

## CURRICULUM VITAE

### **Michael L. Pace**

Department of Environmental Sciences  
University of Virginia  
291 McCormick Road, P.O. Box 400123  
Charlottesville, Virginia 22904-4123  
Voice: 434-924-6541; Fax: 434-924-2137  
[pacem@virginia.edu](mailto:pacem@virginia.edu)

### **Professional Experience**

Professor, University of Virginia, 2008  
Adjunct Scientist, Institute of Ecosystem Studies, 2008  
Assistant Director, Institute of Ecosystem Studies, 2000-2008  
Senior Scientist, Institute of Ecosystem Studies, 1994-2008  
Acting Director, Institute of Ecosystem Studies, 1996, 2004  
Associate Scientist, Institute of Ecosystem Studies, 1989-1994  
Assistant Scientist, Institute of Ecosystem Studies, 1986-1989  
Assistant Professor, Department of Oceanography, University of Hawaii, 1983-1985  
Postdoctoral Fellow, Department of Biology, McGill University, 1981-1983

### **Education**

Ph.D. Ecology, University of Georgia, 1981  
M.S. Zoology, University of Georgia, 1977  
B.A. Biology & English, University of Virginia, 1974

### **Research Interests**

Aquatic Ecosystems, Food Webs, Microbial Ecology, Biogeochemistry

### **Selected Honors, Awards, Service**

Citation, Outstanding Reviewer *Limnology and Oceanography* in *L&O Bulletin* Vol. 16:  
85, American Society of Limnology and Oceanography  
Editorial Board, *Ecosystems*, 2008-present  
Nominated, Vice President for Finance, Ecological Society of America, 2007  
G. Evelyn Hutchinson Chair in Ecology, Institute of Ecosystem Studies, November  
2005-2008  
Editorial Board, *Frontiers in Ecology and the Environment*, 2006-Present

Rapid Response Team on Aquatic Ecology, Ecological Society of America, 2004-Present

Guest Researcher with Lake Ecosystem Response to Environmental Change (LEREC) Group, Universities of Umea and Uppsala, Sweden, September 2006

Committee of Visitors (Chair), Division of Environmental Biology, National Science Foundation, June 2006

Science Committee (Chair), International Limnology Society Triennial Meeting, 2006-2007

Organizing Committee, American Society of Limnology and Oceanography Annual Meeting, Santiago de Compostela, Spain, 2005

Eminent Ecologist, Kellogg Biological Station, Michigan State University, June 2005

Review Committee for Editor in Chief of *Ecological Applications*, Ecological Society of America, 2004-2005 (Chair)

Publications Committee, American Society of Limnology and Oceanography, 2002-2004 (Chair)

Ecosystem Studies Panel, National Science Foundation 2000-2004

Visions Committee, Ecological Society of America, 2002-2004

National Research Council, Committee on Endangered and Threatened Fishes of the Klamath Basin 2001-2004

Nominations Committee, American Society of Limnology and Oceanography, 1993-1994, 1999-2001 (Chair 2000-2001)

Scientific Advisory Board, National Center for Ecological Analysis and Synthesis, 1998-2001, (Chair 2000-2001)

Advisory Review Committee of the Cornell Biology Field Station, Bridgeport, New York, November 1999, external committee member

G. Evelyn Hutchinson Award Subcommittee, American Society of Limnology and Oceanography, 1999-2001

Panel, EPA Star Program on Regional Scale Analysis and Assessment, 1999

Judge and Advisory Panel for Dutchess County Science Fair 1998, 2001-2002

Scientific Advisory Committee, Multiscale Experimental Ecosystem Research Center, Center for Environmental Sciences, University of Maryland, 1998-2000

Editorial Board, *Ecosystems*, 1998-2000

Associate Editor, *Limnology and Oceanography*, 1994-1999

Grant Review Panels, Hudson River Foundation, 1996, 1997

Elected Fellow, American Association for the Advancement of Science, 1995

Board Member, Association of Ecosystem Research Centers, 1994-1997

Panels, National Science Foundation, 1990, 1994

Citation, American Fisheries Society for Most Significant Paper in *Transactions of the American Fisheries Society* Volume 121, 1992

Sigma Xi Award for Outstanding Ph.D. Dissertation, University of Georgia, 1981

Magna Cum Laude Graduate, University of Virginia, 1974

Phi Sigma Award in Biology, University of Virginia, 1974

Elected, Phi Beta Kappa, 1974

### **Graduate Students and Postdoctoral Associates Supervised**

Caroline Turner, Ph.D. student, 2005-Present, Section of Ecology and Systematics, Cornell University

Roxane Maranger, Postdoctoral Associate 2000-2002; Currently Assistant Professor, Department of Biological Sciences, University of Montreal

Francis Chan, Ph.D. 2001, Section of Ecology and Systematics, Cornell University; Currently Postdoctoral Associate Oregon State University

David Post, Ph.D. 2000, Section of Ecology and Systematics, Cornell University; Currently Assistant Professor, Department of Ecology and Evolution, Yale University

Isabel Reche, Postdoctoral Associate 1995-1997; Currently Assistant Professor, Department of Zoology and Ecology, University of Granada

Karin Limburg, Postdoctoral Associate 1994-1997; Currently Associate Professor, Environmental and Forest Biology, SUNY College of Environmental Science and Forestry, Syracuse, New York

Stephen Baines, Ph.D. 1993, Biology Department, Yale University; Currently Research Assistant Professor, Marine Science Research Center, SUNY Stony Brook

Hélène Cyr, Ph.D. 1992, Ecology Program, Rutgers University; Currently Associate Professor, Department of Zoology, University of Toronto

Dolors Vaqué, Postdoctoral Associate 1990-1991; Currently Marine Scientist, Institut de Ciències del Mar, Barcelona, Spain

George McManus, Postdoctoral Associate 1986-1989; Currently Associate Professor, University of Connecticut

## **Extramural Grants**

National Science Foundation – Collaborative research: leading indicators of regime shift – an ecosystem experiment, 2007-2010, \$462,185

National Science Foundation – QEIB: A spatially-explicit watershed-scale analysis of nutrient loading to Adirondack lake ecosystems, 2007-2009, \$300,000

McCann Foundation – Boat engine replacement, 2007, \$10,000

Hudson River Foundation - Boat Engine to Support Hudson River Activities, 2006-2007, \$10,000

Hudson River Foundation – Freshwater flow and benthic grazing as controls on the Hudson River food web: a synthesis of long-term data, 2005-2007, \$92,982

National Science Foundation – LTREB: Long term response of an aquatic ecosystem to an invasive species, 2005-2010, \$300,000

National Science Foundation – Collaborative Research: Terrestrial carbon subsidies of aquatic food webs, 2004-2007, \$700,000

Hudson River Foundation – Bacterial activity in the upper Hudson Estuary: Do sewage nutrients stimulate degradation of organic matter? \$193,100 (completed)

National Science Foundation – Collaborative Research: Alternative carbon sources for lake food webs, \$611,000 (completed)

National Science Foundation – LTREB: Developing a long-term perspective on the response of an aquatic ecosystem to an invasive bivalve, \$300,000 (completed)

Hudson River Foundation – Hot spots of bacterial activity in the Hudson River Estuary, \$190,495 (completed)

- Environmental Protection Agency – Regional analysis of variation in Adirondack lake ecosystems: landscape scale determinants of dissolved organic carbon, \$453,775 (completed)
- Department of Energy - Seventh Cary Conference: Successes, limitations and frontiers in ecosystem ecology to be held May 1997, \$25,000 (completed)
- National Aeronautics and Space Administration - Successes, limitations and frontiers in ecosystem ecology. \$30,000 (completed)
- National Science Foundation - Cary Conference VII: Successes, limitations and frontiers in ecosystem ecology: May 6-8, 1997, \$41,000 (completed)
- Cornell University - Subcontract on National Science Foundation Grant - Do top-down and bottom-up controls interact to exclude N-fixing cyanobacteria from the plankton of estuaries? \$147,443 (completed)
- National Science Foundation - Alternative states and ecosystem metabolism in lakes: interactions of nutrients and DOC, \$316,097 (completed)
- National Science Foundation - Response and compensation to a bivalve invasion by an aquatic ecosystem, \$900,000 (completed)
- Hudson River Foundation - Are spawners the first to go? Retrospective otolith analysis of successfully recruited American shad. \$41,000 (completed)
- New York Sea Grant Institute - Hudson River food web dynamics and the recruitment of striped bass, \$115,000 (completed)
- National Science Foundation - Research Opportunity Award supplement for Dr. William Shaw, Sullivan Community College, \$15,000 (completed)
- Hudson River Foundation - Cladoceran dynamics and the recruitment of larval *Morone* in the Hudson River Estuary, \$79,000 (completed)
- Hudson River Foundation - Synthesis of information on the lower food web of the tidal freshwater Hudson River, \$66,000 (completed)
- National Science Foundation - Regulation of heterotrophic microbial processes in lake ecosystems, 652,000 (completed)
- National Science Foundation - Microbial investigations of north temperate lakes: A supplement for research at LTER sites, \$45,000 (completed)
- Hudson River Foundation - Significance of bacterial production in the lower food web of the Hudson River, \$132,000 (completed)
- Hudson River Foundation - Hudson River fish populations: analysis of distribution and abundance from existing data, \$122,000 (completed)
- Lehigh University from a Mellon Foundation grant to Lehigh - Studies of the fate of algal production: sedimentation and grazing in three Poconos lakes, \$5000 (completed)
- University of Rhode Island, subcontract from an Environmental Protection Agency grant to URI - A nitrogen mass balance of the New York Bight ecosystem, \$45,000 (completed)
- National Science Foundation - Cascading trophic interactions in lake ecosystems: effects on bacteria and their consumers, \$150,000 (completed)
- Hudson River Foundation - Regulation of crustacean zooplankton in the Hudson River, \$72,000 (completed)
- Hudson River Foundation - Grazing on algae and bacteria by crustacean zooplankton in the Hudson River, \$67,000 (completed)

## **Presentations (since 2003)**

### *Abstracts from Presentations at Scientific Meetings*

- Pace, M.L. and K. Roy. 2007. Regional synchrony of dissolved organic carbon in lakes of the Adirondack Park (New York, USA). 30<sup>th</sup> Congress of the International Association of Theoretical and Applied Limnology, Aug. 12-18, 2007, Montreal, Quebec.
- Del Giorgio, P. and M.L. Pace. The Hudson River as both a carbon pipe and reactor. 30<sup>th</sup> Congress of the International Association of Theoretical and Applied Limnology, Aug. 12-18, 2007, Montreal, Quebec.
- Pace, M.L., S.R. Carpenter, J.J. Cole, J.F. Kitchell, J.R. Hodgson, J. Middelburg, N.D. Preston, C.T. Solomon, and B. Weidel. 2007. Does terrestrial carbon subsidize plankton in a clear-water lake? American Society of Limnology and Oceanography 2007 Aquatic Sciences Meeting, Feb. 4-9, Sante Fe, New Mexico.
- Coloso, J.J., J.J. Cole, and M.L. Pace. 2007. Depth-integrated estimates of metabolism in a clear-water lake. American Society of Limnology and Oceanography 2007 Aquatic Sciences Meeting, Feb. 4-9, Sante Fe, New Mexico.
- Pace, M.L., S. Carpenter, J. Cole, J. Kitchell, J. Hodgson, and M. Van De Bogert. 2005. Subsidy sources in small lakes: Not soup but specks and sinkers. Ecological Society of America 90<sup>th</sup> Annual Meeting, August 4-12, Montreal, Quebec, Canada, p. 407
- Maranger, R., C.D. Canham, M.L. Pace, and M.P. Papaik. 2005. A spatially-explicit model of iron loading to lakes. Ecological Society of America 90<sup>th</sup> Annual Meeting, August 4-12, Montreal, Quebec, Canada, p. 485.
- Pace, M.L., D. L. Bade, M. Van De Bogert, S.R. Carpenter, J.J. Cole, and E. Kritzberg. 2005. Pathways of Allochthony in Lake Food Webs: DOC to Bacteria to Zooplankton is Not the Main Road. American Society of Limnology and Oceanography 2005 Summer Meeting, June 19-25, Santiago de Compostela, Spain, p 115.
- Bastviken, D.L., J.J. Cole, M.L. Pace and L. M. Tranvik. Methane emissions from lakes: Dependence of lake characteristics, two regional assessments and a global estimate. American Society of Limnology and Oceanography 2005 Summer Meeting, June 19-25, Santiago de Compostela, Spain, p. 14.
- Van de Bogert, M.C., S.R. Carpenter, J.J. Cole, M.L. Pace. 2005. Spatial patterns of lake metabolism: partitioning whole-lake estimates into benthic and pelagic components. American Society of Limnology and Oceanography 2005 Summer Meeting, June 19-25, Santiago de Compostela, Spain, p. 157.
- Pace, M.L. and Y.T. Prairie. 2005. An overview and global estimate of lake respiration. American Society of Limnology and Oceanography 2005 Aquatic Sciences Meeting, February 20-25, 2005, Salt Lake City, Utah, p. 81.

- Prairie, Y.T. and M.L. Pace. 2005. A global estimate of lake respiration. Society of Canadian Limnologists Annual Meeting, January 6-9, 2005, Windsor, Ontario, Canada.
- Pace, M.L. 2004. Synchronous variation of dissolved organic carbon in Adirondack and northern Michigan lakes. Northeastern Ecosystem Research Cooperative 2004 Conference, November 16-18, Durham, New Hampshire, USA.
- 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  $^{13}\text{C}$  additions to lakes contrasting in dissolved organic matter and nutrients. Ecological Society of America Annual Meeting, Portland, Oregon, August 2004, p. 386.
- Strayer, D.L., N.F. Caraco, J.J. Cole, S. Findlay, and M.L. Pace. 2004. Grazing and hydrology as joint controls of a large river food web. Ecological Society of America Annual Meeting, Portland, Oregon, August 2004, p. 490.
- 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  $^{13}\text{C}$  uptake and allochthony in fishes using bioenergetics. Ecological Society of America Annual Meeting, Portland, Oregon, August 2004, p. 178.
- 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 Annual 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. Does terrestrial C fuel the aquatic food web? Further results from whole lake  $^{13}\text{C}$  additions. Ocean Science Meeting (ASLO-TOS), Honolulu, Hawaii, February 2004.
- del Giorgio, P. and M.L. Pace. 2004. DOC lability across aquatic ecosystems and its links to *in situ* bacterial carbon metabolism. American Geophysical Union Annual Meeting, Montreal, Quebec, April 2004 EOSTrans. AGU 85(17), Jt. Assem. Suppl., Abstract B33C-01.
- Pace, M.L. 2003. Ecosystem connections – impacts of terrestrial carbon on aquatic food webs. Chilean Ecological Society Annual Meeting, Puyahoe, Chile, November 2003, Biological Research 36: R-5.
- Strayer, D. L., E. A. Blair, N. F. Caraco, J. J. Cole, S. Findlay, W. C. Nieder, and M. L. Pace. 2003. Interactions between alien species and restoration of large-river ecosystems. In: A. D. Buijse, R. S. E. W. Leuven, and M. Greijdanus-Klaas (eds.). Netherlands Center for River Studies, Lowland River Rehabilitation, 2003 September 29-October 2; Wageningen, The Netherlands. p. 64.
- Bade, D. L., S. R. Carpenter, J. J. Cole, and M. L. Pace. 2003. Exogenous and endogenous origins of DOC in lakes: Surprising results from whole lake  $^{13}\text{C}$  additions. 88th Annual Meeting of the Ecological Society of America, 2003 August 3-8; Savannah, Georgia.
- Strayer, D. L., N. F. Caraco, J. J. Cole, M. L. Pace, S. Findlay, K. Hattala, and A. Kahnle. 2003. Ecological changes from two recent species invasions in the freshwater tidal Hudson River. Hudson River Environmental Society meeting on

- “Hudson River Fishes and Their Environment,” 2003 March 20-21;  
Poughkeepsie, NY.
- Canham, C., M. Pace, and M. Papaik. 2003. A spatially-explicit, watershed-scale analysis of dissolved organic carbon in Adirondack lakes. Cary Conference X — Ecosystem Function in Heterogeneous Landscapes, 2003 April 29 – May 1; Institute of Ecosystem Studies, Millbrook, New York. p. 50.
- 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. American Society of Limnology and Oceanography Annual Meeting, Salt Lake City, Utah, February 2003, p. 101.
- Roberts, B.J., J.J. Cole, M.L. Pace, and M. Van de Bogert. 2003. Diel respiration measured using stable oxygen isotopes in fertilized, clear, and colored lakes. American Society of Limnology and Oceanography Annual Meeting, Salt Lake City, Utah, February 2003, p. 108.

#### *Invited Seminars and Presentations*

- Seminar, Department of Environmental Sciences, University of Virginia, March 2007
- Seminar, Department of Ecology, Evolution, and Behavior, University of Minnesota, November 2006
- Seminar, Limnology Group, University of Uppsala, Sweden, September 2006
- Overview Talk, Lake Ecosystem Response to Environmental Change Workshop, Kronland, Sweden, September 2006
- Seminar, Swedish Royal Academy of Sciences Field Station, Abisko, Sweden, September 2006
- General Talk, Fusiliers Group, Millbrook, New York, September 2006
- Seminar, Department of Biology, Queens College, Queens, New York March 2006
- Seminar, Institute of Ecology, University of Georgia, Athens, Georgia February 2006
- Eminent Ecologist Lectures, Kellogg Biological Station, Hickory Corners, Michigan, June 13 & 15, 2005
- 6<sup>th</sup> Annual Herzog Lecture, Oakwood Friends School, Poughkeepsie, New York, April 2005
- Seminar Institute of Ecology, University of Georgia, Athens, Georgia, February 2005
- Presentation to the Chesapeake Research Consortium Zooplankton/Food Web Workshop, Edgewater, Maryland, January 2005
- Seminar, Biogeochemistry and Environmental Biocomplexity Program, Cornell University, October 2004
- Distinguished Scientist Seminar, Semester in Environmental Science, Ecosystems Center, Marine Biological Laboratory, September 2004
- Seminar, Department of Ecology and Evolutionary Biology, Yale University, April 2004
- Seminar, Hudson River Foundation, New York City, February 2004
- Plenary talk, Annual Meetings of the Biological and Ecological Societies of Chile, Osorno, Chile, November 2003
- Talk, Meeting of Investigators, Long Term Research in Environmental Biology Program, Washington, D.C., September 2003

Keynote Lecture, New England Association of Environmental Biologists, Westminister, Massachusetts, March 2003

### **Educational Activities (since 2003)**

Instructor in Fundamentals of Ecosystem Ecology Course for graduate students, IES, Annually

Lecture and Discussion on How to Give a Scientific Talk, Research Experiences for Undergraduates (REU) Program, IES, Annually

Lecture, SUNY-ESF course entitled *Hudson River Watershed Field Course*, Adirondack Ecology Center, Newcomb, New York, May 2004

Lecture, SUNY Albany course entitled *Topics in Ecosystem Ecology – Transport and Transformation of Nitrogen from the Atmosphere to the Sea*, Albany, New York, March 2004, November 2006

Lead Instructor of short course entitled *New Perspectives and Approaches to Aquatic Ecosystems*, lectures and discussions of readings, Austral University, Valdivia, Chile, November 2003

Instructor in team-taught ecology course for general public, Continuing Education Program, IES, 2003, 2004, 2007

Leader of Research in Context Forum, Research Experiences for Undergraduates Program, IES, 2004

### **Publications**

#### *Books*

Pace, M.L., and P.M. Groffman (eds.). 1998. Successes, limitations, and frontiers in ecosystem science. Springer-Verlag.

#### *Journal Articles and Book Chapters*

Coloso, J.J., J.J. Cole, P.C. Hanson, M.L. Pace. Depth-integrated, continuous, estimates of metabolism in a clear water lake. *Canadian Journal of Fisheries and Aquatic Science* (in press).

Canham, C.D., and M.L. Pace. A spatially-explicit, mass-balance analysis of watershed-scale controls on lake chemistry. In M. Shili, S. Carstenn, and M. Nungesser (eds.), *Real world ecology: large-scale and long-term case studies and methods*. Springer-Verlag (submitted)

Weidel, B.C., T. Ushikubo, S.R. Carpenter, N.T. Kita, J.J. Cole, J.F. Kitchell, M.L. Pace, and J.W. Valley. Diary of a buegill (*Lempomis macrochirus*): daily  $\delta^{13}\text{C}$  and  $\delta^{18}\text{O}$  records in otoliths by ion microprobe. *Canadian Journal of Fisheries and Aquatic Sciences* (in press)

Pace, M.L. Revisiting the ecosystem concept: important features that promote generality and understanding. In K.C. Weathers, D.L Strayer, and G.E Likens (editors). *Fundamentals of Ecosystem Ecology*. (in manuscript)

- Pace, M.L, and G.M. Lovett. Primary production: the foundation of ecosystems. In K.C. Weathers, D.L Strayer, and G.E Likens (editors). *Fundamentals of Ecosystem Ecology*. (in manuscript)
- Solomon, C.T., S.R. Carpenter, J.J. Cole, and M.L. Pace. 2008. Support of benthic invertebrates by detrital resources and current autochthonous primary production: results from a whole lake <sup>13</sup>C addition. *Freshwater Biology* 53: 42-54.
- Strayer, D.L., M.L. Pace, N.F. Caraco, J.J. Cole, and S. Findlay. Hydrology and grazing jointly control a large-river food web. *Ecology*. (in press)
- del Giorgio, P.A. and M.L. Pace. 2008. Relative independence of dissolved organic carbon processing and transport in a large temperature river: the Hudson River as both pipe and reactor. *Limnology and Oceanography* 53: 185-197.
- Carpenter, S.R., W.A. Brock, J.J. Cole, J.F. Kitchell, and M.L. Pace. Leading indicators of trophic cascades. *2008 Ecology Letters* 11: 128-138.
- Pace, M.L., S.R. Carpenter, J.J. Cole, J. Coloso., J.F. Kitchell, J.R. Hodgson, J.J. Middelburg, N.D. Preston, C.T. Solomom, B. Weidel. 2007. Does terrestrial organic carbon subsidize the plankton food web in a clear-water lake? *Limnology and Oceanography* 52: 2177-2189.
- Van de Bogert, M.C., S.R. Carpenter, J.J. Cole, and M.L. Pace. 2007. Assessing benthic and pelagic metabolism using free water measurements. *Limnology and Oceanography Methods* 5:145-155.
- Bade, D.L., S.R. Carpenter, J.J. Cole, M.L. Pace, E.S. Kritzberg, M.C. Van De Bogert, R.M. Cory, and D.M. McKnight. 2007. Sources and fates of dissolved organic carbon in lakes as determined by whole-lake carbon isotope additions. *Biogeochemistry* 84: 115-129.
- Chapin, F.S. Chapin, III, G.M Woodwell, J.T. Randerson, E.B. Rastetter, G.M. Lovett, D.D. Baldocchi, D.A. Clark, M.E. Harmon, D.S. Schimel, R. Valentini, C. Wirth, J.D. Aber, J.J. Cole, M.L. Goulden, J.W. Harden, M. Heimann, R.W. Howarth, P.A. Matson, A.D. McGuire, J.M. Melillo, H.A. Mooney, J.C. Neff, R.A. Houghton, M.L. Pace, M.G. Ryan, S.W. Running, O.E. Sala, W.H. Schlesinger, and E.-D. Schulze. 2006. Reconciling carbon-cycle concepts, terminology, and methods. *Ecosystems* 9: 1041-1050.
- del Giorgio, P.A., M.L. Pace, D. Fischer. 2006. The relationship of bacterial growth efficiency to spatial variation in bacterial activity in the Hudson River. *Aquatic Microbial Ecology* 45: 55-67.
- Strayer, D.L, V.T. Eviner, J.M. Jeschke, and M.L. Pace. 2006. Understanding the long-term effects of species invasions. *Trends in Ecology and Evolution* 21: 645-651.
- Bade, D.L., M.L. Pace, J.J. Cole, S.R. Carpenter. 2006. Can algal photosynthetic inorganic carbon isotope fractionation be predicted in lakes using existing models? *Aquatic Sciences* 68: 142-153.
- Kritzberg E.S., J.J. Cole, M.L. Pace, and W. Granéli. 2006. Bacterial growth on allochthonous carbon in humic and nutrient enriched lakes: Results from whole lake experiments. *Ecosystems* 9: 489-499.
- Cole, J.J., M.L. Pace, S.R. Carpenter, M.C. Van De Bogert, J.F. Kitchell, and J.R. Hodgson. 2006. Differential support of lake food webs by three types of terrestrial carbon. *Ecology Letters* 9: 558-568.

- Marino, R., R.W. Howarth, F. Chan, M.L. Pace, and G.E. Likens. 2006. Experimental tests of ecological constraints on planktonic nitrogen fixation in saline estuaries I. Nutrient and trophic controls. *Marine Ecology Progress Series* 309: 25-39.
- Chan, F., R.L. Marino, R.W. Howarth, and M.L. Pace. 2006. Experimental tests of ecological constraints on planktonic nitrogen fixation in estuaries II. Mechanisms of trophic control. *Marine Ecology Progress Series* 309: 41-53.
- Lovett, G.M., J.J. Cole, and M.L. Pace. 2006. Is net ecosystem production equal to carbon storage? *Ecosystems* 9: 152-155.
- Pace, M.L. and D.J. Lonsdale. 2006. Ecology of the Hudson zooplankton community, pp. 217-229. In J.S. Levinton and J.R. Waldman (eds.), *The Hudson River Estuary*. Cambridge University Press
- Maranger, R.J., C.D. Canham, M.L. Pace, M.J. Papaik. 2006. A spatially explicit model of iron loading to lakes. *Limnology and Oceanography* 51: 247-256.
- 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 <sup>13</sup>C addition to contrasting lakes. *Ecology* 86: 2737-2750.
- Strayer, D. L., E. A. Blair, N. F. Caraco, J. J. Cole, S. Findlay, W. C. Nieder, and M. L. Pace. 2005. Interactions between alien species and restoration of large-river ecosystems. *Archiv für Hydrobiologie Supplementband* 155: 133-145.
- Maranger, R.J., Pace, M.L., P.A. del Giorgio, N.F. Caraco, and J.J. Cole. 2005. A spatial analysis of bacterial production, respiration, and carbon consumption in a river-estuarine ecosystem. *Ecosystems* 8: 318-330.
- Kritzberg, E.S., J.J. Cole, M.L. Pace, and W. Granéli. 2005. Does autochthonous primary production drive variability in bacterial metabolism and growth efficiency in lakes dominated by terrestrial C inputs? *Aquatic Microbial Ecology* 38: 103-111.
- Palmer, M.A., E.S. Bernhardt, E.A. Chornesky, S.L. Collins, A.P. Dobson, C.S. Duke, B.D. Gold, R. Jacobson, S. Kingsland, R. Kranz, M.J. Mappin, M.L. Martinez, F. Micheli, J.L. Morse, M.L. Pace, M. Pascual, S. Palumbi, O. J. Reichman, A. Townsend, and M.G. Turner. 2005. Ecological science and sustainability for the 21<sup>st</sup> Century. *Frontiers in Ecology and the Environment* 3: 4-11.
- Pace, M.L., and Y.T. Prairie. 2005. Respiration in lakes, pp. 103-121 In P.J. le. B. Williams and P.A. del Giorgio (eds.). *Respiration in Aquatic Ecosystems*. Oxford University Press.
- Bastviken, D., J. Cole, M.L. Pace, and L. Tranvik. 2004. Methane emissions from lakes: Dependence on lake characteristics, two regional assessments, and a global estimate. *Global Biogeochemical Cycles* 18: GB4009  
10.1029/2004GB002238.
- Chan, F., M.L. Pace, R.W. Howarth, and R.M. Marino. 2004. Bloom formation in heterocystic nitrogen-fixing cyanobacteria: the dependence of colony size and zooplankton grazing. *Limnology and Oceanography* 49: 2171-2178.
- Canham, C.D., M.L. Pace, M.J. Papaik, A.G.B. Primack, K.M. Roy, R.J. Maranger, R.P. Curran, and D.M. Spada. 2004. A spatially-explicit watershed-scale analysis of dissolved organic carbon in Adirondack lakes. *Ecological Applications* 14: 839-854.

- Palmer, M., E. Bernhardt, E. Chornesky, S. Collins, A. Dobson, C. Duke, B. Gold, R. Jacobsen, S. Kingsland, R. Kranz, M. Mappin, M.L. Martinez, F. Micheli, J. Morse, M. Pace, M. Pascual, S. Palumbi, O.J. Reichman, A. Simons, A. Townsend, and M. Turner. 2004. Ecology for a crowded planet. *Science* 304: 1251-1252.
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