

STUART ALLEN LUDSIN

PERSONAL INFORMATION

1314 Kinnear Rd., 222 Research Center
Aquatic Ecology Laboratory
Dept. of Evolution, Ecology & Organismal Biology
The Ohio State University (OSU)
Columbus, Ohio 43212

Office: 614-292-1613
Fax: 614-292-0181
Email: ludsin.1@osu.edu
Web: <http://www.ludsinlab.com>
<http://www.ael.osu.edu>

EDUCATION

Ph.D. The Ohio State University, Evolution, Ecology and Organismal Biology (EEOB), Columbus, 2000
M.S. Auburn University, Fisheries and Allied Aquacultures, Auburn, AL, 1994
B.S. Miami University, Zoology, Oxford, OH, 1992

RESEARCH/WORK EXPERIENCE

Associate Professor, EEOB, OSU, Columbus, 2013-present.
Assistant Professor, EEOB, OSU, Columbus, 2007-2013.
Research Fishery Biologist, Department of Commerce, National Oceanic and Atmospheric Administration, Great Lakes Environmental Research Laboratory (NOAA-GLERL), Ann Arbor, MI, 2002-2007.
Post-doctoral Fellow, Great Lakes Institute for Environmental Research (GLIER), Department of Biological Sciences, University of Windsor, Windsor, ON, Canada, 2001-2002.
Graduate Research Associate, OSU, EEOB, Columbus, 1995-2000.
Graduate Research Associate, Auburn University, Fisheries and Allied Aquacultures, Auburn, AL, 1992-1994.
Undergraduate Research Assistant, OSU, Zoology, Columbus, May-July 1991.

UNIVERSITY TEACHING EXPERIENCE

Instructor of Record, Department of EEOB, OSU, Columbus, OH 43212

- EEOB 503.01 – Introductory Ecology, ~90 students
- EEOB 503.02 – Introductory Ecology Laboratory, ~60 students
- EEOB 3410 – Introductory Ecology, ~130 students
- EEOB 626 (5430) – Ecology and Biology of Fishes, ~35 students
- EEOB 881 (8896) – Computer Programming for Ecologists, ~20 students
- Multivariate Statistical Tools for Ecologists, ~25 students
- Foundations of Ecology, ~20 students
- Science Proposal Writing, ~15 students

Co-Instructor & Co-Organizer, OSU, School of Environment and Natural Resources, Columbus, 43212

- ENR 5194 – Climate, Agriculture & Sustainability in the Corn Belt, 8 students, Gibraltar Island, OH.

Co-Instructor & Co-Organizer, University of Windsor, Biological Sciences, Windsor, ON, Canada, 2002

- Ecology, Biology & Behavior of Coral Reef Fishes, 15 students, Calabash Caye, Belize.

Graduate Teaching Assistant, OSU, EEOB, Columbus, 1996-1997.

Graduate Teaching Assistant, Auburn University, Zoology, Auburn, AL, 1993.

UNIVERSITY APPOINTMENTS

Assistant/Associate Professor. OSU, Environmental Sciences Graduate Program, Columbus, 2009-present.

Adjunct Associate Professor. University of Michigan, School of Natural Resources and the Environment, Ann Arbor, 2007-present.

Adjunct Assistant Professor. University of Toledo, Biology, Toledo, OH, 2006-present.

Adjunct Assistant Professor. University of Windsor, Biological Sciences, Windsor, ON, 2003-present.

Adjunct Faculty Member. Bowling Green State University, Biological Sciences, Bowling Green, OH, 2003-present.

RESEARCH GRANTS (TOTAL AWARD AMOUNT: \$21,354,290)

Ongoing

1. **National Science Foundation**, Division of Integrative Organismal Systems. "The influence of the prey physiological stress response on predator-prey interactions". Co-PI, 2016-2020, \$652,556
2. **Great Lakes Fishery Commission**, Fisheries Research Program. "Habitat quality as a driver of Lake Erie walleye population dynamics: past, present & future". PI, 2016-2020, \$284,691.
3. **Great Lakes Fishery Commission**, Fisheries Research Program. "Do discrete spawning stocks contribute differentially to Lake Erie's walleye fisheries?". Co-PI, 2016-2020, \$273,000.
4. **Great Lakes Fishery Commission**, Fisheries Research Program. "Physical processes and fish recruitment in large lakes: Phase II.". PI, 2016-2020, \$220,000.
5. **Ohio Department of Higher Education**. "Development of the MMPB method for quantifying total microcystins in edible fish tissues". PI, 2016-2018, \$156,617.
6. **Ohio Department of Higher Education**. "Fish flesh and fresh produce as sources on microcystin exposure to humans". PI, 2015-2017, \$162,598.
7. **Ohio Department of Natural Resources-Division of Wildlife**, Federal Aid in Sport Fish Restoration Project. "Fish Management in Ohio". PI, 2010-2018, \$12,000,000 (\$1,500,000 annually).

Completed

1. **Lake Erie Commission**. "Updating the Planktonic Index of Biotic Integrity (P-IBI) for Lake Erie". PI, 2014, \$3,130.
2. **United States Department of Agriculture, Natural Resources Conservation Service**. "Integrating the cropland and wildlife components of the conservation effects assessment project (CEAP) to assess and forecast benefits of agricultural BMPs to biological endpoints across the western Lake Erie basin watershed". Co-PI, 2013-2016, \$271,416.
3. **NOAA, Ohio Sea Grant College Program**. "Impacts of climate change on public health in the Great Lakes through harmful algal blooms". Co-PI, 2012-2016, \$189,506.
4. **Energy Foundation**. "Climate impacts on the Lake Erie Fishery". Co-PI, 2012-2014, \$61,000.
5. **National Science Foundation**, Coupled Natural and Human Systems Program. "Co-evolution of upstream human behavior and downstream ecosystem services in a changing climate". Co-PI, 2011-2017, \$1,499,995.
6. **Great Lakes Fishery Commission**, Fisheries Research Program. "Physical-biological coupling and the challenge of understanding recruitment in large lakes". PI, 2011-2015, \$203,969.
7. **Great Lakes Fishery Commission**, Fisheries Research Program. "A coupled physical-biological model to forecast larval yellow perch distributions, growth rates, and potential recruitment in Lake Erie". Co-PI, 2011-2014, \$199,699.
8. **Columbus Zoo**, "Brindled madtom reintroduction project". PI, 2010-2016, \$8,905.
9. **Great Lakes Fishery Commission**, Fisheries Research Program. "Winter warming effects on yellow perch reproduction and recruitment". PI, 2010-2013, \$112,725.

10. **Ontario Ministry of Natural Resources**. “Effects of hydrodynamic processes on Lake Erie walleye recruitment”. PI, 2010-2013, \$34,000.
11. **Great Lakes Fishery Commission**, Sea Lamprey Research Program. “Determination of micro-elemental stability of sea lamprey statoliths”. Co-PI, 2009-2012, \$175,623.
12. **Great Lakes Fishery Commission**, Fisheries Research Program. “River discharge as a predictor of Lake Erie yellow perch recruitment”. PI, 2006-2011, \$347,583.
13. **Lake Erie Protection Fund**. “Using satellite imagery for fisheries management”. PI, 2009-2010, \$14,750. .
14. **Great Lakes Fishery Commission**, Fisheries Research Program. “Experimental and spatial modeling of environmental factors affecting foraging success of age-0 yellow perch”. Co-PI, 2007-2010, \$146,640.
15. **NOAA**, ECOFORE Program. “ECOFORE 2006: Forecasting the causes, consequences, and potential solutions for hypoxia in Lake Erie”. Co-PI, 2006-2014, \$2,200,000
16. **NOAA**, CSCOR Program. “NGOMEX 2006: Spatially-explicit, high-resolution mapping and modeling to quantify hypoxia effects on the living resources of the Northern Gulf of Mexico”. Co-PI (Project leader), 2006-2009, \$1,462,729
17. **Great Lakes Fishery Commission, Sea Lamprey Research Program**. “Micro-elemental analysis of statoliths as a tool for tracking tributary origins of sea lamprey”. PI, 2004-2006, \$96,315.
18. **Lake Champlain Sea Grant Program**. “Development of a population viability model to optimize sea lamprey control strategies in Lake Champlain”. Co-PI, 2004-2006, \$103,411.
19. **Great Lakes Fishery Commission**, Fisheries Research Program. “Exploration of the existence of natural reproduction in Lake Erie lake trout using otolith microchemistry”. Co-PI (Project Leader), 2003-2004, \$16,750.
20. **Ohio Department of Natural Resources-Division of Wildlife**, Federal Aid in Sport Fish Restoration Project Funds. “Species interactions among young-of-year fishes in Lake Erie”. Co-PI (Project Leader), 1995-2001: \$456,682.

REFEREED PUBLICATIONS (IN PRESS OR PUBLISHED)

1. Goto, D., J.J. Roberts, **S.A. Ludsin**, S.A. Pothoven, H.A. Vanderploeg, S.B. Brandt, and T.O. Höök. *in press*. Size-mediated control of perch-midge coupling in Lake Erie transient dead zones. *Environmental Biology of Fishes*.
2. **Ludsin, S.A.**, J.H.H. Ciborowski, M.N. Charlton, R.G. Kreis, Jr., and J.M. Reutter. *in press*. Prioritizing management issues for Lake Erie at the new millennium: a synopsis of the Prevailing Issues Workshop. Invited paper in J.H.H. Ciborowski, M.N. Charlton, R.G. Kreis, Jr., and J.M. Reutter, editors. *Lake Erie at the Millennium: Changes, Trends, and Trajectories*. Canadian Scholars Press, Toronto.
3. **Ludsin, S.A.**, P. Bertram, J. Biberhofer, J.H.H. Ciborowski, M. Colavecchia, S. George, R.L. Knight, and P.A. Ryan. *in press*. Identification of future ecosystem management objectives for Lake Erie: a fuzzy-cognitive modeling approach. Invited paper in J.H.H. Ciborowski, M.N. Charlton, R.G. Kreis, Jr., and J.M. Reutter, editors. *Lake Erie at the Millennium: Changes, Trends, and Trajectories*. Canadian Scholars Press, Toronto.
4. Marin Jarrin, J.R., T.B. Johnson, **S.A. Ludsin**, J.M. Reichert, and K.L. Pangle. *in press*. Do models parameterized with observations from the system predict larval yellow perch (*Perca flavescens*) growth performance better in Lake Erie? *Canadian Journal of Fisheries and Aquatic Sciences* doi:10.1139/cjfas-2016-0392.
5. Chen, K.-Y., **S.A. Ludsin**, M.M. Corey, P.D. Collingsworth, M.K. Nims, J.W. Olesik, K. Dabrowski, J.J. van Tassell, and E.A. Marschall. 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.
6. Collingsworth, P.D., D.B. Bunnell, M.W. Murray, Y.C. Kao, Z.S. Feiner, R.M. Claramunt, B.M. 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.
 7. Brodник, R.L., M.E. Fraker, E.J. Anderson, L. Carreon-Martinez, K.M. DeVanna, D.D. Heath, J.M. Reichert, E.F. Roseman, and **S.A. Ludsin**. 2016. Larval dispersal underlies demographically important intersystem connectivity in a Great Lakes yellow perch (*Perca flavescens*) population. *Canadian Journal of Fisheries and Aquatic Sciences* 73:416-426.
 8. Culbertson, A., J.F. Martin, N. Aloysius, and **S.A. Ludsin**. 2016. Anticipated impacts of climate change on 21st century Maumee River discharge and nutrient loads. *Journal of Great Lakes Research* 42:1332-1342.
 9. DeVanna-Fussell, K.M., R.E.H. Smith, M.E. Fraker, L. Boegman, K.T. Frank, T.J. Miller, J.T. Tyson, K.K. Arend, D. Boisclair, S.J. Guildford, R.E. Hecky, T.O. Höök, O.P. Jensen, J.K. Llopiz, C.J. May, R.G. Najjar, L.G. Rudstam, C.T. Taggart, Y.R. Rao, and **S.A. Ludsin**. 2016. A perspective on needed research, modeling, and management approaches that can enhance Great Lakes fisheries management under changing ecosystem conditions. *Journal of Great Lakes Research* 42:743-752.
 10. Keitzer, S.C., **S.A. Ludsin**, S.P. Sowa, G. Annis, J.G. Arnold, P. Daggupati, A.M. Froehlich, M.E. Herbert, M.V. Johnson, A.M. Sasson, H. Yen, M.J. White, and C.A. Rewa. 2016. Thinking outside of the lake: Can controls on nutrient inputs into Lake Erie benefit stream conservation in its watershed? *Journal of Great Lakes Research* 42:1322-1331.
 11. Lauber, T.B., R.C. Stedman, N.A. Connelly, L.G. Rudstam, R.C. Ready, G.L. Poe, D.B. Bunnell, T.O. Höök, M.A. Koops, **S.A. Ludsin**, and E.S. Rutherford. 2016. Using scenarios to assess possible future impacts of invasive species in the Laurentian Great Lakes. *North American Journal of Fisheries Management* 36:1292-1307.
 12. Watson, S.B., C. Miller, G. Arhonditsis, G.L. Boyer, W. Carmichael, M.N. Charlton, R. Confesor, D.C. Depew, T.O. Höök, **S.A. Ludsin**, G. Matisoff, S.P. McElmurry, M.W. Murray, P. Richards, Y.R. Rao, M.M. Steffen, and S.W. Wilhelm. 2016. The re-eutrophication of Lake Erie: harmful algal blooms and hypoxia. *Harmful Algae* 56:44-66.
 13. Yen, H., M.J. White, J.G. Arnold, S.C. Keitzer, M.V.V. Johnson, J.D. Atwood, P. Daggupati, M.E. Herbert, S.P. Sowa, **S.A. Ludsin**, D.M. Robertson, R. Srinivasan, and C.A. Rewa. 2016. Western Lake Erie Basin: Soft-data-constrained, NHDPlus resolution watershed modeling and exploration of applicable conservation scenarios. *Science of the Total Environment* 569: 1265-1281.
 14. Carreon-Martinez, L.B., R.P. Walther, T.B. Johnson, **S.A. Ludsin**, and D.D. Heath. 2015. Benefits of turbid river plume habitat for Lake Erie yellow perch (*Perca flavescens*) recruitment determined by juvenile to larval genotype assignment. *Plos One* 10(5):e0125234.
 15. DuFour, M.R., May, C.J., Roseman, E.F., Mayer, C.M., **S.A. Ludsin**, C.S. Vandergoot, J.J. Pritt, M.E. Fraker, J.J. Davis, J.T. Tyson, J.G. Miner, and E.A. Marschall. 2015. Portfolio theory as a management tool to guide conservation and restoration of multi-stock fish populations. *EcoSphere* 6: article 296 (21 pp.) doi:10.1890/ES15-00237.1.
 16. Farmer, T.M., E.A. Marschall, K. Dabrowski, and **S.A. Ludsin**. 2015. Short, warm winters threaten fish populations. *Nature Communications* 6:7724. doi:10.1038/ncomms8724.
 17. Fraker, M.E., E.J. Anderson, C.J. May, K.Y. Chen, J.J. Davis, K.M. DeVanna, M.R. DuFour, E.A. Marschall, C.M. Mayer, J.G. Miner, K.L. Pangle, J.J. Pritt, E.F. Roseman, J.T. Tyson, Y. Zhao, and **S.A. Ludsin**. 2015. Stock-specific advection of larval walleye (*Sander vitreus*) in western Lake Erie: implications for larval growth, mixing, and stock discrimination. *Journal of Great Lakes Research* 41 830-845.
 18. Fraker, M.E., E.J. Anderson, R. Brodник, L. Carreon-Martinez, K.M. DeVanna, B.J. Fryer, D.D. Heath, J.M. Reichert, and **S.A. Ludsin**. 2015. Particle backtracking improves breeding subpopulation discrimination and natal-source identification in mixed populations. *Plos One* 10(3):e0120752.

19. Jiang, L., M. Xia, **S.A. Ludsin**, E.S. Rutherford, D.M. Mason, J. Marin Jarrin, and K.L. Pangle. 2015. Biophysical modeling assessment of the drivers for plankton dynamics in dreissenid-colonized western Lake Erie. *Ecological Modelling* 308:18-33.
20. Kane, D.D., **S.A. Ludsin**, R.D. Briland, and D.A. Culver. 2015. Ten+ years gone: continued degradation of offshore planktonic communities in U.S. waters of Lake Erie's western and central basins (2003–2013). *Journal of Great Lakes Research* 41:930–933.
21. Marin Jarrin, J.R., K.L. Pangle, J.M. Reichert, T.B. Johnson, J. Tyson, and **S.A. Ludsin**. 2015. Influence of habitat heterogeneity on the foraging ecology of first feeding yellow perch larvae, *Perca flavescens*, in western Lake Erie. *Journal of Great Lakes Research* 41:208–214.
22. Bunnell, D.B., R.P. Barbiero, **S.A. Ludsin**, C.P. Madenjian, G. Warren, D. Dolan, T. Brenden, R. Briland, O.T. Gorman, J.X. He, T.H. Johengen, B.F. Lantry, T.F. Nalepa, S.C. Riley, C.M. Riseng, T.J. Treska, I. Tsehaye, D.M. Warner, M.G. Walsh, and B.C. Weidel. 2014. Changing ecosystem dynamics in the Laurentian Great Lakes: bottom-up and top-down regulation. *BioScience* 64:26-39. Cover of *BioScience* Issue.
23. Carreon-Martinez, L.B., K.W. Wellband, T.B. Johnson, **S.A. Ludsin**, and D.D. Heath. 2014. Novel molecular approach demonstrates turbid river plumes reduce predation mortality on larval fish. *Molecular Ecology* 23:5366–5377.
24. Gebremariam, S., J.F. Martin, C. DeMarchi, N.S. Bosch, R. Confesor., and **S.A. Ludsin**. 2014. A comprehensive approach to evaluating watershed models for predicting river flow regimes critical to downstream ecosystem services. *Environmental Modelling & Software* 61:121-134.
25. 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 otoliths from fish larvae for microchemical analysis? *Transactions of the American Fisheries Society* 143:779-783.
26. Hosack, G.R., G.W. Peters, and **S.A. Ludsin**. 2014. Interspecific relationships and environmentally driven catchabilities estimated from fisheries data. *Canadian Journal of Fisheries and Aquatic Sciences* 71:447-463.
27. Lochet, A., B.J. Fryer, **S.A. Ludsin**, and J.E. Marsden. 2014. Identifying natal origins of spawning adult sea lamprey (*Petromyzon marinus*): re-evaluation of the statolith microchemistry approach. *Journal of Great Lakes Research* 40:763-770.
28. **Ludsin, S.A.**, K.M. DeVanna, and R.E.H. Smith. 2014. Physical-biological coupling and the challenge of understanding fish recruitment in large lakes. *Canadian Journal of Fisheries and Aquatic Sciences* 71:775-794.
29. Scavia, D., J.D. Allan, K.K. Arend, S. Bartell, D. Beletsky, N.S. Bosch, S.B. Brandt, R.D. Briland, I. Daloglu, J.V. DePinto, D.M. Dolan, M.A. Evans, T.M. Farmer, D. Goto, H. Han, T.O. Höök, R. Knight, **S.A. Ludsin**, D. Mason, A.M. Michalak, R.P. Richards, J.J. Roberts, D.K. Rucinski, E. Rutherford, D.J. Schwab, T. Sesterhenn, H. Zhang, and Y. Zhou. 2014. Assessing and addressing the re-eutrophication of Lake Erie: central basin hypoxia. *Journal of Great Lakes Research* 40:226–246.
30. Zhang, H., D.M. Mason, C.A. Stow, A.T. Adamack, S.B. Brandt, X. Zhang, D.G. Kimmel, M.R. Roman, and W.C. Boicourt, and **S.A. Ludsin**. 2014. Effects of hypoxia on habitat quality of pelagic planktivorous fishes in the northern Gulf of Mexico. *Marine Ecology Progress Series* 505:209-226.
31. Dabrowski, K., M. Korzeniowska, T. Farmer, **S.A. Ludsin**, and E.A. Marschall. 2013. The function of wax esters in larval fish transition from endogenous to exogenous nutrition - are freshwater fish the exception or the rule? *Communications in Agricultural and Applied Biological Sciences* 78:102-103.
32. Howe, E.A., C.P. Hand, J.E. Marsden, **S.A. Ludsin**, and B.J. Fryer. 2013. Statolith micro-elemental determination of tributary contributions to the spawning adult population of sea lamprey (*Petromyzon marinus*) in Lake Champlain. *Journal of Great Lakes Research* 39:239-246.
33. Kinter, B.T., and **S.A. Ludsin**. 2013. Nutrient inputs versus piscivore biomass as the primary driver of reservoir food webs. *Canadian Journal of Fisheries and Aquatic Sciences* 70:367-380.

34. Lochet, A. J.E. Marsden, B.J. Fryer, and **S.A. Ludsin**. 2013. Instability of statolith elemental signatures revealed in newly metamorphosed sea lamprey (*Petromyzon marinus*). *Canadian Journal of Fisheries and Aquatic Sciences* 70:565-573.
35. Mayer, C.M., L.E. Burlakova, P. Eklöv, D. Fitzgerald, A. Karatayev, **S.A. Ludsin**, S. Millard, E.L. Mills, A.P. Ostapenya, L.G. Rudstam, B. Zhu, T.V. Zhukova. 2013. Benthification of freshwater lakes: exotic mussels turning ecosystems upside down. Pages 575-585 in T.F. Nalepa and D.W. Schloesser, editors. *Quagga and Zebra Mussels: Biology, Impacts, and Control*, Second Edition. Taylor and Francis, New York. 816 pp.
36. Goto, D., K. Lindelof, D.L. Fanslow, **S.A. Ludsin**, J.J. Roberts, H.A. Vanderploeg, A.E. Wilson, and T.O. Höök. 2012. Indirect consequences of hypolimnetic hypoxia on zooplankton growth in a large eutrophic lake. *Aquatic Biology* 16:217-227.
37. Lowe, M.R., **S.A. Ludsin**, B.J. Fryer, R.A. Wright, D.R. DeVries, and T.M. Farmer. 2012. Response to "Comment on 'Otolith microchemistry reveals substantial use of freshwater by southern flounder in the northern Gulf of Mexico' by Pedro Morais". *Estuaries and Coasts* 35:907-910.
38. Mack, H.R., J.D. Conroy, K.A. Blocksom, R.A. Stein, and **S.A. Ludsin**. 2012. A comparative analysis of zooplankton field collection and sample enumeration methods. *Limnology and Oceanography Methods* 10:41-53.
39. Pangle, K.L., T.D. Malinich, D.R. DeVries, D.B. Bunnell, and **S.A. Ludsin**. 2012. Context-dependent planktivory: interacting effects of turbidity and predation risk on adaptive foraging. *Ecosphere* 3: article 114 (18 pp). <http://dx.doi.org/10.1890/ES12-00224.1>.
40. Pothoven, S.A., H.A. Vanderploeg, D. M. Warner, J.S. Schaeffer, **S.A. Ludsin**, R.M. Claramunt, and T.F. Nalepa. 2012. Influences on *Bythotrephes longimanus* life-history characteristics in the Great Lakes. *Journal of Great Lakes Research* 38:134-141.
41. Pothoven, S.A., H.A. Vanderploeg, T.O. Höök, and **S.A. Ludsin**. 2012. Hypoxia modifies planktivore-zooplankton interactions in Lake Erie. *Canadian Journal of Fisheries and Aquatic Sciences* 69: 2018-2028.
42. Roberts, J.J., **S.A. Ludsin**, S.A. Pothoven, H.A. Vanderploeg, and T.O. Höök. 2012. Evidence and potential consequences of hypoxic foraging forays by yellow perch *Perca flavescens*. *Freshwater Biology* 57:922-937.
43. Arend, K.K., D. Beletsky, J.V. DePinto, **S.A. Ludsin**, J.J. Roberts, D.K. Rucinski, D. Scavia, D.J. Schwab, and T.O. Höök. 2011. Seasonal and interannual effects of hypoxia on fish habitat quality in central Lake Erie. *Freshwater Biology* 56:366-383.
44. Brandt, S.B., M. Costantini, S. Kolesar, **S.A. Ludsin**, D.M. Mason, C.M. Rae, and H. Zhang. 2011. Does hypoxia reduce habitat quality for Lake Erie walleye? A bioenergetics perspective. *Canadian Journal of Fisheries and Aquatic Sciences* 68:857-879.
45. Carreon-Martinez, L.B., T.B. Johnson, **S.A. Ludsin**, and D.D. Heath. 2011. Utilization of stomach content DNA to determine diet diversity in piscivorous fish. *Journal of Fish Biology* 4:1170-1182.
46. Lowe, M.R., D.R. DeVries, R.A. Wright, **S.A. Ludsin**, and B.J. Fryer. 2011. Otolith microchemistry reveals substantial use of freshwater by southern flounder in the northern Gulf of Mexico. *Estuaries and Coasts* 34:630-639.
47. Roberts, J.J., S.B. Brandt, D. Fanslow, **S.A. Ludsin**, S.A. Pothoven, D. Scavia, and T.O. Höök. 2011. Effects of hypoxia on consumption, growth, and RNA:DNA ratios of young yellow perch. *Transactions of the American Fisheries Society* 140:1574-1586.
48. Legler, N.D., T.B. Johnson, D.D. Heath, and **S.A. Ludsin**. 2010. Water temperature and prey size effects on the rate of digestion of larval and early juvenile fish. *Transactions of the American Fisheries Society* 139:868-875.
49. Pangle, K.L., **S.A. Ludsin**, and B.J. Fryer. 2010. Otolith microchemistry as a stock identification tool for freshwater fishes: testing its limits in Lake Erie. *Canadian Journal of Fisheries and Aquatic Sciences* 67:1475-1489.

50. Reichert, J.M., B.J. Fryer, K.L. Pangle, T.B. Johnson, J.T. Tyson, A.B. Drelich, and **S.A. Ludsin**. 2010. River-plume use during the pelagic larval stage benefits recruitment of a lentic fish. *Canadian Journal of Fisheries and Aquatic Sciences* 67:987-1004.
51. Lowe, M.R., D.R. DeVries, R.A. Wright, **S.A. Ludsin**, and B.J. Fryer. 2009. Coastal largemouth bass (*Micropterus salmoides*) movement in response to changing salinity. *Canadian Journal of Fisheries and Aquatic Sciences* 66:2174-2188.
52. **Ludsin, S.A.**, X. Zhang, S.B. Brandt, M.R. Roman, W.C. Boicourt, D.M. Mason, and M. Costantini. 2009. Hypoxia-avoidance by planktivorous fish in Chesapeake Bay: implications for food web interactions and fish recruitment. *Journal of Experimental Marine Biology and Ecology* 381(Suppl. 1):S121-S131.
53. Pothoven, S.A., H.A. Vanderploeg, **S.A. Ludsin**, T.O. Höök, and S.B. Brandt. 2009. Feeding ecology of emerald shiners and rainbow smelt in central Lake Erie. *Journal of Great Lakes Research* 35:190-198.
54. Roberts, J.J., T.O. Höök, **S.A. Ludsin**, S.A. Pothoven, H.A. Vanderploeg, and S.B. Brandt. 2009. Effects of hypolimnetic hypoxia on foraging and distributions of Lake Erie yellow perch. *Journal of Experimental Marine Biology and Ecology* 381(Suppl. 1):S132-S142.
55. Vanderploeg, H.A., **S.A. Ludsin**, J.F. Cavaletto, T.O. Höök, S.A. Pothoven, S.B. Brandt, J. Liebig, and G.A. Lang. 2009. Hypoxic zones as habitat for zooplankton in Lake Erie: Refuges from predation or exclusion zones? *Journal of Experimental Marine Biology and Ecology* 381(Suppl. 1):S108-S120.
56. Vanderploeg, H.A., **S.A. Ludsin**, S.A. Ruberg, T.O. Höök, S.A. Pothoven, S.B. Brandt, G.A. Lang, J. Liebig, and J.F. Cavaletto. 2009. Hypoxia affects spatial distributions and overlap of pelagic fish, zooplankton, and phytoplankton in Lake Erie. *Journal of Experimental Marine Biology and Ecology* 381(Suppl. 1):S92-S107.
57. Zhang, H., **S.A. Ludsin**, M.R. Roman, W.C. Boicourt, X. Zhang, D.G. Kimmel, A.T. Adamack, D.M. Mason, S.B. Brandt, and J.J. Pierson. 2009. Hypoxia-driven changes in the behavior and spatial distribution of pelagic fish and mesozooplankton in the northern Gulf of Mexico. *Journal of Experimental Marine Biology and Ecology* 381(Suppl. 1):S80-S91.
58. Costantini, M., **S.A. Ludsin**, D.M. Mason, X. Zhang, W.C. Boicourt, and S.B. Brandt. 2008. Effect of hypoxia on habitat quality of striped bass (*Morone saxatilis*) in Chesapeake Bay. *Canadian Journal of Fisheries and Aquatic Sciences* 65:989-1002.
59. Hand, C.P., **S.A. Ludsin**, B.J. Fryer, and J.E. Marsden. 2008. Statolith microchemistry as a technique for discriminating among Great Lakes sea lamprey (*Petromyzon marinus*) spawning tributaries. *Canadian Journal of Fisheries and Aquatic Sciences* 65:1153-1164.
60. Lu, Y., **S.A. Ludsin**, D.L. Fanslow, and S.A. Pothoven. 2008. Comparison of three micro-quantity techniques for measuring total lipids in fish. *Canadian Journal of Fisheries and Aquatic Sciences* 65:2233-2241.
61. Melancon, S., B.J. Fryer, J.E. Gagnon, and **S.A. Ludsin**. 2008. Mineralogical approaches to the study of biomineralization in fish otoliths. *Mineralogical Magazine* 72(2):627-637.
62. Pothoven, S.A., **S.A. Ludsin**, T.O. Höök, D.L. Fanslow, D.M. Mason, P.C. Collingsworth, and J.J. Van Tassell. 2008. An evaluation of Bioelectrical Impedance Analysis for estimating fish energy content. *Transactions of the American Fisheries Society* 137:1519-1529.
63. Hawley, N., T.H. Johengen, Y.R. Rao, S.A. Ruberg, D. Beletsky, **S.A. Ludsin**, B.J. Eadie, D.J. Schwab, T.E. Croley, and S.B. Brandt. 2006. Lake Erie hypoxia prompts Canada-U.S. study. *EOS Transactions* 87(32):313-324.
64. **Ludsin, S.A.**, B.J. Fryer, and J.E. Gagnon. 2006. Comparison of solution-based versus laser-ablation ICPMS for analysis of larval fish otoliths. *Transactions of the American Fisheries Society* 135:218-231.

65. Melancon, S. B.J. Fryer, J.E. Gagnon, Z. Yang, and **S.A. Ludsin**. 2005. Effects of crystal structure on the uptake of metals by lake trout (*Salvelinus namaycush*) otoliths. *Canadian Journal of Fisheries and Aquatic Sciences* 62:2609-2619.
66. Hedges, K.J., **S.A. Ludsin**, and B.J. Fryer. 2004. Effects of ethanol preservation on otolith micro-chemistry. *Journal of Fish Biology* 64:923-947.
67. Mora, C., P.M. Chittaro, P.F. Sale, J.P. Kritzer, and **S.A. Ludsin**. 2003. Patterns and processes in reef fish diversity. *Nature* 421:933-936.
68. Sale, P.F., and **S.A. Ludsin**. 2003. The extent and spatial scale of connectivity among reef fish populations: implications for marine protected areas designated for fisheries enhancement. *Gulf and Caribbean Research* 14:119-128.
69. Hobbs, B.F., **S.A. Ludsin**, R.L. Knight, P.A. Ryan, J. Biberhofer, and J.H.H. Ciborowski. 2002. Fuzzy cognitive mapping as a tool to define management objectives for complex ecosystems. *Ecological Applications* 12:1548-1565.
70. **Ludsin, S.A.**, and A.D. Wolfe. 2001. Biological invasion theory: Darwin's contributions from The Origin of Species. *BioScience* 51:780-789.
71. **Ludsin, S.A.**, M.W. Kershner, K.A. Blocksom, R.L. Knight, and R.A. Stein. 2001. Life after death in Lake Erie: nutrient controls drive fish species richness, rehabilitation. *Ecological Applications* 11:731-746.
72. Pine, W.E., **S.A. Ludsin**, and D.R. DeVries. 2000. First-summer survival of largemouth bass cohorts: is early spawning really best? *Transactions of the American Fisheries Society* 129:504-513.
73. **Ludsin, S.A.**, and D.R. DeVries. 1997. First-year recruitment of largemouth bass: the interdependency of early life stages. *Ecological Applications* 7:1024-1038.

NON-REFEREED PUBLICATIONS

1. Keitzer, S.C., **S.A. Ludsin**, S.P. Sowa, A.M. Sasson, G. Annis, J.G. Arnold, A. Brennan, P. Daggupati, A.M. Froehlich, M.E. Herbert, C. Vollmer-Sanders, M.J. White, C. J. Winslow, and H. Yen. 2016. Quantifying the Potential Water Quality Benefits of Agricultural Conservation Practices for Stream Fish Conservation in the Western Lake Erie Basin. Final Report submitted to NRCS Conservation Effects Assessment Project. 119 pp.
2. Farmer, T.J., E.A. Marschall, and **S.A. Ludsin**. 2015. Climate change effects on Lake Erie yellow perch reproduction and recruitment. Federal Aid in Sport Fish Restoration Project Final Report F-69-P. 209 pp.
3. Fraker, M.E., and **S.A. Ludsin**. 2015. Role of biophysical coupling in Walleye recruitment. Federal Aid in Sport Fish Restoration Project Final Report F-69-P. 21 pp.
4. Jiang, L., M. Xia, **S.A. Ludsin**, E.S. Rutherford, D.M. Mason, J. Marin Jarrin, and K.L. Pangle. 2015. Dreissenid mussel impacts on plankton dynamics in western Lake Erie. *Lake Scientist*, Fondriest. <http://www.lakescientist.com/research-summary-dreissenid-mussel-impacts-on-plankton-dynamics-in-western-lake-erie/>.
5. **Ludsin, S.A.**, K.L. Pangle, J.T. Tyson. 2015. Updating the Planktonic Index of Biotic Integrity (P-IBI) for Lake Erie, Lake Erie Protection Fund, Toledo, OH. 15 pp.
6. Xia, M., K. Pangle, J. R. Marin Jarrin, **S. Ludsin**, D. Mason, E. Rutherford, and M. Wiley. 2014. A biophysical model to forecast yellow perch recruitment success in western Lake Erie. Final completion report, Great Lakes Fishery Commission, Fisheries Research Program, Ann Arbor, MI. 92 pp.
7. Farmer, T.M., K. Dabrowski, E.A. Marschall, and **S.A. Ludsin**. 2013. Winter warming effects on yellow perch reproduction and recruitment. Final completion report, Great Lakes Fishery Commission, Sea Lamprey Research Program, Ann Arbor, MI. 56 pp.
8. Burbacher, E.A., and **S.A. Ludsin**. 2012. A bioenergetics-based evaluation of hybrid striped bass habitat quality in Ohio reservoirs. Federal Aid in Sport Fish Restoration Project Final Report F-69-P. 63 pp.

9. Lochet, A., J.E. Marsden, B.J. Fryer, and **S.A. Ludsin**. 2012. Determination of micro-elemental stability of sea lamprey statoliths. Final completion report, Great Lakes Fishery Commission, Sea Lamprey Research Program, Ann Arbor, MI. 61 pp.
10. Brandt, S., **S. Ludsin**, D. Mason, M. Roman, W. Boicourt, D. Kimmel, F. Jochem, and P. Lavrentyev. 2011. NGOMEX 2006 – Spatially-explicit, high-resolution mapping and modeling to quantify hypoxia effects on the living resources of the northern Gulf of Mexico. Final completion report, NOAA Center for Sponsored Coastal Ocean Research, Bethesda, MD. 48 pp.
11. Kinter, B.T., and **S.A. Ludsin**. 2011. Ecosystem-based modeling evaluation of stocked predator introductions on reservoir food webs. Federal Aid in Sport Fish Restoration Project Final Report F-69-P. 161 pp.
12. **Ludsin, S.**, K. Pangle, L. Carreon-Martinez, N. Legler, J. Reichert, D.D. Heath, B. Fryer, T. Johnson, J. Tyson, T. Höök, G. Leshkevich, D. Mason, D. Bunnell, C. Mayer, T. Johengen, H. Vanderploeg, and A. Drelich. 2011. River discharge as a predictor of Lake Erie yellow perch recruitment. Final completion report, Great Lakes Fishery Commission, Fisheries Research Program, Ann Arbor, MI. 166 pp.
13. Mayer, C., J. Bossenbroek, T. Bridgeman, **S. Ludsin**, and J. Tyson. 2011. Experimental and spatial modeling of environmental factors affecting foraging success of age-0 yellow perch. Final completion report, Great Lakes Fishery Commission, Fisheries Research Program, Ann Arbor, MI. 9 pp.
14. Zhang, X., L. Bahner, R.J. Wood, E.J. Martino, **S.A. Ludsin**, R. Murtugudde, M.B.K. Prasad, R.R. Hood, and W. Long. 2011. Chesapeake Bay striped bass habitat suitability and bioenergetics modeling and forecasting: from physics to fish. Pages 115-120 (Chapter 14) in A.L. Mason, D. Apeti, and D. Whitall, editors. National Centers for Coastal Ocean Science (NCCOS) Research Highlights in the Chesapeake Bay. NOAA Technical Memorandum NOS NCCOS 128. National Ocean Service. National Centers for Coastal Ocean Science, Silver Spring, MD. 166 pp.
15. **Ludsin, S.A.**, K.L. Pangle, J.T. Tyson. 2010. Using satellite imagery for fisheries management. Final completion report, Lake Erie Protection Fund, Toledo, OH. 13 pp.
16. Smith, R.E.H, and **S.A. Ludsin**. 2009. Physical-biological coupling and the challenge of understanding fish recruitment in large lakes. Fisheries Research Program, New Research Theme White Paper, Great Lakes Fishery Commission, Ann Arbor, MI. 40 pp.
17. **Ludsin, S.A.**, D.M. Dolan, R.P. Richards, J.T. Tyson, K.A. Kayle, T.B. Johnson, and R.A. Stein. 2009. Exploration of linkages between oligotrophication and percid dynamics in Lake Erie. Pages 16-19 in The State of the Lake Erie 2004. Great Lakes Fishery Commission, Ann Arbor, MI.
18. **Ludsin, S.A.**, C.P. Hand, J.E. Marsden, and B.F. Fryer. 2006. Micro-elemental analysis of statoliths as a tool for tracking tributary origins of sea lamprey. Final completion report, Great Lakes Fishery Commission, Fisheries Research Program, Ann Arbor, MI. 106 pp.
19. **Ludsin, S.A.**, B.J. Fryer, S. Melancon, Z. Yang, and J. Markham. 2004. Exploration of the existence of natural reproduction in Lake Erie lake trout using otolith microchemistry. Final Completion Report, Great Lakes Fishery Commission, Fisheries Research Program, Ann Arbor, MI. 45 pp.
20. Eadie, B.J., **S.A. Ludsin**, D.J. Schwab, J. DePinto. 2004. Lake Erie research planning workshop. NOAA's Great Lakes Environmental Research Laboratory, Ann Arbor, MI. 28 pp.
21. Kritzer, J.P., **S.A. Ludsin**, and P.F. Sale. 2002. Report of the 1st meeting of the World Bank Connectivity Working Group. Miami, FL. 37 pp.
22. **Ludsin, S.A.**, and R.A. Stein. 2001. Species interactions among young-of-year fishes in Lake Erie. Federal Aid in Sport Fish Restoration Project Final Report F-69-P. 318 pp.
23. Colavecchia, M., **S. Ludsin**, P. Bertram, R. Knight, S. George, H. Biberhofer, and P. Ryan. 2000. Identification of ecosystem alternatives for Lake Erie to support development of ecosystem objectives. Lake Erie Lakewide Management Plan (LaMP) Technical Report Series. 65 pp.

PROFESSIONAL SEMINARS, WEBINARS, PRESENTATIONS, & POSTERS

Scientific Seminars/Webinars (Invited)

1. **Ludsin, S.A.** 2014. Fish recruitment in the Great Lakes: misconceptions & contributions to general recruitment theory. Great Lakes Institute for Environmental Research, University of Windsor, Windsor, ON.
2. **Ludsin, S.A.** 2013. Regime-dependent regulation of Lake Erie's yellow perch population by resource pulses. Dept. of Fisheries and Wildlife, Michigan State University, East Lansing.
3. **Ludsin, S.A.** 2012. Regime-dependent regulation of a fish population by resource pulses. Dept. of Biological Sciences, Bowling Green State University, Bowling Green, OH.
4. **Ludsin, S.A.** 2012. Regime-dependent regulation of a fish population by resource pulses. Dept. of Evolution, Ecology, and Organismal Biology, OSU, Columbus, OH.
5. **Ludsin, S.A.** 2012. Regime-dependent regulation of Lake Erie's yellow perch population by resource pulses. Dept. of Zoology, Miami University, Oxford, OH.
6. **Ludsin, S.A.** 2012. Regime-dependent regulation of Lake Erie's yellow perch population by resource pulses. School of Environment and Natural Resources, OSU, Columbus, OH.
7. **Ludsin, S.A.** 2012. Regime-dependent regulation of a fish population by resource pulses. Dept. of Natural Resources and Cornell Student Subunit of the American Fisheries Society, Cornell University, Ithaca, NY.
8. **Ludsin, S.A.** 2011. Climate change impacts on Great Lakes fishes. OSU Climate Change Webinar Series, Columbus, OH.
9. **Ludsin, S.A.** 2011. Climate change impacts on Fishes of the Great Lakes. Stone Laboratory Guest Lecture Series, Gibraltar Island, Put-in-Bay, OH.
10. **Ludsin, S.A.** 2011. Regime-dependent regulation of a fish population by resource pulses. Dept. of Forestry and Natural Resources, Purdue University, West Lafayette, IN.
11. **Ludsin, S.A.** 2010. Hypoxia alters species distributions and interactions: implications for food webs and fisheries. Dept. of Biology, University of Waterloo, Waterloo, ON.
12. **Ludsin, S.A.** 2008. Hypoxia alters species distributions and interactions: implications for food webs and fisheries. Dept. of Zoology, Southern Illinois University, Carbondale, IL.
13. **Ludsin, S.A.** 2008. Hypoxia alters species distributions and interactions: implications for food webs and fisheries. USGS Ohio Water Science Center, Columbus, OH.
14. **Ludsin, S.A.** 2008. Hypoxia alters species distributions and interactions: implications for food webs and fisheries. Stone Laboratory Guest Lecture Series, Put-In-Bay, OH.
15. **Ludsin, S.A.** 2007. Hypoxia alters species distributions and interactions: implications for food webs and fisheries. Dept. of Earth, Ecological, and Environmental Sciences, University of Toledo, Toledo, OH.
16. **Ludsin, S.A.** 2007. Hypoxia alters species distributions and interactions: implications for food webs and fisheries. Dept. of Biology, University of Akron, Akron, OH.
17. **Ludsin, S.A.** 2007. Hypoxia alters species distributions and interactions: implications for food webs and fisheries. Dept. of EEOB, OSU, Columbus, OH.
18. **Ludsin, S.A.** 2006. Ecological Consequences of Hypoxia in Coastal Systems: Case Studies of Lake Erie, Chesapeake Bay, and the Northern Gulf of Mexico. NOAA-GLERL, Ann Arbor, MI.
19. **Ludsin, S.A.** 2005. Exploration of fish community structure and recruitment in Lake Erie: understanding past dynamics and future directions. North Carolina State University, Raleigh.
20. Brandt, S.B., **S.A. Ludsin**, D.M. Mason, and S. Pothoven. 2004. Spatial modeling of fish growth rate and predator-prey interactions. NOAA-GLERL, Ann Arbor, MI.
21. **Ludsin, S.A.** 2003. A changing Lake Erie fish community: unraveling the mechanisms involved. NOAA-GLERL, Ann Arbor, MI.

22. **Ludsin, S.A.** 2003. The effect of oligotrophication on walleye and yellow perch population demographics in Lake Erie. Dept. of Biological Sciences, Bowling Green State University, Bowling Green, OH.
23. **Ludsin, S.A.** 2001. Fish community structure and recruitment in Lake Erie: understanding past dynamics and future directions. Dept. of Biological Sciences, University of Windsor, Windsor, ON.
24. **Ludsin, S.A.** 1994. A mechanistic understanding of first-year survival of largemouth bass. Aquatic Ecology Seminar Series, Columbus, OH.
25. **Ludsin, S.A.** 1994. Understanding recruitment of young-of-year largemouth bass. Dept. of Fisheries and Allied Aquacultures, Auburn University, Auburn, AL.

Scientific Society Meetings (Invited)

1. Farmer, T.F., E.A. Marschall, K. Dabrowski, and **S.A. Ludsin**. 2015. Short, warm winters negatively affect Lake Erie yellow perch reproduction and recruitment. American Fisheries Society, Portland, OR.
2. May, C.J., E.A. Marschall, E.F. Roseman, W.W. Taylor, and **S.A. Ludsin**. 2015. Prey availability during the larval period regulates recruitment: evidence for the match-mismatch hypothesis. American Fisheries Society, Portland, OR.
3. Farmer, T.M., E.A. Marschall, K. Dabrowski, and **S.A. Ludsin**. 2014. Climate warming negatively affects Lake Erie yellow perch reproductive success and recruitment. International Association for Great Lakes Research, Hamilton, ON.
4. Fraker, M.E., K.M. DeVanna, K.L. Pangle, Y. Zhao, and **S.A. Ludsin**. 2014. Biophysical drivers of walleye recruitment variation in Lake Erie. International Association for Great Lakes Research, Hamilton, ON.
5. May, C.J., E.A. Marschall, M. Kulasa, E.F. Roseman, W.W. Taylor, and **S.A. Ludsin**. 2014. Larval walleye recruitment and zooplankton availability: testing the match-mismatch hypothesis in Lake Erie. International Association for Great Lakes Research, Hamilton, ON.
6. Schmit, C.L., T.M. Farmer, E.A. Marschall, K. Dabrowski, and **S.A. Ludsin**. 2014. Climate change effects on Lake Erie yellow perch spawning phenology. International Association for Great Lakes Research, Hamilton, ON.
7. **Ludsin, S.A.**, E.J. Anderson, R. Brodник, K.M. DeVanna, L. Carreon-Martinez, B.J. Fryer, D.D. Heath, J.M. Reichert, and M.E. Fraker. 2013. Particle backtracking as a tool to improve stock discrimination capabilities in mixed populations: an example with Lake Erie yellow perch. International Association for Great Lakes Research, West Lafayette, IN.
8. Fraker, M.E., K.-Y. Chen, K.M. DeVanna, E.A. Marschall, C.J. May, **S.A. Ludsin**, E.J. Anderson, J.J. Davis, J.G. Miner, M.R. DuFour, C.M. Mayer, J.J. Pritt, K.L. Pangle, E.F. Roseman, J.T. Tyson, and Y. Zhao. 2013. Coupled physical-biological modeling as a tool to enhance our understanding of the recruitment process in mixed-stock fisheries: an example with Lake Erie walleye. International Association for Great Lakes Research, West Lafayette, IN.
9. May, C.J., **S.A. Ludsin**, and E.A. Marschall. 2013. Does available growth environment predict walleye recruitment in western Lake Erie? International Association for Great Lakes Research, West Lafayette, IN.
10. Pangle, K.L., P.J. Hurtado, Y. Lou, E.A. Marschall, D.K. Rucinski, D. Beletsky, and **S.A. Ludsin**. 2013. Do hypoxia- and temperature-induced changes in habitat use affect fish abundance and quality? International Association for Great Lakes Research, West Lafayette, IN.
11. DeVanna, K.M., R. Smith, and **S.A. Ludsin**. 2012. Physical-biological coupling and the challenge of understanding fish recruitment in large lakes. American Fisheries Society, St. Paul, MN.
12. DeVanna, K.M., R.E.H. Smith, and **S.A. Ludsin**. 2013. Understanding fish recruitment in large lakes: the importance of physical processes. International Association for Great Lakes Research, West Lafayette, IN.

13. Filbrun, J.E., D.A. Culver, and **S.A. Ludsin**. 2013. Effects of diet and growth variation on juvenile fish production in aquaculture ponds. West Virginia and Ohio Chapters of the American Fisheries Society, Huntington, WV.
14. Roberts, J.J., T.O. Höök, **S.A. Ludsin**, S.A. Pothoven, and H.A. Vanderploeg. 2009. Implications of hypoxia for yellow perch habitat quality in Lake Erie's central basin: a spatially-explicit bioenergetics modeling approach. Michigan Chapter of the American Fisheries Society meeting, Monroe, MI. *Best Student Paper Award*
15. **Ludsin, S.A.**, T.O. Höök, D.K. Rucinski, J.V. DePinto, and D. Scavia. 2008. Historical exploration of hypoxia effects on fish recruitment and production in Lake Erie. International Association for Great Lakes Research, Peterborough, ON.
16. Fryer, B., S. Melancon, Z. Yang, J. Gagnon, and **S. Ludsin**. 2008. Microgeochemical tools and approaches to understanding and solving fisheries issues. Midwest Fish and Wildlife Conference, Columbus, OH.
17. Reichert, J., A. Drelich, K. Pangle, K. Mabrey, B. Fryer, T. Johnson, J. Tyson, and **S. Ludsin**. 2008. Yellow perch recruitment in western Lake Erie: the importance of larval habitat use and growth. Midwest Fish and Wildlife Conference, Columbus, OH.
18. Reichert, J.M., B.J. Fryer, **S.A. Ludsin**, T.B. Johnson, J.T. Tyson, T.H. Johengen, and N. Hawley. 2008. River plume effects on yellow perch growth, survival, and recruitment in Lake Erie. International Association for Great Lakes Research, Peterborough, ON.
19. Fryer, B.J., J. Gagnon, S. Melancon, Z. Yang, and **S.A. Ludsin**. 2004. Special capabilities of LA-ICPMS in environmental research. EnviroAnalysis 2004, Toronto, Canada.
20. Sale, P.F., and **S.A. Ludsin**. 2001. The extent and spatial scale of connectivity among reef fish populations: implications for marine protected areas designated for fisheries enhancement. Gulf and Caribbean Fisheries Institute, Providenciales, Turks and Caicos Islands, BWI.
21. **Ludsin, S.A.**, M.W. Kershner, K.A. Blocksom, R.A. Stein, R.L. Knight, and K.A. Kayle. 1999. Exploring fish communities of western and central Lake Erie, 1969-1996: understanding past dynamics and future directions. Ohio Fish and Wildlife Conference, Columbus, OH.
22. **Ludsin, S.A.**, R.A. Stein, and K.A. Kayle. 1999. Percid growth and year-class formation in Lake Erie: a historical perspective. International Association for Great Lakes Research, Cleveland, OH.
23. Colavecchia, M., S. George, R. Knight, **S. Ludsin**, and P. A. Ryan. 1999. The Lake Erie system model: a fuzzy cognitive map to support development of ecosystem objectives. International Association for Great Lakes Research, Cleveland, OH.

Scientific Conferences/Workshops (Invited)

1. **Ludsin, S.A.**, J. Lee, S. Lee, M. Manubolu, K. Riedl, J.F. Martin, and L. Collart. 2016. Fish flesh and fresh produce as sources of microcystin exposure to humans. Harmful Algal Blooms: State of the Science Conference, Toledo, OH.
2. Lee, S. X. Jiang, M. Manubolu, **S.A. Ludsin**, J.F. Martin, and J. Lee. 2016. Microcystin accumulation in vegetables and soils. Harmful Algal Blooms: State of the Science Conference, Toledo, OH.
3. Sowa, S., S.C. Keitzer, **S.A. Ludsin**, A. Sasson, M. O'Brien, C. Volmer-Sanders, M. Herbert, G. Annis, A. Froelich, J. Arnold, M. White, H. Yen, P. Daggaputi, C. Winslow, J. Atwood, M. Vaughn-Johnson, C. Rewa, and Dale Robertson. 2016. Thinking outside the lake: How can management efforts benefit western Lake Erie and its tributaries? Harmful Algal Blooms: State of the Science Conference, Toledo, OH.
4. **Ludsin, S.A.**, C.J. May, K.L. Pangle, and E.A. Marschall. 2015. Does fast early life growth confer a recruitment advantage in freshwater fish populations? Growth-Survival Paradigm in Early Life Stages of Fish: Controversy, Synthesis, and Multidisciplinary Approach Symposium. Yokohama, Japan.
5. **Ludsin, S.A.**, K.M. DeVanna, and R.E.H. Smith. 2013. Physical-biological coupling and the challenge of understanding fish recruitment in the Great Lakes. Lake Erie Millennium Network, 6th Biennial Conference, Windsor, ON.

6. Smith, R., and **S. Ludsin**. 2011. Overview of GLFC research theme: physical processes and fish recruitment in large lakes. Physical-biological coupling and fish recruitment in large lakes: state of knowledge and opportunities for progress workshop, Romulus, MI.
7. **Ludsin, S.A.**, and K.L. Pangle. 2011. Regime-dependent physical forcing of yellow perch recruitment in Lake Erie. Physical-biological coupling and fish recruitment in large lakes: state of knowledge and opportunities for progress workshop, Romulus, MI.
8. Tyson, J.T., and **S.A. Ludsin**. 2011. Lake Erie fisheries management needs: using physical-biological coupling to move towards place-based management. Physical-biological coupling and fish recruitment in large lakes: state of knowledge and opportunities for progress workshop, Romulus, MI.
9. Conroy, J.D., **S.A. Ludsin**, K. Kayle, J.T. Tyson, R.L. Knight, and D.A. Culver. 2010. Fish community structure in Lake Erie: continued rehabilitation or a return to degradation? Lake Erie Millennium Network, 6th Biennial Conference, Windsor, ON
10. **Ludsin, S.A.** 2009. Hypoxia in Lake Erie: implications for food webs and fisheries. The Great Lakes: Adapting to a Wave of Change Conference, Michigan State University, East Lansing
11. **Ludsin, S.A.**, and T.E. Croley II. 2008. Complexities of forecasting climate change effects on Great Lakes fisheries: an example with Lake Erie yellow perch. Climate Change in the Great Lakes Region Conference, Michigan State University, East Lansing, MI
12. **Ludsin, S.**, W. Boicourt, S. Brandt, K. Hozyash, D. Kimmel, D. Mason, C. Rae, M. Roman, H. Zhang, and X. Zhang. 2007. Indirect effects of coastal hypoxia on planktivore habitat: implications for pelagic food webs and fisheries. Ecological Impacts of Hypoxia on Living Resources Workshop Symposium, Bay St. Louis, MS.
13. **Ludsin, S.A.** 2007. Ecological effects of hypoxia: a comparison of the Baltic and Great Lakes regions. The North American Great lakes: comparison with the Baltic Sea, Workshop Series-I. University of Michigan, Ann Arbor
14. **Ludsin, S.A.** 2007. Lake Erie hypoxia: history and management response. Ecological Impacts of Hypoxia on Living Resources Workshop Symposium, Bay St. Louis, MS.
15. Brandt, S.B., M. Costantini, **S. Ludsin**, D.M. Mason, and W.C. Boicourt. 2007. Influence of hypoxia on fish growth rate potential in Chesapeake Bay. Ecological Impacts of Hypoxia on Living Resources Workshop Symposium, Bay St. Louis, MS.
16. Höök, T., **S. Ludsin**, S. Pothoven, J. Roberts, T. Nalepa, H. Vanderploeg, S. Ruberg, and S. Brandt. 2007. Influence of hypoxia on the ecology of zooplanktivorous and benthivorous fishes in Lake Erie's central basin. Ecological Impacts of Hypoxia on Living Resources Workshop Symposium, Bay St. Louis, MS.
17. Vanderploeg, H, **S. Ludsin**, S. Pothoven, T. Höök, J. Roberts, S. Ruberg, J. Cavaletto, J. Liebig, G. Lang, and S. Brandt. 2007. Influence of hypoxia on the distribution, behavior, and foraging of zooplankton and planktivorous fish in central Lake Erie: field observations and future research directions. Ecological Impacts of Hypoxia on Living Resources Workshop Symposium, Bay St. Louis, MS.
18. **Ludsin, S.A.**, S.B. Brandt, N. Hawley, B. J. Eadie, M.B. Lansing, and T.H. Johengen. 2006. Introduction to the International Field Years on Lake Erie (IFYLE) Program. Lake Erie Millennium Network Bi-annual Conference, Windsor, ON
19. **Ludsin, S.A.**, T.O. Höök, T.F. Nalepa, S.D. Peacor, S.A. Pothoven, S.A. Ruberg, H.A. Vanderploeg, J.J. Roberts, J.F. Cavaletto, G.A. Lang, and C. Rae. 2006. Influence of hypoxia on upper trophic levels of central Lake Erie's food web: preliminary observations. Lake Erie Millennium Network Bi-annual Conference, Windsor, ON
20. **Ludsin, S.A.** 2005. Potential linkages between tributaries and fishery production in the Great Lakes. Environmental Objectives Workshop, Great Lakes Fishery Commission, Romulus, MI

Regional (Great Lakes) Management Meetings (Invited)

1. **Ludsin, S.A.**, S.C. Keitzer, S. Sowa, A. Sasson, M. O'Brien, C. Volmer-Sanders, M. Herbert, G. Annis, A. Froelich, J. Arnold, M. White, H. Yen, P. Daggaputi, C. Winslow, J. Atwood, M. Vaughn-Johnson, C. Rewa, and Dale Robertson. 2016. Thinking outside the Lake: How can management efforts benefit western Lake Erie and its tributaries? Western Lake Erie Basin Partnership meeting, Port Clinton, OH.
2. Chen, K.-Y., E.A. Marschall, M. Sovic, H.L. Gibbs, and **S.A. Ludsin**. 2016. Lake Erie walleye stock discrimination methods and applications. Lake Erie Committee annual meeting, Great Lakes Fishery Commission, Niagara Falls, ON.
3. **Ludsin, S.A.**, K.P. Winslow, R.D. Briland, and N. Aloysius. 2015. Do recent increases in cyanobacteria pose a real threat to Lake Erie's fisheries? Lake Erie Committee/State of the Lake Ecosystem Conference (SOLEC), Great Lakes Fishery Commission. Ypsilanti, MI.
4. **Ludsin, S.A.** 2013. Lake Erie yellow perch recruitment mechanisms: insights to benefit management. Lake Erie Percid Management Advisory Group meeting, Erie, PA.
5. **Ludsin, S.A.** 2013. Lake Erie yellow perch recruitment mechanisms: a never-ending story of change. Lake Erie Committee annual meeting, Great Lakes Fishery Commission, Niagara Falls, NY.
6. **Ludsin, S.A.** 2012. River discharge as a predictor of Lake Erie yellow perch recruitment. Great Lakes Fishery Commission annual meeting, Buffalo, NY
7. Pangle, K.L. B.J., Fryer, J.T., Tyson, Y. Zhao, and **S.A. Ludsin**. 2011. Innovative approaches to understanding percid recruitment in western Lake Erie. Lake Erie Committee annual meeting, Great Lakes Fishery Commission, Ypsilanti, MI.
8. **Ludsin, S.A.** 2009. Exploration of hypoxia's effects on Lake Erie fisheries. Lake Erie Committee/State of the Lake Ecosystem Conference (SOLEC), Great Lakes Fishery Commission, Ypsilanti, MI
9. **Ludsin, S.A.** 2007. Statolith microchemistry as a tool for identifying natal origins of Great Lakes sea lamprey. Great Lakes Fishery Commission annual meeting, Sault Ste. Marie, ON
10. Howe, E. A., J.E. Marsden, **S.A. Ludsin**, C.H. Hand, and B.J. Fryer. 2006. Tributary contributions to the parasitic and spawning adult population of sea lamprey (*Petromyzon marinus*) in Lake Champlain using elemental signatures. Technical Advisory Committee of the Lake Champlain Basin Program
11. **Ludsin, S.A.** 2005. Exploration of the existence of natural reproduction in Lake Erie lake trout using otolith microchemistry. Lake Erie Committee annual meeting, Great Lakes Fishery Commission, Niagara Falls, ON
12. **Ludsin, S.A.** 2005. Introduction to the International Field Years on Lake Erie (IFYLE) Program. Lake Erie Committee annual meeting, Great Lakes Fishery Commission, Niagara Falls, ON
13. **Ludsin, S.A.** 2004. Exploration of linkages between oligotrophication and percid dynamics in Lake Erie. Lake Erie Committee/State of the Lake Ecosystem Conference (SOLEC), Great Lakes Fishery Commission. Grand Island, NY
14. **Ludsin, S.A.**, M.W. Kershner, R.L. Knight, and R.A. Stein. 1999. Exploring fish communities of western and central Lake Erie, 1969-1996: reduced productivity drives fish community rehabilitation. Lake Erie Committee annual meeting, Great Lakes Fishery Commission, Niagara Falls, NY
15. **Ludsin, S.A.**, B. Dixon, B.J. Fryer, K. Hedges, T.B. Johnson, M. Latimer, and P.F. Sale. 2002. Innovative techniques for stock discrimination and production estimation of Great Lakes percid fisheries. Lake Erie Committee annual meeting, Great Lakes Fishery Commission, Buffalo, NY
16. **Ludsin, S.A.**, M.W. Kershner, R.A. Stein, R.L. Knight, and K.A. Kayle. 1997. Recent shifts in fish community structure in Lake Erie: mechanisms of change. Lake Erie Committee annual meeting, Great Lakes Fishery Commission, Niagara Falls, NY

Local (Ohio) Management Meetings (Invited)

1. **Ludsin, S.A.** 2017. Fish flesh as a source of microcystin exposure to humans. Fish Consumption Advisory Committee annual meeting, Ohio Department of Health, Reynoldsburg, OH.
2. Almeida, Z., A. Huddleston, **S. Ludsin**, J. Hood, and E. Marschall. 2017. Assessing lower food web changes in Lake Erie's western basin and consequences for walleye. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus. (poster)
3. Aloysius, N.R., J.F. Martin, and **S.A. Ludsin**. 2017. Changing characteristics of land surface precipitation and its impact on nutrient delivery to Lake Erie. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
4. Bade, A., **S. Ludsin**, T. Binder, and C. Vandergoot. 2017. Use of the Ohio reef complex by Walleye during the spring spawning season. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
5. Becher, C., **S. Ludsin**, J. Olesik, and S. 2017. Understanding stocking success of juvenile Channel Catfish in Ohio reservoirs. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
6. Blawut, B., M.C. da Silva, **S.A. Ludsin**, S. Hale, D. Sweet, and R. Zweifel, and B. Wolfe. 2017. Use of hypertonic media to cryopreserve Sauger (*Sander canadensis*) spermatozoa. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
7. Blawut, B., M.C. da Silva, **S.A. Ludsin**, S. Hale, D. Sweet, and R. Zweifel, and B. Wolfe. 2017. Enhancing Saugeye (*Sander vitreus x S. canadensis*) production through the use of assisted reproductive technologies. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
8. Chen, K.Y., E.A. Marschall, M.G. Sovic, H.L. Gibbs, **S.A. Ludsin**, and J.W. Olesik. 2017. Lake Erie Walleye stock discrimination methods and applications. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
9. Dillon, R., **S.A. Ludsin**, and J.D. Conroy. 2017. Quantifying bias associated with *Chaoborus* in hydroacoustic surveys of prey-fish biomass in Ohio reservoirs. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
10. Manubolu, M., K. Riedl, J. Lee, J.F. Martin, and **S.A. Ludsin**. 2017. Are fish harvested in Lake Erie during the harmful algal bloom season safe to eat? Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
11. Aloysius, N.R., M. Gildow, J.F. Martin, and **S.A. Ludsin**. 2016. Agricultural management practices to reduce phosphorus runoff to Lake Erie. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
12. Briland, R. D., C. Hu, J. Lee, J. Martin, **S. Ludsin**. 2016. Effects of cyanobacterial blooms on food web dynamics in western Lake Erie. Lake Erie-Inland Waters Annual Research Review. Columbus, OH.
13. Chen, K.-Y., S. A. Ludsin, J. W. Olesik, E.A. Marschall. 2016. Natal homing behavior and mixed stock analysis of walleye in western Lake Erie. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
14. Steinhart, G.B., J.D. Conroy, R.D. Zweifel, and **S.A. Ludsin**. 2016. Blue Catfish habitat use in a hypoxic Ohio reservoir. Lake Erie-Inland Waters Annual Research Review. Columbus, OH.
15. Aloysius, N.R., S. Y. Gebremariam, J.F. Martin, R.P. Stumpf, and **S.A. Ludsin**. 2015. Hydrologic & climatic controls of cyanobacteria blooms in Lake Erie. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
16. Briland, R.D., D.A. Culver, and **S.A. Ludsin**. 2015. Lake Erie phytoplankton analysis, 1995-2013. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
17. Chen, K.-Y., E.A. Marschall, M.G. Sovic, H.L. Gibbs, and **S.A. Ludsin**. 2015. Lake Erie walleye stock discrimination using next-generation DNA sequencing. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.

18. Fraker, M.E., **S.A. Ludsin**, R.M. Brodnik, K. DeVanna-Fussell, E.J. Anderson, L. Carreon-Martinez, B.J. Fryer, D.D. Heath, and J.M. Reichert. 2015. Particle backtracking improves breeding subpopulation discrimination and source identification in mixed populations of Lake Erie walleye. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
19. Fraker, M.E., K.M. DeVanna, **S.A. Ludsin**, K.L. Pangle, and Y. Zhao. 2014. Role of biophysical coupling in walleye recruitment. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
20. May, C.J., E.A. Marschall, M. Kulasa, **S.A. Ludsin**, and E.F. Roseman. 2014. Walleye recruitment in Western Lake Erie: a tale of two studies. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
21. May, C.J., **S.A. Ludsin**, D.A. Culver, D.C. Glover, and E.A. Marschall. 2015. Larval growth as a limiter of Lake Erie walleye recruitment. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
22. Briland, R., and **S. Ludsin**. 2014. Lake Erie zooplankton dynamics, 1995-2012. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
23. DuFour, M.R., J.J. Pritt, C.M. Mayer, C.J. May, **S.A. Ludsin**, E.A. Marschall, M.E. Fraker, E.F. Roseman, J.G. Miner, J.J. Davis, C.S. Vandergoot, and J.T. Tyson. 2014. Diversity in a multi-stock system: temporal and spatial portfolio effects in Lake Erie walleye production. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
24. Chen, K.-Y., E.A. Marschall, M.G. Sovic, H.L. Gibbs, and **S.A. Ludsin**. 2014. Lake Erie walleye stock discrimination using next-generation DNA sequencing. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
25. Farmer, T.M., **S.A. Ludsin**, E.A. Marschall, and K. Dabrowski. 2014. What does climate change hold for Lake Erie yellow perch? Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
26. Farmer, T.M., **S.A. Ludsin**, E.A. Marschall, and K. Dabrowski. 2014. Climate change effects on Lake Erie yellow perch reproduction and recruitment. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
27. Briland, R., and **S. Ludsin**. 2013. Regulatory mechanisms of forage community structure in Lake Erie. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
28. Chen, K.-Y., E.A. Marschall, J.J. Van Tassell, **S.A. Ludsin**, P.D. Collingsworth, M.K. Nims, and J.W. Olesik. 2013. Is larval walleye river residence time sufficient to establish a natal-site signal in otoliths? Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
29. Dabrowski, K., M. Korzeniowska, T.M. Farmer, **S.A. Ludsin**, and E.A. Marschall. 2013. The function of neutral lipids in early life history of yellow perch: Transition from endogenous to exogenous nutrition. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
30. Farmer, T.M., **S.A. Ludsin**, E.A. Marschall, and K. Dabrowski. 2013. What does climate change hold for Lake Erie yellow perch? Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
31. Filbrun, J.E., D.A. Culver, and **S.A. Ludsin**. 2013. Feed management in catfish ponds: strategies to optimize fish production. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
32. Fraker, M.E., K.-Y. Chen, K.M. DeVanna, E.A. Marschall, C.J. May, **S.A. Ludsin**, E.J. Anderson, J.J. Davis, J.G. Miner, M.R. DuFour, C.M. Mayer, J.J. Pritt, K.L. Pangle, E.F. Roseman, J.T. Tyson, and Y. Zhao. 2013. A coupled biophysical model of walleye recruitment in western Lake Erie. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
33. Gebremariam, S.Y., J.F. Martin, C. DeMarchi, and **S.A. Ludsin**. 2013. Evaluation of multiple watershed models to quantify flow and water quality entering western Lake Erie from rivers in Indiana, Michigan, & northwest Ohio. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
34. May, C.J., **S.A. Ludsin**, and E.A. Marschall. 2013. Does available growth environment predict walleye recruitment in western Lake Erie? Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.

35. **Ludsin, S.A.**, C. DeMarchi, E. Irwin, B. Roe, E. Nisbet, E. Toman, R. Wilson, and J. Martin. 2012. Co-evolution of upstream human behavior and downstream ecosystem services in a changing climate. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
36. Briland, R.D., and **S.A. Ludsin**. 2012. Regulatory mechanisms of fish community structure and top-predator production in Lake Erie. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
37. Burbacher, E.A., and **S.A. Ludsin**. 2012. Effects of hypoxia on hypoxia on habitat quality for hybrid striped bass in Ohio. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
38. Chen, K., E.A. Marschall, **S.A. Ludsin**, J.J. Van Tassell, J.W. Olesik (EEOB, OSU), M.K. Nims, and P.D. Collingsworth. 2012. Using otolith microchemistry to discriminate Lake Erie walleye stocks. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
39. DeVanna, K.M., K. Chen, C.J. May, E.A. Marschall, **S.A. Ludsin**, Y. Zhao, K.L. Pangle, J.T. Tyson, E.F. Roseman, C.M. Mayer, M.R. DuFour, J.J. Pritt, J. Miner, and J. Davis. 2012. Understanding the role of biophysical coupling in walleye recruitment variation. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
40. Farmer, T.M., **S.A. Ludsin**, and E.A. Marschall. 2012. Meteorological effects on yellow perch recruitment in Lake Erie. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
41. Filbrun, J.E., D.A. Culver, and **S.A. Ludsin**. 2012. Is artificial feeding important for age-0 channel catfish growth and survival? Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
42. May, C.J., **S.A. Ludsin**, and E.A. Marschall. 2012. Lake Erie walleye: The formative days. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
43. Burbacher, E.A., K. Dabrowski, and **S.A. Ludsin**. 2011. A bioenergetics evaluation of hybrid striped bass habitat in Ohio reservoirs. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
44. Farmer, T.M., **S.A. Ludsin**, E.A. Marschall, and K. Dabrowski. 2011. Yellow perch spawning distributions, egg quality, and fecundity in Lake Erie's western and central basins. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
45. Kinter, B., and **S.A. Ludsin**. 2011. Comparative effects of biotic and abiotic perturbations on reservoir food webs. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus
46. Malinich, T.D., K. L. Pangle, and **S.A. Ludsin**. 2011. Turbidity mediates the non-consumptive effect of a piscivore on its planktivore prey. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus (poster).
47. Pangle, K.L., and **S.A. Ludsin**. 2011. Hypoxia's impact on pelagic fishes: a tale of two planktivores. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
48. Farmer, T., **S. Ludsin**, and E. Marschall. 2010. Meteorological effects on yellow perch reproduction and recruitment in Lake Erie. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
49. K. Pangle, **S. Ludsin**, S. Blake, S. Friedberg, S. Shaw, and J. Tyson. 2010. Meteorological effects on yellow perch reproduction and recruitment in Lake Erie. Using satellite imagery for Lake Erie fisheries management. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
50. Kinter, B., W. Pine, and **S. Ludsin**. 2010. Ecosystem-based modeling evaluation of stocked predator introductions on reservoir food webs. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
51. Malinich, T., K. Pangle, and **S. Ludsin**. 2009. Turbidity and predation risk effects on larval and young-of-year yellow perch foraging. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus. (poster)
52. Pangle, K., J. Reichert, A. Drelich, K. Mabrey, B. Fryer, T. Johnson, J. Tyson, and **S. Ludsin**. 2009. Yellow perch recruitment in western Lake Erie: the importance of larval habitat use and growth. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
53. Sopkovich, E., K. Dabrowski, and **S. Ludsin**. 2010. A bioenergetics-based evaluation of hybrid striped bass habitat quality in Ohio reservoirs. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.

54. Gover, T., M. Nims, J. Van Tassell, P. Collingsworth, John Olesik, **S. Ludsin**, and E. Marschall. 2010. How much cleaning is needed when processing larval otoliths for microchemical analysis? Lake Erie-Inland Waters Annual Research Review, OSU, Columbus. (poster)
55. Wellington, C., C. Mayer, J. Bossenbroek, **S. Ludsin**, T. Bridgeman, and J. Tyson. 2008. Physical and biological factors affecting the foraging success of age-0 yellow perch. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
56. **Ludsin, S.A.**, B.J. Fryer, P.F. Sale, and R.A. Stein. 2007. Otolith micro-chemical determination of Lake Erie yellow perch natal origins: a focus on the 1995 and 1996 year-classes. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus.
57. **Ludsin, S.A.** 1996. Ecological mechanisms regulating fish community structure in Lake Erie: taking aim at a moving target. Ohio Cooperative Fish and Wildlife Research Unit Coordinating Committee Meeting, Columbus.

Scientific Conferences/Workshops (Contributed)

1. Bade, A., **S. Ludsin**, T. Binder, C. Vandergoot, and M. Faust. 2017. Use of Lake Erie's Ohio reef complex by Walleye (*Sander vitreus*) during the spring spawning season. Midwest Fish and Wildlife Conference, Lincoln, NE. (poster)
2. Bade, A., **S. Ludsin**, T. Binder, C. Vandergoot, and M. Faust. 2017. Use of the Ohio reef complex by Walleye during the spring spawning season. Indiana and Ohio Chapters of the American Fisheries Society, Muncie, IN.
3. Dillon, R., J.D. Conroy, and **S.A. Ludsin**. 2017. Determining potential bias by *Chaoborus* during hydroacoustic surveys of prey fish biomass in Ohio reservoirs. Indiana and Ohio Chapters of the American Fisheries Society, Muncie, IN. *Best Student Paper Award*
4. Dillon, R., J.D. Conroy, and **S.A. Ludsin**. 2017. Determining potential bias by *Chaoborus* during hydroacoustic surveys of prey fish biomass in Ohio reservoirs. Midwest Fish and Wildlife Conference, Lincoln, NE. (poster)
5. Briland, R. D., C. Hu, J. Lee, J. Martin, **S. Ludsin**. 2016. Cyanobloom impacts on higher consumers in western Lake Erie. International Association for Great Lakes Research. Guelph, ON.
6. Brown, T.A., M.E. Fraker, and **S.A. Ludsin**. 2016. Predator-prey behavioral dynamics: space use in response to chemical cue exposures. Natural and Mathematical Sciences Undergraduate Research Forum, OSU, Columbus. (poster)
7. Fraker, M.E., **S.A. Ludsin**, D. Glover, S.C. Keitzer, and N. Aloysius. 2016. Spatial variation in impacts of ecosystem change on habitat quality for a Lake Erie fish. Ecological Society of America, Fort Lauderdale, FL.
8. Hunter, R., J. Gostiaux, C. May, C. Vandergoot, E. Roseman, M. DuFour, E. Marschall, D. Glover, and **S. Ludsin**. 2016. Comparison of active and passive sampling gears for estimating walleye egg deposition on open-lake reefs. Midwest Fish and Wildlife Conference, Grand Rapids, MI.
9. Kua, A., A. McLaughlin, S.C. Keitzer, E. Hoskins, T. Arnold, I.M. Hamilton, R.M. Brodnik, and **S.A. Ludsin**. 2016. Experimental assessment of climate warming impacts on the behavior of a Lake Tanganyika fish. Denman Undergraduate Research Forum, OSU, Columbus, OH. (poster)
10. Lee, S. X. Jiang, M. Manubolu, **S.A. Ludsin**, J.F. Martin, and J. Lee. 2016. Microcystin accumulation in fresh produce from contaminated irrigation water. Ohio Agricultural Research and Development Center Annual Research Conference, Columbus, OH.
11. Aloysius, N.R., J.F. Martin, **S.A. Ludsin**, and R.P. Stumpf. 2015. Future climate impacts on harmful algal blooms in an agriculturally dominated ecosystem. American Geophysical Union, San Francisco, CA. (poster)
12. Aloysius, N.R., J.F. Martin, **S.A. Ludsin**, and R.P. Stumpf. 2015. Impact of climate change on harmful algal blooms in the western Lake Erie. International Association for Great Lakes Research, Burlington, VT.

13. Briland, R.D., D.A. Culver, and **S.A. Ludsin**. 2015. Zooplankton community response to re-eutrophication and *Microcystis* blooms in Lake Erie. International Association for Great Lakes Research, Burlington, VT.
14. Chen, K.-Y., E.A. Marschall, M. Corey, P. Collingsworth, M.K. Nims, J.W. Olesik, JJ. Van Tassell, **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. American Fisheries Society, Portland, OR.
15. Chen, K.-Y., M.G. Sovic, E.A. Marschall, H.L. Gibbs, and **S.A. Ludsin**. 2015. Methodological considerations when using RAD-Seq to discriminate among weakly differentiated fish populations: why cross-validation procedures and sample sizes matter. American Fisheries Society, Portland, OR. (poster)
16. Collart, L.P., C. Hu, R.D. Briland, J. Lee, and **S.A. Ludsin**. 2015. Phylogenetic and nitrogen growth analyses of Lake Erie *Microcystis* strains. International Association for Great Lakes Research, Burlington, VT. (poster)
17. Kane, D.D., **S.A. Ludsin**, R.D. Briland, D.A. Culver, M. Fitzpatrick, R. Rozon, H. Niblock, and M. Munawar. 2015. Ten years gone: continued degradation of plankton communities in lakes Erie and Ontario. International Association for Great Lakes Research, Burlington, VT.
18. Keitzer, S.C., S. Sowa, G. Annis, A. Froehlich, M. Herbert, A. Sasson, and **S.A. Ludsin**. 2015. Stream fish community dynamics in Lake Erie's agriculturally dominated western basin watersheds. Joint Aquatic Sciences Meeting. Portland, OR. (oral presentation)
19. Keitzer, S.C., **S.A. Ludsin**, S. Sowa, A. Sasson, M. Herbert, G. Annis, A. Froelich, C. Volmer-Sanders, J. Arnold, M. White, H. Yen, P. Daggaputi, L. Norfleet, M.-V. Johnson, J. Atwood, and C. Rewa. 2015. Using the Soil and Water Assessment Tool to provide critical spatial information about the magnitude of water quality stressors and their effect on stream biodiversity. International Soil & Water Assessment Tool Conference, West Lafayette, IN.
20. Kua, Z.X., A. McLaughlin, T. Arnold, E. Hoskins, I.M. Hamilton, R.M. Brodник, and **S.A. Ludsin**. 2015. Temperature effect on the behavior of the Lake Tanganyika cichlid, *Julidochromis ornatus*. Natural and Mathematical Sciences Undergraduate Research Forum, OSU, Columbus. (poster)
21. Marin Jarrin, J. R., K. Pangle, M. Xia, **S. Ludsin**, D. Mason, and E. Rutherford. 2015. Combining particle tracking models and otolith chemistry to study the swimming behavior of larval yellow perch in western Lake Erie. 2015. Joint Aquatic Sciences Meeting. Portland, OR.
22. Wituszynski, D., J. Martin, C. Hu, **S.A. Ludsin**, J. Lee, and K. Riedl. 2015. Concentrations of microcystin-derived compounds in Lake Erie sportfish. Ecological Society of America, Baltimore, MD. (poster)
23. Wituszynski, D., K. Sikon, C. Hu, R.D. Briland, K. Riedl, J. Lee, **S.A. Ludsin**, and J.F. Martin. 2015. Fate and concentration of microcystin in Lake Erie game fish. International Association for Great Lakes Research, Burlington, VT.
24. Wituszynski, D., J. Martin, C. Hu, **S.A. Ludsin**, J. Lee, and K. Riedl. 2015. Concentrations of microcystin-derived compounds in Lake Erie sportfish. Ecological Society of America, Baltimore, MD. (poster)
25. Wituszynski, D., K. Sikon, C. Hu, R.D. Briland, K. Riedl, J. Lee, **S.A. Ludsin**, and J.F. Martin. 2015. Fate and concentration of microcystin in Lake Erie game fish. International Association for Great Lakes Research, Burlington, VT.
26. Bolam, B.A., K.Y. Chen, E.A. Marschall, M.G. Sovic, H.L. Gibbs, and **S.A. Ludsin**. 2014. Searching for potential functionality of divergent SNP markers from Lake Erie walleye spawning stocks. American Fisheries Society, Québec City, Canada. (poster)
27. Briland, R.D., D.A. Culver, and **S.A. Ludsin**. 2014. Zooplankton community response to increasing nutrient inputs and *Microcystis* blooms in Lake Erie. Joint Aquatic Sciences Meeting. Portland, OR.

28. Briland, R.D., J.M. Pfaff, T.M. Farmer, and **S.A. Ludsin**. 2014 Recruitment of invasive white perch in Lake Erie: the relative roles of climate warming and re-eutrophication. International Association for Great Lakes Research, Hamilton, ON.
29. Chen, K.-Y., E.A. Marschall, M.G. Sovic, H.L. Gibbs, and **S.A. Ludsin**. 2014. Lake Erie walleye stock discrimination using next-generation RAD sequencing. American Fisheries Society, Québec City, Canada.
30. Corey, M., K.Y. Chen, E.A. Marschall, J.W. Olesik, and **S.A. Ludsin**. 2014. Otolith microchemistry as a tool to discriminate between river-spawning populations of walleye (*Sander vitreus*) in Lake Erie. American Fisheries Society, Québec City, Canada. (poster)
31. Corey, M.M., K.Y. Chen, E.A. Marschall, J.W. Olesik, and **S.A. Ludsin**. 2014. Otolith microchemistry as a tool to discriminate between river-spawning populations of walleye in Lake Erie. Natural and Mathematical Sciences Undergraduate Research Forum, OSU, Columbus. *Most outstanding poster, Organismal Biology Division*.
32. DuFour, M.R., C.J. May, J.J. Pritt, E.R. Roseman, C.M. Mayer, **S.A. Ludsin**, E.A. Marschall, M.E. Fraker, J.J. Davis, J.G. Miner, S.S. Qian, C.S. Vandergoot, and J.T. Tyson. 2014. Diversity in a multi-stock system: temporal and spatial portfolio effects in Lake Erie walleye production. International Association for Great Lakes Research, Hamilton, ON.
33. DuFour, M., J. Pritt, C.M. Mayer, C. May, **S.A. Ludsin**, E.A. Marschall, M. Fraker, E.F. Roseman, J.G. Miner, J. Davis, C.S. Vandergoot, and J. Tyson. 2014. Diversity in a Multi-Stock System: Temporal and spatial portfolio effects in Lake Erie Walleye production. American Fisheries Society, Québec City, Canada.
34. Evans, M.A., D. Engel, T.O. Höök, **S.A. Ludsin**, J.A. Roberts, J.S. Schaeffer, and A. Stevens. 2014. Linking landscapes, aquatic productivity, and fisheries: an example in Lake Erie. American Fisheries Society, Québec City, Canada.
35. Farmer, T.M., E.A. Marschall, K. Dabrowski, and **S.A. Ludsin**. 2014. Climate change effects on Lake Erie yellow perch reproduction and recruitment. American Fisheries Society – Ohio Chapter, Columbus, OH. *Best student presentation*.
36. Gebremariam, S.Y., J.F. Martin, and **S.A. Ludsin**. 2014. The dynamics of nutrient loss from the Maumee River basin in response to hydro-climatic shifts in the future. International Association for Great Lakes Research, Hamilton, ON.
37. Gildow, M.C., S.Y. Gebremariam, J.F. Martin, and **S.A. Ludsin**. 2014. Reducing dissolved phosphorus in the Maumee River through implementation of fertilizer management practices. International Association for Great Lakes Research, Hamilton, ON.
38. Heath, D., L. Carreon-Martinez, K. Wellband, K. Pangle, **S.A. Ludsin**, and T.B. Johnson. 2014. Turbid river plumes benefit fish recruitment through reduced larval predation: a novel molecular genetic approach. American Fisheries Society, Québec City, Canada.
39. Hodanbosi, M.R., R.M. Brodник, K.M. DeVanna, and **S.A. Ludsin**. 2014. Are life-history attributes and metabolic rate linked in the African cichlid, *Julidochromis ornatus*? Natural and Mathematical Sciences Undergraduate Research Forum, OSU, Columbus. (poster)
40. Kulasa, M.R., C.J. May, E.A. Marschall, E.F. Roseman, and **S.A. Ludsin**. 2014. Impact of Zooplankton Availability on Larval Walleye Diet Selectivity and Growth Rate in Western Lake Erie. International Association for Great Lakes Research, Hamilton, ON. (poster)
41. McLaughlin, A., R.M. Brodник, **S.A. Ludsin**, T. Arnold, K.M. DeVanna, and I.M. Hamilton. 2014. Personality and Behavioral Syndromes in the African Cichlid *Julidochromis ornatus*. Natural and Mathematical Sciences Undergraduate Research Forum, OSU, Columbus. (poster)
42. Pangle, K. J. Marin Jarrin, M. Xia, **S.A. Ludsin**, D. Mason, and E.S. Rutherford. 2014. Combining particle tracking models and otolith chemistry to study active movement of larval yellow perch in western Lake Erie. American Fisheries Society, Québec City, Canada.

43. Wituszynski, D., C. Hu, R.D. Briland, J. Martin, **S.A. Ludsin**, and J. Lee. 2014. Algal toxin variation in Lake Erie fish tissue. American Fisheries Society, Québec City, Canada.
44. Xia, M., Q. Niu, L. Jiang, Z. Cao, E.S. Rutherford, D.J. Schwab, K. Pangle, **S.A. Ludsin**, D.M. Mason, E.J. Anderson, and J. Marin. 2014. The application of an unstructured based bio-physical model to Lake Erie. International Association for Great Lakes Research, Hamilton, ON.
45. Xia, M., Niu, Q., Jiang, L., Rutherford, E., Schwab, D., K. Pangle, J.R. Marin Jarrin, **S. Ludsin**, D. Mason. 2014. The development of an unstructured based bio-physical model to Lake Erie yellow perch recruitment. IMBER Future Oceans Conference, Bergen, Norway.
46. Briland, R.D., and **S.A. Ludsin**. 2013. Prey-fish community structure in Lake Erie: historical shifts and their drivers. International Association for Great Lakes Research, West Lafayette, IN.
47. Chen, K.-Y., M.G. Sovic, E.A. Marschall, H.L. Gibbs, and **S.A. Ludsin**. 2013. Evaluation of restriction-site associated DNA sequencing (RADseq) to discriminate Lake Erie walleye stocks. West Virginia and Ohio Chapters of the American Fisheries Society, Huntington, WV. (poster)
48. Fraker, M.E., E.J. Anderson, R. Brodник, K.M. DeVanna, L. Carreon-Martinez, B.J. Fryer, D.D. Heath, J.M. Reichert, and **S.A. Ludsin**. 2013. Particle backtracking as a tool to improve stock discrimination capabilities in mixed populations. Ecological Society of America, Minneapolis, MN.
49. Gebremariam, S.Y., J.F. Martin, C. DeMarchi, E. Irwin, W. Zhang, N. Chen, and **S.A. Ludsin**. 2013. Impacts of crop management practices in the Maumee Watershed on dissolved phosphorus inputs to Lake Erie. International Association for Great Lakes Research, West Lafayette, IN.
50. Marin Jarrin, J.R., K.L. Pangle, M. Xia, **S.A. Ludsin**, D.M. Mason, and E.S. Rutherford. 2013. Combining particle tracking models and otolith chemistry to study the swimming behavior of larval Yellow Perch in western Lake Erie. Joint Aquatic Science Meeting, Portland, OR.
51. Marin Jarrin, J.R., K.L. Pangle, M. Xia, **S.A. Ludsin**, D.M. Mason, and E.S. Rutherford. 2013. Linking river discharge and wind-driven currents to the success of larval yellow perch in western Lake Erie. International Association for Great Lakes Research, West Lafayette, IN.
52. Wituszynski, D.M., S. Gebremariam, J.F. Martin, **S.A. Ludsin**, J. Lee. 2013. Modeling public health effects of climate change: predicting human exposure to microcystin from Lake Erie. Ecological Society of America, Minneapolis, MN.
53. Xia, M., Q. Niu, Z. Cao, L. Jiang, E. Rutherford, D. Schwab, E. Anderson, K. Pangle, J.R. Marin Jarrin, **S. Ludsin**, and D. Mason. 2013. The application of an unstructured based bio-physical model to Lake Erie. International Conference on Estuarine and Coastal Modeling, San Diego, CA.
54. Brodник, R. L. Carreón-Martinez, B. Fryer, D.D. Heath, K. Pangle, J. Reichert-Nguyen, E. Roseman, and **S. Ludsin**. 2012. Stock structure in western Lake Erie's yellow perch fishery: quantifying contributions from the Lake St. Clair – Detroit River corridor. Denman Undergraduate Research Forum, OSU, Columbus. (poster)
55. Brodник, R., L. Carreon-Martinez, B.J. Fryer, D.D. Heath, K.L. Pangle, J.M. Reichert, E.F. Roseman, and **S.A. Ludsin**. 2012. Population connectivity and maintenance of genetic structure in yellow perch populations in western Lake Erie and the Lake St. Clair-Detroit River corridor. American Fisheries Society, St. Paul, MN.
56. Chen, K.Y., P.D. Collingsworth, M.K. Nims, J.W. Olesik, J.J. Van Tassell, E.A. Marschall, and **S.A. Ludsin**. 2012. Is larval walleye river residence time sufficient to establish a natal-site signal in otolith chemistry? American Fisheries Society, St. Paul, MN.
57. Farmer, T.M., **S.A. Ludsin**, and E.A. Marschall. 2012. Meteorological effects on yellow perch recruitment in Lake Erie. American Fisheries Society, St. Paul, MN.
58. Filbrun, J.E., D.A. Culver, and **S.A. Ludsin**. 2012. Does artificial feed enhance age-0 channel catfish growth? Ohio Chapter of the American Fisheries Society, Ashland. *Best professional presentation*.
59. Filbrun, J.E., D.A. Culver, and **S.A. Ludsin**. 2012. The role of palatable resource subsidies in ecosystems: artificial feeding in fish ponds. Hayes Graduate Research Forum, OSU, Columbus, OH.

60. Filbrun, J.E., D.A. Culver, X. Yang, and **S.A. Ludsin**. 2012. Effects of manufactured feed provision on juvenile channel catfish in rearing ponds. Midwest Fish and Wildlife Conference, Wichita, KS.
61. Gebremariam, S.Y., J. Martin, C. DeMarchi, and **S.A. Ludsin**. 2012. Modeling hydrologic and ecological factors impacting phosphorus movement from agricultural fields to rivers in NW Ohio. American Ecological Engineering Society, Rochester, NY.
62. Gebremariam, S.Y., J. Martin, C. DeMarchi, and **S.A. Ludsin**. 2012. Toward development of a coupled human-natural systems model to understand climate impacts on the Lake Erie ecosystem. American Geophysical Union, San Francisco, CA. (poster)
63. Hurtado, P., K. Pangle, Y. Lou, E. Marschall, and **S. Ludsin**. 2012. Do hypoxia-induced changes in habitat use and physiological stress increase disease spread among fish? Ecology and evolution of infectious disease workshop and conference, University of Michigan, Ann Arbor. (poster)
64. Lang, K., K.L. Pangle, J.D. Conroy, S. Goonewardena, and **S.A. Ludsin**. 2012. Hypoxia as a mediator of food web interactions and energy flow in reservoir ecosystems. American Fisheries Society, St. Paul, MN. (poster)
65. Lang, K.J., K.L. Pangle, J.D. Conroy, S. Goonewardena, and **S.A. Ludsin**. 2012. Hypoxia as a mediator of food web interactions and energy flow in reservoir ecosystems. Natural and Mathematical Sciences Undergraduate Research Forum, OSU, Columbus. (poster)
Most outstanding poster, Organismal Biology Division.
66. Lang, K.J., K.L. Pangle, J.D. Conroy, S. Goonewardena, and **S.A. Ludsin**. 2012. Hypoxia as a mediator of food web interactions and energy flow in reservoir ecosystems. Denman Undergraduate Research Forum, OSU, Columbus. (poster)
67. Lochet A., J.E. Marsden, B.J. Fryer, and **S.A. Ludsin**. 2012. Natal origin of parasitic sea lamprey using statolith microchemistry. New York Chapter of the American Fisheries Society, Lake Placid.
68. Lochet, A., J.E. Marsden, B.J. Fryer, and **S.A. Ludsin**. 2012. Tracking the natal origin of parasitic sea lamprey using statolith microchemistry. American Fisheries Society, St. Paul, MN.
69. Martin, J., R. Wilson, E. Toman, E. Nisbet, S. Ludsin, S. Gebremariam, C. DeMarchi, E. Irwin, and B. Roe. 2012. Co-evolution of upstream human behavior and downstream ecosystem services in a changing climate. American Ecological Engineering Society, Rochester, NY.
70. Sesterhenn, T.M., D. Goto, D. Rucinski, J.V. DePinto, D. Scavia, D. Beletsky, **S.A. Ludsin**, and T.O. Höök. 2012. Modeling vertical movements of Lake Erie fishes: comparing different movement rules and different measurement scales with field observations. American Fisheries Society, St. Paul, MN.
71. Sesterhenn, T.M., D. Goto, D.K. Rucinski, J.V. DePinto, D. Scavia, D. Beletsky, **S. Ludsin**, and T.O. Höök. 2012. Individual-based modeling to Forecast Population-level Effects of Increasing Hypoxia and Temperature on Fish Species in Lake Erie's Central Basin. International Association for Great Lakes Research, Cornwall, ON.
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73. Arslan, M., K. Dabrowski, E. Burbacher, and **S. Ludsin**. 2011. Hypoxia and temperature alter lipid and fatty acid accumulation in hybrid striped bass. World Aquaculture 2011, Natal, Brazil.
74. Briland, R.D., and **S.A. Ludsin**. 2011. Regulatory mechanisms of fish community structure and top-predator production in Lake Erie. American Fisheries Society, Seattle, WA.
75. Carreon-Martinez, L., T. Johnson, **S. Ludsin**, and D.D. Heath. 2011. Lake Erie larval yellow perch predation: a molecular genetic approach. American Fisheries Society, Seattle, WA.
76. Chen, K.-Y., E.A. Marschall, **S.A. Ludsin**, M.K. Nims, P.D. Collingsworth, J.J. Van Tassell, and J.W. Olesik. 2011. Temperature and elemental concentration effects on rates of strontium incorporation in walleye otoliths during early life stages. American Fisheries Society, Seattle, WA. (poster)
77. Farmer, T., C. Knight, A. Gorman, K. Pangle, and **S. Ludsin**. 2011. Hypoxia's impact on fish distributions and population estimates. American Fisheries Society, Seattle, WA.

78. Filbrun, J.E., D.A. Culver, and **S.A. Ludsin**. 2011. The role of resource subsidies in ecosystems: lessons from artificial feeding in fish ponds. American Fisheries Society, Seattle, WA.
79. Goto, D., D.K. Rucinski, J.V. DePinto, **S.A. Ludsin**, D. Scavia, and T.O. Höök. 2011. Population-level consequences of hypolimnetic hypoxia in Lake Erie: implications from a spatially explicit individual-based model. Aquatic Sciences Meeting, Association for Limnology and Oceanography, San Juan, Puerto Rico.
80. Goto, D., D.K. Rucinski, J.V. DePinto, **S.A. Ludsin**, D. Scavia, and T.O. Höök. 2011. Elucidating indirect impacts of seasonal hypoxia development on fish populations in Lake Erie using a spatially explicit individual-based model. International Association for Great Lakes Research, Duluth, MN.
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82. Kinter, B., and **S. Ludsin**. 2011. Evaluating the ability of an introduced piscivore to control gizzard shad in reservoirs: an ecosystem-based modeling approach. Midwest Fish and Wildlife Conference, Des Moines, IA. Kinter, B., and **S. Ludsin**. 2011. Regulation of reservoir food webs by external nutrient inputs. American Fisheries Society, Seattle, WA.
83. Lochet, A., J.E. Marsden, B.J. Fryer, and **S.A. Ludsin**. 2011. Can statolith microchemistry be used to track natal origin of parasitic sea lamprey? International Association for Great Lakes Research, Duluth, MN.
84. Pangle, K., L. Carreon-Martinez, J. Reichert, A. Drelich, B. Fryer, D.D. Heath, J. Tyson, T. Johnson, and **S. Ludsin**. 2011. How river plumes benefit recruitment of a coastal fish population: the relative importance of top-down versus bottom-up processes. American Fisheries Society, Seattle, WA.
85. Pinkerton, J. T. Farmer, J. Van Tassell, E. Marschall, and **S.A. Ludsin**. 2011. Understanding annual variation in female yellow perch age-at-maturity in Lake Erie. American Fisheries Society, Seattle, WA. (poster)
86. Zhang, X., R.J. Wood, L. Bahner, E.J. Martino, **S.A. Ludsin**, R. Murtugudde, M. Prasad, and W. Long. 2011. Forecasting Chesapeake Bay striped bass habitat quality and quantity: from physics to fish. Aquatic Sciences Meeting, Association for Limnology and Oceanography, San Juan, Puerto Rico.
87. **Ludsin, S.A.**, K.L. Pangle, J.M. Reichert, J.T. Tyson, T.B. Johnson, B.J. Fryer, and A.B. Drelich. 2010. Pulse-driven fish population dynamics following a regime shift in Lake Erie. Ecological Society of America, Pittsburgh, PA.
88. Briland, R.D., D.A. Culver, and **S.A. Ludsin**. 2010. Performance of a bioenergetics model to predict growth of young-of-year walleye and saugeye. American Fisheries Society, Pittsburgh, PA.
89. Farmer, T.M, E.A. Marschall, and **S.A. Ludsin**. 2010. Energetic costs of climate change: winter temperature and hypoxia effects on reproduction of an iteroparous, cool-water fish. Ecological Society of America, Pittsburgh, PA.
90. Johengen, T., K. Pangle, G. Leshkevich, N. Hawley, J. Reichert, A. Giuliano, and **S. Ludsin**. 2010. Biological and physical attributes of the Maumee River plume in western Lake Erie. International Association for Great Lakes Research, Toronto, ON. (poster)
91. Kinter, B.T., **S.A. Ludsin**, and W.E. Pine. 2010. Ecosystem-based modeling evaluation of stocked predator introductions on reservoir food webs et al. American Fisheries Society, Pittsburgh, PA.
92. Knight, C., A.M. Gorman, T. Farmer, **S. Ludsin**, and K. Pangle. 2010. Sampling low dissolved oxygen waters can change population estimates. American Fisheries Society, Pittsburgh, PA.
93. Malinich, T., K. Pangle, and **S. Ludsin**. 2010. Prey-fish foraging behavior under varying conditions of predation risk and water clarity. Denman Undergraduate Research Forum, OSU, Columbus. (poster)
94. Malinich, T.D., K.L. Pangle, and **S.A. Ludsin**. 2010. Turbidity mediates the non-consumptive effect of a piscivore on its planktivore prey. Ecological Society of America, Pittsburgh, PA. (poster)
95. Pangle, K., J. Tyson, S. Shaw, G. Leshkevich, A. Giuliano, S. Friedberg, S. Blake, and **S. Ludsin**. 2010. The dynamics of river plumes and yellow perch recruitment in western Lake Erie: Are they

- related? Biological and physical attributes of the Maumee River plume in western Lake Erie. International Association for Great Lakes Research, Toronto, ON.
96. Pangle, K.L., S. Pothoven, H.A. Vanderploeg, T.O. Höök, S.B. Brandt, and **S.A. Ludsin**. 2010. Hypoxia's impact on pelagic fishes: a tale of two planktivores. Ecological Society of America, Pittsburgh, PA.
 97. Sopkovich, E.A., **S.A. Ludsin**, and K. Dabrowski. 2010. Suitability of reservoirs for hybrid striped bass: Insights from an experimental evaluation of temperature and dissolved oxygen effects on consumption, growth, and condition. American Fisheries Society, Pittsburgh, PA.
 98. Zhang, X., R.J. Wood, L. Bahner, **S.A. Ludsin**, E.J. Martino, B. Mathukumalli, W. Long, and R. Murtugudde. 2010. Chesapeake Bay striped bass habitat suitability forecasting: moving ecosystem modeling from research to operation. Ocean Sciences Meeting, Portland, OR.
 99. Zhang, X., R.J. Wood, L. Bahner, **S.A. Ludsin**, E.J. Martino, M.B.K. Prasad, W. Long, R. Murtugudde. 2010. Chesapeake Bay striped bass habitat suitability forecasting: moving ecosystem modeling from research to operation. Chesapeake Community Modeling Program, Chesapeake Modeling Symposium, Annapolis, MD.
 100. Arend, K., T. Höök, **S. Ludsin**, D. Rucinski, J. DePinto, and D. Scavia. 2009. Evaluating and forecasting effects of hypoxia on yellow perch habitat suitability in central Lake Erie. Indiana American Fisheries Society, Indianapolis, IN. *Best Professional Paper Award*
 101. Arend, K., T. Höök, **S.A. Ludsin**, D. Rucinski, D. Beletsky, J. DePinto, D. Scavia, and D. Schwab. 2009. Comparing effects of hypolimnetic hypoxia on yellow perch and rainbow smelt habitat suitability in central Lake Erie. International Association for Great Lakes Research, Toledo, OH.
 102. Brandt, S.B., A.T. Adamack, H. Zhang, K.M. Boswell, **S.A. Ludsin**, D.M. Mason, M.R. Roman, and W.C. Boicourt. 2009. Broad- and fine-scale effects of hypoxia on pelagic fish in the northern Gulf of Mexico. Coastal and Estuarine Research Federation, Portland, OR.
 103. Carreon-Martinez, L.B., D.D.D. Heath, **S.A. Ludsin**, and T.B. Johnson. 2009. Yellow perch (*Perca flavescens*) larval survival in the western basin of Lake Erie estimated using genetic analysis. International Association for Great Lakes Research, Toledo, OH.
 104. Conroy, J.D., **S.A. Ludsin**, K.A. Kayle, J.T. Tyson, R.L. Knight, and H.A. Cook. 2009. Fish community structure in Lake Erie: continued rehabilitation or a return to degradation? International Association for Great Lakes Research, Toledo, OH.
 105. Legler, N.L., T.B. Johnson, D.D.D. Heath, and **S.A. Ludsin**. 2009. Influence of river plumes on feeding of Lake Erie fishes. International Association for Great Lakes Research, Toledo, OH.
 106. Pangle, K.L., D.B. Bunnell, J.M. Reichert, A. Drelich, and **S.A. Ludsin**. 2009. Yellow perch larval habitat quality in western Lake Erie. International Association for Great Lakes Research, Toledo, OH.
 107. Roberts, J.J., T.O. Höök, **S.A. Ludsin**, and S.A. Pothoven. 2009. Growth and condition of yellow perch in response to hypoxia: synthesis of lab and field results. American Fisheries Society, Nashville, TN.
 108. Roberts, J.J., T.O. Höök, **S.A. Ludsin**, P.A. Grecay, H.A. Vanderploeg, and S.A. Pothoven. 2009. Sub-daily behavioral consequences of hypoxia for yellow perch in Lake Erie's central basin. International Association for Great Lakes Research, Toledo, OH.
 109. Zhang, H., D.M. Mason, **S.A. Ludsin**, S.B. Brandt, A.T. Adamack, C. Stow, M.R. Roman, and W.C. Boicourt. 2009. Hypoxia impacts on the growth and distribution of the pelagic fish in the northern Gulf of Mexico. Coastal and Estuarine Research Federation, Biennial Conference, Portland, OR.
 110. Zhang, X., R.J. Wood, L. Bahner, E.D. Houde, **S.A. Ludsin**, L. Chakot., E.J. Martino, J.J. Pierson, and H. Townsend. 2009. Forecasting striped bass habitat suitability in Chesapeake Bay: implications for ecosystem-based fisheries management. Coastal and Estuarine Research Federation, Biennial Conference, Portland, OR.

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112. Brandt, S.B., M. Costantini, **S.A. Ludsin**, D.M. Mason, and H.A. Vanderploeg. 2008. Spatially-explicit growth predictions to assess habitat quality of walleye during hypoxia in Lake Erie. International Association for Great Lakes Research, Peterborough, ON.
113. Filbrun, J.E., **S.A. Ludsin**, and D.A. Culver. 2008. Effects of reduced feeding rate on water quality and young-of-the-year and age-1 channel catfish. Midwest Fish and Wildlife Conference, Columbus, OH.
114. Gover, T.R., M.K. Nims, J.J. Van Tassell, P.D. Collingsworth, J.W. Olesik, **S.A. Ludsin**, and E.A. Marschall. 2008. Comparison of Processing Methods for Analysis of Larval Otoliths by LA-ICPMS. Midwest Fish and Wildlife Conference, Columbus, OH. (poster)
115. Höök, T.O., D. Fanslow, J. Reichert, and **S.A. Ludsin**. 2008. Short-term growth of larval percids in river plumes of western Lake Erie. Midwest Fish and Wildlife Conference, Columbus, OH
116. Roberts, J.J., T.O. Höök, **S.A. Ludsin**, S.A. Pothoven, and H.A. Vanderploeg. 2008. Response of yellow perch to hypoxia in Lake Erie's central basin: spatial patterns. American Fisheries Society, Ottawa.
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118. Smith, R.E.H., **S.A. Ludsin**, and D.M. Mason. 2008. Physical processes and fish recruitment in the World's Great Lakes. **Ludsin, S.A.**, T.O. Höök, D.K. Rucinski, J.V. DePinto, and D. Scavia. 2008. Historical exploration of hypoxia effects on fish recruitment and production in Lake Erie. International Association for Great Lakes Research, Peterborough, ON.
119. Zhang, X., L. Bahner, R.J. Wood, E.D. Houde, **S.A. Ludsin**, E. Annis, L.W. Harding, R.H. Kelsey, L. Chakot, and S.B. Brandt. 2008. Habitat suitability modeling for bay anchovy in Chesapeake Bay. Chesapeake Modeling Symposium, Annapolis, MD.
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122. Fryer, B.J., S. Melançon, Z. Yang, J.E. Gagnon, Y.E. Morbey, and **S.A. Ludsin**. 2007. Biomineralization in fresh water fish: a powerful tool towards solving fisheries issues requires understanding of nucleation and growth in unusual media. *Frontiers in Mineral Science* 2007, Cambridge, UK.
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125. Pothoven, S.A., **S.A. Ludsin**, H.A. Vanderploeg, and T.O. Höök. 2007. Effects of Lake Erie hypoxia on pelagic fish feeding ecology. International Association for Great Lakes Research, University Park, PA. (poster)
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135. Hand, C.H., **S.A. Ludsin**, J.E. Marsden, and B.J. Fryer. 2006. Statolith microchemistry as a tool for determining the stream origins of sea lamprey (*Petromyzon marinus*) in Lake Huron. International Association for Great Lakes Research, Windsor, ON.
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141. Kimura, M., **S. Ludsin**, E. Rutherford, J. Tyson, T. Johnson, and D. Mason. 2006. Estimating habitat quality and recruitment potential of yellow perch larvae in Lake Erie. International Association for Great Lakes Research, Windsor, ON.

142. Kimura, M., **S. Ludsin**, E. Rutherford, J. Tyson, T. Johnson, D. Mason, E. Roseman, and J. Mion. 2006. Estimating habitat quality and recruitment potential of yellow perch larvae in Lake Erie. American Fisheries Society, Lake Placid, NY. (poster)
143. Liebig, J.R., H.A. Vanderploeg, G.A. Lang, S.A. Ruberg, S. Constant, **S.A. Ludsin**, J. Cavaletto. 2006. Spatial and temporal distribution of zooplankton and chlorophyll *a* relative to oxygen concentration in the central basin of Lake Erie. International Association for Great Lakes Research, Windsor, ON.
144. Lowe, M., D. DeVries, R. Wright, **S. Ludsin**, and B. Fryer. 2006. Using otolith microchemistry to reconstruct past environments of age-0 largemouth bass and southern flounder in a seasonally saline, tidal river estuary. Ecological Society of America, Memphis, TN.
145. Roberts, J.J., T.O. Höök, **S.A. Ludsin**, and S.A. Pothoven. 2006. The effects of hypoxia on offshore stocks of yellow perch (*Perca flavescens*) in Lake Erie's central basin. International Association for Great Lakes Research, Windsor, ON.
146. Roberts, J.J., T.O. Höök, **S.A. Ludsin**, S.A. Pothoven, and G. Milanowski. 2006. Hypoxia-mediated interactions between round goby and yellow perch in central basin of Lake Erie. American Fisheries Society, Lake Placid, NY. (poster)
147. Hand, C.H., **S.A. Ludsin**, J.E. Marsden, and B.J. Fryer. 2005. Micro-elemental analysis of statoliths as a tool for tracking stream origins of sea lamprey. American Fisheries Society, Anchorage, AK. (poster)
148. Hand, C.H., **S.A. Ludsin**, J.E. Marsden, and B.J. Fryer. 2005. Micro-elemental analysis of statoliths as a tool for tracking the stream origins of sea lamprey (*Petromyzon marinus*). Society of Environmental Toxicology and Chemistry Conference, Baltimore, MD. (poster)
149. Lowe, M.R., R.A. Wright, D.R. DeVries, **S.A. Ludsin**, and B.J. Fryer. 2005. Reconstructing patterns of habitat use of two fish species in the Mobile–Tensaw Delta using otolith microchemistry. American Fisheries Society, Anchorage, AK.
150. Roberts, J.J., T.O. Höök, **S.A. Ludsin**, and S.A. Pothoven. 2005. Hypoxia-mediated interactions between round goby and yellow perch in Lake Erie's central basin. Midwest Fish and Wildlife Conference, Indianapolis, IN. (poster)
151. **Ludsin, S.A.**, D.M. Mason, S.B. Brandt, X. Zhang, and M. Roman. 2004. A spatially explicit modeling evaluation of factors that regulate growth rate potential and distribution of bay anchovy in Chesapeake Bay. American Fisheries Society, Madison, WI.
152. Bartnik, S.E., T.J. Johnson, **S.A. Ludsin**, and B.J. Fryer. 2004. Mixed stock analysis of a walleye cohort in the western basin of Lake Erie. International Association for Great Lakes Research, Waterloo, ON. (poster)
153. Mora, C., P.M. Chittaro, P.F. Sale, J.P. Kritzer, and **S.A. Ludsin**. 2004. Determinants of diversity patterns of coral reef fishes. Ocean Sciences Meeting, Honolulu, HA.
154. **Ludsin, S.A.**, X. Zhang, L.W. Florence, M.R. Roman, and S.B. Brandt. 2003. A multi-scale analysis of factors that influence spatial distributions of bay anchovy in Chesapeake Bay. American Fisheries Society, Québec City, Canada.
155. Bartnik, S.E., T.B. Johnson, **S.A. Ludsin**, P.F. Sale, B.J. Fryer, and J.T. Tyson. 2003. Environmental influences on walleye YOY cohorts in Lake Erie. The 3rd International Percid Fish Symposium, Madison, WI.
156. Florence, L.W., **S.A. Ludsin**, W.C. Boicourt, M.R. Roman, and S.B. Brandt. 2003. Effects of the Chesapeake Bay hydraulic control point on zooplankton and bay anchovy distributions. American Fisheries Society, Québec City, Canada.
157. **Ludsin, S.A.**, B.J. Fryer, J.B. Mion, E.F. Roseman, P.F. Sale, and R.A. Stein. 2002. Otolith microchemistry as a tool to identify stock structure in Lake Erie yellow perch. American Fisheries Society, Baltimore, MD.

158. **Ludsin, S.A.**, M.W. Kershner, F.J. Rahel, R.A. Stein, R.L. Knight, K.A. Kayle, and C.T. Knight. 1997. The Lake Erie fish community: a never-ending story of change. American Fisheries Society, Monterey, CA.
159. **Ludsin, S.A.**, and D.R. DeVries. 1994. A mechanistic approach to understanding first-year growth and survival of largemouth bass *Micropterus salmoides*: the role of hatch date, gizzard shad *Dorosoma cepedianum*, and overwinter mortality. Ecological Society of America, Knoxville, TN.
160. **Ludsin, S.A.**, and D.R. DeVries. 1994. Recruitment of largemouth bass *Micropterus salmoides*: the role of hatch date, gizzard shad *Dorosoma cepedianum*, and overwinter mortality. American Fisheries Society, Halifax, Nova Scotia.
161. **Ludsin, S.A.**, and D.R. DeVries. 1994. Size-dependent overwinter mortality of young-of-year largemouth bass. Alabama Fisheries Association, Gulf Shores, AL

AWARDS AND HONORS RECEIVED

Best student presentation. Indiana and Ohio Chapters of the American Fisheries Society, Muncie, IN, 2017.

- Dillon, R., J.D. Conroy, and **S.A. Ludsin**. 2017. Determining potential bias by *Chaoborus* during hydroacoustic surveys of prey fish biomass in Ohio reservoirs.

Chandler-Misener Award, International Association for Great Lakes Research, 2015.

- Most notable paper in the *Journal of Great Lakes Research* during 2014.
- Scavia, D., J.D. Allan, K.K. Arend, S. Bartell, D. Beletsky, N.S. Bosch, S.B. Brandt, R.D. Briland, I. Daloglu, J.V. DePinto, D.M. Dolan, M.A. Evans, T.M. Farmer, D. Goto, H. Han, T.O. Höök, R. Knight, **S.A. Ludsin**, D. Mason, A.M. Michalak, R.P. Richards, J.J. Roberts, D.K. Rucinski, E. Rutherford, D.J. Schwab, T. Sesterhenn, H. Zhang, and Y. Zhou. Assessing and addressing the re-eutrophication of Lake Erie: central basin hypoxia. *Journal of Great Lakes Research* 40:226–246.

Invited speaker. Growth–Survival Paradigm in Early Life Stages of Fish: Controversy, Synthesis, and Multidisciplinary Approach Symposium. Yokohama, Japan, 2015.

Keynote address. 38th Annual Larval Fish Conference, American Fisheries Society, Québec City, Canada, 2014.

- **Ludsin, S.A.**, T.O. Höök, E.F. Roseman, E.S. Rutherford, D.A. DeVanna, and R.E.H. Smith. 2014. Early life stage investigations of fish recruitment in the North American Great Lakes: misconceptions and contributions to general recruitment theory.

Best student presentation runner-up. International Association for Great Lakes Research, Hamilton, Ontario, 2014.

- May, C.J., E.A. Marschall, M. Kulasa, E.F. Roseman, W.W. Taylor, and **S.A. Ludsin**. Larval walleye recruitment and zooplankton availability: testing the match-mismatch hypothesis in Lake Erie.

Most outstanding poster. Natural and Mathematical Sciences Undergraduate Research Forum, Organismal Biology Division, OSU.

- Corey, M.M., K.Y. Chen, E.A. Marschall, J.W. Olesik, and **S.A. Ludsin**. Otolith microchemistry as a tool to discriminate between river-spawning populations of walleye in Lake Erie.

Best student presentation. American Fisheries Society – Ohio Chapter, Columbus, 2014.

- Farmer, T.M., E.A. Marschall, K. Dabrowski, and **S.A. Ludsin**. Climate change effects on Lake Erie yellow perch reproduction and recruitment.

Most outstanding poster. Natural and Mathematical Sciences Undergraduate Research Forum, Organismal Biology Division, OSU, 2012.

- Lang, K.J., K.L. Pangle, J.D. Conroy, S. Goonewardena, and **S.A. Ludsin**. Hypoxia as a mediator of food web interactions and energy flow in reservoir ecosystems.

Best Professional Presentation. American Fisheries Society – Ohio Chapter, Ashland, 2012.

- Filbrun, J.E., D.A. Culver, and **S.A. Ludsin**. Does artificial feed enhance age-0 channel catfish growth?

Best Professional Paper. American Fisheries Society – Indiana Chapter, Indianapolis, 2009.

- Arend, K., T. Höök, **S. Ludsin**, D. Rucinski, J. DePinto, and D. Scavia. 2009. Evaluating and forecasting effects of hypoxia on yellow perch habitat suitability in central Lake Erie.

Best Student Paper. American Fisheries Society-Michigan Chapter, Monroe, 2009.

- Roberts, J.J., T.O. Höök, **S.A. Ludsin**, S.A. Pothoven, and H.A. Vanderploeg. Implications of hypoxia for yellow perch habitat quality in Lake Erie’s central basin: a spatially-explicit bioenergetics modeling approach.

Faculty Recognition Award for Outstanding Research Mentorship, Undergraduate Research Opportunities Program (UROP), University of Michigan, 2007.

Director’s Award for Outstanding Effort. NOAA-GLERL, 2006.

Employee of the Year. NOAA-GLERL, 2005.

Special Service Award. NOAA-GLERL, 2005.

Director’s Award for Leadership and Initiative. NOAA-GLERL, 2003 and 2004.

Director’s Award for Volunteerism. NOAA-GLERL, 2004, 2005, and 2006.

IAGLR-Hydrolab Best Student Poster Award Runner-up. International Association for Great Lakes Research, Waterloo, ON, 2004.

- Bartnik, S.E., T.J. Johnson, **S.A. Ludsin**, and B.J. Fryer. Mixed stock analysis of a walleye cohort in the western basin of Lake Erie (Out of 100 posters)

DIALOG Symposium Participant. Bermuda Biological Station for Research, 2001

- One of 40 Ph.D. recipients worldwide invited to participate in a symposium designed to ‘catalyze cross-disciplinary and international understanding and collaborations’
- Sponsors: NSF, NOAA, NASA, ASLO, Whitman College, and the EU

University Presidential Fellowship. OSU, 1999

- Recognized for ‘outstanding scholarly accomplishment and potential in doctoral students’

John E. Skinner Memorial Award. American Fisheries Society, Halifax, Nova Scotia, 1994

- For academic achievement, and professional service and promise, in fishery science, 1994

Gamma Sigma Phi Honor Society of Agriculture, Alabama Chapter, 1993

Golden Key National Honor Society, Miami University, 1991

PROFESSIONAL SERVICE & SYNERGISTIC ACTIVITIES

Proposal Peer Review Panel, Great Lakes Fishery Trust, 2017.

Associate Editor, *Journal of Great Lakes Research*, 2015-present.

Management Council, Cooperative Institute for Limnology and Ecosystem Research, University of Michigan, Ann Arbor, 2015-present.

Climate Change Outreach Team, Ohio Sea Grant College Program, 2011-present.

Advisory Committee Member, Ohio Sea Grant College Program, 2010-present.

Advisory Committee Member, Stone Laboratory, 2010-present.

Advisory Committee Member, Center for Lake Erie Area Research (CLEAR), 2010-present.

Advisory Committee Member, Great Lakes Aquatic Ecosystem Research Consortium, 2010-present.

- Attended by ~130 scientists including 70 Ohio DNR biologists

Board of Technical Experts (BOTE), Great Lakes Fishery Commission, 2007-present.

- Proposal review panel member for Fisheries Research Program
- Co-developer of the research theme “Physical Processes and Fish Recruitment in Large Lakes”.

Symposium co-chair, American Geophysical Union, San Francisco, CA, 2016.

Symposium: “New frontiers in water resources: Achieving water resource security in times of climate change, urbanization, and agricultural expansion”.

External Evaluator, Cornell University, Dept. of Natural Resources, Faculty Promotion, 2016.

Co-coordinator & moderator, OSU-Ohio DNR-Division of Wildlife Lake Erie-Inland Waters Annual Research Review Meeting, Columbus, OH, annually during 2014-2016.

External Evaluator, Czech Academy of Sciences, Biological Sciences Division, 2015.

Co-organizer, “Hierarchical Modeling” Workshop, Columbus, OH, 2015.

Symposium co-chair, International Association for Great Lakes Research, Burlington, VT, 2015.

Symposium: “Anthropogenic influences on aquatic food webs”.

Technical Advisory Committee, Healing Our Waters-Great Lakes Coalition, 2009-2015.

Reverse Site Visit Review Panelist, Experimental Program to Stimulate Competitive Research (EPSCoR) Program, National Science Foundation, 2014.

External Reviewer, Canadian Foundation for Innovation competition, Office of Research and Innovation, University of Toronto, Toronto, 2014.

Technical Review Board Member, Lake Erie Percid Management Advisory Group, 2014.

Co-organizer/Steering Committee Co-Chair, “Modeling tools for analysis and forecasting of fish recruitment and its response to physical processes” Workshop, Huron, OH, 2014.

Symposium co-chair, International Association for Great Lakes Research, Hamilton, ON, 2014.

Symposium: “Physical processes and biological dynamics in the changing Great Lakes of the world”.

Co-organizer, “Echoview training” Workshop, Columbus, OH, 2014.

Participant, Aquatic Invasive Species Impacts on the Great Lakes Ecosystems workshop, Cornell University, Ithaca, NY, 2014.

Co-organizer/Steering Committee Co-Chair, “Physical-biological coupling as a driver of fish recruitment under changing ecosystem states” Workshop, Huron, OH, 2013.

Symposium co-chair, International Association for Great Lakes Research, West Lafayette, IN, 2013.

Symposium: “Physical processes as drivers of population, community, and ecosystem structure, function, and dynamics in large lake ecosystems”.

Symposium co-chair, International Association for Great Lakes Research, West Lafayette, IN, 2013.

Symposium: “Using environmental gradients to link patterns and processes in complex ecosystems”.

TAcLE (Taking Action on Lake Erie) Work Group, International Joint Commission Science Advisory Board, 2012-2013.

Expert scientist, University of Notre Dame, 2012.

- Provide expert advice on potential impacts of Asian Carp on Great Lakes food webs.

Co-organizer/Steering Committee Co-Chair, “Physical-biological coupling and fish recruitment in large lakes: State of knowledge and opportunities for progress” Workshop, Romulus, MI, 2011.

Cooperative Institute for Limnology and Ecosystems Research (CILER) Council of Fellows, member, University of Michigan, 2011-present.

Review Panel Member, Population & Community Ecology, Division of Environmental Biology, National Science Foundation, 2010.

Expert Reviewer, Report entitled “Trace element and isotopic compositions of otoliths from two bighead carp collected in the Chicago area”, Southern Illinois University, 2010 (see <http://asiancarp.org/>).

Symposium co-chair, International Association for Great Lakes Research, Toledo, OH, 2009. Symposium: “Physical and Chemical Drivers of Great Lakes Fish Ecology”.

Panel Member, Climate Change in the Great Lakes Region Conference, Michigan State University, East Lansing, MI, 2008.

Symposium co-chair, International Association for Great Lakes Research, Peterborough, Ontario, 2008.
Symposium: “Physical processes and fish recruitment in the world's Great Lakes”.

Associate Editor, *Transactions of the American Fisheries Society*, 2005-2008.

Steering Committee Member, Ecological Impacts of Hypoxia Workshop, Bay St. Louis, MS, 2007.

Economic Impacts of Great Lakes Restoration Strategic Team Member, 2006-2007.

- Assessed benefits of proposed \$20B for Great Lakes restoration, as part of a Council of Great Lakes Industries, Healing Our Waters Coalition, and Brookings Institution study

Symposium co-chair, International Association for Great Lakes Research, University Park, PA, 2007.
Symposium: “Lake Erie Hypoxia and HABS: the IFYLE Program and Beyond”.

Symposium co-chair, American Society of Limnology and Oceanography winter meeting, Santa Fe, NM, 2007. Symposium: “Hypoxia impacts on aquatic food web composition, dynamics, and production”.

Lake Erie Lakewide Management Plan (LaMP) Working Group Member, 2005-2007.

Non-indigenous Invasive Species Working Group Member, NOAA-GLERL, 2003-2007

Symposium co-chair, International Association for Great Lakes Research, Windsor, ON, 2006.
Symposium title: “Hypoxia in large lake ecosystems: causes and consequences”.

Symposium co-chair, International Association for Great Lakes Research, Ann Arbor, MI, 2005.
Symposium title: “Anthropogenic Effects on Great Lakes Aquatic Food Webs”.

Co-organizer, Lake Erie Science Planning Workshop, NOAA-GLERL, 2004.
• >50 researchers and managers from the US and Canada

World Bank Connectivity Working Group participant, 1st meeting, Miami, FL, 2002

- A global effort to develop a long-term research program to understand coral reef connectivity

Great Lakes Commercial Catch Data Co-Coordinator, Great Lakes Fishery Commission, 1998-2000

- Compiled a Great Lakes commercial and tribal fisheries harvest database for the GLFC, 1998-2000

Ecosystem Objectives Subcommittee Member, Lake Erie Lakewide Management Plan, 1997-2000.

- Lead statistician, helped agencies identify future management objectives for Lake Erie

Lake Erie Forage Task Group participant, Port Dover, ON, 1997

Proposal Peer Reviewer (ad hoc):

- Alaska Sea Grant
- Connecticut Sea Grant
- Great Lakes Fishery Commission
- Great Lakes Fishery Trust
- European Science Foundation
- Maryland Sea Grant
- Michigan Sea Grant
- Mississippi-Alabama Sea Grant
- Oregon Sea Grant
- Natural Sciences and Engineering Research Council of Canada (NSERC)
 - Discovery Program
- National Science Foundation
 - Biological Oceanography Program
 - International Research Fellowship Program
 - Population & Community Ecology Program
- NOAA
 - CSCOR &
 - CAMEO Program
 - National Marine Fishery Service
- National Undersea Research Center (UNC-Wilmington)
- Ohio State University OARDC Seeds Program
- Rhode Island Sea Grant College Program

Journal Peer Reviewer (ad hoc):

- *Biological Invasions*
- *Canadian Journal of Fisheries and Aquatic Sciences*
- *Ecological Applications*
- *Ecological Monographs*
- *Ecology*
- *Ecosystems*
- *Environmental Biology of Fishes*
- *Environmental Management*
- *Environmental Science & Technology*
- *Fisheries*
- *Fisheries Oceanography*
- *Fishery Bulletin*
- *Freshwater Biology*

- *Global Change Biology*
- *Hydrobiologia*
- *ICES Journal of Marine Science*
- *Journal of Experimental Marine Biology & Ecology*
- *Journal of Great Lakes Research*
- *Journal of Thermal Biology*
- *Limnology and Oceanography*
- *Marine and Freshwater Research*
- *Marine Ecology Progress Series*
- *Nature Education*
- *North American Journal of Fisheries Management*
- *Oecologia*
- *PLOS ONE*
- *Rapid Communications in Mass Spectrometry*
- *Science of the Total Environment*
- *Transactions of the American Fisheries Society*

Textbook Peer Reviewer (ad hoc):

- Simbio Software (SimUText electronic textbook)
- Oxford University Press (undergraduate ecology textbook)

ACADEMIC MENTORING

Post-doctoral Research Supervisor (current)

- Joshua Stone (Ph.D. VIMS /College of William & Mary, VA), 2017-present
- Alex Chen (Ph.D. at OSU, Columbus, OH), 2016-present.
- Manjunath Manubolu (Ph.D. at Sri Venkateswara University, Tirupathi, India), 2015-present
- Noel Aloysius (Ph.D. at Yale University, New Haven, CT), 2014-present

Post-doctoral Research Supervisor (past)

- Michael Fraker (Ph.D. at University of Michigan, Ann Arbor), 2012-2016 (Current: Senior Research Associate, OSU, Columbus, OH)
- S. Conor Keitzer (Ph.D. at Purdue University, West Lafayette, IN), 2013-2016 (Current: Assistant Professor, Tusculum College, Greenville, TN)
- Cassie May (Ph.D. at OSU), 2015. (Current: Assistant Professor, Bethel College, Mishawaka, IN)
- Troy Farmer (Ph.D. at OSU), 2013-2014 (Current: Assistant Professor, Clemson University, Clemson, SC)
- Seyoum Gebremariam (Ph.D. at Washington State University), 2012-2014 (Current: Principal Limnologist, Metropolitan Water District Water Quality Laboratory, La Verne, CA)
- Paul Hurtado (Ph.D. at Cornell University), 2011-2014 (Current: Assistant Professor, Statistics and Math Department, University of Nevada, Reno)
- Kristen DeVanna (Ph.D. at University of Toledo), 2011-2014 (Current: Assistant Director of Administration and Research, Ohio Sea Grant College Program & Stone Laboratory, Columbus)
- Kevin Pangle, EEOB, 2007-2011 (Current: Assistant Professor, Department of Biology, Central Michigan U, Mt. Pleasant)
- Geoff Hosack, EEOB, 2007-2008 (Current: Research Scientist, Australia's Commonwealth Scientific and Industrial Research Organisation, Hobart, Tasmania)
- Hongyan Zhang, NOAA-GLERL, 2006-2007 (Current: Research Associate, Cooperative Institute for Limnology and Ecosystems Research, U of Michigan, Ann Arbor)

Graduate Student Advisor (current)

- Zoe Almeida, Ph.D., EEOB, OSU, 2016-present (co-advisor: E. Marschall)
- David Dippold, Ph.D., EEOB, OSU, 2016-present
- Andrew Bade, Ph.D., EEOB, OSU, 2015-present
- Corey Becher, PhD, EEOB, OSU, 2015-present
- Rebecca Dillon, Ph.D., EEOB, OSU, 2015-present
- Ruth Briland, Ph.D., EEOB, OSU, 2011-present

Graduate Student Advisor (past)

- Alex Chen, Ph.D., EEOB, OSU, 2010-2016 (co-advisor: E. Marschall)
- Reed Brodnik, M.S., EEOB, OSU, 2012-2015
- Cassie May, Ph.D., EEOB, OSU, 2010-2015 (co-advisor: E. Marschall)
- Troy Farmer, Ph.D., EEOB, OSU, 2008-2013 (co-advisor: E. Marschall)
- Jesse Filbrun, Ph.D., EEOB, OSU, 2008-2013 (co-advisor: D. Culver)
- Emily (Sopkovich) Burbacher, M.S., EEOB, OSU, 2008-2011
- Ruth Briland, M.S., EEOB, OSU, 2008-2010 (co-advisor: D. Culver)
- Erica Brumbaugh, M.S., Environmental Sciences, OSU, 2008-2010 (co-advisor: D. Culver)
- Bryan Kinter, M.S., EEOB, OSU, 2008-2010
- Julie Reichert, M.Sc., Environmental Studies, U of Windsor, 2006-2009 (co-advisor: B. Fryer)
- Carrol Hand, M.Sc., Environmental Studies, U of Windsor, 2004-2006 (co-advisor: B. Fryer)

Graduate Committee Member (current)

- Bryan Blawut, Ph.D., Veterinary Preventative Medicine, OSU, 2017-present.
- Salvatore Sidoti, Ph.D., EEOB, OSU, 2016-present.
- Amara Huddleston, M.S., EEOB, OSU, 2015-present.
- Kaitlin Kinney, M.S., School of Environment and Natural Resources, OSU, 2015-present
- Chelsey Nieman, Ph.D., School of Environment and Natural Resources, OSU, 2015-present

Graduate Committee Member (past)

- Matthew Holding, Ph.D., EEOB, OSU, 2013-2017
- Bryan Blawut, M.S., Veterinary Preventative Medicine, OSU, 2016-2017
- Zoe Almeida, M.S., Forestry and Natural Resources, Purdue University, 2014-2016
- Andreas Culbertson, M.S., Food, Agriculture, and Biological Engineering, 2014-2015
- David Wituszynski, MS, Food, Agricultural, and Biological Engineering, 2013-2014
- Sarah Smiley, Ph.D., EEOB, OSU, 2012-present
- Alicia Campbell, MS, Environmental Sciences, OSU, 2012-2013
- Anthony Fries, Ph.D., EEOB, OSU, 2011-2015
- Jahn Kallis, Ph.D., EEOB, OSU, 2009-2013
- Nathan Manning, Ph.D., Earth, Ecological & Environmental Sciences, U of Toledo, 2007-2013
- Thomas Evans, M.S., Evolution, Ecology & Organismal Biology, OSU, 2009-2012
- Paul Nunley, Ph.D., EEOB, OSU, 2008-2012
- Lucia Carreon-Martinez, Ph.D., Environmental Sciences, U of Windsor, 2006-2012
- Jhonatan Sepulveda Villet, Ph.D., Environmental Sciences, U of Toledo, 2006-2011
- Christina Back, M.S., EEOB, OSU, 2008-2010
- Paris Collingsworth, Ph.D., EEOB, OSU, 2004-2009
- James Roberts, Ph.D., School of Natural Resources, U of Michigan, 2006-2009
- Todd Hayden, Ph.D., Biological Sciences, Bowling Green State U, 2006-2009
- Adam Thompson, M.S., Evolution, Ecology & Organismal Biology, OSU, 2007-2009
- Nick Legler, M.Sc., Environmental Sciences, U of Windsor, 2006-2009
- Colleen Wellington, M.S., Earth, Ecological and Environmental Sciences, U of Toledo, 2006-2008
- Jennell Bigrigg, M.S., Evolution, Ecology & Organismal Biology, OSU, 2004-2008
- Michael Lowe, M.S., Fisheries & Allied Aquacultures, Auburn U, 2004-2007
- Chelsea Lumb, M.Sc., Biological Sciences, U of Windsor, 2003-2005
- Sarah Bartnik, M.Sc., Biological Sciences, U of Windsor, 2003-2005
- Jim Bales, M.S., Biological Sciences, Bowling Green State U, 2003-2004

Advisor of undergraduate independent research projects

- Taylor Brown (thesis), 2016-2017 (co-advised with M. Fraker)
- Stephen Hadick (honors thesis), 2016-2017
- Madelyn Strahan (thesis), 2016-2017

- Alex Kua, EEOB (honors thesis), 2014-2016
- Anissa Powell (thesis), EEOB, 2015
- Katie Clemons (thesis), EEOB, OSU, 2014-2015
- Morgan Corey, EEOB, (honors thesis), OSU, 2013-2014
- Matt Hodanbosi, EEOB (honors thesis), OSU, 2013-2014
- Allison McLaughlin, EEOB, OSU, 2013-2014 (co-advised with I. Hamilton)
- Reed Brodник, EEOB (honors thesis), OSU, 2011-2012
- Kathryn Lang, EEOB, OSU (honors thesis), 2011-2012
- Christopher French, EEOB, OSU, 2010-2011
- Austin Gerber, EEOB, OSU, 2010
- Jason Gilliland, Biology, 2010
- Timothy Malinich (thesis), Zoology, OSU, 2009-2010
- Matthew Shanks, EEOB, OSU, 2008-2009
- Aaron Wibberley (Biology), EEOB, OSU, 2008
- Jennifer Metes, School of Natural Resources, U of Michigan, 2007
- Elizabeth Graham (thesis), School of Natural Resources, U of Michigan, 2004
- Heidi (Shoup) Mack (honors thesis), Department of Zoology, OSU, 1996-1998
- William Pine, Department of Fisheries and Allied Aquacultures, Auburn U, 1994-1998

Advisor of University of Michigan Undergraduate Research Opportunities Program (UROP) students

- Krista Latta, 2007-2008
- Sam Upton and Alex Bajcz, 2006-2007
- Grace Milanowski and Christopher Rae, 2005-2007
- David Jablonski, 2006
- Lara Ghisleni and Emily Swab, 2005-2006

Advisor for Great Lakes Summer Student Fellows (at NOAA-GLERL)

- 1-4 students per year, 2003-2008

Advisor of High School Summer Interns, St. Charles Preparatory School, Columbus

- 2 students per year, 2014-2016

DEPARTMENTAL & UNIVERSITY SERVICE

Graduate Studies Committee, EEOB, OSU, 2015-present

Communications Committee, Chair, EEOB, OSU, 2015-present

Promotion & Tenure Committee, EEOB, OSU, 2013-present

Aquatic Ecosystems Ecologist Faculty Search Committee, EEOB, OSU, 2014-2015

Graduate Faculty Representative, College of Arts and Sciences, OSU, 2010, 2011, 2014, 2016

Poster Judge, Denman Undergraduate Research Forum, OSU, 2014

Poster Judge, Edward F. Hayes Graduate Research Forum, OSU, 2014

Graduate Studies Committee, EEOB, OSU, 2013-2014

Social Events Committee, Chair, EEOB, OSU, 2012-2014

Advisory Committee to the Chair, EEOB, OSU, 2011-2014

Abstract Judge, Edward F. Hayes Graduate Research Forum, OSU, 2013

Department of EEOB Chairperson Search Committee, 2013

Graduate Admissions Committee, EEOB, OSU, 2010-2012

Ecology Curriculum, EEOB, OSU, 2009-2012

Seminar Committee, Co-chair, EEOB, OSU, 2007-2010

Campus Campaign Fundraising Committee, College of Biological Sciences, OSU, 2008

Advisory Committee to the Chair, Student Representative, EEOB, OSU, 1998-2000

Renaming Committee, Student Representative, Zoology, OSU, 1997-1998

PROFESSIONAL ORGANIZATION MEMBERSHIP

American Association for the Advancement of Science

American Cichlid Association

American Fisheries Society

- **Evaluator** of student posters/papers, 2000 and 2002
- **President**, Auburn University Chapter of AFS, Auburn, AL, 1993-1994
- **Treasurer**, Auburn University Chapter of AFS, 1992-1993

American Institute of Biological Science

American Society of Limnology and Oceanography

Ecological Society of America (ESA)

- **Appointed ESA Scientific Planning Committee Representative**, EcoSummit 2012 International Conference, 2011-2012

International Association for Great Lakes Research

- **Board of Directors**, elected U.S. representative, 2012-2015
- **Nominations Committee Chair**, 2012-2015
- **Expert Panel Member**, 2008-present
- **Publications Committee member**, 2014-2015
- **Paul W. Rodger's Scholarship Evaluations Panel**, member, 2015
- **IAGLR Scholarship Evaluations Panel**, member, 2014
- **Norman S. Baldwin Scholarship Evaluations Panel**, member, 2002, 2008, and 2013
- **Evaluator** of student papers, 2014

Sigma Xi

PUBLIC OUTREACH ACTIVITIES

Co-organizer of Museum of Biological Diversity Open House, Columbus, OH, 2017.

- Helped organize multiple interactive exhibits on aquatic food webs (~1,500 visitors)

Co-coordinator of high school student research internships, Columbus, OH.

- St. Charles Preparatory School, Columbus, OH, summer 2014-2016 (2-3 students per year)

Co-coordinator of student visits, Aquatic Ecology Laboratory, OSU, Columbus, OH.

- Indianola K-8 (~30 students), Columbus, OH 2016
- Columbus Academy High School (~15 students), Columbus, OH 2016
- OSU Mathematical Biosciences Institute Undergraduate Program (22 students), Columbus, OH 2010
- Women in Science Day (~60 students), 1997, 2010
- Higher Education Council of Columbus (44 students), 1996
- Columbus Alternative High School (~30 students), 1995

K-12 Education Panel Member, Worthington, OH, 2017.

- Elevate: A Worthington Community Conversation on Creativity, Innovation, and Education

Guest Lecturer/Presenter

- 6th Grade Science Class, Worthington Estates Elementary School, 2017
- Buckeye Friends of Stone Lab, Columbus, OH, 2016
- OSU, EEOB 8896, 2014
- OSU, MBI Summer Undergraduate Program, Columbus, 2014-2015
- Purdue University, Forestry and Natural Resources, West Lafayette, IN, 2011
- OSU, EEOB 881/8894, 2008-2016

- Stuart Allen Ludsin -

- OSU, RUMBA Program, 2009
- University of Michigan, School of Natural Resources, Ann Arbor, 2007
- Eastern Michigan University, Limnology Class, 2006
- Robotics Club (K-12 students), Ann Arbor, MI, 2005
- Monroe Public High School, Monroe, MI, 2005
- Bowling Green State University, Limnology Class, 2004-2006
- University of Windsor, Biological Sciences, Windsor, ON, Canada, 2001

NOAA Ocean Sciences Bowl Volunteer, University of Michigan, Ann Arbor, MI, 2003-2006.

Public Lecturer, Lakeside Chautauqua Environmental Stewardship Educational Seminar Series, Lakeside, OH, 2013.

- Climate change impacts on fishes of the Great Lakes

Scientific Panel Member, Society of Environmental Journalists meeting, Austin, TX, 2005.

Science fair judge

- Worthington Estates Elementary School, 2017
- Worthington Kilbourne High School, 2015, 2017
- St. Agatha Middle School, Columbus, OH, 1994-2000