MATTHEW BAINE LODATO, Ph.D.

Curriculum Vitae: updated January 2026.
Department of Agricultural Sciences & Natural Resources, Texas Tech University, Lubbock, TX, USA, 79409

EDUCATION

2025	Ph.D. in Biological Sciences, University of Alabama; Advisor: Dr. Carla L. Atkinson.
2018	M.S. in Environmental Biology with concentration in microbial ecology, University of Southern Mississippi; Advisor: Dr. Kevin A. Kuehn.
2014	B.S. in Marine Biology, University of Southern Mississippi.

APPOINTMENTS

2026 –present	Postdoctoral Researcher, Department of Agricultural Sciences and Natural Resources, Texas Tech University, Lubbock, TX, USA. Research project: Investigating how the addition of desalinized and detoxified fracking wastewater influences the structure and function of the Pecos River, Texas.
2021 –2025	Graduate Research Assistant, Department of Biological Sciences, University of Alabama, Tuscaloosa, AL, USA. Research Project: NSF CAREER – Functional diversity and ecosystem function provisioning by a guild of macrofaunal consumers in riverine ecosystems.
2021 –2025	Graduate Teaching Assistant, Department of Biological Sciences, University of Alabama, Tuscaloosa, AL, USA. Dissertation: Cross-scale drivers of the reciprocal impacts among freshwater mussels, hydrology, and floodplain on River Biogeochemistry. Class appointments: Stream Ecology (BSC 490/590), Laboratory Biology II (BSC 117L), Ecohydrology (BSC 461/561), Freshwater Studies (BSC 320).
2021 – 2020	Senior Everglades Research Technician, Florida International University, Miami, FL, USA. Supervisor: Dr. Joel Trexler.
2017 – 2018	Graduate Research Assistant, Department of Biological Sciences, University of Southern Mississippi, Hattiesburg, MS, USA; Grand Bay National Estuarine Research Reserve, Moss Point, MS, USA. Research project: Marsh Monitoring grant.
2015 - 2018	Graduate Teaching Assistant, Department of Biological Sciences, University of Southern Mississippi, Hattiesburg, MS, USA. Thesis: The role and contribution of saprotrophic fungi during standing dead litter decomposition of two perennial grass species, *Schizachyrium scoparium* and *Schizachyrium tenerum*. Class appointments: Essentials of Human Anatomy and Physiology (BSC 107L), Principles of Biological Sciences I (BSC 110L) and II (BSC 111L), Marine Invertebrate Zoology (BSC 521L), Introductory Mycology (BSC426L/526L), Limnology (BSC 444L/544L).
2015	Marine Parasitology Internship, Department of Biological Sciences, University of Southern Mississippi, Ocean Springs, MS, USA. Advisor: Late Dr. Richard Heard; Research Project: Quantifying encysted metacercariae within the gills of a Gulf of Mexico *Fundulus spp.*

PUBLICATIONS & PRODUCTS

Peer-reviewed publications

7. Lopez, JW, **MB Lodato**, TC Michael, LM Morris, & CL Atkinson. A novel, self-contained chamber design for ecosystem experiments in streams (2025). *Limnology and Oceanography: Methods*. https://doi.org/10.1002/lom3.10692

6. Lopez, JW, **MB Lodato**, & CL Atkinson. (2025) Zoogeochemical impacts of freshwater mussels on stream metabolism are mediated by their ecophysiological and behavioral traits. *Freshwater Science*, 44(1). https://doi.org/10.1086/733812
5. **Lodato, MB**., BC van Ee, & CL Atkinson. (2024) Linking morphology and phylogeny to resource within aquatic assemblages. *Ecology and Evolution*, 14e70641, 1-12. https://doi.org/10.1002/ece3.70641
4. Hopper, GW, JR Bucholz, TP DuBose, KJ Fogelman, SM Keogh, ME Kubala, **MB Lodato**, DH Nichols, I Sánchez González, JM Stoeckel, JD Lozier, & CL Atkinson. (2023) SHEL-D: a trait database for freshwater mussels for the United States of America. *Scientific Data* (10). https://doi.org/10.1038/s41597-023-02635-9
3. Hopper, GW, J Buchanan, I Sánchez González, JR Bucholz, **MB Lodato**, & CL Atkinson. (2022) Little clams with big potential: nutrient release by invasive *Corbicula fluminea* can exceed cooccurring freshwater mussel (Unionidae) assemblage Biological Invasions 24(8): 1-17. *Biological Invasions* 24(8): 1-17. https://doi.org/10.1007/s10530-022-02792-9
2. **Lodato, MB**, JS Boyette, RA Smilo, CR Jackson, HM Halvorson, & KA Kuehn (2021) Functional importance and diversity of fungi during standing grass litter decomposition. *Oecologia*, https://doi.org/10.1007/s00442-020-04838-y.
1. Halvorson, HM, JR Barry, **MB Lodato**, RH Findlay, SN Francoeur, & KA Kuehn. (2019) Periphytic algae decouple fungal activity from leaf litter decomposition via negative priming. *Functional Ecology*, 33(1). https://doi.org/10.1111/1365-2435.13235

Submitted, under review, or in revision (***available upon request***)

2. Lopez, JW, TC Michael, CL Atkinson, **MB Lodato**, *et al*. Embracing the zoogeochemical framework in freshwaters to understand and predict the ecosystem-level consequences of conservation. *Under review at Journal of Animal Ecology*
1. **Lodato, MB**, TC Ledford, JW Lopez, & CL Atkinson. Consumer-driven nutrient cycling interacts with light to modulate their impact on stream sediment nutrient dynamics. *Under review at Freshwater Biology*

Manuscripts in advanced stages (***available upon request***)

1. **Lodato, MB**, CR Smith, S. Plont, AJ Shogren, CL Atkinson. Hydrologic flows through a floodplain-wetland complex influence the timing and spatial distributions of organic matter and nutrients in a low-relief river. For: *Journal of Geophysical Research: Biogeosciences*.

GRANTS AND SCHOLARSHIPS

Fellowships and scholarships:

2020-2021 Graduate Council Fellowship, University of Alabama ($24,000)
2013-2014 Transfer Scholarship, University of Southern Mississippi (*Out-of-state tuition covered*)
2010-2011 Taylor Opportunity Program for Students, Southeastern Louisiana University *(Tuition covered*)

Research grants:

2024 General Endowment Award, Society of Freshwater Science ($1,000)
2023 Research funding, College of Arts and Sciences, University of Alabama ($600)

Travel grants:

2025 Travel Grant, College of Arts and Sciences, University of Alabama ($300)
2025 Travel Grant, Department of Biological Sciences, University of Alabama ($1300)
2024 Travel Grant, Freshwater Mollusck Conservation Society, Karlstad, Sweden ($400 and lodging)
2024 Travel Grant, College of Arts and Sciences, University of Alabama ($1,000)
2024 Travel Grant, Alabama Water Institute, University of Alabama ($750)

2022 Travel Grant, College of Arts and Sciences, University of Alabama ($1,000)

AWARDS AND HONORS

2023 Constance Boone Award, Best Student Presentation, American Malacological Society ($500)
2023 Best Student Platform Presentation, Freshwater Mollusk Conservation Society
2017 Third-place at University of Southern Mississippi Graduate Symposium Poster Presentation Award ($150)

RESEARCH INTERESTS

Aquatic ecology, Ecosystem ecology, Biogeochemistry, Stable isotopes, Freshwater mussel and microbial ecology.

PROFESSIONAL PRESENTATIONS

Presentation as presenting author

11. **Lodato MB**, CN Jones, S Plont, AJ Shogren & CL Atkinson. Spatiotemporal drivers of organic matter and nutrient dynamics in an unmodified Southeastern U.S. Gulf Coastal Plain River. (2025). Georgia Water Resource Conference, Athens, GA, USA. *Poster presentation*.
10. **Lodato MB**, JW Lopez, TC Ledford, & CL Atkinson. Mussel-generated dissolved nutrient fluxes promote benthic primary production, but denitrification depends on light. (2024). Freshwater Mollusk Conservation Society, Karlstad, Sweden. *Oral presentation*.
9. **Lodato MB**, JW Lopez, TC Ledford, & CL Atkinson. Environmental factors have stronger impacts than freshwater mussels on benthic nitrogen fluxes. (2024). Society for Freshwater Science, Philadelphia, PA, USA. *Oral presentation*.
8. **Lodato MB**, Lopez, J. W., Ledford, T. C. and C. L. Atkinson. Using a novel benthic chamber design to assess functional trait mediated effects of animal aggregations on ecosystem processes. (2023). Southeastern Chapter of the Society for Freshwater Science, Columbus, GA, USA. *Oral presentation*.
7. **Lodato MB**, BC van Ee, & CL Atkinson. Linking morphology to resource assimilation in functionally similar aquatic species. (2023). American Malacological Society, Tuscaloosa, AL, USA., *Oral presentation*.
6. **Lodato MB**, BC van Ee, & CL Atkinson. Form and Function: Is gill morphology predictive of resource assimilation in freshwater mussels? (2023). Freshwater Mollusck Conservation Society, Portland, OR, USA. *Oral presentation*.
5. **Lodato MB**, BC van Ee, & CL Atkinson. Does form equal function? Identifying patterns and factors shaping resource use among filter-feeding communities of the Sipsey River, AL. (2022). Joint Aquatic Science Meeting, Grand Rapids, MI, USA. *Poster presentation*.
4. **Lodato MB** & CL Atkinson. Do native and invasive freshwater bivalves differentially influence microbially-mediated litter decomposition dynamics? An experimental approach. (2021). Freshwater Mollusk Conservation Society, Online. *Virtual presentation*.
3. **Lodato MB**, JS Boyette, RA Smilo, CR Jackson, HM Halvorson, & KA Kuehn. The role and contribution of saprotrophic fungi during senesce and aerial decomposition of two perennial grass species, *Schizachyrium scoparium* and *Schizachyrium tenerum*. (2017). International Society of Microbial Ecology, Quebec, Canada. *Poster presentation*
2. **Lodato MB**, JS Boyette, RA Smilo, CR Jackson, HM Halvorson, & KA Kuehn. The role and contribution of saprotrophic fungi during senesce and aerial decomposition of two perennial grass species, *Schizachyrium scoparium* and *Schizachyrium tenerum*. (2017) Association of Southeastern Biologist Symposium, Montgomery, AL, USA. *Poster presentation*
1. **Lodato MB**, JS Boyette, RA Smilo, CR Jackson, HM Halvorson, & KA Kuehn. The role and contribution of saprotrophic fungi during senesce and aerial decomposition of two perennial grass species, *Schizachyrium scoparium* and *Schizachyrium tenerum*. Graduate Student Symposium, University of Southern Mississippi, Hattiesburg, MS, USA. *Poster Presentation*

Co-authored presentation **(subset)**

8. Atkinson, CL, GW Hopper, **MB Lodato**, JW Lopez, I Sánchez González, JR Bucholz, JD Lozier (2025). Linking phylogeny to functional trait diversity to predict stream ecosystem function and to inform conservation. World Congress of Malacology, Sao Paulo, Brazil.
7. Morris, LM, TC Michael, **MB Lodato**, JW Lopez, & CL Atkinson. Linking seasonal variability in freshwater mussel physiological rates to ecosystem using in situ experimental chambers. (2025). Georgia Water Resources Conference, Athens, GA, USA.
6. Michael, TC, LM Morris, **MB Lodato**, JW Lopez, & CL Atkinson. Functional trait diversity among freshwater mussels mediates nutrient cycling and ecosystem metabolism. (2025). Georgia Water Resource Conference, Athens, GA, USA.
5. Lopez, JW, **MB Lodato**, & CL Atkinson. Self-contained benthic chambers allow in situ studies of freshwater mussels' ecosystem impacts. (2024) European Freshwater Mollusk Conservation Society Meeting. Karlstad, Sweden.
4. Lopez, JW, **MB Lodato**, & CL Atkinson. Animal zoogeochemical impacts on ecosystem metabolism are mediated by ecophysiological and behavioral traits. (2024 August 6 Ecological Society of America. Long Beach, CA, USA.
3. Lopez, JW, **MB Lodato**, & CL Atkinson. Biomass, thermal tolerance, and movement behavior mediate freshwater mussels' zoogeochemical impacts on benthic metabolism. Society for Freshwater Science. Philadelphia, PA, USA. 2024 June 4.
2. Lopez, JW, **MB Lodato**, & CL Atkinson. Self-contained chambers for field and ecosystem respirometry with freshwater mollusks. Freshwater Mollusk Conservation Society Workshop: Ecophysiology and Environmental Tolerance Techniques. Auburn, AL, USA. 2024 March 5.
1. Lopez, JW, **MB Lodato**, & CL Atkinson. A novel self-contained chamber design for benthic ecosystem experiments in streams. Southeastern Chapter of the Society for Freshwater Science. Columbus, GA, USA. 2023 November 9.

Invited presentations

1. Functional traits shape trophic niche partitioning and nutrient cycling in mussel aggregations. University of Alabama, Tuscaloosa, AL, USA. 2025.

PROFESSIONAL SERVICE

2025	Session moderator, Society for Freshwater Science Conference, San Juan, Puerto Rico.
2025	Event Coordinator for the Freshwater Alabama Biological Symposium, University of Alabama, Tuscaloosa, AL, USA.
2023-2025	Outreach Coordinator, Society for Freshwater Science Southeastern Chapter.
2024	Developed and led an ecophysiology workshop on measuring aquatic organismal excretion and egestion in the field. Freshwater Mollusk Conservation Society, Auburn, AL, USA.
2023-2024	Treasurer for Conservation Biology Society, University of Alabama, Tuscaloosa, AL, USA.
2023	Session moderator, American Malacological Society Conference, Tuscaloosa, AL, USA.

Reviewed manuscripts for:

Ecology, *Environmental Management, Freshwater Science*

OUTREACH

2024	Presenter and volunteer at Homecoming College of Arts and Sciences Table, University of Alabama, Tuscaloosa, AL, USA.

2023 Presenter and volunteer at Homecoming College of Arts and Sciences Table, University of Alabama, Tuscaloosa, AL, USA.
2022 Presenter and volunteer at Darwin Day Outreach Event, University of Alabama Natural History Museum, Tuscaloosa, AL, USA.
2022 Presentation Judge for Undergraduate Research and Creative Activity Conference, University of Alabama, Tuscaloosa, AL, USA.
2022 Presenter at Sipsey Valley Highschool, Tuscaloosa, AL, USA.
2022 Presenter and volunteer at Bama Bug Fest outreach event, University of Alabama Natural History Museum, Tuscaloosa, AL, USA.
2022 Volunteer for graduate student biosymposium, Tuscaloosa, AL, USA.

TRAINING

2012 SCUBA Rescue Diver Certification, PADI.
2011 SCUBA Advanced Open Water Diver Certification, PADI.
2010 SCUBA Open Water Diver Certification, PADI.

PROFESSIONAL MEMBERSHIPS

Freshwater Mollusk Conservation Society
Society for Freshwater Science
Society for Freshwater Science Southeastern Chapter

STUDENT MENTORING

2025 James Hawkins, NSF-RaMP Woods-to-Water participant at University of Alabama, Tuscaloosa AL, USA.
2025 Ian Brunetz, Undergraduate at University of Alabama, Tuscaloosa, AL, USA.
2025 Domenique Olesen, Graduate Student (MS) at Texas A&M-Fort Worth, TX, USA.