

James Bryan Cotner

Department of Ecology, Evolution and Behavior
University of Minnesota St. Paul, MN 55108

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Current position: Professor, Department of Ecology, Evolution and Behavior, University of Minnesota

Education:

B.A., Wittenberg University, Springfield, Ohio, 1981, Biology.

M.Sc., Kent State University, Kent, Ohio, 1984. Biology.

Ph.D., University of Michigan, Ann Arbor, 1990. Biology.

Post-doctoral research fellow, Great Lakes Environmental Research Laboratory and University of Michigan, Biological Limnology and Oceanography, 1990-1992.

Research Experience: The goal of my research program is to understand how bacteria and humans affect biogeochemical processes in aquatic systems. Microbes are incredibly important to ecosystem processes because of the great magnitude of their biomass and their diverse modes of heterotrophy and autotrophy. Because of this diversity of function, bacteria have significant impacts on the geochemistry of lakes, rivers and oceans. Humans have important effects on lakes and rivers through landscape and species alterations. Current research projects are focused on the Laurentian Great Lakes carbon and phosphorus cycling and the role of shallow lakes and wetlands in the global carbon cycle. Current funded projects:

2007-09 NSF REU (\$224,000) for “Field Studies in Global Change at the Headwaters of the Mississippi” , PI: J. Cotner, co-PI: S. Cotner.

2009-2012 NSF Ecosystems RUI for “Burial of organic carbon in temperate, shallow lakes. (K. Theissen, J. Cotner, and M. Edlund co PIs).

Publications relevant to this proposal:

Cotner, J.B., J. Kenning and J.T. Scott. 2009. The microbial role in littoral zone biogeochemical processes: Why Wetzel was right. *Verh. Internat. Verein. Limnol.* 30 (6): 981-984.

Cotner, J.B., and B.A. Biddanda. 2002. Small players, large role: Microbial influence on auto-heterotrophic coupling and biogeochemical processes in aquatic ecosystems. *Ecosystems* 5, 105-121.

Biddanda, B.A., and J.B. Cotner. 2002. Love handles in aquatic ecosystems: Role of dissolved organic carbon drawdown, resuspended sediments and terrigenous inputs in the carbon balance of a Great Lake (Michigan). *Ecosystems* 5: 431-445.

Biddanda, B., M. Ogdahl and J.B. Cotner. 2001. Dominance of bacterial metabolism in oligotrophic relative to eutrophic waters. *Limnology and Oceanography* 46: 730-739.

Cotner, J.B., T.H. Johengen, and B.A. Biddanda. 2000. Intense winter heterotrophic production stimulated by benthic resuspension. *Limnology and Oceanography* 45: 1672-1676.

Sean R. Vaughn
GIS Hydrologist
Division of Waters, Minnesota Department of Natural Resources
800 Oak Savanna Lane SW
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Current Position: GIS Hydrologist, DNR Watershed Delineation Project - Project Manager

Education:

B.S. Water Resources - Hydrology, University of Minnesota, St Paul, MN, 1989

Experience and Perspective

Over the long term, my work has focused on the identification, delineation and digitization of hydrologic features of the surface water system for client consumption and incorporation into GIS applications. As a GIS Hydrologist I have strived to produce watershed delineations that accurately represent the hydrology of the landscape. My intent is to produce watersheds that function as containers of hydrologic entities for modeling and GIS analysis. More recently, I have emphasized the importance of proper watershed data utilization associated with water quality and decision making processes through client and data-user education.

Other Recent Projects:

- 1998 – Present. DNR Watershed Delineation Project. I Developed all aspects of this intricate statewide project from the ground up, including: project design, GIS production, methodology design and documentation, problem solving, database design, hydrologic-GIS analysis and data development.
- 2004 – 2007. Evaluating functional linkages among landscapes and wetland attributes: assessing the roles of geomorphic setting, land use, and fish on wetland community characteristics. (with B. Herwig, M. Hanson and K. Zimmer co PIs)
- 1993 – 1998. Developed an inventory methodology to identify drained wetland boundaries in Chisago County, Minnesota employing the integration of aerial photography interpretation, National Wetlands Inventory, scope and effect of surface water channelization and hydric soil.

Publications Related to This Proposal:

Vaughn, S.R., 2009. DNR Watershed Delineation: *Project History, Methodology, Terminology & Data Attribution*. Minnesota Department of Natural Resources - Waters. Print

VITA FOR PATRICK G. WELLE

CONTACT INFORMATION: Department of Economics, DH20, # 30
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PRESENT POSITION: Professor of Economics & Environmental Studies
Bemidji State University: Sept. 1982 - present

EDUCATION: Ph.D. Economics, 1986, Univ. of Wisconsin-Madison
M.A. Economics, 1980, Univ. of Wisconsin-Madison
B.A. 1978, St. John's Univ.-Collegeville, MN

RECENT PUBLICATIONS:

- Boody, Gowda, Westra, van Schaik, Welle, Vondracek and Johnson, "Multifunctional Grass Farming: Science and Policy Considerations," forthcoming in the conference proceedings Farming With Grass, Soil and Water Conservation Society, 2009.
- Welle, Cloutman, Koch and Parson, "Biological and Shoreline Trend Monitoring at Tea Cracker Lake, Becker County, MN," technical report to the Minnesota Pollution Control Agency, December 2008.
- Welle and Hodgson, "Property Owners' Willingness To Pay For Restoring Impaired Lakes: A Survey In Two Watersheds of the Upper Mississippi River Basin," technical report to the Minnesota Pollution Control Agency, October 2008.
- Welle, Cloutman, Koch and Parson, "Biological and Shoreline Trend Monitoring at Beauty Lake, Hubbard County, MN," technical report to the Minnesota Pollution Control Agency, December 2006.
- Boody, Vondracek, Andow, Krinke, Westra, Zimmerman, and Welle, "Multifunctional Agriculture in the United States", BioScience, Vol. 55, No.1, January 2005.
- Krysel, Marsh Boyer, Parson and Welle, "Lakeshore Property Values and Water Quality: Evidence from Property Sales in the Mississippi Headwaters Region," technical report to the Legislative Commission on Minnesota Resources, June 2003.
- Welle, "Economic Perspectives on Water: Clean Water Makes Good Sense (Cents and Scents)," Focus on the Water, Vol. 13, No. 3, May 2002.
- Welle, "Multiple Benefits from Agriculture: A Survey of Public Values in Minnesota", technical report to the Legislative Commission on MN Resources, July 2001.