

Christine M. Mayer

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EDUCATIONAL HISTORY

Ph.D. Cornell University, Department of Natural Resources; 1998.

M.S. University of Illinois, Urbana-Champaign, Department of Biology; 1994

B.S. University of Illinois, Urbana-Champaign, Department of E.E.E.; 1987.

PROFESSIONAL EXPERIENCE

2009-present Associate Professor, Department of Environmental Sciences, University of Toledo

2003- 2009 Assistant Professor, Department of Environmental Sciences, University of Toledo

2000-2003 Assistant Professor, Department of Biology, Syracuse University

1999 Post-Doctoral Research Associate, University of North Carolina Greensboro

1998 Adjunct faculty, College of Charleston

1994-1998 Sea Grant Scholar, Cornell Biological Field Station

1991-1993 Graduate Research Assistant, Center for Aquatic Ecology, Illinois Natural History Survey

1988-1990 United States Peace Corps, Aquaculture Extension Agent, Togo, West Africa

REFEREED PUBLICATIONS:

Pritt, J.J. **M.R. DuFour, **C.M. Mayer, P.M. Kocovsky, J.T. Tyson, E.J. Weimer. *Accepted with revision*. Including independent estimates and uncertainty to quantify total abundance of fish migrating in a large river system: walleye (*Sander vitreus*) in the Maumee River, OH. *Canadian Journal of Fisheries and Aquatic Resources*.

DeVanna, K.M., *P.M. Armenio, *K. N. Doan, and **C.M. Mayer. *In Review*. Effects of an invasive ecosystem engineer on native mayfly behavior during changing abiotic and biotic conditions. *In Review at Oecologia*.

DeVanna K.M., J.M. Bossenbroek, and **C.M. Mayer. *In Press*. Interactions between an exotic ecosystem engineer (*Dreissena* spp.) and native burrowing mayflies (*Hexagenia* spp.) in soft sediments of western Lake Erie. In Zebra Mussels: Biology, Impact, and Control. T. Nalepa and D. Schloesser eds).

C.M. Mayer and 10 authors. *In Press*. The benthification of freshwater lakes: exotic mussels turning ecosystems upside down. In Zebra Mussels: Biology, Impact, and Control. T. Nalepa and D. Schloesser eds).

Cooper, J.E. E. Walquist, K.T. Holeck, C.E. Hoffman, E.L. Mills and **C.M. Mayer**. 2012. Density and Distribution of Amphipods in Oneida Lake, New York, after the introduction of the exotic amphipod *Echinogammarus ischnus*. *Northeastern Naturalist* 19:P249-266.

DeVanna K.M., B.L. Bodamer, C.G. Wellington, E. Hammer, J.M. Bossenbroek, and **C.M. Mayer. 2011. An alternative hypothesis for invasional meltdown: General facilitation by *Dreissena*. *Journal of Great Lakes Research* 37:632-641.

DeVanna, K.M., *P.M. Armenio, *C.A. Barrett, and **C.M. Mayer. 2011. Invasive ecosystem engineers on soft sediment change the habitat preferences of native mayflies and their availability to predators. *Freshwater Biology*. 56:2248-2458.

- **Wellington C. **Mayer C.M.**, Bossenbroek J.M. and *Stroh N.M. 2010. Effects of turbidity and prey density on the foraging success of age-0 yellow perch (*Perca flavescens*). *Biology of Fishes*. 76: 1729–1741.
- Limburg K.E., Luzadis V.A., Ramsey, M., Schulz K.L., and **Mayer, C.M.** 2010. The good, the bad, and the algae: perceiving ecosystem services and disservices generated by zebra and quagga mussels. *Journal of Great Lakes Research* 36: 86–92.
- **Cecala, R.K., **Mayer, C.M.**, Mills, E.L. and Schulz, K.L. 2008 Increased benthic algal primary production in response to zebra mussel (*Dreissena polymorpha*) invasion in Oneida Lake. *Journal of Integrated Plant Biology* 50:1452-1466.
- **Zhu B., **Mayer C.M.**, Rudstam L.G., Mills E.L., Ritchie M.E. 2008. Experimental examination of light and phosphorus effects on submerged macrophytes: implications for ecosystem changes in North American lakes. *Aquatic Botany* 88: 358-362.
- **Lohner R. N., Sigler W.V., **Mayer C.M.**, and **Balogh C. 2007. A comparison of the benthic microbial community within and surrounding *Dreissena* clusters in lakes. *Microbial Ecology* 54:469-477.
- **Qin, P **Mayer C.M.**, Schulz K.L., Ji X. and Ritchie M. 2007. Ecological stoichiometry in benthic food webs: light and nutrients effects on periphyton food quantity and quality in lakes. *Limnology and Oceanography*. 52: 1728-1734. (PR)
- **Zhu B., Fitzgerald D.G., Hoskins S.B., Rudstam L.G., **Mayer C.M.**, and Mills E.L. 2007. Quantification of response of submerged aquatic vegetation to historical changes in water clarity in two bays of Lake Ontario. *Journal of Great Lakes Research* 33:122-135.
- **Zhu B. **Mayer C.M.**, Heckathorn S.A., and Rudstam L.G. 2007. Can dreissenid attachment and biodeposition affect submerged macrophyte growth? *Journal of Aquatic Plant Management* 45:71-76.
- **Zhu B., Fitzgerald D.M., **Mayer C.M.**, Rudstam L.G., and Mills E.L. 2006 Alteration of ecosystem function by zebra mussels in Oneida Lake, NY: impacts on submerged macrophytes. *Ecosystems* 9:1-12.
- Hershey A.E., Beaty S. Fortino K., Keyse M., Mou P.P., O'Brien W.J., Ulseth A.J., Gettel G.A., Lienesch P.W., Luecke C., McDonald M.E., **Mayer C.M.** 2005. Effect of landscape factors on fish distribution in arctic Alaskan lakes. *Freshwater Biology* 51(1):39-55.
- Haynes J. M., Tisch N.A., **Mayer C. M.**, and Rhyne R. S. 2004. Benthic macroinvertebrate communities in southwestern Lake Ontario following invasion of *Dreissena* and *Echinogammarus*: 1983 – 2000. *Journal of the North American Benthological Society* 24:148–167.
- Mayer, C.M.**, *Keats R.A., Mills E.L., and Rudstam L.G. 2002. Zebra mussels as ecosystem engineers: scale-dependent effects on benthic invertebrates in a large eutrophic lake. *Journal of the North American Benthological Society* 21:616-633.
- Mayer, C.M.**, Rudstam L.G., Mills E.L., *Cardiff S.G., *Bloom C.A. 2001. Zebra mussels (*Dreissena polymorpha*), habitat alteration, and yellow perch (*Perca flavescens*) foraging: system-wide effects and behavioural mechanisms *Canadian Journal of Fisheries and Aquatic Science* 58: 2459-2467.
- Rutherford E.S., Rose K.A., Mills E.L., Forney J.L., **Mayer C.M.**, and Rudstam L.G. 1999. Individual-based model simulations of zebra mussel (*Dreissena polymorpha*) impacts on walleye (*Stizostedion vitreum*) and yellow perch (*Perca flavescens*) populations in Oneida Lake, New York. *Canadian Journal of Fisheries and Aquatic Science* 56: 2148-2160.

Mayer C.M., Forney J.L., Rudstam L.G., VanDeValk A.J., and Mills E.L. 2000. The response of yellow perch in Oneida Lake, NY to zebra mussel establishment. *Canadian Journal of Fisheries and Aquatic Science* 57: 742-754.

Mayer, C.M. and Wahl D.H. 1997. The relationship between prey selectivity and growth and survival in a larval fish. *Canadian Journal of Fisheries and Aquatic Science* 54: 1504-1512.

** Indicates graduate advisee or research technician under my direct supervision

* Indicates undergraduate student

OTHER PUBLICATIONS:

Mayer, C.M., D. Clapp, M. Hooe, L. Einfalt, and D.H. Wahl. 1992. Evaluation of Walleye Stocking Program. Federal Aid in Sport Fish Restoration Project F-118-R1, Illinois Natural History Survey, Aquatic Ecology Technical Report, Champaign, Illinois

Clapp, D.F., **C.M. Mayer**, M. Hooe, D.H. Wahl, R. Brooks, D. Harrison, J. Waddell, and R. Heidinger. 1993. Evaluation of Walleye Stocking Program. Federal Aid in Sport Fish Restoration Project F-118-R2, Illinois Natural History Survey, Aquatic Ecology Technical Report, Champaign, Illinois

Clapp, D.F., **C.M. Mayer**, D.H. Wahl, R. Brooks, D. Harrison, J. Waddell, and R. Heidinger. 1994. Evaluation of Walleye Stocking Program. Federal Aid in Sport Fish Restoration Project F-118-R3, Illinois Natural History Survey, Aquatic Ecology Technical Report, Champaign, Illinois

CONFERENCE PAPERS

2012

Pritt, J. and **C. M. Mayer. Fish Migration as an Ecosystem Linkage between Western Lake Erie and a Major Tributary. American Fisheries Society annual meeting, St. Paul, MN, Aug 2012.

Ross, J., **C.M. Mayer, J. Tyson., E. Weimer. Designing a monitoring program for Ohio's Lake Erie Shoreline Fish Community: The first step in a long-term data series. American Fisheries Society annual meeting, St. Paul, MN, Aug 2012.

DuFour, M. R., **J.J. Pritt, **C.M. Mayer, C. Stow, J. Tyson, E. Weimer and P.M. Kocovsky. Quantification of abundance and mortality of Maumee River larval walleye (*Sander vitreus*). American Fisheries Society annual meeting, St. Paul, MN, Aug 2012.

Manning N., **C.M. Mayer, J. Bosenbroek, B. Bunnell, J. Tyson. Use of IBMs to Explore the Effects of Turbidity on the Growth & Survival of Yellow Perch. American Fisheries Society annual meeting, St. Paul, MN, Aug 2012.

*Mapes, R.L., M. **Dufour, ** J. Pritt, and C.M. Mayer. Changes in the larval fish community of the Maumee River estuary. Midwest Student Fisheries Colloquium, Champaign-Urbana, Illinois.

DuFour, M.R., **J. Pritt, **C.M. Mayer, P. Kocovsky, C. Stow, J. Tyson, and E. Weimer. January 2012. Estimating larval walleye abundance on the Maumee River, Midwest Student Fisheries Colloquium, Champaign-Urbana, Illinois.

DuFour, M.R., **J. Pritt, **C.M. Mayer, C. Stow, J. Tyson, E. Weimer, and P. Kocovsky. March 2012. Maumee River larval walleye dynamics: Production, mortality and export, Midwest Graduate Research Symposium, Toledo, Ohio.

*Doerr, Annie, **J. Ross, **C.M. Mayer**. April 2012. "Tributary Impacts on the Western Lake Erie Shoreline Fish Community". Ohio Academy of Science. Ashland, OH.

*Woodling, Kristen, **J. Ross, **C.M. Mayer**. April 2012. "Shoreline Recovery and the Nearshore Fish Community". Ohio Academy of Science. Ashland, OH.

*Mapes, R.L., M. **Dufour, ** J. Pritt, and C.M. Mayer. Changes in the larval fish community of the Maumee River estuary. Ohio Academy of Science. Ashland, OH.

2011

- International Association for Great Lakes Research. N. Manning, J. Bossenbroek, and **C.M. Mayer** and J. Tyson. Use of Individual Based Models to explore the effects of turbidity on early life history traits of yellow perch (*Perca flavescens*), Duluth, MN, May 2011.
- International Association for Great Lakes Research. DuFour, M.R., J.J. Pritt, C. M. Mayer, J. T. Tyson, E.J. Weimer, P.K. Kocovsky, C.A. Stow. Estimating larval fish export from the Maumee River: tracking variability through space and time. Duluth, MN, May 2011.
- International Association for Great Lakes Research. DeVanna, K.M., C.M. Mayer, and D.W. Schloesser. Scale-dependent effects of soft-sediment *Dreissena* druses on *Hexagenia* in western Lake Erie. Duluth, MN, May 2011.

2010

- International Association for Great Lakes Research. P. Armenio and **C. Mayer**. Nutrient contributions from *Dreissena* to the benthic cyanobacterium *Lyngbya wollei*, Toronto, Canada.
- American Phycological Association. P. Armenio and **C. Mayer**. Nutrient contributions from *Dreissena* to the benthic cyanobacterium *Lyngbya wollei*, Toronto, Canada
- International Association for Great Lakes Research. N. Manning, J. Bossenbroek, and **C. Mayer**. Use of Individual Based Models to explore the effects of turbidity on early life history traits of yellow perch (*Perca flavescens*), Toronto, Canada. (poster)
- Lake Erie Millennium Network Biannual Conference DeVanna, K.M., **C.M. Mayer**, N. Jain**, and D.W. Schloesser. Mapping the spatial relationship of burrowing mayflies and dreissenid mussels in western Lake Erie. (Poster) Windsor, Ontario, Canada. April 2010.
- American Fisheries Society. N. Manning, J. Bossenbroek, and **C. Mayer**. Use of Individual Based Models to explore the effects of turbidity on early life history traits of yellow perch (*Perca flavescens*), Pittsburg, PA. September 2010
- American Fisheries Society DeVanna, K.M., **C.M. Mayer**, and D.W. Schloesser. When bugs are hard to find. Oral Presentation., Pittsburgh, PA, September 2010.
- American Fisheries Society. **C. Mayer**, N. Manning, J. Bossenbroek, C. Wellington, T.B. Bridgeman and J. Tyson. Experimental and spatial modeling of environmental factors affecting foraging success of age-0 yellow perch, Pittsburg, PA. September 2010.

2009

- University of Toledo chapter of Sigma Xi annual conference. **Armenio P.M., **DeVanna, K.M., and **Mayer C.M.** Do zebra mussels and low oxygen affect the behavior and predation risk of *Hexagenia*? Toledo, OH .
- International Conference on Aquatic Invasive Species. **DeVanna, K.M., Bodamer, B.L., Hammer, E., Wellington, C.G., Bossenbroek, J.M., and **Mayer, C.M.** An alternative hypothesis for invasional meltdown: General facilitation by *Dreissena*. Montreal, Quebec, Canada.
- International Association for Great Lakes Research. **DeVanna, K.M., **Cope (Armenio), P.M., and **Mayer, C.M.** Biotic and abiotic habitat interactions determine predation risk for burrowing mayflies., Toledo, OH.

- International Association for Great Lakes Research, Jain, N., **DeVanna, K.M., **Mayer, C.M.**, and Schloesser, D.W. Mapping the spatial relationship of burrowing mayflies and dreissenid mussels in western Lake Erie. Toledo, OH.
- International Association for Great Lakes Research, Limburg K.E., **Mayer, C. M.**, Luzadis V.A., Ramsey, M., and Schulz K.L. The good, the bad, and the algae: perceiving ecosystem services and disservices generated by zebra and quagga mussels. Toledo, OH.
- Midwest Fish and Wildlife Meeting. **Manning, N.F., **Mayer C.M.**, Bossenbroek J., Bridgeman, T.B. and Tyson, J. Effects of environmental variables on year-0 yellow perch growth and abundance. Columbus, OH.
- International Association for Great Lakes Research. **Manning, N.F., Mayer C.M., Bossenbroek J., Bridgeman, T.B. and Tyson, J. Effects of environmental variables on year-0 yellow perch growth and abundance. Toledo, OH.
- University of Toledo chapter of Sigma Xi annual conference. **Manning, N.F., Mayer C.M., Bossenbroek J., Bridgeman, T.B. and Tyson, J. Effects of environmental variables on year-0 yellow perch growth and abundance. Toledo, OH.

2008

- International Association for Great Lakes Research annual meeting **DeVanna K.M. and **Mayer, C.M.** *Hexagenia* habitat choice: Effects of hypoxia and fish foraging. Oral Presentation. International Association for Great Lakes Research, Trent University, Peterborough, ON, May 2008.
- International Association for Great Lakes Research annual meeting **Wellington C.G, **Mayer C.M.**, and Bossenbroek J.M..Physical and biological factors affecting foraging success of age-0 yellow perch.
- International Association for Great Lakes Research annual meeting Zhu, B., Halfman, J.D., **Mayer, C.M.**, Rudstam, L.G. and Mills, E.L. Local and Lake-wide Effects of Dreissenids on Nitrogen and Phosphorus Cycling in Lakes.
- Lake Erie Millennium Network Biannual Conference, Windsor, Ontario, Canada. DeVanna K.M. and **Mayer, C.M.**, Impacts of hypoxia and fish predation on *Hexagenia* use of *Dreissena*-colonized habitat. Poster Presentation.
- Lake Erie Millennium Network Biannual Conference, Windsor, Ontario, Canada. Bodamer, B.L., **DeVanna, K.M., **Wellington, C.G., Hammer, E., Bossenbroek, J.M., and **Mayer, C.M.**, An alternative hypothesis for invasional meltdown: General facilitation by *Dreissena*. Poster Presentation.
- Lake Erie Millennium Network Biannual Conference, Windsor, Ontario, Canada. **Wellington C.G, **Mayer C.M.**, and Bossenbroek J.M.. Physical and biological factors affecting foraging success of age-0 yellow perch. Poster Presentation.
- Ecological Society of America. Bossenbroek J.M., Bodamer B., DeVanna K., Hammer E., Wellington C, and **Mayer C.M.** An alternative hypothesis for invasional meltdown in the Great Lakes: General facilitation by *Dreissena*.

2007

- International Association for Great Lakes Research Annual Meeting, **DeVanna K.M., **C.M. Mayer**, *C.A. Barrett. Role of *Dreissena* as ecosystem engineers: Effects on native bioturbators and benthic communities. State College, PA. May 2007
- Toledo meeting of Sigma Xi. **DeVanna, K.M., Bodamer, B. Hammer, H. Wellington, C. Bossenbroek, J. M., and **Mayer C.M.** An alternative hypothesis for Invasional Meltdown: General facilitation by *Dreissena* **Honorable mention, best poster**

- Toledo meeting of Sigma Xi., **DeVanna K.M., **C.M. Mayer**, *C.A. Barrett. Role of *Dreissena* as ecosystem engineers: Effects on native bioturbators and benthic communities. State College, PA. May 2007 **Honorable mention, best talk**

2006

- International Association for Great Lakes Research annual meeting. **Elkington, B. and **Mayer, C.M.**, The effects of turbidity quality and quantity on zooplankton consumption by young of year yellow perch (*Perca flavescens*).
- International Association for Great Lakes Research annual meeting. **Qin, P, **Mayer, C.M.**, Schulz, K.L, and Ji, X. Phosphorus abatement and *Dreissena* filtration: Effects on production and stoichiometry in benthic ecosystems.
- International Association for Great Lakes Research annual meeting. **Devanna, K.M., **Mayer, C.M.**, Barrett, C, and Lohner, R.N. Effects of *Dreissena* on native bioturbators: benthic ecosystem function and community composition.
- International Association for Great Lakes Research annual meeting. **Mayer, C.M.**, Lohner, R.L., Qin, P, Schulz, K.L., and Ji, X. *Dreissena* effects on benthic primary producers, measured by pulse amplitude modulated fluorometry.
- International Association for Great Lakes Research annual meeting. Bridgeman, T.B., **Mayer, C.M.**, Schloesser, D.W, Devanna, K.M, Lohner R.L, and Sabo, K. Demand of Western Lake Erie Sediments and Benthos: A Methods Comparison.
- International Association for Great Lakes Research annual meeting. Schulz, K.L., **Mayer, C.M.**, Ji, X., and Qin, P. Stoichiometric and ecosystem effects of phosphorus abatement and bivalve filtration: an experimental test.
- International Association for Great Lakes Research annual meeting Ji, X., Schulz, K., Qin, P., and **Mayer, C.M.** Phosphorus abatement and dreissena filtration effects on production and stoichiometry in pelagic ecosystems.
- Great Lakes Research Consortium. **Qin, P, **Mayer, C.M.**, Schulz, K.L, and Ji, X. Phosphorus abatement and *Dreissena* filtration: Effects on production and stoichiometry in benthic ecosystems.
- American Fisheries Society annual meeting. **Mayer, C.M** and Elkington, B. The effects of turbidity quality and quantity on zooplankton consumption by young of year yellow perch.
- American Fisheries Society annual meeting. **Mayer, C.M et al.** Habitat changes: zebra mussels, ecosystem engineering and the benthic connection.
- American Fisheries Society annual meeting. **Zhu B., D.G. Fitzgerald, S.B. Hoskins, L.G. Rudstam, **C.M. Mayer**, and E.L. Mills, Quantification of response of submerged aquatic vegetation to changes in water clarity in two bays of Lake Ontario
- American Fisheries Society joint chapter meeting: OH, IN, MI, **DeVanna K.M., **C.M. Mayer**, *C.A. Barrett. Role of *Dreissena* as ecosystem engineers: Effects on native bioturbators and benthic communities. State College, PA. May 2007
- American Society of Limnology and Oceanography Summer Meeting, Schulz, K.L., **C.M. Mayer**, X. Ji, and P. Qin. Stoichiometric and ecosystem effects of phosphorus abatement and bivalve filtration.
- Gordon Research Conference on the Metabolic Basis of Ecology. Schulz, K.L., A.J. Storch, C. **Mayer**, C.E. Cáceres, M.A. Teece, X. Ji and P. Qin. Effects of exotic species on flows of energy and materials in aquatic systems.

2005

- International Association for Great Lakes Research annual meeting. Lohner, R.N. ** Balogh, C. Sigler, V. and **Mayer, C.M.** Effects of *Dreissena* clusters on the benthic microbial community of lakes.
- International Association for Great Lakes Research annual meeting. **Mayer, C.M.**, Lohner, R.N., Heckathorn, S.A. and Bridgeman, T.B. Benthic primary production in Maumee Bay, Western Lake Erie: green lake, brown bottom
- International Association for Great Lakes Research annual meeting. **Qin, P., **Mayer, C.M.**, Schulz, K.L. Ji, X. and Ritchie, M. Phosphorus abatement and *Dreissena* filtration: effects on periphyton production and stoichiometry in lakes.
- American Society of Limnology and Oceanography annual meeting. Ji, X., Schulz, K.L, Qin, P., **Mayer, C. M.** Synergistic effects of phosphorus abatement and *Dreissena* filtration on ecosystem primary production and algal stoichiometry.
- American Society of Limnology and Oceanography annual meeting. **Mayer, C.M.**, Johnson, R, Lohner, R.L., Rudstam, L., Mills, E., Bridgeman, T. and Heckathorn, S. Biological and physical factors affecting benthification in lakes.
- American Society of Limnology and Oceanography annual meeting. **Qin, P., **Mayer, C.M.**, Schulz, K.L., Ji, X., Ritchie, M. Phosphorus abatement and *Dreissena* filtration: effects on periphyton production and stoichiometry in lakes? ****Winner, outstanding student poster.**
- Great Lakes Research Consortium annual meeting. **Qin,P., **Mayer, C.M.**, Schulz,K.L., Ji,X.,State Ritchie,M., Phosphorus abatement and *Dreissena* filtration: effects on periphyton production and stoichiometry in lakes
- Ecological Society of America annual meeting. Schulz, K.L., **Mayer, C.M.**, Ji, X. and Qin P. Low P and High F: Testing for Stoichiometric and Ecosystem Effects of Phosphorus Abatement and Bivalve Filtration.

2004

- International Association for Great Lakes Research annual meeting, **Johnson, R., **Mayer, C.**, Mills, E., Schulz, K. Effect of increased water clarity due to zebra mussels on benthic algal primary production in Oneida Lake.
- International Association for Great Lakes Research annual meeting , **Zhu, B. Fitzgerald, E, Hoskin, S. Rudstam, L, **Mayer C.** and Mills, E. Quantification of the changes in the distribution of submerged aquatic vegetation in bays of Lake Ontario, 1972-2002.
- **Zhu, B., Fitzgerald, D., Hoskins, S., Rudstam, L., **Mayer, C.**, Ritchie, M., Mills, E. Quantification of the changes of submerged aquatic vegetation in bays of Lake Ontario, 1972-2002.

2003

- American Fisheries Society annual meeting, **C. Mayer**, B. Zhu, D. Fitzgerald, E. Mills, & L. Rudstam, 2003. Zebra mussels: benthic ecosystem engineers.
- International Association for Great Lakes Research annual meeting, **B. Zhu, K. Seifried, D. Fitzgerald, **C. Mayer**, E. Mills, & L. Rudstam, 2003. Submerged Aquatic Vegetation (SAV) as an important factor in the progression of benthification of Oneida Lake and Bay of Quinte, Lake Ontario.
- International Association for Great Lakes Research annual meeting **C. Mayer**, K. Minns, S. Millard, K. Seifried, A. Bernard, B. Zhu, Estimating Long-term Changes in the Levels and Sources of Primary Production in Oneida Lake and the Bay of Quinte.

2002

- North American Benthological Society, annual meeting, **C.M. Mayer**, N. Tisch, J. Haynes, J. Philippon, and S.A. Heckathorn. *Echinogammarus ischnus*, the next exotic threat?
2001
- New York State Chapter of the American Fisheries Society, *Echinogammarus ischnus*, the next exotic threat? **C.M. Mayer**, N. Tisch, S.A. Heckathorn, N. Lynch, J. Philippon, M. Higgins, and N. Langton
- Great Lakes Research Consortium, N. Lynch, J. Philippon, **C. Mayer**, and N. Tisch. Habitat preference and spatial distribution of *Echinogammarus ischnus* and *Gammarus fasciatus*.
- North American Society of Lake Management annual meeting, Impact of zebra mussels (*Dreissena polymorpha*) on the food web of Oneida Lake, New York. E. L. Mills, N. Idrisi, **C. Mayer**, L. G. Rudstam, and D. J. Stewart.
- 2000
- North American Benthological Society, annual meeting, Hershey, A.E., G. Gettel, P.W. bLienesch, M.E. McDonald, **C.M. Mayer**, H. Mooers, W.J. O'Brien, C. Richards, J. Schuldt, and A. I Wilson. Fish-benthic interactions in arctic lakes: top-down control of food webs is constrained by landscape criteria.
- North American Benthological Society, annual meeting, **C.M. Mayer**, S.A. Heckathorn, M.L. Bothwell, A. Ulseth, and A.E. Hershey. Biochemical response of arctic benthos to UV radiation.
- 1998 International Association of Great Lakes Research, **C.M. Mayer**, E.L. Mills, and L.G. Rudstam.
- 1997
- New York State Chapter of the American Fisheries Society, **C.M. Mayer**, N. Idrissi, E.L. Mills, and L.G. Rudstam.
- Great Lakes Research Consortium, S.G. Cardiff, **C.M. Mayer**, L.G. Rudstam, and E.L. Mills.
- American Society of Limnology and Oceanography, L.G. Rudstam, **C.M. Mayer**, N. Idrissi, and E.L. Mills.
- International Association of Great Lakes Research, **C.M. Mayer**, N. Idrissi, E.L. Mills, and L.G. Rudstam.
- American Fisheries Society annual meeting, **C.M. Mayer**, N. Idrissi, E.L. Mills, and L.G. Rudstam.
- 1996
- Great Lakes Research Consortium, **C.M. Mayer**, R.A. Keats, E.L. Mills, and L.G. Rudstam.
- Great Lakes Research Consortium, C.M. Post, **C.M. Mayer**, E.L. Mills, and L.G. Rudstam.
- Ecological Society of America, **C.M. Mayer**, L.G. Rudstam, and E.L. Mills.
- 1995 NY State Chapter of the American Fisheries Society, **C.M. Mayer** and D.H. Wahl.
- 1994 Ecological Society of America, **C.M. Mayer** and D.H. Wahl.
- 1993 American Fisheries Society annual meeting, **C.M. Mayer** and D.H. Wahl.

** Indicates graduate advisee or research technician under my direct supervision

* Indicates undergraduate student

INVITED SEMINARS

2012

- Bowling Green State University, SetGo Program, **Mayer, C.M**, M. R. DuFour, J. Pritt, , C. Stow, J. Tyson, E. Weimer, and P. Kocovsky. Effects of the Bay Shore Power Plant on Ecosystem Function. Bowling Green, OH, March 2012.

- **DuFour, M.R., **J. Pritt, **C.M. Mayer**, C. Stow, J. Tyson, E. Weimer, and P. Kocovsky,. March 2012. Quantification of abundance and mortality of Maumee River larval walleye: accounting for variability and uncertainty, USGS Great Lakes Science Center Brown Bag Seminar, Ann Arbor, MI, March 2012.
- Wayne State University, Department of Biology, **Mayer, C.M.**, M. R. DuFour, J. Pritt, , C. Stow, J. Tyson, E. Weimer, and P. Kocovsky. Effects of the Bay Shore Power Plant on Ecosystem Function. Detroit, MI, Jan 2012.
- **DuFour, M.R., **J. Pritt, **C.M. Mayer**, P. Kocovsky, C. Stow, J. Tyson, and E. Weimer. January 2012. Maumee River larval walleye dynamics: Production, mortality and export, ODNR Division of Wildlife /The Ohio State University Research Review, Columbus, Ohio.
- **Ross, J., **C.M. Mayer**, J. Tyson, E. Weimer. February 2012. “Monitoring Ohio’s Lake Erie Shoreline Fish Community”.
- **Pritt, J.J., M.R. **DuFour, **C.M. Mayer**, P. Kocovsky, J. Tyson, and E. Weimer. Walleye Spawning Stock Size and Migration Cues in the Maumee River. Walleye Task Group Annual Meeting, Huron, OH. February 2012.)

2011

- Case Western University, Department of Biology, **Mayer, C.M.**, M. R. DuFour, J. Pritt, , C. Stow, J. Tyson, E. Weimer, and P. Kocovsky. Effects of the Bay Shore Power Plant on Ecosystem Function. Cleveland, OH, Nov 2011.
- **DuFour, M.R., **J. Pritt, **C.M. Mayer**, P. Kocovsky, C. Stow, J. Tyson, and E. Weimer. April 2011. Maumee Bay ecosystem function: Effects of the Bayshore power plant and other environmental variables, Lake Erie Waterkeeper Conference, North Cape Yacht Club, La Salle, Michigan.
- Ohio State University, Aquatic Ecology Laboratory Research Review, DuFour, M.R., J.J. Pritt, **C. M. Mayer**, J. T. Tyson, E.J. Weimer, P.K. Kocovsky, C.A. Stow. Estimating larval fish export from the Maumee River: tracking variability through space and time. Columbus OH, Jan 2011.

2008

- Michigan DNR, Fisheries Research Group, The benthification of freshwater lakes: Exotics turning ecosystems upside down.

2007

- United States Geological Survey, Great Lakes Science Center, The benthification of freshwater lakes: Exotics turning ecosystems upside down.
- Ohio State University, Aquatic Ecology Laboratory Research Review, Wellington, C, **Mayer, C.M.** and Bossenbroek, J.M. Physical and biological factors affecting foraging success of age-0 yellow perch

2006

- Ohio State University, Aquatic Ecology Laboratory Research Review, **Mayer, C.M.** and B. Elkington. The effects of turbidity quality and quantity on zooplankton consumption by young of year yellow perch (*Perca flavescens*)
- Ohio Department of Natural Resources annual meeting, **Mayer, C.M.** and B. Elkington. The effects of turbidity quality and quantity on zooplankton consumption by young of year yellow perch (*Perca flavescens*)
- American Fisheries Society annual meeting **Mayer, C.M** Habitat changes: zebra mussels, ecosystem engineering and the benthic connection

- Cleveland State University, The benthification of freshwater lakes: Exotics turning ecosystems upside down.

2005

- Ohio State University Aquatic Ecology Laboratory Research Review symposium. **C.M. Mayer**
The benthification of freshwater lakes: Exotics turning ecosystems upside down.

2004

- Bowling Green State University, Department of Biological Sciences, January 21, 2004, The benthification of freshwater lakes: Exotics turning ecosystems upside down.
- Central Michigan University, Department of Biology March 4, 2004. The benthification of freshwater lakes: Exotics turning ecosystems upside down.

2003 NOAA Great Lakes Research Laboratory, Ann Arbor MI, The benthification of freshwater lakes: Exotics turning ecosystems upside down.2002

- SUNY Fredonia, Workshop on avian botulism in Lake Erie, Potential benthic foodweb links for transfer of avian botulism.
- University of Toledo, Department of Earth, Ecological, and Environmental Sciences, Toledo OH, Zebra mussels: exotic benthic ecosystem engineers.

2000

- Cornell Department of Natural Resources, Ithaca, NY, A test of the geomorphic-trophic hypothesis: how do landscape and fish community control benthic invertebrate assemblages in arctic lakes?
- Clarkson University, Potsdam NY, A test of the geomorphic-trophic hypothesis: how do landscape and fish community control benthic invertebrate assemblages in arctic lakes?

1999 South Carolina Department of Natural Resources, Charleston, SC, Response of yellow perch (*Perca flavescens*) and benthic invertebrates to the introduction of zebra mussels (*Dreissena polymorpha*) in Oneida Lake, NY.

RESEARCH SUPPORT

2012

- Lake Erie Protection Fund Small Grants Program (\$15,000 over 1 year) Linking Land-Use and Yellow Perch Recruitment Mayer coI with J. Bossenbroek.
- Ohio Division of Wildlife: Nearshore Fish Sampling Program Development, supplement for larval fish sampling (\$12,000 over 1 year), Mayer PI.

2011

- Annual GLERL-CILER Long-Term Great Lakes Fellowship Program, for support of one graduate student in my laboratory (\$23,000 over 1 year), Mayer PI.

2010

- US Environmental Protection Agency: The Lake Erie Nearshore and Offshore Nutrient Study (LENONS)" (\$615,814 over 2 years) With collaborators at Buffalo State College (C. Penuto PI), Mayer PI, and Bridgeman coI.
- Ohio Division of Wildlife: Nearshore Fish Sampling Program Development (\$171,000 over 3 years), Mayer PI.

2009

- US Environmental Protection Agency: Lake Erie Western Basin Algal Bloom Study (\$101,000 over 1 year) with T. Bridgeman (pi), C. Gruden and others.
- NOAA, Sea Grant: Effects of Bay Shore power plant on ecosystem function in Maumee Bay, western Lake Erie. Mayer PI, Stepien and Bridgeman, co-PIs. (\$750,000 over 3 years).

- Lake Erie Protection Fund Small Grants Program “Enhanced benthic algal growth from *Dreissena*” \$15,000 for one year, Mayer (PI).

2007

- Ohio Sea Grant (\$171,000 over 2 yrs, with T. Bridgeman (PI), S. Heckathorn, and V. Sigler. Assessing the role of turbid river plumes in the development of *Microcystis* blooms in Lake Erie with molecular techniques.
- Great Lakes Fisheries Commission: Experimental and spatial modeling of environmental factors affecting foraging success of age-0 yellow perch” (\$146,640 3 years) Mayer PI, Bossenbroek and Bridgeman co-PIs.
- Lake Erie Protection Fund Small Grants Program \$9,891 for one year “Yellow perch foraging on *Hexagenia*: Effects of hypoxia and *Dreissena* spp.”

2006

- National Science Foundation (\$ 258,910 over 2 yrs with A. Spongberg) REU Site: Integrated Assessment of Physical, Ecological, and Socio-economic Aspects of a Watershed System.
- National Science Foundation (\$24,888 with C. Stepien (PI) and 3 other co-PIs). Planning Proposal for the Lake Erie Center
- Great Lakes Fisheries Commission: River discharge as a predictor of Lake Erie yellow perch. With S. Ludsin and many co-PI’s, (\$347,583 over 4 yrs, no funds to C. Mayer). This collaboration compliments another Great Lakes Fisheries Commission-funded project (see below), data and concepts are being shared among investigators and students.

2004

- New York Sea Grant with Co-Pis K. Schulz, K. Limberg, M. Ritchie. Low P and high F: testing for unexpected synergistic effects of phosphorus abatement and bivalve filtration.
- Assessing human-driven perturbations of production in western lake Erie, C. Mayer, funded by the University of Toledo’s summer research and fellowship program.

2002

- The Great Lakes Fishery Commission with Co-PIs S. Millard, E. Mills et al., for the project "Comparative modeling of the ecosystem impacts of exotic invertebrates and productivity changes on fisheries in the Bay of Quinte and Oneida Lake"
- The Great Lakes Protection Fund.(\$150,000) "Algal Pigments to Trace Food-Web Connections to Type E Avian Botulism in Lakes Erie and Ontario" with Co-PIs K. Alben, SUNY-Albany, A. Perez-Fuentetaja, SUNY Fredonia, J. Makarewicz, SUNY Brockport, R. Limberger, SUNY-Albany, Ward Stone, NYS-DEC.

2001

- New York Sea Grant (\$187,430) with co-PIs E. Mills, and D. Fitzgerald, Cornell University, for project "Benthification of Great Lakes Ecosystems and the Consequences to Fish Populations and Communities"
- The Great Lakes Protection Fund (\$6, 600) with co-PI N. Tisch, Cornell University, for the project "Spatial distribution and foodweb impacts of *Echinogammarus ischnus*, an invasive benthic crustacean"

2000 Internship for Karen Moll (\$1,000) as part of the Cornell Biological Field Station research internship program

1999 Great Lakes Research Consortium, (\$21,450) with co-PIs N. Tisch, Cornell University, and J. Haynes, SUNY Brockport, for the project “Impact assessment of the introduced amphipod *Echinogammarus ischnus* in the Great Lakes”

TEACHING SUPPORT

2001 Syracuse University Vision Fund (\$20,000) to C. Mayer and G. Seltzer for support and equipment purchases for Field and Laboratory Experience in Environmental Science (Bio/Gol 400, Fall 2001)

AWARDS

2001 New York State Chapter of the American Fisheries Society, best professional poster
1998 International Association of Great Lakes Research annual meeting, best student paper
1998 New York Sea Grant thesis completion award
1997 New York State Chapter of the American Fisheries Society, best student paper
1997 Skinner travel award for attendance of American Fisheries Society annual meeting
1997 International Association of Great Lakes Research annual meeting, runner-up for best student paper
1995 New York State Chapter of the American Fisheries Society, best student paper
1994-1998 New York Sea Grant Scholarship

TEACHING

Courses

University of Toledo

- **Data Analysis in Aquatic Ecology** This course is a student-centered problems course in which each student presented an issue relevant to his or her own research. I assigned readings and assignments to the class to help guide each student through the steps needed to understand their specific question.
- **Human Ecology.** This is a non-major undergraduate course that applies basic ecological concepts to human dominated ecosystems. Enrollment ~90-110.
- **Ecology of Freshwater Invertebrates.** This course addresses concepts in ecology as they relate to freshwater invertebrates. We covered all levels of ecological organization, from the individual to the ecosystem. Mixed graduate and advanced undergraduates
- **Biostatistics** This is an introductory course for graduate students that covers basic statistical techniques needed for biological and environmental science research such as t-test, ANOVA, correlation and regression.
- **Great Lakes Ecology** This is a research oriented class for graduate students. Students: 1) reviewed papers 2) reviewed research proposals 3) presented a proposal of their own research 4) presented a data set or manuscript that is part of their own research.
- **Aquatic Ecology** Is a team-taught undergraduate and graduate course covering the structure and function of freshwater ecosystems with an emphasis on ecological concepts and applications.
- **Invasion Biology and Risk Assessment** This team-taught course (with Bossenbroek) for graduate and advanced undergraduates focused on risk assessment techniques relevant to species introductions. Students generated a hypothesis about the importance of a particular factor in affecting the trajectory of invasions and used published literature to support their hypothesis. A manuscript based on this group project is being prepared for submission to "Biological Invasions". The first author is a PhD. student from the course.
- **Confronting Models with Data** This team-taught course (with Bossenbroek) for graduate students focused on quantitative methods for model evaluation. Students developed a

model to evaluate the importance of multiple factors in determining the likelihood of zebra mussel infestation in a series of lakes.

Syracuse University

- **Introductory Ecology: an aquatic perspective.** This was an undergraduate course that introduced students to the basic principles of population, community, and ecosystem ecology using primarily aquatic examples. There was also coverage of the basic principles of aquatic physical science. This course included two writing assignments and one oral presentation. I was the sole instructor.
- **Field and laboratory experience in Environmental Science,** co-taught with Geoffrey Seltzer of the Department of Earth Science. Hypothesis development and testing were stressed. This course was supported by the Syracuse University Vision Fund. This course was renamed Geology and Ecology of Regional Environments for the Fall of 2002.

College of Charleston

Introductory Biology. A 3-credit-hour course in introductory molecular and cellular biology for non-majors. I developed and wrote all lectures, learning activities, and exams for this course.

Cornell University

Stream Ecology Laboratory teaching assistant for Stream Ecology with Professors Mark Bain and Barbara Peckarsky

Graduate Research Supervision

Rebecca Johnson (Cacela) (Syracuse U., MS) 2005; Increased benthic algal primary production in response to zebra mussel (*Dreissena polymorpha*) invasion in Oneida Lake, NY

Bin Zhu (Syracuse U, PhD) 2006; Direct and Indirect Ecological Effects of Dreissenid Mussels (the Zebra Mussel *Dreissena polymorpha* and the Quagga Mussel *D. bugensis*) on Submerged Macrophytes in North American Lakes

Brian Elkington (UT, MS) 2006; The effects of algal and sediment turbidity on zooplankton consumption by young of year yellow perch (*Perca flavescens*)

Peibing Qin (Syracuse U, PhD) 2007; Effects of environmental factors on periphyton production and stoichiometry

Colleen Wellington (UT, MS, co-advised with J. Bossenbroek) 2008; Effects of turbidity and prey density on the foraging success of age-0 yellow perch (*Perca flavescens*)

Patricia Armenio (UT, MS) 2010, Effects of *Dreissena* on benthic algae

Kristen Devanna (UT, MS2007 /PhD 2011); Benthic ecology and exotic species effects

Nathan Manning (UT, PhD, co-advised with J. Bossenbroek) Spatial modeling of fish foraging and growth

Jeremy Pritt (UT, PhD) Fish ecology and river-lake connections

Mark DuFour (UT, MS) Larval fish ecology

Jason Ross (UT, MS) Fish ecology and nearshore habitat

Rachel Kuhaneck (UT, MS) Benthic ecology and nearshore habitat

Graduate Committee Membership

-Ryan Argo (UT, MS, Moorhead, graduated)

-Kerry McKenna (UT, PhD, Moorhead, graduated)

-Rachel Henderson (UT, MS, Chen, graduated)

-Betsy Bodamer (UT, MS., Bossenbroek, graduated)

- Joshua Brown (UT, PhD, Stepien, graduated)
- Mathew Nielson (UT, PhD, Stepien, graduated)
- Joshua Osborn (MS, Biological Sciences, BGSU Miner, graduated)
- Xinli Ji (PhD, S.U.N.Y.-E.S.F., graduated)
- Betsy Bodamer (PhD, D.E.S., Bridgeman)
- Mike Deal (MS, D.E.S., Chen, graduated)
- Sarah Paneck (MS, D.E.S., Bridgeman, graduated)
- Kamalika Ganguly (PhD, DES, Bossenbroek)
- Troy Fagan (MS, BGSU, Miner, graduated)
- Jennifer Sieraki (PhD, DES, Bossenbroek)
- Katherine Ennis (PhD, DES, Philpott)
- Nicholas Bryan (MS,DES, Moorhead)

Undergraduate Research Supervision

- Annie Doerr (UT-URM, honors); fish ecology and habitat effects
- Kristen Woodling (UT-technician honors); fish ecology and habitat effects
- Robert Mapes (UT-URM, honors); Larval fish ecology
- Michael Kuebbeler (UT technician); Fish ecology
- Marcella Cruz (UT-REU) 2008 Environmental effects on fish foraging
- Patricia Cope (UT-Independent study and research tech) Mayfly–*Dreissena*-fish interactions. Ms. Cope is applying for the MS program to work in my laboratory in the fall of 2008.
- Kate Doan (UT-REU) 2007 Mayfly – *Dreissena* interactions
- Nathan Stroh (UT-REU, co-advised with J. Bossenbroek) Environmental effects on fish foraging
- Caroline Barret (UT-REU) 2005-2007; REU Benthic ecology and exotic species effects
- Carolyn Doehring (UT) 2004; REU, Ecology and distribution of western Lake Erie Benthic invertebrates
- Jacqueline Philippon (SU) 2001-2003; Ecology and distribution of an exotic amphipod, *Echinogammarus ischnus*
- Nicole Lynch (SU) 2001; Behavior of an exotic amphipod, *Echinogammarus ischnus*
- Jocelyn Ban (SU) 2001; Measurement of benthic algal primary production
- Karen Moll (SU) 2000; Assessment of the long-term impact of zebra mussels in a bay of Oneida Lake.

SERVICE

External, Scientific

- Judged student papers/posters at: 1) American Fisheries Society annual meeting, 2) North American Benthological Society Meeting 3) International Association of Great Lakes Researchers 4) American Society of Limnology and Oceanography
- Reviewed papers for:
 - Archiv Fur Hydrobiologie
 - Canadian Journal of Fisheries and Aquatic Resources.
 - Journal of the International Association of Great Lakes Researchers
 - Journal of the Marine Biological Association of the United Kingdom,
 - Journal of the North American Benthological Society
 - Limnology and Oceanography

- Living Aquatic Resources
- Microbial Ecology
- Transactions of the American Fisheries Society
- Reviewed proposals for:
 - Unites States Department of Agriculture
 - National Oceanic and Atmospheric Administration
 - National Science Foundation
 - Great Lakes Fisheries Trust
- Served on American Fisheries Society Continuing Education Committee, 1996.
- Served on the J. Frances Allen scholarship committee of the American Fisheries Society, 2002-2007
- Panel member for USDA Managed Ecosystems Program April 2003
- Served as Program Chair for 2006 annual meeting of the International Association of Great Lakes Researchers
- Served as Program Chair for 2009 annual meeting of the International Association of Great Lakes Researchers to be held on the campus of the University of Toledo
- Served as subject editor for the Journal of Great Lakes Research, 2011.

Internal, Academic

University of Toledo

- Faculty search committee for: 1) Lake Erie Center Director 2) Watershed Ecologist 3) Limnologist 4) Sustainability Scientist 5) Biometist (Math Dept)
- Member of ad hoc committee on graduate degrees in the DES, 2004-2007
- Member LEC advisory committee 2005-present
- Hosted departmental seminar speakers 2004-2007
- Chaired session and/or judged presentations at University of Toledo chapter of Sigma Xi. 2005-2006
- Chair Undergraduate Affairs Committee DES, 2007- present
- Member Webpage Committee DES, 2007- present

(Syracuse University)

- Faculty search committee for ecologist position (2000-2001)
- ad hoc* committee to develop Biology 115, Environmental Problems and Society
- Building committee, teaching subcommittee
- Co-organized Biology Undergraduate Research Conference 2001, 2002
- Developed course plans and course descriptions for two new senior level classes to be taught as part of a new Environmental Science major

MEMBERSHIP IN PROFESSIONAL SOCIETIES

- American Fisheries Society
- Ecological Society of America
- North American Benthological Society
- International Association of Great Lakes Researchers