**TYLER J. BUTTS**

University of Wisconsin-Madison | Department of Integrative Biology, Center for Limnology | tjbutts@wisc.edu | <https://orcid.org/0000-0002-3562-365X> | <https://buttslimnology.weebly.com>

**RESEARCH INTERESTS**

Limnology **‧** Food Web Ecology **‧** Community Ecology **‧** Ecosystem Science **‧** Biogeochemistry

**EDUCATION**

|  |  |  |
| --- | --- | --- |
| Ph.D | 2023 | **Freshwater and Marine Sciences** University of Wisconsin-Madison, Madison, Wisconsin*Advisor:* Dr. Grace Wilkinson*Dissertation:* Investigating ecosystem-scale responses to changes in lake food webs |
| B.S. | 2018 | **Biology and Environmental Science** St. Norbert College, De Pere, Wisconsin *Summa cum laude,* Honors program*Thesis*:Possible detrimental effects of sediment dredging on zooplankton in the Lower Fox River, WI, USA from 2013-2016.  |

**RESEARCH POSITIONS**

|  |  |
| --- | --- |
| 2023 – present | **Postdoctoral Researcher**Center for Limnology, University of Wisconsin-Madison |
| 2020 – 2023  | **Graduate Research Assistant** Center for Limnology, University of Wisconsin-MadisonDepartment of Integrative Biology |
| 2018 – 2020 | **Graduate Research Assistant** Iowa State University Department of Ecology, Evolution and Organismal Biology, |
| 2016 – 2018  | **Undergraduate Research Assistant** Dr. Jim Hodgson’s Lab, St. Norbert College  |
| 2014 – 2018  | **Undergraduate Research Assistant** Dr. Carrie Kissman’s Lab, St. Norbert College  |

**GRANTS & FELLOWSHIPS**

|  |  |
| --- | --- |
| ***Fellowships*** |  |
| 2018 | **National Science Foundation** Graduate Research Fellowship Program | $138,000 |
| 2018 | **ISU Graduate College**Graduate College Scholar Award | $9,000 |
| 2018 | **ISU Ecology and Evolutionary Biology Graduate Program**Ecology and Evolutionary Biology Fellowship | $26,400 |
| 2018 | **SNC Biology Department**Anselm M. Keefe Scholarship | $3,500 |
| ***Research Grants*** |  |
| 2020 | **Iowa Water Center**Graduate Research Competition  | $5,000 |
| 2018 | **SNC Natural Sciences Division**Kresge Summer Research Grant | $3,315 |
| 2014 – 2018  | **SNC Collaborative** Undergraduate Collaborative Research Grants (6 total) | $9,000 |
| ***Professional Development Grants*** |  |
| 2022 | **Center for Limnology** Charlotte Stein Travel Award | $500 |
| 2022 | **UW-Madison – Integrative Biology Department** John Jefferson Davis Travel Award | $800 |
| 2022 | **Association for the Sciences of Limnology & Oceanography**Student Travel Grant | $400 |
| 2020 | **Graduate Professional Student Senate** Professional Advancement Grant  | $200 |
| 2020 | **ISU Ecology and Evolutionary Biology Graduate Program** Professional Development Grant | $500 |

**PEER-REVIEWED PUBLICATIONS**

*Published*

1. **Butts T.J.,** E.K. Moody, G.M. Wilkinson. 2022. Contribution of zooplankton nutrient recycling and effects on phytoplankton size structure in a hypereutrophic reservoir. *Journal of Plankton Research* 44(6) 861-865*.* <https://doi.org/10.1093/plankt/fbac045>.
	1. Awarded the 2022 Cushing Prize for the best paper by an early career stage scientist published in the Journal of Plankton Research
2. Moody E.K., **T.J. Butts**, R. Fleck, P.D. Jeyasingh, G.M. Wilkinson. 2022. Eutrophication-driven eco-evolutionary dynamics indicated by differences in stoichiometric traits among populations of *Daphnia pulicaria. Freshwater Biology* 67(2): 353-364*.* <https://doi.org/10.1111/fwb.13845>
3. **Butts T.J.,** J.Y.S. Hodgson, M. Guidone, J.R. Hodgson. 2020. Episodic zooplanktivory by largemouth bass (*Micropterus salmoides*) on *Daphnia*: A 25-year natural history record from a small northern temperate lake. *Journal of Freshwater Ecology* 35(1): 469-490*.* <https://doi.org/10.1080/02705060.2020.1852124>

*Under Review*

1. Moody, E.K., K. Anania, K.S. Boersma, **T.J. Butts,** J.R. Corman, S. Cruz, W.R. Farrell, A.C. Krist, E.I. Larson, A. Lewanski, C. Liriano, K.N. Fonseca, A.J. Pignatelli, A. Poetzl, A.T. Regenski, C. Stiglitz, A. Villanueva. *In Preparation.* A Multidimensional Framework to Characterize Variation in Stoichiometric Diversity Among Communities. Target Journal: *Ecology*
2. **Butts, T.J.,** M. Simonson, M.J. Weber, G.M. Wilkinson. *Under Review.* Investigation changesto food web structure in shallow lakes following removal of common carp (*Cyprinus carpio)* and bigmouth buffalo (*Ictiobus cyprinellus*). Target Journal: *Ecosphere*
3. Wilkinson G.M., **T.J. Butts,** E. Sandry, M. Simonson, M.J. Weber. *Under Review.* Experimental evaluation of the effects of bigmouth buffalo (*Ictiobus cyprinellus*) density on shallow lake ecosystems. Target Journal: *Canadian Journal of Fisheries and Aquatic Sciences.* Pre-print at Earth ArXiv (<https://doi.org/10.31223/X5R923>).

*In Preparation (Manuscripts available upon request)*

**Butts, T.J.,** B. Martin, J. Mrnak, G. Sass, M.J. Vander Zanden, C. Warden, G.M. Wilkinson. *In*

*Preparation*. Changes in energy flow and food web stability in a north temperate lake prior to and following invasion of spiny water flea (*Bythotrephes cederstroemi).* Target Journal: *Ecology Letters.*

**Butts, T.J.,** R.A. Johnson, M.J. Weber, G.M. Wilkinson. *In Preparation.* Experimental

 evaluation of aquatic ecosystem resistance and resilience to episodic nutrient loading.

 Target Journal: *Journal of Animal Ecology*. Pre-print at Earth ArXiv (<https://doi.org/10.31223/X5467C>).

*Broader Impacts Publications*

1. **Butts, T.J.** 2022. “The influence of food web structure on lake resistance and resilience to nutrient loading.” *Getting into Soil and Water.* ***Invited Contributor***

*Data Sets and Code*

1. Albright, E.A., G.M. Wilkinson, **T.J. Butts,** and Q.K. Shingai. 2022. Summer water chemistry; sediment phosphorus fluxes and sorption capacity; sedimentation and sediment resuspension dynamics; water column thermal structure; and zooplankton, macroinvertebrate, and macrophyte communities in eight shallow lakes in northwest Iowa, USA (2018-2020). ver 3. *Environmental Data Initiative* (Accessed 2022-11-07). <https://doi.org/10.6073/pasta/1d3797fd573208bae6f78963479445a0>
2. **Butts, T.J**., E.K. Moody, G.M. Wilkinson, and R.L. Barbour. 2022. Summer water chemistry, phytoplankton and zooplankton community composition, size structure, and biomass in a shallow, hypereutrophic reservoir in southwestern Iowa, USA (2019). ver 1. *Environmental Data Initiative.* (Accessed 2022-08-12).<https://doi.org/10.6073/pasta/46c2de115b4a4b16699f5ebc9976ca01>
3. **Butts, T.J.** 2022. tjbutts/hyperplankton: Contribution of zooplankton nutrient recycling and effects on phytoplankton size structure in a hypereutrophic reservoir (v3.0.0). *Zenodo,* <https://doi.org/10.5281/zenodo.7020266>

**TEACHING POSITIONS**

|  |  |
| --- | --- |
| 2022 – 2023  | **Limnology and Marine Science Seminar –** UW-Madison 1 credit, undergraduate and graduate weekly seminar *Teaching Assistant*  |
| 2022  | **Limnology: Conservation of Aquatic Resources Lab –** UW-Madison3 credits, upper-level undergraduate lab-based course *Instructor*  |
| 2021 | **Community Ecology –** Iowa State University *Guest Lecturer - Food Chains and Food Webs: Controls and Patterns* |
| 2018 | **Biodiversity –** St. Norbert College *Undergraduate Laboratory Teaching Assistant*  |
| 2017  | **Environmental Science** – St. Norbert College *Undergraduate Laboratory Teaching Assistant*  |
| 2017  | **Limnology –** St. Norbert College *Undergraduate Laboratory Teaching Assistant*  |
| 2016 – 2018  | **General Biology II –** St. Norbert College *Undergraduate Laboratory Teaching Assistant*  |
| 2015 – 2016  | **General Chemistry I & II** – St. Norbert College *Undergraduate Laboratory Teaching Assistant*  |

**MENTORSHIP**

***University of Wisconsin-Madison***

|  |  |
| --- | --- |
| 2024 | Matyia Ross (REU Student; Independent Research)  |
| 2024 | Sophie Corsaro (REU Student; Field and Lab Technician)  |
| 2024 | Joseph Noeske (Field and Lab Technician)  |
| 2024 | Joseph Munoz (Field and Lab Technician; Independent Research) |
| 2024 | Megan Perkins (REU Student; Independent Research  |
| 2024 | Ian Beilfuss (Lab Technician; Independent Research)  |
| 2023 – 2024 | Aletta Bergman (Lab Technician, Independent Research)  |
| 2022 | Kayleigh Winston (Lab Technician)  |
| 2021-2022 | Sofia Ferrer (Lab Technician, Independent Research)“*Variable macroinvertebrate community response to common carp (Cyprinus carpio) removal”* |

***Iowa State University***

|  |  |
| --- | --- |
| 2020 | Matthew Kremer (Lab Technician)  |
|  | Michael Tarnow: (Field Technician) |
| 2019 | Jenna Rasmussen: (Field Technician)  |
|  | Riley Barbour:(Lab Technician, Independent Project) *“Top-down grazing control of phytoplankton in a hypereutrophic lake”* |

**ORAL PRESENTATIONS**

|  |
| --- |
| *Lead Author* |
| 2024 | **Butts, T.J.,** K. D. McMahon, M.J. Vander Zanden. “How have multiple invasions altered food web interactions and structure in a eutrophic lake over almost 25 years?” *ASLO Water Sciences Meeting* (Madison, WI, USA).  |
| 2023 | **Butts, T.J.,** B. Martin, J. Mrnak, G. Sass, M.J. Vander Zanden, C. Warden, G.M. Wilkinson. “Exploring the effects of changes in food web structure on energy flow and stability in Trout Lake, WI.” *2023 Science in the Northwoods* (Woodruff, WI, USA).  |
| 2022 | **Butts, T.J.,** R.A. Johnson,M.J. Weber, G.M. Wilkinson. “Aquatic ecosystem response to nutrient loading disturbances mediated by benthic-pelagic coupling.” *107th Ecological Society of America Annual Meeting* (Montréal, QC, CA).* ***2022 Best student talk award – ESA Aquatic Ecology section***
 |
| 2022 | **Butts, T.J.,** E.K. Moody, G.M. Wilkinson. “Zooplankton contribute substantially to early summer nutrient recycling in a hypereutrophic reservoir.” *Joint Aquatic Sciences Meeting* (Grand Rapids, MI, USA).  |
| 2021 | **Butts, T.J.**, M.J. Weber, G.M. Wilkinson. “Food web structure mediates algal response to storm event pulses of nutrient loading.” *Harmful Algal Bloom Symposium* (Virtual)  |
| 2020 | §**Butts, T.J.,** E. Sandry, M.J. Weber, G.M. Wilkinson. “Food web differences mediate algal dynamics in response to a pulse nutrient loading.” *ASLO Aquatic Sciences Meeting (*Madison, WI, USA).  |
| 2020 | **Butts, T.J.,** E. Sandry, M.J. Weber, G.M. Wilkinson. “Food web differences mediate ecosystem resilience to a pulse perturbation.” *27th Annual Ecology and Evolutionary Biology Spring Symposium* (Ames, IA, USA).  |
| 2019 | **Butts, T.J.,** E. Sandry, M.J. Weber, G.M. Wilkinson. “Does food web structure mediate ecosystem response to perturbations? A preliminary experiment.” *Great Plains Limnology Conference* (Ames, IA, USA). |
| *Co-author* |
| 2024 | Stephanie Figary, Michael Meyer, Rachel Pilla, Warren Currie, Adebukola Abiodun Aborigho, Javier Alcocer,María Belén Alfonso, Caitlin Andrews8, Orlane Anneville9, Ana Maria Antão-Geraldes10, 11, Anita Galir Balkić, Syuhei Ban12, Arnab Banerjee13, Stella A. Berger14, Gábor Bernát15, Jessica Beyer16, Ruchi Bhattacharya17, Kätlin Blank18, Rosalie Bruel19-20, Sarah Burnet21-22, **Tyler Butts**…*et al.* “Global-scale Compilation of Freshwater Zooplankton: Tiny Sentinels of Environmental Changes.” *ASLO Aquatic Sciences Meeting* (Madison, WI, USA).  |
| 2022 | Johnson, RA, **T.J. Butts,** S.J. Hall, G.M. Wilkinson. “Greenhouse gas dynamics in shallow aquatic ecosystems in response to a pulse nutrient addition.” *Joint Aquatic Sciences Meeting* (Grand Rapids, MI, USA).  |
| 2022 | Moody, E.K., L. Bradley, **T.J. Butts**, E. Cherry, J. Corman, R. Farrell, A. Krist, E. Larson, A. Lewanski, C. Liriano, K. Nunes, A. Pignatelli, A. Poetzl, A. Villanueva. “A multidimensional functional approach to characterize stoichiometric variation among communities.” *Joint Aquatic Sciences Meeting* (Grand Rapids, MI, USA). |
| 2022 | Ferrer, S.\*, **Butts, T.J.** “Effects of food web structure on macroinvertebrate composition and abundance” *University of Wisconsin-Madison Undergraduate Research Symposium* (Virtual).  |
| 2019 | Moody, E.K., **T.J. Butts,** R. Fleck, P.D. Jeyasingh, G.M. Wilkinson. “From Glycolysis to Green Lakes: Evolution of Daphnia alters ecosystem functioning in hypereutrophic lakes. *ASLO Aquatic Sciences Meeting* (San Juan, PR, USA). |
| 2018 | Moody, E.K., **T.J. Butts,** R. Fleck, P.D. Jeyasingh, G.M. Wilkinson. “Eutrophication Elicits Evolution: Interpopulation Variation in Daphnia Growth Reaction Norms over a Phosphorus Gradient.” *Great Plains Limnology Conference* (Lawrence, KS, USA). |

§*Conference was cancelled due to the 2020 COVID-19 pandemic*

*\*Undergraduate Mentee*

**POSTER PRESENTATIONS (select)**

|  |  |
| --- | --- |
| 2023 | Albright, E.A., G.M. Wilkinson, J. Briggs, **T.J. Butts**, D. Szydlowski. “Internal Phosphorus Loading in Wisconsin Lakes and Reservoirs: Perspectives and Management Considerations from a Global Synthesis.” *Phosphorus Conference: Lessons from 10+ Years of Numeric Standards for Wisconsin’s Waters* (Madison, WI, USA)  |
| 2021 | **Butts, T.J.**, M.J. Weber, G.M. Wilkinson. “Food web structure mediates ecosystem response to storm-related pulse nutrient loading.” *Iowa Water Conference* (Virtual). * ***2021 1st place, best poster presentation – Iowa Water Center***
 |
| 2020 | **Butts, T.J.,** M.J. Weber, G.M. Wilkinson. “Food web structure mediates ecosystem resilience in response to storm event pulses of nutrient loading.” *American Geophysical Union Fall Meeting* (Virtual).  |
| 2020 | Johnson, R.A., **T.J. Butts,** S.J. Hall, G.M. Wilkinson. “Greenhouse gas dynamics in shallow aquatic ecosystems in response to a pulse nutrient addition.” *American Geophysical Union Fall Meeting* (Virtual).  |
| 2019 | Barbour, R.\*, **T.J. Butts,** G.M. Wilkinson. “Top-down grazing control of phytoplankton in a hypereutrophic lake.” *Great Plains Limnology Conference* (Ames, IA, USA). |
| 2019 | Sandry, E, **T.J. Butts,** M. Simonson, M.J. Weber, G.M. Wilkinson. “Commercial Harvest of Bigmouth Buffalo as a Biomanipulation Strategy.” *Great Plains Limnology Conference* (Ames, IA, USA). |
| 2018 | **Butts, T.J.,** G.M. Wilkinson. “Changes in zooplankton communities following fishery renovations.” *Great Plains Limnology Conference* (Lawrence, KS); *26th Annual Ecology and Evolutionary Biology Symposium* (Ames, IA, USA). |
| 2018 | **Butts, T.J.,** C.H. Kissman. “Potential detrimental effects of sediment dredging on zooplankton in the Lower Fox River, WI, USA from 2013-2016.” *103rd Ecological Society of America Annual Meeting* (New Orleans, LA, USA). |
| 2017 | **Butts, T.J.,** M.R. Young\*, C.H. Kissman. “Detrimental effects of sediment dredging on zooplankton density, biomass, and diversity in the Lower Fox River, WI, USA from 2013-2016.” *102nd Ecological Society of America Annual Meeting* (Portland, OR, USA).  |

\*Undergraduate mentee

**HONORS & AWARDS**

***University of Wisconsin-Madison***

|  |  |  |
| --- | --- | --- |
| 2023 | **Kenneth W. Malueg Limnology Scholarship** Center for Limnology, UW-Madison |  |
| 2022 | **2023 David Cushing Prize** Journal of Plankton Research  |  |
| 2022 | **Best student talk award** 2022 Ecological Society of America – Aquatic Ecology Section  |  |
| 2021 | **1st place – poster presentation**2021 Iowa Water Conference  |  |

***St. Norbert College***

|  |  |
| --- | --- |
| 2014 – 2018  | **Academic Dean’s List**St. Norbert College |
| 2018 | **Environmental Science Departmental Award for Excellence** St. Norbert College Environmental Science Faculty |
| 2018, 2016  | **Exemplary Leadership Award**Norbertine Service and Leadership Committee |

**PROFESSIONAL SOCIETIES**

|  |  |
| --- | --- |
| 2017 – present  | Ecological Society of America (ESA) |
| 2018 – present  | Association for the Sciences of Limnology and Oceanography (ASLO) |
| 2018 – present | Phi Kappa Phi Honor Society (PKP) – St. Norbert Chapter |
| 2019 – 2022  | International Society of Limnology (SIL) |
| 2020  | American Geophysical Union (AGU)  |

**PROFESSIONAL TRAININGS & WORKSHOPS**

|  |  |
| --- | --- |
| 2021 | **STOICH Training and Data Analysis Virtual Workshop**Virtual workshop intended to introduce scientists to the Ecological Stoichiometric Cooperative projects and develop data analysis methods used in ecological stoichiometry.  |
| 2021 | **DSOS/AEMON-J Hacking Limnology Workshops** Virtual Workshop and Summit: Incorporating Data Science and Open Science in Aquatic Research  |
| 2020 | **Cary Institute of Ecosystem Studies**Fundamentals of Ecosystem Ecology Short Course |

**NON-ACADEMIC POSITIONS**

|  |  |
| --- | --- |
| 2016 – 2018  | **St. Norbert Writing Center** *Writing Center Consultant* Duties: Assisting students with writing, grammar, and working on a diverse set of writing styles from essays to lab reports  |
| 2017 | **NEW Water (Green Bay Metropolitan Sewage District) – UW-Milwaukee***Research Technician* Duties: Perform routine beach sampling to assess cyanobacterial blooms in Green Bay, WI |

**OUTREACH & SERVICE**

|  |
| --- |
| **Peer Review Activity** |
| * Journal of Freshwater Ecology (1)
* Journal of Applied Ecology (2)
* Limnology & Oceanography: Methods (1)
* Journal of Functional Ecology (1)
* Limnology & Oceanography (1)
 |  |
| **Outreach** |
| 2024 | Environmental Studies 101 interview on limnology, history of Lake Mendota, and conservation issues for aquatic plants and animals in Madison, WI |
| 2024 | Lab tour and ‘life in limnology’ discussion with UW undergraduates in Biocore 181 |
| 2024 | Visit to Mauston High School to discuss sustainability, aquatic research, and career pathways in limnology  |
| 2024 | Interview with The Daily Cardinal on winter limnology (<https://www.dailycardinal.com/article/2024/02/ice-core-will-the-heart-of-madison-winters-keep-melting>)  |
| 2024 | Clean Lakes Alliance – Frozen Assets Festival |
| 2024 | Interview on A Public Affair about winter limnology: https://www.wortfm.org/fingers-crossed-for-annual-frozen-lake-festival/ |
| 2023 | Grandparent’s University - boat tours  |
| 2023 | Hasler Lab Open House – zooplankton ID, boat tours  |
| 2023 | Clean Lakes Alliance – Frozen Assets Festival |
| 2022 | Georgia O’Keefe Middle School 7th grade class |
| 2022 | Garden Club of America Outreach Event  |
| 2022 | Grandparent’s University, assisted with boat tours |
| 2022 | Edgewood Summer Camp – Limnology Outreach |
| 2022 | Hasler Lab Open House |
| 2022 | Pond Exploration Day – McKee Farms Park |
| 2022 | Pond Exploration Day – Elver Park  |
| 2022 | Lake Wingra Watershed Gathering |
| 2021 | Edgewood Middle School 7th Grade Class  |
| 2021 | Neighborhood House Community Center Kids Outreach events |
| 2021 | WikiProject Limnology & Oceanography (WP L&O): Reviewer |
| 2021 | State Science & Technology Fair of Iowa: Volunteer judge.  |
| 2021 | STEM Scholars Resume/CV workshop: Mentor.  |
| 2019 | Green Valley Lake watershed meeting, presentation on water quality  |
| 2019 | Public Presentation: Poster, Iowa State Sustainability Symposium  |
| 2018 | Public Presentation: Poster, Green Bay Conservation Partners Spring roundtable |
| 2017 | Public Presentation: Poster, Green Bay Conservation Partners Spring roundtable |
| **Service Positions**  |
| 2023-2024 | **Committee Member:** Center for Limnology Diversity, Equity, and Inclusion Committee **Subcommittee:** CFLRising Tides Seminar Series Planning Committee – bring in annual speaker to discuss DEI in research**Subcommittee Chair:** CFL DEI Action Plan  |
| 2021-2023 | **Committee Member, Chair (2022):** Center for Limnology 101 Committee.  |
| 2021-2023 | **Committee Member:** Center for Limnology Outreach Committee.  |
| 2021-2022 | **Committee Member:** Center for Limnology Diversity, Equity, and Inclusion Committee.  |
| 2019 – 2020  | **President:** Graduate Research in Ecology and Evolutionary Biology, Iowa State University |
| **Organizational Activities**  |
| 2024 | **Committee Member:** ASLO Local Organizing Committee for 2024 annual meeting in Madison, WI |
| 2024 | **Session Organizer:** Reshaping Aquatic Food Webs in a Changing World: Challenges and Responses to Drivers of Transformative Change, ASLO 2024, Madison, WI  |
| 2020 | **Lead Organizer:** 27th Ecology and Evolutionary Biology Spring Symposium, Iowa State University, Ames, IA |
| 2019 | **Organizing Committee:** Great Plains Limnology Conference, Iowa State University, Ames, IA |
| 2019 | **Moderator:** “Food webs & Connectivity” session at the Great Plains Limnology Conference, Iowa State University, Ames, IA  |