

Cathleen M. Doyle

Curriculum Vitae

Aquatic Ecology Laboratory
203 C Limnological Processing
1314 Kinnear Rd, Columbus, OH 43212
Cell: (614)330-7443 Office: (614)292-1913
doyle.108@osu.edu

Educational Background

M.S. Biological Sciences, May 2006
University of Louisiana at Lafayette, Lafayette, LA (Dr. Paul Klerks, Advisor)
Thesis Title: Heritability of heat tolerance in the least killifish, *Heterandria formosa*.
GPA: 3.75/4.0

Continuing Education, September 1998 – August 2003, Autumn 2007
The Ohio State University, Columbus, OH
GPA: 3.716/4.0

B.S. Biological Sciences, May 1991
Major: Biology; Minors: Chemistry and English
Ohio Dominican University, Columbus, OH
GPA: 3.38/4.0

Experience

- 2014-Present Research Assistant – LEPAS Project Co-Head Technician (Aquatic Ecology Laboratory; The Ohio State University, Columbus, OH)
- Co-head technician for Lake Erie Plankton Abundance Study (LEPAS): oversee day-to-day operations of monitoring program, manage budgets, and co-author proposals and reports with project PI
 - Manage budgets for ~\$150,000/y Ohio Department of Natural Resources zooplankton monitoring program and for ~\$115,000/y Ohio Environmental Protection Agency phytoplankton monitoring program.
 - Co-authored successful proposals to seek continued support for zooplankton (2014-present) and phytoplankton (2021-present) monitoring programs. I write first draft and PI edits and polishes.
 - Co-authored quarterly and annual reports (2014-present). I write the first draft and PI edits and polishes.

- Enumerate Lake Erie zooplankton (2006-2021) and phytoplankton (2021-present). For the LEPAS program, zooplankton samples are generally enumerated to species while phytoplankton taxa are enumerated to genus.
- Training and management:
 - Trained two full-time research technicians to count zooplankton
 - Every year, I train and managed undergraduate students assisting with routine research including preparing phytoplankton samples, analyzing chlorophyll *a* samples, and data entry.
 - Helped developed new program for enumerating invasive predatory zooplankter (*Bythotrephes longimanus*); then, trained and managed 10 undergraduate researchers who enumerated *B. longimanus* in historic LEPAS zooplankton samples.

2006-2014

Research Assistant/LEPAS Project (Culver Limnology Lab OSU)

Department of Evolution, Ecology, and Organismal Biology, The Ohio State University, Columbus, OH

Assist graduate students with research on fish hatchery management to increase percid production, minimize water quality concerns in Catfish ponds, and monitor for zebra mussels at all state fish hatcheries; enumerate zooplankton and phytoplankton samples collected by the Ohio Division of Wildlife (ODW) from Lake Erie for the Lake Erie Plankton Abundance Study (LEPAS) and the Cuyahoga River project. I analyzed zooplankton and phytoplankton for an Ohio EPA project from estuaries and wetland areas collected along the southern shore of Lake Erie.

- I analyze zooplankton and fish diets using a dissecting microscope to determine zooplankton density and biomass and dietary electivity and selectivity in larval walleye, saugeye, and age-0 channel catfish using stomach analyses.
- I use a spectrophotometer to analyze Chlorophyll *a* samples for the LEPAS project as well as phosphate analyses used in hatchery water quality studies. I have also used a fluorometer to analyze ammonia from hatchery pond samples.
- I have used an inverted microscope for phytoplankton enumeration to determine the effects of nutrients on species composition in ponds and Lake Erie.
- I assist in writing quarterly reports as well as final reports for projects completed in the lab (Cuyahoga Reports, OEPA Reports, and the LEPF (Lake Erie Protection Fund project examining *Microcystis* in the Maumee and Sandusky Rivers).
- I participated in the lower trophic level workshop training ODW personnel in zooplankton and phytoplankton identification and enumeration, leading the lecture and lab section on zooplankton discussing community structure in ponds and species identification.

- I helped train Aquatic Ecology Lab personnel learn the LEPAS zooplankton protocol to add information to the LEPAS database.

2004-2006

Graduate Teaching Assistant

Department of Biology, University of Louisiana at Lafayette, Lafayette, LA
Assisted the lab coordinator with laboratory setup and teaching various sections of the introductory biology labs for both majors' and non-majors' courses.
Operated open laboratory sections for all introductory biology sections.

- I designed the labs used in my non-majors' laboratory sections with a focus on aquatic ecology.

2001-2003

Research Assistant

Department of Evolution, Ecology, and Organismal Biology, The Ohio State University, Columbus, OH
Assisted graduate students with research on fish hatchery management to increase percid production. We also monitored five state fish hatcheries for zebra mussels.

- Performed zooplankton enumerations, fish diet analyses, chlorophyll analyses, and water quality analyses. Presented data to graduate students in excel files.

1987-2000

Wendy's International, Columbus, OH

In charge of opening and closing stores at various locations, managing 2-15 employees, ordering food supplies and paper products weekly, assisting with weekly inventory, and training crew members.

Publications

Doyle, C.M., D.A. Culver, M. Pugh, and J.E. Filbrun (2021) *A Comparison of Aquaculture Production Methods for Optimizing Production of Fingerling Yellow Perch (Perca flavescens)*. In: *Yellow Perch, Walleye, and Sauger: Aspects of Ecology, Management, and Culture*. (J. Bruner and R. Debruyne Eds.)

Briland, R.D., C.M. Doyle, and D.A. Culver. (2015) *Large scale production of yellow perch, walleye, and hybrid walleye in ponds*. In: *Biology and Culture of Percid Fishes-Principals and Practices* (P. Kestemont Ed.) 901 pp.

Doyle, C.M. and P.L. Klerks. (2011) Heritability of heat tolerance in a small livebearing fish, *Heterandria formosa*. *Ecotoxicology* 20:535-542.

Filbrun, J.E., D.A. Culver, R.D. Briland, and C.M. Doyle. (2008) The quality of Ohio state fish hatcheries' water supplies, 2005-2008. State Project FADX14 Interim Report, Ohio Department of Natural Resources, Ohio Division of Wildlife. 81 pp.

Publications (*In prep*)

Doyle, C.M., J.D. Horn, and D.A. Culver. (*In prep*) Modeling lower trophic effects on Yellow Perch dynamics in Lake Erie. Target journal, *Ecological Modeling*.

Filbrun, J.E. and C.M. Doyle (*In prep*) Effects of feed provision on diel foraging and growth of first-feeding Channel Catfish and Hybrid (Channel x Blue) Catfish. Target journal, *North American Journal of Aquaculture*.

Filbrun, J.E., D.A. Culver, E.N. Brumbaugh, C.M. Doyle, and S.A. Ludsin. (*In prep*) Coupled fish and plankton responses to varying fish densities in fertilized ponds. Target journal, *Aquaculture*.

Doyle, C.M., D.A. Culver, M. Pugh, and J.E. Filbrun (*In prep*) Optimizing aquaculture production methods for the successful production of yellow perch (*Perca flavescens*). Target journal, *Aquaculture Research*.

Invited Lectures

- 2009 Doyle, C.M. 2009. *Zooplankton Overview*. State fish hatchery lower trophic levels and water quality workshop. Ohio State University and Ohio Department of Natural Resources, Division of Wildlife. 9-10 March.
- We focused on lower trophic level (LTL) and water quality (WQ) issues that influence fish production in the hatcheries. We provided the hatchery personnel tools to help assess their LTL/WQ issues providing training in phytoplankton and zooplankton identification and how nutrients affect pond dynamics between phytoplankton (edible algae), zooplankton (prey), and planktivores (larval fish).
- 2008 Doyle, C.M. 2008. *Paleolimnology*. EEOB 655: Limnology. The Ohio State University. 21 May.
- I developed and presented a lecture on paleolimnology for the limnology class, discussing how sediment cores from lakes can be used to reconstruct the past by examining the fossils, geological and chemical signals preserved in the core to reveal the ecological history of a lake and its surrounding landscape. I discussed sampling methods, core preparation, sediment properties, how to date sediments, and some of the problems encountered when trying to date the layers.
 - I designed a laboratory exercise to reinforce the principles taught in my lecture: using diatom remains to determine the changes in lake nutrient status over 200 years and using volcanic ash, varves, and radioactive carbon to date sediment cores.

Presentations at Scientific Meetings (presenting author in bold)

2021

Doyle, C.M., D.A. Culver, and J.E. Filbrun 2021. *Effects of Feed Provision on Diel Foraging and Growth of First-Feeding Channel Catfish and Hybrid (Channel × Blue) Catfish*. Poster presented at the Ohio Department of Natural Resources, Division of Wildlife Annual Research Review. Columbus, Ohio, 9-10 December.

Doyle, C.M., D.A. Culver, M. Pugh, and J.E. Filbrun 2021. *A Comparison of Aquaculture Production Methods for Optimizing Production of Fingerling Yellow Perch (Perca flavescens)*. The Ohio Chapter of the American Fisheries Society, 25 – 26 February.

2020

Doyle, C.M., D.A. Culver, M. Pugh, and J.E. Filbrun 2021. *A Comparison of Aquaculture Production Methods for Optimizing Production of Fingerling Yellow Perch (Perca flavescens)*. American Fisheries Society 150th Virtual Annual meeting, 14 – 25 September.

2018

Filbrun, J.E., **C.M. Doyle**, and N. Chatakondi. 2018. *Diets and growth of first-feeding Channel and hybrid (Channel X Blue) Catfish*. Poster presented at the Ohio Chapter of the American Fisheries Society – Ohio Aquaculture Association Joint Meeting, Columbus, Ohio, 26 – 27 January.

2016

Doyle, C.M., D.A. Culver, M. Kulasa, A. Ford, and K. Kayle. 2016. *Plankton dynamics of the Cuyahoga River's "Old Channel" vs. the main shipping channel*. Ohio Department of Natural Resources, Division of Wildlife Annual Research Review. Columbus, Ohio, 28 January.

2015

C.M. Doyle, D.A. Culver, and K. Kayle. 2015. *What plankton monitoring can tell us about removal of Beneficial Use Impairments in the Cuyahoga River AOC*. Ohio Department of Natural Resources, Division of Wildlife Annual Research Review, Columbus, Ohio, 29 January.

2014

C.M. Doyle and D.A. Culver. 2014. *Optimizing fingerling yellow perch production in earthen ponds*. Poster presented at the Ohio Department of Natural Resources, Division of Wildlife Annual Research Review, Columbus, Ohio, 16 – 17 January.

2013

Culver, D.A., R.D. Briland, and C.M. Doyle. 2013. *Building Harmful Algal Bloom Knowledge*. Co-instructor of a continuing education workshop at the joint meeting of the West Virginia and Ohio Chapters of the American Fisheries Society, *Partnering Today for Tomorrow's Challenges*, in Huntington, West Virginia, 19 – 21 February.

2010

- 2009 **Klerks, P.L.**, G. Athrey, C. Doyle, and L. Xie. 2010. *Laboratory selection in the least killifish for resistance to environmental stressors (Cd, heat): selection responses and correlated changes*. 20th SETAC Europe annual meeting, Science and Technology for Environmental Protection. Seville, Spain, 23 – 27 May.
- 2009 **Filbrun, J.E.**, C.M. Doyle, R.D. Briland, and D.A. Culver. 2009. *The quality of Ohio's state fish hatcheries' water supply, 2005 – 2008*. Ohio Department of Natural Resources, Division of Wildlife Annual Research Review, Columbus, Ohio, 19 February.
- 2008 **Doyle, C.M.**, R. Briland, K. Carlson, and D.A. Culver. 2008. *Ammonia, organics, metals, and P: monitoring hatchery water quality*. Poster presented at the American Fisheries Society annual meeting. Ottawa, Ontario, Canada, 20 August.
- Doyle, C.M.**, R. Briland, K. Carlson, and D.A. Culver. 2008. *Ammonia, organics, metals, and P: monitoring hatchery source quality*. Ohio Department of Natural Resources, Division of Wildlife Annual Research Review, Columbus, Ohio, 21 February.
- Doyle, C.M.**, R. Briland, K. Carlson, and D.A. Culver. 2008. *Ammonia, organics, metals, and P: monitoring hatchery water quality*. Poster presented at the Darwin Award Competition, Department of EEOB, The Ohio State University, Columbus, Ohio, 4 February.
- 2007 **Doyle, C.M.** and P.L. Klerks. 2007. *Heritability of heat tolerance in a small livebearing fish, Heterandria formosa*. Poster presented at the American Fisheries Society annual meeting. San Francisco, California, 4 September.

Additional Skills

I am familiar with Microsoft Word, PowerPoint, Excel, and Access, the statistical software programs JMP and SPSS, SigmaPlot, and becoming familiar with Visual Basic, R programming, and C++.

Awards

2020

The Fish Habitat Section of the American Fisheries Society Travel Award, \$195

Membership in Professional Organizations

The Ohio Chapter of the American Fisheries Society, 2017 – present
 The American Fisheries Society, 2020 – present
 The American Fisheries Society, Fish Habitat Section, 2020 – present

The American Fisheries Society, Early Life History Section, 2022 – present
The Arkansas Chapter of the American Fisheries Society, 2022 – present
The American Elasmobranch Society, 2020 – present
Sigma Xi, The Ohio State Chapter, 2009 – 2010

Reviewer

Aquatic Ecosystem Health and Management
North American Journal of Fisheries Management
A Chapter in: *Yellow Perch, Walleye, and Sauger: Aspects of Ecology, Management, and Culture*. (J. Bruner and R. Debruyne Eds.)

Professional Service and Outreach

Volunteer, Museum of Biological Diversity Open House, The Ohio State University.
Organized the Limnology/Aquatic Ecology activities. 2007 – present.
Volunteer, visiting 6th grad students from the Indianola Alternative Middle School in Columbus, Ohio. 2015 – present. Students learned about aquatic food webs in ponds.
Judge St. Agatha annual science day, St. Agatha Middle School, Columbus, Ohio. 2002, 2003, 2007, 2008, 2009, 2010, 2011, 2012 (Contact: Dan Keller, Ph.D.)
Judge Immaculate Conception Science Fair, Immaculate Conception Grade School, Columbus, Ohio. 2009 (Contact: Ms. Cassandra Cloud)
Teaching Assistant EEOB 655: Limnology. Professor of Record: Dr. David A. Culver. Spring 2008. (Co-lead laboratory sessions with a graduate student TA.)