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Education

2017 PhD Ecology and Evolutionary Biology, University of Toronto [UofT]
2013 MSc Biology, Arkansas State University [ASU]
2011 Honors BSc Biology, Eastern Connecticut State University [ECSU]

Professional Experience

Present NSERC Visiting Fellow, Great Lakes Laboratory for Fisheries and Aquatic Sciences, Fisheries and Oceans Canada
2017 Postdoctoral fellow, Ecology and Evolutionary Biology, UofT

Peer-Reviewed Publications

- Lamothe KA, Drake DAR, Dextrase AJ. *Accepted*. Characterizing species co-occurrence patterns of imperfectly detected stream fishes for informing species repatriation efforts. *Conservation Biology* (ID: 18-513; Submitted: 08/16/18; Accepted: 12/23/18).
- Lamothe KA, Drake DAR. *In Press*. Moving repatriation efforts forward for imperilled Canadian freshwater fishes. *Canadian Journal of Fisheries and Aquatic Sciences*. doi: 10.1139/cjfas-2018-0295.
- Lamothe KA, Dong H, Senar OE, Teichert S, Creed IF, Kreutzweiser DP, Schmiegelow FKA, Venier L. *In Press*. Non-provisioning ecosystem services as a driver of change in the Boreal zone, Canada. *Environmental Reviews* doi: 10.1139/er-2018-0065.
- Lamothe KA, Jackson DA, Somers KM. 2018. Long-term directional trajectories among lake crustacean zooplankton communities and water chemistry. *Canadian Journal of Fisheries and Aquatic Sciences* **75**(11):1926-1939.
- Lamothe KA, Alofs KM, Jackson DA, Somers KM. 2018. Functional diversity and redundancy among fish communities across environmental and biogeographic gradients. *Diversity and Distributions* **24**(11):1612-1626.
- Lamothe KA, Sutherland IJ. 2018. Intermediate ecosystem services: the origin and meanings behind an unsettled concept. *International Journal of Biodiversity Sciences, Ecosystem Services, and Management* **14**(1):179-187.
- Lamothe KA, Bourne V, Chin ATM, Daoust K, Dieleman CM, Ouellet Dallaire C, Tomscha SA. 2018. Are research networks worth the time for graduate students? *Bulletin of the Ecological Society of America* **99**(3):343-350.
- Sutherland IJ, Villamagna AM, Ouellet Dallaire C, Bennett EM, Chin ATM, Tomscha SA, Lamothe KA, Yeung ACY, Cormier R. 2018. Undervalued and under pressure: a plea for greater attention toward regulating ecosystem services. *Ecological Indicators* **94**(Part 2):23-32.
- Lamothe KA, Jackson DA, Somers KM. 2017. Utilizing gradient simulations for quantifying community-level resistance and resilience. *Ecosphere* **8**(9):e01953.
- Szczys P, Lamothe KA, Druzyaka A, Poot M, Siokhin V, van der Winden J. 2017. Range-wide patterns of population differentiation of Eurasian black terns (*Chlidonias niger niger*) related to the use of discrete post-nuptial staging sites. *Journal of Ornithology* **158**(2):365-378.
- Lamothe KA, Allen RM, Winningham K, Dennis C, Johnson RL. 2016. Stocking for a trophy bass fishery: searching for size differences among largemouth bass and hybrids in southern Arkansas reservoirs. *Lake and Reservoir Management* **32**(2):194-207.
- Lamothe KA, Johnson RL. 2013. Microsatellite analysis of trophy largemouth bass from Arkansas reservoirs. *Journal of the Arkansas Academy of Science* **67**:71-80.
- Lamothe KA, Allen RM, Cato C, Winningham K, Dennis C, Johnson RL. 2012. Shifting genetic composition of largemouth bass populations in dendritic arms of two large Arkansas reservoirs through stocking of Florida largemouth bass. *Proceedings of Annual Conference of Southeastern Association of Fish and Wildlife Agencies* **66**:82-87.

Articles in Review

- Lamothe KA, Somers KM, Jackson DA. Linking the ball-and-cup analogy and ordination trajectories to describe ecosystem stability, resistance and resilience. In Review at *Ecosphere* (Submitted: 09/20/18; ID: ECS18-0695).
- Lamothe KA, Drake DAR, Dextrase AJ. Aggregation of two imperfectly detected imperilled freshwater fishes: understanding community structure and co-occurrence for species conservation. In Review at *Hydrobiologia* (Submitted: 12/24/18; ID: HYDR-D-18-00988).

Articles in Preparation for Peer-Review

- Lamothe KA, Drake DAR, Pitcher TE, Broome JE, Dextrase AJ, Gillespie A, Mandrak NE, Poesch MS, Reid SM, Vachon N. Reintroduction of freshwater fishes in Canada: a review of research progress for SARA-listed species.
- Lamothe KA, van der Lee AS, Drake DAR, Koops MA. Predicting translocation success for endangered species: the delicate balance between harming source populations and re-establishing historical populations.
- Lamothe KA, Alofs KM, Chu C. Conservation of lake fish functional diversity via terrestrial protected areas.
- Lamothe KA, Ziegler JP, Barnucz J, Gáspárdy R, Drake DAR. Quantifying habitat associations while considering imperfect detection for one of the rarest fishes in Canada: Northern Madtom *Noturus stigmosus*.
- Lamothe KA, Drake DAR. From catchability to imperfect detection: addressing old problems with new methods.
- Lamothe KA, Jones NE, Schmidt B, Drake DAR. Spatial, abiotic, and biotic considerations for informing potential reintroductions of the Endangered Redside Dace (*Clinostomus elongatus*) in Canada.
- Lamothe KA, Drake DAR. Monitoring program design for geographically-restricted reintroduced freshwater fish populations.
- Hubbard J, Lamothe KA, Drake DAR. Fish diversity in the Niagara River: the link between two Great Lakes.
- Ziegler JP, Lamothe KA, Drake DAR. Impacts of local patchiness on species detection and estimates of occupancy.
- Lamothe KA, Drake DAR, van der Lee AS, Koops MA. A distribution-based approach using occupancy models to assess allowable harm to species at risk.
- Lamothe KA, Poesch MS, Drake DAR. Characterizing site-specific habitat suitability for the endangered Redside Dace, *Clinostomus elongatus*, using dynamic multi-state occupancy models.
- Lamothe KA, Drake DAR. Seasonal shifts in measures of functional diversity for freshwater fishes in the Niagara River.

Government Reports

- Drake DAR, Lamothe KA, Andrews DW, Jean K. In Preparation. Evaluating the distribution of Eastern Sand Darter (*Ammocrypta pellucida*) in the Ausable River, Ontario. *Canadian Manuscript Report of Fisheries and Aquatic Sciences*.
- Johnson RL, Lamothe K. 2012. Determination of incorporation of Florida Largemouth Bass (*Micropterus salmoides floridanus*) alleles in Northern Largemouth Bass (*M. s. salmoides*) populations of several Arkansas reservoirs using microsatellite analysis. *Report for the Arkansas Game and Fish Commission*.

Theses

- Lamothe KA. 2017. Quantifying the resistance and resilience of freshwater ecosystems to anthropogenic disturbance. PhD Thesis. UofT.
- Lamothe KA. 2013. Northern largemouth bass, *Micropterus salmoides salmoides*, and Florida largemouth bass, *Micropterus s. floridanus*, population structure and stocking protocol assessment in seven Arkansas reservoirs using microsatellite analysis. MSc Thesis. ASU.
- Lamothe KA. 2011. Genetic analysis and population structure of black terns from Europe. BSc Thesis. ECSU.

Article Review Record for Peer-Reviewed Journals

- 2018 – Ecology, Ecology of Freshwater Fish, Ecography, Fishes, Water
- 2017 – Ecosphere
- 2016 – Canadian Journal of Fisheries and Aquatic Sciences, North American Journal of Fisheries Management
- 2015 – Ideas in Ecology and Evolution

Scholarly Presentations

Invited

- 2018 – Lamothe KA. Current status and information needs for the repatriation of imperiled freshwater fishes. Aquatic and Species at Risk Skill Building Symposium. Toronto, ON – Invited by Olivia Park, Emerging Leaders for Biodiversity
- 2018 – Lamothe KA. Current status and information needs for the repatriation of imperiled freshwater fishes. Canadian Centre for Inland Waters. Burlington, ON – Invited by Christine Boston
- 2017 – Lamothe KA. Understanding our role in altering freshwater systems: from genes to communities. ECSU. Willimantic, CT – Invited by Patricia Szczys
- 2016 – Lamothe KA. Resilience: a perspective for ecosystem management and challenge for quantitative ecologists. NSERC Canadian Network for Aquatic Ecosystem Services (CNAES) Highly Qualified Personnel (HQP) Webinar Series – Invited by CNAES HQP
- 2016 – Lamothe KA. Resilience: a perspective for ecosystem management and challenge for quantitative ecologists. Laurentian University. Sudbury, ON – Invited by W. Bill Keller

Contributed

- 2019 – Lamothe KA, Ziegler JP, Castaneda R, Montgomery F. Imperiled species in the Great Lakes basin: identifying threats and restoring populations. International Association for Great Lakes Research 62nd annual conference. Brockport, NY; *Planned June 2019*
- 2019 – Lamothe KA, Drake DAR, Dextrase AJ. Characterizing species co-occurrence patterns of imperfectly detected stream fishes: informing repatriation of the imperiled Eastern Sand Darter. Canadian Conference for Fisheries Research. London, ON; *Planned January 2019*
- 2018 – Lamothe KA, Drake DAR, Dextrase AJ. Characterizing species co-occurrence patterns of imperfectly detected stream fishes: informing repatriation of the imperiled Eastern Sand Darter. Canadian Freshwater Species at Risk Research Network Meeting. Burlington, ON
- 2018 – Lamothe KA, Alofs KM, Jackson DA, Somers KM. Functional diversity and redundancy of freshwater fish communities in Ontario lakes. Canadian Conference for Fisheries Research. Edmonton, AB
- 2017 – Lamothe KA, Jackson DA, Somers KM. Evaluating ecological community change and resilience using multivariate gradient analyses. Ecological Society of America Annual Meeting; Portland, OR. Presented by DA Jackson
- 2017 – Lamothe KA, Jackson DA, Somers KM. Quantifying community-level resistance and resilience to disturbance: an example from Ontario zooplankton communities experiencing acidification. Society for Freshwater Science Annual Meeting. Raleigh, NC
- 2017 – Lamothe KA, Jackson DA, Somers KM. Evaluating freshwater ecosystem condition by quantifying resilience. NSERC Canadian Network for Aquatic Ecosystem Services 5th Annual Meeting. Toronto, ON
- 2017 – Lamothe KA, Dong H, Senar OE, Teichert S, Creed IF, Kreutzweiser DP, Schmiegelow FKA, Venier L. Non-provisioning ecosystem services as a driver of change in the Boreal zone, Canada. Boreal 2050 Workshop 3. Montréal, QC
- 2017 – Lamothe KA, Jackson DA, Somers KM. Using gradient simulations to aid in resilience metric development. Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting. Honolulu, HI
- 2017 – Lamothe KA, Jackson DA, Somers KM. Utilizing gradient simulations for developing measures of community-level resilience to disturbance. Canadian Conference for Fisheries Research. Montréal, QC
- 2016 – Lamothe KA, Dong H, Senar OE, Teichert S, Creed IF, Kreutzweiser DP, Schmiegelow FKA, Venier L. Non-provisioning ecosystem services as a driver of change in the Boreal zone, Canada. Boreal 2050 Workshop 2. Montréal, QC
- 2016 – Lamothe KA, Jackson DA, Somers KM. Quantifying the resilience of Ontario freshwater fish communities to a warming environment. Muskoka Summit on the Environment: Solutions for a Warming World. Bracebridge, ON
- 2016 – Lamothe KA, Jackson DA, Somers KM. Evaluating freshwater ecosystem condition by quantifying ecological resilience. NSERC Canadian Network for Aquatic Ecosystem Services 4th Annual Meeting. Guelph, ON
- 2016 – Lamothe KA, Jackson DA, Somers KM. Quantifying the resilience of communities to disturbance using a multivariate approach. American Fisheries Society Ontario Chapter Annual Meeting. Orillia, ON

- 2015 – [Lamothe KA](#), Jackson DA, Somers KM. Quantifying ecological resilience using community data: a simulation approach. Ontario Ecology, Ethology, and Evolution Colloquium. Toronto, ON
- 2015 – [Lamothe KA](#), Jackson DA, Somers KM. Evaluating ecosystem condition by quantifying ecological resilience. NSERC Canadian Network for Aquatic Ecosystem Services 3rd Annual Meeting. Sault Ste. Marie, ON
- 2014 – [Lamothe KA](#), Jackson DA, Somers KM. Quantifying ecological resilience: a simulation study. Bridging Genes to Ecosystems: Joint Meeting between the Society for Freshwater Science, Phycological Society of America, Association for the Sciences of Limnology & Oceanography, and the Society of Wetland Scientists. Portland, OR
- 2014 – [Lamothe KA](#), Jackson DA, Somers KM. Using circular statistics to quantify ecological resilience: a simulation study. Muskoka Summit on the Environment: Environment vs. Economy. Bracebridge, ON
- 2014 – [Lamothe KA](#), Jackson DA, Somers KM. Evaluating ecosystem health by quantifying resilience. NSERC Canadian Network for Aquatic Ecosystem Services 2nd Annual Meeting. Montréal, QC
- 2013 – [Lamothe KA](#), Winningham K, Dennis C, Johnson RL. Growth, condition, longevity and size differences among Largemouth Bass phenotypes in southern Arkansas reservoirs having mixed bass populations. American Fisheries Society 143rd Annual Meeting. Little Rock, AR
- 2013 – [Lamothe KA](#), Johnson RL. Microsatellite analysis of trophy Largemouth Bass from Arkansas reservoirs. 97th Annual Meeting of the Arkansas Academy of Science. Little Rock, AR
- 2012 – [Lamothe KA](#), Allen RM, Cato C, Winningham K, Dennis C, Johnson RL. Shifting genetic composition of largemouth bass populations in dendritic arms of two large Arkansas reservoirs through stocking of Florida largemouth bass. Southeastern Association of Fish and Wildlife Agencies Conference. Hot Springs, AR
- 2011 – [Lamothe KA](#), Szczys P, van der Winden J. Genetic variation and population structure of Black Terns in Europe. Joint Meeting of 11th North American Crane Workshop and 34th Annual Meeting of the Waterbird Society. Grand Island, NE
- 2011 – [Lamothe KA](#), Szczys P. Genetic variation and population structure of Black Terns in Europe. ECSU Arts and Sciences Research Conference and Exhibition. Willimantic, CT
- 2010 – [Lamothe KA](#), Szczys P. Genetic variation and population structure of Black Terns in Europe and North America. ECSU Arts and Sciences Research Conference and Exhibition. Willimantic, CT
- 2010 – [Lamothe KA](#), Szczys P. Molecular genetic analysis of Black Terns using microsatellite markers. Eastern Colleges Science Conference. Staten Island, NY
- 2009 – [Lamothe KA](#), Szczys P. Molecular genetic analysis of Black Terns using microsatellite markers. ECSU Arts and Sciences Research Conference and Exhibition. Willimantic, CT

Science Blog Articles

[Lamothe KA](#). 2019. My experience at CCFFR 2019. *Personal blog post* – karllamothe.com/personal-blog/.

[Lamothe KA](#). 2018. #BirdsVsFish: engagement in social media for biodiversity conservation. *Blog Post for the Emerging Leaders for Biodiversity*.

[Lamothe KA](#). 2018. The first year experience of a postdoctoral fellow. *Blog Post for RapidEcology*.

[Lamothe KA](#). 2018. Challenges in recovering imperiled fishes. *Blog post for FlyFishOntario*.

[Lamothe KA](#), Drake DAR. 2018. Let's not reintroduce species for conservation, let's repatriate species. *Blog post for RapidEcology*.

Teaching Experience

University of Toronto

- 2016 – *Teaching Assistant*: Urban Ecology, Environmental Biology, Environmental Biology: Applied Ecology
- 2016 – *Teaching Assistant*: Population Ecology. With Dr. Martin Krkošek, we developed new laboratory exercises on topics of nonlinear dynamics and chaos using the Ricker model, non-stationarity and critical transitions, synchrony and asynchrony in spatially structured populations, and metapopulation dynamics.
- 2015 – *Teaching Assistant*: Physical-Biological Coupling in Lake Ecosystems. This field course took place at Harkness Field Station on Lake Opeongo in Algonquin Provincial Park, Ontario. We taught undergraduates to collect, analyze, and interpret a series of physical, chemical, and biological parameters related to lake ecosystems. We used field sampling techniques to understand lake currents, fish communities, benthic macroinvertebrate communities, lake sediments, and zooplankton communities. I led all the fish modules and aided students in developing projects related to fish distributions.
- 2015 – *Field technician*: Population Ecology. Students in ecology participate in an annual aquatic field sampling trip to Duffins Creek, Ajax, ON. I demonstrated seining techniques for fish sampling and taught fish identification. Data from this field trip are then used to teach statistical methods for understanding population and community trends.
- 2014-2016 – *Teaching Assistant*: Lab. and Field Methods in Environmental Science
- 2014 – *Course Assistant*: Lab. and Field Methods in Environmental Science. With Dr. Andrew Drake, we composed the aquatic ecology section of the laboratory manual in this required course for majors in the School of the Environment's Environmental Science program. Topics included quantitative aquatic field sampling, indices of biotic integrity, fish condition, habitat assessments, and probability of fish detection.
- 2014 – *Teaching Assistant*: Population Ecology, Adaptations and Biodiversity

Arkansas State University

- 2012-2013 – *National Science Foundation (NSF) GK12 Fellow*: Armored School District, AR. The NSF GK-12 Program supports graduate training through interactions with teachers and students in K-12 schools while enhancing local STEM content. I instructed 7th and 10th grade students once a week using novel, hands-on activities that I developed. Activities included bringing in local fish species to teach about biodiversity and designing a cladistics lab to aid in the teaching of evolutionary ideas, a subject criticized in much of the region. I learned to communicate complex ideas to young students, guide them as young scientists, and emphasize the importance of STEM careers in the future.
- 2012 – *Teaching Assistant*: Human Structure and Function I, Human Structure and Function II
- 2011-2012 – *Teaching Assistant*: Genetics
- 2011 – *Teaching Assistant*: Biology of the Cell, Microbiology for Nursing

Eastern Connecticut State University

- 2010-2011 – *Biology Tutor*. I tutored fellow undergraduates across a breadth of scientific disciplines at the Academic Services Center. Students would book appointments with me during the week to discuss and receive assistance on classwork, homework, or papers. As a certified tutor, I developed effective communication and interpersonal skills.

Volunteer Experience

2018-present – Mentor, Emerging Leader for Biodiversity
2018 – Volunteered at the CCIW Open House, Burlington, ON - Operated Species at Risk Freshwater Fishes booth
2017 – Volunteer Field Work; Stream depth and flow measures (Brian Kielstra), Greater Toronto Area
2016-2017 – Ontario BioBlitz, Credit River Watershed, Toronto, Skilled Volunteer
2016 – Department of Ecology and Evolutionary Biology, UofT, Weekly Seminar Volunteer
2016 – Department of Ecology and Evolutionary Biology, UofT, BBQ, Volunteer
2016 – Atwood Colloquium, UofT, Volunteer
2015-2016 – Later-stage EEB graduate student mentor, UofT
2015 – Volunteer Field Work; Fish morphology measures (Dr. Karen Alofs), Royal Ontario Museum, Volunteer
2014 – Society for Conservation Biology Photo Contest, Volunteer Committee member
2014 – Department of Ecology and Evolutionary Biology, UofT, Weekly Seminar Volunteer
2012 – Biology Department Undergraduate Recruitment Committee, ASU, Volunteer

Awards, Scholarships, and Fellowships

2018 – NSERC Visiting Fellowship with Fisheries and Oceans Canada
2016 – Ontario B.A.S.S. Nation Best Student Poster Presentation Award – American Fisheries Society Ontario Chapter Annual General Meeting
2016 – NSERC Canadian Network for Aquatic Ecosystem Services HQP Research & Collaborative Exchange Travel Award
2015 – 3rd best poster: Ontario Ecology, Ethology, and Evolution Colloquium
2014 – Best Poster Award: Muskoka Summit on the Environment
2013-2017 – Connaught Scholarship for Doctoral Students: UofT
2013 – Arkansas Game and Fish Commission Scholarship: ASU
2012-2013 – National Science Foundation GK12 Fellowship: ASU
2012 – Arkansas Game and Fish Commission Scholarship: ASU
2011 – Yaw Barwuah Award for Outstanding Biology Research: ECSU
2011 – Barry and Ella May Wulff Prize for Outstanding Biologists: ECSU
2011 – Top Honors Thesis Award: ECSU
2010 – Howard S. Kniffen Endowed Scholarship: ECSU
2010 – Alf E. Dyrland Memorial Scholarship: ECSU
2010 – Jean H. Thoresen Scholarship: ECSU
2009 – Member of BBB Biology program: ECSU
2007-2011 – Member of the Honors Program, Full Tuition Scholarship: ECSU

Professional Memberships

2019 – Organized and chaired special session International Association for Great Lakes Research Annual Meeting in Brockport, NY titled “Imperiled species in the Great Lakes basin: identifying threats and restoring populations”
2017 – Organized and chaired special session at Society for Freshwater Science Annual Meeting in Raleigh, NC titled “Understanding and mitigating change in freshwater ecosystem services”
2016-2017 – North American Lake Management Society member
2015-2016 – Canadian Network for Aquatic Ecosystem Services HQP, Committee Secretary
2014-2018 – Elected CNAES Science Committee Member
2014-2015 – American Fisheries Society GTA Chapter Student Representative
2014-2015 – Elected Canadian Network for Aquatic Ecosystem Services HQP Committee President
2013-2017 – Society for Conservation Biology Member
2013-present – American Fisheries Society Member
2013-present – Ecological Society of America Member

Professional Development, Completed Science Courses, and Certifications

2018 – Advanced Occupancy Modelling Course – Proteus, Darryl I. MacKenzie (instructor)

2018 – Standard First Aid – CPR C – AED Certification, St. John Ambulance Saint-Jean

2017 – Pleasure Craft Operator certification, Aceboater

2017 – Backpack Electrofishing Crew Supervisor Certification, Natural Resources Training Group

2017 – Royal Ontario Museum Fish Identification Certificate [3-day course]

2016-2017 – *Graduate Professional Skills Program [UofT]*: Oral Presentation Skills; Conflict Resolution

Fundamentals: Conflict, Communication, and Navigation; The Long Haul: Building and Rebuilding

Motivation; Time Management for Graduate Students; Leadership Fundamentals; Online Tools for

Organizing your Research; Stuck in the Middle: Introduction to Data Research Management; Scholarly

Publishing & Current Awareness; 10 Days of Twitter

2014 – Coursera Verified R Programming Certificate, License D6FQ2B4Z29

2013-2016 – *PhD Courses*: Advanced Statistics, Multivariate Statistics, Philosophy and Methods in Ecology and

Evolutionary Biology, Professional Skills Graduate Course, Spatial Statistics

2011-2013 – *MSc Courses*: Biological Statistics, Global Change Biology, Global Water Issues, Human Genetics,

Limnology w/ Lab, Population Genetics, Research Design, Speciation

2007-2011 – *BSc Science Courses*: Animal Behavior w/ Lab, Aquatic Biology w/ Lab, Bio Research Data Analysis,

Biotechnology, Calculus I, Cell Structure and Function w/ Lab, Chemistry I and II w/ Lab, Field

Ornithology, Molecular Biology w/ Lab, New England and the Sea, Oceanography, Organic Chemistry I and

II w/ Lab, Organismal Biology w/ Lab, Physics I and II w/ Lab, Population Biology w/ Lab, Principles of

Biology w/ Lab, Rainforest Biology, and Tropical Oceanic Biology

Professional References

1. Dr. D. Andrew R. Drake, Fisheries and Ocean Canada, Post-doc supervisor; andrew.drake@dfo-mpo.gc.ca
2. Dr. Donald A. Jackson, University of Toronto, PhD co-supervisor; don.jackson@utoronto.ca
3. Dr. Keith M. Somers, University of Toronto, PhD co-supervisor; keith.somers@utoronto.ca
4. Dr. Ronald L. Johnson, Arkansas State University, MSc supervisor; rlj@astate.edu
5. Dr. Patricia Szczys, Eastern Connecticut State University, Honors BSc supervisor; szczysp@easternct.edu