

Chelsey L. Nieman, Ph.D.

(they/them/she/her)

Postdoctoral Researcher

Cary Institute of Ecosystem Studies

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Education

Ph.D. Environment and Natural Resources, 2019

School of Environment and Natural Resources, College of Food Agriculture and Environmental Science, The Ohio State University, Columbus, OH

Dissertation: Visual Ecology of Lake Erie Fishes: An Investigation of the Impacts of Elevated Turbidity on Vision

Advisor: Dr. Suzanne M. Gray

M.A.S. Marine Biodiversity and Conservation, 2014

Scripps Institution of Oceanography, University of California San Diego, La Jolla, CA

Thesis: Investigating the long-term effects of climate on Norwegian Spring-Spawn Herring (*Clupea harengus*).

Advisor: Dr. Arthur Miller

B.S. *Cum Laude*, Biology and Environmental Sciences, 2012

Linfield College, McMinnville, OR.

Professional Experience

2019-Present Postdoctoral Researcher, Cary Institute of Ecosystem Studies

Mentor: Dr. Christopher T. Solomon

2019 Postdoctoral Researcher, The Ohio State University

Mentor: Dr. Suzanne M. Gray

2014-15 Research Assistant, Aquaculture Division, Hubbs-SeaWorld Research Institute

2012 Fish Technician II, Commercial Finfish Division, Alaska Department of Fish and Game

2007-09 Fish Technician I/ College Intern, Commercial Finfish Division, Alaska Department of Fish and Game

Peer Reviewed Publications

Nieman, C.L., Iwicki C, Lynch, A.J., Sass, G.G., Solomon, C.T., Trudeau, A., van Poorten, B. (2021) Creel surveys for social-ecological systems focused fisheries management. *Reviews in Fisheries Science & Aquaculture*.

Figueriredo, B.R.S., Granzotti, R.V., Fiori, L.F., **Nieman, C.L.**, Benedito, E. (2020) Cascading effects of predation risk in organic and inorganic turbid waters: mesopredator fish shoal and individual perspectives. *Aquatic Ecology*. 1:14.

Nieman, C.L., Bruskotter, J., Braig, E., Gray, S.M. (2020) You can't just use gold: Investigating the effects of altered visual environments on lure color and recreational fisheries within Lake Erie. *Journal of Great Lakes Research*. 46(3).

Ames, E.M., Gade, M.R., **Nieman, C.L.**, Wright, J.R., Tonra, C.M., Marroquin, C.M., Tutterow, A.M., Gray, S.M. (2020) Striving for population-level conservation: integrating physiology across the biological hierarchy. *Conservation Physiology*. 8(1). doi: [10.1093/conphys/coaa019](https://doi.org/10.1093/conphys/coaa019)

Nieman, C.L., and Gray, S.M. (2020) Increases in algal and sedimentary turbidity reduce consumption of prey by Emerald Shiner (*Notropis atherinoides*). *Ecology of Freshwater Fish*. doi:10.1111/eff.12517

Nieman, C.L., and Gray, S.M. (2019) Visual performance impaired by elevated sedimentary and algal turbidity in walleye (*Sander vitreus*) and Emerald Shiner (*Notropis atherinoides*). *Journal of Fish Biology*. 95(1). doi:10.1111/jfb.13878

Nieman, C.L., Oppliger, A., McElwain, C., Gray, S.M. (2018) Visual sensitivity thresholds vary across algal and sedimentary turbidity in two trophically distinct fish species. *Conservation Physiology*. 6(1). doi:10.1093/conphys/coy044

Manuscripts in Preparation/Review

In Review:

Lynch, A.J., Sievert, N.A., Embke, H.S., Robertson, A.M., Myers, B.J.E., Allen, M.S., Feiner, Z.S., Hoogakker, F., Knoche, S., Krogman, R.M., Midway, S.R., **Nieman, C.L.**, Paukert, C.P., Pope, K.L., Rogers, M.W., Wszola, L.S., Beard, T.D. The U.S. inland creel and angler survey catalog (CreelCat): Development, applications, and opportunities. *Submitted to Fisheries*.

Dassow, C.J., **Nieman, C.L.**, Solomon, C.T., Sass, G.G., Jones, S.E. Managing recreational fisheries from a multi-species perspective: Leveraging species interactions and accounting for positive feedback loops to maintain desired ecosystem states. *Submitted to Limnology & Oceanography*.

Fork, M.L., Anderson, E.C., Castellanos, A.A., Fischhoff, I.R., Matsler, A.M., **Nieman, C.L.**, Oleksy, I.A., Wong, M.Y. Creating community: How we collectively built an adaptable postdoctoral program to develop skills and overcome isolation. *Submitted to Ecosphere*.

Nieman, C.L., Hrabak T., Gray S.M. Can fish see the bait on the hook? The relationship between altered visual environments and lure color choice. *Submitted to Journal of Great Lakes Research*.

Nieman, C.L., Solomon, C.T. Slow social change: implications for open access recreational fisheries. *Submitted to Fish and Fisheries*.

Nieman, C.L., Pendleton, R., Kinney, G., Solomon, C.T. Evaluation and optimization of a long-term fish monitoring program in the Hudson River. *Submitted to Ecological Indicators*.

In Preparation:

Gray, S.M., **Nieman, C.L.**, Chapman, L.J. Colour variation in *Barbus neumayeri*, an African cyprinid found across dissolved oxygen and turbidity extremes. *Prepared for Journal of Fish Biology*.

Nieman, C.L., Gray, S.M. Visual morphological structures of emerald shiner (*Notropis atherinoides*) correlate with relative turbidity levels over the last century in the western basin of Lake Erie. *Prepared for Canadian Journal of Fisheries and Aquatic Sciences*.

White Papers/Technical Report Contributions

- 2020 National creel and angler survey database virtual workshop: Summary. *USGS NCASC*.
- 2020 Report on power analyses of Hudson River Biological Monitoring Program fish surveys. Hudson River Foundation

Presentations

Invited Presentations:

- 2020 Nieman, C.L., J. Bruskotter, E. Braig, S.M. Gray. You Can't Just Use Gold: Using Mobile Phone Applications to Collect Data on Fish Physiology. 150th American Fisheries Society Annual Meeting, Columbus, OH/online.
- 2020 Nieman, C.L., "Fishing through time: Using creel data to unravel long-term patterns of participation in recreational fisheries." USGS NCASC National Creel and Angler Survey Database Virtual Workshop.
- 2019 Nieman, C.L., "Angling in the Anthropocene: Understanding the changing fisheries landscape", Cary Institute of Ecosystem Studies Seminar Series.
- 2018 Nieman, C.L., "Visual Ecology of Lake Erie Fishes" Research Brief. F.T. Stone Laboratory Guest Lecture Series. Ohio Sea Grant.

Oral Presentations:

- 2020 Nieman, C.L., A. Trudeau, O. Jensen, C.T. Solomon "Synthesizing Creel Survey Data to Understand Trends in Recreational Angling Across Time and Space." 150th American Fisheries Society Annual Meeting, Columbus, OH/online.
- 2020 Nieman, C.L., T. Hrabak, S.M. Gray. "Can the fish see the bait on the hook: The relationship between altered visual environments and lure color choice". 150th American Fisheries Society Annual Meeting, Columbus, OH/online.
- 2020 Nieman, C.L., S.M. Gray "Seeing into The Past: An Investigation of The Relationship Between Visual Morphology and 90 Years of Anthropogenic Turbidity in Emerald Shiner" 80th Midwest Fish and Wildlife Conference, Springfield, IL.
- 2019 Gray, S.M., C. L. Nieman, A.L. Oppliger, J. Bruskotter, E. Braig, T. Hrabak "Can fish see the bait on the hook?" Lake Erie – Inland Waters Annual Research Review. Columbus, OH.
- 2019 Nieman, C.L., S.M. Gray "You can't just use gold: The effects of elevated algal and sedimentary turbidity on lure success for Walleye (*Sander vitreus*)" 79th Midwest Fish and Wildlife Conference, Cleveland, OH.
- 2018 Nieman, C.L., S.M. Gray "Visual performance impaired by elevated sedimentary and algal turbidity in walleye (*Sander vitreus*) and Emerald Shiner (*Notropis atherinoides*)" International Congress on the Biology of Fish. Calgary, Alberta, Canada.
- 2018 Gray, S. M., A.L. Oppliger, C.C. McElwain, C.L. Nieman "Visual detection thresholds in Walleye and their prey are compromised in algal compared to sedimentary turbidity" 13th International Congress on the Biology of Fish, Calgary, Alberta, Canada.
- 2018 Nieman, C.L., A. Oppliger, C. McElwain, S.M. Gray "Differential effects of algal and sedimentary turbidity on the visual systems of Walleye (*Sander vitreus*) and their prey" 78th Midwest Fish and Wildlife Conference. Milwaukee, WI.
- 2017 Nieman, C.L., S.M. Gray "Understanding the effects of altered visual environments in Lake Erie fishes" Water Management Association of Ohio. Columbus, OH.
- 2017 Nieman, C.L., C. McElwain, S.M. Gray "Visual Ecology of Lake Erie Fish: Assessing the Impacts of Increased Turbidity on Vision" American Fisheries Society Annual Meeting. Tampa, FL. *Best Student Paper Finalist*.
- 2017 Nieman, C.L., C. McElwain, S.M. Gray "Visual Ecology of Lake Erie Fish: Assessing the Impacts of Increased Turbidity on Vision" International Association of Great Lakes Research. Detroit, MI.

Outreach Presentations:

- 2018 Nieman, C.L.** “Algae Blooms; A growing problem for water, fish, and people” Ecology on Tap. Columbus, OH.
- 2018 Nieman, C.L., S.M. Gray** “Walleye Vision and HABs: A Citizen Science Project” Lake Erie Central Basin Sport Fish Summit, Painesville, OH.
- 2018 Nieman, C.L., S.M. Gray** “Effects of Harmful Algal Blooms on Walleye vision” 37th Annual Ohio Charter Captains Conference. Huron, Ohio.
- 2017 Nieman, C.L., S.M. Gray** “Walleye Vision and HABs: A Citizen Science Project” 36th Annual Charter Captains Conference. Huron, OH.

Poster Presentations:

- 2019 Hrabak, T.K., C.L. Nieman, S.M. Gray.** See no evil, smell no evil: Predator avoidance in the face of Harmful Algal Blooms (poster). Sensorium, West Lafayette, IN.
- 2018 Fried, H., A. Oppliger, C.L. Nieman, S.M. Gray** “How do algal and sedimentary turbidity affect the swimming performance of Emerald Shiner and Golden Shiner in Lake Erie?” Undergraduate Research Forum, Columbus, OH.
- 2018 Nieman, C.L., A. Oppliger, S.M. Gray** “Can fish see the bait on the hook? Exploring the visual ecology of Lake Erie fishes” Sensorium. West Lafayette, IN.
- 2018 Nieman, C.L., S.M. Gray** “Determining the effects of increasing turbidity on visual acuity of Lake Erie fishes” 2018 Ohio Aquaculture and Fish Management Conference. A joint conference of the Ohio Aquaculture Association, Ohio Chapter of the American Fisheries Society, and the OSU Aquaculture Boot Camp Program. Columbus, OH.
- 2018 Oppliger, A.L., C.L. Nieman, S.M. Gray** “Visual detection thresholds of Walleye under varying turbidity” College of Food Agriculture and Environmental Science Undergraduate Research Forum. Columbus, OH.
- 2018 Oppliger, A.L., C.L. Nieman, S.M. Gray** “Visual detection thresholds of Walleye under varying turbidity” 127th Annual Meeting of Ohio Academy of Science, Bowling Green, OH.
- 2017 Oppliger, A.L., C.L. Nieman, S.M. Gray** “Visual detection thresholds of Walleye under varying turbidity” Water Management Association of Ohio, Columbus, OH.
- 2014 Nieman, C.L.** “Effects of climate change on Norwegian Spring Spawn Herring” American Fisheries Society Western Division Meeting, Mazatlan, Mexico.

Grants

- 2020 Hudson River Foundation 2020 Targeted Proposals.** “Hudson River Biological Monitoring Program Workgroup, Subgroup 2 – Fall Juvenile Survey and Long River Ichthyoplankton Survey.” (\$14,289). PIs: Dr. Christopher T. Solomon and Dr. **Chelsey L. Nieman.**
- 2020 Midwest Glacial Lakes Partnership Conservation Grant.** “Systems-level perspectives on fish habitat: capacity building workshops with lake associations across the Midwest (\$56,043). PIs: Dr. Christopher T. Solomon and Dr. **Chelsey L. Nieman.**
- 2017 Ohio Sea Grant College Program.** “Seeing the bait on the hook: Assessing the impact of harmful algal blooms on the recreational Walleye fishery in Lake Erie.” (\$119,985) Lead PI: Dr. Suzanne Gray, Associate PIs: Eugene Braig, Dr. Jeremy Bruskotter, **Chelsey Nieman.**

Unfunded:

- 2020 National Socio-Environmental Synthesis Center.** Pursuit. “Recreational fishing across the urban to rural gradient: How demographic shifts impact angling, equity, and ecosystems.” PIs: Dr. **Chelsey L. Nieman** and Dr. Abigail J. Lynch.

Awards

- 2019 Janice Lee Fenske Memorial Award for Outstanding Students** (\$750).
- 2018 The Edward J. Ray Travel Award for Scholarship and Service** (\$1,000).

Working Groups

- 2020 USGS NCASC National Creel and Angler Survey Database
2020 Hudson River Biological Monitoring Program Workgroup, Subgroup 2 – Fall Juvenile Survey and Long River Ichthyoplankton Survey

Teaching Experience

Associate Instructor, Ohio Sea Grant, F. T. Stone Laboratory:

- 2019 ENR 5350.02 Taxonomy and Behavior of Fishes

Instructor of Record, Ohio Sea Grant, F.T. Stone Laboratory:

- 2018 EEOB 1930 Introduction to Biological Studies – Aquatic Biology

Graduate Teaching Associate, The Ohio State University:

- 2018 ENR 5797.01/5797.02 Human Impacts on the Natural Environment/Abroad to Australia
2016-18 ENR 4900.01 Natural Resources and Management: Capstone Experience, taught over 3 semesters

Undergraduate Teaching Associate, Linfield College:

- 2011-12 BIO 210/211 Principles of Biology
2010 BIO 270 Introduction to Genetics
2009-10 Course Tutor, Principles of Biology, Introduction to Economics

Guest Lectures:

- 2016-19 ENR 4900.01: Natural Resources and Management, Capstone Experience
2019 ENR 4342: Freshwater Fisheries Management

Mentor of Undergraduate Research:

- Luke Bobay, 2019 Ichthyology REU, F.T. Stone Laboratory, The Ohio State University.
Taylor Hrabak, 2019 Undergraduate Research with Distinction, The Ohio State University.
SENR Small Grant for Undergraduate Researchers (\$500).
Harrison Fried, 2018 Ichthyology REU, F.T. Stone Laboratory, The Ohio State University.
2018 Undergraduate Research Office Advanced Undergraduate Research Award Grant Recipient (\$4,000).
2018 School of Environment and Natural Resources Honors Scholarship Competition Grant Proposal (\$2,500).
Andrew Oppliger, 2017 Ichthyology REU, F.T. Stone Laboratory, The Ohio State University.
2018 Undergraduate Research, Ohio Agricultural Research and Development Center Undergraduate SEEDS Grant Recipient (\$5,000).
Caroline McElwain, 2016 Ichthyology REU, F.T. Stone Laboratory, The Ohio State University.

Service

- 2020 **Justice, Equity, Diversity, and Inclusion Committee**, Cary Institute of Ecosystem Studies
2020 **REU Program**, Statistics and Writing Mentor, Cary Institute of Ecosystem Studies
2020 **Hudson Data Jam Competition**, Judge, Cary Institute of Ecosystem Studies
2020 **American Fisheries Society**, AFS 2020 Student and Early Career Professional Activities Subcommittee
2018-19 **79th Midwest Fish and Wildlife Conference local organizing committee**, Silent Auction Coordinator
2018-19 **American Fisheries Society**, Ohio Chapter Social Media Manager
2018-19 **American Fisheries Society**, Buckeye Student Subunit Professional Development Chair
2018 **Latham Educational Park Aquatic Ecology Program**, Educator

2018-19 **Passport to Fishing**, Youth Fishing Instructor
2017-18 **American Fisheries Society**, North Central Division Representative for Student Education Section
2016-18 **College of Food, Agriculture, and Environmental Sciences Undergraduate Research Forum**, Guest Judge, The Ohio State University
2015-18 **Denman Undergraduate Research Forum**, Guest Judge, The Ohio State University
2015-18 **Ohio Sea Grant**, Science Communicator
2015-2018 **F.T. Stone Laboratory**, Outreach and Education
2013-2014 **Birch Aquarium**, Outreach and Education
2010 **Confederated Tribes of Grande Ronde**, Smolt trap and weir monitor
2009 **Kachemak Bay Research Reserve**, Crab larval studies
2007-08 **Cook Inlet Keeper**, Salmon emergence study, water quality monitoring
2006 **Center for Alaskan Coastal Studies**, Beach clean-up team leader

Professional Memberships

2019-present Society for Freshwater Science (SFS)
2017-present International Association for Great Lakes Research (IAGLR)
2017-19 Water Management Association of Ohio (WMAO)
2012-present American Fisheries Society (AFS)
- CalNeva Chapter of American Fisheries Society (2012-14)
- Ohio Chapter of American Fisheries Society (2015-2019)
- Buckeye Student Subunit American Fisheries Society (2015-2019)
2012-14 Association for Polar Early Career Scientists (APECS)
2005-08 National FFA Association
- Alaska State Treasurer (2006-07)

Certifications

2018 Passport to Fishing Instructor, Ohio Department of Natural Resources
2018 Collaborative Institutional Training Initiative (CITI Program) Biomedical Responsible Conduct of Research
2016 CITI Program Social and Behavioral Human Research (IRB)
2015 CITI Program Working With the IACUC, Animal Care Training
2010 PADI Advanced Open Water
2010 PADI Open Water
2010 Emergency First Response CPR Training

Professional Development

2019 A Primer of Multilevel (mixed) Modeling Using R, workshop
2017 Environmental Education Lunch and Learn Series – managing environmental volunteers
2017 #SocialGreatLakes: Communicating Great Lakes science through social media, Symposium, International Association for Great Lakes Research Annual Conference, Detroit, MI
2016 Women in Biosciences, hosted by BioOhio
2016 Larval Fish Identification Workshop, F.T. Stone Laboratory, The Ohio State University
2014 Communication of Science workshop, Birch Aquarium, San Diego, CA
2014 Arctic in the Anthropocene, Potsdam Summer School, Potsdam, Germany

Peer Reviews

Literature: Biology Letters, Ecological Modelling
Grants: Ohio Sea Grant Large Grant Program

Media Coverage

- 2019** “Team Cary: Dr. Chelsey Nieman” Cary Institute of Ecosystem Studies,
<https://www.caryinstitute.org/news-insights/feature/team-cary-dr-chelsey-nieman?utm_medium=Twitter&utm_campaign=TeamCary>
- 2018** “There’s an App for That” Twine Line, Ohio Sea Grant, Fall/Winter 2018.
- 2016** “Watching Fish See” Twine Line, Ohio Sea Grant, Summer 2016.