV,

VII. University, Professional, Public Service (while at KSU only)

A. Committee Assignments

Biogeochemist Search Committee (2013)
Urban Ecosystem Ecologist Search Committee (2012)
Biogeochemist Search Committee (2012)
Hydrologist Search Committee (2012)
BSCI Graduate Studies Committee (2007-2010)
Microbiologist Search Committee (2007-2008)

B. Student Advising and Counseling

Undergraduate Advisor (F2011-present)

C. Other Scholarly Activities

Alliance for Water Future – Steering Committee (2013-present)

Ohio Lake Management Society – Board of Directors (2009 – 2011)
Associate Editor – Hydrobiologia (2008 – 2009)
Global Lakes Ecological Observatory Network (member 2007 – present)
Ad-hoc grant reviewer for various state, federal and international granting agencies (e.g., NSF, multiple state's Sea Grants, Austrian Academy of Science)
Ad-hoc reviewer for numerous journals
Stone Lab Research Experience for Undergraduates Advisor (2008, 2009, 2011, 2012, 2013).

E. Outreach

Interaction with Ravenna Water Department regarding Harmful Algal Blooms and Water Quality
Interaction with Ohio EPA regarding Harmful Algal Blooms and Water Quality in Northeastern Ohio Lakes
Informal Science Education with Twin Lakes Association and Sandy Lake Association
Centers for Ocean Sciences Education Excellence
Middle Cuyahoga Watershed Plan Participant
Participation with Twin Lakes Association Management Committee