CURRICULUM VITAE

JENNIFER J. FOLLSTAD SHAH
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ACADEMIC APPOINTMENTS & TRAINING

2024-present	Associate Professor, School of the Environment, Society & Sustainability, University of Utah, Salt Lake City, UT
2024-present	Associate Director, Environmental & Sustainability Studies Program, University of Utah, Salt Lake City, UT
2023-present	Associate Professor, Department of Geography, University of Utah, Salt Lake City, UT
2021-2023	Associate Professor (Lecturer), Environmental & Sustainability Studies, University of Utah, Salt Lake City, UT
2016-2020	Assistant Professor (Lecturer), Environmental & Sustainability Studies, University of Utah, Salt Lake City, UT
2015-2022	Research Assistant Professor, Department of Geography, University of Utah, Salt Lake City, UT
2014-2016	Associate Instructor & Academic Advisor, Environmental & Sustainability Studies, University of Utah, Salt Lake City, UT
2011-2014	Adjunct Assistant Professor, Department of Biology, University of New Mexico, Albuquerque, NM
2010-2018	Adjunct Assistant Professor, Department of Watershed Sciences, Utah State University, Logan, UT
2010	Visiting Scholar, Department of Biology, Duke University, Durham, NC
2006-2009	National Science Foundation Bioinformatics Postdoctoral Fellow, Department of Biology, Duke University, Durham, NC. *Advisor*: Dr. Emily S. Bernhardt
2000-2006	Doctor of Philosophy, IGERT Freshwater Sciences Interdisciplinary Doctoral Program Fellow, University of New Mexico, Albuquerque, NM. *Dissertation*: Effects of Flood Regime and Riparian Plant Species on Soil Nitrogen Cycling Along the Rio Grande: Implications for Restoration, *Major Advisor*: Dr. Clifford N. Dahm
1999	Research Assistant, Wisconsin River Floodplain Project Center for Limnology, University of Wisconsin-Madison, Madison, WI. *Primary investigators*: Drs. Emily Stanley (Center for Limnology) and Monica Turner (Department of Zoology)
1996-1998	Executive Director, Wisconsin Environmental Initiative, Madison, WI A nonprofit, non-partisan organization aimed at growing a sustainable economy while

preserving environmental resources (https://www.wi-ei.org)

1991-1995 Bachelor of Arts, Political Science with minor in French, University of Wisconsin-Madison, Madison, WI

1993-1994 Certificate of Political Studies, Institut d'Études Politique, Aix-en-Provence, France

RESEARCH INTERESTS

Effects of global change (rising temperature, altered river flow and resource supply, and biotic invasion) on the metabolism and biogeochemistry of lotic, riparian and designer ecosystems; theoretical ecology (metabolic scaling, ecological stoichiometry, enzyme kinetics); river and riparian restoration; green infrastructure

PROFESSIONAL MEMBERSHIPS

American Society for Limnology & Oceanography
American Water Resources Association
Ecological Society of America
Society for Ecological Restoration
Society for Freshwater Science

HONORS & AWARDS

- Advancing Equity and Connecting Communities Award, College of Social and Behavioral Science, University of Utah (2022)
- Beacons of Excellence Award, University of Utah (2021)
- Superior Research Award – Career Line Faculty, College of Social & Behavioral Science, University of Utah (2021)
- Nominee, Faculty Teaching Award for Excellence in General Education, University of Utah (2019, 2020)
- Nominee, Early Career Teaching Award, University of Utah (2019, 2020, 2022)
- Superior Teaching Award – Career Line Faculty, College of Social and Behavioral Sciences (2019)
- Scientific and Technological Achievement Award, Level III recognition in the category of Ecological Research, U.S. Environmental Protection Agency (2011)
- Bioinformatics Postdoctoral Fellowship, U.S. National Science Foundation (2007-2009)
- Best Graduate Student Oral Presentation, Soil Ecology Society (2005)
- Graduate Research Opportunities Doctoral Fellowship, U.S. Environmental Protection Agency (2003-2006)
- IGERT Freshwater Sciences Interdisciplinary Doctoral Fellowship, U.S. National Science Foundation (2000-2002)

MENTORING

Graduate Student Committees

- Eric McCulley, M.S., Department of Watershed Sciences, Utah State University, Co-advisor (2011-2012)
- Brittany Duncan, M.Sc., Department of Watershed Sciences, Utah State University, Co-advisor (2015-2018)
- Anna Sahl, P.M.S.T., University of Utah, Co-advisor (2018)
- Ryan Thomas, P.M.S.T., University of Utah, Co-advisor (2020)
- Yvette Hastings, M.Sc., Department of Geography, University of Utah, Advisor (2020-2022)
- Brenna Egan, M.Sc., Department of Geography, University of Utah, Advisor (2022-2024)
- Matthew O'Brien, P.M.S.T., University of Utah, Co-advisor (2023)
- Eli Schroeder, P.M.S.T., University of Utah, Co-advisor (2023)
- James Leifer, M.Sc., School of the Environment, Society & Sustainability, University of Utah, Advisor (2024-)
- Rebecca Senft, Ph.D., School of Biological Sciences, University of Utah, Co-Advisor (2024-)
- Jessica Reimer, Ph.D., City & Metropolitan Planning, University of Utah, Co-Advisor (2023-)
- Christine Rumsey, Ph.D., Department of Geology & Geophysics, University of Utah, Co-Advisor (2024-)
- Catherine Sales, Ph.D., Department of Education Psychology, University of Utah, Co-Advisor (2024-)
- Helen Salako, Ph.D., Department of Civil Engineering, Co-Advisor (2024-)
- Samuel Buswell, M.Sc., School of the Environment, Society & Sustainability, University of Utah, Advisor (2025-)
- Allison Izaksonas, M.Sc., School of the Environment, Society & Sustainability, University of Utah, Advisor (2025-)

Graduate Student Research Projects

- Rylee Babino, Masters of Urban Planning, Department of City & Metropolitan Planning, University of Utah, Research Assistantship Mentor (2025-)

Undergraduate Student Research Projects

- [1]Jay Jensen, Environmental & Sustainability Studies, University of Utah, Advisor (2015)
- [1]Luis Vidal, Environmental & Sustainability Studies, University of Utah, Advisor (2015)
- [1]Alexandre Veilleux, Environmental & Sustainability Studies, University of Utah, Advisor (2015)
- [1]Michael Navidomskis, Civil Engineering, University of Utah, Advisor (2016)
- [1]Anna Albertsen, Environmental & Sustainability Studies, University of Utah, Advisor (2016)
- [1,2]Brianna Milot, Environmental & Sustainability Studies, University of Utah, Advisor (2017-2018)
- [1]Ian Schwenker-Punnet, Environmental & Sustainability Studies, Advisor (2017)
- [1]Jihyun Noh, Environmental & Sustainability Studies, Advisor (2017)
- [1]Nicholas Storey, Environmental & Sustainability Studies, Advisor (2017)
- [1,3]Jessica Gallefant, Environmental & Sustainability Studies, Advisor (2018-2019)
- [1]Sydney Boogaard, Environmental & Sustainability Studies, Advisor (2019)
- Puneet Singh, Environmental & Sustainability Studies, Advisor (2019)
- Maloree Barbara, Biology, Advisor (2019-2020)
- [1]Carrie Marsh, Environmental & Sustainability Studies, Advisor (2020)
- Yvette Hastings, Environmental & Sustainability Studies, Advisor (2020)
- [1,3,4]Kyra Mann, Environmental & Sustainability Studies & Biology, Co-Advisor (2020-2021)
- [1,3]Madeline Jensen, Chemistry, Co-Advisor (2020-2021)
- Julie Williams, Environmental & Sustainability Studies, Advisor (2021)

- [1,3,5]Mary Roalstad, Environmental & Sustainability Studies & Geology, Advisor (2022-2024)
- [1]Jacob Berryhill, Environmental & Sustainability Studies, Advisor (2022)
- Marti Sorenson, Environmental & Sustainability Studies & Geography, Advisor (2023)
- [1,3,5]Abbie Nistler, Environmental & Sustainability Studies, Advisor (2023-2024)
- Carson Buck, Environmental & Sustainability Studies, Advisor (2025)
- Annie Sullivan, Environmental & Sustainability Studies, Advisor (2025)
- Catherine Patton, Environmental & Sustainability Studies, Advisor (2025)
- Jace Gurrola, Environmental & Sustainability Studies, Advisor (2025)

[1] University of Utah Undergraduate Research Opportunities Program (UROP) Fellow; fellows are awarded $1,200 for each semester of independent research
[2] Rio Mesa Young Scholar; $982 awarded for undergraduate research costs
[3] University of Utah Undergraduate Honors Thesis
[4] U.S. National Science Foundation (NSF) Research & Professional Experience for Post-Baccalaureate Students (REPS) Fellow
[5] University of Utah Undergraduate Wilkes Center for Climate Science Fellow, fellows are awarded $2,500 for each semester of independent research

TEACHING & MENTORSHIP

University of Utah
- Mentor, Undergraduate Wilkes Center for Climate Science Fellows Program (2023)
- Mentor, Wasatch Experience (2019-2020)
- Mentor, Undergraduate Research Opportunities (UROP; 2016-2024)
- Instructor, Sustainable Streams & Riparian Zones (ENVST 3390, GEOG 5/3390: Fall 2018, 2019, 2021, 2022; ENV 5/6390: Fall 2025)*†#
- Instructor, Air, Water & Health Capstone Course (ENVST 5559: Spring 2017-2023, Fall 2022)*
- Instructor, Introduction to Environmental Studies (ENVST 2100: Spring 2016)
- Instructor, Field Experience: Environment & Sustainability (ENVST 2000: Fall 2015-2018)
- Instructor, Introduction to Environmental Science, University of Utah (ENVST 2050: Fall & Spring 2014-2021, Spring 2023)*+

Utah State University
- Instructor, Riparian Ecology and Management in the Western U.S. (WATS 6900: Spring 2011)*
- Guest Lecturer, Watershed and Stream Restoration (WATS 5660: Fall 2010)
- Instructor, Stream Restoration Principles Short Course, Intermountain Center for River Rehabilitation and Restoration (WATS 5660: July 2010)

University of New Mexico
- Organizer, IGERT Freshwater Sciences Interdisciplinary Doctoral Program Seminar, Topic: Improving communication between scientists and media/policy makers (BIOL 502: Fall 2005)
- Mentor, Plant Physiology Lab (BIOL 478L: Fall 2004)
- Mentor, NASA Summer High-School Apprenticeship Research Program, Department of Biology (Summer 2003)
- Assistant Lecturer, Limnology (BIOL 495: Spring 2003)
- Teaching Assistant, Limnology Lab (BIOL 496: Spring 2003)
- Teaching Assistant, Introductory Biology (BIOL 122: Fall 2003)

- Mentor, NSF Research Experiences for Undergraduates, Department of Civil Engineering (Summer 2002)

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* Developed course
† Awarded University of Utah Teaching Grant for course
# Methods course, with field and laboratory components
+ Re-developed course to offer as Generation 2 online course, in addition to face-to-face instruction

SYNERGISTIC ACTIVITIES

Conference Special Session Organization:

- Urban stream ecology across socioeconomic gradients, biomes, and spatial scales, Ecological Society of America Annual Meeting, Salt Lake City, UT, August 2-7, 2020
- Solving the "running on empty" problem through collaborative learning and interdisciplinary freshwater foundations (CLIFF)", Society for Freshwater Science Annual Meeting, Sacramento, CA, May 21-26, 2016
- Foundation species and terrestrial-aquatic linkages: Effects of shifting plant composition at the aquatic-riparian interface, North American Benthological Society Annual Meeting, Santa Fe, NM, June 6-11, 2010

Journal Review: AGU Journal of Geophysical Research – Biogeosciences, Aquatic Science, Biogeochemistry, Biological Invasions, BioScience, Ecohydrology, Ecological Applications, Ecological Monographs, Ecology, Ecology Letters, Ecosystems, Environmental Science & Policy, Freshwater Science, Functional Ecology, Geoderma, Global Change Biology, Global Ecology & Biogeography, Hydrobiologia, Hydrologic Processes, International Review of Hydrobiology, Journal of Applied Ecology, Journal of Sustainability & the Environment, Journal of the North American Benthological Society, Limnology & Oceanography, Microbial Ecology, Nature, Nature Microbiology, PeerJ, Proceedings of the National Academy of Sciences, Restoration Ecology, River Research and Applications, Science Advances, Science of the Total Environment, Soil Biology & Biogeochemistry, Water Resources Research

Media Coverage:

- Chambliss, R. "Climate Anxiety Prevalence at the U", Wilkes Center for Climate Science & Policy podcast, Episode 24, November 11, 2024. https://wilkescenter.utah.edu/podcast/24-climate-anxiety-at-the-u/
- Pohlsander. E. "Science of plant decomposition", All Things Considered, Utah News, July 18, 2024. https://www.kuer.org/podcast/utah-news-now/2024-07-18/evening-brief-july-18-2024
- Maffly, B. "Science of plant decomposition … and why it matters", @theU, July 10, 2024. https://attheu.utah.edu/research/science-of-plant-decomposition-and-why-it-matters/
- Lungren, A. "New bill seeks to award Utah communities for river and stream improvement efforts", St. George News, January 31, 2024. https://www.stgeorgeutah.com/news/archive/2024/01/31/agl-lgl24-new-bill-seeks-to-award-utah-communities-for-river-and-stream-improvement-efforts/
- Keddington, E. "Future legislation could protect the green around Utah's rivers", KSL News Radio 102.7 FM, October 13, 2023. https://kslnewsradio.com/2049561/future-legislation-could-protect-the-green-around-utahs-rivers/
- Gabrielson, P. "New Ways to Look at Stream Health", @theU, January 4, 2021. https://attheu.utah.edu/announcements/new-ways-to-look-at-stream-health/

- Oleniaz, L. “Fertilizer Runoff in Streams and Rivers Can Have Cascading Effects, Analysis Shows”, NC State News Services, December 17, 2020. https://news.ncsu.edu/2020/12/fertilizer-runoff-in-streams-and-rivers-can-have-cascading-effects-analysis-shows/
- This Green Earth – July 9, 2019: Dr. Rose Smith. https://www.kpcw.org/post/green-earth-july-9-2019-dr-rose-smith#stream/0
- Gabrielson, P. “How the River Flows”, @theU, July 7, 2019. https://attheu.utah.edu/facultystaff/how-the-river-flows/
- “Where the Jordan River’s Water Comes From”, Technology.org, June 28, 2019. https://www.technology.org/2019/06/28/where-the-jordan-rivers-water-comes-from/
- Hager, R. “New Global Assessment of Decomposition in Rivers Reveals Distinct Signatures”, Utah Public Radio, February 4, 2019, 1 minute 42 seconds. https://www.upr.org/post/new-global-assessment-decomposition-rates-rivers-reveals-distinct-signatures
- Adams, B. “River Ecology on a Global Scale”, @theU newsletter, February 4, 2019. https://attheu.utah.edu/facultystaff/river-ecology-on-a-global-scale/
  Adams, B. “Shedding Light”, @theU newsletter, November 26, 2018. https://attheu.utah.edu/facultystaff/shedding-light/
- Heunemann, J. “What climate change means for leaf litter”, iUTAH newsletter, April 5, 2017. http://iutahepscor.org/news_article.php?aid=266
- Gonzalez, E. ““What climate change means for leaf litter”, Phys.org, March 30, 2017. https://phys.org/news/2017-03-climate-leaf-litter.html
- Adams, B. “What global climate change may mean for leaf litter in streams and rivers”, UNews, March 3, 2017. https://unews.utah.edu/what-global-climate-change-may-mean-for-leaf-litter-in-streams-and-rivers/
- Daniels, S. “Growing knowledge and experience through tree planting at Alta”, Sustainable Utah (University of Utah Sustainability Office), December 2016
- Ash, S. “UNM doctoral student studies mycorrhizal colonization”, Divining Rod (New Mexico Water Resources Research Institute), p. 9, Vol. XXIX, No. 3, September 2006
- Malakoff, D. “Measuring Success of River Restorations”, Morning Edition, National Public Radio, April 29, 2005. https://www.npr.org/2005/04/29/4624292/measuring-the-success-of-river-restorations
- Fleck, J., “River Run”, Albuquerque Journal, April 29, 2005
- Knapp, K., “Udall: Science should aid policy”, New Mexico Daily Lobo, March 29, 2005
- Limon, I., “Grants benefit students, state”, New Mexico Daily Lobo, January 18, 2002

Professional Society Committee Membership: Society for Freshwater Science (formerly the North American Benthological Society) – Public Information and Publicity Committee Co-Chair (2010-2013), Executive Committee (2007-2009), Ad Hoc Web Committee (2009)

Proposal Review (Ad Hoc): National Science Foundation – Ecosystem Studies (2018); Long Term Research in Environmental Biology (2015); Science, Technology, and Society (2010); Biological Databases and Infrastructure (2006)

Proposal Review (Panelist): National Science Foundation – Ecosystem Studies (2023)

Research Working Groups:
- Carbon Urban River Biogeochemistry (CURB), Ad-hoc Member, NSF-Macrosystems Project (DEB 2015616; 2023-present)
- Forecasting rates of stream leaf litter decomposition in response to inland climate change, Co-organizer, Long Term Ecological Research (LTER) Network (2011-2012)
- The Metabolic Theory of Ecology and Stream Ecosystems, Co-organizer, Long Term Ecological Research (LTER) Network (2006)

- Effects of Nitrogen-Fixers on Plant Community Diversity and Species Interactions, Co-organizer, LTER Network (2006)
- National River Restoration Science Synthesis (NRRSS) Project, Participant, National Center for Ecological Analysis and Synthesis (2002-2005)

Advisory Committee Memberships:

Riparian Protection Legislative Working Group, Representative District 41, Utah (2023-2024) that developed HB-243 Riparian Amendments. 2024 State of Utah Legislative Session. https://le.utah.gov/interim/2024/pdf/00001496.pdf

- Folsom Corridor Daylighting Technical Advisory Committee, Salt Lake City Redevelopment Agency, Salt Lake City, Utah (2021-2023)
- Jordan River Total Maximum Daily Load Technical Advisory Committee, Utah Department of Environmental Quality – Division of Water Quality, Salt Lake City, Utah (2018-2023)
- City of Cottonwood Heights, Parks, Trails, & Open Space Committee, Cottonwood Heights, Utah (2018-2025)
- City of Cottonwood Heights, Planning Commission, Cottonwood Heights, Utah (2009-2012)

Guest Panels:

- Urban Ecology Faculty Panel, Urban Ecology (BIOL 5440), University of Utah, November 12, 2025
- Urban Ecology Faculty Panel, Urban Ecology (BIOL 5440), University of Utah, November 1, 2023

UNIVERSITY SERVICE

- Utah System of Higher Education (USHE) Environmental Science Major Committee Member (2024-present)
- Executive Council Member, PEAK Water, Office of the Vice President of Research, University of Utah, Salt Lake City, UT (2025-present)
- Scholarship Committee Member, College of Social & Behavioral Science, University of Utah, Salt Lake City, UT (2024-present)
- Teaching Awards Committee Member, College of Social & Behavioral Science, University of Utah, Salt Lake City, UT (2024-present)
- SPARC Environmental Justice Lab, Affiliate Faculty Member, University of Utah, Salt Lake City, UT (2022-present)
- Scholarship Review Panelist, Environmental & Sustainability Studies Program, University of Utah (2022, 2023)
- College Council Member, College of Social and Behavioral Science, University of Utah (2019-2020)
- Global Change and Sustainability Center, Affiliate Faculty Member, University of Utah, Salt Lake City, UT (2016-present)
- Ecological Planning and Design Center Steering Committee, Faculty Member, University of Utah (2016-2023)
- innovative Urban Transitions and Arid-region Hydrosustainability Network (iUTAH), Affiliate Faculty Member, University of Utah, Salt Lake City, UT (2015-2018)
- Environmental and Sustainability Studies Program Executive Committee, University of Utah, Faculty Member (2015-2016)
- Biology Graduate Student Association, University of New Mexico, Co-President (2001-2002)

RESEARCH SUPPORT

- Southwest Sustainability Innovation Engine (SWSIE), University of Utah, "Riparia: At the Transition between Habitats & Shifting Human Needs", $13,200 (2025), PI.
- U.S. National Science Foundation (NSF), Engines – Type 2, "Southwest Sustainability Innovation Engine (SWSIE)", $15,000,000 (2023-2028), Senior Personnel (Lead PI: D. Pataki, Global Institute of Sustainability & Innovation, Arizona State University). Award #: NSF-2315479.
- College of Social & Behavioral Science (CSBS) / Vice President of Research (VPR) Office Seed Grant, University of Utah, "Evaluating Climate Crisis Eco-Grief in our Undergraduates: the Search for Pedagogical & Community Practices that Inspire Hope, Action & Meaningful Change", $20,650 (2023-2024), PI.
- Smithsonian Environmental Research Center (SERC), Smithsonian Institute, "Landscape controls on urban watershed biogeochemical function from local to macroscales", $74,235 (2023-2024), Service Contractor ($16,000 worth of overall grant).
- Global Change and Sustainability Center (GCSC) Seed Grant, University of Utah, "Landscape Lab Effects on Pollutant Loads to Red Butte Creek", $15,000 (2022-2023), PI.
- U.S. National Science Foundation (NSF), COVID Supplement: Can green infrastructure maximize ecosystem processes related to nitrogen?", $38,851 (2023), PI. Award #: NSF DEB-2006308
- U.S. National Science Foundation (NSF), Research Experience for Post-baccalaureate Students (REPS) Supplement: "Can green infrastructure maximize ecosystem processes related to nitrogen?", $38,515 (2021-2022), PI. Award #: NSF DEB-2006308
- U.S. National Science Foundation (NSF), Directorate of Environmental Biology, Ecosystems Program, "Can green infrastructure maximize ecosystem processes related to nitrogen?", $199,000 (2020-2024), PI. Award #: NSF DEB-2006308
- Research Instrumentation Fund, University of Utah, "Integrated H1 multi-mode plate reader and MultiFlo FX dispenser for ecological research", $62,603 (2020), PI.
- Rio Mesa Young Scholars Fund, University of Utah, "Landscape legacy influence on riparian plant communities in a changing climate", $2,500 (2018-2019), PI.
- Global Change and Sustainability Center, University of Utah, "Landscape legacy influence on riparian plant communities in a changing climate", $5,000 (2018-2019), PI.
- Teaching Grant – Group, University of Utah, "Enhancing the student research experience in an interdisciplinary lab", University of Utah, $5,400 (2018), Co-PI.
- Teaching Grant – Individual, University of Utah, "Sustainable Streams & Riparian Zones", $3,405 (2018), PI.
- Jordan River Farmington Bay Water Quality Council, "Microbial community response to energy and nutrient availability in the Jordan River, Utah", $69,690 (2016-2017), PI.
- Innovative Urban Transitions and Arid-region Hydrosustainability Network (iUTAH [NSF EPSCoR]), "Tracing nitrogen sources and transformations in the Jordan River, Utah using stable isotopes", $27,307 (2016), Co-PI (Lead PI: Dr. Rose Smith, School of Biological Sciences, University of Utah).
- College of Social and Behavioral Science Interdisciplinary Research Project, "Incentivizing interdisciplinary collaboration for excellence in sustainability research", $10,000 (2016), PI.
- Global Learning Across Disciplines Program, University of Utah, "Global Learning Integration in the Environmental and Sustainability Studies Program", $10,000 (2015-2016), Co-PI (Lead PI: Dr. Jennifer Watt, University of Utah).
- Long-Term Ecological Research (LTER) Network, "Forecasting rates of stream leaf litter decomposition in response to inland climate change", $14,000 (2011-2012), PI.
- U.S. National Science Foundation (NSF) Bioinformatics Postdoctoral Fellowship: "The Metabolic Theory of Ecology and resource saturation kinetics", $120,000 (2006-2009), PI.
- Long-Term Ecological Research (LTER) Network, "The Metabolic Theory of Ecology and Stream Ecosystems", $10,000 (2006), PI.

- Long-Term Ecological Research (LTER) Network, "Effects of Nitrogen-Fixers on Plant Community Diversity and Species Interactions", $6,000 (2006), PI.
- New Mexico Water Resources Research Institute, Student Research Grant Program: "Mycorrhizal colonization in cottonwood and salt cedar stands along the middle Rio Grande: Implications for water quality and water consumption", $3,000 (2005), PI.
- U.S. Environmental Protection Agency (EPA) Minority Academic Institution Graduate Fellowship: "Effects of flooding and nitrogen availability on riparian vegetation in arid ecosystems: Mechanisms driving non-native species invasions", $75,000 (2003-2006), PI.
- Alvin R. and Caroline G. Grove Summer Scholarship, University of New Mexico "Effects of flooding and nitrogen availability on competition between *Populus* and *Tamarix* seedlings", $2,500 (2003), PI.

FUNDED CAPSTONE STUDENT PROJECT SUPPORT

- Eccles Health Sciences Library Clean Air Space, Sustainable Campus Initiative Fund (SCIF), University of Utah, $3,221 (2022); $250 (2023), Faculty Advisor
- Water Purification Devices for Learning Abroad Experiences, Sustainable Campus Initiative Fund (SCIF), University of Utah, $2,000 (2019), Faculty Advisor
- Sustainability Pledge for Graduating Seniors, Sustainable Campus Initiative Fund (SCIF), University of Utah, $2,250 (2019), Faculty Advisor
- Gardner Commons Solar Umbrella Table, Sustainable Campus Initiative Fund (SCIF), University of Utah, $10,000 (2018), Faculty Advisor
- Marriott Library Special Collections Lighting Retrofit, Revolving Loan Fund (RLF), University of Utah, $20,000 (2018), Faculty Advisor

PENDING EXTRAMURAL PROPOSALS

- U.S. National Science Foundation (NSF), DEB, Ecosystem Science: "Collaborative Grant: LATTICE: Linking Aquatic-Terrestrial Trait responses to Integrate Carbon fluxes across Earth's biomes", $527,326, (2026-2029), PI.

UNFUNDED EXTRAMURAL PROPOSALS

- U.S. National Science Foundation (NSF), Organismal Response to Climate Change Research Coordination Network (RCN): "Climate Change & Carbon Cycling at the Aquatic Terrestrial Interface (C4ATI): Responses of Aquatic Organisms & Riparian Plants", $499,986, (2025-2029), PI.
- Burroughs Wellcome Fund – Climate and Human Health Seed Grant, "Mitigating the impacts of climate change on the mental health of young adults at institutions of higher education", $350,000 (2024-2027), PI.
- U.S. National Science Foundation (NSF), Advancing Informal STEM Learning – Type 5, "Citizen Scientists and Scientist Citizens: A Dual Capacity-Building Framework for Reciprocal Informal Science Learning through Community-Based Environmental Justice Research", $1,713,992, Senior Personnel (Lead PI: A. Cachelin, Environmental & Sustainability Studies Program, University of Utah)
- U.S. National Science Foundation (NSF), Growing Convergence Research, "RENEWEST: Regional Environmental Network Enabling Water-Equitable and Sustainable Transitions - Convergent science and practice for a transition to just and sustainable urbanizing regions", $15,000,000 (2021-2026), Senior Personnel (Lead PI: D. Pataki, School of Biological Science, University of Utah)

- U.S. National Science Foundation (NSF), Division of Engineering, Environmental Convergence Opportunities in Chemical, Bioengineering, Environmental, and Transport Systems, "Trade-offs between nutrients and water - optimized management of multiple ecosystem services in arid urban bioretention", $1,698,706 (2021-2024), PI (Initial Lead PI: R. Smith, School of Biological Science, University of Utah)
- U.S. National Science Foundation (NSF), Directorate of Graduate Education, NSF Research Traineeship, "NRT: Navigating Rapid Change in U.S. River Basins", $3,000,000 (2020-2024), Co-PI (Lead PI: B. Bowen, Geology & Geophysics, University of Utah)
- U.S. National Science Foundation (NSF), Division of Engineering, Environmental Convergence Opportunities in Chemical, Bioengineering, Environmental, and Transport Systems, "Understanding the nitrogen cycle and associated greenhouse gas emissions in urban land cover and downstream ecosystems", (2020-2021), Co-PI (Lead PI: R. Goel, Civil Engineering, University of Utah)
- U.S. National Science Foundation (NSF), SBE Office of Multidisciplinary Activities (SMA), Research Experience for Undergraduates Sites, "Rio Mesa REU Site: Legacies Advancing New Directions (LAND)", $361,100 (2019-2021), Co-PI (Lead PI: M. Power, Geography, University of Utah)
- U.S. National Science Foundation (NSF), Division of Biology, Ecosystem Studies, "Linking enzymatic, metabolic, and stoichiometric theories of ecology to quantify aquatic community and ecosystem responses to climate change", $1,197,628 (2013-2016), PI.
- U.S. National Science Foundation (NSF), Division of Biology, Ecosystem Studies, "Metabolic response of stream microbial communities to increased global temperature", $789,285 (2011-2014), PI.

PUBLICATIONS

Journal Articles (Underlined names indicate authors who were mentored students or postdoctoral fellows)

1. M. Lohani, D. Banerjee, A. Brunelle, A. Cachelin, L. Zummo, S. Yeo, and **J.J. Follstad Shah**. Student responses to the climate crisis: Managing distress and exploring support systems. *International Journal of Sustainability in Higher Education.* DOI 10.1108/IJSHE-03-2025-0154

2. Hastings, Y.D., R.M. Smith, K.A. Mann, S. Brewer, R. Goel, S.J. Hinners, and **J.J. Follstad Shah**. Green infrastructure microbial community response to simulated pulse precipitation events in the semi-arid Western United States. 2024. *Water*, 16, 1931. https://doi.org/10.3390/w16131931.

3. Rohal, C.B., B. Duncan, **J. J. Follstad Shah**, K.E. Veblen, and K.M. Kettenring. 2024. Targeted grazing reduces a widespread wetland plant invader with minimal nutrient impacts, yet native recovery is limited. *Journal of Environmental Management*, 362, 121168. https://doi.org/10.1016/j.jenvman.2024.121168.

4. Scott D. Tiegs, Krista A. Capps, John Paul Schmidt, David M. Costello, Christopher J. Patrick, **Jennifer J. Follstad Shah**, Carri J. LeRoy, Mark W. Iske and CELLDEX Collaborators. 2024. Human activities shape global patterns of decomposition rates in rivers. *Science*.10.1126/science.adn1262.

5. Costello, D. M., S.D. Tiegs, L. Boyero, C. Canhoto, K.A. Capps, M. Danger, and **CELLDEX Collaborators.** (2022). Global patterns and controls of nutrient immobilization on decomposing cellulose in riverine ecosystems. *Global Biogeochemical Cycles*, 36, e2021GB007163. https://doi.org/10.1029/2021GB007163.

6. **Follstad Shah, J.J.**, R. Bares, B.B. Bowen, G.J. Bowen, D.R. Bowling, D.P. Eiriksson, B. Fasoli, R.P. Fiorella, A.G. Hallar, S.J. Hinners, J.D. Horel, A.A. Jacques, L.R. Jamison, J.C. Lin, D.L. Mendoza, L.E. Mitchell, D.E. Pataki, S.M. Skiles, R.M. Smith, M.A. Wolf, and P.D. Brooks. 2021. The Wasatch Environmental Observatory: A mountain to urban research network in the semi-arid Western US. *Hydrologic Processes,* 35(9):e14352. https://doi.org/10.1002/hyp.14352.

7. Ardón, M., L.H. Zeglin, R.M. Utz, S.D. Cooper, W.K. Dodds, R.J. Bixby, A. Burdett, **J.J. Follstad Shah**, N.A. Griffiths, T.K. Harms, S.L. Johnson, J. Jones, J.S. Kominoski, W.H. McDowell, A.D. Rosemond, M.T. Trentman, D. Van Horn, A. Ward. 2021. Experimental nitrogen and phosphorus enrichment stimulates multiple trophic levels of algal and detrital-based food webs: A global meta-analysis from streams and rivers. *Biological Reviews*, 96:692-715. http://dx.doi.org/10.1111/brv.12673.

8. LeRoy C.J., A.L. Hipp, K. Lueders, **J.J. Follstad Shah**, J.S. Kominoski, M. Ardón, W. K. Dodds, M.O. Gessner, N.A. Griffiths, A. Lecerf, D.W.P. Manning, R.L. Sinsabaugh, and J. R. Webster. 2019. Plant phylogenetic history explains in-stream decomposition at the global scale. *Journal of Ecology* 108: 17-35. https://doi.org/10.1111/1365-2745.13262

9. **Follstad Shah J**., Y. Jameel, R. Smith, R. Gabor, P. Brooks, and S. Weintraub. 2019. Spatiotemporal variability in water sources controls chemical and physical properties of a semi-arid urban river system. *Journal of the American Water Resources Association,* 55(3): 591-607. https://doi.org/10.1111/1752-1688.12734.

10. Tiegs, S.D. and **CELLDEX Collaborators**. 2019. Global patterns and drivers of ecosystem functioning in rivers and riparian zones. *Science Advances,* 5:eaav0486. 10.1126/sciadv.aav0486

11. **Follstad Shah, J**., M. Ardon, J. Kominoski, W. Dodds, M. Gessner, N. Griffiths, C. Hawkins, A. Lecerf, C. LeRoy, D. Manning, S. Johnson, A. Rosemond, R. Sinsabaugh, C. Swan, J. Webster, and L. Zeglin. 2017. Global synthesis of the temperature sensitivity of leaf litter breakdown in streams and rivers. *Global Change Biology,* 8:3064-3075. https://doi.org/10.1111/gcb.13609.

12. Sinsabaugh, R.L., B.L. Turner, J.M. Talbot, B.G. Waring, J.S. Powers, C.R. Kuske, D.L. Moorhead, and **J.J. Follstad Shah**. 2016. Stoichiometry of microbial carbon use efficiency in soils. *Ecological Monographs,* 86:172-189. https://doi.org/10.1890/15-2110.1

13. Sinsabaugh, R.L., **J.J. Follstad Shah**, S.G. Findlay, K.A. Kuehn, D.L. Moorhead. 2015. Scaling microbial biomass, metabolism and resource supply. *Biogeochemistry*, 122:175-190. https://doi.org/10.1007/s10533-014-0058-z

14. Sinsabaugh, R.L., J. Belnap, S.G. Findlay, **J.J. Follstad Shah**, B.H. Hill, K.A. Kuehn, C.R. Kuske, M.E. Litvak, N.G. Martinez, D.L. Moorhead, D.D. Warnock. 2014. Extracellular enzyme kinetics scale with resource availability. *Biogeochemistry*, 121:287-304. https://doi.org/10.1007/s10533-014-0030-y

15. Kominoski, J.S.*, **J.J. Follstad Shah***, C. Canhoto, D.G. Fischer, D. Giling, E. González, N.A. Griffiths, A. Larrañaga, C.J. LeRoy, M.M. Mineau, Y.R. McElarney, S.M. Shirley, C.M. Swan, S.D. Tiegs. 2013. Forecasting functional implications of global changes in riparian plant communities. *Frontiers in Ecology and the Environment*, 11:423-432. https://doi.org/10.1890/120056
    * Authors contributed equally to the manuscript.

16. Sinsabaugh, R.L., and **J.J. Follstad Shah**. 2012. Ecoenzymatic stoichiometry and ecological theory. *Annual Review of Ecology, Evolution, and Systematics*, 43:313-343. https://doi.org/10.1146/annurev-ecolsys-071112-124414

17. Sinsabaugh, R.L., **J.J. Follstad Shah**, B.H. Hill, and C.M. Elonen. 2012. Ecoenzymatic stoichiometry of stream sediments with comparison to terrestrial soils. *Biogeochemistry*, 111:455-467. https://doi.org/10.1007/s10533-011-9676-x

18. Sinsabaugh, R.L., and **J.J. Follstad Shah**. 2011. Ecoenzymatic stoichiometry of recalcitrant organic matter decomposition: The growth rate hypothesis in reverse. *Biogeochemistry*, 102:31-43. https://doi.org/10.1007/s10533-010-9482-x

19. Sinsabaugh, R.L., D.J. Van Horn, **J.J. Follstad Shah**, and S. Findlay. 2010. Ecoenzymatic stoichiometry in relation to productivity for freshwater biofilm and plankton communities. *Microbial Ecology*, 60:885-893. https://doi.org/10.1007/s00248-010-9696-4

20. Sinsabaugh, R.L., and **J.J. Follstad Shah**. 2010. Integrating resource utilization and temperature in metabolic scaling of riverine bacterial production. *Ecology*, 91:1455-1465. https://doi.org/10.1890/08-2192.1

21. **Follstad Shah, J.J**., M.J. Harner, and T.M. Tibbets. 2010. Elaeagnus angustifolia alters soil inorganic nitrogen pools in riparian ecosystems. *Ecosystems*, 13:46-61. https://doi.org/10.1007/s10021-009-9299-4

22. Sinsabaugh, R.L., B.H. Hill, and **J.J. Follstad Shah**. 2009. Erratum - Ecoenzymatic stoichiometry of microbial nutrient acquisition in soil and sediment. *Nature*, 468:122. 10.1038/nature09548

23. Sinsabaugh, R.L., B.H. Hill, and **J.J. Follstad Shah**. 2009. Ecoenzymatic stoichiometry of microbial nutrient acquisition in soil and sediment. *Nature*, 462:795-798. 10.1038/nature08632

24. Harner, M.J., C.L. Crenshaw, M. Abelho, M. Stursova, **J.J. Follstad Shah**, and R.L. Sinsabaugh. 2009. Decomposition of native and nonnative leaf litter in relation to hydrology of riparian ecosystems. *Ecological Applications*, 19:1135-1146. https://doi.org/10.1890/08-0294.1

25. **Follstad Shah, J.J.** and C.N. Dahm. 2008. Flood regime and leaf fall determine soil inorganic nitrogen dynamics in semiarid riparian forests. *Ecological Applications*, 18:771-788. https://doi.org/10.1890/07-0447.1

26. **Follstad Shah, J.J.**, C.N. Dahm, S.P. Gloss, and E.S. Bernhardt. 2007. River and riparian restoration in the Southwest: Results from the National River Restoration Science Synthesis Project. *Restoration Ecology*, 15(3):550-562. https://doi.org/10.1111/j.1526-100X.2007.00250.x

27. Bernhardt, E.S., E.B. Sudduth, M.A. Palmer, J.D. Allan, J.L. Meyer, G. Alexander, **J. Follstad Shah**, B. Hassett, R. Jenkinson, R. Lave, J. McFall, and L. Pagano. 2007. Restoring rivers one reach at a time: Results from a survey of U.S. river restoration practitioners. *Restoration Ecology*, 15(3): 482-493. https://doi.org/10.1111/j.1526-100X.2007.00244.x

28. Jenkinson, R.G., K.A. Barnas, J.H. Braatne, E.S. Bernhardt, M.A. Palmer, J.D. Allan, and the National River Restoration Science Synthesis Team (G. Alexander, S. Brooks, J. Carr, S. Clayton, C. Dahm, J. Follstad Shah, D. Galat, S. Gloss, P. Goodwin, D. Hart, B. Hassett, G. M. Kondolf, P. S.

Lake, R. Lave, J.L. Meyer, T.K. O'Donnell, L. Pagano, and E. Sudduth). 2006. Stream restoration databases and case studies: a guide to information resources and their utility in advancing the science and practice of restoration. *Restoration Ecology*, 14(2):177-186. https://doi.org/10.1111/j.1526-100X.2006.00119.x

29. Bernhardt, E.S., M.A. Palmer, J.D. Allan, G. Alexander, K. Barnas, S. Brooks, J. Carr, C. Dahm, **J. Follstad Shah**, D. Galat, S. Gloss, P. Goodwin, D. Hart, B. Hassett, R. Jenkinson, S. Katz, G. M. Kondolf, P. S. Lake, R. Lave, J.L. Meyer, T.K. O'Donnell, L. Pagano, B. Powell, and E. Sudduth. 2005. Synthesizing U.S. river restoration efforts. *Science*, 308:636-637. https://doi.org/10.1126/science.1109769

30. Palmer, M.A., E.S. Bernhardt, J.D. Allan, P.S. Lake, G. Alexander, S. Brooks, J. Carr, S. Clayton, C.N. Dahm, **J.J. Follstad Shah**, D.L. Galat, S. Gloss, P. Goodwin, D.D. Hart, B. Hassett, R. Jenkinson, G.M. Kondolf, R. Lave, J.L. Meyer, T.K. O'Donnell, L. Pagano, and E. Sudduth. 2005. Standards for ecologically successful river restoration. *Journal of Applied Ecolo*gy, 42(2):208-217. https://doi.org/10.1111/j.1365-2664.2005.01004.x

Trade Press & Academic Extension Articles

1. **Follstad Shah, J.J**., C.N. Dahm, and S.P. Gloss. 2006. Lessons learned from restoration practitioners in the Southwest. *Southwest Hydrology* 5(3):10-11.

2. **Follstad Shah, J.J**., C.N. Dahm, and S.P. Gloss. 2006. River restoration efforts compared among Four Corners states. *Southwest Hydrology* 5(2):10-11.

3. **Follstad Shah, J.J**., C.N. Dahm, and S.P. Gloss. 2006. The National River Restoration Science Synthesis Project in the Southwest. *Southwest Hydrology* 5(1):10-11.

4. Duncan, B.L., R. Hansen, K. Hambrecht, C. Cranney, **J.J. Follstad Shah**, K.E. Veblen, and K.M. Kettenring. 2019. Cattle grazing for invasive Phragmites australis (common reed) management in Northern Utah wetlands. Utah State University Extension Fact Sheet NR/Wildlands/2019-01pr, Logan, UT. 5 pp.

Databases (Underlined names indicate authors who were mentored students)

1. Hastings, Y.D., Mann, K., and **J.J. Follstad Shah**. 2024. GIRF Pulse Experiment [Dataset], Zenodo. https://doi.org/10.5281/zenodo.11406309

2. D. Costello, J. P. Schmidt, C. Patrick, K. Capps, **J. Follstad Shah**, C. LeRoy, S. D. Tiegs. 2024. Data from: Human activities shape global patterns of decomposition rates in rivers [Dataset], Zenodo https://zenodo.org/doi/10.5281/zenodo.10688947

3. Zeglin, L., M. Ardón, R. Utz, S. Cooper, W. Dodds, R. Bixby, A. Burdett, **J. Follstad Shah**, N. Griffiths, T. Harms, S. Johnson, J. Jones, J. Kominoski, W. McDowell, A. Rosemond, M. Trentman, D. Van Horn, and A. Ward. 2020. Synthesis of stream ecosystem responses to nutrient enrichment at multiple trophic levels ver 1. *Environmental Data Initiative*. https://doi.org/10.6073/pasta/b674589d1a67589adadcb7762d928bba

4. LeRoy C.J., A.L. Hipp, K. Lueders, **J.J. Follstad Shah**, J.S. Kominoski, M. Ardón, W. K. Dodds, M.O. Gessner, N.A. Griffiths, A. Lecerf, D.W.P. Manning, R.L. Sinsabaugh, and J. R. Webster. 2019.

Plant phylogenetic history explains in-stream decomposition at the global scale. *Journal of Ecology* 00: 1– 20. https://doi.org/10.1111/1365-2745.13262. https://github.com/andrew-hipp/decomposition-phylogeny-2019

5. Waterisotopes Database. 2019. Project ID 00117. http://waterisotopes.org (Contributed 2019-03-05, Query: Project_ID = '00117')

6. Tiegs, S.D. and **CELLDEX collaborators**. 2019. Global patterns and drivers of ecosystem functioning in rivers and riparian zones. *Science Advances* 5:eaav0486. https://github.com/dmcostello/CELLDEX2018

7. Palmer, M. and **NRRSS collaborators**. 2006. The National River Restoration Science Synthesis database at NBII. https://knb.ecoinformatics.org/view/doi%3A10.5063%2FAA%2Fbowdish.143.5

8. Palmer, M. and **NRRSS collaborators**. 2006. Browse the NRRSS Database. https://khondula.github.io/nrrss/

Book chapters

1. **Follstad Shah, J.J**. 2021. Individual and interacting effects of elevated CO_2, warming, and hydrologic intensification on leaf litter decomposition in streams. Chapter 12 in *The Ecology of Plant Litter Decomposition in Streams and Rivers*, Swan, C.M., Canhoto, C., and Boyero, L. (eds.), Springer, New York, USA. p. 237-271.

2. Kominoski, J.S., S.K. Chapman, W.K. Dodds, **J.J. Follstad Shah**, and J.S. Richardson. 2021. Causes and consequences of changes in riparian vegetation for plant litter decomposition throughout river networks. Chapter 13 in *The Ecology of Plant Litter Decomposition in Streams and Rivers*, Swan, C.M., Canhoto, C., and Boyero, L. (eds.), Springer, New York, USA. p. 273-296.

Public-facing products highlighting my research

1. Cirrus Ecological Solutions, LC. Jordan River DO TMDL Research Synthesis. Technical report prepared for the Utah Division of Water Quality, October 2020. Published by Cirrus Ecological Solutions, LC, Logan, Utah. Accessed at: https://lf-public.deq.utah.gov/WebLink/ElectronicFile.aspx?docid=14383&eqdocs=DWQ-2020-022668

2. Division of Water Quality. Jordan River Dissolved Oxygen TMDL: Watershed Management Program. https://deq.utah.gov/water-quality/watershed-protection/jordan-river-dissolved-oxygen-tmdl-watershed-management-program

3. Langue, M., C. McMurtry, L. Page, T. Roberts, H. Segura. S. DeSeelhorst & J. Follstad Shah. Riparian Toolkit. Accessed at: Jordan River Commission website and Land Use Academy of Utah website.

4. Eagan, B. & J. Follstad Shah. 2024. Landscape Lab: Utilizing green infrastructure on the banks of Red Butte Creek to revitalize surface water in urban outdoor spaces. ArcGIS Story Map. https://storymaps.arcgis.com/stories/170481aeffc44121939d0065aef96e5d

Elementary School Curriculum

1. Conservation of Water in the Desert - Lesson 1: Flooding and Green Infrastructure (SEEd Alignment 5.1.5). Red Butte Garden Botany Bin Program, Salt Lake City, Utah. https://redbuttegarden.org/teachers-and-students/botany-bins/

PUBLICATIONS IN REVIEW

Journals (Underlined names refer to mentored postdoc authors)

1. M. Lohani, L. Zummo, A. Brunelle, D. Banerjee, A. Cachelin, S. Yeo, and **J.J. Follstad Shah**. Together, we learn and make a difference: Emotional regulation strategies among climate science students. *Current Psychology.*

2. A. Cachelin, D. Banerjee, A. Brunelle, M. Lohani, L. Zummo, S. Yeo, and **J.J. Follstad Shah**. Transforming Climate Anxiety into Engaged Sustainability through High Impact Practices. *International Journal of Sustainability in Higher Education.*

PUBLICATIONS IN PREPARATION

Journals (Underlined names refer to mentored postdoc authors; *Graduate student; ** Undergraduate student)

1. D. Banerjee, S. Yeo, A. Brunelle, A. Cachelin, M. Lohani, J. Watt, L. Zummo, and **J.J. Follstad Shah**. Climate anxiety amongst undergraduates at an R1 university is stronger for majors focused on climate science than students of other majors. In preparation for submission to *Sustainability*.

2. K. Capps, J.P. Schmidt, S. Tiegs, D. Costello, **J. Follstad Shah** & the CELLDEX Consortium. Decomposition rates in riparian zones of the world are slower than in streams and strongly driven by leaf traits and local temperature, humidity and propensity to flooding. In preparation for *Science Advances*.

3. Plont, S., R. Hale, J. Morse, J. Kominoski, A. Roy, **J. Follstad Shah**, and K. Capps. Water chemistry and stoichiometry trends in five U.S. cities. In preparation for submission to *Biogeochemistry*.

4. Plont, S., R. Hale, J. Kominoski, **J. Follstad Shah**, and K. Capps. Broad-scale trends in dissolved oxygen diel oscillations in urban rivers of the U.S. In preparation for submission to *Freshwater Science*.

5. Plont, S., **J. Follstad Shah**, R. Hale, K. Capps. Global patterns of ecoenzyme stoichiometry amongst soils, sediment, biofilm, and plankton microbial communities. In preparation for *Ecology Letters*.

6. Leifer, J.*, S. Plont, A. Blinn*, R. Hale, S. Brewer, D. Wei and **J. Follstad Shah**. Seasonal and water quality effects on planktonic ecoenzyme stoichiometry across three habitats in the Salt Lake Valley, Utah, USA. In preparation for submission to *Environmental Science & Technology*.

7. Leifer, J.*, S. Plont, A. Blinn*, R. Hale, S. Brewer, D. Wei and **J. Follstad Shah**. Spatial patterns of planktonic ecoenzyme stoichiometry in an arid catchment with a strong wildland to urban gradient. In preparation for submission to *Landscape Ecology*.

8. **Follstad Shah, J.J**., S. Weintraub, R. Gabor, and R. Smith. Microbial community response to fluctuating carbon and nutrient supply in an arid-ecosystem urban river. In preparation for submission to *Discover Water*.

9. Rudolph, J.*, S. Chen, J. Morse, A. Roy, J. Kominoski, K. Capps, **J. Follstad Shah** & R. Hale. – Drivers of planktonic ecoenzyme stoichiometry across 5 U.S. cities. In preparation for submission to *Freshwater Science*.

10. **Follstad Shah, J.J**, Y.D. Hastings*, R. Goel, D. Pataki, and R. Smith. Microbial community diversifies while physiological capacity diminishes in newly constructed stormwater bioswales of semi-arid Utah, USA. In preparation for submission to *Ecological Engineering*.

11. Egan, B*. and **J.J. Follstad Shah**. Limited improvement of bioswale construction on the water quality of stormwater effluent and a 2nd order creek in a semi-arid catchment of the western US. In preparation for submission to *Water*.

12. Hale, R., A. Blinn*, **J. Follstad Shah**, K. Hopkins, G. Folk. Conductivity illuminates seasonally shifting flowpaths in urban Salt Lake City, Utah. In preparation for submission to *Freshwater Science*.

13. Buswell*, S., C. Robbins, K. Capps, S. Tiegs, D. Costello, J. Gallafent**, Y. Hastings** & **J. Follstad Shah**. Temperature sensitivity of leaf litter decomposition in lotic ecosystems characterized by different trophic regimes. In preparation for submission to *Global Change Biology*.

PRESENTATIONS

Invited Oral Presentations

(underlined names indicate student co-authors)

Follstad Shah, J., R. Babino, A. Ponette-González, and M. Fry. Exploring existing and novel tools to protect riparian corridors in rapidly growing communities of the Intermountain West, USA. Invited presentation at the Utah Geologic Survey, Wetland Working Group meeting, December 4, 2025, Salt Lake City, UT.

Follstad Shah. Sensitivity of leaf litter breakdown to global changes. Invited seminar, WEST Seminar Series, School of Environment, Society & Sustainability, University of Utah, November 19, 2024.

Follstad Shah, J. and A. Brunelle. Climate grief amongst undergraduate students at the University of Utah. Invited seminar, WEST Seminar Series, School of Environment, Society & Sustainability, University of Utah, September 17, 2024.

Follstad Shah, J. and A. Cachelin. Gendered experiences of climate grief amongst undergraduate students at an R1 university. Invited seminar, Women's Health in the Cross Hairs Symposium, Center of Excellence in Women's Health, University of Utah. May 16, 2024.

Follstad Shah, J. & T. Roberts. Riparian toolkit for guiding streamside conservation. Invited presentation at the Jordan River Watershed Council Meeting, October 5, 2023.

Bennion, G.L., J. Follstad Shah & S. Simonsen. Benefits of a State Riparian Guideline or Recommendation. Invited presentation to the Utah Department of Natural Resources Water Task Force, May 5, 2023.

Follstad Shah, J. 2022. WEO^2: Using the Wasatch Environmental Observatory to engage in water resource research, education & outreach. Invited seminar, GROW Seminar Series, Department of Geography, University of Utah, December 2, 2022.

Follstad Shah, J. & Affiliated WEO Scientists. 2022. WEO^2: Using the Wasatch Environmental Observatory to engage in water resource research, education & outreach. Invited seminar, University of Utah Global Change & Sustainability Center Seminar Series, March 1, 2022.

Follstad Shah, J. & Affiliated WEO Scientists. Stable isotopes and hydrochemistry reveal controls on the supply and quality of water resources along wildland to urban land use gradients within the Wasatch Environmental Observatory. Invited virtual presentation as part of the CUASI Catchment Science Seminar Series, March, 24, 2021.

Follstad Shah J.J. 2019. Sensitivity of leaf litter breakdown to global changes. Invited seminar, University of British Columbia, February 6, 2019.

Follstad Shah J.J. 2015. Temperature sensitivity of ecosystem processes in streams and rivers. Invited seminar, Evergreen State College, May 29, 2015.

Follstad Shah. J.J. 2013. Ecological responses to stream warming, Invited seminar given to the Department of Watershed Sciences, Utah State University, April 23, 2013.

Follstad Shah, J.J., M.J. Harner & T.M. Tibbets. 2005. Conservation of native Rio Grande cottonwoods: The role of seasonal flooding and non-native species invasion. Invited oral presentation to the Ecosystem Dynamics Division, USGS Fort Collins Research Center, March 30, 2005.

Follstad Shah, J.J. and C.N. Dahm. 2004. Soil nitrogen cycling in riparian forests: Driver of non-native plant invasion? Invited poster presentation at the 2004 US Environmental Protection Agency STAR Graduate Fellowship Conference: Next Generation Scientists, Next Opportunities, Washington, D.C. October 11-13, 2004.

Follstad Shah, J.J. 2004. A survey of river and riparian research along the middle Rio Grande. An invited oral presentation given to the Sierra Club Sevilleta National Wildlife Refuge Service Trip participants, Sevilleta National Wildlife Refuge, NM. February 24, 2004.

Follstad Shah, J.J., M. Palmer, J.D. Allan, E. Bernhardt, and NRRSS Working Group. 2004. The National Riverine Restoration Science Synthesis: Bridging the science and practice of restoration in riverine corridors. An invited oral presentation at the Freshwater Sciences Interdisciplinary Doctoral Program Annual Workshop, Sevilleta National Wildlife Refuge, NM. January 28-31, 2004.

Follstad Shah, J.J. and J.A. Cherry. 2003. A tale of two restoration projects: Monitoring vegetative succession in the presence and absence of flooding. Invited oral presentation at the University of Alabama, Department of Biological Sciences, Tuscaloosa, AL. August 29, 2003.

Conference/Symposium Presentations (since 2005)

Leifer, J. & J. Follstad Shah. Microbial resource allocation in waterways of Salt Lake County, Utah. Poster presentation at the Salt Lake County Watershed Symposium, November 19, 2025.

Follstad Shah, J., M. Fry, A. Ponette-González, and R. Babino. Exploring existing and novel tools to protect riparian corridors in rapidly growing communities of the Intermountain West, USA. Society for Freshwater Science Annual Meeting, San Juan, Puerto Rico, May 18-22, 2025.

Banerjee, D., A. Cachelin, A. Brunelle, A. Lohani, A. Nistler, S. Yeo, L. Zummo, and J. Follstad Shah. Climate anxiety amongst students: Implications for urban planning education. Association of Collegiate Schools of Planning Conference, Nov. 7-9, 2024.

Follstad Shah, J., Y. Hastings, R. Smith, and R. Goel. Microbial community diversifies while physiological capacity diminishes in newly constructed stormwater bioswales of semi-arid Utah, USA. Society for Freshwater Science Annual Meeting, Philadelphia, PA, June 2-6, 2024.

Hale, R., A. Blinn, J. Follstad Shah, K. Hopkins, and G. Folk. Conductivity illuminates seasonally shifting flowpaths in urban Salt Lake City, Utah. Society for Freshwater Science Annual Meeting, Philadelphia, PA, June 2-6, 2024.

Shuo, C., K. Capps, R. Hale, J. Follstad Shah, K. Hopkins, L. Ortiz, and J. Rudolph. Urbanization alters dissolved organic matter and microbial nutrient acquisition in subtropical urban streams (Georgia, USA). Society for Freshwater Science Annual Meeting, Philadelphia, PA, June 2-6, 2024.

Brauser, Z., J. Follstad Shah, R. Hale, K. Hopkins, J. Morse, and J. Rudolph. Longitudinal differences in nutrient acquisition and enzymatic activity in an urban stream in Portland, Oregon. Society for Freshwater Science Annual Meeting, Philadelphia, PA, June 2-6, 2024.

Nistler, A. and J. Follstad Shah. Climate Optimism in Environmental & Sustainability Studies students at the University of Utah. College of Social & Behavorial Science Student Research Symposium, University of Utah, April 24, 2024.

Nistler, A. and J. Follstad Shah. Climate Optimism in Environmental & Sustainability Studies students at the University of Utah. Undergraduate Research Symposium, University of Utah, April 9, 2024.

Tiegs, S.D., K. Capps, D. Costello, J.P. Schmidt, C. Patrick, J. Follstad Shah, C LeRoy, and the CELLDEX Consortium. Global predictions of organic-matter decomposition rates in streams. Ecological Society of America Great Lakes Regional Conference, April 5-7, 2024.

Bennion, G.L., J. Anderson, M. Guymon & M. West. Making the case for coordinated conservation of riparian corridors. Panel presentation at the Salt Lake County Watershed Symposium, November 16, 2023. (J. Follstad Shah coordinated this panel as part 2 of a special session).

Osborne, C. The community benefits of healthy riparian areas. Oral presentation at the Salt Lake County Watershed Symposium, November15, 2023. (J. Follstad Shah coordinated this presentation as part 1 of a special session)

Egan, B. & J. Follstad Shah. Addressing water quality in Red Butte Creek through green infrastructure. Poster presentation at the Global Change & Sustainability Center Annual Symposium, March 16, 2023.

Berryhill, J. & J. Follstad Shah. *Populus fremontii* population plasticity confers similar growth and rates of decomposition amongst individuals shifted to a cooler climate. Poster presentation at the Utah Conference on Undergraduate Research, February 17, 2023.

Roalstad, M. & J. Follstad Shah. Sediment ecoenzyme activity (EEA) rates in urban rivers: A comparison of data from the US EPA National River and Stream Assessment and the Jordan River, Utah. Poster presentation at the College of Social and Behavioral Science Research Day, April 26, 2022.

Y.D. Hastings, K.A. Mann, R. Smith, and J. Follstad Shah. Green infrastructure microbial community response to simulated storm events in semi-arid environments. Poster presentation at the Salt Lake County Annual Watershed Symposium, Salt Lake City, UT, November 17, 2022.

Y.D. Hastings, K.A. Mann, R. Smith, and J. Follstad Shah. Green infrastructure microbial community response to simulated storm events in semi-arid environments. Poster presentation at the Joint Aquatic Sciences Annual Meeting, Grand Rapids, MI, May 18, 2022.

K.A. Mann, Y.D. Hastings, R. Smith, and J. Follstad Shah. Diverse vegetation and simulated storm events stimulate short-term N retention in semi-arid bioswales. Poster presentation at the Joint Aquatic Sciences Annual Meeting, Grand Rapids, MI, May 18, 2022.

Follstad Shah, J., Y.D. Hastings, K.A. Mann, D. Pataki, R. Goel, and R. Smith. Plant selection, climate & site age drive biophysical patterns in experimental green infrastructure facilities. Joint Aquatic Sciences Annual Meeting, Grand Rapids, MI, May 16, 2022.

Y.D. Hastings, K.A. Mann, R. Smith, and J. Follstad Shah. Green infrastructure microbial community response to simulated storm events in semi-arid environments. Poster presentation at the Intermountain Sustainability Summit at Weber State University, Ogden, UT, March 23, 2022. Winner of best graduate student poster presentation.

Follstad Shah, J., M. Ardón, J. Kominoski, A. Lecerf, and M. Gessner, 2021. Temperature invariance of leaf litter breakdown amongst taxonomic groups and streams varying in trophic status. Society of Freshwater Science Annual Meeting, Virtual Conference, May 25, 2021.

Brooks, P.D., J. Ehleringer, B. Bowen, D.R. Bowling, J. Follstad Shah, S. Hinners, J. Lin, D. Pataki, S.M. Skiles, J. Steenberg D.K. Solomon, C. Strong, S. Burian, and D. Eiricksson. 2019. PA13B-1004 Red Butte Creek and the Wasatch Environmental Observatory: A Mountain to Urban Research Facility in the Semi-arid Western US. Poster presentation at the American Geophysical Union Annual Meeting, San Francisco, CA, December 9, 2019.

Follstad Shah, J. 2019. Biophysical patterns of streams & riparia along wildland to urban gradients: Partnerships, community science, & student projects. Poster presentation at the Salt Lake County Watershed Symposium, Salt Lake City, UT, November 13, 2019.

Boogaard, S., J. Follstad Shah, Z. Lundeen, and K. Grady. 2019. Population-level genetics influences Populus fremontii success more than antecedent climate regime at Rio Mesa research garden. Poster presentation at the Science and Management of the Colorado Plateau 15th Biennial Conference, September 11, 2019.

Follstad Shah, J., Z. Lundeen, K. Grady, T. Roberts, B. Milot, and S. Boogaard. 2019. Influence of landscape legacies on riparian plant communities in a changing climate. Science and Management of the Colorado Plateau 15th Biennial Conference, September 10, 2019.

Follstad Shah, J., S. Weintraub, R. Smith, R. Gabor, and Y. Jameel. 2019. Microbial community response to shifting water quantity and quality in an arid urban river ecosystem. Special Session: Novel stressors and novel ecosystems: Ecological processes in freshwaters of the built environment, Society for Freshwater Science Annual Meeting, May 21, 2019.

Follstad Shah, J., Y. Jameel, R. Smith, R. Gabor, and S. Weintraub. 2018. Linking water quantity to water quality in the Jordan River, Utah. Salt Lake County Watershed Symposium, Salt Lake City, UT, November 14-15, 2018.

Jameel, Y., Follstad Shah, J., R. Gabor, R. Smith, and S. Weintraub. 2018. Spatiotemporal variability in hydrologic connectivity controls the physicochemical properties of a semi-arid urban river system. American Geophysical Union Fall Meeting, San Francisco, CA, December 12, 2018.

Follstad Shah, J., R. Gabor, Y. Jameel, R. Smith, and S. Weintraub. 2017. Evidence of groundwater connectivity in the Jordan River despite flow regulation and groundwater inputs. Salt Lake County Watershed Symposium, Salt Lake City, UT, November 15-16, 2017.

Smith, R., J. Follstad Shah, R. Gabor, Y. Jameel, M. Navidomskis. 2017. Nutrient cycling in the Jordan River: seasonal and spatial variation. Salt Lake County Watershed Symposium, Salt Lake City, UT, November 15-16, 2017.

Follstad Shah, J., S. Weintraub, R. Gabor, R. Smith, Y. Jameel, M. Navidomskis. 2017. Microbial community response to energy and nutrient flows within a semi-arid, effluent dominated urban river system. American Water Resources Association Conference, Salt Lake City, UT, May 1-3, 2017.

Gabor, R.S., M. Barnes, G.J. Bowen, W. Brazelton, P.D. Brooks, D. Eiriksson, A. Gelderloos, S.J. Hall, Y. Jameel, M. Millington, M. Navidomskis, B.T. Neilson, J. Follstad Shah, R. Smith, T. Stout, H. Tennant, C. Thornton, S. Weintraub. 2017. Microbes, nutrients and organic matter in urban-impacted rivers. American Chemistry Society 253rd National Meeting, San Francisco, CA, April 2-6, 2017.

Navidomskis, M., J. Follstad Shah, R. Smith, and R. Gabor. 2016. Sources and cycling of nitrogen in the Jordan River. Salt Lake County Watershed Symposium, Salt Lake City, UT, November 15-16, 2016.

Follstad Shah, J.J., R. Gabor, R. Smith, Y. Jameel, M. Navidomskis, and S. Weintraub. 2016. Do microbes of the Jordan River yo-yo diet? Oral presentation at the Salt Lake County Watershed Symposium, Salt Lake City, UT, November 15-16, 2016.

Follstad Shah, J.J., C.L. Crenshaw, M.J. Harner, T.M. Tibbets, D. McDonnell, and L.H. Zeglin. 2016. Cliff Dahm's leadership influence on the Freshwater Sciences Interdisciplinary Doctoral Program. Oral presentation at the Society for Freshwater Science Annual Meeting, Sacramento, CA, May 21-26, 2016.

R.L. Sinsabaugh, J.J. Follstad Shah, S.G. Findlay, K.A. Kuehn, D.L. Moorhead. 2015. Macroscale analysis of microbial community homeostasis. Oral presentation at the Ecological Society of America Annual Meeting, Baltimore, MD, May 9-14, 2015.

Follstad Shah, J., M. Ardon, J. Kominoski, W. Dodds, M. Gessner, N. Griffiths, A. Lecerf, C. LeRoy, D. Manning, S. Johnson, A. Rosemond, R. Sinsabaugh, C. Swan, J. Webster, and L. Zeglin. 2015. Global synthesis of the temperature sensitivity of leaf litter breakdown in streams and rivers. Oral

presentation at the Society for Freshwater Science Annual Meeting, Milwaukee, WI, May 17-21, 2015.

Follstad Shah, J. 2012. Quantitative synthesis of leaf decomposition in streams. Poster presentation at the Long Term Ecological Network All Scientists Meeting, Estes Park, CO, August 2012.

Follstad Shah, J., M. Ardon, J. Kominoski, W. Dodds, M. Gessner, N. Griffiths, A. Lecerf, C. LeRoy, D. Manning, S. Johnson, A. Rosemond, C. Swan, J. Webster, and L. Zeglin. 2012. MASS LOSS: A quantitative synthesis of leaf decomposition in streams and rivers. Oral presentation at the Society for Freshwater Science Annual Meeting, Louisville, KY, May 20-24, 2012.

R.L. Sinsabaugh and J.J. Follstad Shah. 2012. Ecoenzymatic stoichiometry of soils, sediments and plankton. Oral presentation at the 2nd International Enzymes in the Environment RCN Workshop, Fort Collins, Colorado, May 15-18, 2012

Follstad Shah, J.J., E.S. Bernhardt, B. Roberts, P. Mulholland, and R.L. Sinsabaugh. 2011. Forcasting effects of increased temperature on whole-stream metabolism. Oral presentation at the North American Benthological Society Annual Meeting, Providence, RI, May 22-26, 2011.

Follstad Shah, J.J., M.H. Harner, and T.M. Tibbets. 2010. Conversion of foundation species in semiarid to arid riparian ecosystems and effects on N cycling and retention. Special session oral presentation at the North American Benthological Society Annual Meeting, Santa Fe, NM, June 6-11, 2010.

Kominoski, J.S. and Follstad Shah, J.J. 2010. Foundation species and terrestrial-aquatic linkages: Effects of shifting plant composition at the aquatic-riparian interface. Special session oral presentation at the North American Benthological Society Annual Meeting, Santa Fe, NM, June 6-11, 2010.

Sinsabaugh, R.L. and Follstad Shah, J.J. 2010. Microbial ecoenzymatic activity in relation to stoichiometric and metabolic theory. Special session oral presentation at the North American Benthological Society Annual Meeting, Santa Fe, NM, June 6-11, 2010.

Follstad Shah, J.J., M.J. Harner, T.M. Tibbets, and R.L. Sinsabaugh. 2009. Flood regime versus plant species effects on soil N cycling along the Rio Grande, New Mexico (USA). Oral presentation at the Ecological Society of America Annual Meeting, Albuquerque, NM, August 2-7, 2009.

Sinsabaugh, R. and J. Follstad Shah (presenting author). 2009. Integrating resource utilization and temperature in metabolic scaling of riverine bacterial production. Oral presentation at the North American Benthological Society Annual Meeting, Grand Rapids, MI, May 16-23, 2009.

Follstad Shah, J., E. Bernhardt, R. Hall, A. Huryn, P. Mulholland, B. Roberts, R. Sinsabaugh, and H. Valett. 2008. Challenges and opportunities presented by stream ecosystems for testing and refining metabolic theory. Oral presentation at the North American Benthological Society Annual Meeting, Salt Lake City, UT, May 25-30, 2008.

Follstad Shah, J.J., C.N. Dahm, and R.L. Sinsabaugh. 2007. Native Populus deltoides ssp. wislizeni and non-native Tamarix chinensis are functionally similar regarding soil nitrogen resource acquisition and allocation. Poster presentation at the Ecological Society of America Annual Meeting, San Jose, CA, August 5-10, 2007.

Follstad Shah, J.J., E.S. Bernhardt, A. Huryn, M.H. Valett. 2007 The metabolic theory of ecology: Insights from stream ecosystems. Oral presentation at the North American Benthological Society Annual Meeting, Columbia, SC, June 3-8, 2007.

Tibbets, T.M., M.J. Harner, and J.J. Follstad Shah. 2007. Potential alteration of riparian ecosystem function by Elaeagnus angustifolia, a non-native nitrogen fixer. Poster presentation at the 2007 American Society of Limnology and Oceanography Annual Aquatic Sciences Meeting, Santa Fe, NM, February 4-9, 2007.

Follstad Shah, J.J. and C.N. Dahm. 2006. Soil nitrogen dynamics in stands of Populus deltoides ssp. wislizeni and Tamarix chinensis with differing flood regimes. Oral presentation at the Tamarix Conference, Ft. Collins, CO, October 3-4, 2006.

Follstad Shah, J. J., C.N. Dahm, S. Gloss, and E.S. Bernhardt. 2006. River and riparian restoration in the Southwest: Results of the National River Restoration Science Synthesis Project. Oral presentation at the North American Benthological Society Annual Meeting, Anchorage, AK, June 4-9, 2006.

Follstad Shah J.J., T.M. Tibbets, M.J. Harner, C.L. Crenshaw, R.L. Sinsabaugh, and C.N. Dahm. 2005. The effects on soil N cycling by invasive species in semi-arid riparian ecosystems. Oral presentation at the 2005 Soil Ecology Society Meeting, Chicago, IL, May 22-25, 2005.

Follstad Shah, J.J. and C.N. Dahm. 2005. Nitrogen availability in riparian forests. Oral presentation at the Northern Arizona University 3rd Annual Cottonwood Symposium, Flagstaff, AZ, March 14-16, 2005.

Follstad Shah, J.J. and C.N. Dahm. 2005. Soil nitrogen cycling in riparian forests: Driver of non-native plant invasion? Oral presentation at the 2005 American Society of Limnology and Oceanography Annual Aquatic Sciences Meeting, Salt Lake City, UT, February 20-25, 2005.