

Neil D Bettez

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Education

B. S., Forestry, University of New Hampshire, 1989

M.S., Biology, University of North Carolina Greensboro, 1996

Ph.D., Cornell University, 2009

Professional Experience

2011 – Present Postdoctoral Associate Cary Institute of Ecosystem Studies, Millbrook, NY.
2009-2011 NSF Postdoctoral Fellow, Cary Institute of Ecosystem Studies, Millbrook, NY.
2002-2009 PhD. student, Dept. of Ecology & Evolutionary Biol., Cornell University, Ithaca, NY.
1999-2002 Visiting Fellow, Dept. of Ecology & Evolutionary Biol., Cornell University, Ithaca, NY.
1994-2002 Research Assistant III, The Ecosystems Center, MBL, Woods Hole, MA.
1991-1996 MS student, Biology Dept, University of North Carolina, Greensboro, NC.
1990-1991 Research Technician I, University of North Carolina, Greensboro, NC.
1988 Research Experience for Undergraduates, Hubbard Brook Exp. Forest, Woodstock, NH.

Worked on the Toolik Lake, Alaska, LTER Project from 1990-2002; from 1990-1994 (with Park Rublee, UNC Greensboro) on the effects of nutrient additions on microplankton composition and abundance. From 1994-2002, worked with John Hobbie (MBL, Woods Hole) and John O'Brien (UNC Greensboro) and was responsible for the following: logistics and scheduling of field season and whole-lake manipulations; maintenance and calibration of all field and laboratory equipment; supervision of summer assistant in collection of water samples for chlorophyll, nutrient chemistry, alkalinity, and primary productivity measurements; chemical analysis of water samples; and database management of long-term data sets. From 2002-2009 I was a PhD student with Robert Howarth at Cornell University. From 2009 – 2011 was funded under an NSF Geosciences Postdoctoral Fellowship to work with Peter Groffman on watershed nitrogen budgets along an urban-rural gradient at the Baltimore LTER in Maryland. Currently working on a Water Sustainability and Climate (WSC) project with Peter Groffman investigating interactions between urban development and the hydrologic cycle associated with nutrient cycles.

Funding

2009 NSF Earth Sciences Postdoctoral Fellowship, Contributions of mobile source emissions to watershed N budgets along an urban to rural gradient
2007 Cornell Biogeochemistry and Biocomplexity student research grant, Using ion exchange resins to measure the impacts of vehicle emissions on estuarine N loading.
2005 Edna Bailey Sussman Fund Environmental Internship Program Fellowship.
2005 Cornell Biogeochemistry and Biocomplexity student research grant, Using deposition gradients due to mobile source emissions to measure N status of Northern Forests.
2004 Mellon Foundation, Quantification of mobile source NO_x emissions and their influence on nitrogen loading to a Cape Cod Estuary.
2003 Hudson River Foundation, A reassessment of the Atmospheric Nitrogen inputs to the Hudson River Estuary: Using isotope-pairing techniques to discriminate between atmospheric and recycled N.
2003 Mellon Foundation Where's the nitrogen? Using isotope-pairing techniques to discriminate between atmospheric and recycled N in the lower Hudson River Estuary.
1993 North Carolina Academy of Science, R.R. Bryden Graduate Research award. Extraction and characterization of ribosomal DNA from rotifers in a series of arctic lakes.

Publications

- Whitmer, A., L. Ogden, J. Lawton, P. Sturner, P. M. Groffman, L. Schneider, D. Hart, B. Halpern, W. Schlesinger, S. Raciti, N. Bettez, S. Ortega, L. Rustad, S. T. Pickett, and M. Killelea. 2010. The engaged university: providing a platform for research that transforms society. *Frontiers in Ecology and the Environment* **8**:314-321.
- Davidson, E., A., Savage, K., E., Bettez, N., D., Marino, R., Howarth, R.W., 2010. Nitrogen in Runoff from Residential Roads in a Coastal Area. *Water, Air, and Soil Pollution* **210**:3-13.
- Keeling, E., N. Bettez, C. Harris, M. Hersh, K. Notin, M. A. M.A. Previtali, E. Rosi-Marshall, D. Strayer, and W. R. 2010. Review of Dodds, W.K. 2009. *Laws, Theories, and Patterns in Ecology*. *Ecoscience* **17**.
- MacIntyre, S., J. P. Fram, N. D. Bettez, W. J. O'Brien, J. E. Hobbie, and G. W. Kling. 2009. Climate-related variations in mixing dynamics in an Alaskan arctic lake. *Limnology and Oceanography*. **54**: 2401-2417
- Bettez, N. D. 2009. Impacts of Chronic Low Level Nitrogen Deposition Along A Roadside Deposition Gradient On Forest and Estuarine N Loading. PhD. Cornell University, Ithaca, NY.
- Hinzman, L., N. Bettez, W. R. Bolton, F. S. Chapin, M. Dyurgerov, C. Fastie, B. Griffith, R. D. Hollister, A. Hope, H. P. Huntington, A. J. Ineson, G. J. Jia, T. Jorgenson, D. L. Kane, D. R. Klein, G. Kofinas, A. Lynch, A. Lloyd, A., D. McGuire, F. Nelson, W. C. Oechel, T. Osterkamp, C. Racine, V. Romanovsky, R. Stone, D. Stow, M. Sturm, C. E. Tweedie, G. Vourlitis, M. Walker, D. Walker, P. J. Webber, J. Welker, K. Winker, and K. Yoshikawa. 2005. Evidence and implications of recent climate change in terrestrial regions of the Arctic. *Climatic Change* **72**:1-47.
- Lienesch, P. W., M. E. McDonald, A. E. Hershey, J. O'Brien, and N. Bettez. 2005. Effects of a Whole-Lake Fertilization on Lake Trout in a small Oligotrophic Arctic Lake. *Hydrobiologia* **548**:51-61.
- O'Brien, W. J., M. Barfield, N. Bettez, A. E. Hershey, J. E. Hobbie, G. Kipphut, G. Kling, and M. C. Miller. 2005. Long-term response and recovery to nutrient addition of a partitioned arctic lake. *Freshwater Biology* **50**:731-741.
- O'Brien, W. J., M. Barfield, N. D. Bettez, G. M. Gettel, A. E. Hershey, M. E. McDonald, M. C. Miller, H. Mooers, J. Pastor, C. Richards, and J. Schuldt. 2004. Physical, chemical, and biotic effects on arctic zooplankton communities and diversity. *Limnology and Oceanography* **49**:1250-1261.
- Hobbie, J. E., N. Bettez, L. A. Deegan, J. A. Laundre, S. MacIntyre, S. Oberbauer, W. J. O'Brien, G. Shaver, and K. Slavik. 2003. Climate Forcing at the Arctic LTER Site. Pages 459 *in* D. Greenland, D. G. Goodin, and R. C. Smith, editors. *Climate variability and ecosystem response at long-term ecological research sites*. Oxford University, New York.
- Bettez, N. D., P. A. Rublee, J. O'Brien, and M. C. Miller. 2002. Changes in abundance, composition and controls within the plankton of a fertilised arctic lake. *Freshwater Biology* **47**:303-311.
- Hobbie, J. E., M. Bahr, N. Bettez, and P. A. Rublee. 2000. Microbial food webs in oligotrophic arctic lakes. Pages 293-298 *in* C. R. Bell, M. Brylinsky, and P. Johnson-Green, editors. *Microbial Biosystems: New Frontiers, Proceedings of the 8th International Symposium on Microbial Ecology*. Atlantic Canada Society for Microbial Ecology, Halifax, Canada.
- Rublee, P. A., and N. D. Bettez. 2001. Lake characteristics influence recovery of microplankton in arctic LTER lakes following experimental fertilization. *Hydrobiologia* **446**:229-232.
- Hobbie, J. E., B. J. Peterson, N. Bettez, L. Deegan, W. J. O'Brien, G. W. Kling, G. W. Kipphut, W. B. Bowden, and A. E. Hershey. 1999. Impact of global change on the biogeochemistry and ecology of an Arctic freshwater system. *Polar Research* **18**:207-214.
- Rublee, P. A., and N. Bettez. 1995. Change of microplankton community structure in response to fertilization of an arctic lake. *Hydrobiologia* **312**:183-190.

Presentations

- Impacts of chronic low level nitrogen deposition along a roadside deposition gradient. Waquoit Bay National Estuarine Research Reserve (NERR) Science Forum. April 6, 2011(Invited)
- Nitrogen cycling in human-dominated systems: The impact of motor vehicle emissions on coastal watershed nitrogen budgets. Texas Tech University. March 23, 2011. (Invited)
- Nitrogen deposition at the Baltimore LTER. Cary Institute of Ecosystem Studies, Millbrook NY, March 10, 2011. (Invited)
- Nitrogen biogeochemistry in human-dominated systems: Inputs to watershed N budgets along an urban-to-rural gradient. Department of Biological Sciences, Kent State University, Nov 12, 2010. (Invited)
- Nitrogen deposition along an urban-rural land-use gradient in Baltimore MD. Baltimore Ecosystem Study Annual Meeting Community Open House & Greening Celebration. October 27-28th Baltimore MD.
- Impacts of chronic low level Nitrogen deposition along a roadside deposition gradient, 95th Ecological Society of America Annual Meeting (August 1 - 6, 2010).
- Sources and fate of Nitrogen in coastal watersheds at regional and local scales. Summit Meeting Role of Nutrient Management in Urban and Suburban Landscapes in Nutrient Loading of Surface and Ground Waters. Rutgers University, May 13 2010. (Invited)
- Impacts of Nitrogen Deposition due to Automobile Emissions on Forest N Cycling in a Coastal Watershed. Mount Holyoke College S. Hadley MA. April 13, 2010. (Invited)
- Air pollution in the urban environment. Baltimore Partnership for Environmental Science Literacy. Investigating Urban Ecosystems School year Workshop # 4. March 13, 2010 (Invited)
- Impact of Near Source Deposition of Mobile Source Emissions on Forest N cycling in a Coastal Watershed. The Ecosystems Center Marine Biological Laboratory Woods Hole, MA. September 29th 2009. (Invited)
- Impacts of chronic low level Nitrogen deposition along a roadside deposition gradient. National Atmospheric Deposition Program. October 6-9 2009 (Poster).
- How Fossil Fuels and Industrial Agriculture destroy the fisherman's catch: the global impact of the Nitrogen Cycle. Marist College, September 18th 2009. (Invited)
- Forest response to chronic low level N deposition along a roadside deposition gradient. North Eastern Research Cooperative. November 12-13, 2008 (Poster).
- Indications of nitrogen saturation in forests adjacent to roadways due to near source deposition of mobile source emissions. Estuarine Research Foundation. November 5-8th 2007.
- Implications of mobile source atmospheric nitrogen deposition on Cape Cod, MA. Meeting at Waquoit Bay of Coastal Zone Managers of New England. January 23rd 2007
- Measuring N-deposition along roadways due to traffic emission. Estuarine Research Foundation. October 16-19th 2005 (Poster).
- Assessing the contribution of mobile source N emissions near roadways using paired transects of net through fall and bulk collectors. National Atmospheric Deposition Program. September 29, 2005 (Poster).
- Patterns of N deposition along roadways due to localized mobile sources of N emissions. North Eastern Research Cooperative. November 16-18, 2004 (Poster).
- Long term changes in Alkalinity of arctic lakes, a possible indication of permafrost melting. American Society of Limnology and Oceanography. February 10, 2001
- Changes in Abundance, species composition and controls within the microbial loop of a fertilized arctic lake. American Society of Limnology and Oceanography. February 14, 1997
- Bottom up and top down controls in an Alaskan arctic microplankton community. Graduate student seminar series, University of North Carolina Greensboro. April 13, 1993
- Measuring Genetic Variability of the arctic rotifer *Conochilus unicornis* using variable regions of rRNA. The North Carolina Academy of Science, March 26, 1994

Teaching

Biogeochemistry, Spring 2004, 2006, Dr. Robert Howarth, Dr. Christy Goodale, Cornell University
Ecosystem Ecology, Spring 2003, 2005, Dr. Robert Howarth, Dr. Christy Goodale, Cornell University
General Ecology, Fall 2003, Dr. Brian Chabot, Cornell University
Introductory Biology laboratory, Spring & Fall 1992, 1993, Dr. Bruce Kirchoff UNC Greensboro

Service

Associate Faculty Member F1000 since September 2010
Cary Institute of Ecosystem Studies Postdoctoral Committee 2009-2011.
Cary Institute of Ecosystem Studies Discussion Groups Committee 2009-2011.
Cornell University Biogeochemistry and Biocomplexity IGERT small grant review committee: 2006-2008.
Cornell University Biogeochemistry and Biocomplexity IGERT seminar committee 2006
Invited speaker committee, Cornell University, Department of Ecology and Evolutionary Biology, 2006
President, Cornell University Biogeochemistry Graduate Student Association, 2003.
Institute of Arctic Biology Toolik Lake field station Steering Committee, 2001.
President, UNCG, Biology Graduate Student Association, 1993.
President, UNH, Society of American Foresters, Student Chapter, 1989.

Reviewer

Biogeochemistry
Ecological Applications
Environmental Biology of Fishes
European Long-Term Ecosystem Research Network
Global Environmental Change
Global Change Biology
Limnology and Oceanography: Methods
Water, Air, & Soil Pollution