14 September 2024

Application for Sabbatical Leave

Kevin L. Kapuscinski, Ph.D.

Leveraging Collaborations to Enhance Fisheries Research and Instruction at LSSU

Project Abstract

I propose three main sabbatical projects to enhance instruction, research, and professional activities at LSSU. Project 1 will produce a travel course on coastal fishes of the southeastern US through collaboration with my long-time colleague at Coastal Carolina University, Dr. Derek P. Crane. We will design this course to enhance LSSU's Marine and Freshwater Sciences minor, but it should be of interest to students seeking other degrees. Project 2 will advance my expertise in techniques used to estimate age of fishes through training with Dr. Crane, and result in enhancement of NRES432 Fisheries Management lab exercises and development of a grant proposal. For Project 3, I will gain expertise in analysis of high-frequency acoustic telemetry data, and then prepare and submit three manuscripts for publication in peer-reviewed scientific journals. I will also transfer this expertise to students linking their senior thesis projects to the grant-funded research underpinning Project 3.

Project 1: Developing a travel course on coastal fishes of the southeastern US

Introduction

LSSU currently offers a minor in Marine and Freshwater Sciences that attracts students interested in careers in marine biology or management of coastal fishes, but very few of the required or elective courses focus on marine subject matter. The goal of this project is to develop a course on coastal fishes of the southeastern US with my long-time colleague at Coastal Carolina University, Dr. Derek P. Crane. We will develop the course during my sabbatical and offer it during the first six weeks of the following summer term. This course will strengthen our students' knowledge of marine fishes, coastal ecosystems, and related conservation and management issues. While the course would be designed to enhance the Marine and Freshwater Sciences minor, students enrolled in our Fisheries and Wildlife Management major within the School of Natural Resources could take the course as an NRES/EVRN/BIOL directed elective,

and students across campus could take the course as an elective.

Background

Dr. Crane and I have discussed a plan for developing the course (see outcomes section below), including potential destinations and learning experiences to explore during my sabbatical. The course will have a heavy field-sampling component and focus on fishes, but we will also explore opportunities for students to tour unique facilities, hear guest lectures, learn about coastal ecology, and network with professionals in the field of marine science and conservation.

Outcomes

This project involves an external, professionally related experience that will improve the quality of instruction at LSSU. This project is also linked to Project 2 below, which will advance applied fisheries science research, professional activities, and instruction. To develop a course on coastal fishes of the southeastern US, I will explore the following potential destinations and student learning experiences:

- University of South Carolina's Baruch Marine Field Laboratory
    - Place-based lectures and tour of facilities
    - Field sampling in North Inlet Estuary for coastal fishes and targeted sampling of nursery ponds for sub-adult Atlantic Tarpon *Megalops atlanticus*
- Sample Winyah Bay, SC, for coastal fishes
    - Longline for Red Drum *Sciaenops ocellatus* and sharks
    - Beach seine for small-bodied fishes
- Visit Carolina Sandhills National Wildlife Refuge and sample the Carolina Sandhills region for fishes. This is an area of extremely high diversity of fishes that also contains endemic species
- Sample Lake Waccamaw, NC, an area of high diversity of fishes
- Tour the Bears Bluff National Fish Hatchery, SC, which rears the endangered Atlantic Sturgeon *Acipenser oxyrinchus oxyrinchus*. Additional opportunities may exist to learn about culture of American Shad *Alosa sapidissima*, Red Drum, and imperiled freshwater mussels, depending on the hatchery's production cycle
- Tour the South Carolina Aquarium

Timeline

- Aug-Sep 2025: schedule visits to potential destinations in NC and SC
- Oct 2025: Travel to Coastal Carolina University and adjacent potential destinations described above. Work with Dr. Crane on course development and research training described in Project 2
- Nov 2025: develop special topics course proposal and submit to the School of Natural Resources and Dean for approval

Project 2: Advancement of expertise in techniques used to estimate age of fishes

Introduction

Understanding the age structure of fish populations typically requires estimating the age of individuals from their hard structures (e.g., scales, fin rays, or otoliths; Quist et al. 2012). Age data can then be used to estimate rates of growth, maturity, and mortality, which is critical to proper conservation and management. Additionally, fisheries scientists often use biologically active fluorescent markers – delivered to fish via feed, immersion bath, or injection – to track age and growth of individuals through mark-recapture studies. LSSU's Center for Freshwater Research and Education houses a Mesocosm Laboratory capable of rearing fish in a temperature-controlled environment for age and growth research, a digital low-speed saw for sectioning hard structures, and two high-end microscopes with imaging systems capable of estimating the age of fishes from hard structures with high precision. Dr. Derek P. Crane, Coastal Carolina University, is an expert on the science of age estimation and use of related technology (e.g., see Bauerlien et al. 2018; Crane et al. 2020; Mace et al. 2020; Elmo et al. 2021). For this component of my sabbatical, I would visit Dr. Crane's lab at Coastal Carolina University and receive training on use of digital low-speed saws for preparation of hard structures, use of high-end microscopes and imaging systems, advanced age estimation techniques, and use of calcein injections in fisheries science. This project would be conducted in conjunction with Project 1.

Background

My experience estimating age of fishes from hard structures dates back 25 years and I have published using age data (e.g. see Kapuscinski et al. 2012; Crane et al. 2020), but I have not kept up with recent technological advances in this area. The equipment at CFRE allows for

estimating age of fishes with high precision and use of advanced analytical techniques associated with imaging systems and software. With appropriate training from Dr. Crane, I will be able to fully utilize CFRE's equipment and leverage it to obtain external research funding and contracts. For example, substantial knowledge gaps exist with regard to validated methods for estimation of fish ages (Spurgeon et al. 2015) and timing of annulus formation. The Mesocosm Laboratory at CFRE is well suited for conducting studies that require rearing known-age fish in a temperature controlled environment, and our equipment will allow for precise estimation of ages. Additionally, I will be able to transfer this knowledge to students engaged in relevant senior thesis research or enrolled in NRES432 Fisheries Management, which currently includes three lab sessions dedicated to estimating age and growth of fishes. Training students and student employees on the most current methods and technologies will make them more employable post-graduation.

Outcome

This project involves an external, professionally related experience that will improve the quality of research, professional activities, and instruction at LSSU. This project is also linked to Project 1 above, which will improve instruction. The outcomes for Project 2 are:

- Receive training from Dr. Crane to enhance my proficiency in use of digital low-speed saws for sectioning of hard parts (e.g., fin rays and otoliths) for estimating age of fishes
- Receive training from Dr. Crane and become proficient in the use of high-end scopes for image capture of hard structures (e.g., fin rays and otoliths), estimating age of fishes, and image analysis using software associated with high-end scopes or other relevant software
- Receive training from Dr. Crane and become proficient in the use of calcein injection for marking fish for studies of growth and annulus formation
- Revise NRES432 lab activities to incorporate use of digital low-speed saw for sectioning hard parts and use of high-end scopes for image capture
- Coauthor a grant proposal(s) with Dr. Crane that would utilize CFRE's Mesocosm Laboratory to rear fish for determination of annulus formation or validation of calcein injection as a marker for Atlantic Salmon *Salmo salar*

Timeline

- Oct 2025: travel to Coastal Carolina University and receive training from Dr. Crane

- Nov 2025-Jan 2026: write grant proposal(s)
- Feb 2026: revise NRES432 lab activities

Project 3: Gaining and applying expertise in analysis of acoustic telemetry data

Introduction

Use of acoustic telemetry has become commonplace in fisheries science and management as technologies have advanced, tags have reduced in size, and costs have come down (Jacoby and Piper 2023). Currently, I am part of two grant-funded studies that utilize acoustic telemetry to (1) gain a better understanding of habitat use by adult and sub-adult Lake Sturgeon *Acipenser fulvescens* (Kapuscinski et al. 2021), (2) evaluate use of restored Little Rapids habitats by adult, lithophilic spawning fishes (Moerke et al. 2024), and (3) evaluate use of restored Little Rapids habitats by age-1 Atlantic Salmon (Moerke et al. 2024). Kapuscinski et al. (2021) is a multi-national collaborative – including agency personnel from the US, Canada, Native American Tribes, and First Nations – that has already tagged >80 Lake Sturgeon in the St. Marys River. Relocation data from a relatively small number of fish (n~20) has been acquired, but not formally analyzed. Much, much more data will be acquired during 2024 and 2025 because most of the >80 fish were tagged in 2023 and there is a lag time of about one year between tagging and acquisition of relocation data. Additionally, my collaborators and I plan to capture and tag 40 adult, lithophilic spawning fishes adjacent to the restored Little Rapids habitats in fall 2024-spring 2025 and stock 40 tagged, age-1 Atlantic Salmon into the Little Rapids in 2025; both projects seek to evaluate whether the restored Little Rapids habitats are supporting target fish species. The Kapuscinski et al. (2021) project is already part of the Great Lakes Acoustic Telemetry Observing System (GLATOS; https://glatos.glos.us/home/project/SMRLS), which allows us to leverage acoustic receivers from across the Great Lakes. We will also register the Moerke et al. (2024) projects with GLATOS. Data from all three projects will require a substantial amount of expertise and time to analyze.

Background

Although I have experience analyzing fish movement data (Kapuscinski et al. 2005) and knowledge of movement ecology, I lack the expertise necessary to analyze the large amounts of high-frequency data that are amassed by contemporary acoustic telemetry studies. Therefore, I

am proposing to receive training from colleagues with expertise in this area. Dr. Christopher Vandergoot, Director of GLATOS, has expressed his support and identified potential mentors (e.g., Drs. Christopher Holbrook, Todd Hayden, and Thomas Binder at the US Geological Survey Hammond Bay Biological Station and Michigan State University).

Outcome

This project involves an external, professionally related experience that will primarily advance applied research and professional activities at LSSU. However, I also have students linking their senior thesis projects to Kapuscinski et al. (2021) and Moerke et al. (2024), so the quality of instruction at LSSU will also be enhanced through improvement of my analytical abilities. Project outcomes include:

- Receive training and gain proficiency in analysis of acoustic telemetry data
- Submitted manuscript for publication using acoustic telemetry data from Lake Sturgeon (Kapuscinski et al. 2021)
- Submitted manuscript for publication using acoustic telemetry data from adult fishes tagged as part of Moerke et al. (2024)
- Submitted manuscript for publication using acoustic telemetry data from age-1 Atlantic Salmon tagged as part of Moerke et al. (2024)

Timeline

- Jan 2026: travel to Hammond Bay Biological Station or Michigan State University to receive training in analysis of acoustic telemetry data
- Feb 2026: draft manuscript using acoustic telemetry data from Lake Sturgeon and distribute to coauthors
- Mar 2026: revise Lake Sturgeon manuscript based on feedback from coauthors and submit for publication
- Mar 2026: draft manuscript using acoustic telemetry data from adult fishes and distribute to coauthors
- Apr 2026: revise manuscript on adult fishes based on feedback from coauthors and submit for publication
- Apr 2026: draft manuscript using acoustic telemetry data from age-1 Atlantic Salmon and distribute to coauthors
- May 2026: revise manuscript on age-1 Atlantic Salmon based on feedback from

coauthors and submit for publication

- May 2026-?: revise and resubmit manuscripts based on reviewer comments

References

Bauerlien, C. J., M. R. Cornett, E. A. Zielonka, D. P. Crane, and J. S. Bulak. 2018. Precision of calcified structures used for estimating age of Chain Pickerel. North American Journal of Fisheries Management 38(4):930-939.

Crane, D. P., M. R. Cornett1, C. J. Bauerlien, M. L. Hawkins, D. A. Isermann, J. L. Hansbarger, K. L. Kapuscinski, J. R. Meerbeek, M. P. Rennicke, T. D. Simonson, and J. M. Kampa. 2020. Validity of age estimates from muskellunge (*Esox masquinongy*) fin rays and associated effects on estimates of growth. Canadian Journal of Fisheries and Aquatic Sciences 77(1):69-80.

Elmo, G. M., D. P. Crane, M. E. Kimball, K. L. Williams, and P. W. Stevens. 2021. Validity of daily and annual age estimation and back-calculation methods for early life stages of a subtropical-tropical species, the tarpon (*Megalops atlanticus*). Fisheries Research 243:106057.

Jacoby, D. M. P., and A. T. Piper. 2023. What acoustic telemetry can and cannot tell us about fish biology. Journal of Fish Biology 2023:1-25. https://doi.org/10.1111/jfb.15588.

Kapuscinski, K. L., M. J. Hansen, and S. T. Schram. 2005. Movements of lake trout in US waters of Lake Superior, 1973–2001. North American Journal of Fisheries Management 25(2):696-708.

Kapuscinski, K. L., J. M. Farrell, and M. A. Wilkinson. 2012. Feeding patterns and population structure of an invasive cyprinid, the rudd *Scardinius erythrophthalmus* (Cypriniformes, Cyprinidae), in Buffalo Harbor (Lake Erie) and the upper Niagara River. Hydrobiologia 693:169-181.

Kapuscinski, K. L., and 11 coauthors. Lake sturgeon movement patterns, habitat use, and population demographics in the St. Marys River: acquiring knowledge to advance conservation and restoration. Great Lakes Fish and Wildlife Restoration Act (5-year project, $197,457).

Mace, M. M., M. E. Kimball, G. M. Elmo, and D. P. Crane. 2020. Overwinter survival, age, and growth of juvenile tarpon (*Megalops atlanticus*) in a shallow, tidally-restricted habitat in South Carolina. Environmental Biology of Fishes 103:965-972.

Moerke, A. H., K. L. Kapuscinski, E. Verhamme, and A. Molina-Moctezuma. Evaluation of Restored Habitats at Little Rapids, St. Marys River. National Oceanic and Atmospheric Administration (2-yr project, $295,129).

Quist, M. C., M. A. Pegg, and D. R. DeVries. 2012. Age and Growth. Pages 677-731 *in* A. V. Zale, D. L. Parrish, and T. M. Sutton, editors. Fisheries techniques, 3rd edition. American Fisheries Society, Bethesda, Maryland.

Spurgeon, J. J., M. J. Hamel, K. L. Pope, and M. A. Pegg. 2015. The global status of freshwater fish age validation studies and a prioritization framework for further research. Reviews in Fisheries Science & Aquaculture 23(4):329-345.

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EDUCATION

Ph.D., Ecology, State University of New York College of Environmental Science and Forestry (SUNY-ESF; 2011). Dissertation: *Comparative Ecology of Muskellunge and Nearshore Fish Assemblages in the Great Lakes*. Advisor: Dr. John M. Farrell

M.S., Natural Resources (Fisheries), University of Wisconsin-Stevens Point (2002). Thesis: *Movements of Lake Trout in U.S. Waters of Lake Superior During 1973-2001*. Advisor: Dr. Michael J. Hansen

B.S., Water Resources (Fisheries) and Biology, University of Wisconsin-Stevens Point (1999)

- International Environmental Seminar, Europe (Summer 1998)
- The School for Field Studies, Center for Coastal Studies, Bahía Magdalena, Mexico (Summer 1997)

PROFESSIONAL EXPERIENCE

Chair, School of Natural Resources, Lake Superior State University (LSSU; 2024-present)
Associate Professor with tenure, School of Natural Resources, Lake Superior State University (LSSU; 2019-present)
Assistant Director of Research, Center for Freshwater Research and Education, LSSU (2018-present)
Assistant Professor, LSSU (2014-2019)
Co-director of the Aquatic Research Laboratory, LSSU (2014-2018)
Adjunct Professor, Department of Environmental and Forest Biology, SUNY-ESF (2012-2019)
Principal Investigator, The Research Foundation of SUNY (2012-2014)
Visiting Instructor, SUNY-ESF (2012)
Post-doctoral Associate, The Research Foundation of SUNY (2011)
Visiting Instructor, SUNY-ESF, Cranberry Lake Biological Station (Summer 2010, 2011)
Research Assistant, Ph.D. Candidate, SUNY-ESF (2006-2011)
Fisheries Biologist, Wisconsin Department of Natural Resources (2004-2006)
Pallid Sturgeon Biologist, Montana Department of Fish, Wildlife & Parks (2002-2004)
Graduate Assistant, University of Wisconsin-Stevens Point (2000-2002)
Project Assistant, University of Wisconsin-Madison (Summer 1999)

STRATEGIC INITIATIVES

New Member Application-Nonfederal Partner, Great Lakes Northern Forest Cooperative Ecosystems Studies Unit. LSSU was admitted in 2021 (Designated Technical Representative, Lead author with A.H. Moerke and E. Newland)

Cooperative Institute for Great Lakes Research Regional Consortium Partner Proposal. LSSU was admitted into the cooperative in 2019 (Co-author with A.H. Moerke and B. Light)

LSSU's Center for Freshwater Research and Education Strategic Plan (Co-author with A.H. Moerke and others; https://www.lssu.edu/cfre/mission/)

RESEARCH GRANTS AND CONTRACTS (25 totaling >$6 million as P.I. or Co-P.I.)

Evaluation of Restored Habitats at Little Rapids, St. Marys River. NOAA. (2-yr project, $295,129, Co-P.I. with A.H. Moerke, E. Verhamme, and A. Molina-Moctezuma)

How does spawning and nursery habitat affect northern pike recruitment in Lake St. Clair? Project in support of Lake Erie 2024 CSMI. (1-year project, $65,000, collaborator with 4 others)

Multi-trophic level effects of oil on freshwater coastal wetlands under summer and winter conditions. Natural Resources Canada Multi-Partner Research Initiative (4-year project, $1,061,000, P.I. with eight others)

Age-0 lake whitefish and zooplankton relations in the North Channel of Lake Huron. USGS Cooperative Ecosystem Studies Unit Program award (3-year project, $189,091, Co-P.I. with J. Doubek)

Spatial, temporal, and diel relations between zooplankton and age-0 lake whitefish in Lakes Michigan, Huron, and Superior. Great Lakes Fishery Trust (3-year project, $194,739, Co-P.I. with J. Doubek and 17 others)

Lake sturgeon movement patterns, habitat use, and population demographics in the St. Marys River: acquiring knowledge to advance conservation and restoration. Great Lakes Fish and Wildlife Restoration Act (5-year project, $197,457, P.I. with 11 others)

Building training, research, and development capacity at LSSU's Center for Freshwater Research and Education. US Department of Commerce, Economic Development Administration ($956,858, Co-P.I. with A.H. Moerke (lead), J. Doubek, and A. Molina-Moctezuma)

Characterizing Great Lakes Atlantic salmon microbiome and virome. CIGLR Rapid Funding (P.I. with A.H. Moerke, J. Knouft, and F. Ling, $9,000)

Trident Underwater Drone. SEE Initiative ($1,695, P.I. with A. Moerke, E. Sarda, and J. Doubek)

European Frog-bit: enhancing control and assessing impacts and management. Great Lakes Restoration Initiative (2-year project, $852,588, Co-P.I. with six others)

Assessing habitat characteristics and species assemblages associated with European frog-bit. Michigan Invasive Species Grant Program (3-year project, $188,200, P.I. with A. Moerke and N. Cassel)

Effects of *Didymosphenia geminata* blooms on salmonid production in Michigan waters. Michigan Invasive Species Grant Program (1-year project, $40,600, Co-P.I. with A. Moerke)

Habitat characteristics associated with European Frog-bit in the St. Marys River. Michigan Department of Environmental Quality (2018, $165,902, Co-P.I. with A.H. Moerke and N. Cassel)

Management plan for Elbow Lake. Hiawatha Sportsmen's Club (2018, $2,500, P.I.)

Video microscopes for CFRE Visitors Center and Discovery Room. The Fund for LSSU (2018, $9,000, Co-P.I. with A.H. Moerke)

Water quality monitoring at the Hiawatha Sportsmen's Club. Hiawatha Sportsmen's Club (2016-2017, $8,338, P.I.)

Acquisition of experimental tank-rack systems. The Fund for LSSU (2016, $2,000, P.I.)

Use of fin rays for estimating age of muskellunge. Hugh C. Becker Foundation (2015-2016, $5,000, Co-P.I. with four others)

Temporal and spatial variation in fish spawning migrations and condition in tributaries of Whitefish Bay (Lake Superior). US Bureau of Indian Affairs, Great Lakes Restoration Initiative ($80,030, Co-P.I. with A.H. Moerke and P. Ripple, 2015-2016)

Quantifying relationships between fish assemblages and nearshore habitat characteristics of the Niagara River. Niagara River Greenway Ecological Fund (2013-2016, $801,436, P.I.)

Development and management of St. Lawrence River fisheries. New York State Department of Environmental Conservation (2013-2016, $715,001, Co-P.I. with J.M. Farrell and C.M. Whipps)

Delineation of natural boundaries of muskellunge in the Great Lakes and the effects of supplementation on genetic integrity of remnant stocks. Great Lakes Fishery Commission (2013-2014, $42,720, Co-P.I. with six others)

Evaluation of nearshore fish assemblages, habitat, and the effects of herbivorous rudd (*Scardinius erythrophthalmus*): facilitating successful fish habitat restoration efforts in the Buffalo Harbor and Niagara River. Niagara River Ecological Standing Committee, Fish and Wildlife Habitat Enhancement and Restoration Fund (2012-2013, $519,246, P.I.)

Evaluation of nearshore fish assemblages, habitat, and the effects of herbivorous rudd (*Scardinius erythrophthalmus*): determining the efficacy of fish habitat restoration efforts in the Buffalo Harbor and Niagara River. Niagara River Greenway Ecological Fund (2011, $188,881, Co-P.I. with J.M. Farrell)

Muskellunge genetic structure, reproductive ecology, and interaction with the fish community: acquiring information needed for successful management. Niagara River Greenway Ecological Fund (2009-2010, $148,615, authored as Ph.D. candidate)

Evaluation of hatchery-reared pallid sturgeon stocked in the Missouri River below Fort Peck Dam. Western Area Power Administration (2004, $94,000, P.I.)

Enhancing pallid sturgeon research efforts. Western Area Power Administration (2003, $64,000, P.I.)

UNFUNDED GRANT PROPOSALS

MRI: Acquisition of a liquid chromatograph with tandem mass spectrometry to enhance biological research and undergraduate training in the upper Great Lakes. National Science Foundation ($531,611, P.I. A.H. Moerke, with five collaborators/major users of the instrument)

Spatial, temporal, and diel relations between zooplankton and age-0 lake whitefish in the Upper Great Lakes. Great Lakes Fishery Commission (3-year project, $195,000, Co-P.I. with J. Doubek and 17 others)

Critical habitats and population characteristics of the recovering St. Marys River Lake Sturgeon Population. Great Lakes Fishery Commission (5-year project, $ 255,139 [CDN], Co-P.I. with L. O'Connor and 9 others)

Assessment of Lake Sturgeon in the St. Marys River. Michigan Department of Natural Resources ($20,582, Co-P.I. with N. Godby)

Improvement of Atlantic salmon post-stocking recruitment success and survival by induced neophobia training. Great Lakes Fishery Commission (2-year project, $40,845 CAD + $20,775 US, Co-P.I. with six others)

Lake sturgeon (*Acipenser fulvescens*) movement patterns, habitat use, and population demographics in the St. Marys River. USGS/USFWS Science Support Partnership and Quick Response Program (4-year project, $218,520, Co-P.I. with nine others)

Lake sturgeon recovery in the St. Marys River; distribution, habitat use, and population characteristics. Great Lakes Fishery Commission (3-year project, $192,474 CDN, Co-P.I. with nine others)

Lake sturgeon recovery in the St. Marys River; distribution, home range, and potential use of restored spawning locations. Great Lakes Fishery Commission (3-year project, $184,723 CAD, Co-P.I. with six others)

Factors influencing recruitment, growth, and capture efficiency of age-0 Lake Whitefish along the southern shore of Lake Superior. Great Lakes Fishery Commission (3-year project, $206,756, Co-P.I. with B. Gerig, M. Cooper, and A. Moerke)

Enhancing management of Atlantic Salmon *Salmo salar* through study of reproductive ecology and hatchery rearing and stocking strategies. Great Lakes Fishery Trust (3-year project, $199,248, P.I. with D.P. Crane, A.H. Moerke, R.W. Greil, E. Eisch, G.E. Whelan, and N.A. Godby)

Enhancing management of Atlantic Salmon through investigation of reproductive ecology and evaluation of hatchery rearing strategies. Great Lakes Fishery Commission (3-year project, $235,680, P.I. with D.P. Crane, R.W. Greil, A.H. Moerke, and E. Eisch)

Distribution and environmental determinants of *Didymosphenia geminata* in Michigan waters. Michigan Invasive Species Grant Program (3-year project, $251,288, Co-P.I. with R.J. Stevenson, M.L. Bothwell, S.A. Hashsham, and A.H. Moerke)

Influences of predatory fish on upstream migrating American Eel (*Anguilla rostrata*) at the Moses-Saunders Dam, St. Lawrence River (2-year project, $292,468, Co-P.I. with J.M. Farrell and S.R. Ault)

Energetic changes in forage fishes of nearshore areas of the Great Lakes and implications for predator growth and mortality. Great Lakes Fishery Trust (2-year project, $95,000, P.I. with D.P. Crane, M.D. Clapsadl, D.W. Einhouse, and J.M. Farrell)

Quantifying and comparing energy densities of native and invasive nearshore forage fishes of the Great Lakes. Great Lakes Fishery Commission (2-year project, $94,333, P.I. with D.P. Crane, M.D. Clapsadl, D.W. Einhouse, and J.M. Farrell)

Using Great Lakes science to meet next generation science standards. Great Lakes Fishery Trust (1-year project, $69,050, Co-P.I. with A.H. Moerke and E. Nelson)

BOOK

Kapuscinski, K.L., T.D. Simonson, D.P. Crane, S.J. Kerr, J.S. Diana, and J.M. Farrell, editors. 2017. Muskellunge management: fifty years of cooperation among anglers, scientists, and fisheries biologists. American Fisheries Society, Symposium 85, Bethesda, Maryland

INVITED SYMPOSIUM SUMMARY

Crane, D.P., K.L. Kapuscinski, and J.K. Nohner. 2013. Biology, ecology, and management of Muskellunge and Northern Pike: new science to meet current and future challenges. Pages 556–557 *in* Schaeffer, J. 143rd Annual Meeting Wrap Up: Thank You Little Rock. Fisheries 38:553–567

PEER-REVIEWED PUBLICATIONS (35, [1]Undergraduate student, [2]Master's student)

Andres, K., B. Liu, L. Johnson, K.L. Kapuscinski, A.H. Moerke, F. Ling, and J. Knouft. Life stage and vaccination shape the gut microbiome of hatchery-reared Atlantic salmon (*Salmo salar*). *In press*. Aquaculture

Kapuscinski, K.L., D.P. Crane, and T. Gronda. 2022. Prey selection and time to consumption differ between congeneric muskellunge and northern pike. Journal of Great Lakes Research 48(4):1087–1092

Ranta[1], M.P., and K.L. Kapuscinski. 2022. Winter diets of round whitefish in the St. Marys River. Journal of Great Lakes Research 48(1):238–244

Harigan[2], G.M., D. P. Crane, and K.L. Kapuscinski. 2021. Habitat characteristics affecting Rudd (*Scardinius erythrophthalmus*) presence in the Upper Niagara River. Hydrobiologia 848:5135–5146

Molina-Moctezuma, A., N. Godby, K.L. Kapuscinski, E.F. Roseman, K. Skubik, and A.H. Moerke. 2021. Response of fish assemblages to restoration of rapids habitat in a Great Lakes connecting channel. Journal of Great Lakes Research 47(4): 1182–1191

Molina-Moctezuma, A., E. Ellis, K. Kapuscinski, E. Roseman, T. Heatlie, and A. Moerke. 2020. Restoration of rapids habitat in a Great Lakes connecting channel, the St. Marys River, Michigan. Restoration Ecology 29(1):e13310

Crane, D.P., K.L. Kapuscinski, and J.J. Hutchens, Jr. 2020. Use of a novel richness-weighted abundance index of age-0 fishes to identify key features for habitat conservation and restoration. Ecological Indicators 117:106713

Roseman, E.F., E. Adams, R.L. DeBruyne, J. Gostiaux, H. Harrington, K.L. Kapuscinski, A.H. Moerke, and C. Olds. 2020. Note: Lake sturgeon (*Acipenser fulvescens*) spawn in the St. Marys River rapids, Michigan. Journal of Great Lakes Research

Crane, D.P., M.R. Cornett[1], C.J. Bauerlien[1], M.L. Hawkins[1], D.A. Isermann, J.L. Hansbarger, K.L. Kapuscinski, J.R. Meerbeek, M.P. Rennicke, T.D. Simonson, and J.M. Kampa. 2020. Validity of age estimates from muskellunge (*Esox masquinongy*) fin rays and associated effects on estimates of growth. Canadian Journal of Fisheries and Aquatic Sciences 77(1):69–80

Gerig, B.G., D.T. Chaloner, A.H. Moerke, R. Greil, S.A. Cullen, K.L. Kapuscinski, G.A. Lamberti. 2018. Trophic ecology of Atlantic salmon (*Salmo salar*) in relation to other salmonine predators in Northern Lake Huron. Journal of Great Lakes Research 45(1):160–166

Crane, D.P., and K.L. Kapuscinski. 2018. Capture efficiency of a fine mesh seine in a large river: implications for abundance, richness, and diversity analyses. Fisheries Research 205:149–157

Crane, D.P., and K.L. Kapuscinski. 2017. Habitat use by age-0 Muskellunge in the upper Niagara River, New York. Pages 227–240 *in* K.L. Kapuscinski, T.D. Simonson, D.P. Crane, S.J. Kerr, J.S. Diana, and J. M. Farrell, editors. Muskellunge management: fifty years of cooperation among anglers, scientists, and fisheries biologists. American Fisheries Society, Symposium 85, Bethesda, Maryland

Farrell, J.M., R.G. Getchell, K.L. Kapuscinski, and S.R. LaPan. 2017. Long-term trends of St. Lawrence River Muskellunge: effects of viral hemorrhagic septicemia and Round Goby proliferation creates uncertainty for population sustainability. Pages 275–302 *in* K.L. Kapuscinski, T.D. Simonson, D.P. Crane, S.J. Kerr, J.S. Diana, and J.M. Farrell, editors. Muskellunge management: fifty years of cooperation among anglers, scientists, and fisheries biologists. American Fisheries Society, Symposium 85, Bethesda, Maryland

Forzono[1], E.M., D.P. Crane, K.L. Kapuscinski, and M.M. Clapsadl. 2017. Dry-weight energy density of prey fishes from nearshore waters of the upper Niagara River and Buffalo Harbor, New York. Journal of Great Lakes Research 43(3):215–220. Available at: https://doi.org/10.1016/j.jglr.2017.03.009

Turnquist, K.N., W.A. Larson, J.M. Farrell, P.A. Hanchin, K.L. Kapuscinski, L.A. Miller, K.T. Scribner, C.C. Wilson, and B.L. Sloss. 2017. Genetic structure of muskellunge in the Great Lakes region and the effects of supplementation on genetic integrity of wild populations. Journal of Great Lakes Research 43(6):1141–1152. Available at: https://www.sciencedirect.com/science/article/pii/S0380133017301557

Miller, L.A., J.M. Farrell, K.L. Kapuscinski, K.T. Scribner, B.L. Sloss, K.N. Turnquist, and C.C. Wilson. 2017. A review of Muskellunge population genetics: implications for management and future research needs. Pages 385–414 *in* K.L. Kapuscinski, T.D. Simonson, D.P. Crane, S.J. Kerr, J.S. Diana, and J.M. Farrell, editors. Muskellunge management: fifty years of cooperation among anglers, scientists, and fisheries biologists. American Fisheries Society, Symposium 85, Bethesda, Maryland

Turnquist, K.N., W. Larson, J.M. Farrell, K.L. Kapuscinski, L.A. Miller, K.T. Scribner, C.C. Wilson, and B.L. Sloss. 2017. Spatial genetic structure of Muskellunge in the Great Lakes Region and the effects of supplementation on genetic integrity of remnant stocks. Pages 477–482 *in* K.L. Kapuscinski, T.D. Simonson, D.P. Crane, S.J. Kerr, J.S. Diana, and J.M. Farrell, editors. Muskellunge management: fifty years of cooperation among anglers, scientists, and fisheries biologists. American Fisheries Society, Symposium 85, Bethesda, Maryland

Gunderson[2], M.D., K.L. Kapuscinski, D.P. Crane, and J.M. Farrell. 2016. Habitats colonized by non-native flowering rush *Butomus umbellatus* (Linnaeus, 1753) in the Niagara River. Aquatic Invasions 11(4):369–380. Available at: http://www.aquaticinvasions.net/2016/AI_2016_Gunderson_etal.pdf

Crane, D.P., L.M. Miller, J.S. Diana, J.M. Casselman, J.M. Farrell, K.L. Kapuscinski, and J.K. Nohner. 2015. Muskellunge and northern pike ecology and management: a review of important issues and research needs. Fisheries 40(6):258–267. Available at: http://dx.doi.org/10.1080/03632415.2015.1038382

Guinan[1], M.E., K.L. Kapuscinski, and M.A. Teece. 2015. Seasonal diet shifts and trophic position of an invasive cyprinid, the rudd *Scardinius erythrophthalmus*, in the upper Niagara River. Aquatic Invasions 10(2):217–225. Available at: http://dx.doi.org/10.3391/ai.2015.10.2.10

Kapuscinski, K.L., J.M. Farrell, and M.A. Wilkinson. 2015. Abundance, biomass, and macrophyte consumption by rudd in Buffalo Harbor and the Niagara River, and potential herbivory by grass carp. Journal of Great Lakes Research 41(2):387–395. Available at: http://dx.doi.org/10.1016/j.jglr.2015.02.006

Crane, D.P., J.M. Farrell, and K.L. Kapuscinski. 2014. Predicting muskellunge spawning habitat using a Maxent-based approach to model selection. Journal of Great Lakes Research 40:325–335. DOI: 10.1016/j.jglr.2014.02.016

Farrell, J.M., K.L. Kapuscinski, and H.B. Underwood. 2014. Fine scale habitat use by age-1 stocked muskellunge and wild northern pike in an upper St. Lawrence River bay. Journal of Great Lakes Research 40:148–153. DOI: 10.1016/j.jglr.2014.01.014

Henning[2], B.F., K.L. Kapuscinski, and J.M. Farrell. 2014. Nearshore fish assemblage structure and habitat relationships in protected and open habitats in the upper St. Lawrence River. Journal of Great Lakes Research 40:154–163. DOI: 10.1016/j.jglr.2013.11.003

Kapuscinski, K.L., J.M. Farrell, S.V. Stehman, G.L. Boyer, D.D. Fernando, M.A. Teece, and T.J. Tschaplinski. 2014. Selective herbivory by an invasive cyprinid, the rudd *Scardinius erythrophthalmus*. Freshwater Biology 59:2315–2327. DOI: 10.1111/fwb.12433

Kapuscinski, K.L., J.M. Farrell, G. Paterson, M.A. Wilkinson, L.C. Skinner, and A.J. Gudlewski. 2014. Low concentrations of contaminants in an invasive, omnivorous cyprinid, the rudd (*Scardinius erythrophthalmus*), in a Great Lakes Area of Concern. Bulletin of Environmental Contamination & Toxicology 93(5):567–573. DOI: 10.1007/s00128-014-1325-3

Kapuscinski, K.L., and J.M. Farrell. 2014. Habitat factors influencing fish assemblages at muskellunge nursery sites. Journal of Great Lakes Research 40:135–147. DOI: 10.1016/j.jglr.2012.11.007

Kapuscinski, K.L., J.M. Farrell, and M.A. Wilkinson. 2014. Trends in muskellunge population and fishery characteristics in Buffalo Harbor (Lake Erie) and the Niagara River. Journal of Great Lakes Research 40:125–134. DOI: 10.1016/j.jglr.2012.11.006

Kapuscinski, K.L., B.L. Sloss, and J.M. Farrell. 2013. Genetic population structure of muskellunge in the Great Lakes. Transactions of the American Fisheries Society 142:1075–1089. DOI: 10.1080/00028487.2013.799515

Kapuscinski, K.L., J.M. Farrell, and B.A. Murry. 2012. Feeding strategies and diets of young-of-the-year muskellunge in two large river ecosystems. North American Journal of Fisheries Management 32:635–647. DOI:10.1080/02755947.2012.675964

Kapuscinski, K.L., J.M. Farrell, and M.A. Wilkinson. 2012. Feeding patterns and population structure of an invasive cyprinid, the rudd *Scardinius erythrophthalmu*s (Cypriniformes, Cyprinidae), in Buffalo Harbor (Lake Erie) and the upper Niagara River. Hydrobiologia 693:169–181. DOI:10.1007/s10750-012-1106-0

Kapuscinski, K.L., J.M. Farrell, and M.A. Wilkinson. 2012. First report of abundant rudd populations in North America. North American Journal of Fisheries Management 32:82–86. DOI:10.1080/02755947.2012.661391

Kapuscinski, K.L., T.G. Zorn, P.J. Schneeberger, R.P. O'Neal, and B.T. Eggold. 2010. The status of Lake Michigan walleye stocks. *In* Status of walleye in the Great Lakes: proceedings of the 2006 Symposium. Great Lakes Fishery Commission Technical Report 69. pp. 15–70

Kapuscinski, K.L., B.J. Belonger, S. Fajfer, and T.J. Lychwick. 2007. Population dynamics of muskellunge in Wisconsin waters of Green Bay, Lake Michigan, 1989-2005. Environmental Biology of Fishes 79:27–36. DOI:10.1007/s10641-006-9132-2

Kapuscinski, K.L., M.J. Hansen, and S.T. Schram. 2005. Movements of lake trout in U.S. waters of Lake Superior, 1973-2001. North American Journal of Fisheries Management 25:696–708. DOI:10.1577/M03-205.1

CURRENT RESEARCH PROJECTS

Kapuscinski, K.L., A.H. Moerke, J. Wesolek, and N. Cassel. Habitat characteristics associated with European Frog-bit in the St. Marys River

Kapuscinski, K.L., and 10 co-authors. Lake sturgeon movement patterns, habitat use, and population demographics in the St. Marys River: acquiring knowledge to advance conservation and restoration

Kapuscinski, K.L. Excretion and egestion of nitrogen and phosphorus by rudd

SELECTED TECHNICAL REPORTS AND WHITE PAPERS

Brant, C.O., R.W. Tingley III, A. Banerji, J.P. Doubek, L.A. Egedy, S. Freeman, J.C. Hoffman, K.L. Kapuscinski, and D.B. Bunnell. 2024. USGS Activities in Support of 2022 Lake Huron Cooperative Science and Monitoring Initiative.

Steinman, A.D., C. Godwin, C. Stow, E. Rutherford, D. Uzarski, D. Kashian, H. Vanderploeg, J. Bratton, J. Chaffin, K.L. Kapuscinski, S.R. Chaganti, R. Errera, M. Rowe, K. O'Reilly, E.D. Reavie, and D. Woolnough. 2022. Coordinated Experiments Across the Great Lakes Basin: Great Lakes Integrated Mesocosm Research (GLIMR). A White Paper for the Cooperative Institute for Great Lakes Research, University of Michigan, Ann Arbor, MI.

Kapuscinski, K.L., D.P. Crane, J.M. Farrell, and M.A. Wilkinson. 2012. Surveys of muskellunge spawning habitat, young-of-the-year, and associated fish assemblages at nearshore sties of the Buffalo Harbor and upper Niagara River. Section O *in* D. Einhouse, editor. NYSDEC Lake Erie 2012 annual report. New York State Department of Environmental Conservation, Albany

Farrell, J.M., C.C. Barry, and K.L. Kapuscinski. 2011. Muskellunge management and monitoring in the Thousand Islands section of the St. Lawrence River *in* 2010 Annual Report, Bureau of Fisheries, Lake Ontario Unit and St. Lawrence River Unit to the Great Lake Fishery Commission's Lake Ontario Committee. New York State Department of Environmental Conservation, Albany

Kapuscinski, K.L., M.A. Wilkinson, and J.M. Farrell. 2010. Sampling for muskellunge, rudd, and the nearshore fish community of the Buffalo Harbor (Lake Erie) and the upper Niagara River, 2009. Section Q *in* D. Einhouse, editor. NYSDEC Lake Erie 2009 annual report. New York State Department of Environmental Conservation, Albany

Kapuscinski, K.L., M.A. Wilkinson, and J.M. Farrell. 2010. Sampling for muskellunge and the nearshore fish community of the lower Niagara River, 2009. Section 19 *in* 2009 Annual Report, Bureau of Fisheries, Lake Ontario Unit and St. Lawrence River Unit to the Great Lake Fishery Commission's Lake Ontario Committee. New York State Department of Environmental Conservation, Albany

Kapuscinski, K.L., M.A. Wilkinson, and J.M. Farrell. 2009. Sampling efforts for young-of-year (2006-2008) and adult muskellunge (2008) in the Buffalo Harbor, Lake Erie, and the upper Niagara River. Section R *in* D. Einhouse, editor. NYSDEC Lake Erie 2008 annual report. New York State Department of Environmental Conservation, Albany

Kapuscinski, K.L., and M.A. Wilkinson. 2008. Adult muskellunge sampling activities in the Buffalo Harbor and upper Niagara River May and June, 2007. Section U *in* D. Einhouse, editor. NYSDEC Lake Erie Unit 2007 annual report. New York State Department of Environmental Conservation, Albany

Kapuscinski, K.L., and R. Lange. 2005. Status of walleye stocks in lower Green Bay and the lower Fox River. Pages 29-36 *in* B. Horns, editor. Lake Michigan Management Reports. Wisconsin Department of Natural Resources, Madison

Kapuscinski, K.L. 2004. Evaluation of hatchery-reared pallid sturgeon recaptured in recovery-priority management area #2 during 2003. Montana Department of Fish, Wildlife & Parks, Helena

Kapuscinski, K.L., and M.W. Baxter. 2004. Lower Missouri and Yellowstone rivers pallid sturgeon study, 2003 report. Montana Department of Fish, Wildlife & Parks, Helena

SELECTED INVITED PRESENTATIONS (>25 total)

Kapuscinski, K.L. What's the damage? Ecology and effects of invasive European Frog-bit in the St. Marys River. NotMISpecies webinar series (229 attendees; 2024)

Kapuscinski, K.L. Invasive European Frog-bit in the St. Marys River. Celebrating Water: A Binational Community Conversation (World Water Day, 2022)

Kapuscinski, K.L. Invasive species in the Great Lakes Region. Invading Classrooms and Communities Virtual Symposium (2021)

Kapuscinski, K.L. Aquatic invasive species in the Great Lakes and an overview of European Frog-bit. Invading classrooms: Promoting awareness and preventing spread of invasive species, CFRE Professional Development Workshop (2021)

Kapuscinski, K.L., A.H. Moerke, J. Knouft, and F. Ling. Characterizing the microbiome and virome of Atlantic Salmon in the Great Lakes. CIGLR 2020 All Partner Meeting (2020)

Kapuscinski, K.L., and J.M. Wesolek. Ecological effects of invasive European Frog-bit in the St. Marys River. Lake Huron Lakewide Action and Management Plan Partner Agency Meeting (2020)

Kapuscinski, K.L. Potential ecological effects of oil spills under ice. Oil spills under ice – challenges and solutions, CIGLR Workshop (2020)

Kapuscinski, K.L. Conservation of native fishes in the presence of an invasive and ecologically dominant omnivore. University of Tennessee, Knoxville (2020)

Kapuscinski, K.L. Aquatic invasive species in the Great Lakes. LSSU's Center for Freshwater Research and Education Freshwater Stewardship Corps (2019)

Kapuscinski, K.L., D.P. Crane, J.M. Farrell, M.D. Clapsadl, and D.W. Einhouse. Quantifying and comparing energy densities of native and invasive nearshore forage fishes of the Great Lakes. Great Lakes Fishery Commission Board of Technical Experts (2014)

Kapuscinski, K.L. Effects of invasive rudd on ecosystem structure and function of Buffalo Harbor and the Niagara River. Lake Superior State University (2014)

Kapuscinski, K.L. Effects of nonnative rudd on ecosystem structure and function of Buffalo Harbor and the Niagara River. The Ohio State University (2013)

Kapuscinski, K.L. The effect of invasive species on freshwater communities. SUNY Fredonia (2013)

Farrell, J.M., and K.L. Kapuscinski. Current challenges and threats to Great Lakes muskellunge and northern pike populations. American Fisheries Society Annual Meeting (2013)

Crane, D.P., J.M. Farrell, and K.L. Kapuscinski. Spatially explicit modeling of upper Niagara River muskellunge spawning habitat. St. Lawrence River International Esocid Working Group Meeting (2012)

Kapuscinski, K.L. Habitat factors and invasive species influencing nearshore fish assemblages: implications for an apex predator. University of Wisconsin-Green Bay (2010)

SELECTED CONTRIBUTED PRESENTATIONS (>50 total, [1]Undergraduate student, [2]Master's student)

Thomas, S., Boersig, T., Boehm, H., K. Kapuscinski, and A. Moerke. Emerging skillsets for successful and effective contemporary state fisheries professionals. 154th Annual Meeting of the American Fisheries Society (2024)

Phillips[1], G., and 27 others. The occurrence, abundance, and type of microplastics in larval lake whitefish Coregonus clupeaformis diets in relation to water depth and watershed land use. Association for the Sciences of Limnology and Oceanography (Poster, 2024)

Prow[1], E., and 26 others. Zooplankton beach and nearshore density and biomass and their relation to larval coregonines at day versus night in the Upper Great Lakes. Association for the Sciences of Limnology and Oceanography (Poster, 2024)

Guerrero[1], A., and K.L. Kapuscinski. Comparing the effectiveness of copper sulfate to formalin as an antifungal agent on Lake Trout embryos. 153rd Annual Meeting of the American Fisheries Society (Poster, 2023)

Belanger[1], E., and K.L. Kapuscinski. Assessment of an aquatic remotely operated vehicle to survey fishes in an inland lake. Michigan Chapter of the American Fisheries Society (2nd place *Best Student Poster Award*, 2023)

Freeman, S.D.D., C.O. Brant, J.P. Doubek, K.L. Kapuscinski, and R.W. Tingley. Early-season succession of zooplankton in the North Channel of Lake Huron. Michigan Chapter of the American Fisheries Society (2023)

Wesolek, J.N., S.R. McMillian, K.L. Kapuscinski, and A.H. Moerke. Potential effects of European frog-bit in coastal wetlands of the St. Marys River. Great Lakes Coastal Symposium (Poster, 2022)

Kapuscinski, K.L., J. Wesolek, and A.H. Moerke. Ecological responses to hand removal of European Frog-bit in the St. Marys River. IAGLR 64th Annual Conference on Great Lakes Research (2021)

Herigan[2], G.M., D.P. Crane, and K.L. Kapuscinski. Nursery habitat characteristics of the invasive, omnivorous Rudd (*Scardinius erythrophthalmus*). Pennsylvania Chapter of the American Fisheries Society (*Best Student Presentation*, 2021)

Crane, D.P., K.L. Kapuscinski, and J.J. Hutchens, Jr. Use of a novel richness-weighted relative abundance index of age-0 fishes to identify key features for habitat conservation and restoration. 150th Annual Meeting of the American Fisheries Society (2020)

Kapuscinski, K.L., D.P. Crane, and T. Gronda. Effects of conspecific density on selective feeding and time of first feeding by two predatory fishes. 150th Annual Meeting of the American Fisheries Society (2020)

Andrus[1], E., B. Turschak, J. Jonas, R. Greil, and K. Kapuscinski. Concentration of thiamine in livers and eggs of female Atlantic, Chinook, and Coho Salmon in the Great Lakes Region. Michigan Chapter of the American Fisheries Society (2nd place *Best Student Poster Award*, 2020)

Blair[1], D., K.L. Kapuscinski, and J.N. Wesolek. Predicting European Frog-bit *Hydrocharis morsus-ranae* phenology using degree days. Michigan Chapter of the American Fisheries Society (Poster, 2020)

Wesolek, J.N., Kapuscinski, K.L., and A.H. Moerke. Ecological effects of invasive European Frog-bit *Hydrocharis morsus-ranae* in the St. Marys River. Michigan Chapter of the American Fisheries Society (Poster, 2020)

Imre, I., G. Brown, W. Dew, R. Greil, K. Kapuscinski, K. Loftus and R. Claramunt. Improvement of Atlantic salmon post-stocking survival and recruitment by induced neophobia training. Canadian Conference for Fisheries Research (2020)

Crane, D.P., K.L. Kapuscinski, and J.J. Hutchens, Jr. Use of a novel richness-weighted relative abundance index of age-0 fishes to identify key features for habitat conservation and restoration. International Association of Great Lakes Research (2019)

Roseman, E.F., K. Kapuscinski, J. Boase, R. Drouin, D. Gorsky, J. Jock, J. Farrell, and S. Schlueter. 2019. Great Lakes connecting channels: status, challenges, and opportunities. Michigan Fish and Wildlife Conference (2019)

Vandrunen, F., J. Gostiaux, E.F. Roseman, R.L. DeBruyne, J.L. Fischer, A.H. Moerke, K.L. Kapuscinski, C. Olds, K. Genther, and E. Binkowski. First evidence of Lake Sturgeon (*Acipenser fulvescens*) spawning in the St. Marys River, MI. Michigan Fish and Wildlife Conference (2019)

Larsen[1], J.E., R.W. Greil, and K.L. Kapuscinski. A comparison of larval fish assemblages at three sites in the St. Marys River, Michigan. Michigan Chapter of the American Fisheries Society (*Best Student Poster Award*, 2018)

Kapuscinski, K.L., and D.P. Crane. Capture efficiency of a fine-mesh seine in a large river: implications for abundance, richness, and diversity analyses. 78th Midwest Fish & Wildlife Conference (2018)

Cortell[1], C.J., K.L. Kapuscinski, and C. Kovacs. Trends in relative abundance of sport fishes of the Tahquamenon River, MI, 1993-2016. 77th Midwest Fish & Wildlife Conference (Poster, 2017)

Milan[1], J., K.L. Kapuscinski, P. Ripple, and A.H. Moerke. Seasonal fish migration patterns in three Lake Superior tributaries. Midwest Fish and Wildlife Conference (Poster, 2016)

Gunderson[2], M.A., K.L. Kapuscinski, D.P. Crane, and J.M. Farrell. Habitat-assemblage modeling of aquatic macrophytes as a guide for enhancement of fish habitat. New York Chapter of the American Fisheries Society (*Best Student Poster Award*, 2014)

PROFESSIONAL SERVICE

Past-president, MI Chapter of AFS (2023)

Co-organizer, Biology, Ecology, and Management of *Esox* spp. in Changing Environments Symposium, American Fisheries Society Annual Meeting (2023)

President, MI Chapter of AFS (2022)

President-elect, MI Chapter of AFS (2021)

Member, MI Chapter of AFS Awards Committee (2020-2021)

Symposium moderator and abstract reviewer, Ecology, Conservation, and Management of the Esociformes: Love'em or Hate'em We Need to Understand Them, American Fisheries Society Annual Meeting (2020)

Invited member, Center for Freshwater Research and Education Career and Technical Education Program Advisory Committee (2019-present)

Invited member, Three Shores CISMA Steering Committee (2019-present)

Courtesy appointment, MI DNR Esocid Management Committee (2017-present)

Co-chair, Connecting Channels of the Great Lakes: Ecology, Restoration, and Management Symposium, Michigan Fish and Wildlife Conference (2019)

Invited member, Eastern Upper Peninsula Intermediate School District Math & Science Center Advisory Committee (2017-2018)

Primary Editor, Proceedings of the Hugh Becker Memorial Muskellunge Symposium: Fifty Years of Cooperation among Anglers, Scientists, and Fisheries Biologists. American Fisheries Society, Symposium 85, Bethesda, Maryland (2016-2017)

Associate Editor, North American Journal of Fisheries Management (2013-2016)

Invited member, 2016 Hugh C. Becker Muskie Symposium Program Technical Committee (2015-2016)

Co-chair, Biology, Ecology, and Management of Muskellunge and Northern Pike: New Science to Meet Current and Future Challenges Symposium, American Fisheries Society Annual Meeting (2013)

Co-chair, Aquatic Habitat Restoration and Management in the Great Lakes Session, International Association of Great Lakes Research 55th Annual Conference on Great Lakes Research (2012)

Judge of student poster presentations at the International Association of Great Lakes Research 55th Annual Conference on Great Lakes Research (2012)

Panelist for a discussion on career paths in aquatic sciences and fisheries, New York American Fisheries Society 2nd Annual Student Colloquium (2012)

Invited member, Niagara Habitat Conservation Strategy Technical Advisory Committee (2011-2014)

Reviewer of papers submitted to the IS.Rivers Integrative Sciences and Sustainable Development of Rivers 1st International Conference (2011)

Northeast Region representative to the Wisconsin Department of Natural Resources Lake Michigan Fisheries Team (2004-2006), Muskellunge Team (2005-2006), Non-wadeable Streams Team (2004-2006), and Monitoring Toxics Team (2004-2006)

Chair, Upper Basin Pallid Sturgeon Workgroup Stocking Plan Committee (2003-2004)

Manuscript reviewer for American Fisheries Society (Symposium 85), The American Midland Naturalist, Environmental Science and Pollution Research, Environmental Biology of Fishes, Fisheries Management and Ecology, Journal of Applied Ichthyology, Journal of Great Lakes Research, North American Journal of Aquaculture, North American Journal of Fisheries Management, Transactions of the American Fisheries Society, and Wetlands

ACADEMIC SERVICE

Technical Representative to the Great Lakes-Northern Forest Cooperative Ecosystem Studies Units Network, LSSU (2021-present)

Search Committee Chair for Assistant Professor of Wildlife Management, LSSU (2024, 2023)

Search Committee Chair for Assistant Professor of Forest Conservation, LSSU (2023)

Search Committee for CFRE Executive Assistant and Outreach Coordinator, LSSU (2023)

Search Committee for CFRE Special Projects and Development Coordinator, LSSU (2023)

Search Committee for CFRE Research Scientist in Emerging Contaminants, LSSU (2023, 2022)

Search Committee for CFRE Coordinator of Operations, LSSU (2022, 2020)

Search Committee for CFRE Hatchery Technician, LSSU (2022)

Search Committee for CFRE Research Technician, LSSU (five during 2018-2022)

Search Committee for CFRE Administrative Assistant, LSSU (2021)

Center for Freshwater Research and Education Fundraising and Renovation Committees, LSSU (2014-2021)

Curriculum Committee representative for the School of Natural Resources & Environment, LSSU (2019-2021)

Search Committee Chair for Assistant Professor of Aquaculture, LSSU (2021)

Search Committee for Assistant Professor of Conservation Biology, LSSU (2021)

Developed Minor in Aquaculture, LSSU (approved 2019)

Developed NRES450 Apprenticeship in (Discipline), LSSU (approved 2019)

Strategic Planning Committee on Finance, LSSU (2016-2018)

Institutional Animal Care and Use Committee, LSSU (2015-2018)

Search Committee for Assistant Professor of Fisheries/Aquatic Ecology, LSSU (2018)

Search Committee for Research Technician, LSSU (2018)

Search Committee for Great Lakes Education and Outreach Specialist, LSSU (2018)

Search Committee for Office of Sponsored Programs Administrator, LSSU (2017)

Search Committee for Assistant Professor of Genetics, LSSU (2016-2017)
Search Committee for Assistant Professor of Conservation Biology, LSSU (2015-2016)
Faculty Governance Committee on Research, SUNY-ESF (2013-2014)
Defense examiner for Derek Crane, SUNY-ESF (Ph.D., 2013)
Defense examiner for Mark Leopold, SUNY-ESF (M.S., 2013)
Steering committee member for Christina Killourhy, SUNY-ESF (M.S., 2013)

COURSES TAUGHT

Fisheries Management, LSSU (BIOL432 or NRES432, 10 semesters)
Fisheries Management Lab, LSSU (BIOL432 or NRES432, 10 semesters, 1-2 sections)
Freshwater Fish Culture, LSSU (BIOL372 or NRES372, nine semesters)
Freshwater Fish Culture Lab, LSSU (BIOL372 or NRES372, nine semesters)
Apprenticeship in Fish Culture, LSSU (NRES450, seven semesters)
Internship in Aquaculture, Biology, Fish Culture, or Fish Habitat Assessment, LSSU (BIOL389 or NRES389, 13 semesters or summer or winter terms)
Ichthyology, LSSU (BIOL310, four semesters)
Fish Ecology, LSSU (BIOL333, five semesters)
Research Project Design, Planning Research Project, or Junior Seminar, LSSU (BIOL399 or NRES399, three semesters)
Senior Project, LSSU (BIOL495 or NRES495, 23 semesters or summer or winter terms)
Senior Capstone or Senior Seminar, LSSU (BIOL499 or NRES499, two semesters)
Biology Seminar Series Coordinator, LSSU (three semesters)
Fisheries Science & Management, SUNY-ESF (EFB487/687, fall 2012)
Fisheries Science Practicum, SUNY-ESF (EFB488, fall 2012)
Ecological Monitoring and Biodiversity Assessment, SUNY-ESF, Cranberry Lake Biological Station (EFB202, summer 2011, Aquatics and Statistics sections, supervised student projects, served on review panel for student presentations)
Ecological Monitoring and Biodiversity Assessment, SUNY-ESF, Cranberry Lake Biological Station (EFB202, summer 2010, Aquatics and Statistics sections)
The Information-theoretic Approach to Model Selection: A New Paradigm in Ecological Research, SUNY-ESF (EFB797, fall 2008)

WORKSHOPS AND GUEST LECTURES

Fundamentals of Natural Resources, LSSU (NRES203; 2023)
CFRE Contracts and Grants Workshop, co-created and co-led with Ms. Erica Newland (2020)
Intensive Study: Great Lakes Ecology and Management, Johns Hopkins University (2019)
Identification of Nongame Fishes, sponsored by the Michigan Chapter of the American Fisheries Society and hosted by LSSU (2016, 2018)
Quantitative Biology, LSSU (BIOL250, 2016)
General Ecology, LSSU (BIOL337, 2015)
Fish Ecology, LSSU (BIOL333, 2014)
Fisheries Science & Management, SUNY-ESF (two lectures, EFB487/687, 2013)
Senior Synthesis in Aquatic and Fisheries Science, SUNY-ESF (EFB492, 2013)

Senior Synthesis in Conservation Biology, SUNY-ESF (EFB414, 2012)
Ecology of Adirondack Fishes, Thousand Islands Biological Station, SUNY-ESF (EFB488, 2010)
Graduate Core Seminar, SUNY-ESF (EFB797, 2010)

MENTORING

Undergraduate research advisor for 57 students including:

- Alisha Denue, Hunter Eurich, Sarah Gremmer, Hunter Hinds, Raylin Ludwig, LSSU (2024-present)
- Taylor Gross, Noah Kemler, and Robert Schwartz, LSSU (2023-present)
- Dominic Betke, Jared Christiansen, Robert Landis, LSSU (2022-2024)
- Angel Guerrero and Kathleen Gerard, Ashleigh Morgan LSSU (2022-2023)
- Elizabeth Belanger, LSSU (2020-2023; *Michigan Sea Grant Environmental Internship*, summer 2021; *McNALMS/MLSA Student Grant Award*, 2022; Runner up, *Michigan AFS Best Student Poster Award*, 2023)
- Mikael Ranta, LSSU (2019-2021; *produced a peer-reviewed publication*)
- Marissa McIntyre, LSSU (2018-2019; *College of Science and Medicine Best Poster Award*, fall 2019)
- John Larsen, LSSU (2016-2018; *Michigan AFS Best Student Poster Award*, 2018)
- Matthew Grieb, LSSU (2017; *School of Biological Sciences Best Poster Award*, fall 2017)
- Christopher Cortell, LSSU (2015-2017; *School of Biological Sciences Best Poster Award*, spring 2017)
- Kyle Urban, LSSU (2015-2016; *School of Biological Sciences Best Poster Award*, fall 2016)
- Sean Leask, LSSU (2015; *School of Biological Sciences Best Poster Award*, fall 2015)
- Michael Guinan, SUNY-ESF (2013; *produced a peer-reviewed publication*)

Post-doctoral advisor for Derek Crane, SUNY-ESF (2013-2015; *produced multiple peer-reviewed publications*)
Major advisor for Matthew Gunderson, SUNY-ESF (M.S., 2012-2015; *produced a peer-reviewed publication*)
Mentor for the American Fisheries Society Hutton Junior Fisheries Biology Program (two students, 2007)

AWARDS

Past-president's Award, Michigan Chapter of the American Fisheries Society (2024)
Special Recognition Award for positively influencing the college experience of 2013 graduates, SUNY-ESF (2014)
Outstanding Doctoral Student for 2011-2012, Department of Environmental and Forest Biology, SUNY-ESF (2012)
International Association of Great Lakes Research-Ontario Ministry of Natural Resources student travel award (2010)
New York's Great Lakes Research Consortium student travel award (2010)
Niagara Musky Association research grant (2009)
Honorary member of the Niagara Musky Association (2008-present)
Research assistantship and tuition scholarship award, SUNY-ESF (2006-2011)
Bill Beck Scholarship, Central Wisconsin Chapter of Trout Unlimited (2001)

CONTINUING EDUCATION

Intro to R 1 & 2, Ocean Tracking Network and GLATOS (2023)
CPR Heartsaver/Firstaid/Stop the Bleed Training (2021)
Hatchery Design in Aquaculture, American Fisheries Society Webinar (2019)
CITI Program courses in Biomedical Responsible Conduct of Research, Conflicts of Interest, Working with Fish in Research Settings, and Working with the IACUC (2019)
Chemistry to Conservation: Using Otoliths to Advance Fisheries Management, American Fisheries Society Webinar (2018)
An Introduction to R: Getting Comfortable with the Basics, Michigan Chapter of the American Fisheries Society (2018)
ESF's Digital Future: Hardy L. Shirley Faculty Mentoring Colloquium, SUNY-ESF (2014)
Leadership workshop, New York Chapter of the American Fisheries Society, Dr. Ernie Stretton (2012)
Submerged aquatic vegetation workshop, New York Chapter of the American Fisheries Society, Dr. Robert Johnson (2011)
Genetics for fisheries professionals: tools and decisions, New York Chapter of the American Fisheries Society, Dr. Chris Wilson and Dr. Meredith Barton (2009)
No more P-values? A workshop on model based inference in the life sciences, SUNY-ESF, Dr. David Anderson (2007)
Biostatistics workshop, Wisconsin Chapter of the American Fisheries Society, Dr. Michael Hansen (2006)
Fish aging workshop, Wisconsin Department of Natural Resources (2006)
Fisheries genetics workshop, Wisconsin Chapter of the American Fisheries Society, Dr. Brian Sloss (2005)

PROFESSIONAL CERTIFICATION AND MEMBERSHIPS

Michigan Chapter of the American Fisheries Society (2015-present)
Great Lakes Research Consortium (2013-present)
Certified Fisheries Professional, American Fisheries Society (2012-present)
Save the River, Upper St. Lawrence RIVERKEEPER (2011-present)
International Association of Great Lakes Research (2010-present)
New York Chapter of the American Fisheries Society (2009-2014)
The Nature Conservancy (2003-present)
American Fisheries Society (1999-present)
University of Wisconsin-Stevens Point Chapter of the American Fisheries Society (1996-2001)