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#### **Professional Experience**

Professor, EEOB, The Ohio State University. 2011 - present  
Chair, EEOB, The Ohio State University. 2013 - 2017  
Associate Professor, EEOB, The Ohio State University. 1999 – 2010  
Associate Director, Mathematical Biosciences Institute, The Ohio State University. 2006 - 2009  
Assistant Professor, EEOB (formerly Zoology), The Ohio State University. 1992 – 1999  
Postdoctoral Researcher in Zoology, North Carolina State University, sponsored by Electric Power Research Institute, California. 1992  
Lucas Graduate Fellow in Biomathematics, J. Francis Allen Graduate Fellow in Fisheries, CompMech Fellowship in Population Dynamics, and Teaching Assistant in Zoology at North Carolina State University. 1985-1991

#### **Education**

The Ohio State University, B.S. in Natural Resources, *cum laude*, 1979.  
The Ohio State University, M.S. in Zoology, 1984.  
North Carolina State University, Ph.D. in Zoology (Biomathematics minor), 1991.

#### **Peer-reviewed Publications**

(\*indicates graduate student author; \*\*indicates undergraduate student author)

- \*Chen, K-Y, S. A. Ludsin, \*\*M. M. Corey, \*P. D. Collingsworth, \*\*M. K. Nims, J. W. Olesik, K. Dabrowski, J. J. van Tassell, 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*, 2017, 74:693-701
- DuFour, M.R., \*May, C.J., Roseman, E.F., Ludsin, S.A., Vandergoot, C.S., Pritt, J.J., Fraker, M.E., Davis, J.J., Tyson, J.T., Miner, J.G, Marschall, E.A., and Mayer, C. 2015. Portfolio theory as a management tool to guide conservation and restoration of multi-stock fish populations. *Ecosphere*, 6(12), pp.1-21.
- Fraker, M.E., E. J. Anderson, \*C. J. May, \*K. 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, 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.
- \*Farmer, T.M., E.A. Marschall, K Dabrowski, and S.A. Ludsin. 2015. Short winters threaten temperate fish populations. *Nature communications*, 6.
- \*Kallis, J. L., and E. A. Marschall. 2014. How body size and food availability influence first-winter growth and survival of a stocked piscivore. *Transactions of the American Fisheries Society* 143: 1434-1444.
- \*\*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.
- \*Beuchel, J., E. A. Marschall, D. D. Aday. 2013. Energy allocation patterns in a multiple-spawning sunfish: evidence for an income-based reproductive strategy. *Fisheries Management and Ecology* 20: 508-517.
- Dabrowski, K., M. Korzeniowska, \*T. Farmer, S. Ludsin, and E. Marschall. 2013. The function of wax esters in larval fish transition from endogenous to exogenous nutrition—are fresh-water fish the exception or the rule?

- C. I. Hendry, Ed. Larvi 2013: Fish and Shellfish Larviculture Symposium. *Communications in Agricultural and Applied Biological Sciences* 78(4): 102-3.
- \*May, C. J., D. D. Aday, R. S. Hale, J. C. S. Denlinger, and E. A. Marschall. 2012. Modeling habitat selection of a top predator: considering growth and physical environments in a spatial context. *Transactions of the American Fisheries Society* 141:215-223. [DOI:10.1080/00028487.2012.655122]
- \*Collingsworth, P.D. and E. A. Marschall. 2011. Spatial and temporal patterns in maternal energetic traits in Lake Erie yellow perch (*Perca flavescens*). *Freshwater Biology* 56: 2500-2513. [DOI: 10.1111/j.1365-427.2011.02675.x]
- Marschall, E. A., M. E. Mather, D. L. Parrish, G. W. Allison, and J. R. McMenemy. 2011. Migration delays caused by anthropogenic barriers: modeling dams, temperature, and success of migrating salmon smolts. *Ecological Applications* 21:3014–3031. [DOI: 10.1890/10-0593.1]
- \*Collingsworth, P.D. and E. A. Marschall. 2011. Identifying relationships between catches of spawning-condition yellow perch and environmental variables in the western basin of Lake Erie. *Transactions of the American Fisheries Society* 140:31-36. [DOI: 10.1080/03632415.2011.10389093]
- Rinchard, J., K. Ware, K. Dabrowski, \*J. J. Van Tassell, E. A. Marschall, R. A. Stein. 2011. Egg thiamine concentration affects embryo survival in Lake Erie walleye. *Environmental Biology of Fishes* 90:53-60. [doi: 10.1007/s10641-010-9717-7]
- \*Collingsworth, P.D., \*J. J. Van Tassell, J. W. Olesik, and E. A. Marschall. 2010. Effects of temperature and elemental concentration on the chemical composition of juvenile yellow perch (*Perca flavescens*) otoliths. *Canadian Journal of Fisheries and Aquatic Sciences* 67: 1187-1196.
- Devries, D.R., E.A. Marschall, and R.A. Stein. 2009. Exploring the peer review process: what is it, does it work, and can it be improved? *Fisheries* 34:270-279.
- Garvey, J.E., R.A. Wright, and E. A. Marschall. 2009. Searching for threshold shifts in spawner-recruit data. *Canadian Journal of Fisheries and Aquatic Sciences* 66:312-320.
- \*Spoelstra, J. A., R. A. Stein, J. A. Royle, and E. A. Marschall. 2008. Movement of reservoir-stocked riverine fish between tailwater and rivers. *Transactions of the American Fisheries Society* 137: 1530-1542.
- \*Steinhart, G.B., E.S. Dunlop, M.S. Ridgway, and E.A. Marschall. 2008. Should I stay or should I go? Optimal parental care decisions of a nest-guarding fish. *Evolutionary Ecology Research*.10: 351-371.
- \*Southward-Hogan, L. S., E. A. Marschall, C. L. Folt, R. A. Stein. 2007. How Non-native Species in Lake Erie Influence Trophic Transfer of Mercury and Lead to Top Predators. *Journal of Great Lakes Research* 33: 46-61.
- \*Steinhart, G.B., N.J. Leonard, R. A. Stein, and E. A. Marschall. 2005. Effects of storms, anglers, and predators on smallmouth bass nest success. *Canadian Journal of Fisheries and Aquatic Sciences* 62: 2649-2660.
- Steinhart, G. B., M.E. Sandrene, S. Weaver, R. A. Stein, and E. A. Marschall. 2005. Increased parental care cost for nest-guarding fish in a lake with hyperabundant nest predators. *Behavioral Ecology* 16:427-434.
- Asoh, K., T. Yoshikawa, R. Kosaki, and E. A. Marschall. 2004. Damage to cauliflower coral by monofilament fishing lines in Hawaii. *Conservation Biology* 18: 1645-1650.
- \*Steinhart, G. B., R. A. Stein, and E. A. Marschall. 2004. High growth rate of young-of-year smallmouth bass in Lake Erie: a benefit of round goby invasion? *Journal of Great Lakes Research* 30(3): 381-389.
- \*Steinhart, G. B., E. A. Marschall, and R. A. Stein. 2004. Round goby predation on smallmouth bass offspring in nests during experimental catch-and-release angling. *Transactions of the American Fisheries Society* 133: 121-131.
- \*Yoder, J. A., E. A. Marschall, and D. A. Swanson. 2004. The cost of dispersal: predation as a function of movement and site familiarity in ruffed grouse. *Behavioral Ecology* 15:469-476.
- Garvey, J. E. and E. A. Marschall. 2003. Understanding latitudinal trends in fish body size through models of optimal seasonal energy allocation. *Canadian Journal of Fisheries and Aquatic Sciences* 60: 938-948.

- \*Bunnell, D. B. and E. A. Marschall. 2003. Optimal energy allocation to ovaries after spawning. *Evolutionary Ecology Research* 5: 439–457.
- \*Treydte, A. C., J. B. Williams, E. Bedi, S. Ostrowski, P. J. Seddon, E. A. Marschall, T. A. Waite, and K. Ismail. 2001. In search of the optimal management strategy for Arabian oryx. *Animal Conservation* 4:239-249.
- \*Martinez, F.A. and E. A. Marschall. 1999. A dynamic model of group-size choice: optimal decisions lead to group-size variability. *Behavioral Ecology* 10:572-577.
- \*Mauck, R. A., E. A. Marschall, and P. G. Parker. 1999. Interaction of adult survival and uncertainty of paternity in parental care decisions. *The American Naturalist* 154:99-109.
- \*Kershner, M. W., D. M. Schael, R. L. Knight, R. A. Stein, and E. A. Marschall. 1999. Modeling sources of variation for growth and predatory demand of Lake Erie walleye, 1986-1995. *Canadian Journal of Fisheries and Aquatic Sciences* 56:527-438.
- \*Doherty, P.F., E.A. Marschall, and T. Grubb. 1999. Balancing conservation and economic gain: a dynamic programming approach. *Ecological Economics* 29:349-358.
- \*Kershner, M.W. and E.A. Marschall. 1998. Allocating sampling effort to equalize precision of electrofishing catch per unit effort. *North American Journal of Fisheries Management* 18:822–831.
- Marschall, E.A., D.A. Roff, T.P. Quinn, J.A. Hutchings, N.B. Metcalfe, T.A. Bakke, R.L. Saunders, and L. Poff. 1998. A framework for understanding Atlantic salmon life history. *Canadian Journal of Fisheries and Aquatic Sciences* 55(Supplement 1):48-55.
- Mion, J. B., R. A. Stein, and E. A. Marschall. 1998. River discharge drives survival of larval walleye. *Ecological Applications* 8(1): 88-103.
- Marschall, E.A. and B.M. Roche. 1998. Using models to enhance the value of information from observations and experiments. Pages 281-297. In, W.J. Reseraris and J. Bernardo (editors), *Experimental Ecology: Issues and Perspectives*. Oxford University Press, New York.
- Garvey, J.E., E.A. Marschall, and R.A. Wright. 1998. From starcharts to stoneflies: detecting relationships in continuous bivariate data. *Ecology* 79:442-447.
- Rice, J.A., L.B. Crowder, and E.A. Marschall. 1997. Predation on juvenile fishes: dynamic interactions between size- structured predators and prey. Pages 333-356. In, R.C. Chambers and E.A. Trippel (editors), *Early Life History and Recruitment in Fish Populations*. Chapman and Hall, London.
- Marschall, E.A. and L.B. Crowder. 1996. Assessing population responses to multiple anthropogenic effects: A case study with brook trout. *Ecological Applications* 6:152-167.
- Pappas, P.W., E.A. Marschall, S.H. Morrison, G.M. Durka, and C.S. Daniel. 1995. Increased coprophagic activity of the beetle, *Tenebrio molitor*, on feces containing eggs of the tapeworm, *Hymenolepis diminuta*. *International Journal for Parasitology* 25:1179-1184.
- Marschall, E.A. and L.B. Crowder. 1995. Density-dependent survival as a function of size in juvenile salmonids in streams. *Canadian Journal of Fisheries and Aquatic Sciences* 52:136-140. Erratum: volume 52:2304.
- DeAngelis, D.L, K.A. Rose, L.B. Crowder, E.A. Marschall, and D. Lika. 1993. Fish cohort dynamics: application of complementary modeling approaches. *The American Naturalist* 142:604-622.
- Rice, J.R., T.J. Miller, K.A. Rose, L.B. Crowder, E.A. Marschall, A. Trebitz, and D.L. DeAngelis. 1993. Growth rate variation and larval survival: implications of an individual-based size-dependent model. *Canadian Journal of Fisheries and Aquatic Sciences* 50:133-142.
- Crowder, L.B., J.A. Rice, T.J. Miller, and E.A. Marschall. 1992. Empirical and theoretical approaches to size-based interactions and recruitment variability in fishes. Pages 237-255 in D.L. DeAngelis and L.J. Gross (editors), *Individual-Based Models and Approaches in Ecology: Populations, Communities, and Ecosystems*. Routledge, Chapman, and Hall: New York.
- Real, L.A., E.A. Marschall, and B.M. Roche. 1992. Individual behavior and pollination ecology: implications for the spread of sexually transmitted plant diseases. Pages 492-508 in D.L. DeAngelis and L.J. Gross (editors),

Individual-Based Models and Approaches in Ecology: Populations, Communities, and Ecosystems.  
Routledge, Chapman, and Hall: New York.

- Savino, J.F., E. A. Marschall, and R.A. Stein. 1992. Bluegill growth as modified by plant density: an exploration of underlying mechanisms. *Oecologia* 89:153-160.
- Marschall, E.A., P.L. Chesson, and R.A. Stein. 1989. Foraging in a patchy environment: prey-encounter rate and residence time distributions. *Animal Behaviour* 37:444-454.
- Miller, T.J., L.B. Crowder, J.A. Rice, and E.A. Marschall. 1988. Larval size and recruitment mechanisms in fishes: toward a conceptual framework. *Canadian Journal Fisheries and Aquatic Sciences* 45:1657-1670.
- Stein, R.A., C.G. Goodman, and E.A. Marschall. 1984. Using time and energetic measures of cost in estimating prey value for fish predators. *Ecology* 65:702- 715.
- Gross, K.L., T. Berner, E. Marschall, and C. Tomcko. 1983. Patterns of resource allocation among five herbaceous perennials. *Bulletin of the Torrey Botanical Club* 110:345- 352.

### **Presentations**

(\* indicates graduate student; \*\* indicates undergraduate student)

- \*Almeida, L. Z., S. A. Ludsin, E. A. Marschall. 2017. Does food quality or quantity in early life affect fitness later in life? Annual Meeting of the Ecological Society of America, Portland, OR, August 2017
- \*Huddleston, A. L., J. M. Hood, C. J. May, S. A. Ludsin, E. A. Marschall. 2017. The Effects of warmer winters on Lake Erie zooplankton. International Association for Great Lakes Research. Detroit, MI, May 2017. (poster)
- Parrish, D.L., E. A. Marschall, M. E. Mather. 2015. Modeling Fish Migration in the Connecticut River, USA. The 2nd Mississippi-Yangtze River Basins Symposium (MYRIBS) & the 2015 China Society of Fisheries Resources and Environment Annual Meeting. October 14-18, 2015, Wuhan, China. Invited.
- Ludsin, S., \*C. May, K. Pangle, and E. Marschall. 2015. Does fast early life growth confer a recruitment advantage in freshwater fish populations? Symposium on Growth-survival paradigm in early life stages of fish: controversy, synthesis, and multi-disciplinary approach. Yokohama, Japan, November 2015. Invited.
- Glover, D., R.A. Mauck, and E. A. Marschall. 2015. Interactive effect of temperature-induced energetic benefits and shifts in feeding conditions on parental care strategies. 100th Annual Meeting of the Ecological Society of America, Baltimore, MD, August 2015. (late-breaking poster)
- \*May, C., E.A. Marschall, E. Roseman, W. Taylor, and S. Ludsin. 2015. Prey availability during the larval period regulates recruitment: evidence for the match-mismatch hypothesis. Annual Meeting of the American Fisheries Society. Portland, OR, August 2015.
- \*Chen, K-Y.\*, Ludsin, S.A., Corey, M.M., Collingsworth, P.D., \*\*Nims, M.K., Olesik, J.W., Dabrowski K., van Tassell, J.J., Marschall, E.A. 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, Oregon.
- Kulasa, M, \*C. May, E. Marschall, E. Roseman, and S. Ludsin. Impact of zooplankton availability on larval walleye diet and growth rate in western Lake Erie. International Association for Great Lakes Research. Hamilton, ON, May 2014. (poster)
- \*May, C., S. Ludsin, E. Roseman, and E. Marschall. Lake Erie walleye: the formative days. Lake Erie Waterkeeper Conference. Sylvania, OH, March 2014. Invited.
- DuFour, M., \*C. May, J. Pritt, E. Roseman, C. Mayer, S. Ludsin, E. Marschall, M. Fraker, J. Davis, J. Miner, S. Qian, C. Vandergoot, and J. Tyson. Diversity in a multi-stock system: temporal and spatial portfolio effects in Lake Erie walleye production. International Association for Great Lakes Research. Hamilton, ON, May 2014.

- \*May, C., M. Kulasa, E. Marschall, E. Roseman, W. Taylor, and S. Ludsin. Larval walleye recruitment and zooplankton availability: testing the match-mismatch hypothesis in Lake Erie. International Association for Great Lakes Research. Hamilton, ON, May 2014.
- DuFour, M., 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. 144th Annual Meeting of the American Fisheries Society, Quebec City, CANADA.
- Farmer, T. M., E. A. Marschall, K. Dabrowski, and S. A. Ludsin. 2014. Short, Warm Winters Negatively Affect Yellow Perch *Perca flavescens* Reproduction and Recruitment. 144th Annual Meeting of the American Fisheries Society, Quebec City, CANADA.
- Kemper, R. J. L. Kallis, and E. A. Marschall. 2014. Examining Ontogenetic Diet Shifts, Growth Rates and Reservoir Characteristics for Insights toward an Understanding of Variable Largemouth Bass Recruitment. 144th Annual Meeting of the American Fisheries Society, Quebec City, CANADA.
- 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. 144th Annual Meeting of the American Fisheries Society, Quebec City, CANADA.
- May, C., E. F. Roseman, S. A. Ludsin, and E. A. Marschall. 2014. Larval Habitat Quality as a Determinant of Future Growth and Recruitment. 144th Annual Meeting of the American Fisheries Society, Quebec City, CANADA.
- 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. 144th Annual Meeting of the American Fisheries Society, Quebec City, CANADA.
- \*May, C., S. Ludsin, and E. Marschall. 2013. Does available growth environment predict walleye recruitment in Western Lake Erie? International Association for Great Lakes Research, West Lafayette, IN. Invited.
- \*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. American Fisheries Society, West Virginia-Ohio chapter, Huntington, WV.
- 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.
- Hurtado, P., Y. Lou, K. Pangle, 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, 10th Annual Workshop and Conference. University of Michigan.
- \*Farmer, T.M., S.A., Ludsin, E.A. Marschall. Meteorological effects on yellow perch recruitment in Lake Erie. 2012. 142nd Annual Meeting of the American Fisheries Society. St. Paul, MN.
- \*J. L. Kallis and E. A. Marschall. 2012. Spring consequences of overwinter condition for first-year saugeye. 142nd Annual Meeting of the American Fisheries Society. St. Paul, MN.
- \*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? 142nd Annual Meeting of the American Fisheries Society. St. Paul, MN.
- \*J. L. Kallis and E. A. Marschall. Explaining first year growth and survival of *Sander* spp. using historical data analysis. 141st Annual Meeting of the American Fisheries Society, Seattle, September 2011.
- \*J. J. Van Tassell, E. A. Marschall, and R. A. Stein. The influence of demography on population dynamics of iteroparous fish species. 141st Annual Meeting of the American Fisheries Society. Seattle, September 2011.

- \*Chen, K., E. A. Marschall, S. A. Ludsin, M. K. Nims, P. D. Collingsworth, J. J. van Tassell, and J. W. Olesik .  
Temperature and elemental concentration effects on strontium incorporation in walleye (*Sander vitreus*) otoliths during early life stages. (Poster) 141st Annual Meeting of the American Fisheries Society, Seattle, September 2011.
- Gover, T.R., \*\*M.K. Nims, \*J.J. Van Tassell, \*P.D. Collingsworth, J.W. Olesik, S.A. Ludsin, and E.A. Marschall.  
How much cleaning is needed when processing larval otoliths for microchemical analysis? 141st Annual Meeting of the American Fisheries Society, Seattle, WA. September 2011.
- Pinkerton, J., \*T. Farmer, \*J. VanTassell, S. Ludsin, and E. Marschall. Understanding annual variation in female yellow perch age-at-maturity in Lake Erie. 141st Annual Meeting of the American Fisheries Society. Seattle, September 2011.
- \*Kallis, J. L., and E. A. Marschall. Factors related to growth and survival of fry- and fingerling-stocked saugeye. American Fisheries Society Annual Meeting, Pittsburgh. September 2010.
- \*Farmer, T.M., E. A. Marschall, and S. A. Ludsin. Energetic costs of climate change: winter temperature and hypoxia effects on reproduction of an iteroparous, cool-water fish. Ecological Society of America Annual Meeting, Pittsburgh. August 2010.
- \*\*Hoskins, EA, IM Hamilton, and EA Marschall. 2010. Modeling the social influences on growth in group-living fish. Animal Behavior Society Annual Meeting (poster). August 2010.
- \*Pflugeisen, B. M., C. Calder, and E. A. Marschall. A novel analysis of otolith microchemistry using Hierarchical Mixture Models in the Bayesian Framework Joint Statistical Meetings, Vancouver. August 2010.
- Marschall, E.A., M. E. Mather, and D. L. Parrish. Predicting interactive effects of climate change and dams on success of downstream-migrating salmon. Fish and Climate Change, Fisheries Society of the British Isles Annual Symposium, Belfast. July 2010.
- \*Pflugeisen, B., K. Calder, E. A. Marschall. 2009. A Bayesian mixed-model analysis of the rate of return of Lake Erie Walleye to natal spawning grounds using otolith microchemistry data. 4th International Otolith Symposium, Monterey CA, August 2009.
- \*Collingsworth, P.D., and E.A. Marschall. 2009. Spatial and temporal variation in female yellow perch reproductive traits in Lake Erie: consequences for lake-wide egg production. Florida Fish and Wildlife Research Institute. St. Petersburg, FL. (invited)
- \*\*Nims, M.K., \*P.D. Collingsworth, \*J.J. Van Tassell, J.W. Olesik, and E.A. Marschall. 2009. Determining when otoliths of larval walleye establish a natal site signal. 52nd Annual Meeting of the International Association for Great Lakes Research. Toledo, OH.
- \*Collingsworth, P.D. and E.A. Marschall. 2009. Spatial differences in Lake Erie female yellow perch growth, survival, and energetic condition: consequences for estimates of lake-wide total egg production. 52nd Annual Meeting of the International Association for Great Lakes Research. Toledo, OH.
- Marschall, E. A., M. E. Mather, D. L. Parrish, G. W. Allison, and J. McMenemy. 2009. Timing of downstream migration of Atlantic salmon smolts: a modeling approach. Migratory Fish Restoration Research Forum, Hadley, MA.
- Garvey, J.E., R. A. Wright, E. A. Marschall. 2008. Searching for thresholds in spawner-recruit data. Annual Illinois AFS Meeting, Rockford, Illinois.
- \*\*Gover, T.R., \*\*M.K. Nims, \*J.J. VanTassell, \*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. Poster presentation. 69th Annual Midwest Fish and Wildlife Conference. Columbus OH.
- \*\*Nims, M.K., \*P.D. Collingsworth, \*J.J. VanTassell, J.W. Olesik, and E.A. Marschall. 2008. Are larval walleye otolith uptake rates rapid enough to record a natal site signal? Poster presentation. 69th Annual Midwest Fish and Wildlife Conference. Columbus OH.
- \*Collingsworth, P.D., and E.A. Marschall. 2008. Yellow perch spawning behavior in the western basin of Lake Erie. 69th Annual Midwest Fish and Wildlife Conference. Columbus OH.

- Johnson, A.A., \*Collingsworth, P.D. and E.A. Marschall. 2008. Variation in early growth, condition, and size of age-0 yellow perch in Lake Erie. 138th Annual Meeting of the American Fisheries Society. Ottawa, ON.
- \*Collingsworth, P.D., and E.A. Marschall. 2008. Yellow perch spawning behavior in the western basin of Lake Erie. Poster presentation. 51st Annual Meeting of the International Association for Great Lakes Research. Peterborough, ON.
- \*May, C., E. Marschall, D. Aday, and R.S. Hale. 2007. Using habitat to decipher saugeye performance in an Ohio reservoir. 137th Annual Meeting of the American Fisheries Society, San Francisco, CA.
- \*Collingsworth, P. D. and E. A. Marschall. 2007. Spatial and temporal variation in female yellow perch reproductive condition in Lake Erie. 137th Annual Meeting of the American Fisheries Society, San Francisco, CA.
- Marschall. E. A., M. E. Mather, D. L. Parrish, and G. W. Allison. 2007. River discharge, river temperature, dams, and the timing of downstream migration of Atlantic salmon smolts: a modeling approach. 137th Annual Meeting of the American Fisheries Society, San Francisco, CA.
- \*Crane, V.C., J. D. Conroy, E. A. Marschall, J. Tyson, R. Knight, and D. A. Culver. 2007. Spatial differences in control of year-class formation in Lake Erie percids. 137th Annual Meeting of the American Fisheries Society, San Francisco, CA.
- \*Van Tassell, J. J., P. D. Collingsworth, J. W. Olesik, and E. A. Marschall. 2007. Interpreting elemental patterns in otoliths: interaction of water elemental concentration and temperature. 137th Annual Meeting of the American Fisheries Society, San Francisco, CA. (Invited)
- Stein, R.A., R. Knight, A. Gascho-Landis, and E.A. Marschall. Overview of percid research in 1958 Lake Erie: Providing insight into future management. Lake Erie Committee, Great Lakes 1959 Fishery Commission, Ypsilanti, MI, March 19-23.
- \*Crane, V.C., J. D. Conroy, D. A. Culver, E. A. Marschall, J. Tyson and R. Knight. 2007. Spatial variation in lower trophic level impacts on Lake Erie yellow perch recruitment. Annual Meeting of the International Association of Great Lakes Researchers.
- \*Van Tassell, J. J., E. A. Marschall, C. S. Vandergoot and R. A. Stein. 2006. Age-, size-, sex-dependent arrival on spawning grounds by river and reef stocks of walleye. 136th Annual Meeting of the American Fisheries Society, Lake Placid, NY
- \*Fedor, S., R.A. Stein, and E. A. Marschall. 2006. Investigating regional patterns in Great Lakes Walleye recruitment: does climate influence recruitment? 136th Annual Meeting of the American Fisheries Society, Lake Placid, NY
- \*Van Tassell, J. J., E. A. Marschall, R. A. Stein, J. Rinchar, and K. Dabrowski. 2006. Do egg and larval characteristics vary with female phenotypes and spawning groups in Lake Erie walleye? 136th Annual Meeting of the American Fisheries Society, Lake Placid, NY
- \*Collingsworth, P. D., J. J. Van Tassell, J. W. Olesik, and E. A. Marschall. 2006. The influence of temperature and water elemental concentrations on elemental uptake in yellow perch otoliths. 136th Annual Meeting of the American Fisheries Society, Lake Placid, NY
- \*Kim, G. W., T. Kwon, M. R. Gearhiser, E. A. Marschall, S. W. Fisher, and R. A. Stein. 2004. PCB Biomagnification in the Zebra Mussel - Round Goby – Smallmouth Bass Food Chain in Lake Erie. 44th Ohio Fish and Wildlife Conference.
- \*Steinhart, G. B., E. A. Marschall, R. A. Stein, and N. J. Leonard. 2004. Assessing the relative importance of storms, angling, and nest predation on smallmouth bass nest survival in Lake Erie. Poster presentation. 46th Annual Meeting of the A. Marschall, and R.A. Stein. 2003. Trophic Transfer of Heavy Metals to Top Predators: International Association of Great Lakes Research. Waterloo, Ontario.
- Yoder, J. A, E. A. Marschall, and D. A. Swanson. 2004. The effects of landscape characteristics on ruffed grouse movements. 89th Annual meeting of the Ecological Society of America, Portland, OR.

- \*Steinhart, G. B., E. A. Marschall, and R. A. Stein. 2004. Managing smallmouth bass in a changing world: effects angling and exotic species on smallmouth bass reproductive success. 134th Annual Meeting of the American Fisheries Society. Madison, Wisconsin.
- \*Southward, L.R., E Quantifying the Role of Non-Native Species. 133rd Annual Meeting of the American Fisheries Society, Quebec City, Quebec.
- \*Steinhart, G.B., M.E. Sandrene, R.A. Stein, and E.A. Marschall. 2003. An introduced nest predator increases smallmouth bass parental care costs. 133rd Annual Meeting of the American Fisheries Society, Quebec City, Quebec.
- Marschall, E. A. and J. E. Garvey. 2003. Understanding latitudinal trends in fish body size through models of optimal seasonal energy allocation. Annual meeting of the Ecological Society of America, Savannah, GA.
- \*Steinhart, G.B., E.A. Marschall, and R.A. Stein. 2003. High growth rate of young-of-year smallmouth bass in Lake Erie: benefit of the round goby invasion? 46th Annual International Association of Great Lakes Research Conference, Chicago. (Best student presentation award)
- \*Kim, G. W., M. R. Gearhiser, C. Knight, E. A. Marschall, S. W. Fisher, and R. A. Stein. 2002. Selective predation by smallmouth bass on round goby, emerald shiner, and crayfish. 45th Annual Meeting of the International Association for Great Lakes Research, Winnipeg, Manitoba.
- \*Kim, G. W., M. R. Gearhiser, E. A. Marschall, C. Knight, S.W. Fisher, and R. A. Stein. 2002. Comparing laboratory and field estimates of predation by smallmouth bass on round goby, emerald shiner, and crayfish. 132nd Annual Meeting of the American Fisheries Society, Baltimore, MD.
- \*Spoelstra, J. A., R. A. Stein, and E. A. Marschall. 2001. The contribution of reservoir-stocked saugeye to populations downstream. 41st Ohio Fish and Wildlife Conference, Columbus, OH. February 2001.
- \*Steinhart, G.B., N. J. Leonard, E.A. Marschall, and R.A. Stein. 2001. Smallmouth bass nest success in Lake Erie: storms, anglers, and round gobies. 41st Ohio Fish and Wildlife Conference. Columbus, OH. February 2001.
- \*Yoder J. M., D. A. Swanson, E. A. Marschall. 2001. Dispersal of Ruffed Grouse in a fragmented landscape. 1st Annual Ohio Avian Ecology and Conservation Conference. Columbus OH. August 3, 2001.
- \*Steinhart, G.B., R.A. Stein, and E.A. Marschall. 2001. Weathering the storm: synergistic effects of storms, angling, and predators on smallmouth bass nest success. 86th Annual Meeting of the Ecological Society of America, Madison, WI. August 2001.
- \*Spoelstra, J. A., E. A. Marschall, and R. A. Stein. 2000. Movement of reservoir-stocked saugeye into streams and rivers. Annual Meeting of the American Fisheries Society, St. Louis, MO, August 2000.
- \*Steinhart, G. B., R. A Stein, E. A Marschall. 2000. Predation on smallmouth bass nests in Lake Erie: the effects of angling and an introduced predator. Annual Meeting of the American Fisheries Society, St. Louis, MO, August 2000.
- \*Spoelstra, J. A., E. A. Marschall, and R. A. Stein. 2000. The contribution of reservoir-stocked saugeye from tailwaters into streams and rivers. Ohio Fish and Wildlife Conference, Columbus, OH, February 2000.
- \*Micucci, S. M., D. J. Stouder, E. A. Marschall. 1999. Estuarine function with emphasis on fish in a marine and freshwater estuary. 61st Midwest Fish and Wildlife Conference. Chicago. December 8-11, 1999.
- \*Yoder J. M., D. A. Swanson, E. A. Marschall. 1999. Measuring the cost of dispersal: Predation risk as a function of movement distance in Ruffed Grouse. 116Th Stated Meeting of the American Ornithologists' Union. Cornell, NY. August 10-14, 1999.
- Garvey, J. E. and E. A. Marschall. 1998. Evaluating how largemouth bass recruitment varies along a latitudinal gradient. Annual Meeting of the American Fisheries Society, Hartford, CT, August 1998.
- \*Yoder, J.M., D.A. Swanson, and E.A. Marschall. 1998. Dispersal and population dynamics of Ruffed Grouse in a fragmented landscape. 60th Annual Midwest Fish and Wildlife Conference, Cincinnati, OH, December 1998.
- Marschall, E. A. and L. A. Real. 1998. Spatial organization of floral nectar volumes: What should foragers expect? Annual Meeting of the Ecological Society of America, Baltimore. MD, August 1998.



- \*Mion, J. B., R. A. Stein, and E. A. Marschall. 1998. Exploring ecological mechanisms underlying larval walleye recruitment from Lake Erie tributaries. Northeastern American Fisheries Society Meeting, Harrisburg, PA.
- \*Kershner, M.W., E.A. Marschall, and R.A. Stein. 1997. A spatially explicit, individual-based model of walleye growth and consumption in Lake Erie. Annual Meeting of the American Fisheries Society, Monterey, CA, August 1997.
- \*Doherty, P., E. A. Marschall, and T. C. Grubb, Jr. 1997. Balancing conservation and economic gain: a dynamic programming approach. Annual Meeting of the Ornithological Union, Minnesota, August 1997.
- \*Yoder, J.M., D.A. Swanson, and E. A. Marschall. Dispersal and Population Dynamics of Ruffed Grouse in a Heterogeneous Landscape: Developing a Spatial Model. Annual Meeting of the Ornithological Union, Minnesota, August 1997.
- \*Mather, K.A. and E.A. Marschall. 1997. Effects of notonectids on naïve and experienced prey communities. Annual Meeting of the North American Benthological Society, Texas, June 1997.
- Stein, R.A., E.A. Marschall, D.J. Stouder. 1996. Stage-dependent mentoring in recognition of the ontogenetic development of graduate students. Symposium: The American Fisheries Society, Detroit, MI, August 1996.
- \*Martinez, F. and E. Marschall. 1996. A dynamic programming model of group-size choice for settling juvenile coral reef fish. American Society of Ichthyologists and Herpetologists, New Orleans, LA, June 1996.
- \*Dingledine, N.A. and E.A. Marschall. 1995. Differential non-lethal effects of fish on stream macroinvertebrates: implications for community composition. Ohio Cooperative Fish and Wildlife Research Unit Coordinating Committee Meeting, Columbus, Ohio.
- \*Kershner, M.W., R.A. Stein, and E.A. Marschall. 1995. Food web modeling in Lake Erie: Balancing prey availability and predatory demand. Ohio Cooperative Fish and Wildlife Research Unit Coordinating Committee Meeting, Columbus, Ohio.
- \*Dingledine, N.A. and E.A. Marschall. 1995. The effects of fish on invertebrate communities: the importance of spatial dynamics in streams. Annual Meeting, North American Benthological Society, Keystone, Colorado.
- Marschall, E.A. 1995. Using experiments to interpret model results. Symposium: The State of Experimental Ecology: Questions, Levels, and Approaches. 1994 Annual Meeting of the American Society of Zoologists, St. Louis, Missouri.
- Crowder, L.B., E.A. Marschall, and D.L. DeAngelis. 1993. Growing predators and growing prey: Interactions of size-structured populations. 1993 Annual Meeting of the Ecological Society of America, Madison, Wisconsin.
- Marschall, E.A., L.A. Real, And B.M. Roche. 1992. Spatial patterns in a plant-pathogen association: a model of the influence of vector behavior. 1992 Annual Meeting of the Ecological Society of America, Hawaii.
- Rice, J.R., L.B. Crowder, E.A. Marschall, G.R. Fitzhugh, D.L. Barker, and M.K. Crawford. 1991. Size-dependent survival of juvenile fish cohorts exposed to different predator fields: an experimental test of model predictions. 1991 Annual Meeting of the American Fisheries Society, San Antonio, Texas.
- Marschall, E.A. and L.B. Crowder. 1991. Early life history of a stream fish: projected population responses to sublethal acidity levels. 1991 Annual Meeting of the Ecological Society of America, San Antonio, Texas.
- Marschall, E.A. 1990. Projected population responses of brook trout to presence of rainbow trout. Annual Meeting of the American Fisheries Society, Pittsburgh, PA.
- Crowder, L.B., J.A. Rice, E.A. Marschall, and T.J. Miller. 1986. Larval size and recruitment constraints in pelagic fishes: larval bloaters don't fit the northern anchovy "model". Tenth Larval Fish Conference, Miami, Florida.
- Marschall, E.A. 1986. A laboratory test of a null model of foraging among patches. Southeastern Mathematical Ecology Conference, Raleigh, North Carolina.
- Marschall, E.A., R.A. Stein, and P.L. Chesson. 1985. Behavior of bluegill foraging for patchily distributed prey. Annual Meeting of the Ecological Society of America, Minneapolis, Minnesota.

Marschall, E.A. and R.A. Stein. 1983. Bluegills foraging in patches of simulated macrophytes. Fourth Biennial Ethology and Behavioral Ecology of Fishes Symposium, Normal, Illinois.

### **Grants and Awards Received**

Climate, food quality, and walleye recruitment in Lake Erie. Ohio Division of Wildlife. 2015-2018. (\$453,989)

Emigration of fish from reservoir populations. Ohio Division of Wildlife. 2016-2018. (\$207,355)

Reservoir black bass recruitment. Ohio Division of Wildlife. 2011-2017. (\$540,082)

The influences of hydrodynamics, early growth, and larval movement on walleye recruitment on the western basin of Lake Erie, with S. Ludsin, Ohio Division of Wildlife, 2011-2016. (\$593,000)

Lake Erie percid stock discrimination, with S. Ludsin, Ohio Division of Wildlife, 2010-2017. (\$769,740)

Role of biophysical coupling in walleye recruitment, with S. Ludsin and Y. Zhao, Ohio Division of Wildlife, 2010-2011. (\$69,695)

Winter warming effects on yellow perch reproduction and recruitment, with S. Ludsin and K. Dabrowski, Great Lakes Fishery Commission, 2009-2013. (\$59,993)

Meteorological effects on Lake Erie yellow perch reproduction and recruitment, with S. Ludsin, Ohio Division of Wildlife, 2009-2015. (\$569,179)

BioMathletic Training: Creating the Next Generation of BioMath Stars at Ohio State University. National Science Foundation (UBM-Institutional), with I.M. Hamilton (PI), J.A. Best, L. Kubatko, Y. Lou, T. Nance, and D.H. Terman, 2008-2013. (\$883,512)

Spawning behavior and movements of Sandusky walleye. Ohio Division of Wildlife, 2008-2009. (\$102,554)

Assessing age-0 saugeye growth and survival in Ohio reservoirs. Ohio Division of Wildlife. 2008-2013. (\$609,578)

Habitat Mapping and Predator-Prey Dynamics in Ohio Reservoirs, Ohio Division of Wildlife, 2005-2008. (\$259,633)

Effect of temperature and elemental concentration on the chemical composition of juvenile percid otoliths. Lake Erie Protection Fund 2004-2007 (\$29,922)

Assessing the potential for differential contributions of spawning stocks to Lake Erie yellow perch populations. Ohio Division of Wildlife 2004-2009 (\$516,938)

Chemical composition and ring formation of percid otoliths: Effects of elemental concentration and temperature. NOAA Interjurisdictional Fisheries Act, 2004-2005 (\$12,173)

Quantifying how parental attributes influence characteristics of early life history stages of Ohio stocks of Lake Erie walleye. Ohio Division of Wildlife, with R. A. Stein and K. Dabrowski, 2002-2009. (\$516,439)

Trophic transfer of heavy metals to top predators: Quantifying the role of non-native species. NOAA, with R.A. Stein, 2002-2003. (\$7500)

Trophic transfer of heavy metals to top predators: Quantifying the role of non-native species. Lake Erie Protection Fund, with R.A. Stein, 2002-2003. (\$9988)

Reef degradation by monofilament fishing line. National Fish and Wildlife Foundation, 2002-2003. (\$25,100)

Food web and feeding influences on PCB bioavailability. Lake Erie Protection Fund, with S.A. Fisher and R.A. Stein, 2001-2003. (\$77,340)

Modeling smallmouth bass consumption of round goby in Lake Erie: implications for predator growth and contaminant transfer. Sea Grant, with S. A. Fisher and R. A. Stein, 2000-2003. (\$95,894)

Factors affecting smallmouth bass recruitment in Lake Erie. Ohio Division of Wildlife, with Roy Stein, 1999-2004. (\$407,499)

Movement of reservoir-stocked saugeye between tailwaters, streams, and rivers. Ohio Division of Wildlife, with R.A. Stein. 1998-2002. (\$280,622)

Differentiating weather-driven trends from management/food-web driven trends in Lake Erie fish populations. Lake Erie Protection Fund, 1998-1999. (\$7500)

Population dynamics of coral reef fish: consequences of the pelagic to demersal phase transition on juvenile recruitment success. Ohio and Hawaii Sea Grant, with Christopher Brown, April 1999 – March 2000. (Ohio Sea Grant: \$48,174)

Fate of stocked saugeye during their first year of life with an emphasis on quantifying movement within and from Ohio reservoirs. Ohio Division of Wildlife, with Roy Stein. 1995 - 1998. (\$185,562)

Pollinator-plant interactions on rugged energetic landscapes. National Science Foundation, with Leslie Real. 1994 - 1996.

A model of short-term effects of disturbance in stream fish assemblages: consequences for community structure. The Nature Conservancy, Ohio Chapter, with Felix Martinez. 1994/1995.

The structure of populations along longitudinal gradients in streams. Seed Grant from The Ohio State University Office of Research, 1993.

Postdoctoral award from the Electric Power Research Institute program in "Compensatory Mechanisms in Fish Populations", 1992.

Early life history of brook trout: population consequences of interactions with rainbow trout. USDA Forest Service Research Challenge Cost-Share award for research, with Larry B. Crowder, 1990 - 1992

Fellowship in Population Dynamics from the Electric Power Research Institute/Sport Fishing Institute, 1989 -1991

Pre-doctoral Fellowship from University of Virginia at Mountain Lake Biological Station, 1988

J. Francis Allen Scholarship from the American Fisheries Society, 1987/1988

Lucas Memorial Fellowship in Biomathematics, NCSU, 1985 - 1987

#### **Graduate Students: Completed**

Natalie Dingedine (M.S., 1996). The effect of fish on invertebrates: the importance of spatial location in streams. (Environmental Scientist and Ecologist, DLZ Michigan)

Karen Blocksom (M.S., Zoology; M.A.S., Statistics; 1998). Effects of community experience on the response to a generalist invertebrate predator. (Statistician, EPA, Ecosystems Research Branch, Cincinnati, OH)

Mark W. Kershner (Ph.D., 1998). Walleye predatory demand and prey supply in Lake Erie: exploring environmental variation and its historical effects. (Associate Professor, Kent State University, Kent OH)

Stephanie Micucci (M.S., 2000). Wetland habitats and their influence on fish assemblage characteristics. (Senior Permitting Coordinator, Environmental at EQT Corporation)

Rick Silk (M.S., 2001). Movement of stocked saugeye from reservoirs: impact on native fish communities. (Assistant Attorney General for the Ohio Attorney General's Court of Claims Defense Section; Dickie, McCamey & Chilcote)

Jeffrey Spoelstra (M.S., 2001) Implications of stocking riverine fish into onstream impoundments. (Program Manager, Office for Sustainability, Western Michigan University)

Felix Martinez (Ph.D., 2003) Consequences of optimal decisions to settlement patterns in coral reef fish. Sea Grant Knauss Fellow 2003, (Program Analyst, NOAA, National Centers for Coastal Ocean Science)

LeAnn Southward Hogan (M.S., 2003). Trophic transfer of mercury and lead to top predators: quantifying the role of non-native species in Lake Erie. Sea Grant Knauss Fellow 2004, U.S. State Department, Marine Conservation (NOAA Fisheries Management Specialist, Highly Migratory Species Management Division)

Geoff Steinhart (Ph.D., 2004) Understanding early life dynamics of smallmouth bass in Lake Erie. OSU Presidential Fellow 2003-2004. (Fisheries Biologist, Ohio Department of Natural Resources)

James Yoder (Ph.D., 2004) Ruffed grouse dispersal: correlations with landscape and consequences for survival. (Professor, Eastern Mennonite University)

Hilary Walton (Ph.D., 2005). Sexual selection in the gray tree frog, *Hyla versicolor*: an integrated view of male-male competition and female choice in the field. (Instructor, Case Western Reserve University, OH)

Joe Beuchel (M.S., 2006). Latitudinal trends in seasonal life-history strategies: comparisons of bluegill (*Lepomis macrochirus*) and crappie (*Pomoxis* spp.). (Tenure Track Biology Instructor, Triton College, Chicago)

Gene Kim (Ph.D., 2007). Interactions between food web and contaminants in Lake Erie. OSU Presidential Fellow 2004; Sea Grant Knauss Legislative Fellow, Committee on Resources, U.S. House of Representatives, 2005. (National Program Leader for the Aquaculture program, USDA, NIFA)

Samantha Fedor (M.S., 2007). Regional patterns in Great Lakes walleye recruitment. (Science Teacher, The Arts & College Preparatory Academy, Columbus, OH)

Cassie May (M.S. 2008). Habitat mapping and predator-prey dynamics in Ohio reservoirs. (Doctoral Program, EEOB, OSU)

Julianne Mills (Ph.D. 2009). Prosperity, sustainability, and biodiversity conservation: testing the environmental Kuznets hypothesis. (Mellon Post-Doctoral Fellow in Environmental Science and Policy, Smith College)

Paris Collingsworth (Ph.D. 2009). Differential contributions of spawning stocks to Lake Erie yellow perch populations. (Great Lakes Ecosystem Specialist, Illinois-Indiana Sea Grant, Purdue University Extension, Liaison to U.S. Environmental Protection Agency, Great Lakes National Program Office)

Adam Thompson (M.S. 2009). Spawning behavior and movement of Sandusky walleye. (Jackson Hole Land Trust, Jackson, WY)

Jahn Kallis (Ph.D. 2013). Biotic and abiotic mechanisms affecting growth and survival of stocked age-0 saugeye in Ohio reservoirs. (US Fish and Wildlife Service, Columbia, MO)

Troy Farmer (Ph.D. 2013). Climate effects on Lake Erie yellow perch reproductive success. Co-advised with Stuart Ludsin. (Postdoctoral Fellow, Auburn)

Cassandra May (Ph.D. 2015). The importance of early life processes to future growth and recruitment in Lake Erie walleye. Co-advised with Stuart Ludsin. (Assistant Professor, Bethel College, IN)

Alex Kuan-Yu Chen (Ph.D. 2016). Stock discrimination methods and applications. Co-advised with Stuart Ludsin. (Postdoctoral Researcher, OSU)

Jeremy Pinkerton (M.S. 2016). (Fisheries Specialist, Minnesota Department of Natural Resources)

#### **Graduate Students: Current**

Amara Huddleston (M.S. expected 2018). Co-advised with Jim Hood

Keith Shane (M.S. expected 2018)

Zoe Almeida (Ph.D. expected 2020). Co-advised with Stuart Ludsin

#### **Postdoctoral Researchers**

Kazue Asoh, University of Hawaii. 2003-2004. Current position: Department of Biology, Faculty of Science, Ochanomizu University, Tokyo, JAPAN.

Paula Federico, University of Tennessee. 2008-2009. Current position: Department of Mathematics, Computer Science, and Physics, Capital University, Bexley, OH.

Joe Conroy, Ohio State University. 2008-2009. Current position: Ohio Department of Natural Resources, Inland Fisheries Research Unit, Hebron, OH.

Rebecca Tien, Cornell University. 2009 – 2011. Mathematical Biosciences Institute Postdoctoral Fellow, The Ohio State University.

David Glover, Auburn University. 2013 – 2016. Current position: Fish Biologist, U. S. Fish and Wildlife Service, Carterville, IL.

Jahn Kallis, The Ohio State University. 2013 – 2017. Current Position: Fish Biologist, U. S. Fish and Wildlife Service, Columbia, MO.

Troy Farmer, The Ohio State University. 2014. Current position: Assistant Professor, Clemson University.

Kuan-Yu Chen, The Ohio State University. 2016-2017.

### **Undergraduate Student Researchers**

Joshua Ryland (1996), Michelle Prysby (1996-97), Kristen Hartzell (1997-98), Matthew Oliver (1998-2000), Jacob Wanio (1999), Stephanie Weaver (2002), Tylar Lars Groll (2004-2005)

Megan Nims (2007-2009), Determination of elemental uptake rates during the early life stages of walleye (*Sander vitreus*). Arts and Sciences Undergraduate Research Scholarship; Dean's Undergraduate Research Fund Award; BMAPS Poster Award; OSU Denman Poster Award. (Graduate School, University of Texas).

Theo Gover (2008-2009), Comparing processing methods for analysis of larval otoliths by LA-ICPMS (Research Technician, OSU)

Abby Fleiderer (2009), Social influences on growth in group-living fish (Co-advised with Ian Hamilton). RUMBA Research Fellow.

Elizabeth Hoskins (2009 -2011), Social influences on growth in group-living fish (co-advised with Ian Hamilton). RUMBA Research Fellow.

Soojin Parks (2009-2011), Hypoxia effect on fish populations (co-advised with Yuan Lou, Paula Federico, and Kevin Pangle). RUMBA Research Fellow.

Mazen Elashi (2009 -2011), Hypoxia effect on fish populations (co-advised with Yuan Lou, Paula Federico, and Kevin Pangle). RUMBA Research Fellow.

Chris French (2010 - 2011), Adequacy of current bioenergetic models to predicting yellow perch growth during winter (co-advised with \*Troy Farmer and Stuart Ludsin).

Chelsea Coble (2012-2013) Climate change effects on the quantity and quality of eggs and larvae of a coolwater fish (co-advised with \*Troy Farmer and Stuart Ludsin). EEOB-URO Summer Research Fellowship 2013.

Elizabeth Dickey (2012-2013) Do growth rates during the first weeks of life predict first-year survival of a stocked piscivore? (co-advised with \*Jahn Kallis)

Breanna Humbarger (2012-2013) Climate change effects on spawning phenology in a coolwater fish (co-advised with \*Troy Farmer and Stuart Ludsin).

Morgan Corey (2012-2013) Walleye stock discrimination between Sandusky and Maumee rivers using otolith microchemistry (co-advised with \*Kuan-Yu Chen and Stuart Ludsin). Mayers Summer Research Scholarships in the Natural & Mathematical Sciences, 2013

Melissa Bittner (2015-2017) Analyzing the shift to piscivory in age-0 largemouth bass using stable isotopes. Mayers Summer Research Scholarship in the Natural & Mathematical Sciences, 2016

### **Courses Taught**

EEOB 617. Theoretical Ecology I: Mathematical basis of ecological theory (1993, 1996, 1998, 2000, 2002, 2004, 2009, 2010)

EEOB 714. Theoretical Ecology II: Optimality models in ecology, evolution, and resource management (1994, 1997, 2001, 2003, 2004, 2007, 2009, 2011)

EEOB 657. Experimental Field Ecology (1994, 1995, 1996, 1997, 1998)

EEOB H413.01. Honors Introductory Ecology (1999, 2000, 2002, 2003, 2004, 2005, 2007, 2008)

EEOB 413.01, 413.02. Introductory Ecology (2008)

EEOB 881: Graduate Seminars

EEOB 293/MATH 693: Undergraduate Seminar in Mathematical Biology (2009, 2010, 2011, 2012)

MBI Topics in Mathematical Ecology (2010)

EEOB 5450 Quantitative Population Ecology (2012, 2014, 2016)

EEOOB 3410 Ecology (2013)

#### **Reviewer and Evaluation Service**

2004 – 2010, Associate Editor, *Oecologia*  
1997 – 2001, 2009, 2015, National Science Foundation, Ecology Panel  
2012, National Science Foundation, Ecology Pre-proposal Panel  
1995, 1996, 2002, 2005, 2007, 2008 National Science Foundation, Graduate Fellowship Panel  
1994-1997, Associate Editor, *Transactions of the American Fisheries Society*

Manuscript review for journals:

The American Naturalist  
Animal Behaviour  
Behavioral Ecology  
Bulletin of Mathematical Biology  
Canadian Journal of Fisheries and Aquatic Science  
Ecology  
Ecological Applications  
Ecological Modelling  
Evolutionary Ecology Research  
North American Journal of Fisheries Management  
Environmental Biology of Fishes  
Journal of Applied Ecology  
Journal of Comparative Psychology  
Journal of Fish Biology  
Journal of Great Lakes Research  
Journal of the North American Benthological Society  
Marine Ecology Progress Series  
Oecologia  
Reviews in Fish Biology and Fisheries  
Transactions of American Fisheries Society

Proposal review for granting agencies:

Great Lakes Fishery Commission  
Illinois-Indiana Sea Grant  
Lake Erie Protection Fund  
Michigan Sea Grant  
National Science Foundation  
Ohio Sea Grant

#### **Recent Invited Seminars**

F. T. Stone Laboratory, Gibraltar Island, OH, August 2017  
Department of Biology, Kenyon College, February 2012  
Department of Evolution, Ecology, and Organismal Biology, OSU, May 2010  
Williams Memorial Lecture, University of Nebraska Water Center, April 2010  
Department of Fisheries and Allied Aquaculture, Auburn University, November 2007  
Department of Zoology, North Carolina State University, February 2006.  
Program for Interdisciplinary Mathematics, Ecology, and Statistics. Colorado State University. April 2005  
Lake Erie Center and Earth, Environmental, and Ecological Science Department, University of Toledo. April 2005.  
Seminar series in Theoretical Applied Ecology, sponsored jointly by the Center for Stock Assessment Research (NMFS) and the Department of Applied Mathematics and Statistics, University of California, Santa Cruz. May 2003.  
Department of Biology, Kent State University, OH. October 2003.

#### **Departmental and College Service**

Departmental Seminar Committee (1992 - 1996); CHAIR (2001-2002)  
Conservation Biology Committee (1993 - 1994)

Graduate Studies Committee (1996 - 2001); CHAIR (2002 – 2005)  
Curriculum Committee (1996 -1998)  
Graduates in Evolution and Ecology Students (GEES) Advisor (1996 – 2000; 2001 – 2006)  
Advisory Committee to the Chair (1998/1999; 2001/2002; 2005/2006; 2008/2009, 2011/2012)  
Biological Sciences Day (1993)  
Lauritz Muehlbach Memorial Research Fund review committee (2001)  
% for Art Committee for Greenhouse/Aronoff/Jennings (2004 -)  
Mathematical Biosciences Institute Local Scientific Advisory Committee (2006 – present)  
EEOB Diversity Committee: CHAIR (2006-2009)  
CBS Diversity Committee (2006-2008)  
EEOB Awards Committee (2007-2009)  
EEOB Social Committee (2009/2010); CHAIR (2010/2011, 2011/2012)  
EEOB Curriculum Committee (2012/2013)  
ASC Division of Natural and Mathematical Sciences, Promotion and Tenure Committee (2011/2012, 2012/2013)  
EEOB Department Chair (2013-2017)

*Search Committees:*

Department of Zoology, Mansfield Faculty (1993)  
Cooperative Research Unit, Assistant Leader in Wildlife (1996-97)  
Department of Plant Biology, Sabbatical replacement  
EEOB Faculty (2000)  
EEOB, Mansfield Faculty (2001-02)  
EEOB, AEL Director Search (2005-2006)  
EEOB, Aquatic Ecology Faculty Search (CHAIR, 2006-2007)  
EEOB, Department Chair Search (2009)  
EEOB, Plant Ecology Faculty Search (CHAIR, 2009-2010)

**Graduate School Service**

Interdisciplinary Research Seminar Program Review Panel, Office of Research and Graduate School (1997)  
University Fellowship Selection Committee (1999)  
Graduate Enrichment Fellowship Selection Committee (2004)  
Presidential Fellowship Selection Committee (2005-2008)  
Graduate School Curriculum Committee (2012-2013)

*Graduate School Representative*

Dissertation defense: Anthropology (1996); Environmental Science Graduate Program (2000); Teaching and Learning (2001); Music (2002); French and Italian (2004); Molecular Genetics (2004); Ohio State Biochemistry Program (2005); Astronomy (2006); Education (2008); Health and Rehabilitation Sciences (2011); EDUPAES-PH (2015); Comparative Studies (2016)  
Candidacy Exam: Geography (1997); Public Health (1997); Statistics (1999); Education (2010)

**University Service**

ASC Senate Alternate (1996, 1997)  
University Senate (2000 – 2003)  
Faculty Council (2000 – 2003)  
Committee on Academic Misconduct (2000-2001)  
Council on Student Affairs (2001- 2003)  
English as a Second Language Mock-Teaching Tests evaluator (2003, 2004)  
Evaluation of Central Administrators (2016-17)

**Professional Service**

*Promotion and Tenure External review:* Cornell University; Texas A&M University ; Old Dominion University ; Southern Illinois University; University of Maine; North Dakota State University, University of Florida  
Board of Directors, Sigma Xi, Ohio State Chapter (1998 - 2001)  
Treasurer, Sigma Xi, Ohio State Chapter (1999 - 2001)  
American Fisheries Society

Committee on Native Peoples' Fisheries (1992)  
J. Frances Allen award Committee (1996, 1997, 1998)  
Ohio Chapter, Rivers and streams Committee (1996, 1997, 1998)  
Award of Excellence Sub-Committee; American Fisheries Society (2015, 2016, 2017)  
Student Paper judge: Annual Meeting of the American Fisheries Society (1996, 1998, 2006); Annual Meeting of the Ecological Society of America (2003)  
Ohio EPA Headwater Streams Academic Advisory Panel member (2001)  
Conducted two-day Statistics Workshop (with Russell Wright, Postdoc) for Ohio Division of Wildlife (1994)  
Co-organized, "Over the Fence: Mathematicians and Biologists Talk About Bridging the Curricular Divide", June 1-2, 2007, MBI, Columbus, OH  
Co-organized, MBI-NIMBioS-CAMBAM Summer Graduate Program (2011, 2012)

Invited participant:

*Habitat-based modeling of Great Lakes fish populations* workshop. Sponsored by Great Lakes Fish Commission. Toronto, June 1996

*Integrating across scales: predicting patterns of change in Atlantic salmon* workshop. Sponsored by US Forest Service. Invited co-leader of "General theory of life history change for Atlantic salmon" workgroup. Braemar, Scotland, March 1997.

*Math Across the Curriculum* workshop, NSF-sponsored workshop to incorporate mathematics throughout the undergraduate curriculum. Dartmouth University, February, 1998

*Evaluation of Quantitative Techniques for Applied Ecological Problem-Solving* workshop. Sponsored by USGS-BRD. Member of steering committee and participant. Colorado, 2000.

*Lake Erie Percid Management Advisory Group, Technical Review Panel.* Windsor, Ontario. February 2012.

*Modeling species response to environmental change Working Group.* John Wesley Powell Center, Fort Collins, CO. July 2012, July 2013.

*Asian Carp Modeling Summit.* Sponsored by University of Southern Illinois. St. Louis, MO. February 2013.

### **Outreach and Mentoring**

Howard Hughes 3-week summer high school program host (1993, 1994)  
Art & Environment course for High School students (Wexner Center for the Arts). Served as one of three environmental scientists (2004, 2005, 2007, 2016)  
Shadowing and interviews (1996 – present)  
High school two-week senior project mentor and host (1999, 2000, 2005)  
OSU Maximus Scholars receptions (1997, 1998, 2000)  
Central Ohio Juniors Recognition Night (1999)  
National Merit Day (2000)  
Women in Science Day (1999 - 2009)  
Metro School shadowing (2007)  
Indianola K-8, Sixth Grade (60 students), class-visits and all-day lab and field experiences (2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016)  
Metro School 10-week Research Internship (2010, 2012, 2013)  
Columbus Alternative High School Internship (2010/2011, 2011/2012)  
Science talks, Whetstone H.S., Columbus City Schools. 2016