

## Paris D. Collingsworth

Assistant Research Professor  
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Great Lakes Ecosystem Specialist  
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### **Education:**

The Ohio State University, Ph.D. in Evolution, Ecology, and Organismal Biology, 2009.  
Southern Illinois University, M.S. in Zoology, 2003.  
Samford University, B.S in Biology, 1998.

### **Professional experience:**

Assistant Research Professor. 2014 – present. Department of Forestry and Natural Resources, Purdue University  
Great Lakes Ecosystem Specialist. 2011 – present. IL-IN Sea Grant  
Postdoctoral research fellow. 2009 – 2011. USGS Great Lakes Science Center.  
Graduate research and teaching associate. 2003 - 2009. Department of Evolution, Ecology, and Organismal Biology, the Ohio State University.  
Graduate research assistant. 2000 - 2003. Fisheries and Illinois Aquaculture Center, Southern Illinois University.

### **Research Experience:**

#### **Refereed publications:**

- Hutton, M.A., T.O. Höök, B.M. Lesht and P.D. Collingsworth. Spatiotemporal variation in chlorophyll concentrations in Lakes Michigan and Huron. *In press*. *Freshwater Biology*.
- Rowe, M.D., E.J. Anderson, D. Beletsky, C.A. Stow, S.D. Moegling, J.D. Chaffin, J.C. May, P.D. Collingsworth, A. Jabbari and J.D. Ackerman. 2019. Coastal upwelling influences hypoxia spatial patterns and nearshore dynamics in Lake Erie. *Journal of Geophysical Research – Oceans*. 124:6154-6175.
- Liu, Y., R. Wang, T. Guo, B. Engel, D. Flanagan, J. Lee, B. Pijanowski, P. Collingsworth, and C. Wallace. 2019. Evaluating efficiencies and cost-effectiveness of best management practices in improving agricultural water quality using integrated SWAT and cost evaluation tool. *Journal of Hydrology*. 577: 123965.
- Höök, T.O., C. Foley, P.D. Collingsworth, L. Dorworth, B. Fisher, J. Hoverman, E. LaRue, M. Pyron, and J. Tank. An assessment of the potential impacts of climate change on the freshwater habitats of Indiana, U.S.A. *In press*. *Climatic Change*.
- Liu, Y., R. Wang, T. Guo, B. Engel, D. Flanagan, J. Lee, B. Pijanowski, P. Collingsworth, and C. Wallace. 2019. A SWAT-based optimization tool for obtaining cost-effective strategies for agricultural conservation practice implementation at watershed scales. *Science and the Total Environment*. 691: 685-696.

- Hrycik, A.R., P.D. Collingsworth, T. Sesterhenn, D. Goto, and T.O. Höök. 2019. Movement rule selection through eco-genetic modeling: Application to diurnal vertical movement. *Journal of Theoretical Biology*. 478: 128-138.
- Xu, W., P.D. Collingsworth and B. Minsker. 2019. Algorithmic characterization of lake stratification and deep chlorophyll layers from depth profiling water quality data. *Water Resources Research*. 55: 3815 – 3834.
- Karatayev, A.Y., L.E. Burlakova, K. Mehler, R.P. Barbiero, E. K. Hinchey-Malloy, P.D. Collingsworth and G.J. Warren. 2018. Life after Dreissena: the elimination of an exotic suspension feeder may have a significant impact on lake ecosystems. *Journal of Great Lakes Research*. 44: 650-659.
- Hrycik, A.R., P.D. Collingsworth, M.W. Rogers and T.O. Höök. 2018. Seasonal structuring of yellow perch trophic indicators outweighs spatial structuring in large lakes. *Journal of Great Lakes Research*. 44: 299-310.
- Karatayev, A.Y., L.E. Burlakova, K. Mehler, S. A. Bocaniov, P.D. Collingsworth, G.J. Warren, R.T. Kraus and E. Hinchey-Malloy. 2018. Biomonitoring using invasive species in a large lake: *Dreissena* distribution maps hypoxic zones. *Journal of Great Lakes Research*. 44: 639-649
- Watkins, J.W., P.D. Collingsworth, and L.G. Rudstam. 2017. Tracking zooplankton diel vertical migration in Lake Ontario using traditional net sampling and a Laser Optical Particle Counter (LOPC). *Journal of Great Lakes Research*. 43: 804-812.
- Xu, W., P.D. Collingsworth, B. Bailey, M. Carlson-Mazur, J. Schaeffer and B. Minsker. 2017. Spatial pattern of Great Lakes rivermouth processes from water quality sensing and geostatistical methods. *Environmental Modelling and Software*. 97: 72-85.
- Liu, Y., B.A. Engel, P.D. Collingsworth, and B.C. Pijanowski. 2017 Optimal implementation of green infrastructure practices to reduce adverse impacts of land use and climate change on hydrology and water quality: a case study in Spy Run Creek watershed, Indiana. *Science and the Total Environment*. 601-602: 1400-1411.
- Collingsworth, P.D., D.B. Bunnell, M. Murray, K. Yu-Chun, R. Claramunt, Z.S. Feiner, B. Lofgren, T.O. Höök, and S.A. Ludsin. 2017. Climate change as a long-term stressor for the fisheries of the Laurentian Great Lakes of North America. *Reviews in Fish Biology and Fisheries*. 27: 363-391.
- Chen, K., E.A. Marschall, M.M. Corey, P.D. Collingsworth, M.K. Nims, J.W. Olesik, J.J. Van Tassell, and S.A. Ludsin. 2017. Experimental and field evaluation of otolith strontium as a marker to discriminate between river-spawning populations of walleye in Lake Erie. *Canadian Journal of Fisheries and Aquatic Sciences*. 74:693-701.
- Kerns, J. D.B Bunnell, R. Claramunt, M.W Rogers and P.D. Collingsworth. 2016. Comparison of life history characteristics between naturalized and stocked Chinook salmon in Lake Michigan. 2016. *North American Journal of Fisheries Management* 36: 1106 – 1118.
- Kraus, R.T., C.T. Knight, T.M. Farmer, A.M. Gorman, P.D. Collingsworth, G.J. Warren, P.M. Kocovsky, and J.D. Conroy. 2015. Dynamic hypoxic zones in Lake Erie compress fish habitat, altering vulnerability to fishing gears. *Canadian Journal of Fisheries and Aquatic Sciences*. 72: 797-806
- Feiner, Z.S., D.B. Bunnell, T.O. Höök, C.P. Madenjian, D.M. Warner and P.D. Collingsworth. 2015. Non-stationary recruitment dynamics of rainbow smelt: The influence of environmental variables and variation in size structure and length-at-maturation. *Journal of Great Lakes Research*. 41: 246-258

- Gover, T.R., M.K. Nims, J.J. Van Tassell, P.D. Collingsworth, J.W. Olesik, S.A. Ludsin, and E.A. Marschall. 2014. How much cleaning is needed when processing larval otoliths for microchemical analysis? *Transactions of the American Fisheries Society*. 143: 779-783.
- Collingsworth, P.D., D.B. Bunnell, C.P. Madenjian, and S.C. Riley. 2014. Comparative population dynamics of Alewife and Bloater in Lakes Michigan and Huron. *Transactions of the American Fisheries Society*. 143: 294-309.
- Collingsworth, P.D. and E. A. Marschall. 2011. Variation in yellow perch female reproductive characteristics in Lake Erie. *Freshwater Biology* 56: 2500-2513.
- Collingsworth, P.D. and E.A. Marschall. 2011. Identifying relationships between catches of spawning-condition yellow perch and environmental variables in the western basin of Lake Erie. *Transactions of the American Fisheries Society*. 140: 31-36.
- Collingsworth, P.D., J.J. Van Tassell, J.W. Olesik, and E.A. Marschall. 2010. Effects of temperature and elemental concentration on the chemical composition of juvenile yellow perch otoliths. *Canadian Journal of Fisheries and Aquatic Sciences*. 67: 1187-1196.
- Collingsworth, P.D. and C.C. Kohler. 2010. Abundance and habitat use of juvenile bluegill among different macrophyte stands. *Lake and Reservoir Management*. 26: 35-42.
- Collingsworth, P.D., R.A. Oster, C.W. Hickey, R.C. Heidinger, and C.C. Kohler. 2009. Factors affecting water willow establishment in a large reservoir. *Lake and Reservoir Management*. 25:200-207.
- Pothoven, S.A., S.A. Ludsin, T.O. Höök, D.L. Fanslow, D.L. Mason, P.D. Collingsworth, and J.J. Van Tassell. 2008. An evaluation of bioelectrical impedance analysis for estimating fish energy, lipid, and water content. *Transactions of the American Fisheries Society*. 137:1519-1529.
- Collingsworth, P.D., R.A. Oster, C.W. Hickey, R.C. Heidinger, and C.C. Kohler. 2007. Effect of propagule type and holding method on the survival of transplanted water willow (*Justicia americana*). *Journal of Aquatic Plant Management*. 45:61-63.
- Collingsworth, P.D., T.L. Bray and G.K. Christopher. 2000. Crystal growth via computer-controlled vapor diffusion. *Journal of Crystal Growth*. 219: 283-289.

#### **Manuscripts in progress:**

- Chamberlin, D.W., C. Knight, R.T. Kraus, A.M Gorman, W. Xu and P.D. Collingsworth. Hypoxia augments edge effects of water column stratification on fish distribution. *In revision*. *Fisheries Research*.
- Xu, W., P.D. Collingsworth, R.T. Kraus and B. Minsker. Spatio-temporal analysis of hypoxia in the central basin of Lake Erie. *In review*. *Water Resources Research*.

#### **Non-refereed publications:**

- Höök, T., Collingsworth, P., Dorworth, L., Fisher, B., Foley, C., Hoverman, J., LaRue, E., Pryon, M., Widhalm, M., Dukes, J.S. 2018. Aquatic Ecosystems in a Shifting Indiana Climate: A Report from the Indiana Climate Change Impacts Assessment. Purdue Climate Change Research Center, Purdue University. West Lafayette, Indiana.
- Rogers, M.W., J.A. Kerns, D.B. Bunnell, R.M. Claramunt and P.D. Collingsworth. 2014. Exploring life history characteristics of naturalized versus stocked Chinook salmon. Final Report to Great Lakes Fisheries Trust.

- Collingsworth, P.D. Assessing the potential for differential contributions of spawning stocks to Lake Erie yellow perch populations. 2011. Final Report to Ohio Department of Natural Resources.
- Collingsworth, P.D. Assessing the potential for differential contributions of spawning stocks to Lake Erie yellow perch populations. 2009. PhD Dissertation. The Ohio State University. Columbus, OH.
- Collingsworth, P.D. Abundance and habitat use of congeneric sunfish among different macrophytes in the littoral zone of a temperate latitude reservoir. Master's Thesis. Southern Illinois University. Carbondale, IL.
- Heidinger, R.C., C.C. Kohler, P.D. Collingsworth, C.W. Hickey, and R. Oster. 2001 - 2003. Illinois lake vegetation project (F-140-R): Annual (2) and Final (1) Performance Reports.

**Grants and awards received (total funding > 2 million USD):**

- Developing Lake Michigan science priorities for 2020 Cooperative Science and Monitoring Initiative. 2018. International Joint Commission.
- Extending impact of U.S. EPA's Great Lakes National Program Office using Sea Grant outreach capacity. 2015 – 2020. Great Lakes Restoration Initiative.
- Spatial variation in condition and trophic connections of larval fish in Lake Michigan: a CSMI enhancement fellowship. 2015. Cooperative Institute for Limnology and Ecosystems Research Long-term Fellowship Program. With Tomas Höök and Ed Rutherford
- Exploring life history characteristics of naturalized versus stocked Chinook salmon. Great Lakes Fisheries Trust. 2012 - 2014. With Mark Rogers, Bo Bunnell, and Randy Claramunt.
- Assessing the potential for differential contributions of spawning stocks to Lake Erie yellow perch populations. Ohio Division of Wildlife. 2003 – 2009. With Elizabeth Marschall.
- Chemical composition and ring formation of percid otoliths: effects of elemental concentration and temperature. NOAA Interjurisdictional Fisheries Act. 2004 – 2007. With Elizabeth Marschall and Jason Van Tassell.
- Effect of temperature and elemental concentration on the chemical composition of juvenile percid otoliths. Lake Erie Protection Fund. 2004 – 2006. With Elizabeth Marschall and Jason Van Tassell.

- Excellence in Research Award, Purdue University, 2016
- Ray Travel Award, The Ohio State University, 2004
- Graduate Travel Grant, North American Lake Management Society, 2004
- Student Travel Grant, International Association for Great Lakes Research, 2008

**Invited presentations:**

- P.D. Collingsworth. 2018. Understanding climate change effects on fisheries in the Laurentian Great Lakes. 63<sup>rd</sup> annual meeting of the Great Lakes Fisheries Commission. Toronto, ON.
- P.D. Collingsworth. 2017. Dynamic hypoxia in Lake Erie: causes and consequences. Illinois Natural History Survey Seminar Series. Champaign, IL.

- P.D. Collingsworth, R.T. Kraus, J.C. May and G.J. Warren. 2017. What is the spatial extent of hypoxia in Lake Erie? Lake Erie Millennial Network Meeting. Windsor, ON.
- P.D. Collingsworth. 2015. Scaling up ecosystem monitoring in the Great Lakes. Keynote address delivered to: National Environmental Monitoring Conference. Chicago, IL.
- P.D. Collingsworth. 2015. Scaling up ecosystem monitoring in the Great Lakes. Biological Science Graduate Student Association Seminar Series. Eastern Illinois University. Charleston, IL.
- P.D. Collingsworth. 2015. U.S. EPA, CSMI collaborations – Lake Erie 2014. Lake Erie Technical Committee Meeting. Ypsilanti, MI.
- P.D. Collingsworth, C. Troy, and D. Robinson. 2014. Nutrient dynamics and physical processes in Lake Michigan. Oral presentation. GLRRIN Lake Michigan Meeting. NOAA GLERL. Ann Arbor, MI.
- Bunnell, D.B., P.D. Collingsworth, C. DeMarchi, Y.C. Kao, B. Lofgren, C.P. Madenjian, M. Murray, and D. Warner. 2013. Climate change impacts on fisheries in Lakes Michigan and Huron. Oral presentation. OSU Climate Change Webinar Series. The Ohio State University, Columbus OH.
- Collingsworth, P.D., and E.A. Marschall. 2009. Spatial and temporal variation in female yellow perch reproductive traits in Lake Erie: consequences for lake-wide egg production. Oral presentation. Florida Fish and Wildlife Research Institute. St. Petersburg, FL.
- Van Tassell, J.J., P.D. Collingsworth, J. Olesik, and E.A. Marschall. 2007. Interpreting elemental patterns in otoliths; interaction between water elemental concentration and temperature. Oral presentation. 137th Annual Meeting of the American Fisheries Society. San Francisco, CA.

**Contributed presentations (previous 5 years, out of >100 total):**

- Collingsworth, P.D., L. Eaton, P. Armenio and D.B. Bunnell. 2018. Spatial variation in environmental conditions for larval fish in Lake Huron. 61<sup>st</sup> Annual Conference of the International Association for Great Lakes Research. Toronto, ON.
- Tepas, K., P.D. Collingsworth, C. Foley, I. Miles and A. Neubauer. 2018. Sharing CSMI field year findings with a broader audience. 61<sup>st</sup> Annual Conference of the International Association for Great Lakes Research. Toronto, ON.
- Eaton, L., D.B. Bunnell, P. Armenio, D. Warner and P.D. Collingsworth. 2018. Larval fish community dynamics during 2017 Lake Huron CSMI. 61<sup>st</sup> Annual Conference of the International Association for Great Lakes Research. Toronto, ON.
- Winter, C., P.D. Collingsworth, P. Kocovsky and E. Osantowski. 2018. Trends in total phosphorus and chlorophyll a in Lake Erie: insights from two monitoring programs. 61<sup>st</sup> Annual Conference of the International Association for Great Lakes Research. Toronto, ON.
- Liu, Y, B. Engel, P.D. Collingsworth, and B.C. Pijanowski 2017. Optimal implementation of best management practices to improve agricultural hydrology and water quality. Poster presentation. Fall meeting of the American Geophysical Union. New Orleans, LA.
- Hinchey, E.K. and P.D. Collingsworth. 2017. 2015 Lake Michigan CSMI discussion session: Synthesizing the results to inform the 2020 field year. International Association for Great Lakes Research, State of Lake Michigan Conference. Green Bay, WI.

- Tepas, K., P.D. Collingsworth, A. Neubauer, I. Miles and C. Foley. 2017. Sharing 2015 CSMI result beyond the choir. International Association for Great Lakes Research, State of Lake Michigan Conference. Green Bay, WI.
- Collingsworth, P.D., M.H. Stadig, S.C. Guffey, E.S. Rutherford and T.O. Höök. 2017. Spatiotemporal trends in the condition of *Bythotrephes* in Lake Michigan. International Association for Great Lakes Research, State of Lake Michigan Conference. Green Bay, WI.
- Scofield, A.E. J.M. Watkins, L.G. Rudstam, W. Xu and P.D. Collingsworth. 2017. Zooplankton diel vertical migration in southern Lake Michigan. International Association for Great Lakes Research, State of Lake Michigan Conference. Green Bay, WI.
- Chamberlin D., C. Knight, R.T. Kraus, A.M. Gorman, W. Xu and P.D. Collingsworth. 2017. Interactions between fluctuating hypoxic zones and commercial trap netting activity in the Lake Erie yellow perch fishery. 147<sup>th</sup> Annual Meeting of the American Fisheries Society. Tampa, FL.
- Höök.. T.O., M. Hutton, P.D. Collingsworth and B. Lesht. 2017. Increased relative nearshore production in Lake Michigan and implications for fish and fisheries. 147<sup>th</sup> Annual Meeting of the American Fisheries Society. Tampa, FL.
- Kalejs, N., T.O. Hook, M. Zischke, J.S. Beugly, P.D. Collingsworth, E. Roseman, and D. Fielder. 2017. An Assessment of Reef Restoration Potential in Saginaw Bay, Lake Huron. 60<sup>th</sup> Annual Conference of the International Association for Great Lakes Research. Detroit, MI.
- Scofield, A.E. J.M. Watkins, L.G. Rudstam, W. Xu and P.D. Collingsworth. 2017. A cross-lake comparison of trends in deep chlorophyll layers from 1996 to 2016. 60<sup>th</sup> Annual Conference of the International Association for Great Lakes Research. Detroit, MI.
- Stow. C.A., M.D. Rowe, S.A. Ruberg, T.H. Johengen, H. Zhang, D. Beletsky, S.J. Joshi, P.D. Collingsworth, D.M. Mason, R.T. Kraus, and E.J. Anderson. 2017. Lake Erie Hypoxia Forecasting for Public Water Systems Decision Support. 60<sup>th</sup> Annual Conference of the International Association for Great Lakes Research. Detroit, MI.
- P.D. Collingsworth, R.T. Kraus, J.C. May and G.J. Warren. 2017. What is the spatial extent of hypoxia in Lake Erie? Association for the Science of Limnology and Oceanography, Aquatic Sciences Meeting. Honolulu, HI.
- Liu, Y, P.D. Collingsworth, B.C. Pijanowski, and B. Engel. 2016. Optimal implementation of green infrastructure practices to reduce adverse impacts of urban areas on hydrology and water quality. Poster presentation. Fall meeting of the American Geophysical Union. San Francisco, CA.
- Hutton, M.S., P.D. Collingsworth, S.C. Guffey, E.S. Rutherford, M.T. Zischke and T.O. Höök. 2016. Spatiotemporal differences in the condition of *Bythotrephes longimanus* in Lake Michigan. 76<sup>th</sup> Annual Midwest Fish and Wildlife Conference. Grand Rapids, MI.
- Collingsworth, P.D., and G.J. Warren. 2016. Trends in total phosphorus and chlorophyll in Lake Erie: insights from two long term monitoring programs. 59<sup>th</sup> Annual Conference of the International Association for Great Lakes Research. Guelph, ON.
- Hinchey, E.K., P.D. Collingsworth and D.B. Bunnell. 2016. Lake Michigan 2015 CSMI field year overview. 59<sup>th</sup> Annual Conference of the International Association for Great Lakes Research. Guelph, ON.
- Hutton, M.S., P.D. Collingsworth, S.C. Guffey, E.S. Rutherford, M.T. Zischke and T.O. Höök. 2016. Assessing a secondary consumer through space and time: The

- story of Lake Michigan *Bythotrephes*. 59<sup>th</sup> Annual Conference of the International Association for Great Lakes Research. Guelph, ON.
- Kalejs, N.I., T.O. Höök, M.T. Zischke, J.S. Beugly, P.D. Collingsworth, E.F. Roseman, R. Hunter, and D. Fielder. 2016. An assessment of reef restoration potential in Saginaw Bay, Lake Huron. 59<sup>th</sup> Annual Conference of the International Association for Great Lakes Research. Guelph, ON.
- Wells, D.J., E.S. Rutherford, D.E. Eppehimer, J.F. Caveletto, J.R. Leibig, H.A. Vanderploeg, D.B. Bunnell, T.O. Höök, M.S. Hutton, P.D. Collingsworth, M.T. Zischke, and R.M. Claramunt. 2016. Thermocline formation timing affects Lake Michigan larval fish phenology and recruitment potential. 59<sup>th</sup> Annual Conference of the International Association for Great Lakes Research. Guelph, ON.
- Xu, W., P.D. Collingsworth, B.S. Minsker, R.T. Kraus, and G.J. Warren. 2016. Spatio-temporal kriging analysis of lake bottom dissolved oxygen in the central basin of Lake Erie. 59<sup>th</sup> Annual Conference of the International Association for Great Lakes Research. Guelph, ON.
- Chen, K.Y., P.D. Collingsworth, M.K. Nims, J.W. Olesik, J.J. Van Tassel, E.A. Marschall, and S.A. Ludsin. 2015. Experimental and field evaluation of otolith strontium as a marker to discriminate between river-spawning populations of Walleye in Lake Erie. 145<sup>th</sup> Annual Meeting of the American Fisheries Society. Portland, OR.
- Xu, W., P.D. Collingsworth and B.S. Minsker. 2015. Algorithmic detection of deep chlorophyll layers in Great Lakes water quality data. 59<sup>th</sup> Annual Meeting of the International Association for Great Lakes Research. Burlington, VT.
- Watkins, J.M., P.D. Collingsworth, L. G. Rudstam, N.E. Saavedra, B.P. O'Malley, A.E. Scofield and T.J. Holda. 2015. Tracking diel vertical migration using advanced technology and net tows in Lake Ontario. 59<sup>th</sup> Annual Meeting of the International Association for Great Lakes Research. Burlington, VT.
- Scofield, A.E., J.M. Watkins, T.H. Johengen, R.J. Miller, B.C. Weidel, P.D. Collingsworth and L.G. Rudstam. 2015. Mapping the deep chlorophyll layer in Lake Ontario: A comparison of profiling technologies. 59<sup>th</sup> Annual Meeting of the International Association for Great Lakes Research. Burlington, VT.
- Hutton, M.A., P.D. Collingsworth, T.O. Höök and B.M. Lesht. 2015. Nearshore primary production in Lake Michigan: analysis of trends using remote sensing techniques. 59<sup>th</sup> Annual Meeting of the International Association for Great Lakes Research. Burlington, VT.
- Collingsworth, P.D., R. Kraus, J. May and G.J. Warren. 2015. What is the spatial extent of hypoxia in Lake Erie? 59<sup>th</sup> Annual Meeting of the International Association for Great Lakes Research. Burlington, VT.
- Collingsworth, P.D., W. Xu, B.S. Minsker, J.S. Schaeffer, and M. Mazur. 2014. Characterization of river plumes in Lake Michigan using a towed multi-sensor array. Oral Presentation. Illinois Water Conference. Urbana, IL.
- Marini, L., N. Tenczar, P. Collingsworth, K. Tepas, L. Gatzke, W. Xu, J. Roloff, B.S. Minsker, R. Kooper, B. Angelo, and B. Miller. 2014. Distributed data management for the Great Lakes. Oral Presentation. 58<sup>th</sup> Annual Meeting of the International Association for Great Lakes Research. Hamilton, ON.
- Minsker, B.S., T. Wietsma and P. Collingsworth. 2014. Algorithmic detection of thermoclines in Great Lakes water quality data using signal processing methods. Oral Presentation. 58<sup>th</sup> Annual Meeting of the International Association for Great Lakes Research. Hamilton, ON.
- Xu, W., B.S. Minsker, P. Collingsworth and B.A. Bailey. 2014. Spatial pattern of Great Lakes estuary processes from water quality sensing and geospatial methods.

- Oral Presentation. 58<sup>th</sup> Annual Meeting of the International Association for Great Lakes Research. Hamilton, ON.
- Kraus, R., A.M. Goreman, T. Farmer, C. Knight, P. Collingsworth, G. Warren and J. Conroy. 2014. Dynamic hypoxic zones in Lake Erie compress fish habitat, altering vulnerability to fishing gears. Oral Presentation. 144<sup>th</sup> Annual Meeting of the American Fisheries Society. Quebec City, PQ.
- Collingsworth, P.D., W. Xu, B.S. Minsker, J.S. Schaeffer, and M. Mazur. 2014. Characterization of river plumes in Lake Michigan using a towed multi-sensor array. Oral Presentation. 144<sup>th</sup> Annual Meeting of the American Fisheries Society. Quebec City, PQ.

### **Teaching Experience:**

#### **Teaching:**

Purdue University:

Instructor FNR 370, Summer Practicum, Summer 2012 and 2013.

Instructor FNR 598, Great Lakes Science and Management, Spring 2017 and 2019

Lake Forest College: Guest Lecturer, Environmental Science 222, The Lake by the College, Fall 2016 and 2017.

Ohio State University:

Graduate Teaching Assistant: EEOB 647, Limnology, Fall 2004. EEOB 413, General Ecology, Fall 2006 and Winter 2008

#### **Graduate Student and Post-doc Advising:**

Allison Hrycik. M.S. Student. Thesis Title: Effects of hypoxia on yellow perch condition in Lake Erie. Co-advised with Tomas Höök. Completed, Spring 2015

*Current position: Ph.D. student, University of Vermont*

Margaret Hutton. M.S. Student. Thesis Title: Detecting nearshore productivity gradients in Lake Michigan and understanding their ecological consequences. Co-advised with Tomas Höök. Completed, Spring 2017. *Current position: Natural Resource Specialist, Texas Parks and Wildlife Department*

Yaoze Liu. Postdoc. Project title: Optimizing land use strategies to reduce impacts on hydrology and water quality. Co-advised with Bernie Engle. Completed, Spring 2018. *Current position: Assistant professor, University of Albany.*

Annie Scofield. Postdoc. Project title: Effects of productivity and non-native species on spatial subsidies and trophic transfer efficiency in large lakes.

#### **Graduate Student Committee Membership:**

Sarah Stein. Ph.D. Student. Purdue University, Department of Forestry and Natural Resources

Wenzhao Xu. Ph.D. Student. University of Illinois, Department of Environmental Engineering.

Nick Kalejs. M.S. Student. Purdue University, Department of Forestry and Natural Resources



Ben Leonhardt. M.S. Student. Purdue University, Department of Forestry and Natural Resources  
Patricia Nease. M.S. Student. Purdue University, Department of Forestry and Natural Resources

**Undergraduate and Intern Supervision:**

Tyler Groll. 2005. Within-population spatial differences in maternal condition of yellow perch. Undergraduate Research Project.  
Megan Nims. 2008. Determination of elemental uptake rate in the early life stages of walleye (*Sander vitreus*). Undergraduate Honor's Research Thesis.  
Robert Liva. 2011. Testing the assumptions of the nearshore phosphorus shunt using long term data sets. ORISE Fellowship project.  
Meredith Bracket. 2012. Compiling and comparing nutrient data collected by various groups around the Lake Erie Basin. IL-IN Sea Grant internship.  
Emily Clark. 2017. Outreach in support of the 2015 Cooperative Science and Monitoring Initiative field year in Lake Michigan.

**Extension Experience:**

Initiated Cooperative Science and Monitoring Initiative (CSMI) reporting and outreach program. Financial support was given to the Sea Grant Great Lakes Network to aid in CSMI report and outreach efforts. To date, outreach efforts are underway to describe results from 2013 Lake Ontario, 2014 Lake Erie and 2015 Lake Michigan CSMI field activities.

**CSMI Publications:**

Foley, C. and P. Collingsworth (Editors.) 2018. Cooperative Science and Monitoring Initiative (CSMI) Lake Michigan Report. 149 p. Sea Grant Publication IISG18-HCE-RLA-013.  
Foley, C.J., K. TePas, and P.D. Collingsworth (Editors). 2019. Cooperative Science & Monitoring Initiative. Lake Michigan CSMI 2020 Kickoff Workshop Summary Report. Proceedings of a Workshop held at the University of Wisconsin-Milwaukee School of Freshwater Sciences October 16-17, 2018. Prepared for the Science Advisory Board of the International Joint Commission by Illinois-Indiana Sea Grant. 16 p. Sea Grant Publication IISG19-HCE-CWP-012.

**CSMI Workshop Development:**

Organized Lake Michigan Cooperative Science and Monitoring Initiative workshop in Chicago, IL. Approximately 30 participants.  
Organized Great Lakes Regional Research Information Network meeting in Ann Arbor, MI. Approximately 60 participants.

**Webpage Development:**

Led team in the development of [greatlakesmonitoring.org](http://greatlakesmonitoring.org)

Popular Press for greatlakesmonitoring.org and algorithm work:

- “The Great Lakes are warming”. Interview on the 21<sup>st</sup>. Illinois Public Radio  
“Coming into focus”. Illinois Water.  
Published by Illinois Water Resources Center.
- “Researchers can now dip into years of Great Lakes data”. The Helm.  
Published by IL-IN Sea Grant.
- “New website finds Great Lakes data in minutes”. Great Lakes Echo.  
Published by Michigan State University.
- “Sea Grant releases Great Lakes monitoring website”. Stormwater  
Report. Published by Water Environment Federation.
- “Great Lakes Monitoring makes data easier to access”. Public Affairs.  
Published by National Center for Supercomputing Applications

Invited demonstrations for greatlakesmonitoring.org:

- Great Lakes Advisory Committee – January, 2015. Chicago, IL
- Lake Superior Environmental Monitoring Collaborative, University sub-group –  
March, 2015. Houghton, MI
- Lake Superior Environmental Monitoring Collaborative, NGO sub-group – June,  
2015. Ashland, WI
- Lake Superior Environmental Monitoring Collaborative, Regulated sub-group –  
June, 2015. Chicago, IL
- Great Lakes Executive Committee – June, 2015. Chicago, IL and December  
2015. Toronto ON.

**Professional service:**

**Great Lakes Water Quality Agreement Annex participation**

Member, Annex 4 working group on Algae and Lake Monitoring

Member, Annex 10 Cooperative Science and Monitoring Initiative Core Task Team

**Membership in professional organizations and honor societies:**

American Fisheries Society. 2001 – present.

- Member TAFS awards subcommittee 2010

*Phi Kappa Phi*, Southern Illinois University Chapter. 2003.

International Association of Great Lakes Research. 2007 – present.

American Association for the Advancement of Science. 2007 – present.

*Sigma Xi*, The Ohio State University Chapter 2008 - present.

Ecological Society of America. 2011 – present.

**Manuscript review:**

Journal of Great Lakes Research

Marine Ecology Progress Series

Transactions of the American Fisheries Society,

North American Journal of Fisheries Management.

Journal of Great Lakes Research

Hydrobiologia  
Fisheries Management and Ecology  
Canadian Journal of Fisheries and Aquatic Sciences,  
Journal of the North American Benthological Society,  
Northeastern Naturalist

**Proposal review:**

IL-IN Sea Grant Omnibus proposals  
OH Sea Grant research proposals

**Department of Evolution, Ecology, and Organismal Biology, The Ohio State University:**

EEOB Seminar committee member. 2004 and 2008. The Ohio State University.  
Columbus, OH

**Volunteer service:**

Oral presentation judge. 2003. 133rd Annual Meeting of the American Fisheries Society  
Women in Science Day. 2004 – 2009. Aquatic Ecology Laboratory, Columbus OH  
Arts and the Environment. 2004 – 2009. Aquatic Ecology Laboratory, Columbus OH  
Volunteer Judge. 2004, 2005. St. Andrew's Junior High School Science Fair  
Participant. 2011. One Health Convening. Shedd Aquarium. Chicago IL.  
Participant. 2011. Lake Michigan Conservation Blueprint Workshop. University Club.  
Chicago IL.  
Organizing Committee Member. 2011. State of Lakes Ecosystem Conference.  
Volunteer Ask a Scientist. 2012 – present. EPA-GLNPO education program.