

**ELIZABETH A. MARSCHALL**  
**Department of Evolution, Ecology, and Organismal Biology (EEOB)**  
**Aquatic Ecology Laboratory**  
**The Ohio State University**  
**Columbus, Ohio**  
**marschall.2@osu.edu**

### **Professional Experience**

Emeritus Professor, EEOB, The Ohio State University, 2023 - present  
Professor, EEOB, The Ohio State University. 2011 - 2023  
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  
CompMech Fellowship in Population Dynamics, Electric Power Research Institute. North Carolina State University. 1990-1991  
Graduate Research Associateship, USDA Forest Service, North Carolina State University. 1989  
J. Francis Allen Graduate Fellow in Fisheries, American Fisheries Society, North Carolina State University. 1987-1988  
Lucas Graduate Fellow in Biomathematics, North Carolina State University. 1985-1987  
Graduate Teaching Assistant in Zoology, North Carolina State University

### **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.

### **Publications**

(\*graduate student author; \*\*undergraduate student author, #postdoc author)

- Krabbenhoft, C. A., S. A. Ludsin, E. A. Marschall, #R. R. Budnik, L. Z. Almeida, C. L. Cahill, H. S. Embke, Z. S. Feiner, P. J. Schmal, M. J. Thorstensen, M. J. Weber, M. R. Wuellner, and G. J.A. Hansen. 2023. Synthesizing professional opinion and published science to build a conceptual model of walleye recruitment. *Fisheries*, DOI: 10.1002/fsh.10884
- Kallis, J., Erickson, R., Coulter, D., Coulter, A., Brey, M., Catalano, M., Dettmers, J., Garvey, J., Irons, K., Marschall, E., Rose, K., Wildhaber, M., & Glover, D. (2023). Incorporating metapopulation dynamics to inform invasive species management: Evaluating bighead and silver carp control strategies in the Illinois River. *Journal of Applied Ecology*, 60, 1841–1853.  
<https://doi.org/10.1111/1365-2664.14466>
- \*Almeida, L. Z., J. Grayson, S. A. Ludsin, K. Dabrowski, and E. A. Marschall. 2023. Experiential legacies of early-life dietary polyunsaturated fatty acid content on juvenile Walleye: Potential impacts from climate change. *Ecology of Freshwater Fish*. <https://doi.org/10.1111/eff.12666>
- May, C. J., #Budnik, R. R., Ludsin, S. A., O'Donnell, D. R., Hood, J. M., Roseman, E. F., & Marschall, E. A. 2021. Evidence that copepod biomass during the larval period regulates recruitment of Lake Erie walleye. *Journal of Great Lakes Research*, 47: 1737-1745.

- \*Shane, K. D., K. S. Page, J. J. Pritt, J. D. Conroy, and E. A. Marschall. 2021. Season and Discharge Predict Downstream Emigration Rates for Reservoir Sport Fish Populations. *North American Journal of Fisheries Management*, 41:1798-1811.
- Kallis, J. L., R. R. #Budnik, and E. A. Marschall. 2021. Influence of Stocking Practices, Predation, and Reservoir Characteristics on the Growth and Recruitment of Saugeye. *North American Journal of Fisheries Management*. <https://doi.org/10.1002/nafm.10624>
- \*Almeida, L. Z., S. M. Hovick, S. A. Ludsin, and E. A. Marschall. 2021. Which factors determine the long-term effect of poor early-life nutrition? A meta-analytic review. *Ecosphere* 12, e03694
- #Marcek, B. J., T. M. Farmer, E. A. Marschall, G. Petris, and S. A. Ludsin. 2021. Ecosystem change as a driver of fish recruitment dynamics: a case study of two Lake Erie yellow perch populations. *Freshwater Biology*. DOI: 10.1111/fwb.13707
- Euclide, P.T., Robinson, J., Faust, M., Ludsin, S.A., MacDougall, T.M., Marschall, E.A., Chen, K.Y., Wilson, C., Bootsma, M., Stott, W. and Scribner, K.T., 2021. Using genomic data to guide walleye management in the Great Lakes. In *Yellow Perch, Walleye, and Sauger: Aspects of Ecology, Management, and Culture* (pp. 115-139). Springer, Cham.
- Euclide, P.T., MacDougall, T., Robinson, J.M., Faust, M.D., Wilson, C.C., Chen, K.-Y., Marschall, E.A., Larson, W. and Ludsin, S.A. 2021. Mixed-stock analysis using Rapture genotyping to evaluate stock-specific exploitation of a walleye population despite weak genetic structure. *Evolutionary Applications*. <https://doi.org/10.1111/eva.13209>
- Marschall, E.A., Glover, D.C., Mather, M.E. and Parrish, D.L. 2021. Modeling Larval American Shad Recruitment in a Large River. *North American Journal of Fisheries Management*. <https://doi.org/10.1002/nafm.10460>
- #Budnik, R.R., J.D. Conroy, R.D. Zweifel, S.A. Ludsin, and E.A. Marschall. 2021. Projecting future habitat quality of three midwestern reservoir fishes under warming conditions. *Ecology of Freshwater Fish* 30: 31–47. DOI: 10.1111/eff.12561
- \*Chen, K.Y., S.A. Ludsin, B.J. #Marcek, J.W. Olesik, E.A. Marschall. 2020. Otolith microchemistry shows natal philopatry of walleye in western Lake Erie. *Journal of Great Lakes Research*. doi.org/10.1016/j.jglr.2020.06.006
- \*Chen, K.-Y., Euclide, P.T., Ludsin, S.A., Larson, W.A., Sovic, M.G., Gibbs, H.L. and Marschall, E.A. 2020. RAD-Seq Refines Previous Estimates of Genetic Structure in Lake Erie Walleye. *Transactions of the American Fisheries Society*, 149: 159-173. doi:10.1002/tafs.10215 <https://onlinelibrary.wiley.com/share/author/WBZEAKATUZPWHRV2XXIV?target=10.1002/tafs.10215>
- \*May, C. J., S. A. Ludsin, D. C. #Glover, and E. A. Marschall. 2020. The influence of larval growth rate on juvenile recruitment in Lake Erie walleye (*Sander vitreus*). *Canadian Journal of Fisheries and Aquatic Sciences* 999:1-8.
- Marschall, E. A. 2019. News & Views: GLOBAL CHANGE, Challenging life cycles. *Nature Ecology & Evolution*. Published online May 27, 2019. *Invited; Editor reviewed*. DOI 10.1038/s41559-019-0920-4.
- \*Chen, K-Y, E. A. Marschall, M. G. Sovic, A. C. Fries, H. L. Gibbs, and S. A. Ludsin. 2019. assignPOP: An R package for population assignment using genetic, non-genetic, or integrated data in a machine-learning framework. *Methods in Ecology and Evolution* 9(2): 439-446. DOI: 10.1111/2041-210X.12897
- \*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]
- Rinchar, 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. Resetarits 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.
- Crowder, L.B., S.S. Heppell and E.A. Marschall. 1998. Development and use of matrix models to evaluate alternative management approaches for restoring biological populations. pp. 77-84. In: J.B. Waide and L.M. Gandy (eds.) *Proceedings of a workshop on aquatic ecosystem modeling and assessment techniques for application within the U.S. Army Corps of Engineers*. Miscellaneous Paper EL-98-1, U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, MS.
- 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

(\*graduate student; \*\* undergraduate student; # postdoc)

- Krabbenhoft, C.A., S.A. Ludsin, E.A. Marschall, R.R. #Budnik, L.Z. \*Almeida, G.J.A. Hansen. 2021. A unified model of Walleye recruitment. American Fisheries Society Annual Meeting, Baltimore.
- \*Almeida, L.Z., J. Grayson, K. Dabrowski, S.A. Ludsin, E.A. Marschall. 2021. Evidence of experiential legacies of early-life diet quality on juvenile Walleye (*Sander vitreus*). Midwest Fish and Wildlife Conference. *(Invited)*
- \*Almeida, L.Z., M.D. Faust, S.A. Ludsin, E.A. Marschall. 2021. Maternal experience and recent growth influence growth rate in Lake Erie Walleye. International Association of Great Lakes Research Annual Meeting.
- \*Almeida, L.Z., S.A. Ludsin, C. May, D. C. Glover, E. Roseman, E.A. Marschall. 2020. Larval growth and size-selective predation as potential drivers of Walleye recruitment. American Fisheries Society Virtual Annual Meeting *(Invited)*
- \*\*Bobay, L.A., \*L.Z. Almeida, E.A. Marschall, S.A. Ludsin. 2020. To what degree do preferred prey abundance and temperature influence growth rates of larval yellow perch in Lake Erie? American Fisheries Society Virtual Annual Meeting. *(Invited)*
- #Marcek, B.J., E.A. Marschall, and S.A. Ludsin. 2020. Effects of Temperature, Dissolved Oxygen, and Harmful Algal Blooms on Lake Erie Fish Distributions. International Association for Great Lakes Research. *(Invited)*
- \*Finigan, R. E. and Marschall E. A. 2020. Spatial Variation in Largemouth Bass Life-History Traits Among Ohio Populations. American Fisheries Society Annual Meeting.
- \*Almeida, L.Z., S.A. Ludsin, C. May, D. C. Glover, E. Roseman, and E.A. Marschall. 2020. Larval growth and size-selective predation as potential drivers of Walleye recruitment. American Fisheries Society Annual Meeting. *(Invited)*
- \*\*Bobay, L.A., L.Z. \*Almeida, E.A. Marschall, and S.A. Ludsin. 2020. To what degree do preferred prey abundance and temperature influence growth rates of larval yellow perch in Lake Erie. American Fisheries Society Annual Meeting. *(Invited)*

- #Marcek, B.J., T.M. Farmer, E.A. Marschall, G. Petris, and S.A. Ludsin. 2020. Drivers of Fish Recruitment in a Large, Freshwater Ecosystem Are Temporally Dynamic. Annual Meeting of the American Fisheries Society.
- #Budnik, R. R., C. J. May, E. F. Roseman, D. R. O'Donnell, J. M. Hood, S. A. Ludsin, and E. A. Marschall. 2020. Prey quality and quantity during the larval period regulates recruitment of Lake Erie walleye. American Fisheries Society Virtual Annual Meeting.
- Euclide, P. et al. 2020. Using Genomic Data to Guide Walleye Management in the Great Lakes. American Fisheries Society Virtual Annual Meeting.
- Marschall, E. A. 2019. Species-dependent consequences of barriers to downstream fish migration, Clemson University, SC. (*Invited*)
- Marschall, E. A. 2019. Consequences of barriers to downstream migration on fish and fisheries. Western Michigan University, Kalamazoo, MI. (*Invited*)
- \*Almeida, L.Z., M.D. Faust, S.A. Ludsin, and E.A. Marschall. 2019. Field-based evidence of latent effects on Lake Erie Walleye growth rates. Joint American Fisheries Society & The Wildlife Society Annual Meeting, Reno, NV.
- \*Almeida, L.Z., J. Grayson, K. Dabrowski, S.A. Ludsin, and E.A. Marschall. 2019. Early life diet quality has lingering effects on juvenile walleye (*Sander vitreus*). International Association of Great Lakes Research Annual Meeting.
- Grayson, J., L.Z. \*Almeida, S.A. Ludsin, E.A. Marschall, K. Dabrowski. 2019. The effect of Artemia enrichment with PUFA and  $\alpha$ -tocopherol on the performance of walleye *Sander vitreus* larvae. World Aquaculture Society Meeting, New Orleans, LA.
- \*Almeida, L.Z., M.D. Faust, S.A. Ludsin, E.A. Marschall. 2019. Evaluating the influence of past and current environments on Lake Erie walleye growth rates. Midwest Fish and Wildlife Conference, Cleveland, OH.
- \*\*Bobay, L.A., L.Z. \*Almeida, E.A. Marschall, S.A. Ludsin. 2019. Toward examining climate effects on yellow perch recruitment: How do Lake Erie larval yellow perch diets vary within a year? Midwest Fish and Wildlife Conference, Cleveland, OH.
- Ulin, K.E., L.Z. \*Almeida, D.A. Dippold, T.A. \*\*Brown, E.A. Marschall, S.A. Ludsin. 2019. Validating daily otolith increment deposition in aquarium-reared juvenile walleye, *Sander vitreus*. Midwest Fish and Wildlife Conference, Cleveland, OH.
- Stone, J. P., J. M. Hood, E. A. Marschall, S. A. Ludsin. 2018. Response of zooplankton to human-induced rapid environmental change (HIREC) in Lake Erie. 2018 Ocean Sciences Meeting. Portland, OR.
- \*Huddleston, A., C. May, J. Stone, S. A. Ludsin, E. A. Marschall, and J. M. Hood. 2018. The influence of winter severity on the coupling between Lake Erie larval walleye and their prey. Society for Freshwater Science 2018 Meeting. Detroit, MI.
- \*Almeida, L. Z., \*A. L Huddleston, J. M. Hood, S. A. Ludsin, and E. A. Marschall. 2018. Do winter conditions alter the timing of larval walleye and zooplankton prey production in Lake Erie? Larval Fish Conference 2018. Victoria, BC.
- Ludsin, S. A., D. A. Dippold, T. M. Farmer, \*L. Z. Almeida, J. M. Hood, C. J. May, J. P. Stone, and E. A. Marschall. 2018. Understanding and predicting climate change impacts on Yellow Perch recruitment in Lake Erie. Larval Fish Conference 2018. Victoria, BC.
- \*Huddleston, A. J., +C. J. May, J. P. Stone, S. A. Ludsin, E. A. Marschall, J. M. Hood. 2018. The influence of winter severity on the coupling between Lake Erie walleye and their prey. International Association of Great Lakes Researchers. Toronto, ONT.

- \*Almeida, L.Z., M.D. Faust, S.A. Ludsin, and E.A. Marschall. 2018. Lake Erie walleye growth rates in relation to past and current environments. Great Lakes Fishery Commission, Lake Erie Walleye Task Group Meeting. Old Woman Creek National Estuarine Research Reserve, OH. *(Invited)*
- Marschall, E. A., D. C. Glover, M. E. Mather, and D. L. Parrish. 2018. Modeling the effects of climate change on larval cohort success in anadromous fish populations in the mainstem of a large river. 4<sup>th</sup> Mississippi - Yangtze River Basins Symposium. Chongqing, China. *(Invited)*
- Marschall, E. A. 2018. Maternal Effects in Lake Erie Walleye and Yellow Perch. Lake Erie Sport Fish Summit. Painesville, OH. *(Invited)*
- \*\*Brown, T., D. Dippold, \*L. Z. Almeida, E. A. Marschall, and S. A. Ludsin. 2018. Evaluating basin-specific early growth rates as a Lake Erie walleye stock discrimination tool. Lake Erie-Inland Waters Annual Research Review, OSU, Columbus. (poster)
- Marschall, E. A. 2017. Ecology and evolution of populations, life histories and fisheries. Stone Laboratory Guest Lecture Series, Put-in-Bay, OH. *(Invited)*
- Marschall, E. A. 2017. Ecology and evolution of populations, life histories and fisheries. Howard University – OSU Ecology and Evolutionary Sciences Mini-Symposium. Howard University, Washington, D.C. *(Invited)*
- \*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. 2014. 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. 2014. 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. 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, May 2014.
- \*May, C., M. Kulasa, E. Marschall, E. Roseman, W. Taylor, and S. Ludsin. 2014. 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. 2012. 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. 2011. 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. 2011. 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. 2011. 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. 2011. 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. 2011. 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. 2010. 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. 2010. 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. 2010. 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. 2010. 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.
- Crowder, L.B., S.S. Heppell and E.A. Marschall. 1997. Development and use of matrix models to evaluate alternative management approaches for restoring biological populations. Waterways Experiment Station Workshop on Aquatic Ecosystem Modeling and Assessment Techniques, Morrilton, AR, July. Invited paper.

- \*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.
- Miller, T.J., L.B. Crowder, J.A. Rice and E.A. Marschall. 1988. Larval size and recruitment mechanisms. Poster presented at ICES symposium in the early life history of fish, Bergen, Norway, October.
- 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. Invited talk.
- 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**

Great Lakes Fisheries Science Training (FiST) workshop for undergraduates, with Ludsin (PI) and ten investigators from Great Lakes universities and agencies. NOAA-NMFS. 2020-2022. (\$139,802)

A unified model of walleye recruitment, with G. Hansen (PI), Ludsin, Almeida, and Budnik. Great Lakes Fishery Commission, Fisheries Research Program. 2020-2022, \$187,728.

Yellow perch distributions in response to changing habitats in Lake Erie's central basin. Ohio Division of Wildlife. 2019-2023. (\$417,336)

Life history patterns among largemouth bass populations in Ohio reservoirs. Ohio Division of Wildlife. 2019-2023. (\$306,142)

NOAA Sea Grant Knauss Fellowship (Amara Huddleston). 2019. (\$59,868)

Stock structure and contribution of west and east basin walleye to recreational and commercial fisheries in Lake Erie, with Ludsin (PI), Larson, Chen, Robinson, Faust, McDougall, Wilson, Sovic, and Euclide. Ohio Sea Grant. (\$119,724)

Climate, food quality, and walleye recruitment in Lake Erie. With S. Ludsin (co-PI). Ohio Division of Wildlife. 2015-2021. (\$867,399)

Emigration of fish from reservoir populations. Ohio Division of Wildlife. 2016-2019. (\$239, 925)

Modeling a mainstem spawner: American shad in the Connecticut River, with D. Parrish (PI), M. Mather, and D. Glover. NOAA NMFS Interjurisdictional Funding. 2015-2018. (\$35,000)

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.

EPRI COMPMECH Key Species Project on Salmonids, Oak Ridge National Laboratories, L.B. Crowder and E.A. Marschall (PIs). January 1992-September 1994, \$37,700.

Early life history of brook trout: Population consequences of interactions with rainbow trout," U.S. Forest Service, Southeastern Experiment Station, L.B. Crowder (PI) March 1990-March 1992, \$23,610.



Early life history of brook trout: Population consequences of interactions with rainbow trout," Electric Power Research Institute/Sport Fishing Institute Fellowship in Population Biology to Elizabeth A. Marschall, L.B. Crowder (Supervising Professor), January 1989-December 1991, \$31,814.

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 Dingledine (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 at Equitrans Midstream 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. Senior Policy Advisor, Office of National Marine Sanctuaries, National Oceanic & Atmospheric Administration.)

Geoff Steinhart (Ph.D., 2004) Understanding early life dynamics of smallmouth bass in Lake Erie. OSU Presidential Fellow 2003-2004. (Habitat Restoration Coordinator, US Fish and Wildlife Service, Sacramento, CA)

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.). (Professor, 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) Busa (Ph.D. 2009). Prosperity, sustainability, and biodiversity conservation: testing the environmental Kuznets hypothesis. (Senior Environmental Scientist, Fuss & O'Neill, Springfield, MA.)

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. (Assistant Professor, Clemson University)

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. (Lecturer, Biological Sciences, Clemson University, SC)

Alex Kuan-Yu Chen (Ph.D. 2016). Stock discrimination methods and applications. Co-advised with Stuart Ludsin. (Data Scientist, Firmenich, Princeton, NJ)

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

Amara (Huddleston) Foster (M.S. 2018). Co-advised with Jim Hood (Education Strategic Planning Specialist, NOAA Office of Education)

Keith Shane (M.S. 2018). (Research technician, University of Toledo)

Zoe Almeida (Ph.D. 2021). Co-advised with Stuart Ludsin (Postdoctoral Researcher, Oregon State University)

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

Rachael Finigan (Ph.D. expected 2023).

Alexandra Cabanelas Bermudez (M.S. expected 2022)

#### **Postdoctoral Researchers**

Kazue Asoh, University of Hawaii. 2001-2003. Current position: Department of Biology, Faculty of Science, Ochanomizu University, Tokyo, JAPAN.

Paula Federico, University of Tennessee. 2008-2009. Current position: Associate Professor and Department Chair, 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. Current position: Freelance photographer, Columbus, OH.

David Glover, Auburn University. 2013 – 2016. Current position: Rivers and Streams Program Manager, Illinois Department of Natural Resources.

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. Current Position: Scientist, Research Diets, Inc., New Brunswick, NJ.

Benjamin Marcek, Virginia, Institute of Marine Science. 2020. Current Position: Fish Biologist, Aquatic Invasive Species Branch Chief, U.S. Fish & Wildlife Service, Carterville, IL.

Richard Budnik, Bowling Green State University. 2018-2022. Ohio EPA.

### **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, 2018, 2020, 2022)  
EEOB 3410 Ecology (2013, 2019, 2020, Summer 2020, 2021, 2022)  
EEOB 8894 (2021)  
EEOB 8896: Graduate Seminars

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

2018, 2019, 2020, 2021 Irish Postdoctoral Outer International Assessment Board  
2004 – 2010, Associate Editor, *Oecologia*  
1997 – 2001, 2009, 2015, 2021 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  
Ecological Applications  
Ecological Modelling  
Ecology  
Ecology of Freshwater Fish  
Evolutionary Ecology Research  
Marine Ecology Progress Series  
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  
Nature Ecology & Evolution  
Oecologia  
PLOS One  
Reviews in Fish Biology and Fisheries  
Transactions of the American Fisheries Society

#### Proposal review for granting agencies:

Great Lakes Fishery Commission  
Illinois-Indiana Sea Grant  
Israel Science Foundation

Lake Erie Protection Fund  
Michigan Sea Grant  
National Science Foundation  
Ohio Sea Grant  
Irish Postdoctoral

#### **Recent Invited Seminars**

Purdue University, West Lafayette, IN, October 2022  
Clemson University, Clemson, SC, November 2019  
Western Michigan University, Kalamazoo, MI, October 2019  
F. T. Stone Laboratory, Gibraltar Island, OH, August 2017

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

Departmental Seminar Committee (1992 - 1996); CHAIR (2001-2002)  
Conservation Biology Committee (1993 - 1994)  
Graduate Studies Committee (1996 – 2001, 2018-2019); CHAIR (2002 – 2005, 2021-2022)  
Curriculum Committee (1996 -1998)  
Graduates in Evolution and Ecology Students (GEES) Advisor (1996 – 2000; 2001 – 2006; 2021-2022)  
Advisory Committee to the Chair (AY 1999, 2002, 2006, 2009, 2012, 2019, 2020, 2022)  
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 – 2019)  
EEOB Diversity Committee: CHAIR (2006-2009)  
CBS Diversity Committee (2006-2008)  
EEOB Awards Committee (2007-2009)  
EEOB Social Committee (2009/2010; 2021-2022); 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)  
EEOB Committee of Eligible Faculty, Chair (2018-2022)

#### *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)  
EEOB, Aquatic Population/Community Ecology Faculty (2022)

#### **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)

Alumni Grants for Graduate Research and Scholarship selection panel (2018-2020)  
Graduate Associate Teaching Award selection panel (2019, 2020)

*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); Communication (2009); Health and Rehabilitation Sciences (2011); Music (2012); Geography (2014); EDUPAES-PH (2015); Comparative Studies (2016); Psychology (2018); Education Teaching & Learning (2019); Psychology (2021); Spanish & Portuguese (2022)  
Candidacy Exam: Education Teaching & Learning (2008); Geography (1997); Anthropology (1998); Public Health (1998); Statistics (1999); Vocational Education (2003); 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; Kansas State University; University of Tennessee; University of Washington; Texas A&M; Peking University.  
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, 2018, 2019, 2020, 2021, 2022)  
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 Host Lab (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, 2017, 2018, 2019, 2022)

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

LSAMP faculty mentor (2018-2022)