**TYLER J. BUTTS**

University of Wisconsin-Madison | Department of Integrative Biology, Center for Limnology

Rm 118 | tjbutts@wisc.edu | <https://orcid.org/0000-0002-3562-365X>

**RESEARCH INTERESTS**

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

**EDUCATION**

|  |  |  |
| --- | --- | --- |
| Ph.D | *In progress* | **Freshwater and Marine Sciences** University of Wisconsin-Madison, Madison, WisconsinTransferred January 2021\*(See footnote) |
| B.S. | 2018 | **Biology and Environmental Science** St. Norbert College, De Pere, Wisconsin *Summa cum laude,* Honors program |

**RESEARCH & TEACHING POSITIONS**

|  |  |
| --- | --- |
| 2020 – present  | **Graduate Research Assistant** Center for Limnology, Department of Integrative Biology, University of Wisconsin-Madison |
| 2018 – 2020\* | **Graduate Research Assistant** Department of Ecology, Evolution and Organismal Biology, Iowa State University  |
| 2015 – 2018  | **Undergraduate Teaching Assistant** Biology Department, St. Norbert College Environmental Science Department, St. Norbert College Chemistry Department, St. Norbert College |
| 2016 – 2018  | **Undergraduate Research Assistant** Dr. Jim Hodgson’s Lab, St. Norbert College Focus: *Analysis of zooplanktivory in non-juvenile largemouth bass in Paul Lake, MI over the span of 30 years.*  |
| 2014 – 2018  | **Undergraduate Research Assistant** Dr. Carrie Kissman’s Lab, St. Norbert College Thesis: *Possible detrimental effects of sediment dredging on zooplankton in the Lower Fox River, WI, USA from 2013-2016.*  |

**GRANTS & FELLOWSHIPS** *Total = $196,615*

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

**PUBLICATIONS** (Manuscripts available upon request)

1. 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>
2. **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>

**PUBLICATIONS UNDER REVIEW**

1. **Butts T.J.,** E.K. Moody, G.M. Wilkinson. *In Review.* Seasonal dynamics of zooplankton nutrient cycling in a hypereutrophic reservoir.Target Journal: *Journal of Plankton Research.* Pre-print at Earth ArXiv (<https://doi.org/10.31223/X5HP80>)

**PUBLICATIONS IN PREPARATION**

1. Wilkinson G.M., **T.J. Butts,** E. Sandry, M. Simonson, M.J. Weber. *In preparation.* The effects of bigmouth buffalo (*Ictiobus cyprinellus*) density on shallow lake ecosystems. Target Journal: *Ecosphere*

**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***

**MENTORSHIP**

***University of Wisconsin-Madison***

|  |  |
| --- | --- |
| 2022 | Kayleigh Winston (Lab Technician)  |
| 2021-2022 | Sofia Ferrer (Lab Technician, Independent Project)* Poster: *Variable macroinvertebrate community response to common carp (Cyprinus carpio) removal: UW Biology 152 Poster Session*
* Oral: *Effects of food web structure on macroinvertebrate composition and abundance: UW Undergraduate Research Symposium*
 |

***Iowa State University***

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

**ORAL PRESENTATIONS**

|  |  |
| --- | --- |
| 2022 | **Butts, T.J.** M.J. Weber, Grace 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 | 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 | **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).  |
| 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).  |
| 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). |
| 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**

|  |  |
| --- | --- |
| 2021 | Ferrer, S.\*, **T.J. Butts.** “Variable macroinvertebrate community response to common carp (*Cyprinus carpio*) removal.” *Biology 152 Undergraduate Research Poster Symposium* (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).  |
| 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.” *AGU 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.” *AGU 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). |
| 2018 | Heimerl, D\*., **T.J. Butts,** C.H. Kissman. “High transparency lakes of Northern Minnesota reveal greater zooplankton species richness and biomass.” *Spring St. Norbert Undergraduate Research Forum* (De Pere, WI, USA)  |
| 2018 | **Butts, T.J.,** M.R. Young, C.H. Kissman. “Possible detrimental effects of sediment dredging on zooplankton in the Lower Fox River, WI, USA from 2014-2016.” *Spring St. Norbert Undergraduate Research Forum* (De Pere, WI, USA).  |
| 2017 | **Butts, T.J.,** C.H. Kissman, C. Brennan, K. Kniech, J.R. Hodgson. “Reducing algal blooms in Dream Lake, WI: Algal and zooplankton seasonal dynamics indicate response to food web manipulation.” *Spring St. Norbert College Undergraduate Research Forum* (De Pere, WI, 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).  |
| 2016 | **Butts, T.J.** C.H. Kissman. “Unintended consequences of dredging activity in the Lower Fox River on zooplankton density and biomass.” *Spring St. Norbert College Undergraduate Research Forum* (De Pere, WI, USA).  |

\*Undergraduate mentee

**TEACHING EXPERIENCE**

***Iowa State University***

|  |  |
| --- | --- |
| 2021 | **Community Ecology (BIOL 472)**Guest Lecturer - *Food Chains and Food Webs: Controls and Patterns* |

***St. Norbert College***

|  |  |
| --- | --- |
| 2018 | **Environmental Science Department** Biodiversity Laboratory Teaching Assistant  |
| 2016-2018 | **Biology Department** General Biology II Laboratory Teaching Assistant |
| 2017  | **Environmental Science Department** Environmental Science Laboratory Teaching Assistant |
| 2017  | **Biology Department** Limnology Laboratory Teaching Assistant  |
| 2015-2016  | **Chemistry Department** General Chemistry I & II Laboratory Teaching Assistant  |

**HONORS & AWARDS**

***University of Wisconsin-Madison***

|  |  |  |
| --- | --- | --- |
| 2021 | **2021 Iowa Water Conference** 1st place – Poster presentation  |  |

***St. Norbert College***

|  |  |
| --- | --- |
| 2014 – 2018  | **SNC Dean of Students** Academic Dean’s List |
| 2018 | **SNC Environmental Science Faculty** Environmental Science Departmental Award for Excellence  |
| 2018 | **SNC Collaborative** Best Undergraduate Research Poster |
| 2018  | **Norbertine Service and Leadership Committee**Exemplary Leadership Award |
| 2017 | **SNC Collaborative** Best Undergraduate Research Poster |
| 2016 | **Norbertine Service and Leadership Committee**Fr. Gries Endowed Student Life Scholarship |
| 2016 | **Norbertine Service and Leadership Committee**Exemplary Leadership Award  |

**PROFESSIONAL SOCIETIES**

|  |  |
| --- | --- |
| 2017 – present  | Ecological Society of America (ESA)* Aquatic Ecology Section
* Student Section
 |
| 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, grammatical techniques, 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 |
| 2016 | **St. Norbert Campus Safety** *Student Officer* Duties: Assist campus safety officers with various campus activities including parking for events, event management, and providing front desk services at the Green Bay Norbertine Abbey |

**OUTREACH & SERVICE**

|  |
| --- |
| **Outreach** |
| 2021 | **Edgewood Middle School 7th Grade Class:** Planned, organized, and executed a teaching event for Carly Ziegler’s middle school science class discussing water quality, food webs, and threats facing freshwater fishes. Edgewood Middle School, Madison, September 2021.  |
| 2021 | **Neighborhood House Community Center:** Planned, organized, and executed two afternoon teaching events for kids aged 7-12 with four other graduate students. Discussed lake water quality and land stewardship as well as demonstrating limnological sampling techniques at the Center for Limnology. University of Wisconsin, Madison. July & August 2021.  |
| 2021 | **WikiProject Limnology & Oceanography (WP L&O):** Reviewer. Review Wikipedia articles submitted by undergraduate aquatic science students under the WP L&O which was developed to support post-secondary instructors using Wikipedia as a teaching tool in aquatic science classes. University of Wisconsin, Madison. April 2021.  |
| 2021 | **State Science & Technology Fair of Iowa:** Volunteer judge. Judge student research projects submitted by junior high and high school students from across Iowa. Virtual, March 2021 |
| 2021 | **Resume/CV workshop:** Mentor. Met with individually students in the STEM Scholars, a program for historically excluded populations in STEM. Provided advice and editing to their resumes and CV. Iowa State University, Feb. 17, 2021 |
| 2019 | **Group Public Presentation:** Why is Green Valley Lake so Green? Green Valley State Park, Creston, IA, USA, Dec 03, 2019 |
| 2019 | **Public Presentation:** Poster, Iowa State Sustainability Symposium on behalf of the Ecology, Evolution, and Organismal Biology Graduate Student Organization, (November) Ames, IA, USA, Feb 19, 2019 |
| 2018 | **Public Presentation:** Poster, Green Bay Conservation Partners Spring roundtable, Green Bay, WI, USA, Apr 19, 2018 |
| 2017 | **Public Presentation:** Poster, Green Bay Conservation Partners Spring roundtable, Green Bay, WI, USA, Apr 25, 2017 |
| **Service Positions** |
| 2021-2022 | **Committee Member:** Center for Limnology Diversity, Equity, and Inclusion Committee. Work towards promoting and supporting a diverse and inclusive research center fostering diversity, equity, and inclusivity with an emphasis on representation, equity, access, and belonging. University of Wisconsin-Madison. |
| 2021-2022 | **Committee Member (Chair in 2022):** Center for Limnology 101 Committee. Assist in updating software and hardware in the 101 biology lab in the Center for Limnology, including the acquisition of 4K monitors and cameras for teaching and research use. University of Wisconsin-Madison. |
| 2021 | **Committee Member:** Center for Limnology Outreach Committee. Plan and facilitate various outreach events at both Hasler Lab and Trout Lake Station. University of Wisconsin-Madison. |
| 2019 – 2020  | **President:** Graduate Research in Ecology and Evolutionary Biology, Iowa State University |
| 2016 | **Trip leader:**  Turning Responsibility into Powerful Service, led a group of 4 students from various departments on a 5-day trip into the Keweenaw Peninsula of Michigan to camp, do service with the U.S. Forest Service and Nature Conservancy, and lead reflections on sustainability and conservation of natural areas |
| 2014-2016 | **Committee member:**  St. Norbert Green Initiative Fund, allocated funds to sustainability and conservation projects on campus. Projects I was involved with: * Secured funding for three solar-powered picnic tables to provide outdoor study spaces with charging ports
* Worked with campus safety to create and fund a bid to double the fleet of campus bikes available to students
* Secured funding for three new water bottle filling stations in first-year dormitories
 |
| **Organizational Activities**  |
| 2020 | **Lead Organizer:** 27th Ecology and Evolutionary Biology Spring Symposium  |
| 2019 | **Organizing committee:** Great Plains Limnology Conference, Ames, IA |
| 2019 | **Moderator:** Session at the Great Plains Limnology Conference: “Food webs & Connectivity” |

|  |
| --- |
| **Non-Academic Presentations** |
| 2018-2020 | LunchinatoRs: A weekly lunch group at Iowa State that discusses an R package or method each week to learn better ways to code and work through problems in a collaborative atmosphere. Topics I’ve presented include: * 2020 – Online Dynamic Linear Modeling
* 2019 – RDA-PCNM
* 2018 – The Fluxweb package
 |
| 2017 | Poster, 52nd National Collegiate Honors Council, Atlanta, GA, USA.  |
| 2016 | Poster, 51st National Collegiate Honors Council, Seattle, WA, USA  |