

Mary E. Ogdahl

Address:

Annis Water Resources Institute
Grand Valley State University
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Education:

2002 M.S., Environmental Science/Applied Ecology, Indiana University, Bloomington, IN
2000 B.A, Biology, Minor in Geology, Wittenberg University, Springfield, OH (Summa Cum Laude)

Professional Experience:

Research Assistant, Annis Water Resources Institute, Grand Valley State University, Muskegon, MI
2004-Present

- Implemented multiple scientific research projects, including experimental set-up, coordination of field sampling, and collection of field samples
- Analyzed samples in the laboratory for algal biomass, macrophyte identification, and invertebrate community composition
- Managed large datasets; analyzed and reported data from research projects
- Maintained, constructed, and acquired laboratory and field equipment
- Assisted in writing and proofreading scientific manuscripts and reports
- Served as webmaster for institute-wide website
- Assisted the co-editor of the Journal of the North American Benthological Society with editing responsibilities
- Supervised technicians and student interns in field and laboratory work

Aquatic Biologist, Grand Traverse Band (GTB) of Ottawa and Chippewa Indians, Peshawbestown, MI
2002-2004

- Implemented the GTB Water Quality Program, which involved surface water monitoring, groundwater protection, wetland management and protection, and nonpoint source pollution prevention
- Analyzed and reported water quality data
- Participated in watershed collaboration activities — local, Lake Michigan, and the Great Lakes basin
- Developed and used environmental education materials, presentations, and activities
- Developed and implemented Quality Assurance Project Plans for the collection and analysis of data

Teaching Assistant, Indiana University School of Public and Environmental Affairs, Bloomington, IN
2000-2002

- Assisted in laboratory and lecture instruction of graduate and undergraduate students in Limnology, Stream Ecology, and Computing for Environmental Scientists
- Instructed students in physical, chemical, and biological lake and stream sampling techniques
- Guided students through macroinvertebrate, plankton, fish, and periphyton identification

- Directed chemical analyses in the laboratory for nutrients and other water quality parameters
- Maintained and prepared field and laboratory equipment
- Served as Senior Limnology Teaching Assistant

Research Assistant, Indiana University School of Public and Environmental Affairs, Bloomington, IN
2000

- Collected field data and samples from designated lakes for the Indiana Clean Lakes Program
- Conducted laboratory analyses to determine nutrient content (nitrogen & phosphorous) of water
- Implemented quality assurance / quality control protocols in the laboratory and field
- Operated and maintained laboratory and field equipment
- Results used in Indiana's biennial 305(b) report to the U.S. Environmental Protection Agency

Research Assistant, Wittenberg University, Springfield, Ohio
1999

- Led intensive field survey that tracked wood turtles (*Clemmys insculpta*) to identify home ranges
- Captured, processed, and radio-tagged wood turtles
- Obtained 30 spatial locations on each of 10 turtles using radio telemetry
- Wrote grant proposal to successfully fund project
- Shared data with the US Forest Service to supplement Huron National Forest management plan

Peer-Reviewed Publications:

Steinman, A.D., **M.E. Ogdahl**, M. Weinert, and D.G. Uzarski. 2014. Influence of water level fluctuation duration and magnitude on sediment-water nutrient exchange in coastal wetlands. *Aquatic Ecology* 48:143–159. DOI: 10.1007/s10452-014-9472-5.

Ogdahl, M.E., A.D. Steinman, and M. Weinert. 2014. Laboratory-determined phosphorus flux from lake sediments as a measure of internal phosphorus loading. *Journal of Visual Experiments-Environment* (85).

Steinman, A.D., **M.E. Ogdahl**, K. Thompson, M.J. Cooper, and D.G. Uzarski. 2012. Water level fluctuations and sediment-water nutrient exchange in Great Lakes coastal wetlands. *Journal of Great Lakes Research* 38: 766-775

Steinman, A.D., and **M.E. Ogdahl**. 2012. Macroinvertebrate response and internal phosphorus loading in a Michigan lake following alum treatment. *Journal of Environmental Quality* 41: 1540-1548.

Steinman, A.D., **M.E. Ogdahl**, K. Wessell, B. Biddanda, S. Kendall, and S. Nold. 2011. Periphyton response to simulation nonpoint source pollution in the lower Muskegon River watershed. *Aquatic Ecology* 45: 439-454, doi: 10.1007/s10452-011-9366-8.

Steinman, A.D., and **M.E. Ogdahl**. 2011. Does converting agricultural fields to wetlands retain or release phosphorus? *Journal of the North American Benthological Society* 30: 820-830.

Steinman, A.D., **M.E. Ogdahl**, and C. R. Ruetz III. 2011. An environmental assessment of a small shallow lake threatened by urbanization. *Environmental Monitoring and Assessment* 173: 193-209.

Ogdahl, M.E., V.L. Lougheed, R.J. Stevenson, and A.D. Steinman. 2010. Influences of multi-scale habitat on metabolism in a coastal Great Lakes watershed. *Ecosystems* DOI 10.1007/s10021-009-9312-y.

Steinman, A.D., X. Chu, and **M. Ogdahl**. 2009. Spatial and temporal variability of internal and external phosphorus loads in an urbanizing watershed. *Aquatic Ecology* 43: 1-18.

Steinman, A.D. and **M. Ogdahl**. 2008. Ecological Effects after an Alum Treatment in Spring Lake, Michigan. *Journal of Environmental Quality* 37:22-29.

Steinman, A.D., **M. Ogdahl**, R. Rediske, C.R. Ruetz III, B.A. Biddanda, and L. Nemeth. 2008. Current status and trends in Muskegon Lake, Michigan. *Journal of Great Lakes Research* 34: 169-188.

Steinman, A.D. and **M.E. Ogdahl**. 2006. Environmental conditions (of freshwater sustainability). *Water Resources IMPACT* 8:39-40.

Cymbola, J., **Ogdahl, M.**, and A.D. Steinman. 2008. Phytoplankton response to light and internal phosphorus loading from sediment release. *Freshwater Biology* 53: 2530-2542.

Published Book Chapters:

Steinman, A.D., **M. Ogdahl**, and M. Luttenton. 2009. An analysis of internal phosphorus loading in White Lake, Michigan. Pages 311-325. F.R. Miranda and L.M. Bernard (editors). *Lake Pollution Research Progress*. Nova Science Publishers, NY.

Published commentaries:

Steinman, A.D., and **M. Ogdahl**. 2004. An Innovative Funding Mechanism for the Muskegon Lake AOC. *Journal of Great Lakes Research* 30:341–343.

Technical Reports:

2013 Steinman, A.D., and **M. Ogdahl**. 2013. Bear Creek/Bear Lake (Muskegon County) Watershed Implementation (2) Project: Internal Phosphorus Loading. Final Project Report. Michigan Department of Environmental Quality.

Ogdahl, M.E., A.D. Steinman, S.J. Damm, R.R. Rediske, C.E. Schwartz, L.B. Nederveld, R.J. Hoeksema, and D.J. Fredricks. 2013. Studies to Support an Implementation-Ready TMDL for Ruddiman Creek. Final Project Report. U.S. Environmental Protection Agency.

Steinman, A.D., and **M.E. Ogdahl**. 2013. Muskegon Lake AOC Habitat Restoration Design: Bear Lake Hydrologic Reconnection /Wetland Restoration. Final Project Report. National Oceanic and Atmospheric Administration.

- 2012 **Ogdahl, M.E.**, and A.D. Steinman. 2012. Muskegon Lake Area of Concern Habitat Restoration Project: Macrophyte Assessment. Final Project Report. National Oceanic and Atmospheric Administration.
- 2011 Steinman, A.D. and **M. Ogdahl**. 2011. Internal phosphorus loading in Spring Lake 5 years following alum treatment. Final Project Report. Progressive AE.
- Ogdahl, M.E.** and A.D. Steinman. 2011. Muskegon Lake Area of Concern Habitat Restoration Project: Macrophyte Assessment. National Oceanic and Atmospheric Administration.
- Steinman, A.D., **M.E. Ogdahl**, R.R. Rediske, and C.R. Ruetz. 2011. A study of surface run-off from U.S. 31 and Seaway Drive to Little Black Creek, Muskegon County, MI. Michigan Department of Transportation.
- 2010 Steinman, A.D. and **M.E. Ogdahl**. Flooded muck fields as a source of phosphorus to Mona Lake. Michigan Department of Environmental Quality.
- Steinman, A., **M. Ogdahl**, J. McNair, and K. Thompson. Comprehensive phosphorus dynamics program for the Kissimmee River Restoration Project. South Florida Water Management District.
- 2007 Rediske, R.R, Steinman, A.D., Chu, X., Scull, B., **Ogdahl, M.**, and K. Thompson. Bear Lake nutrient study. U.S. EPA Region 5.
- Steinman, A.D., **Ogdahl, M.**, and C. Ruetz. An environmental assessment of Little Black Lake. City of Norton Shores.
- Steinman, A.D., and **M. Ogdahl**. A water quality assessment of the Palomita Reserve. Annis Water Resources Institute, GVSU.
- 2006 **Ogdahl, M.**, A. Steinman, D. Uzarski, and K. Thompson. A methodology for assessing erosion control Best Management Practice (BMP) effectiveness. Great Lakes Commission, Great Lakes Basin Program for Soil Erosion and Sediment Control.
- Steinman, A.D., and **M. Ogdahl**. Internal phosphorus loading in Spring Lake eight months following an alum treatment. Spring Lake-Lake Board.
- Steinman, A.D., and **M. Ogdahl**. An analysis of internal phosphorus loading in White Lake. White Lake Association; GVSU.

Published Abstracts:

- 2013 **Ogdahl, M.E.**, A.D. Steinman, and G. Nogaro. Using Macrophytes to Assess Restoration Success in Muskegon Lake, Michigan. Society for Freshwater Science Annual Meeting, Jacksonville, Florida.

- 2012 **Ogdahl, M.E.**, A.D. Steinman, and M. Weinert. Phosphorus reduction to achieve Total Maximum Daily Load (TMDL) requirements: the role of internal loading in a west Michigan Lake. Society for Freshwater Science Annual Meeting, Louisville, Kentucky.
- 2011 **Ogdahl, M.E.**, and A.D. Steinman. Long-Term Ecological Responses to Alum Treatment in Spring Lake, Michigan. North American Benthological Society 59th Annual Meeting, Providence, Rhode Island.
- 2009 **Ogdahl M.**, A.D. Steinman, and B. Scull. Environmental Effects of Road Runoff on Little Black Creek. North American Benthological Society 57th Annual Meeting, Grand Rapids, Michigan.
- 2008 **Ogdahl M.**, A.D. Steinman, and S. Kendall. Spatial and temporal variability in periphyton response to simulated nonpoint source (NPS) inputs in the Muskegon River watershed, Michigan. North American Benthological Society 56th Annual Meeting, Salt Lake City, Utah.
- 2007 **Ogdahl, M.** and A.D. Steinman. Ecological Responses to Alum Treatment in Spring Lake, Michigan. North American Benthological Society 55th Annual Meeting, Columbia, South Carolina.
- Hrodey, P.J., Wessell, K.J., **Ogdahl, M.**, Kendall, S.T., and A.D. Steinman. Periphyton response to simulated nonpoint source pollution in the lower Muskegon River watershed, Michigan. North American Benthological Society 55th Annual Meeting, Columbia, South Carolina.
- 2006 **Ogdahl, M.E.**, and A.D. Steinman. Macro- and Microhabitat Influences on Algal Productivity in a Coastal Great Lakes Watershed. North American Benthological Society 54th Annual Meeting, Anchorage, Alaska.
- 2005 **Ogdahl, M.E.**, and A.D. Steinman. Benthic Metabolism in the Lower Muskegon River Watershed. International Association for Great Lakes Research 48th Annual Conference, Ann Arbor, Michigan.

Contributed Presentations:

- 2013 **Ogdahl, M.E.**, A.D. Steinman, and G. Nogaro. Using Macrophytes to Assess Restoration Success in Muskegon Lake, Michigan. Society for Freshwater Science Annual Meeting, Jacksonville, Florida.
- Ogdahl, M.E.**, and A.D. Steinman. Reconciling the Bear Lake Phosphorus TMDL with Scientific Data Needed for Management Decisions. Michigan Water Environment Association Annual Conference. Boyne Falls, Michigan
- 2012 **Ogdahl, M.E.**, A.D. Steinman, and M. Weinert. Phosphorus reduction to achieve Total Maximum Daily Load (TMDL) requirements: the role of internal loading in a west Michigan Lake. Society for Freshwater Science Annual Meeting, Louisville, Kentucky.
- 2011 **Ogdahl, M.E.**, and A.D. Steinman. Long-Term Ecological Responses to Alum Treatment in Spring Lake, Michigan. North American Benthological Society 59th Annual Meeting, Providence, Rhode Island.

Ogdahl, M.E., and A.D. Steinman. Long-Term Ecological Responses to Alum Treatment in Spring Lake, Michigan. Michigan Chapter of the North American Lake Management Society Annual Conference. Tustin, Michigan.

- 2009 **Ogdahl M.**, A.D. Steinman, and B. Scull. Environmental Effects of Road Runoff on Little Black Creek. North American Benthological Society 57th Annual Meeting, Grand Rapids, Michigan.
- 2008 **Ogdahl M.**, A.D. Steinman, and S. Kendall. Spatial and temporal variability in periphyton response to simulated nonpoint source (NPS) inputs in the Muskegon River watershed, Michigan. North American Benthological Society 56th Annual Meeting, Salt Lake City, Utah.
- 2007 **Ogdahl, M.**, A. Steinman, D. Uzarski, K. Thompson, and J. Rathbun. A Methodology for Assessing Erosion Control Best Management Practice (BMP) Effectiveness. 15th National Nonpoint Source Monitoring Workshop. Austin, Texas.
- Ogdahl, M.** and A.D. Steinman. Ecological Responses to Alum Treatment in Spring Lake, Michigan. North American Benthological Society 55th Annual Meeting, Columbia, South Carolina.
- Hrodey, P.J., Wessell, K.J., **Ogdahl, M.**, Kendall, S.T., and A.D. Steinman. Periphyton response to simulated nonpoint source pollution in the lower Muskegon River watershed, Michigan. North American Benthological Society 55th Annual Meeting, Columbia, South Carolina.
- Steinman, A.D., **Ogdahl, M.**, Hrodey, P.J., Wessell, K.J., Kendall, S.T., and S.C. Nold. Periphyton response to simulated nonpoint source pollution in the lower Muskegon River watershed: local or regional control? State of Lake Michigan Annual Meeting, Traverse City, Michigan.
- 2006 **Ogdahl, M.E.**, and A.D. Steinman. Macro- and Microhabitat Influences on Algal Productivity in a Coastal Great Lakes Watershed. North American Benthological Society 54th Annual Meeting, Anchorage, Alaska.
- 2005 **Ogdahl, M.E.**, and A.D. Steinman. Benthic Metabolism in the Lower Muskegon River Watershed. International Association for Great Lakes Research 48th Annual Conference, Ann Arbor, Michigan.

Recent Projects:

Bear Creek/Bear Lake (Muskegon County) Watershed Implementation (2) Project: Internal Phosphorus Loading. Michigan Department of Environmental Quality (2011-2013).

Muskegon Lake Habitat Restoration Design: Bear Lake Hydrologic Reconnection and Wetland Restoration (Phosphorus characterization in flooded celery fields). National Oceanic and Atmospheric Administration (2011-2013).

Studies to Support Ruddiman Creek Implementation-Ready TMDL. U.S. Environmental Protection Agency, Great Lakes Restoration Initiative (2010-2013).

Internal Phosphorus Loading in Spring Lake 5 Years Following Alum Treatment. Progressive AE (2010).

International Upper Great Lakes Study: Relationship between Water Level Fluctuation and Biota in Drowned Rivermouth Wetlands. International Joint Commission (2010).

Habitat Restoration in Muskegon Lake: Macrophyte Assessment. National Oceanic and Atmospheric Administration and Community Foundation for Muskegon County (2009-2012).

Comprehensive Phosphorus Dynamics Program for the Kalamazoo River Restoration Project. South Florida Water Management District (2009-2010).

Flooded Muck Fields as a Source of Phosphorus to Mona Lake. Michigan Department of Environmental Quality (2009-2010).

Black Creek Constructed Wetland Project. Michigan Department of Environmental Quality (2008-2009).

A Study of Surface Run-off from US 31/Seaway on Little Black Creek, Muskegon County, MI. U.S. Department of Transportation (2007-2009).

Ecological assessment of Little Black Lake, MI. City of Norton Shores (2007).

Bear Lake nutrient study. U.S. Environmental Protection Agency (2006-2007).

A hands-on scientific investigation at the Annis Water Resources Institute. (Simulated nonpoint source pollution in the Muskegon River Watershed). U.S. Department of Education (2004-2007).

Internal phosphorus loading in Spring Lake, MI, eight months following an alum treatment. Spring Lake – lake board (2006).

Internal phosphorus loading in White Lake, MI. White Lake Association; GVSU (2006).

Evaluation of erosion control best management practices (BMPs) in streams. Great Lakes Commission , Great Lakes Basin Program for Soil Erosion and Sediment Control (2005-2006)

Enhancing the Muskegon River Initiative: fish recruitment at the interface of the Great Lakes and their watersheds. (Primary production in the lower Muskegon River watershed) Great Lake Fishery Trust (2004-2007).

Assessment of internal phosphorus loading in Spring Lake, MI. Spring Lake – lake board. (2004).

Watershed Assessment of the Mona Lake Watershed. Mott Foundation (2004-2007).

Muskegon Lake long-term monitoring study. The Community Foundation for Muskegon County; Freemont Area Community Foundation; GVSU (2003-).

Affiliations:

Society for Freshwater Science
Phi Beta Kappa

Professional Service and Activities:

NABS Annual Meeting: Program Committee Member and Local Arrangements Committee Member, North American Benthological Society, 2009 Grand Rapids, MI.

Awards:

Annis Water Resources Institute Employee of the Year, 2009

Graduate Academic Award for Highest MSES GPA, School of Public and Environmental Affairs, Indiana University, 2002

Graduate Assistantship, School of Public and Environmental Affairs, Indiana University, 2000-2002

2001 Melissa Clark Academic Scholarship, Indiana University

Wittenberg University Scholar Award, 2000

Wittenberg University Departmental Honors Award in Biology, 2000

Wittenberg University Outstanding Achievement Award in Biology, 2000

Wittenberg University Faculty Research Fund Board Student Research Award, 1999

Professional Employability Skills:

- Use of equipment and protocols for collecting physical, biological, and chemical data in lakes and streams. Specific equipment includes Hydrolab Datasonde; YSI meters; Seabird; LiCor Quantum Sensor; Ekman and Ponar dredges; piston corer; Kemmerer, Van Dorn, Schindler samplers; plankton tow net; Secchi disk; Marsh-McBirney Flo-Mate
- Identification of aquatic macroinvertebrates, freshwater plankton, terrestrial and aquatic vegetation
- Analysis of samples in the laboratory for algal biomass, nutrients, and other water quality parameters
- Preparation of chemical reagents and standard solutions used for water nutrient analyses
- Operation and maintenance of Alpkem autoanalyzer for analysis of nitrogen species
- Operation and maintenance of Shimadzu spectrophotometer for analysis of chlorophyll pigments
- Proficiency in Global Positioning Systems (GPS) for navigation and spatial data collection
- Use of Geographical Information Systems (GIS) for spatial analysis
- Small boat operation
- National Association of Underwater Instructors (NAUI) Advanced Open Water Scuba certification
- Advanced computer skills — Microsoft Excel, Word, PowerPoint, Access; SPSS; Sigma Stat; Sigma Plot; ArcView
- Exceptional editing and writing ability
- Excellent communication and interpersonal skills