

THOMAS B. BRIDGEMAN

Assistant Professor

Department of Environmental Sciences

CURRICULUM VITAE (August 2008)

ADDRESS: Lake Erie Center
6200 Bayshore Rd
University of Toledo
Toledo, OH 43618

PHONE: 419-530-8373, -8381 -5499
FAX: 419-530-8399
EMAIL: Thomas.Bridgeman@utoledo.edu

EDUCATION:

B.S. 1984 Zoology, Miami University, Oxford, Ohio

M.S. 1990 Zoology, The Ohio State University, Columbus
Major Advisor: David A. Culver

Ph.D. 2001 Ecology and Evolutionary Biology, University of Michigan, Ann Arbor
Major Advisor: George W. Kling

FIELD OF EXPERTISE

Great Lakes limnology with emphasis on:

Land-lake-climate linkages: problems of weather-induced hypoxia in shallow areas of Great Lakes; suspended sediment inputs and harmful algal blooms
Zooplankton – use of zooplankton as indicators of ecological change; exotic zooplankton and parasites; zooplankton grazing pressure on phytoplankton.
Phytoplankton (algae): Cyanobacteria blooms in Lake Erie, phytoplankton as ecological indicators of nutrient and lake mixing status; primary production

PROFESSIONAL EXPERIENCE

August 2006 Assistant Professor, Department of Environmental Sciences, U. Toledo

Jan 2004-2006 Staff Scientist, Lake Erie Center, University of Toledo

2002-2006 Research assistant professor, Dept. of Earth, Ecological, and Environmental Sciences, University of Toledo

2003, 2006 (June-July) Visiting Professor, Stone Laboratory, The Ohio State University

2003 (Jan-Mar) Visiting Assistant Professor, Dept. of Ecology and Evolutionary Biology, University of Michigan

1994-2001 Graduate Teaching Associate, Dept. of Ecology and Evolutionary Biology, University of Michigan

- 1991-1994 Support Scientist, National Oceanic and Atmospheric Administration (NOAA) Great Lakes Environmental Research Laboratory / U. of Michigan Cooperative Institute for Limnology and Ecosystems Research (CILER), Ann Arbor, MI
- 1987-1990 Graduate Teaching Associate, Dept. of Zoology, The Ohio State University
- 1984-1987 High school science teacher, U.S. Peace Corps, Swaziland, Southern Africa

PUBLICATIONS

- Bridgeman, T. B., G. L. Fahnenstiel, G. A. Lang, and T. F. Nalepa. 1995. Zooplankton grazing during the zebra mussel (*Dreissena polymorpha*) colonization of Saginaw Bay, Lake Huron. *Journal of Great Lakes Research*. 21:567-573.
- Fahnenstiel, G. L., T. B. Bridgeman, G. A. Lang, M. J. McCormick, and T. F. Nalepa. 1995. Phytoplankton productivity in Saginaw Bay, Lake Huron: Effects of zebra mussel (*Dreissena polymorpha*) colonization. *Journal of Great Lakes Research*. 21:465-475.
- Bridgeman, T.B., G. Messick, and H. A. Vanderploeg. 2000. Sudden appearance of cysts and ellobiopsid parasites on zooplankton in a Michigan lake: a potential explanation of tumor-like anomalies. *Canadian Journal of Fisheries and Aquatic Sciences*. 57(8):1539-1544.
- Bridgeman, T.B., C. D. Wallace, G. S. Carter, R. Carvajal, L. C. Schiesari, S. Aslam, E. Cloyd, D. Elder, A. Field, K. L. Schulz, P. M. Yurista, and G. W. Kling. 2000. A limnological survey of Third Sister Lake, Michigan with historical comparisons. *Journal of Lake and Reservoir Management*. 16:253-267.
- Vincent, R. K., X. Qin, R. M. McKay, J. Miner, K. Czajkowski, J. Savino, and T.B. Bridgeman, 2004, Phycocyanin Detection from Landsat TM data for mapping cyanobacterial blooms in Lake Erie, *Remote Sensing of Environment*, 89:381-392.
- Rinta-Kanto, J.M., A.J.A. Ouellette, M.R. Twiss, G.L. Boyer, T.B. Bridgeman, and S.W. Wilhelm. 2005. Quantification of toxic *Microcystis* spp. during the 2003 and 2004 blooms in Western Lake Erie. *Environmental Science and Technology* 39, 4198-4205.
- Schloesser, D.W., R.G. Stickel, and T.B. Bridgeman. 2005. Potential oxygen demand of sediments from Lake Erie. *Journal of Great Lakes Research*. 31 (Suppl. 2) 272-283.
- Bridgeman, T.B., D.W. Schloesser, and A.E. Krause. 2006. Recruitment of *Hexagenia* mayfly nymphs in western Lake Erie linked to environmental variability. *Ecological Applications*, 16:601-611.
- Ruberg, S., S. Brandt, R. Muzzi, N. Hawley, T. Bridgeman, G. Leshkevich, and T. Miller. 2007. A wireless real-time coastal observation network. *EOS, Transactions, American Geophysical Union*. 88, 285-286.

Moorhead, D., T. B. Bridgeman and J. Morris. 2008. Changes in Water Quality of Maumee Bay 1928-2003. In M. Munawar and R. Heath (eds.) *Checking The Pulse of Lake Erie. Aquatic Ecosystem Health and Management Society - Ecovision World Monograph Series.* pp 123-158.

RESEARCH SUPPORT

- 2004 Lake Erie Protection Fund (PI = T. Bridgeman) Project entitled “Maumee Bay and Western Lake Erie Water Quality Monitoring” 2004-2005.
- 2005 National Oceanic and Atmospheric Administration (collaborative grants; PI = S. Brandt, co-PIs = T. Bridgeman, S. Ruberg, and D. Schwab) Project entitled “Temporal Resolution of the Maumee River Plume.”
- 2007 Ohio Sea Grant and Ohio Lake Erie Commission (collaborative grants; PI = T. Bridgeman, co-PIs = C.M. Mayer, S.A. Heckathorn, and W.V. Sigler) Project entitled “Assessing the Role of Turbid River Plumes in the Development of *Microcystis* blooms in Lake Erie with Molecular Techniques.” 2 yrs, February 2007 – January 2009.
- 2007 Great Lakes Fishery Commission (collaborative grants; PI = C.M. Mayer, co-PIs = T. Bridgeman, J. Bossenbroek, and S. Ludsin), project entitled “Experimental and spatial modeling of environmental factors affecting foraging success of age-0 yellow perch.” 3 yrs, Jan 1, 2007 – Dec 31, 2009.
- 2007 National Oceanic and Atmospheric Administration (Collaborative grants; PI= T. Bridgeman, co-PIs = R. Ruch and T. Hook), Project entitled “Hypoxia Inducible Factors: Physiological indicators of hypoxia in Lake Erie fauna” 1 year, June 2007 – May 2008.
- 2007 University Research Awards and Fellowships (URAF) Interdisciplinary Research Initiation Award (Collaborative Grants; PI=T. Bridgeman, co-PIs= R. Ruch, W. Von Sigler, and J. Turner) Project entitled “Bobbing for Benthos: The Effects of Foraging in Hypoxic “Dead Zones” on Lake Erie Sport Fish” 1 year, September 2007 – August 2008.
- 2007 National Science Foundation GK-12 program (Collaborative Grants; PI= C.A. Stepien CoPIs: T. Bridgeman, C. Gruden, T. Fisher, D. Moorhead) \$2.5M for project entitled “Graduate Teaching Fellows in STEM High School Education: An Environmental Science Learning Community at the Land-Lake Ecosystem Interface” 5 years, May 2008 – April 2013.
- 2008 Center for Innovative Food Technology (Collaborative Grants; PI= C. Schall [Engineering], CoPIs: T. Bridgeman, S. Heckathorn, S. Varanasi) Project entitled “Biodiesel from Algae: A pilot study on the feasibility of Lake Erie algae as a source of biodiesel or bioethanol production in Northwest Ohio” 1 year, August 2007 – June 2008.
- 2009 Center for Innovative Food Technology. PI= T. Bridgeman. Project entitled “Algae Identification for Biofuels.” 1 year, July 2008- June 2009.

PRESENTATIONS AT MEETINGS (Published Abstracts)

- 1990 American Society of Limnology and Oceanography, National Meeting (Bridgeman, T.B., and D.A. Culver) Spatial and temporal genetic variation of *Daphnia* in the western and central basins of Lake Erie.
- 1993 American Society of Limnology and Oceanography, National Meeting (Bridgeman, T.B., G.L. Fahnenstiel, and G.A. Lang). Primary productivity in Saginaw Bay/ Lake Huron from 1990 to 1992 and comparisons to 1974-1975.
- 1998 International Association of Great Lakes Research, Annual Conference (Bridgeman, T.B.). Recent changes in zooplankton communities of Lake Victoria (East Africa) inferred from the sediment record. (Solicited abstract).
- 2002 American Society of Limnology and Oceanography, National Meeting (Bridgeman, T. B.). Historical response of zooplankton communities to ecological change in Lake Victoria (East Africa).
- 2003 International Association of Great Lakes Research, Annual Conference (Bridgeman, T.B. and D.W. Schloesser) Summer stratification, hypoxia, and mayfly recruitment in the Western Basin of Lake Erie.
- 2003 International Association of Great Lakes Research, Annual Conference (Moorhead, D.L., T.B. Bridgeman, and J. Morris). Changes in water quality of Maumee Bay, Lake Erie: 1974-2002.
- 2003 International Association of Great Lakes Research, Annual Conference (Coss, J., Czajkowski, K., Bridgeman, T.B., Leshkevich, G.A., and R. Vincent, R.K.) Development and Validation of a Turbidity Product for Lake Erie: GLERL's CoastWatch Satellite Program.
- 2004 International Association of Great Lakes Research, Annual Conference (Bridgeman, T.B., D.W. Schloesser, and R.G. Stickle) Potential oxygen demand of sediments from Lake Erie.
- 2005 American Society of Limnology and Oceanography, National Meeting (Mayer, C.M., R. Johnson, R. Lohner, L. Rudstam, E. Mills, T. Bridgeman, and S. Heckathorn) Biological and physical factors affecting benthification in lakes.
- 2005 International Association of Great Lakes Research, Annual Conference (Bridgeman, T.B.) The *Microcystis* blooms of western Lake Erie 2003-2004.
- 2005 International Association of Great Lakes Research, Annual Conference (Mayer, C.M., Lohner, R.N., Heckathorn, S.A., and T.B. Bridgeman) Benthic Primary Production in Maumee Bay, Western Lake Erie: Green Lake, Brown Bottom.
- 2005 Estuarine Research Federation (Bridgeman, T.B., D.W. Schloesser, J.J. Ciborowski, S.A. Ruberg, and M.A. Thomas) Hypoxia and benthic ecology in western Lake Erie. (Symposium - invited).
- 2006 International Association of Great Lakes Research, Annual Conference (Bridgeman, T. B., C. M. Mayer, D. W. Schloesser, K. M. DeVanna1, Rachel N. Lohner) Oxygen Demand of Western Lake Erie Sediments and Benthos: A Methods Comparison.
- 2007 International Association of Great Lakes Research, Annual Conference (Johnson, T., J. Tyson, and T. B. Bridgeman) Long-term Multi-trophic Level Monitoring in western Lake Erie – Indicators of Ecosystem Health.
- 2008 Ohio Academy of Science 17th Annual Meeting/ Ohio Science Symposium (T. Bridgeman) Chronology of Harmful Algal Blooms in Western Lake Erie 2002-2007 (invited)
- 2008 Ohio Academy of Science 17th Annual Meeting (J. Filbrun*, J. Chaffin**, T. Bridgeman) Quantifying *Microcystis sp.* in Western Lake Erie and Maumee Bay Using Density Separation and Microscopy 2002-2006.

- 2008 International Association of Great Lakes Research, Annual Conference (Bridgeman, T.B., and W.V. Sigler) *Lyngbya wollei* blooms in Western Lake Erie 2006-2007.
- 2008 International Association of Great Lakes Research, Annual Conference (Chaffin, J.D.** Bridgeman, T.B., and J.E. Filbrun*) Quantification of *Microcystis* sp. blooms in Western Lake Erie (2002-2007) and Relation to Tributary Flow.

OTHER PRESENTATIONS

- 2003 Lake Erie Millennium Conference (Bridgeman, T. B.) A new monitoring program on Maumee Bay and Western Lake Erie.
- 2004 Great Lakes Risk Analysis, Management, and Communication Conference (Mayer, C.M., L. Rudstam, E. Mills, R. Johnson, B. Zhu, and T. Bridgeman) *Dreissena* Invasion: An Illustration of Unpredictable Effects Associated with a Species Introduction.
- 2006 Lake Erie Millennium Conference (Bridgeman, T. B., Don W. Schloesser, Ann E. Krause) Hypoxia and Benthic Ecology in Western Lake Erie. (invited)
- 2007 Ohio League of Women Voters (T. Bridgeman) Harmful Algal Blooms in Western Lake Erie. (Invited)
- 2007 COSI Science Teacher Workshop (T. Bridgeman) Confronting Climate Change in the Great Lakes Region. (invited)
- 2008 Western Lake Erie Waterkeeper Association (T. Bridgeman) Harmful Algal Blooms in Western Lake Erie 2002-2007. (invited)
- 2008 International Joint Commission – Council of Great Lakes Researcher Managers (T. Bridgeman) Correlations Between Maumee River Flow and *Microcystis* blooms (invited)
- 2008 Lake Erie Millennium Network, 5th Biennial Conference (T. Bridgeman and J. Chaffin**) *Microcystis* blooms in Western Lake Erie 2002-2007 (invited)

INVITED SEMINARS

- 2002 NOAA Great Lakes Environmental Research Laboratory
- 2002 University of Toledo
- 2003 NOAA Great Lakes Environmental Research Laboratory
- 2005 University of Toledo, Lake Erie Center
- 2005 Bowling Green State University
- 2007 Cleveland State University (October)

TEACHING EXPERIENCE

- 1984- Secondary and High School science teacher at Ekukhanyeni High School in Swaziland, 87 Southern Africa. U. S. Peace Corps.

(Graduate Teaching)

- 1987- The Ohio State University Graduate Teaching Associate,
- 90 Laboratory teacher for:
- Limnology (graduate/advanced undergraduate level)
 - Plankton (graduate/advanced undergraduate level)
 - Invertebrate Zoology (graduate/advanced undergraduate level)
 - Malacology – the biology of mollusks (graduate/advanced undergraduate level)

General Zoology (undergraduate level)
General Biology (undergraduate level)

- 1994- University of Michigan Graduate Teaching Associate,
2000 Laboratory teacher for:
 Freshwater Ecology: Limnology (graduate/advanced undergraduate level)
 Field and Laboratory Techniques in Aquatic Science (graduate/advanced undergraduate)
 Biology of Algae (graduate/advanced undergraduate level)
 Animal Physiology (undergraduate level)
 Ecology (undergraduate level)
 Biochemistry (undergraduate level)
 Introductory Biology Lab (undergraduate level)
 Biology for non-majors (undergraduate level)

(Post-graduate Teaching: Instructor/Lecturer)

- 2003 University of Michigan, Visiting Assistant Professor
 Freshwater Ecology: Limnology, a split-level course for both upper-division undergraduates and graduate students; three one-hour lectures each week and one, three-hour lab.
- 2003 The Ohio State University, Visiting Professor
 Limnology, a 5-week summer field course for both upper-division undergraduates and graduate students; three seven-hour sessions each week (combined lecture and lab).
- 2006 The Ohio State University, Visiting Professor
 EEOB 125: Introductory Aquatic Biology, an intensive 1-week course for lower division undergrads. Daily seven-hour classroom, lab, and fieldtrip sessions.
- 2006 University of Toledo, Research Assistant Professor
 EEES 4980/6980-004: Water Quality of Lakes and Streams. A two-credit course taught over one week in summer. Advanced undergraduate and MS graduate student level.

(Faculty Teaching)

- 2006-7 University of Toledo, Assistant Professor
 EEES 4980/6980-022: Environmental Issues in the Great Lakes. (3 credit hrs.)
- 2007-8 EEES 4730 – Aquatic Ecology (3 credit hrs.)
 EEES 5730/7730 – Advanced Aquatic Ecology (3 credit hrs.)
 EEES 4740 – Aquatic Ecology Laboratory (1 credit hr.)
 EEES 5740/7740 – Advanced Aquatic Ecology Laboratory (1 credit hr.)
 EEES 4980/6980-022: Environmental Issues in the Great Lakes. (3 credit hrs.)
 EEES 1150-995 – Marine Biology (3 credit hrs)
 EEES 6980/8980 – Water Quality of Lakes and Streams
- 2008-9 EEES 4730 – Aquatic Ecology (3 credit hrs.)

EEES 5730/7730 – Advanced Aquatic Ecology (3 credit hrs.)
EEES 4740 – Aquatic Ecology Laboratory (1 credit hr.)
EEES 5740/7740 – Advanced Aquatic Ecology Laboratory (1 credit hr.)
EEES 1150-995 – Marine Biology (3 credit hrs)

ADVISING

Graduate Advising

Justin Chaffin (MS started summer 2007) – research topic: Ecology of harmful algal blooms in western Lake Erie.

Betsy Bodamer (Ph.D. started Fall 2007) – research topic: Effects of hypoxia on Lake Erie fauna.

Graduate Advisory Committees

Kristen Devanna (PhD), Nathan Manning (PhD), Laura Petree (MS), Steven Choc (MS), Wanda Pennemon (MS- education)

Undergraduate Advising:

Joshua Morris 2002-05 Water quality of western Lake Erie

Kristi Sabo, REU Fellow 2005, “Sediment oxygen demand in western Lake Erie”

Justin Chaffin, REU Fellow 2006, “Predatory cladocerans of western Lake Erie and Maumee Bay”

Jesse Filbrun, REU Fellow 2007, “Quantifying Microcystis spp. in Western Lake Erie and Maumee Bay using Gravimetric Separation and Microscopy, 2002-2006”

Janine Cannell, Undergraduate Research Fellow 2008, “Effects of hypoxia on mayfly nymphs in Lake Erie”

HONORS, AWARDS, FELLOWSHIPS, ETC.

1988 The Ohio State University, Sigma Xi Grant-In-Aid of Research, \$500

1988 The Ohio State University Franz Theodore Stone Laboratory and College of Biological Sciences. Stone Laboratory Scholarship, \$200

1989 The Ohio State University Graduate School, Raymond C. Osburn Fellowship, \$750 and tuition.

1993 United States Department of Commerce/ NOAA *Certificate of Recognition*, for SCUBA diving recovery of lost research equipment.

1995 University of Michigan Dept. of Biology Block Grant, \$1940

1996 University of Michigan Dept. of Biology Block Grant, \$1010

1996 University of Michigan Sokol International Summer Research Fellowship, \$5000

1997 University of Michigan Dept. of Biology Block Grant, \$1100

1997 University of Michigan Rackham Graduate School Discretionary Funds, \$970

1998 University of Michigan Rackham Graduate School Travel Award, \$400

1998 University of Michigan Rackham Graduate School, Dissertation Research Grant, \$2050

1998 National Security Education Program. David L. Boren Graduate Fellowship for International Research, \$8100

2000 NOAA / University of Michigan (CILER) *Certificate of Recognition*, for publication of “Sudden appearance of cysts and ellobiopsisid parasites on zooplankton in a Michigan

lake: a potential explanation of tumor-like anomalies” as a Rapid Communication in
Canadian Journal of Fisheries and Aquatic Sciences.
2001 University of Michigan Rackham Graduate School Dissertation Fellowship. \$4800 and
tuition.

SERVICE

Manuscript reviews for:

Environmental Toxicology
Freshwater Biology
Journal of Great Lakes Research
Limnology and Oceanography
Transactions of the American Fisheries Society
Wetlands Ecology and Management
Canadian Journal of Zoology

Ad hoc reviewer of grant proposals for:

NOAA Coastal Hypoxia Research Program (CHRP), 2004
NOAA Center for Sponsored Coastal Ocean Research, 2005
Wisconsin Sea Grant Institute, Omnibus Research and Outreach Competition, 2007

Panel review member for the US National Security Education Program David L. Boren Graduate
Fellowships, 2005

Panel review member for NOAA Ecology of Harmful Algal Bloom Program (ECOHAB), 2008

Organized and hosted “Western Lake Erie Logistics Workshop” at the Lake Erie Center, Jan 2004 (38
participants from Ohio, Michigan, and Canada, facilitating the ongoing, multi-researcher *Erie*
Cooperative Collaborative Study).

Participant in meetings of Maumee River Basin Partnership of Local Governments 2002-2003

Member of Ohio Phosphorus Task Force 2007

Trained teachers for “Student Watershed Watch” program sponsored by Toledo Metropolitan Area
Council of Governments (TMACOG), 2003, 2006

Invited Presenter at “Student Watershed Watch Summit” sponsored by Toledo Metropolitan Area
Council of Governments, 2004, 2006, 2007

Session Chair, University of Toledo Sigma Xi annual meeting, 2005, 2006

Invited Panelist at National Council of Churches environmental conference “Living Waters” Sylvania,
Ohio, February 25-26, 2005

Guest Lecturer, University of Toledo for:

The Law and Science of Biodiversity, 2003
Plants and Society, 2005

Presenter and panelist, 6th Annual Great Lakes Water Conference,
University of Toledo College of Law, December 2006

Presenter, Ohio Harmful Algal Bloom Workshop, February 7 2007

PROFESSIONAL SOCIETIES

American Society of Limnology and Oceanography

North American Lake Management Society

International Association for Great Lakes Research

Estuarine Research Federation

Sigma Xi, Scientific Research Society