Sarah Michelle Collins

CONTACT INFORMATION

Department of Zoology and Physiology
University of Wyoming
1000 E. University Ave
Laramie, WY 82071 USA

Mobile: +1-360-319-6680
E-mail: sarah.collins@uwyo.edu
ORCID: 0000-0001-5503-7386
http://collins-lab.org

ACADEMIC APPOINTMENTS

Associate Professor

University of Wyoming, Department of Zoology and Physiology — 2024-present

Assistant Professor

University of Wyoming, Department of Zoology and Physiology — 2018-2024

Postdoctoral Research Fellow

University of Wisconsin Madison, Center for Limnology — 2016-2018

Michigan State University, Department of Fisheries and Wildlife — 2014-2016

EDUCATION

Cornell University, Ithaca, NY

Ph.D., Ecology and Evolutionary Biology — January 2015

Lewis & Clark College, Portland, OR

B.A., *Cum Laude*, Biochemistry and Molecular Biology — May 2007

PUBLICATIONS (PUBLISHED OR IN PRESS) **INDICATES TRAINEE IN MY LAB

Rock, L.A.**, **S.M. Collins**. 2024. A broad-scale look at nutrient limitation and a shift toward co-limitation in United States lakes. *Environmental Science & Technology* 58: 11482-11491. DOI: 10.1021/acs.est.4c03135

Sillen, S.J.**, M.R.V. Ross, and **S.M. Collins**. 2024. Long-term trends in productivity across Intermountain West Lakes provide no evidence of widespread eutrophication. *Water Resources Research* 60: e2023WR034997. DOI: 10.1029/2023WR034997

Lowman, H.E., M. DeSiervo, R.O. Hall Jr., J.P. Jahner, S.O. Jimoh, D.C. Laughlin, A.C. Patterson, C. Weiss-Lehman, C.C. Barbosa**, K.L. Bell, J.R. Blaszczak, C.A. Buerkle, A.M. Carter, **S.M. Collins**, V. DeLeo, M. Dunkle**, D. Gannon, E.M. Grames, J.G. Harrison, S.E. McFarlane, I. Oleksy**, B.F. Powers, C. Ray, A. Stears, B. Summers, C.L. Torrens, M. Trentman, C.M. Werner, L.G. Shoemaker. 2024. Collaborative consortia can boost postdoctoral workforce development. *Proceedings of the National Academy of Sciences* 121: e2401812121 DOI: 10.1073/pnas.2401812121

Tumolo, B.B.**, **S.M. Collins**, Y. Guan, A.C. Krist. 2023. Resource quantity and quality differentially control stream invertebrate biodiversity across spatial scales. *Ecology Letters* 26: 2077-2086. DOI: 10.1111/ele.14317

Oleksy, I.**, **S.M. Collins**, S.J. Sillen**, S. Topp, M. Austin, E.K. Hall, C.M. O'Reilly, X. Yang, M.R.V. Ross. 2022. Heterogeneous controls on lake color and trends across the high-elevation US Rocky Mountain region. *Environmental Research Letters* 17: 104041. DOI: 10.1088/1748-9326/ac939c

Borton, M.A., **S.M. Collins**, E.B. Graham, V.A. Garayburu-Caruso, A.E. Goldman, M.L. de Melo, L. Renteria, J.C. Stegen. 2022. It takes a village: using a crowdsourced approach to investigate organic matter composition in global rivers through the lens of ecological theory. *Frontiers in Water* 65: 870453. DOI: 10.3389/frwa.2022.870453

Narr, C.F.**, P. Chernyavskiy and **S.M. Collins**. 2022. Partitioning macro- and micro-scale ecological processes using covariate-driven non-stationary spatial models. *Ecological Applications* 32: e02485. DOI: 10.1002/eap.2485

Lapierre, J.F.*, **S.M. Collins***, S.K. Oliver, E.H. Stanley, T. Wagner. 2021. Inconsistent browning of Northeastern U.S. lakes despite increased precipitation and recovery from acidification. *Ecosphere* 12: e03415 DOI: 10.1002/ecs2.3415
*First two authors contributed equally

Schliep, E.M., **S.M. Collins**, S.R. Salazar, N.R. Lottig and E.H. Stanley. 2020. Data fusion model to identify environmental drivers and improve estimation of total nitrogen in lakes. *Annals of Applied Statistics* 14: 1651-1675 DOI: 10.1214/20-AOAS137.

Lopez-Sepulcre, A, M. Bruneaux, **S.M. Collins**, R. El-Sabaawi, A.S. Flecker and S.A. Thomas. 2020. A new method to reconstruct quantitative food webs and nutrient flows from isotope tracer addition experiments. *The American Naturalist* 195: 964-985. DOI: 10.1086/708546

Collins, S.M., S. Yuan, P.N. Tan, S.K. Oliver, J.F. Lapierre, K.S. Cheruvelil, C.E. Fergus, N.K. Skaff, J. Stachelek, T. Wagner, and P.A. Soranno. 2019. Winter precipitation and summer temperature predict lake ecosystem properties at macroscales. *Water Resources Research* 55: 2708-2721. DOI: 10.1029/2018WR023088

McCullough, I.M., K.S. Cheruvelil, **S.M. Collins**, and P.A. Soranno. 2019. Geographic patterns of the climate sensitivity of lakes. *Ecological Applications* 29: e01836. DOI: 10.1002/eap.1836

Soranno, P.A., T. Wagner, **S.M. Collins**, J.F. Lapierre, N.R. Lottig, and S.K. Oliver. 2019. Spatial and temporal variation of ecosystem properties at macroscales. *Ecology Letters* 22: 1587-1598. DOI: 10.1111/ele.13346

Stanley, E.H., **S.M. Collins**, N.R. Lottig, S.K. Oliver, K. Webster, K.S. Cheruvelil, and P.A. Soranno. 2019. Biases in lake water quality sampling and implications for macroscale research. *Limnology and Oceanography* 64: 1572-1585. DOI: 10.1002/lno.11136

Stanley, E.H., S. Salzaar, N.R. Lottig, E.M. Schliep, C.T. Filstrup and **S.M. Collins**. 2019. Comparison of total nitrogen data from direct and Kjeldahl-based approaches in integrated datasets. *Limnology and Oceanography Methods* 17: 639-649. DOI: 10.1002/lom3.10338

Lapierre, J.F., **S.M. Collins**, D. Seekell, K.S. Cheruvelil, P.N. Tan, N.K. Skaff, Z. Taranu, C.E. Fergus and P.A. Soranno. 2018. The role of spatial structure in understanding the relationships between ecosystem properties at macroscales. *Global Ecology and Biogeography* 27: 1251-1263. DOI: 10.1111/geb.12781

Tank, J.L, E. Marti, T. Riis, D. von Schiller, A.J. Reisinger, W.K. Dodds, M.R. Whiles, L.R. Ashkenas, W.B. Bowden, **S.M. Collins**, C.L. Crenshaw, T.A. Crowl, N.A. Griffiths, N.B. Grimm, S.K. Hamilton, S.L. Johnson, W.H. McDowell, B.M. Norman, E.J. Rosi, K.S. Simon, S.A. Thomas and J.R. Webster. 2018. Partitioning assimilatory nitrogen uptake in streams: an analysis of stable isotope tracer additions across continents. *Ecological Monographs* 88: 120-138. DOI: 10.1002/ecm.1280

Cheruvelil K.S., S. Yuan, K.E. Webster, P.N. Tan, J.F. Lapierre, **S.M. Collins**, C.E. Fergus, C.E. Scott, E.N. Henry, P.A. Soranno, C.T. Filstrup, and T. Wagner. 2017. Creating multi-themed ecological regions for macroscale ecology: Testing a flexible, repeatable, and accessible clustering method. *Ecology and Evolution* 7: 3046-3058. DOI: 10.1002/ece3.2884

Collins, S.M., S.K. Oliver, J.F. Lapierre, E.H. Stanley, J.R. Jones, T. Wagner, and P.A. Soranno. 2017. Lake nutrient stoichiometry is less predictable than nutrient concentrations at regional and sub-continental scales. *Ecological Applications* 27: 1529-1540. DOI: 10.1002/eap.1545

Lapierre, J.F., D. Seekell, C.T. Filstrup, **S.M. Collins**, C.E. Fergus, P.A. Soranno, and K.S. Cheruvelil. 2017. Continental-scale variation in controls of summer CO_2 in United States lakes. *Journal of Geophysical Research - Biogeosciences* 122: 875-885. DOI: 10.1002/2016JG003525

Norman, B.C., M.R. Whiles, **S.M. Collins**, A.S. Flecker, S.K. Hamilton, S.L. Johnson, E.J. Rosi-Marshall, L.R. Ashkenas, W.B. Bowden, C.L. Crenshaw, T.A. Crowl, W.K. Dodds, R.O. Hall, R. El-Sabaawi, N.A. Griffiths, E. Marti, W.H. McDowell, S.D. Peterson, H.M. Rantala, T. Riis, K.S. Simon, J.L. Tank, S.A. Thomas, D. von Schiller and J.R. Webster. 2017. Drivers of nitrogen transfer efficiencies in stream food webs across continents. *Ecology* 98: 3044-3055. DOI:10.1002/ecy.2009

Oliver, S.K., **S.M. Collins**, P.A. Soranno, T. Wagner, E.H. Stanley, J.R. Jones, C.A. Stow, N.R. Lottig. 2017. Unexpected stasis in a changing world: Lake nutrient and chlorophyll trends since 1990. *Global Change Biology* 23:5455-5467. DOI: 10.1111/gcb.13810

Soranno, P.A. and 79 others listed alphabetically including **S.M. Collins**. 2017. LAGOS-NE: A multi-scaled geospatial and temporal database of lake ecological context and water quality for thousands of U.S. lakes. *Gigascience* 6: 1-22. DOI: 10.1093/gigascience/gix101

Warren, D.R., **S.M. Collins**, E.M. Purvis, M.J. Kaylor and H.A, Bechtold. 2017. Spatial variability in light yields co-limitation of primary production by both light and nutrients in a forested stream ecosystem. *Ecosystems* 20: 198-210. DOI: 10.1007/s10021-016-0024-9

Collins, S.M., J.P. Sparks, S.A. Thomas, S.A. Wheatley and A.S. Flecker. 2016. Increased light availability reduces the importance of bacterial carbon in headwater stream food webs. *Ecosystems* 19: 396-410. DOI: 10.1007/s10021-015-9940-3

Collins, S.M., S.A. Thomas, T. Heatherly II, K.L. MacNeill, A.O.H.C. Leduc, A. Lopez-Sepulcre, B. Lamphere, R.W. El-Sabaawi, C.M. Pringle, D.N. Reznick, and A.S. Flecker. 2016. Fish introductions and light modulate food web fluxes in tropical streams: a whole-ecosystem experimental approach. *Ecology* 97: 3154-3166. DOI: 10.1002/ecy.1530

Collins, S.M., T.J. Kohler, S.A. Thomas, W.W. Fetzer and A.S. Flecker. 2016. The importance of terrestrial subsidies in stream food webs varies along a stream size gradient. *Oikos* 125: 674-685. DOI: 10.1111/oik.02713

Yuan, S., P.N. Tan, K.S. Cheruvelil, **S.M. Collins** and P.A. Soranno. 2015. Constrained spectral clustering for regionalization: Exploring the trade-off between spatial contiguity and landscape heterogeneity. *IEEE International Conference on Data Science and Advanced Analytics*. DOI: 10.1109/DSAA.2015.7344878

Soranno, P.A., E.G. Bissell, K.S. Cheruvelil, S.T. Christel, **S.M. Collins**, C.E. Fergus, C.T. Filstrup, J.F. Lapierre, N.R. Lottig, S.K. Oliver, C.E. Scott, N.J. Smith, S. Stopyak, S. Yuan, M.T. Bremigan, J.A. Downing, C. Gries, E.N. Henry, N.K. Skaff, E.H. Stanley, C.A. Stow, P.N. Tan, T. Wagner and K.E. Webster. 2015. Building a multi-scaled geospatial temporal ecology database from disparate data sources: Fostering open science through data reuse. *GigaScience* 4:28. DOI: 10.1186/s13742-015-0067-4

Dodds, W.K., **S.M. Collins**, S.K. Hamilton, J.L. Tank, S. Johnson, J.R. Webster, K.S. Simon, M.R. Whiles, H.M. Rantala, W.H. McDowell, S.D. Peterson, T. Riis, C.L. Crenshaw, S.A. Thomas, P.B. Kristensen, B.M. Cheever, A.S. Flecker, N.A. Griffiths, T. Crowl, E.J. Rosi-Marshall and R. El-Sabaawi. 2014. You are not necessarily what we think you eat: selective assimilation across multiple whole-stream isotopic tracer studies. *Ecology* 95: 2757-2767. DOI: 10.1890/13-2276.1

Collins, S.M., N. Bickford, P.B. McIntyre, A. Coulon, A.J. Ulseth, D.C. Taphorn and A.S. Flecker. 2013. Population structure of a Neotropical migratory fish: contrasting perspectives

from genes and otolith microchemistry. *Transactions of the American Fisheries Society* 142: 1192-1201. DOI: 10.1080/00028487.2013.804005

Molecular Ecology Resources Primer Development Consortium and 33 others, including **S.M. Collins**. 2011. Permanent Genetic Resources added to Molecular Ecology Resources Database 1 June 2011- 31 July 2011. *Molecular Ecology Resources* 11: 1124-1126. DOI: 10.1111/j.1755-0998.2011.03068.x

Capps, K.A., M.T. Booth, **S.M. Collins**, M.A. Davison, J.M. Moslemi, R.W. El-Sabaawi, J.L. Simonis and A.S. Flecker. 2011. Nutrient diffusing substrata: a field comparison of commonly used methods to assess nutrient limitation. *Journal of the North American Benthological Society* 30: 522-532. DOI: 10.1899/10-146.1

Carey, C.C., M.P. Ching, **S.M. Collins**, A.M. Early, W.W. Fetzer, D. Chai and N.G. Hairston, Jr. 2011. Predator-dependent diel migration by Halocaridina rubra shrimp (Malacostraca: Atyidae) in Hawaiian Anchialine pools. *Aquatic Ecology* 45: 35-41. DOI: 10.1007/s10452-010-9321-0

PUBLICATIONS (IN REVIEW OR IN REVISION) **INDICATES TRAINEE IN MY LAB

Jorgenson, K.L**, S. Hotaling, L.M. Tronstad, D.S. Finn, **S.M. Collins**. *In Review*. Trophic flexibility and hydrology structure alpine stream food webs. *Ecosphere*
Preprint DOI: https://doi.org/10.1101/2023.02.23.529795

Rock, L.A.**, B. Shoup, J.A. Ajowele, F. Bredoire, I.A. Oleksy**, M. Tetrick, D.G. Williams, **S.M. Collins**. *In Revision*. Watershed responses to climate-change driven disturbances in temperate montane ecosystems. *Ecosystems*.

Phelps, J.**, **S.M. Collins**, J. Dugan, J. Glaid, M. Hahn, T. Neebling, T.C. Roberts**, W.W. Fetzer. *In Review*. Sulfur stable isotopes of liver tissue improves detection of stocked fish consumption. *Transactions of the American Fisheries Society*

Carter, A., H.E. Lowman, J.R. Blaszczak, C.L. Torrens, C.C. Barbosa**, M. DeSiervo, M.R. Dunkle**, **S.M. Collins**, I. Oleksy**, L.R. Katona, R.O. Hall, Jr. *In Review*. Exceptions to the heterotrophic rule: Prevalence and drivers of autotrophy in streams and rivers. *Ecosystems*.

GRANTS AND AWARDS

Research Grants

- 2024-2026: Wyoming Water Research Program: Quantifying nitrogen sources in a headwater catchment from stable isotopes of nitrate: Proof of concept and case study at Brooks Lake, Fremont County, Wyoming. PI: F. Bredoire, co-PIs: D. Williams, S. Collins, J. Dewey, C. Macdonald, L. Patterson, R. Steg, M. Wachtendonk ($199,108)
- 2023-2026: Wyoming Water Research Program: Evaluating toxicity of harmful cyanobacterial blooms in Wyoming lakes and reservoirs. PI: S. Collins, co-PIs: W. Fetzer, G. Gerber, K. Hurshman, L. Patterson, R. Steg, A. Walters, ($257,821)
- 2023: University of Wyoming School of Computing Faculty Award. PI: S. Collins on behalf of graduate student Ashleigh Pilkerton, ($15,000)
- 2022-2027 National Science Foundation: RII Track-1: WY ACT: Anticipating the climate-water transition and cascading challenges to socio-environmental systems in America's headwaters PI: B. Ewers, co-PIs: B. Geerts, C. Knapp, B. Shuman, D. Williams, and 16 Senior Personnel including S. Collins. ($20,000,000)
- 2021-2024 Wyoming Game and Fish Department: Quantifying the effect of resource partitioning by stocked salmonids on feeding dynamics of walleye in the Upper North Platte Reservoirs. PI: W. Fetzer, co-PIs: S. Collins, M. Hahn, J. Glade, J. Dugan, T. Neebling, A. Walters. ($185,187).
- 2021-2022 UW Arts & Sciences Faculty Research and Creativity Grants: Seasonal stoichiometry in high-elevation Wyoming lakes. PI: S. Collins, Co-PIs: A. Krist, C. Brucker ($9,995).

- 2021 Teton Conservation District: Identifying sources of microbial pollution in surface waters for informed management of waterborne pathogens. PI: S. Collins on behalf of of my graduate student Kelsey Ruehling ($3,780)
- 2021-2024 National Science Foundation: RII Track-2 FEC: From genes to ecosystems: Harnessing elemental data to detect stoichiometric control-points and their consequences for organismal evolution. PI: J. Corman, co-PIs: E.K. Moody, H. M. Halvorson, C. Wagner, A. Krist, S.M. Collins, K. Anania, J.L. Clark, S.A. Thomas, M.S. Costanza-Robinson, C. Martinez del Rio, and E.M. Pierce, ($5,987,352)
- 2020-2024 National Science Foundation: RII Track-2 FEC: Highly predictive, explanatory models to harness the life science data revolution. PI: C.A. Buerkle, co-PIs: J. Blaszczak, S. Collins, M. Forister, R. Hall, D. Laughlin, L. Shoemaker, C. Weiss-Lehman, ($5,958,832).
- 2020-2023 Wyoming Department of Health and Wyoming Public Health Laboratory: Sampling wastewater influent as a surveillance tool for the presence of SARS-CoV-2 in Wyoming communities. PI: B. Bisha, co-PI: S. Collins, ($800,000)
- 2020-2022: EPSCoR Micro Project Seed Grant: Taxonomy and drivers of harmful cyanobacterial blooms in Wyoming reservoirs: PI: S. Collins, co-PIs: P. Ayayee, W. Fetzer, L. Patterson, M. Ross and A. Walters, ($49,950)
- 2020-2023: Wyoming Water Research Program: Identifying, predicting and managing the occurrence of harmful cyanobacterial blooms in Wyoming reservoirs. PI: S. Collins, co-PIs: W. Fetzer, L. Patterson, M. Ross, A. Walters, ($263,315)
- 2020-2021: College of Arts and Sciences Faculty Research Grant: Interactive effects of temperature and nutrient availability on aquatic microbial communities. PI: S. Collins, co-PIs: K. Jorgenson and K. Ruehling, ($3,990)
- 2020-2021: Meg and Bert Raynes Wildlife Fund: The role of food web structure and resource availability in providing refugia for threatened alpine stream macroinvertebrates. PI: S. Collins on behalf of my graduate student Karen Jorgenson, ($4,010)
- 2019-2022: Wyoming Water Research Program: Understanding the contributions of different microbial sources to surface water for informed management of waterborne pathogens in Wyoming. PI: S. Collins, co-PI: B. Bisha, ($229,757)
- 2018-2019: UW Arts & Sciences Seed Grants: Water quality in North American lakes: partitioning macro- and micro-scale ecological processes using non-stationary spatial models. PI: P. Chernyavskiy, co-PI: S. Collins, ($18,000)
- 2016-2021: National Science Foundation Macrosystems Biology: Collaborative research MSB-FRA: A macrosystems ecology framework for continental-scale prediction and understanding of lakes, NSF #1638679, lead PI: P.A. Soranno and 14 collaborators, S. Collins is Senior Personnel. ($4,257,250)
- 2016-2020: Academy of Finland. Project title: "The ecosystem effects of a rapidly evolving invader: A novel framework for the experimental study of nutrient fluxes", PI: A. Lopez-Sepulcre, co-PIs: S. Collins, R. El-Sabaawi, S. Thomas. (€455,810)
- 2012-2014: National Science Foundation Doctoral Dissertation Improvement Grant ($14,652)

Fellowships

- National Science Foundation Postdoctoral Research Fellowship in Biology, 2014-17
- Andrew and Margaret Paul Graduate Fellow, 2010
- National Science Foundation Graduate Research Fellowship Honorable Mention, 2008-09
- Cornell Fellowship, 2007-08
- Barbara Neeley Scholarship for 4 years full tuition, Lewis & Clark College, 2003-2007

Awards

- Honors Award for Excellence in Capstone Mentorship, 2023
- Top Prof Award, 2019
- Outstanding Teaching Assistant, Cornell University, 2013
- North American Benthological Society President's Award, 2011
- Biology Award for Outstanding Graduate, Lewis & Clark College, 2007

- Phi Beta Kappa, 2007

Teaching Experience

University of Wyoming, Laramie, WY

Instructor for ZOO 4440 and 4430: Limnology and Limnology Lab	2018-current
Instructor for ECOL 5620: Advanced Topics in Ecology	2021, 2024
Instructor for ZOO 5890: Seminar in Alternative Stable States	2023
Instructor for ECOL 5620: Advanced Aquatic Ecology	2023
Instructor for ZOO 5890: Seminar in Ecological Stoichoimetry	2022
Instructor for ECOL 5620: Ecosystem Ecology and Global Change	2022
Instructor for ZOO 5890: Seminar in Open Science	2022
Instructor for ZOO 5890: Seminar in Aquatic Ecosystems and Global Change	2020

Michigan State University, East Lansing, MI

Instructor for FW 472: Limnology	2016
Guest Lecturer for FW 474: Field and Laboratory Techniques for Aquatic Studies	2014
Certificate in Scientific Teaching	2015

Mentoring Experience

University of Wyoming, Laramie, WY

Mentor and Supervisor for graduate students and postdoctoral researchers 2018-present

- Benjamin Tumolo (Postdoctoral Researcher, co-advised with Amy Krist, 2022-present)
- Matthew Dunkle (Postdoctoral Researcher, 2022-present)
- Linnea Rock (PhD student, 2021-present)
- Casey Brucker (MS student, co-advised with Amy Krist, 2023-present)
- Sean Bertalot (MS student, 2023-present)
- Isabella Oleksy (Postdoctoral Researcher, 2021-2023)
- Carolina Barbosa (Postdoctoral Researcher, 2022-2023)
- Samuel Sillen (MS completed 2022)
- Chance Roberts (MS completed 2022, co-advised with Willie Fetzer)
- Kelsey Ruehling (MS completed 2022)
- Karen Jorgenson (MS completed 2022)
- Charlotte Narr (Postdoctoral Researcher, co-advised with Pavel Chernyavisky, 2019)
- Committee member for 14 graduate students at the University of Wyoming

Mentor or Supervisor for technicians and undergraduate researchers 2018-present

- Chuck Williams (Research Associate, co-advised with Annika Walters & Willie Fetzer, 2024-present)
- Kevin Gauthier (Senior Research Technician, co-advised with Annika Walters & Willie Fetzer, 2023-present)
- Casey Brucker (Research Associate, co-advised with Amy Krist, 2021-present)
- Elise Ehlers (Research Assistant, 2023)
- Angela Zhu (Wyoming Research Scholar, Honors, 2021-2023)
- Katie Bearden (Research Associate, 2021-2022)
- Jaide Phelps (Technician and Lab Manager, 2018-2021)
- Other undergraduate field and lab assistants who have worked in my lab: Maddison Kopsa, Corey McDonough, Mikey Castillion, Lisa Harris, Macy Jacobson, Emma Roman, Taylor Skiles, Colt Duncan, Darby McMartin, Mariah Saville, Hannah VanTassel, Trevor Knowles, Danielle Lichtenwalner, Alyssa Halls, Foss Williams, Harrison Edwards, Christopher Crawford, Delsie McCrystal, Riley Abart, Lilly McGever

Conference Presentations (2018-present) **indicates trainee in my lab

Williams, D.G., C.N. Knapp, B.N. Shuman, B. Geerts, B.E. Ewers, S. Albeke, M.S. Bukovsky, **S.M. Collins**, J. Hamerlinck, J. Lund. 2023. Wyoming socio-environmental systems observatory network (WY-SEaSON): Detecting climate change impacts in Wyoming's mountains. American Geophysical Union, San Francisco, CA.

Oleksy, I.**, C. Barbosa**, **S.M. Collins**, H.A. Dugan, M.F. Meyer, S. Topp, M. Ross, B. Steele. 2023. Widespread impacts of wildfires on lake color. American Geophysical Union, San Francisco, CA.

Torrens, C.L., A.M. Carter, C. Barbosa**, J. Blaszczak, **S.M. Collins**, M. DeSiervo, M. Dunkle**, R.O. Hall Jr., L, Katona, H. Lowman, I. Oleksy**. 2023. Identifying and characterizing annual-scale autotrophy in streams across the Continental US. American Geophysical Union, San Francisco, CA.

Collins, S.M., W. Fetzer, K. Gauthier Jr.**, A. Walters, M. Ross, S. Sillen**. 2023. Lake productivity trends and harmful algal blooms in the high-elevation Western United States. American Geophysical Union, San Francisco, CA. *Invited talk

Ehlers, E.**, C. Brucker**, C. Petersen, **S. Collins**, J. Corman, H. Halvorson. 2023. Conducting an expansive literature review for the development of a novel, open-source database (STOICH). Ecological Society of America, Portland, OR.

Rock, L.A.**, **S.M. Collins**. 2023. Spatial patterns of nutrient concentrations and stoichiometry in a headwater lake-stream network in the Colorado Rocky Mountains. Freshwater Sciences, Brisbane, Australia.

Zhu, A.Y.**, **S.M. Collins**. 2023. Those dammed beavers: Shifts in benthic invertebrate food webs and assemblages in their ponds. Freshwater Sciences, Brisbane, Australia.

Tumolo, B.**, **S.M. Collins**, Y. Guan, A.C. Krist. 2023. Resource quantity and quality differentially control stream invertebrate biodiversity across spatial scales. Freshwater Sciences, Brisbane, Australia.

S.M. Collins, S.J. Sillen**, A. Pilkerton**, W.W. Fetzer, K. Hurshman, I. Oleksy**, L Patterson, M. Ross, A. Walters. 2023. Harmful algal blooms in the high-elevation Western United States. Freshwater Sciences, Brisbane, Australia.

Brucker, C.**, D. Lichtenwalner**, T. Skiles**, A.C. Krist, **S.M. Collins**. 2023. Seasonal trends in chemistry and stoichiometry in high elevation lakes of Southeast Wyoming, USA. Association for the Sciences of Limnology and Oceanography, Palma de Mallorca, Spain

Oleksy, I**, C. Barbosa**, S. Collins, H. Dugan, M. Meyer, S. Topp, M. Ross, B. Steele. 2023. Widespread impacts of wildfires on lake color. Association for the Sciences of Limnology and Oceanography, Palma de Mallorca, Spain

Pilkerton, A**, T. Knowles**, S. Sillen**, W. Fetzer, A. Walters, **S.M. Collins**. 2023. Exploring zooplankton community response to harmful algal blooms in the Intermountain West, USA. Association for the Sciences of Limnology and Oceanography, Palma de Mallorca, Spain

Sillen, S.**, J. Gardner, G. Zuccolotto, **S.M. Collins**. 2023. New capabilities in using remote sensing data to predict algal blooms in large rivers and reservoirs. Association for the Sciences of Limnology and Oceanography, Palma de Mallorca, Spain

Skiles, T.**, A. Pilkerton**, C. Brucker**, A. Fuhman, **S.M. Collins**. 2023. Spatiotemporal variation of zooplankton community assemblages across water column TN and TP gradients. Conference on Biological Stoichiometry, Lincoln, NE.

Brucker, C.**, C. Petersen, **S.M. Collins**, E. Ehlers, J.R. Corman, H. Halvorson. 2023. From structure to function: Building and utilizing a broad-scale stoichiometric database. Conference on Biological Stoichiometry, Lincoln, NE.

Tumolo, B.**, **S.M. Collins**, A. Krist. 2023. Resource quantity and quality differentially control biodiversity across spatial scales. Conference on Biological Stoichiometry, Lincoln, NE.

Rock, L.**, **S.M. Collins**. 2023. A shift toward co-nutrient limitation in U.S. Lakes. Conference on Biological Stoichiometry, Lincoln, NE.
Winner: Best student poster

S.M. Collins, S.A. Thomas, A. Lopez-Sepulcre, A.S. Flecker. 2023. Dual-isotope tracer approaches to understanding energy and nutrient fluxes in stream ecosystems. Conference on Biological Stoichiometry, Lincoln, NE.

Sillen, S.**, M. Ross, **S.M. Collins**. 2022. Tracking Chlorophyll Trends in Intermountain West Lakes Using Remote Sensing. Joint Aquatic Science Meeting, Grand Rapids, MI.

Oleksy, I.**, M. Meyer, **S.M. Collins**, H. Dugan, M. Ross. 2022. Lake color responses to wildfires in the western United States. Joint Aquatic Science Meeting, Grand Rapids, MI.

Bearden, K.**, C. Brucker**, A. Zhu**, H.M. Halvorson, **S.M. Collins**, A. Dycus, C. Tolly. 2022. Literature Survey Results Reflect Priorities and Gaps in Organismal Aquatic Stoichiometry. Joint Aquatic Science Meeting, Grand Rapids, MI.

Roberts, T.C.**, **S.M. Collins**, T. Neebling, R. Mosley, J. Walrath, W.W. Fetzer. 2022. Environmental gradients drive variation in Lake Trout foraging ecology in a large, western reservoir. Joint Aquatic Science Meeting, Grand Rapids, MI.

Brucker, C.**, H.M. Halvorson, **S.M. Collins**, J.R. Corman. 2022. Collaborative Solutions: The Creation of An Open Source Stoichiometry Database (STOICH). Joint Aquatic Science Meeting, Grand Rapids, MI.

Farrell, R., L. Rock**, S. Wulfing, J.R. Corman, **S.M. Collins**, S.A. Thomas, Y. Guan. 2022. Evidence of phosphorus as a control on nitrate in freshwater ecosystems using broadscale datasets. Joint Aquatic Science Meeting, Grand Rapids, MI.

Ruehling, K. **, N. Blouin, B. Bisha, **S.M. Collins**. 2022. Urban and hydrologic influences on bacterial communities and fecal pollution in Wyoming Snake River Tributaries. Joint Aquatic Science Meeting, Grand Rapids, MI.

Jorgenson, K.**, L.M. Tronstad, D. Finn, S. Hotaling, **S.M. Collins**. 2022. Hydrologic source and trophic flexibility structure alpine stream food webs in the Teton Range, WY. Joint Aquatic Science Meeting, Grand Rapids, MI.
Winner - best student talk in basic research

Lowman, H., **S. Collins**, H. Harvey, R. Shriver, C.B. Yackulic, J.R. Blaszczak. 2022. Predicting river productivity dynamics using population models at a continental scale. Joint Aquatic Science Meeting, Grand Rapids, MI.

Ruehling, K.**, N. Blouin, B. Bisha, **S.M. Collins**. 2022. Agricultural land-use and flow variation influence bacterial loading in Wyoming streams. Front Range Microbiome Symposium, Fort Collins, CO.

McGuire, A.M., K.G. Gerow, **S.M. Collins**, K.L. Woodruff, B. Bisha. 2022. SARS-COV-2 prevalence in wastewater. ASM Microbe, Washington, DC.

Borton, M., **S.M. Collins**, A.E. Goldman, M. de Melo, J. Stegen. 2021. It takes a village: using a crowdsourced approach to investigate organic matter composition in global reivers through the lens of ecological theory. Presented in 2021 at Association for the Sciences of Limnology and Oceanography, World Microbe Forum, and American Geophysical Union.

Oleksy, I**, and **S.M. Collins**. 2021. Using sparse models to gain a deeper, mechanistic understanding of freshwater ecosystems. Incorporating Data Science and Open Science in Aquatic Research. Online.

Brucker, C,**, **S. M. Collins**, J. Corman, H. Halvorson, A. Krist. 2021. Building a broad-scale ecological stoichiometry database. Society for Freshwater Science. Online.

Ruehling, K.**, H. Kaur, N. Blouin, B. Bisha, **S. Collins**. 2021. Understanding the contributions of microbial sources to surface water to inform management of waterborne pathogens in Wyoming. Society for Freshwater Science. Online.
Winner - best student poster in applied research

Sillen, S.J.**, W. Fetzer, L. Patterson, M. Ross, M. Thomas, A. Walters, **S. Collins**. 2021. Harmful cyanobacterial blooms in Wyoming reservoirs. Society for Freshwater Science. Online.

Kaur, H., K. Ruehling**, **S. Collins**, B. Bisha. 2021. Characterization of antimicrobial resistance in indicator bacteria (E. coli and Enterococcus spp.) from surface waters of Wyoming. International Association for Food Production. Phoenix, AZ.

Roberts, T.C.**, **S.M. Collins**, T. Neebling, J. Walrath, R. Mosley, W. Fetzer. 2021. Does inclusion of sulfur stable isotopes improve resolution of lake trout foraging within Flaming Gorge Reservoir? Western Division American Fisheries Society, Online.

Roberts, T.C.**, **S. Collins**, T. Neebling, J. Walrath, R. Mosley, W. Fetzer. 2021. Sulfur stable isotopes reveal ontogenetic shifts in Lake Trout reliance on profundal energy pathways. Colorado-Wyoming American Fisheries Society. Online.

Phelps, J.**, **S. Collins**, J. Dugan, J. Glaid, M. Hahn, W. Fetzer. 2020. Sulfur stable isotopes as a tool to detect consumption of stocked fish in Wyoming reservoirs. Colorado-Wyoming American Fisheries Society. Laramie, WY.
Winner - best professional poster

Lapierre, J. **S. Collins**, S. Oliver, E. Stanley. 2019. Inconsistent Browning of Northeastern US Lakes despite increased precipitation and recovery from acidification. Association for the Sciences of Limnology and Oceanography Aquatic Sciences Meeting, San Juan, PR.

Chernyavskiy, P., M.A. Tellier**, and **S. Collins**. 2019. Covariate-driven non-stationary models in Stan with applications to water quality in North American lakes. Presented at Spatial Statistics, Sitges, Spain and the Joint Statistical Meetings, Denver, CO.

Collins, S.M., P. Chernyavskiy, C.F. Narr**, and M.A. Tellier**. 2019. Water quality in North American lakes: Partitioning macro- and micro-scale ecological processes using non-stationary spatial models. Society for Freshwater Science, Salt Lake City, UT.

Thomas, S., M. Bruneaux, **S. Collins**, A. Flecker, R. El-Sabaawi, A. Lopez-Sepulcre. 2019. Detecting differences in nitrogen flow in ecosystem-scale experiments: A new approach to modeling isotope tracer additions in stream ecosystems. Society for Freshwater Science, Salt Lake City, UT.

Collins, S.M., E. Schliep, N. Lottig, and E.H. Stanley. 2018. Macroscale drivers of nitrogen cycling in lakes. Association for the Sciences of Limnology and Oceanography Summer Meeting, Victoria, BC.

Lopez-Sepulcre, A., Bruneaux M., **S. Collins**, R. El-Sabaawi, A. Flecker, S. Thomas. 2018. A novel statistical method to reconstruct quantitative food webs from tracer addition experiments. Association for the Sciences of Limnology and Oceanography Summer Meeting, Victoria, BC.

McCullogh, I., K. Cheruvelil, **S. Collins**, P. Soranno. 2018. Geographic patterns of the climate sensitivity of lakes. Association for the Sciences of Limnology and Oceanography Summer Meeting, Victoria, BC.

Soranno, P., T. Wagner, **S. Collins**, J. Lapierre, N. Lottig, S. Oliver. 2018. Spatial variation exceeds temporal variation in lake ecosystem properties at macroscales. Association for the Sciences of Limnology and Oceanography Summer Meeting, Victoria, BC.

Thomas, S., A. Lopez-Sepulcre, R. El-Sabaawi, **S. Collins**, M. Bruneaux, A. Flecker. 2018. The ecological consequences of local adaptation in Trinidadian guppies: Assessing results across scales of complexity. Association for the Sciences of Limnology and Oceanography Summer Meeting, Victoria, BC.

Collins, S.M., S. Yuan, P.N. Tan, S.K. Oliver, J.F. Lapierre, K.S. Cheruvelil, C.E. Fergus, N.K. Skaff, J. Stachelek, T. Wagner, and P.A. Soranno. 2018. Winter precipitation and summer temperature predict lake ecosystem properties at macroscales. Society for Freshwater Science, Detroit, MI.

Corman, J., L. Loken, S. Oliver, **S. Collins**, H. Dugan, E. Stanley. 2018. Long-term lake records reveal decoupling of nitrogen and phosphorus cycles in response to an extreme rainfall event. Society for Freshwater Science, Detroit, MI.

MacNeill, K., **S. Collins**, A.C. Encalada, H. Guasch, M. McBride, E. Rosi, S. Thomas, A. Flecker. 2018. Nitrogen to phosphorus ratio as a driver of arsenic retention. Society for Freshwater Science, Detroit, MI and Association for the Sciences of Limnology and Oceanography, Victoria BC Canada.

Invited Seminars

2023 Kent State University, Biological Sciences

2022 Bradley University, Department of Biology

2022 Colorado State University, Department of Fish, Wildlife, and Conservation Biology

2018 University of South Carolina, Department of Biological Sciences

2018 University of Wyoming, Department of Zoology and Physiology

2018 University of Florida, Department of Biology

2017 St. Olaf College, Department of Biology

2016 Reed College, Biology Department

2014 Michigan State University, Ecology, Evolutionary Biology, and Behavior

2014 Michigan State University, Department of Fisheries and Wildlife

2014 Cornell University, Ecology and Evolutionary Biology Department

2007 Lewis & Clark College Biochemistry and Molecular Biology Department

Other Skills

Proficient in Spanish, conversational in Swahili, certified SCUBA diver (PADI Advanced Open Water and Rescue Diver), experienced working in remote field conditions, field research experience in Montana, Kenya, Tanzania, Florida, Hawaii, New York, Trinidad and Tobago

Memberships and Service

Society Memberships

- American Geophysical Union (2015-present)
- Ecological Society of America (2007–present)
- Association for the Sciences of Limnology and Oceanography (2014-present)
- Society for Freshwater Science (2007-present)
- American Fisheries Society (2019-present)

Reviewer

- Manuscript reviews: Ambio, Biogeosciences, Biotropica, Canadian Journal of Fisheries and Aquatic Science, Conservation Genetics, Earth Science Reviews, Ecological Applications, Ecological Monographs, Ecology, Ecology Letters, Ecosystems, Environmental Science and Technology, Food Webs, Freshwater Biology, Freshwater Science, Frontiers in Ecology and Environment, Functional Ecology, Global Change Biology, Heliyon, Hydrobiologia, Journal of Geophysical Research - Biogeosciences, Lake and Reservoir Management, Landscape Ecology, North American Journal of Fisheries Management, Oecologia, Oikos, Restoration Ecology
- Grant reviews: Biogeochemistry and Environmental Biocomplexity Small Grants, Cornell Sigma Xi Chapter Research Grants, National Science Foundation, Society for Freshwater Science Undergraduate Travel Grants and Instars Travel Grants, University of Wyoming Zoology and Physiology fellowships

Committee Work

- Steering Committee, UW Ecology and Biogeochemistry Core Facility
- Steering Committee, UW Stable Isotope Facility
- Vice President, UW Phi Beta Kappa
- Faculty Advisor, Fish n' Chicks UW women's fly fishing club
- Member, Local Arrangements Committee, Freshwater Science 2023 Meeting
- Member, UW Zoology and Physiology Graduate Advisory Board

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