

Mark R. DuFour

Fisheries Biologist
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OBJECTIVE

Assist resource agencies in the management and restoration of native fishes, and eradication of non-native fishes through sound science.

EDUCATION

University of Toledo, Department of Environmental Sciences - Lake Erie Center, Toledo, OH
PhD in Biology - Ecology Track, spring 2017
MS in Biology - Ecology Track, fall 2012

Kent State University, Department of Biological Sciences, Kent, OH
BS in Conservation, summer 2005

RESEARCH EXPERIENCE

USGS - Great Lakes Science Center, Lake Erie Biological Station, Huron, OH
Fish Biologist supervised by Richard Kraus, 2021 - present

- Lake Erie Pelagic Prey Fish Population Dynamics (Principal Investigator), 2021-present. Characterizes pelagic prey fish population dynamics and ecology informing population monitoring/management. Paired hydroacoustic and midwater trawl survey performed in cooperation with Ohio DNR and Ontario MNRF.
- Lake Erie Benthic Prey Fish Population Dynamics (Principal Investigator), 2021-present. Characterizes intra- and inter-annual variation in growth, diet, recruitment, age-structure, abundance, and community composition of the benthic fish community over a large spatial scale in Lake Erie's western basin using a bottom-trawl.
- Post-release survival and detection frequency of acoustically tagged Yellow Perch in Lake Erie, (Principal Investigator), 2022. Determine expected post-release survival of fish implanted with acoustic telemetry tags as well as the average detection rates and quantity/quality of data returned per fish performed in cooperation with Ohio DNR and GLATOS.

Michigan State University - Quantitative Fisheries Center
Post-doctoral Research Associate with Drs. Kelly Robinson and Mike Jones, 2017
Lake Erie Grass Carp structured decision making exercise

- Developed a multi-season multi-region matrix population model using a combination of Bayesian analysis and simulation modeling (DuFour et al. 2021a) to evaluate proposed management actions for Grass Carp (*Ctenopharyngodon idella*) within a structured decision making framework (Robinson et al. 2021). Communicated results and research direction to an international group of Great Lakes and Asian carp researchers, to facilitate an adaptive management approach to eradication goals (Herbst et al. 2021).

Lake Erie Yellow Perch management strategy evaluation

- Incorporated existing statistical catch-at-age models into a management strategy evaluation to project the future performance of the Yellow Perch population and fisheries under a variety of management scenarios. Communicated research directions and results to the Lake Erie Percid Management Advisory Group (LEPMAG), an international group of stakeholders, culminating in the development of the first Lake Erie Yellow Perch (*Perca flavescens*) Fisheries Management Plan (Expected release, 2021).

University of Toledo - Lake Erie Center

Graduate Research Assistant (PhD) with Drs. Christine Mayer and Song Qian, 2012 - 2016

*Hydroacoustic quantification of Lake Erie Walleye (*Sander vitreus*) distribution and abundance*

- PhD dissertation research coupled large-scale hydroacoustic and gill net surveys for Lake Erie Walleye. Using Bayesian hierarchical statistical methods and large-scale hydroacoustic sampling to 1) optimize data analysis methods (DuFour et al. 2017), 2) identify potential availability and avoidance biases in the hydroacoustic survey (DuFour et al. 2018), 3) quantify catchability in the existing gill net survey (DuFour et al. 2019), and 4) estimate walleye abundance using a probabilistic species apportionment method (DuFour et al. 2021b).

Graduate Research Assistant (MS) with Dr. Christine Mayer, 2010 - 2012

*Quantification of abundance and variability of larval Walleye (*Sander vitreus*) in the Maumee River*

- MS thesis research used ichthyoplankton sampling and Bayesian state-space/hierarchical models to determine impact of power plant entrainment mortality on Maumee River larval Walleye production, and inform future sampling efforts for larval fishes (DuFour et al. 2014). Statistical methods have contributed to three additional published papers (Rutherford et al. 2016, DuFour et al. 2015, Pritt et al. 2013).

The Ohio State University - F.T. Stone Laboratory

Undergraduate Research Fellow with Drs. Joseph Conroy and Douglas Kane, summer 2005

Algal loading: light-limited tributary algae and nutrient limited offshore algae

Fish ecology course with Drs. John Gannon and David Jude, summer 2005

*Prey selection and foraging in 1+ year Smallmouth Bass (*Micropterus dolomieu*) on Round Goby (*Neogobius melanostomus*)*

Kent State University

Undergraduate individual investigation with Dr. Mark Kershner, summer 2005

A comparison of fish and crayfish assemblages in pool, riffle, and run habitats

PROFESSIONAL EXPERIENCE

Ohio DNR - Division of Wildlife - Sandusky Fisheries Research Station, Sandusky, OH
Fisheries Biologist II supervised by Eric Weimer, 2018 - present

- Manage western Lake Erie bottom trawl survey, monitoring age-0 *Percid* recruitment, and relative abundance of benthically oriented fish community.
- Manage western Lake Erie hydroacoustic survey designed to track the relative density of forage fish community.
- Participate in inter-agency management of Lake Erie *Percid* fisheries as a member of both the Yellow Perch and Walleye Task Groups. Serve as a technical resource for the development, refinement, and interpretation of statistical catch-at-age models used for harvest management.

USGS - Great Lakes Science Center, Ann Arbor, MI
Student Contractor with Dr. Edward Roseman, 2013 - 2015

- Quantified larval fish (Walleye, Yellow Perch, and Lake Whitefish [*Coregonus clupeaformis*]) export patterns from Detroit River distributaries using long-term ichthyoplankton monitoring data and Bayesian state-space models (Roseman et al. *in press*).
- Used portfolio theory to quantify the importance of spawning stock diversity in Lake Erie larval Walleye production, and guide conservation and restoration (**DuFour** et al. 2015).
- Assisted in quantifying the relationship between passively (egg mat) and actively (egg pump) sampled Walleye egg deposition in Lake Erie's open-lake reef complex.

NYS-Department of Environmental Conservation, New Paltz, NY
Contracted by New England Interstate Water Pollution Control Commission, Lowell, MA
Environmental Analyst I (Fisheries) supervised by Kathy Hattala, 2007 - 2010

- Managed Hudson River juvenile Atlantic Sturgeon (*Acipenser oxyrinchus*) gill net monitoring program. Developed a standardized relative abundance index using zero-inflated statistical models with NYS-DEC biologists (**DuFour** and Qian *in prep*).
- Assisted in adult Atlantic Sturgeon monitoring (Mohler et al. 2012), acoustic telemetry studies to identify in-river spawning locations, and PSAT tagging to document oceanic migrations (Erickson et al. 2011).
- Designed, implemented, and co-managed a citizen science based monitoring program for spawning river herring (Alewife; *Alosa pseudoharengus*, Blueback Herring; *Alosa aestivalis*) in Hudson River tributaries.
- Managed Hudson River Blue Crab (*Callinectes sapidus*) tagging to monitor distribution and abundance, and attain resource user information.
- Participated in NOAA - National Marine Fisheries Service and Atlantic States Marine Fisheries Commission (ASMFC) meetings regarding the stock status of Hudson River Short-nose Sturgeon (*Acipenser brevirostrum*), Atlantic Sturgeon, Striped Bass (*Morone saxatilis*), and river herring.

NYS - Department of Environmental Conservation, New Paltz, NY
Fisheries Laborer supervised by Kathy Hattala, 2006

- Monitored Hudson River anadromous fish populations using small boats (<22 ft), bottom set and drift gillnets, beach and haul seines, electrofishing boats, external tags, and radio and acoustic telemetry.

AWARDS AND FELLOWSHIPS

INFORMS Decision Analysis Society Practice Award, 2020

A Decision Analytic Approach to Collaboratively Respond to Invasive Grass Carp in Lake Erie

Robinson, K.F., **DuFour, M.R.**, Nathan, L., Fischer, J.L., Jones, M., Herbst, S.J., and Newcomb, T.

Outstanding Graduate Student Research Paper Award, 2015 and 2016

University of Toledo - Department of Environmental Sciences

David M. Dolan Memorial Scholarship, 2015

International Association of Great Lakes Research

Long-Term Great Lakes Fellowship, 2011 - 2012

NOAA - GLERL/Cooperative Institute for Limnology and Ecosystem Research

Undergraduate Research Fellowship, summer 2005

The Ohio State University - F.T. Stone Laboratory

ADDITIONAL EXPERIENCE

Mentoring & Supervising

- Faith VanDrunen – graduate student (mentor)
Northern Michigan University, 2021 – present
St. Marys River larval fish response to Water discharge in the main rapids
- Alex Cabanelas-Bermudez – graduate student (mentor)
The Ohio State University, 2020 – 2022
Seasonal Hypoxia Influences Yellow Perch Spatio-temporal Distributions
- Kaitlen Lang - graduate student (committee member)
University of Toledo, 2020 - 2022
Dead giveaway: Change in mortality rates signal Grass Carp control strategy effectiveness
- Touhue Yang - graduate student (committee member)
University of Toledo, 2019 - 2021
Diets of age-0 walleye: A reflection of food web changes in western Lake Erie
- Seasonal staff
Ohio DNR - Division of Wildlife, 2018 - 2021
Various tasks related to fisheries data collection and processing
- Peter Jenkins - Research Technician
ODNR - Division of Wildlife, 2018 - 2019
*Seasonal growth of Lake Erie Yellow Perch (Jenkins and **DuFour**, in prep)*

- Shea Volkel – graduate student (mentor)
Michigan State University, 2017.
Yellow Perch pre-recruit survey analysis
- Ryan Andrews - Research Technician
University of Toledo, 2014 - 2015
Do Lake Erie Walleye conform to an ideal free distribution?
- Robert Mapes - Undergraduate Research and Mentoring Program
University of Toledo, 2010 - 2013
Historical changes in the Maumee River larval fish community (Mapes et al. 2014)
- Sean Maiorano - Ossining High School Science Research Program
NYS-Department of Environmental Conservation, 2008 - 2010
Quantifying the relative abundance of juvenile Atlantic Sturgeon in the Hudson River
- Seasonal staff
NYS-Department of Environmental Conservation, 2007 - 2010
Various tasks related to fisheries data collection and processing

Teaching

- Teaching Assistant - Environmental problems lab (EEES 1140)
University of Toledo, spring 2016
- Guest Lecturer - Down to Earth: Environmental Science (EEES 1130), *The scientific method*
University of Toledo, fall 2013
- Guest Lecturer - Biostatistics (EEES 6400), *Bayesian statistics*
University of Toledo, fall 2011

Professional Service

- Canadian Journal of Fisheries Science, 2022 (1), 2018 (1)
- Ecosphere, 2019 (1)
- Fisheries Research, 2020 (1), 2019 (2)
- Freshwater Sciences, 2019 (1)
- Harmful Algae, 2022 (1)
- Journal of Great Lakes Research, 2022 (1), 2020 (2), 2015 (1), 2013 (1)
- Management of Biological Invasions, 2022 (1)
- North American Journal of Fisheries Management, 2022 (1), 2021 (1), 2020 (1), 2019 (1)
- Ohio Sea Grant College Program, 2015 (1 large grant)
- River Research and Applications, 2020 (1)
- Transactions of the American Fisheries Society, 2020 (1), 2018 (1)

Organization Memberships

- American Fisheries Society, 2008 - 2022
- International Association of Great Lakes Research, 2010 - 2017
- World Sturgeon Conservation Society, 2008 - 2009

Software

- ADMB, SAS, Program R, Rstudio, Rmarkdown (this CV), OpenBUGS, JAGS, Stan, ArcMap, Microsoft office suite, Echoview (base, schools detection, virtual echogram, fish tracking,

COM scripting), BioSonics-Visual Acquisition, LaTeX.

GRANTS AND FUNDING

4. **DuFour, M.R.**, Roberts, J.J., Faust, M.D., and Hartman, T. *Post-release survival and detection frequency of acoustically tagged Yellow Perch in Lake Erie*. Great Lakes Fishery Commission Pilot Project, \$20,000, Spring 2022.
3. Ludsin, S.A., Winslow, C.J., Marschall, E.A., DeVanna-Fussell, K.M., Craig, J.K., **DuFour, M.R.**, Robinson, K.F., Mason, D.M., Roth, B.M., Zhang, H., and Julian, D.A. *Undergraduate Population and Ecosystem Dynamics Workshop*. National Oceanic and Atmospheric Administration - Sea Grant, \$140,000, Summer 2021.
2. Robinson, K., Herbst, S., Boase, J., Francis, J., **DuFour, M.**, Brenden, T., Kocovsky, P., Scribner, K., and Robinson, J. *Implementing and evaluating grass carp control actions in Lake Erie*. Michigan Invasive Species Grant Program, \$250,000, April 2018 - March 2020.
1. Roseman, E.F., Olds, C., Harrington, H., Calappi, T., Suedel, B., Wilkens, J., Moerke, A., Chong, S., Godby, N., **DuFour, M.R.** *Assessment of larval fish production at the St. Marys River rapids related to changes in compensating gates operation*. Great Lakes Restoration Initiative, \$760,000, 2018 - 2020.

SCIENTIFIC PUBLICATIONS

25. Qian, S.S., **DuFour, M.R.**, and Alameddine, I. 2022. *Bayesian Applications in Environmental and Ecological Studies with R and Stan*. CRC Press - Taylor & Francis Group, Boca Raton, FL. ISBN 9781138497399.
24. **DuFour, M.R.**, Keretz, K.R., and Oldham, R.C. 2022. *Hydroacoustic data from central Lake Erie, 2021: U.S. Geological Survey Data Release*, <https://doi.org/10.5066/P9S2NFTP>
23. Fischer, J.L., Nathan, L.R., Buszkiewicz, J., Colm, J., Drake, D.A.R., **DuFour, M.R.**, Kocovsky, P.M., Marson, D., Smyth, E.R.B., Young, R., and Robinson, K.R. 2022. *Using surrogate taxa to inform response methods for invasive grass carp in the Laurentian Great Lakes*. North American Journal of Fisheries Management, DOI: <https://doi.org/10.1002/nafm.10724>.
22. Bade, A.P., Dippold, D.A., Schmidt, B.A., **DuFour, M.R.**, Hartman, T.J., and Ludsin, S.A. *Angler choices that help catch lots of big fish*. Fisheries, 1:13. DOI: <https://doi.org/10.1002/fsh.10722>.
21. Roseman, E.F., **DuFour, M.R.**, Pritt, J.J., Fischer, J.L., DeBruyne, R.L., and Bennion, D. 2021. *Export of pelagic fish larvae from a large Great Lakes connecting channel*. Advances in Limnology, 66: 225-243.
20. Sinclair, J.S., Fraker, M.E., Hood, J.M., Frank, K.T., **DuFour, M.R.**, Gorman, A.M., and Ludsin, S.A. *Functional traits reveal the dominant drivers of long-term community change across a North American Great Lake*. Global Change Biology, 00: 1-20. DOI: [\[https://doi.org/10.1111.gcb.15902\]](https://doi.org/10.1111.gcb.15902)

19. **DuFour, M.R.**, Kocovsky, P.M., Deller, J., Simonin, P.W., and Rudstam, L.G. *Hydroacoustic survey standardization: Inter-vessel differences in fish densities and potential effects of vessel avoidance*. Fisheries Research, 239: 105948.
18. **DuFour, M.R.**, Qian, S.S., Mayer, C.M., and Vandergoot, C.S. 2021b. *Embracing uncertainty to reduce bias in hydroacoustic species apportionment*. Fisheries Research, 233: 105750.
17. Herbst, S.J., Nathan, L.R., Newcomb, T.J., **DuFour, M.R.**, Tyson, J., Weimer, E., Buszkiewicz, J., and Dettmers, J.M. 2021. *An adaptive management approach for implementing multi-jurisdictional response to Grass Carp in Lake Erie*. Journal of Great Lakes Research, 47: 96-107.
16. Robinson, K.F., **DuFour, M.R.**, Jones, M.L., Herbst, S.J., Newcomb, T.J., Boase, J., Brenden, T., Chapman, D., Dettmers, J., Francis, J., Hartman, T., Kocovsky, P., Locke, B., Mayer, C., and Tyson, J. 2021. *Using decision analysis to collaboratively respond to invasive species threats: A case study of Lake Erie Grass Carp (Ctenopharyngodon idella)*. Journal of Great Lakes Research, 47, 108-119.
15. **DuFour, M.R.**, Robinson, K.F., Herbst, S.J., and Jones, M.J. 2021a. *A matrix population model to aid agency response to grass carp (Ctenopharyngodon idella) in the Great Lakes Basin - Lake Erie*. Journal of Great Lakes Research, 47: 69-82.
14. Slagle, Z.J., Faust, M.D., Keretz, K.R., and **DuFour, M.R.**. 2019. *Post-tournament dispersal of Smallmouth Bass in western Lake Erie*. Journal of Great Lakes Research, 46: 198-206.
13. **DuFour, M.R.**, Qian, S.S., Mayer, C.M., Vandergoot, C.S. 2019. *Evaluating catchability in a large-scale gillnet survey using hydroacoustics: Making the case for coupled surveys*. Fisheries Research, 211: 309-318.
12. **DuFour, M.R.**, Mayer, C.M., Qian, S.S., Vandergoot, C.S., Kraus, R.T., Kocovsky, P.K., and Warner, D.M. 2018. *Inferred fish behavior its implications for hydroacoustic surveys in nearshore habitats*. Fisheries Research, 199: 63-75.
11. **DuFour, M.R.**, Mayer, C.M., Kocovsky, P.M., Qian, S.S., Warner, D.M., Kraus, R.T., and Vandergoot, C.S. 2017. *Sparse targets in hydroacoustic surveys: Balancing quantity and quality of in situ target strength data*. Fisheries Research, 188: 173-182.
10. Rutherford, E.S., Allison, J., Ruetz III, C.R., Elliot, J.R., Nohner, J.K., **DuFour, M.R.**, O'Neal, R.P., Jude, D.J., and Hensler, S.R. 2016. *Density and survival of Walleye (Sander vitreus) eggs and larvae in a Great Lakes tributary*. Transactions of the American Fisheries Society, 145: 563-577.
9. **DuFour M.R.**, May, C.J., Roseman, E.F., Ludsins, 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.M. 2015. *Portfolio theory as a management tool to guide conservation and restoration of multi-stock fish population*. Ecosphere, 6(12): Art. 296.
8. Qian, S.S., Chaffin, J.D., **DuFour, M.R.**, Sherman, J.J., Golnick, P.C., Collier, C.D., Nummer, S.A., and Margida, M.G. 2015. *Quantifying and reducing uncertainty in estimated microcystin concentrations from the ELISA method*. Environmental Science and Technology, 49(24): 14221-14229.
7. Fraker, M.E., Anderson, E.J., May, C.J., Chen, K.Y, Davis, J.J., DeVanna, K.M., **DuFour, M.R.**, Marschall, E.A., Mayer, C.M., Miner, J.G., Pangle, K.L., Pritt, J.J., Roseman, E.F., Tyson, J.T., Zhao, Y. and Ludsins, S.A. 2014. *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(3): 830-845.

6. **DuFour, M.R.**, Pritt, J.J., Mayer, C.M., Stow, C.A., and Qian, S.S. 2014. *Bayesian hierarchical modeling of larval Walleye (Sander vitreus) abundance and mortality: accounting for spatial and temporal variability on a large river.* Journal of Great Lakes Research, 40(Supplement 3): 29-40.
5. Mapes, R.L., **DuFour, M.R.**, Pritt, J.J., and Mayer, C.M. 2014. *Larval fish assemblage recovery: A reflection of environmental change in a large degraded river.* Restoration Ecology, 23(1): 85-93.
4. Pritt, J.J., **DuFour, M.R.**, Mayer, C.M., Roseman, E.F., and DeBruyne, R.L. 2014. *Sampling little fish in big rivers: Larval fish detection probabilities in two Lake Erie tributaries and implications for abundance indices and richness estimates.* Transactions of the American Fisheries Society, 143(4): 1011-1027.
3. Pritt, J.J., **DuFour, M.R.**, Mayer, C.M., Kocovsky, P.M., Tyson, J.T., Weimer, E.J., and Vandergoot, C.S. 2013. *Including independent estimates and uncertainty to quantify total abundance of fish migrating in a large river system: Walleye (Sander vitreus) in the Maumee River, Ohio.* Canadian Journal of Fisheries and Aquatic Resources, 70(5): 803-814.
2. Mohler, J.W., Sweka, J.A., Kahnle, A., Hattala, K., Higgs, A., **DuFour, M.**, Breece, M. W., and Fox, D.A. 2012. *Growth and survival of hatchery-produced Atlantic sturgeon released as young-of-year into the Hudson River, New York.* Journal of Fish and Wildlife Management, 3(1): 23-32.
1. Erickson, D.L., Kahnle, A., Millard, M.J., Mora, E.A., Bryja, M., Higgs, A., Mohler, J., **DuFour, M.**, Kenney, G., Sweka, J. and Pikitch, E.K. 2011. *Use of pop-up satellite archival tags to identify oceanic-migratory patterns for adult Atlantic sturgeon, Acipenser oxyrinchus oxyrinchus Mitchell, 1815.* Journal of Applied Ichthyology, 27(2): 356-365.

Manuscripts in review/revision

3. **DuFour, M.R.** and Qian, S.S. *Evaluating population trends at low abundance in a dynamic estuarine environment: juvenile Atlantic sturgeon.* Fisheries Management and Ecology, in review.
2. Yang, T., Mayer, C.M., DeBruyne, R.L., Roseman, R.F., **DuFour, M.R.**, and Weimer, E.J. *Food web changes reflected in age-0 piscivore diets and growth.* Ecology of Freshwater Fish, in review.
1. Evans, T.M., Rudstam, L.G., Sethi, S.A., Warner, D.M., Hanson, S.D., Turschak, B., Farha, S.A., Barnard, A.R., Yule, D.L., **DuFour, M.R.**, O'Brien, T.P., McDonnell, K.N., Watkins, J.M., Koproski, S.R., Wells, S.E., Dieter, P.M., Kocher, E., Roberts, J.J., Sencyszyn, S.A., and Esselman, P.C. *Fish avoidance of ships during acoustic surveys tested with quiet uncrewed surface vessels in the Great Lakes.* Fisheries Research, in review.

Manuscripts in prep

5. Robinson, K.R., **DuFour, M.R.**, Fischer, J.L., Herbst, S.J., Jones, M.L., Lucas, N., and Newcomb, T.J. *Lessons learned in applying decision analysis to natural resources management for high stakes issues surrounded by uncertainty.* Decision Analysis, in prep.
4. Bade, A.P., Faust, M.F., Vandergoot, C.S., **DuFour, M.R.**, Marschall, E., Ludsins, S.A. *Spawning Site Selection in Lake Erie Walleye: Implications for Management.* in prep.

3. Jenkins, P.J., and **DuFour, M.R.** *Quantifying seasonal growth of Lake Erie Yellow Perch: A hierarchical perspective. in prep.*
2. Ross, J.E., Roseman, E.F., **DuFour, M.R.**, DeBruyne, R.L., Kraus, R.T., Pritt, J.J., Fisher, J.R., Weimer, E.J., Mayer, C.M., and Tucker, T.R. *Spatial and temporal patterns of age-0 fishes in western Lake Erie. in prep.*
1. VanDrunen, S.F.K., **DuFour, M.R.**, Roseman, E.F., DeBruyne, R.L., Moerke, A.H., Harrington, H.F., Calappi, T.J., McDonnell, K.A., and Gerig, B.S. *Larval fish export in response to compensating gate altered discharge. in prep.*

CONFERENCE PRESENTATIONS

Invited

Peterson, L.K., Jones, M.L., Catalano, M.J., Berger, A., and **DuFour, M.** August 2022. *Engaging stakeholders in walleye management through the Lake Erie Percid Management Advisory Group.* 152nd Annual Meeting of the American Fisheries Society, Spokane, WA.

DuFour, M., Peterson, L., Syslo, J., Reilly, R., Maguffee, A., and Jones, M. August 2022. *Building models and relationships: collaboratively managing yellow perch on Lake Erie.* 152nd Annual Meeting of the American Fisheries Society, Spokane, WA.

DuFour, M.R., Roseman, E.F., Pritt, J.P., Fischer, J.L., DeBruyne, R.L., and Bennion, D.H. May 2017. *Estimating Detroit River larval Walleye export with a Bayesian hierarchical state-space model.* 60th International Association of Great Lakes Research Conference, Detroit, MI.

DuFour, M.R., Qian, S.S., Mayer, C.M., and Vandergoot, C.S. February 2015. *Bayesian shrinkage estimators in fisheries: Improving population estimates by moving toward the middle.* 75th Midwest Fish and Wildlife Conference, Indianapolis, IN.

DuFour, M.R., Pritt, J.J., Mayer, C.M., May, C.J., Ludsins, S.A., Marschall, E.A., Fraker, M.E., Roseman, E.F., Vandergoot, C.S., Tyson, J.T., Davis, J.J., and Miner, J.G. August 2014. *Diversity in a multi-stock system: Temporal and spatial portfolio effects in Lake Erie Walleye production.* 144th American Fisheries Society Conference, Quebec City, QC.

DuFour, M.R., Pritt, J.J., Mayer, C.M., Stow, C.A., Tyson, J.T., Weimer, E.J., and Kocovsky, P.M. March 2012. *Quantification of abundance and mortality of Maumee River larval Walleye: Accounting for variability and uncertainty.* USGS Great Lakes Science Center Brown Bag Seminar, Ann Arbor, MI.

Contributed

Slagle, Z., Hartman, T., and **DuFour, M.** December 2022. *Opening Lake Erie's spring bass season: standardized assessments lead to increased opportunities for anglers.* ODNR Division of Wildlife/The Ohio State University Research Review, Columbus, OH.

DuFour, M., Cook, A., Deller, J., Holden, J., Roberts, J., Schmitt, J., and Slagle, Z. August 2022. *Aligning hydroacoustic survey goals, logistics, and analyses: Lake Erie pelagic prey fishes.* 152nd Annual Meeting of the American Fisheries Society, Spokane, WA.

Esselman, P.C., Warner, D.M., Rudstam, L.G., Hanson, D., Turschak, B., Evans, T.M., Yule, D., Sethi, S., Watkins, J.M., Farha, S., O'Briaen, T.P., Dieter, P., **DuFour, M.R.**, Roberts, J.J., McDonnell,

K.N., Wells, S.E., Koproski, S., Clapp, D., and Swain, J.D. May 2022. *Early successes of a multi-agency study to quantify and correct for biases in acoustic fish abundance estimates in the Great Lakes*. Joint Aquatic Sciences Meeting, Grand Rapids, MI.

Evans, T.M., Warner, D.M., Rudstam, L.G., Sethi, S., Hanson, D., Turschak, B., Yule, D., Farha, S., O'brian, T.P., McDonnell, K.N., Watchinks, J.M., **DuFour, M.R.**, Barnard, A., Wells, S.E., Koproski, S., Dieter, P.M., Kocher, E., Roberts, J.J., Swain, J.D., and Esselman, P.C. May 2022. *Saildrone acoustics surveys provide insight into vessel avoidance by fishes*. Joint Aquatic Sciences Meeting, Grand Rapids, MI.

Yang, T., Mayer, C., DeBruyne, R., Roseman, E., and **DuFour, M.** May 2022. *Diets of age-0 walleye: a reflection of food web changes in Western Lake Erie*. Joint Aquatic Sciences Meeting, Grand Rapids, MI.

VanDrunen, R., **DuFour, M.**, Roseman, E., DeBruyne, R., Harrington, H., Calappi, T., Moerke, A., and Gerig, B. May 2022. *St. Marys River larval fish response to Water discharge in the main rapids*. Joint Aquatic Sciences Meeting, Grand Rapids, MI.

Lang, K., Mayer, C., Kocovsky, P., Hintz, W., **DuFour, M.**, Nathan, L., Weimer, E., Dettmers, J., and Young, R. May 2022. *Rising grass carp mortality rates suggest collaborative management success in Lake Erie basin*. Joint Aquatic Sciences Meeting, Grand Rapids, MI.

Yang, T., Mayer, C., Roseman, E., DeBruyne, R., and **DuFour, M.** December 2021. *Diets of Age-0 Walleye reflect food web changes in Western Lake Erie*. ODNR Division of Wildlife/The Ohio State University Research Review, Columbus, OH.

Lang, K., Mayer, C., Hintz, W., Qian, S., **DuFour, M.**, Kocovsky, P., Nathan, L., and Young, R. December 2021. *Dead giveaway: Changes in grass carp mortality rates may signal management success*. ODNR Division of Wildlife/The Ohio State University Research Review, Columbus, OH.

DuFour, M.R., and Jenkins, P. December 2020. *Identifying trends in early growth of Lake Erie Yellow Perch and adapting assessment protocols*. ODNR Division of Wildlife/The Ohio State University Research Review, Columbus, OH.

DuFour, M.R., Herbst, S.J., Popoff, N.D., Newcomb, T.J., Francis, J., Carter, R., Navarro, J., Jones, M.L., Robinson, K.F., Brenden, T.O., Mahon, A., Pangle, K., and Tyson, J. October 2017. *Multi-jurisdictional collaborations and structured approach for Grass Carp control in Lake Erie*. 20th International Conference on Aquatic Invasive Species, Fort Lauderdale, FL.

DuFour, M.R., Qian, S.S., Mayer, C.M., and Vandergoot, C.S. August 2016. *Accounting for sampling uncertainty in hydroacoustic species apportionment*. American Fisheries Society Conference, Kansas City, MO.

DuFour, M.R., Mayer, C.M., Qian, S.S., Kocovsky, P.M., Kraus, R.K., Vandergoot, C.S., and Warner, D.M. June 2016. *Hydroacoustic abundance estimates and Walleye behavior: A tale of two ships*. 59th International Association of Great Lakes Research Conference, Guelph, ON.

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