

## Curriculum Vitae

### John Trusal Kemper, PhD

Department of Watershed Sciences

Utah State University

Logan, UT

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#### Education

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<b>Ph.D. Geosciences</b> , Colorado State University ( <i>Fort Collins, CO</i> )	2022
<b>M.S. Environmental Engineering</b> , University of Maryland Baltimore County ( <i>Baltimore, MD</i> )	2017
<b>B.S. Geology with High Honors</b> , University of Maryland ( <i>College Park, MD</i> )	2013

#### Appointments

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2024 – present	<b>Postdoctoral Scholar</b> , Dept. of Watershed Sciences, Utah State University
2023 – 2024	<b>Postdoctoral Scholar</b> , Dept. of Geography and Geosciences & Center for Research to Operations in Hydrology (CIROH), University of Vermont
2022 – 2023	<b>Adjunct Professor</b> , Colorado Mountain College
2020 – 2022	<b>Graduate Teaching Assistant</b> , Dept. of Geosciences, Colorado State University
2018 – 2022	<b>Graduate Research Assistant</b> , Dept. of Geosciences, Colorado State University
2013 – 2018	<b>Staff Research Assistant</b> , Center for Urban Environmental Research and Education (CUERE), University of Maryland Baltimore County (UMBC)

#### Peer-Reviewed Publications

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13. **Kemper, J.T.**, Underwood, K.L., Hamshaw, S.D., Davis, W.D., Siemion, J., Shanley, J.B., Schroth, A.W. (*in press*) Leveraging high-frequency sensor data and U.S. National Water Model output to forecast turbidity in a drinking water supply basin. *Journal of the American Water Resources Association*
12. Thaxton, R.L. Scott, M.L., **Kemper, J.T.**, Rathburn, S.L., Butzke, S., Friedman, J.M. (2024). Downstream decreases in water availability, tree height, canopy volume and growth rate in cottonwood forests along the Green River, southwestern USA. *Ecohydrology* 17(7): e2693. doi.org/10.1002/eco.269
11. Wohl, E., Uno, H., Dunn, S.B., **Kemper, J.T.**, Marshall, A., Means-Brous, M., Scamardo, J.E., Triantafyllou, S.P. (2024). Why wood should move in rivers. *River Research and Applications* 40(6): 976-987. doi.org/10.1002/rra.4114
10. **Kemper, J.T.**, Wohl, E. Schulz, E., Raffae, M., Bailey, R., Morrison, R.R., Knox, R. (2024). Estimating Catchment-Scale Sediment Storage in a Large River Basin, Colorado River, USA. *River Research and Applications*. doi.org/10.1002/rra.4300
9. **Kemper, J.T.**, Scamardo, J. (2023). Snow avalanches as a driver of large wood dynamics in mountain streams. *Geophysical Research Letters* 50 (24), e2023GL106355. doi.org/10.1029/2023GL106355.
8. Rathburn, S., Eysteinnsson, Þ., Sæmundsson, Þ., **Kemper, J.T.**, Wieting, C.D., Friedman, J.M. (2023). Putting down roots: Afforestation and bank cohesion of Icelandic Rivers. *River Research and Applications*. doi.org/10.1002/rra.4172
7. **Kemper, J.T.**, Rathburn, S.L., Mueller, E.R., Wohl, E. Scamardo, J. (2023). Geomorphic response of low-gradient, meandering and braided alluvial river channels to increased sediment supply. *Earth-Science Reviews* 241: 104429. doi.org/10.1016/j.earscirev.2023.104429
6. Welty, C., Moore, J., Bain, D.J., Talebpour, M., **Kemper, J.T.**, Duncan, J.M., Groffman, P.M. (2023). Spatial heterogeneity and temporal stability of baseflow water quality in an

urban watershed. *Water Resources Research*. E2021WR031804  
doi.org/10.1029/2021WR031804

5. **Kemper, J.T.**, Rathburn, S.L., Friedman, J.M., Nelson, J.M., Mueller, E.R., Vincent, K.R. (2022). Fingerprinting historical tributary contributions to floodplain sediment using bulk geochemistry. *CATENA* 214(3-4): 106231. doi.org/10.1016/j.catena.2022.106231
4. **Kemper, J.T.**, Thaxton, R.D., Rathburn, S.L., Friedman, J.M., Mueller, E.R., Scott, M.L. (2022). Sediment-ecological connectivity in a large river network. *Earth Surface Processes and Landforms* 47(2): 639-657. doi.org/10.1002/esp.5277
3. Gellis, A.C., Fuller, C.C., Van Metre, P. Mahler, B., Welty, C., Miller, A.J., Nibert, L., Clifton, Z., Malen, J., **Kemper, J.T.** (2020). Pavement alters delivery of sediment and fallout radionuclides to urban streams. *Journal of Hydrology* 588: 124855. doi.org/10.1016/j.jhydrol.2020.124855
2. **Kemper, J.T.**, Miller, A.J., Welty, C. (2019). Spatial and temporal patterns of suspended sediment transport in nested urban watersheds. *Geomorphology* 336: 95-106. doi.org/10.1016/j.geomorph.2019.03.018
1. Duncan, J.M., Welty, C., **Kemper, J.T.**, Groffman, P.M., Band, L.E. (2017). Dynamics of nitrate concentration-discharge patterns in an urban watershed. *Water Resources Research* 53(8): 7349-7365. doi: 10.1002/2017WR020500

### ***Manuscripts In Review***

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1. **Kemper, J.T.**, Underwood, K.L., Shanley, J.B., Hamshaw, S.D., Isles, P.D.F., Schroth, A.W. Utilizing long-term monitoring datasets and the National Water Model to understand drivers of water quality and forecast future concentration. *submitted to Water Resources Research*

### ***Non-Refereed Publications***

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4. **Kemper, J.T.**, Lennberg, K. (2023). Yampa River Scorecard Project: Middle Yampa Segment Results and Scoring. Final Report to Friends of the Yampa. Alba Watershed Consulting, Boulder, CO. 99 pp. <https://yampascorecard.org/scorecard>
3. Jones, D.S., Cook, R., Sovell, J., Ley, M., Hanwerk, J., Shepler, H., **Kemper, J.T.**, Weinzimmer, D., Linares, C., Maynard, B. (2021). Natural Resource Condition Assessment – Dinosaur National Monument. Natural Resource Report NPS/DINO/NRR – 2021/2245. National Park Service, Fort Collins, CO., doi.org/10.36967/nrr-2285165
2. Scott, M.L., **Kemper, J.T.**, Thaxton, R.D., Rathburn, S.L. (2021). Long-term cottonwood forest development and sediment flux along the Yampa and Green Rivers, Dinosaur National Monument and Canyonlands National Park. National Park Service Final Report. National Park Service, Fort Collins, CO.
1. Eppheimer, D., Fard, E., **Kemper, J.T.**, Sierks, M., Morrisett, C., Sturtevant, J., Willis, A., Jennings, L. (2021). Climate adaptation planning to support ecosystems and people in the Gila River Watershed, Arizona. Final Report to the Southwest Climate Adaptation Science Center (SWCASC). Tucson, AZ.

### ***Honors and Fellowships***

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2021	<b>American Geophysical Union Hydrology Section</b> Remote Sensing Technical Committee Outstanding Student Presentation Award (OSPA) 2021
2021-22	<b>Colorado State University</b> Ware Geosciences Fellowship
2020-21	<b>Colorado State University</b> Evelyn I. Clark Graduate Scholarship
2019-20	<b>Southwest Climate Adaptation Science Center</b> Natural Resources Workforce Development Fellowship
2019-20	<b>Colorado State University</b> Thomas A. Jones Graduate Fellowship
2018-19	<b>Colorado State University</b> Edward Warner Graduate Research Assistantship
2013	<b>University of Maryland</b> Department of Geology High Honors

## ***Research Grants and Awards***

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2024	<b>Cooperative Institute for Research to Operations in Hydrology (PI)</b> <i>Coupling spatially distributed nutrient monitoring and National Water Model output to forecast nutrient loading and inform implementation of EPA mandated nutrient reduction targets</i> (\$79,471)
2021	<b>Colorado Riparian Association</b> Student Scholarship (\$500) <b>American Association of Geographers Geomorphology Specialty Group</b> M. Gordon "Reds" Wolman Graduate Student Research Award (\$600) <b>Colorado State University Graduate Student Council</b> Professional Development and Supply Award (\$350)
2020	<b>Geological Society of America</b> Robert K. Fahnestock Memorial Award (\$2500)
2019	<b>Geological Society of America Quaternary Geology &amp; Geomorphology Division</b> Stanley A. Schumm Award (\$2,000) <b>Geological Society of America</b> Graduate Student Research Grant (\$1,875) <b>Colorado Section of the American Water Resources Association</b> Richard A. Herbert Memorial Scholarship (\$1,500) <b>Colorado Water Center</b> Student Water Research Grant (\$5,000)

## ***Invited Presentations***

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2024	<b>University of Delaware</b> Department of Earth Sciences <b>University of Idaho</b> Department of Earth and Spatial Sciences Weekly Seminar
2023	<b>Geological Society of America Annual Meeting</b> T104. Sources, Sinks, Transport, and Storage of Sediment in Fluvial Systems. <b>University of Vermont</b> Center for Research to Operations in Hydrology (CIROH) Early Career Seminar Series
2022	<b>University of Northern Colorado</b> Department of Earth and Atmospheric Sciences Weekly Seminar <b>California State University Monterey Bay</b> Department of Applied Environmental Science
2021	<b>US Geological Survey Fort Collins</b> FORT Science Center Seminar Series <b>University of Arizona</b> Laboratory of Tree-Ring Research Tree-Ring Talks
2018	<b>University of Maryland Baltimore County</b> CUERE Weekly Seminar Series

## ***Teaching Experience***

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### **University of Vermont**

Guest Lecturer, <i>Geomorphology (GEOL3410)</i>	Fall 2023
Guest Lecturer, <i>Data Analytics for Water Resources (CEE 6990)</i>	

### **Colorado Mountain College**

Lead Instructor, <i>Ecological Health of the Yampa River (SUS375)</i>	Summer 2022
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### **Colorado State University**

Teaching Assistant, <i>Geomorphology Lab Section (GEOL454)</i>	Spring 2022
Guest Lecturer, <i>Exploring Geosciences (GEOL192)</i>	
Teaching Assistant, <i>Historical Geology Lab Section (GEOL154)</i>	Spring 2021
Guest Lecturer, <i>Geomorphology (GEOL454)</i>	
Teaching Assistant, <i>Introduction to Geology Lab Section (GEOL121)</i>	Fall 2020,21

## ***Professional Service***

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### **Reviewer**

*Earth Surface Processes and Landforms, Water Resources Research, Journal of Geophysical Research: Earth Surface, Science of the Total Environment, Journal of Soils*

*and Sediments, Land Degradation and Development, Journal of Ecohydraulics, Remote Sensing, Geomorphology*

### **Committees and Boards**

2020-21 Geological Society of America Quaternary Geology and Geomorphology Division,  
*Student Representative Board Member*

### **Conference Sessions Organized**

- 2023 Geological Society of America Annual Meeting, *D1. Advances in Geomorphology and Quaternary Geology* (Co-convener and chair)  
2022 Geological Society of America Annual Meeting, *T8. Non-Perennial Streams and the Fluvial System* (Co-convener and chair)

### **University Service**

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#### **Colorado State University**

- 2021 – 2022 Dept. of Geosciences, *Weekly Seminar Co-Coordinator*  
Dept. of Geosciences, *Graduate Student Rep. to Faculty*  
Dept. of Geosciences Graduate Student Organization, *Member*  
University Technology Fee Advisory Board, *Warner College of Natural Resources Rep.*  
2021 Graduate School Appeals Committee, *Graduate Student Rep.*  
2020 – 2022 Dept. of Geosciences DEI Committee, *Member*  
Unlearning Racism in the Geosciences (URGE), *Pod Member*  
2019 – 2020 Dept. of Geosciences, *Student Mentor*

#### **University of Maryland Baltimore County**

- 2017 Dept. of Chemical, Biochemical, and Environmental Engineering  
Promotion and Tenure Committee, *Graduate Student Rep.*

### **Selected Scientific Presentations (contributed)**

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- Kemper, J.T.**, Underwood, K.L., Hamshaw, S.D., Shanley, J.L., Isles, P.D.F., Schroth, A.W. Utilizing Gradient-Boosted Decision Trees to Gain Process Insights and Forecast Riverine Water Quality. Geophysical Union (AGU) Fall Meeting 2024 (Washington, DC), December 9-13, 2024.
- Kemper, J.T.**, Scamardo, J. Snow Avalanches as Drivers of Wood Supply and Geomorphic Adjustment in High Mountain Streams. American Geophysical Union (AGU) Fall Meeting 2023 (San Francisco, CA), December 11-15, 2023.
- Kemper, J.T.**, Underwood, K., Hamshaw, S.D., Shanley, J.B., Schroth, A.W. Leveraging High Resolution Sensor Data and Large-Scale Physical Models to Monitor and Forecast Critical Water Quality Parameters in Sensitive Watersheds. American Geophysical Union (AGU) Fall Meeting 2023 (San Francisco, CA), December 11-15, 2023. (*Poster*)
- Kemper, J.T.**, Scamardo, J.E. The impact of snow avalanches on wood delivery and geomorphic change in montane streams. Geological Society of America (GSA) Annual Meeting 2022 (Denver, CO), October 9-12, 2022
- Kemper, J.T.**, Thaxton, R.D., Rathburn, S.L., Friedman, J.M., Mueller, E.R., Scott, M.L.. Sediment-ecological connectivity in a large river network. American Geophysical Union (AGU) Fall Meeting 2021 (New Orleans, LA), December 13-17, 2021
- Kemper, J.T.**, Rathburn, S.L., Friedman, J.M., Nelson, J.M., Mueller, E.R. Tributary contributions to floodplain sediments: sediment fingerprinting in the Yampa River Basin. AGU Fall Meeting 2021 (New Orleans, LA), December 13-17, 2021 (*Poster*)
- Kemper, J.T.**, Thaxton, R.D., Rathburn, S.L., Friedman, J.M., Mueller, E.R., Scott, M.L. Sediment-ecological connectivity: exploring the links between tributary erosion and floodplain

forest establishment in a large river basin. International Association of Geomorphologists: Connectivity Conversations II (online), November 26, 2020.

**Kemper, J.T.**, Thaxton, R.D. Rathburn, S.L., Friedman, J.M., Mueller, E.R., Scott, M.L. Connecting the dots: building a sediment-ecological connectivity framework to link tributary erosion to downstream floodplain forest establishment in a large river network. AGU Fall Meeting, (online), December 1-17, 2020.

**Kemper, J.T.**, Thaxton, R.D. Rathburn, S.L., Friedman, J.M., Mueller, E.R., Scott, M.L. Sediment-ecological connectivity: exploring the links between tributary erosion and floodplain forest establishment in a large river basin. GSA Annual Meeting 2020 (online), October 26-30, 2020. (*Poster*)

**Kemper, J.T.**, Rathburn, S.L., Friedman, J.M. Examining the links between upstream erosion and downstream floodplain forest establishment in the Yampa River Basin. Binghamton Geomorphology Symposium (Denver, CO) October 11-13, 2019. (*Poster*)

**Kemper, J.T.**, Rathburn, S.L., Friedman, J.M. Floodplain forest establishment and legacy sediment in the Yampa River Basin, Colorado. GSA Annual Meeting (Phoenix, AZ), September 22-25, 2019.

**Kemper, J.T.**, Miller, A.J., Welty, C. Variations of suspended sediment yields in nested urban catchments. AGU Fall Meeting (Washington, DC), December 10-14, 2018. (*Poster*)

**Kemper, J.T.**, Miller, A.J., Welty, C. Spatial and temporal patterns of suspended sediment yields in nested urban catchments. AGU Fall Meeting (New Orleans, LA), December 11-15, 2017. (*Poster*)

**Kemper, J.T.**, Miller, A.J., Welty, C. Spatial and temporal patterns of turbidity, sediment concentration and load across nested scales in an urban watershed. AGU Fall Meeting (San Francisco, CA), December 12-16, 2016. (*Poster*)

**Kemper, J.T.**, Welty, C., Rogers, N., Blaney, L. Groffman, P.M. Use of water isotope analysis as a screening tool in contributing to understanding groundwater-surface water interactions in urban watersheds. Baltimore Ecosystem Study (BES) Annual Meeting (Baltimore, MD), October 20-21, 2015. (*Poster*)

**Kemper, J.T.**, Miller, A.J., Welty, C. Impacts of stream restoration on reduction of sediment loads in an urban watershed. BES Annual Meeting (Baltimore, MD), October 22-23, 2014. (*Poster*)

**Kemper, J.T.**, Prestegard, K.L. The effect of sand content on sediment deposition, transport, and bar morphology. GSA Annual Meeting (Denver, CO), April 27-30, 2013. (*Poster*)

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### **Professional Associations**

American Association of Geographers (AAG), *member*

American Geophysical Union (AGU), *member*

Geological Society of America (GSA), *member*

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### **Relevant Certifications**

Wilderness First Responder (NOLS Wilderness Medicine), exp. July 28, 2025