

Tomas O. Höök

Cooperative Institute for Limnology and Ecosystems Research
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CURRICULUM VITAE

CURRENT POSITION

Research Investigator Cooperative Institute for Limnology and Ecosystems Research, University of Michigan School of Natural Resources and Environment (Ann Arbor, MI: 2005-present)

EDUCATION

University of Michigan (Ann Arbor, MI: 1992-1996) BS in biology

University of Michigan (Ann Arbor, MI: Sept. 1997-2000) MS in Resource Ecology and Management, School of Natural Resources and Environment. (*Thesis title: The distribution of larval fish in three northern Lake Huron coastal marsh bays.*)

University of Michigan (Ann Arbor, MI: 2000-2005) PhD in Natural Resources, School of Natural Resources and Environment. (*Dissertation title: Habitat-mediated production and recruitment of young alewives in Lake Michigan.*)

RESEARCH EXPERIENCE

Visiting Researcher, Stockholm University, Department of Systems Ecology (Stockholm, Sweden: 2005)

Graduate Research Assistant, University of Michigan, School of Natural Resources and Environment (Ann Arbor, MI: 1998-2004)

Research Assistant, U.S.G.S. Great Lakes Science Center (Ann Arbor, MI: 1997)

Field Assistant, Stillwater National Wildlife Refuge (Fallon, NV: 1996)

Research Assistant, University of Michigan, Dept. of Biology (Ann Arbor, MI: 1995)

Research Assistant, Texas A&M Institute of Biosciences and Technology (Houston, TX: 1993)

TEACHING EXPERIENCE

Co-Instructor (University of Michigan)

-NRE 639 Great Lakes Science and Management

Substitute Lecturer (University of Michigan)

-NRE 425 Applied Population Ecology

-NRE 460 Fisheries Science

Graduate Student Instructor (University of Michigan)

-NRE 460 Fisheries Science

-NRE 409 Fish Ecology

-NRE 423 Biology of Fishes

-NRE 438 Natural Resource Statistics

-Biology 325 Animal Physiology

PROFESSIONAL AFFILIATIONS

- American Fisheries Society
- International Association for Great Lakes Research

AWARDS

- NOAA, Great Lakes Environmental Research Laboratory. Director's Award. 2006.
- University of Michigan, Cooperative Institute for Limnology and Ecosystems Research (CILER). Mentorship Award, 2006.
- University of Michigan, CILER Research Excellence Award, 2005.
- University of Michigan, School of Natural Resources and Environment (SNRE), Fishery Alumni Award, 2004.
- University of Michigan, SNRE, Fishery Alumni Award, 2001.
- University of Michigan, CILER Graduate Fellowship, 2000.
- University of Michigan, CILER Graduate Fellowship, 1999.

RESEARCH GRANTS

- Great Lakes Fishery Trust, *Mapping the condition of Diporeia: Insights to mechanisms of declines*. 2008-2011. \$569,689. lead-PIs: M. Sepulveda and T. **Höök**, Co-PIs: T. Nalepa, D. Fanslow, J. Adamec, J. Rinchar, K. Nichols, W. Stott, S. Pothoven, T. Johengen, D. Jude, and M. Wiley.
- NOAA Center for Sponsored Coastal Ocean Research, *Adaptive Integrated Framework (AIF): a new methodology for managing impacts of multiple stressors in coastal ecosystems*. 2007-2012. \$3,800,000. lead-PIs: C. Stow, S. Peacor, and T. **Höök**. Co-PIs: S. Brandt, T. Croley, J. Dyble, T. Nalepa, S. Pothoven, H. Vanderploeg, M. Kaplowitz, F. Lupi, D. Beletsky, C. DeMarchi, T. Johengen, D. Kashian, C. He, P. Lavrentyev, J. Bredin, T. Newcomb, and J. DePinto.
- Great Lakes Fishery Trust, *Historic and spatial variation of lake whitefish maturation schedules*. 2005-2007. \$107,000. PI: T. **Höök**. Co-PIs: S. Peacor, P. Schneeberger, and M. Ebener.
- National Sea Grant, *The Influence of Seasonal Hypoxic Events in the Central Basin of Lake Erie on the Short-Term Growth of Organisms from Multiple Trophic Levels*. 2005-2006. \$72,000. PI: T. **Höök**. Co-PIs: J. Diana, S. Hansson, and E. Gorokhova.
- Great Lakes Fishery Commission, *River discharge as a predictor of Lake Erie yellow perch recruitment*. 2006-2009. \$340,000. PI: S. Ludsin. Co-PIs: D. Mason, H. Vanderploeg, G. Leshkevich, T. **Höök**, B. Fryer, D. Heath, T. Johnson, D. Bunnell, J. Tyson, and C. Mayer.
- NOAA Center for Sponsored Coastal Ocean Research. *Forecasting the causes, consequences, and potential solutions for hypoxia in Lake Erie*. 2006-2011. \$2,200,000 lead-PIs: D. Scavia, J. D. Allan, J. DePinto and T. **Höök**. Co-PIs: L. Sano, D. Beletsky, T. Johengen, E. Rutherford, S. Brandt, S. Ludsin, T. Croley, D. Mason, S. Ruberg, D. Schwab, H. Vanderploeg, S. Bartell, D. Dolan, C. He, R. Knight, and P. Richards
- U.S. Fish and Wildlife Service, Great Lakes Restoration Act, *Modelling historic and spatial variation of Great Lakes walleye maturation schedules*. 2007-2007. \$75,000. PI: T. **Höök**. Co-PIs: K. Wehrly, T. Zorn, K. Kayle, L. Rudstam and S. Peacor.

American Scandinavian Foundation, Postdoctoral Fellowship, *Habitat-specific contributions of Baltic herring recruits*. 2005. \$18,000. Fellow: T. **Höök**. Host: S. Hansson (Stockholm University).

PUBLICATIONS

- Wilson, A.E., D.C. Gossiaux, T.O. **Höök**, J.P. Berry, P.F. Landrum, J. Dyble, and S.J. Guildford. *in press*. Evaluation of the human health threat associated with the hepatotoxin, microcystin, in the muscle and liver tissues of yellow perch (*Perca flavescens*). *Canadian Journal of Fisheries and Aquatic Sciences*.
- Höök**, T.O., E.S. Rutherford, T.E. Croley, D.M. Mason, and C.P. Madenjian. *in press*. Annual variation in habitat-specific contributions of alewife recruits in Lake Michigan: Implications from an individual-based model. *Canadian Journal of Fisheries and Aquatic Sciences*.
- Höök**, T.O., E. Gorokhova, and S. Hansson. 2007. RNA:DNA ratios of Baltic herring larvae and copepods in embayment and open sea habitats. *Estuarine, Coastal, and Shelf Science*. (doi:10.1016/j.ecss.2007.06.012 published on-line: www.elsevier.com/locate/ecss)
- Höök**, T.O., E.S. Rutherford, D.M. Mason, and G. S. Carter. 2007. Hatch dates, growth rates, survival and over-winter mortality of age-0 alewives in Lake Michigan: Implications for habitat-specific recruitment success. *Transactions of the American Fisheries Society*. 136: 1298-1312.
- Höök**, T.O., M.J. McCormick, E.S. Rutherford, D. Mason, and G. S. Carter. 2006. Short-term water mass movements in Lake Michigan: implications for larval fish transport. *Journal of Great Lakes Research*. 32: 728-737.
- Dufour, E., W. Patterson, T.O. **Höök**, and E.S. Rutherford. 2005. Early life history of Lake Michigan alewives (*Alosa pseudoharengus*) inferred from intra-otolith stable isotope ratios. *Canadian Journal of Fisheries and Aquatic Sciences*. 62: 2362-2370.
- Madenjian, C. P., T.O. **Höök**, E.S. Rutherford, D.M. Mason, T.E. Croley II, E.B. Szalai, and J.R. Bence. 2005. Recruitment variability of alewives in Lake Michigan. *Transactions of the American Fisheries Society*. 134: 218-230.
- Höök**, T.O., E.S. Rutherford, C. Geddes, S.J. Brines, D.M. Mason, D.J. Schwab, and G.W. Fleischer. 2004. Landscape scale measures of steelhead (*Oncorhynchus mykiss*) bioenergetic growth rate potential in Lake Michigan and comparison with angler catch rates. *Journal of Great Lakes Research*. 30: 545-556.
- Höök**, T.O., E.S. Rutherford, S.J. Brines, D.J. Schwab, and M.J. McCormick. 2004. Relationships between surface water temperature and steelhead distributions in Lake Michigan. *North American Journal of Fisheries Management*. 24: 211-221.
- Höök**, T.O., E.S. Rutherford, S.J. Brines, D.M. Mason, D.J. Schwab, M.J. McCormick, G.W. Fleischer, and T.J. DeSorcie. 2003. Spatially explicit measures of production of young alewives in Lake Michigan: Linkage between essential fish habitat and recruitment. *Estuaries*. 26: 21-29.
- Vandermeer, J., M.A. Evans, P. Foster, T. **Höök**, M. Reiskind, and M.Wund. 2002. Increased competition may promote species coexistence. *Proceedings of the National Academy of Sciences* 99: 8731-8736.
- Höök**, T.O., N.M. Eagan, and P.W. Webb. 2001. Habitat and human influences on larval fish assemblages in northern Lake Huron coastal marsh bays. *Wetlands* 21: 281-291.

THESES AND WHITE PAPERS

- Höök**, T.O. 2005. Habitat-mediated production and recruitment of young alewives in Lake Michigan. PhD Dissertation. University of Michigan. Ann Arbor, MI.
- Höök**, T.O. 2004. A review of landscape-scale habitat models of early life fish production. A white-paper for the Great Lakes Fishery Commission. 46 pps.
- Höök**, T.O. 2000. The distribution of larval fish in three northern Lake Huron coastal marsh bays. Masters Thesis. University of Michigan. Ann Arbor, MI.

CONFERENCE PRESENTATIONS AND POSTERS (*student advisee)

- *Wang, H.Y., and T.O. **Höök**. 2007. Evolutionary consequences of size-selective fishing on maturation and harvest potential of lake whitefish. American Fisheries Society Annual Meeting. San Francisco, CA. September, 2007.
- Ludsin, S.A., H.A. Vanderploeg, S.A. Pothoven, D.M. Mason, T.O. **Höök**, and S.A. Ruberg. Hypoxia effects on habitat and prey availability for rainbow smelt in central Lake Erie. International Association of Great Lakes Research Annual Meeting. State College, Pennsylvania. May, 2007.
- Pothoven, S.A., S.A. Ludsin, H.A. Vanderploeg, and T.O. **Höök**. Effects of Lake Erie hypoxia on pelagic fish feeding ecology. International Association of Great Lakes Research Annual Meeting. State College, Pennsylvania. May, 2007.
- *Roberts, J.J., T.O. **Höök**, S.A. Ludsin, S.A. Pothoven, H.A. Vanderploeg, and T.F. Nalepa. The ecological response of yellow perch to hypoxia in Lake Erie's central basin. International Association of Great Lakes Research Annual Meeting. State College, Pennsylvania. May, 2007.
- Höök**, T. O. and S.A. Pothoven. Ontogenetic and seasonal variation of young alewife energy densities in Lake Michigan. International Association of Great Lakes Research Annual Meeting. State College, Pennsylvania. May, 2007.
- *Wang, H. Y. and T.O. **Höök**. Modeling spatial and temporal variation in maturation schedules of Great Lakes lake whitefish. American Fisheries Society Annual Meeting. Lake Placid, New York. September, 2006.
- *Roberts, J.J., T.O. **Höök**, S.A. Ludsin, and S.A. Pothoven. Hypoxia-mediated interactions between round gobies and yellow perch in Lake Erie's central basin. American Fisheries Society Annual Meeting. Lake Placid, New York. September, 2006.
- Höök**, T. O., *J.J. Roberts, D.L. Fanslow, and S.A. Ludsin. Nucleic acid ratios to index the short-term growth and condition of animals in response to Lake Erie's Dead Zone. International Association of Great Lakes Research Annual Meeting. Windsor, Ontario. May, 2006.
- *Roberts, J.J., T.O. **Höök**, S.A. Ludsin, and S.A. Pothoven. The effects of hypoxia on yellow perch in offshore waters of central Lake Erie. International Association of Great Lakes Research Annual Meeting. Windsor, Ontario. May, 2006.
- *Wang, H.Y., T.O. **Höök**, and M.P. Ebener. Spatial and temporal variation in maturation schedules of Great Lakes lake whitefish. International Association of Great Lakes Research Annual Meeting. Windsor, Ontario. May, 2006.
- Ludsin, S.A., T.O. **Höök**, S.A. Pothoven, *J.J. Roberts, M. Costantini, H.A. Vanderploeg, S.A. Ruberg, J.R. Liebig, J.F. Cavaletto, and G.A. Lang. Influence of hypoxia on the

- distribution and behavior of fish in central Lake Erie. International Association of Great Lakes Research Annual Meeting. Windsor, Ontario. May, 2006.
- *Roberts, J. J., T. O. **Höök**, S.A. Ludsin, and S.A. Pothoven. Hypoxia-mediated interactions between round gobies and yellow perch in Lake Erie's central basin. Midwest Fish and Wildlife Conference, Grand Rapids, MI. December 2005.
- Höök**, T.O., D. Beletsky, E.S. Rutherford, and D.M. Mason. A linked hydrodynamic and individual-based model of early-life alewife dynamics in Lake Michigan. International Association of Great Lakes Research Annual Meeting. Ann Arbor, MI. May, 2005.
- Höök**, T.O., E.S. Rutherford, D.M. Mason, C.P. Madenjian, and J. Tyler. Annual variation in habitat-specific contributions of alewife recruits in Lake Michigan. American Fisheries Society Annual Meeting. Madison, Wisconsin. August 2004.
- Geddes, C., E.S. Rutherford, T.O. **Höök**, and D.J. Schwab. Spatial and temporal variation in angler catch rates and movements of coho salmon in Lake Michigan, 1992-2002. American Fisheries Society Annual Meeting. Madison, Wisconsin. August 2004.
- Höök**, T.O., E.S. Rutherford, M.J. McCormick, D. Beletsky, D.J. Schwab, G.S. Carter, and D.M. Mason. Using hydrodynamic models and satellite-tracked drifter buoys to estimate larval alewife transport and mortality rates in Lake Michigan. International Association of Great Lakes Research Annual Meeting. Waterloo, Ontario. May, 2004.
- Dufour, E., W. Patterson, T.O. **Höök**, and E.S. Rutherford. Application of stable isotope geochemistry for reconstructing thermal history and natal origin of Lake Michigan alewife. The Geological Society of America Annual Meeting. Seattle, WA. Nov. 2003.
- Höök**, T.O., E.S., Rutherford, D.M. Mason, and G. Carter. The importance of near-shore areas and drowned river mouths as nursery areas for alewives in Lake Michigan. International Association of Great Lakes Research Annual Meeting. Chicago, Illinois. June, 2003.
- Carter, G., D.M. Mason, E.S. Rutherford, T.O. **Höök**, J.F. Cavaletto, R. Pichlova, and H.A. Vanderploeg. Competitive interaction among larval alewives, *Bythotrephes cederstroemi*, and *Cercopagis pengoi* in Lake Michigan: Implications for alewife growth and alteration of nearshore zooplankton assemblages. International Association of Great Lakes Research Annual Meeting. Chicago, Illinois. June, 2003.
- H.A. Vanderploeg, R. Pichlova, S.A. Pothoven, J.F. Cavaletto, G.S. Carter, D.M. Mason, T.O. **Höök**, and E.S. Rutherford. Finding a niche in the Great Lakes: the emerging *Cercopagis* Story. International Association of Great Lakes Research Annual Meeting. Chicago, Illinois. June, 2003.
- Höök**, T.O., E.S., Rutherford, D.M. Mason, and G. Carter. Contribution of recruits from drowned river mouths and near shore areas to the Lake Michigan alewife population. American Fisheries Society Annual Meeting. Baltimore, Maryland. August 2002.
- Carter, G., D.M. Mason, E.S. Rutherford, T.O. **Höök**, R. Pichlova, and H.A. Vanderploeg. Potential for competitive interactions between exotic zooplankton and larval fishes in Lake Michigan. American Fisheries Society Annual Meeting. Baltimore, Maryland. August 2002.
- Rutherford, E.S., S.J. Brines, T.O. **Höök**, P.W. Seelbach, D.J. Schwab, T.F. Nalepa, and T.J. DeSorcie. Ecologically-based Classification of Fisheries Habitat in Lake Michigan. International Association of Great Lakes Research. Green Bay, Wisconsin. June 2001.

- Höök**, T., E. Rutherford, S. Brines, D. Mason, D. Schwab, and G. Fleischer. Development and Assessment of Spatially Explicit Models of Steelhead Distributions in Lake Michigan. Midwest Fish and Wildlife Conference. Minneapolis, MN. December 2000.
- Brines, S.J., E.S. Rutherford, and T.O. **Höök**. Comparative spatial distributions of salmonines in Lake Michigan. Midwest Fish and Wildlife Conference. Minneapolis, MN. December 2000.
- Höök**, T.O., E.S. Rutherford, S.J. Brines, D.M. Mason, G.W. Fleischer, D.J. Schwab, M.J. McCormick. Habitat-mediated production and potential recruitment of juvenile alewife in Lake Michigan. AFS-Larval Fish Conference. Gulf Shores, AL. November 2000.
- Höök**, T., H. Sano, S. Brines, E. Rutherford, D. Schwab, and M. McCormick. The influence of surface temperatures on spatial and temporal distributions and harvests of salmonines in Lake Michigan. American Fisheries Society Annual Meeting. St. Louis, MO. August 2000.
- Höök**, T., E. Rutherford, S. Brines, D. Schwab, and M. McCormick. The influence of surface temperatures on spatial and temporal distributions and harvests of rainbow trout (*Oncorhynchus mykiss*) in Lake Michigan. International Association of Great Lakes Research Annual Meeting. Cornwall, ON. May 2000.
- Höök**, T., N. Eagan, and P. Webb. Assessing larval fish utilization of northern Lake Huron coastal marsh bays. AFS-Michigan Chapter Annual Meeting. East Lansing, MI. March 2000.
- Höök**, T., N. Eagan, and P. Webb. Assessment of larval fish utilization of three northern Lake Huron bays. Midwest Fish and Wildlife Conference. Chicago, IL. December 1999.
- Höök**, T., N. Eagan, and P. Webb. The effects of structural habitat and human impacts on the distribution of larval fish in three northern Lake Huron Bays. North American Benthological Society Annual Meeting. Duluth, MN. May 1999.

STUDENT ADVISING

Graduate students advised and co-advised

- James Roberts, University of Michigan, PhD pre-candidate (2005 – present)
- Hui-Yu Wang, University of Michigan, PhD candidate (2005 – present)
- Greg Jacobs, University of Michigan, MS (2006-present)

Selected internships supervised and co-supervised

- Grace Milanowski, University of Michigan, Undergraduate Research Opportunity Program (UROP; 2005–2007)
- Chris Rae, University of Michigan, UROP (2005–2007)
- Lara Ghisleni, University of Michigan, UROP (2005–2006)
- Alex Bajcz, University of Michigan, UROP (2006–2007)
- Samuel Upton, University of Michigan, UROP (2006–2007)
- Greg Jacobs, University of Michigan, Cooperative Institute for Limnology and Ecosystems Research, Summer Fellowship Program (CILER-SFP; 2006)
- Kristy Sabo, University of Michigan, CILER-SFP (2006)

Brad Utrup, University of Michigan, CILER-SFP (2007)

Kara Lindelof, University of Michigan, CILER-SFP (2007)

REVIEWING ACTIVITIES

Manuscript reviews

Global Change Biology

Estuaries

Marine Ecology Progress Series

Transactions of the American Fisheries Society

North American Journal of Fisheries Management

Journal of Great Lakes Research

Journal of Freshwater Ecology

Aquatic Biology

Grant reviews

Great Lakes Fishery Commission

Minnesota Sea Grant.

Review panels

CALFED Technical Selection Panel (Final project funding recommendations for CALFED's Science Program)

WORKSHOP AND SYMPOSIUM ACTIVITIES (SELECTED)

-Co-organized University of Michigan-School of Natural Resources and Environment and Institute for Fisheries Research Aquatic Ecosystems Seminar Series, Fall 2001.

-Organized Institute for Fisheries Research Aquatic Ecology Presentation Series, Fall 2002.

-Co-chair for Fish Early Life History symposium at International Association for Great Lakes Research Annual Meeting, May 2003.

-Co-organized University of Michigan- Cooperative Institute for Limnology and Ecosystem Research Great Lakes Mini-Workshop Series (\$8,000 award from University of Michigan), Winter 2007.

-Invited Participant, National Summit on Coping with Climate Change, May 2007.