

## EDUCATION

### **Ph.D., Zoology**

2020

University of Wisconsin – Madison, Advisor: Dr. Emily Stanley

Dissertation: Spatiotemporal drivers of tributary nutrient dynamics: Effects of watershed variability and seasonality on concentrations, loads, and yields of Lake Michigan's tributaries

### **M.S., Biology - aquatic science concentration**

2014

University of Wisconsin – La Crosse, Advisors: Dr. Eric Strauss and Dr. Roger Haro

Thesis: *Glossosoma intermedium* case periphyton as a nutritionally beneficial resource for lotic communities

### **B.S., Biology - aquatic science concentration, chemistry minor**

2011

University of Wisconsin – La Crosse

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## TEACHING AND ADVISING EXPERIENCE

### **Postdoctoral Scholar (Teaching and Curriculum Development)**

University of Wisconsin – Madison, Freshwater Collaborative of Wisconsin

Spring 2022 – current

- Developing the Freshwater and Marine Science certificate program for undergraduates at UW – Madison
- Developing the course curriculum for the summer limnology course at UW – Madison
- Actively participating in cross-campus course and curriculum development among UW system universities

### **Instructor (instructor of record)**

University of Wisconsin – Madison, Limnology

Summer 2022

- Designed and taught an accelerated limnology course that focused on the physical, chemical, biological, and ecological aspects of inland aquatic ecosystems
- Determined and implemented all course learning objectives, activities, and assessments

### **Laboratory Instructor (instructor of record)**

University of Wisconsin – Madison, Ecology of Fishes Lab

Spring 2017, 2018, 2019

- Organized and taught 2 sections of Ecology of Fishes Lab that covered fish taxonomy, ecology, life history, organism collection methods, and scientific writing and communication
- Aligned learning outcomes, activities, and assessments for each class period
- Revised the course curriculum to improve student intrinsic motivation to meet taxonomic learning outcomes

### **Instructor**

University of Wisconsin – Madison, Limnology

Fall 2019

- Taught limnology lectures that focused on eutrophication, fish and algal ecology, food webs, and ecosystem ecology
- Determined and wrote weekly learning objectives, quizzes, and unit exams

### **Teaching Assistant**

University of Wisconsin – Madison

Fall 2015

**Robert J. Mooney, PhD**  
rjmooney@wisc.edu, robertmooney.weebly.com

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- Led discussion sections that covered material from cell biology, genetics, and ecology units

University of Wisconsin – La Crosse

Fall 2011 - Spring 2013

- Taught weekly classes in introductory biology laboratory and helped prepare unit quizzes

University of Wisconsin – La Crosse

Fall 2010/Spring 2012

- Prepared limnology laboratory and standard methods of water analysis laboratory

**Biology and Chemistry Review Session Instructor**

Summer 2014 - Spring 2015

University of Wisconsin – La Crosse

- Led review sessions for undergraduate students enrolled in a First Year Research Experience program

**McNair Scholars Graduate Assistant**

University of Wisconsin – La Crosse

Fall 2013 - Summer 2014

- Assisted scholars with poster and oral presentation preparation, statistical analyses, grant writing, graduate school applications, and travel to national conferences and campus visits
- Served as a primary research mentor for an undergraduate investigating parasite-host interactions

**Guest Lecturer**

University of Wisconsin – Madison, Summer Collegiate Experience Program

Summer 2022

- Led a field trip for first-generation, incoming college freshman that focused on the effects of climate change on lake ecosystems

University of Wisconsin – Madison, Limnology

Fall 2021

- Lectured on food webs and trophic interactions in stream and lake ecosystems

University of Wisconsin – Madison, Introduction to Freshwater

Fall 2021

- Led a sample collection field trip in the littoral zone of a local lake and lectured on eutrophication and harmful algal blooms

University of Wisconsin – Madison, Forum on the Environment

Spring 2021

- Lectured on nutrient dynamics and eutrophication in freshwater ecosystems

Mount Mary University, Biology

Spring 2020

- Lectured on functional morphology of fishes in waterbodies in the Milwaukee area (part of an on-campus job interview)

University of Wisconsin – Madison, Stream Ecology

Spring 2018

- Lectured on nutrient spiraling and dynamics in stream ecosystems

University of Wisconsin – La Crosse, Stream Ecology

Spring 2014

- Lectured on consumer-driven nutrient recycling by lotic invertebrates to a stream ecology class

University of Wisconsin – La Crosse, First Year Research Experience Fall 2013

- Lectured on stream biomonitoring to a group of 14 students and organized a research day for the group

Longfellow Middle School Fall 2011

- Lectured on the ecology of freshwater ecosystems to three classes of 30 seventh grade students

### **Laboratory Assistant**

University of Wisconsin – La Crosse, Girls in Science June 2010

- Assisted with preparation and completion of two water quality activities designed for 8<sup>th</sup> grade students
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## **PUBLICATIONS**

**Mooney, R.J.**, E.H. Stanley, H.A. Dugan, A.D. Kendall, P.B. McIntyre. In review. Extensive spatiotemporal variation of nutrient concentrations in Lake Michigan's tributaries.

Costello, D.M., S. Tiegs, [...], **R.J. Mooney**, et al. 2022. Global patterns and controls of nutrient immobilization on decomposing cellulose in riverine ecosystems. *Global Biogeochemical Cycles* 36: e2021GB007163

Dugan, H.A, L.A. Rock, A.D. Kendall, and **R.J. Mooney**. 2021. Tributary chloride loading into Lake Michigan. *Limnology and Oceanography Letters* 2: 10228

Berg, S.M., **R.J. Mooney**, M.B. McConville, P.B. McIntyre, and C.K. Remucal. 2021. Seasonal and spatial variability of carbon concentration and composition in Lake Michigan tributaries. *Journal of Geophysical Research: Biogeosciences* 126: e2021JG006449

**Mooney, R.J.**, B.E. Martin, M. Jake Vander Zanden. 2021. Is that minnow in your bait bucket an invasive species? An inquiry-based activity for teaching taxonomy in college-level courses. *The American Biology Teacher* 83:240-246

**Mooney, R.J.**, E.H. Stanley, W.C. Rosenthal, P.C. Esselman, A.D. Kendall, and P.B. McIntyre. 2020. Outsized nutrient contributions from small tributaries to a Great Lake. *Proceedings of the National Academy of Sciences* 117: 28175-28182

Gloege, L., G.A. McKinley, **R.J. Mooney**, J.D. Allan, M.W. Diebel, and P.B. McIntyre. 2020. Lake hydrodynamics intensify the potential impact of watershed pollutants on coastal ecosystem services. *Environmental Research Letters* 15: 064028

Tiegs, S., D.M. Costello, M.W. Isken, G. Woodward, [...], **R. Mooney**, et al. 2019. Global patterns and drivers of ecosystem functioning in rivers and riparian zones. *Science Advances* 5(1): eaav0486

**Mooney, R.J.**, E.A. Strauss, and R.J. Haro. 2016. Nutrient-specific foraging by *Glossosoma intermedium* larvae leads to conspecific case grazing. *Freshwater Science* 35(3):873-881.

**Mooney, R.J.**, E.A. Strauss, and R.J. Haro. 2014. Nutrient recycling by caddisflies alleviates phosphorus limitation in case periphyton. *Freshwater Science* 33(4):1086-1092

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**PRESENTATIONS, \*denotes presentation award, +denotes invited presentation**

**Mooney, R.J.**, K.J. Jankowski, M.R. Magee, H.A. Dugan. 2022. Spatiotemporal drivers of suitable overwintering habitat for centrarchids in the Upper Mississippi River. Oral Presentation. Mississippi River Research Consortium; Joint Aquatic Sciences Meeting

**+Mooney, R.J.** Nutrient contributions to the Great Lakes from tributaries small and large. 2021. University of Minnesota Duluth Large Lakes Observatory Chalk Talk Series

**Mooney, R.J.**, K.J. Jankowski, M.R. Magee, H.A. Dugan. 2021. Spatiotemporal drivers of suitable overwintering habitat for centrarchid species in the Upper Mississippi River. Poster Presentation. Mississippi River Research Consortium; Society for Freshwater Science

**+Mooney, R.J.** A day in the life of a Great Lake: Outsized nutrient contributions from small tributaries. 2021. EPA Great Lakes Toxicology and Ecology Division seminar series

**Mooney, R.J.**, B.E. Martin, M. J. Vander Zanden. 2021. Is that minnow in your bait bucket an invasive species? An inquiry-based activity for teaching taxonomy in college-level courses. Oral Presentation. American Fisheries Society – Wisconsin Chapter; Mississippi River Research Consortium

**Mooney, R.J.** and P.B. McIntyre. Managing nutrient loads to large waterbodies: Integrating watershed and coastal perspectives. Oral Presentation. Northeast Climate Adaptation Science Center seminar series.

**\*Mooney, R.J.**, E. H. Stanley, W. Rosenthal, P.C. Esselman, A. D. Kendall, P. B. McIntyre. 2019. A day in the life of Lake Michigan: A comprehensive estimate of tributary nutrient loads. Oral Presentation. Society for Freshwater Science annual meeting; Mississippi River Research Consortium; International Association for Great Lakes Research annual meeting. \*Received best oral presentation (basic research) award at the Society for Freshwater Science meeting

**Mooney, R.J.**, L. Gloege, G. McKinley, C. Remucal, S. Berg, M. McConville, and P.B. McIntyre. 2018. Spatiotemporal variation in tributary nutrient concentrations: a seasonal perspective for Lake Michigan. Oral Presentation. Society for Freshwater Science annual meeting; Mississippi River Research Consortium.

**Mooney, R.J.**, Lucas Gloege, Galen McKinley, Christy Remucal, Megan McConville, and Peter B. McIntyre. 2017. Extensive spatiotemporal variation of nutrient concentrations in Lake Michigan's tributaries. Oral presentation. Society for Freshwater Science annual meeting.

**Mooney, R.J.** 2016. Effects of land use and seasonality on nutrient loads from Lake Michigan's tributaries. Speed talk. Climate Science Center fellows meeting.

**Mooney, R.J.**, B. Kraemer, Y. Vadeboncoeur, and P.B. McIntyre. 2016. Intra- and interspecific differences in nutrient recycling by two Lake Tanganyikan cichlids: *Petrochromis* sp. "kazumbe" and *Tropheus brichardi*. Poster presentation. Association for the Sciences of Limnology and Oceanography

**Mooney, R.J.**, E.A. Strauss, and R.J. Haro. 2014. *Glossosoma intermedium* as ecosystem engineers: The role of larvae in phosphorus remineralization and invertebrate diversity. Poster presentation. Society for freshwater Science annual meeting.

## Robert J. Mooney, PhD

rjmooney@wisc.edu, robertmooney.weebly.com

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**\*Mooney, R.J.,** E.A. Strauss, and R.J. Haro. 2013. Poster. *Glossosoma intermedium* case periphyton as a nutritionally beneficial resource for lotic grazing communities. Society for freshwater Science annual meeting.

\*Received best poster presentation (basic research) award.

**Mooney, R.J.,** E.A. Strauss, and R.J. Haro. 2013. The role of consumer-driven nutrient recycling by *Glossosoma intermedium* in lotic ecosystems. Poster presentation. Mississippi River research Consortium.

**\*Mooney, R.J.,** E.A. Strauss, and R.J. Haro. 2013. Unique behavior of an aquatic insect may allow it to overcome nutrient limitation in southwestern Wisconsin streams. Poster presentation. Upper Midwest Stream Restoration Symposium. \*Poster competition runner-up.

**\*Mooney, R.J.,** E.A. Strauss, and R.J. Haro. 2012. You graze my back and I'll feed yours: The stoichiometric relationships among the case-grazing caddisfly, *Glossosoma intermedium*, and its environment. Oral presentation. Society for Freshwater Science annual meeting. \*Received best presentation of undergraduate research award.

**\*Mooney, R.J.,** E.A. Strauss, and R.J. Haro. 2012. Stoichiometric analysis of the relationship between the case-grazing caddisfly, *Glossosoma intermedium*, and its periphyton resources. Oral Presentation. Mississippi River Research Consortium. \*Received best student platform presentation award.

**Mooney R.J.** and E.A. Strauss. 2011. Effects of phosphorus on phytoplankton communities in an Upper Mississippi River backwater lake. Poster presentation. Mississippi River Research Consortium.

**\*Mooney, R.J.,** E.A. Strauss, and R.J. Haro. 2011. Consumer-driven nutrient recycling between a keystone, lotic herbivore and its periphyton resources. Poster presentation. Sigma Xi annual meeting. \*Received superior graduate poster in ecology award.

**\*Mooney, R.J.,** E.A. Strauss, and R.J. Haro. 2011. Consumer-driven nutrient recycling between a keystone, lotic herbivore and its periphyton resources. Poster presentation. UW-La Crosse Celebration of Research and Creativity. \*Received best undergraduate poster award

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### FUNDING AWARDS

Kenneth W. Malueg Limnology Scholarship in the amount of \$1000

Anna Grant Birge Memorial Awards for a total of \$5098

Mississippi River Research Consortium travel award in the amount of \$200

Charlotte Stein Research Travel scholarship in the amount of \$500

UW GSSA Research Travel Award in the amount of \$750

John Jefferson Davis Travel Awards to present at the 2016 ASLO meeting and the 2017/18/19 SFS meetings

UW-Madison Department of Zoology Fellowship for Spring and Summer 2016

Received UW-La Crosse undergraduate and graduate student research funds for a total of \$4,000

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### PROFESSIONAL SERVICE

Reviewer – *Freshwater Science; Biogeochemistry; Fundamental and Applied Limnology; Aquatic Sciences; Environmental Research Communications; Water Resources Research; Methods in Ecology and Evolution*

Listed as a 2018 outstanding reviewer for *Biogeochemistry*

Served as the ASLO student representative on the scientific committee for the joint ASLO and SFS 2020 conference

Served as the student representative on the planning committee for the Climate Adaptation Science Center's (CASC) Slow the Flow for Coastal Climate Resilience workshop

Served as the student representative on the board of the 2013 Mississippi River Research Consortium

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## **EMPLOYMENT**

### **Postdoctoral Researcher**

University of Wisconsin – Madison, Center for Limnology Fall 2020 – current

- Using long-term resource monitoring (LTRM) data from the US Geological Survey to determine the spatial and temporal drivers of overwintering habitat for fishes in the Upper Mississippi River system
- Investigating the spatial variability of water chemistry in 200 tributaries of Lake Superior

### **Research Assistant**

University of Wisconsin – Madison, Center for Limnology Summer 2015

- Collected and processed samples to determine denitrification rates within urban watersheds in the Milwaukee area

University of Wisconsin – La Crosse Summer 2011/Summer 2012

- Collected and processed aquatic organisms for subsequent methyl-mercury analysis from 11 lakes

### **Field Technician**

University of Wisconsin – La Crosse July 2010

- Collected and prepared water and sediment samples from 80 sites in a Minnesota lake
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## **OUTREACH AND COMMUNITY DEVELOPMENT**

Contributed to the "Stateside" podcast on Michigan Public Radio March 2022

Contributed to the IL-IN SeaGrant "Teach Me About the Great Lakes" podcast August 2021

Contributed to the UW SeaGrant "Introduced" podcast March 2020

Center for Limnology blog post (Students solve the case of the 'mystery fish' on field trip) April 2019

Volunteer instructor for Clean Lakes Alliance Frozen Assets Winter Festival January 2019

Organized and participated in the aquatic invertebrate station at Hasler Lab Open House June 2017/18/19

Participated in the Lussier Community Education Center - Limnology Tour July 2017