

## **Sara L. Rathburn**

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### **EDUCATION**

*Ph.D.*, Colorado State University, Earth Resources; 2001, Dissertation: *Modeling Pool Sediment Dynamics in a Mountain River*

*M.S.*, University of Arizona; Geosciences; 1989, Thesis: *Pleistocene Glacial Outburst Flooding along the Big Lost River, East-Central Idaho*

*B.S.*, Colorado State University; Earth Resources, High Distinction; 1985

### **PROFESSIONAL EXPERIENCE**

*Professor*, Colorado State University, Fort Collins, CO, Department of Geosciences, 2020 - present

*Associate Professor*, Colorado State University, Fort Collins, CO, Department of Geosciences, 2008-2020

*Assistant Professor, Special Appointment*, Colorado State University, Fort Collins, CO, Department of Geosciences, 2001-2008

*Adjunct Instructor*, Miami University, Oxford, OH, Department of Geology, 1993-1996

### **HONORS AND AWARDS**

- Fulbright-NSF Arctic Research Scholar, University of Iceland 2020-2021
- Fellow of the Geological Society of America 2019
- Warner College Outstanding Publication Award 2018
- Warner College Outstanding Mentorship Award 2017
- Gladys W. Cole Memorial Research Award, Geological Society of America 2016
- Warner Distinguished Teacher/Advisor Award 2008
- Master Teacher Coordinator, Warner College of Natural Resources 2008-2011
- Best Teacher Award nomination, Alumni Association, Colorado State University 2007
- Excellence in Education Award, Colorado State University, Fall and Spring 2005

### **PROFESSIONAL AFFILIATIONS**

- Geological Society of America
- American Geophysical Union
- Association of Women Geoscientists
- Phi Beta Kappa

### **PUBLICATIONS** (\* indicates student author)

#### **Refereed Journal Articles:**

**Rathburn, S., Eysteinnsson, Þ., Sæmundsson, Þ., Kemper\*, J., Wieting\*, C., and Friedman, J.,** 2023, Putting down roots: Afforestation and bank cohesion of Icelandic rivers, *River Research and Applications*, doi:10.1002/rra.4172.

- Kemper\*, J., **Rathburn, S.**, Mueller, E., and Wohl, E., 2023, Geomorphic effects of increased sediment supply in low-gradient, alluvial rivers, *Earth Science Reviews* 241, doi:10.1016/earscirev.2023.104429.
- Wieting\*, C., Friedman, J., and **Rathburn, S.**, 2022, River channel response to invasive plant treatment across the American Southwest, *Earth Surface Processes and Landforms*, doi:10.1002/esp.5503.
- Kemper\*, J.T., **Rathburn, S.L.**, Friedman, J.M., Nelson\*, J.M., Mueller, E.R., and Vincent, K.R., 2022, Fingerprinting historical tributary contributions to floodplain sediment using bulk geochemistry, *Catena* 214, doi.org/10.1016/j.catena.2022.106231.
- Eidmann\*, J., **Rathburn, S.**, White\*, D., and Huson, K., 2022, Channel response and delta evolution from source to sink following an extreme flood, *Journal of Geophysical Research – Earth Surface*, doi: org/10.1029/2020JF006013.
- Rathburn, S.L.**, and Ely, L.L., 2021, Accept and support a multi-thread career pathway to keep women in the academic stream, *Earth Surface Processes and Landforms*, doi.org/10.1002/esp.5281.
- Kemper\*, J.T., Thaxton\*, R.D., **Rathburn, S.L.**, Friedman, J.M., Mueller, E.R, and Scott, M.L., 2021, Sediment-ecological connectivity in a large river network, *Earth Surface Processes and Landforms*, doi.org/10.1002/esp.
- Patton\*, A.I., **Rathburn, S.L.**, Capps, D.M., McGrath, D., and Brown, R.A., 2021, Ongoing landslide deformation in thawing permafrost, *Geophysical Research Letters*, 48(16), doi.org/10.1029/2021GL092959.
- Timilsina\*, S., Niemann, J., **Rathburn, S.**, Rengers, F., and Nelson, P., 2021, Modeling hydrologic processes associated with soil saturation and debris flow initiation during the September 2013 Storm, Colorado Front Range, *Landslides*, 1-19, doi.org/10.1007/s10346-020-01582-5.
- Patton\*, A., **Rathburn, S.**, Capps, D., Brown\*, R., and Singleton, J., 2020, Lithologic, geomorphic, and permafrost controls on recent landsliding in the Alaska Range, *Geosphere* 16(6):1479-1494. doi.org/10.1130/GES02256.1
- Wohl, E., Lininger\*, K., **Rathburn, S.**, and Sutfin, N., 2020, How geomorphic context governs the influences of wildfire on floodplain organic carbon storage in fire-prone environments of the Western United States, *Earth Surface Processes and Landforms* 45(1):38-56, doi:org/10/1002/esp.4680.
- Rathburn, S.**, Patton\*, A., and Bilderback, E., 2019, Historical debris-flow occurrence in Rocky Mountain National Park, CO, in Kean, J.W., Coe, J.A., Santi, P.M, and Guillen, B.K., (eds), Proceedings of the 7<sup>th</sup> International Conference on Debris-Flow Mitigation, *Association of Environmental and Engineering Geologists (AEG), Special Publication 28*, p. 816-823, doi.org/10.25676/11124/173139.
- Comiti, C., Mao, L., Penna, D., Dell’Agnese, A., Engel, M., **Rathburn, S.**, and Cavalli, M., 2019, Glacier melt runoff controls bedload transport in Alpine catchments, *Earth and Planetary Science Letters* 520:77-86.
- Patton\*, A., **Rathburn, S.**, and Capps, D., 2019, Landslide response to climate change in permafrost regions, Invited Review, *Geomorphology* 340:116-128, doi:10.1016/j.geomorph.2019.04.029
- Sparacino\*, M., **Rathburn, S.**, Singha, K., Covino, T., and Ronayne, M., 2019, Form-based channel restoration decreases hyporheic exchange: Lessons learned from monitoring the

- Upper Colorado River, *Earth Surface Processes and Landforms* 44(1):191-203, doi:10.1002/esp.4525.
- Patton\*, A., **Rathburn, S.**, Bilderback, E., and Lukens\*, C., 2018, Patterns of debris flow initiation and periglacial sediment sourcing in the Colorado Front Range, *Earth Surface Processes and Landforms* 43:2998-3008, doi:10.1002/esp.4463. (Editor's Choice in 2018)
- Rathburn, S.L.**, and Putman, J.M., 2018, Connecting students and mentors through local research hubs, *Eos* 99(9):18-23, doi.org/10.1029/2018EO101511.
- Wohl, E., Brierley, G., Cadol, D., Coulthard, T., Covino, T., Fryirs, K., Grant, G., Hilton, R., Lane, S., Magilligan, F., Meitzen, K., Passalacqua, P., Poepl, R., **Rathburn, S.**, and Sklar, L., 2018, Connectivity as an emergent property of geomorphic systems, State of the Science *Earth Surface Processes and Landforms* 44(1):4-26, doi:10.1002/esp.4434.
- Anthony\*, R., Aster, R., Ryan, S., **Rathburn, S.**, and Baker\*, M., 2018, Monitoring discharge on a small mountain river using seismographs emplaced within the hyporheic zone, *Journal of Geophysical Research-Earth Surface* 123(2):210-228, doi:10.1002/2017/JF004295.
- Rathburn, S.**, Shahverdian\*, S., and Ryan, S., 2018, Post-disturbance sediment recovery: Implications for watershed resilience, *Geomorphology* 305:61-75, doi.org/10.1016/j.geomorph.2017.08.039.
- Schook\*, D., **Rathburn, S.**, Friedman, J., and Wolf\*, M., 2017, A 184-year record of river meander migration from tree rings, aerial imagery, and cross sections, *Geomorphology* 293:227-239, doi.org/10.1016/j.geomorph.2017.06.001.
- Rathburn, S.**, Bennett, G., Wohl, E., Briles, C., McElroy, B., and Sutfin\*, N., 2017, The fate of sediment, wood, and organic carbon eroded during an extreme flood, Colorado Front Range, USA, *Geology* 45(6):499-502, doi:10.1130/G38935.1.
- Schook\*, D., Friedman, J., and **Rathburn, S.**, 2016, Flow reconstructions in the Upper Missouri River Basin using riparian tree rings, *Water Resources Research* 52(10):8159-8173, doi:10.1002/2016WR018845.
- Cotrufo, F., Boot, C., Kampf, S., Nelson, P., Brogan\*, D., Covino, T., Haddix, M., MacDonald, L., **Rathburn, S.**, Ryan, S., Schmeer\*, S., and Hall, E. 2016, Redistribution of pyrogenic carbon from hillslopes to stream corridors following a large montane wildfire, *Global Biogeochemical Cycles* 39(9):1348-1355, doi:10.1002/2016GB005467.
- Wohl, E., **Rathburn, S.**, Chignell\*, S., Garrett\*, K., Laurel\*, D., Livers\*, B., Patton\*, A., Records\*, R., Richards\*, M., Schook\*, D., Sutfin\*, N., and Wegener\*, P., 2016, Mapping longitudinal stream connectivity in the North St. Vrain Creek watershed of Colorado, *Geomorphology* 277:171-181, doi:10.1016/j.geomorph
- Grimsley\*, K., **Rathburn, S.**, Friedman, J., and Mangano\*, J., 2016, Debris flow occurrence and sediment persistence, Upper Colorado River Valley, Rocky Mountain National Park, *Environmental Management*: 58(1):76-92, doi:10.1007/s00267-016-0695-1
- Wohl, E., Bledsoe, B., Jacobson, R., Poff, N.L., **Rathburn, S.**, Walters, D., and Wilcox, A., 2015, The natural sediment regime in rivers: broadening the foundation for ecosystem management, *BioScience* 65:358-371.
- Rathburn, S.L.**, Rubin\*, Z.K., and Wohl, E.E., 2013, Evaluating channel response to an extreme sedimentation event in the context of historical range of variability: Upper Colorado River, Rocky Mountain National Park, Colorado, *Earth Surface Processes and Landforms* 38:391-406, doi:10.1002/esp.3329.

- Rubin\*, Z.K., **Rathburn, S.L.**, Wohl, E.E., and Harry, D.H., 2012, Historic range of variability in geomorphic processes as a context for restoration: Rocky Mountain National Park, Colorado, *Earth Surface Processes and Landforms* 37:209-222, doi:10.1002/esp.2249.
- Rathburn, S.L.**, and Weinberg\*, A., 2011, Undergraduate student satisfaction and achievement at the GetWET Observatory: A fluid learning experience at Colorado State University, *Journal of Geoscience Education* 59:47-55.
- Cadol\*, D.D., **Rathburn, S.L.**, and Cooper D.J., 2010, Aerial photographic analysis of channel narrowing and vegetation expansion in Canyon de Chelly National Monument, Arizona, USA, 1935-2004, *River Research and Applications* 27(7):841-856, doi:10.1002/rra.1399.
- Rathburn, S.L.**, Merritt, D.M., Wohl, E.E., Sanderson, J.A., and Knight, H.A.L., 2009, Characterizing environmental flows for maintenance of river ecosystems: North Fork Cache La Poudre River, Colorado, in James. L.A., Rathburn, S.L., and Whittecar, G.R., eds., *Management and Restoration of Fluvial Systems with Broad Historical Changes and Human Impacts*, Boulder, CO, Geological Society of America Special Paper 451:143-157, doi:10.1130/2009.2451(10).
- Rathburn, S.L.**, 2004, Review of Roughness Characteristics of New Zealand Rivers by D. M. Hicks and P. D. Mason, *Journal of Hydraulic Engineering*, ASCE 130:6:593-594.
- Rathburn, S.L.**, and Wohl, E.E., 2003, Predicting fine sediment dynamics along a pool-riffle mountain channel, *Geomorphology* 55:1-4:111-124.
- Rathburn, S.L.**, and Wohl, E.E., 2003, Sedimentation hazards downstream from reservoirs, in Graf, W., ed., *Dam Removal Research: Status and Prospects*, 105-118.
- Wohl, E.E., and **Rathburn, S.L.**, 2003, Mitigation of sediment hazards downstream from reservoirs, *International Journal of Sediment Research* 18(2):97-106.
- Rathburn, S.L.**, and Wohl, E.E., 2001, One-dimensional sediment transport modeling of pool recovery along a mountain channel after a reservoir sediment release, *Regulated Rivers Research and Management* 17:251-273.
- Cerling, T.E., Poreda, J.J., and **Rathburn, S.**, 1994, Cosmogenic  $^3\text{He}$  and  $^{21}\text{Ne}$  age of the Big Lost River Flood, Snake River Plain, Idaho, *Geology* 22(3):227-330.
- Rathburn, S.L.**, 1993, Pleistocene cataclysmic flooding along the Big Lost River, east central Idaho, *Geomorphology* 8:305-319.
- Webb, R.H., and **Rathburn, S.L.**, 1988, Paleohydrologic research in the southwestern United States, *Transportation Research Record* 1201:9-21.

#### **Edited Volumes:**

- Wohl, E., Magilligan, F., and **Rathburn, S.**, 2016, Connectivity in Geomorphology from Binghamton 2016, *Geomorphology* 277:1-282.
- Wohl, E., and **Rathburn, S.L.**, 2013, Historical Range of Variability in a Geomorphic Context – Introduction to Special Issue, *Earth Surface Processes and Landforms* 38(2):213-216, doi:10.1002/esp.3357.
- James, L.A., **Rathburn, S.L.**, and Whittecar, G.R., 2009, *Management and Restoration of Fluvial Systems with Broad Historical Changes and Human Impacts*, Geological Society of America Special Paper 451, doi:10.1130/2009.2451.

### Refereed Chapters in Books:

**Rathburn, S.L.**, and Wohl, E.E., 2003, Chapter 7: Sedimentation Hazards Downstream from Reservoirs, In: *Dam Removal Research, Status and Prospects*, W.L. Graf (Ed.), The H. John Heinz III Center for Science, Economics, and the Environment, pp. 105-118.

### Manuscripts in Progress:

- Wohl, E., Marshall\*, A., Scamardo\*, J., and **Rathburn, S.**, in press, Biogeomorphic processes, spatial heterogeneity, and river corridor resilience to wildfire, *GSA Special Paper* "Biogeomorphic Responses to Wildfire in Fluvial Systems".
- Bennett, G., Panici, D., Rengers, F., Kean, J., and **Rathburn, S.**, submitted, Landslide-channel feedback amplify flood channel widening, *Nature Geoscience*.
- Engel, M., Coviello, V., Savi, S., Buter, A., Andreoli, A., Miyata, S., Marchetti, G., Scorpio, V., **Rathburn, S.**, Nicholson, L., Comiti, F., submitted, Meltwater driven sediment transport dynamics in two contrasting Alpine proglacial streams, *Journal of Hydrology*.
- Wohl, E., **Rathburn, S.**, Dunn\*, S., Iskin\*, E., Katz\*, A., Marshall\*, A., Means-Brous\*, M., Scamardo\*, J., Triantafyllou\*, S., Uno, H., in review, Geomorphic context in process-based river restoration, *River Research and Applications*.
- Ryan, S., Shobe, C., **Rathburn, S.**, and Dixon, M., in prep, Stream sediment loads following compound landscape disturbances: Influences of the High Park Fire and Northern Colorado Flood, to be submitted to *River Research and Applications*.
- Suhr\*, J.C., **Rathburn, S.**, McGrath, D., and Ronayne, M., in prep, Alluvial valley dynamics of a formerly glaciated Rocky Mountain headwater stream, Colorado, to be submitted to *Earth Surface Processes and Landforms*.

### Other Publications:

- Puntenney-Desmond, K., **Rathburn, S.**, Ronayne, M., Suhr\*, J.C., Kampf, S., Fassnacht, S., and McGrath, D., 2022, Building a long-term watershed research site at the CSU Mountain Campus, *Colorado Water*, 39(1): 7-9.
- Kemper\*, J., Thaxton\*, R., **Rathburn, S.**, Friedman, J., 2022, Floodplain forest establishment and legacy sediment within the Yampa River Basin, Northern Colorado, *Colorado Water*, 39(1):28-30.
- Suhr\*, J.C., **Rathburn, S.L.**, Delgado\*, C., 2021, Geologic map of the South Fork Cache la Poudre Valley at the Colorado State University Campus, 1:12,000, USGS EDMAP National Mapping Initiative.
- Patton\*, A., **Rathburn, S.**, Capps, D., Ruleman, C., and Brown, R., 2019, Surficial geologic map of the Denali National Park and Preserve Road Corridor, 1:24,000, USGS EDMAP National Mapping Initiative.
- Eidmann\*, J., and **Rathburn, S.**, 2018, Tracking post-flood channel adjustments and reservoir sedimentation to inform water management practices, *Colorado Water*, 35(3):18-22.
- Putman, J., and **Rathburn, S.**, 2018, Advising a clear pathway to high-impact practices with faculty partners, *Academic Advising Today*, National Association of Academic Advisors online publication <https://www.nacada.ksu.edu/Resources/Academic-Advising-Today/View-Articles/Advising-a-Clear-Pathway-to-High-Impact-Practices-with-Faculty-Partners.aspx>
- Sparacino\*, M., and **Rathburn, S.**, 2017, Effects of River Restoration on Surface Water-Groundwater Interactions, Upper Colorado River, Rocky Mountain National Park, *Colorado Water*, 34(3):33-36,

- Miller, S., Rhodes, C., Robichaud, P., Ryan, S., Kovacs, J., Chambers, C., **Rathburn, S.**, Heath, J., Kampf, S., Wilson\*, C., Brogan\*, D., Piehl, B., Miller, M.E., Giordanengo, J., Berryman, E., and Rocca, M., 2017, Learn from the Burn: The High Park Fire 5 Years Later, *Science You Can Use Bulletin*, USFS Rocky Mountain Research Station, 25:1-8.
- Bryan, S., **Rathburn, S.**, Schuller\*, K., and Garrett\*, K., 2017, Introductory Geology Laboratory Manual for GEOL150, Colorado State University, in house publication, 153 p.
- Rathburn, S. L.**, Ronayne, M., Kampf, S., and Laituri, M., 2013, Water Education in the Warner College of Natural Resources: Fostering Learning of our Watershed, *Colorado Water*, 30:2-6.
- Rathburn, S.L.**, Meyer\*, A., Ferrantelli\*, Wilcox\*, A., Cadol\*, D., Kreiner\*, D., and Birdsall\*, T., 2009, Introductory Geology Laboratory Manual for CSU Students, Pearson Prentice Hall, Boston, MA, 155 p., 2<sup>nd</sup> edition.
- Rathburn, S.L.**, Sanford, W.E., Harry, D.L., and Warnock, A.C., 2007, GetWET Observatory: A groundwater learning and teaching facility, *Colorado Water* 24:6-8.
- Warnock, A.S., **Rathburn, S.L.**, and Thompson, S. 2004, Geology of Lory State Park, Colorado, Rocky Mountain Nature Association, 16 p.

#### MEETING ABSTRACTS (\* indicates student co-author)

- Wieting\*, C., **Rathburn, S.**, Dean, D., Schook, D., Diehl, R., Friedman, J., Urbanczyk, K., Bywater-Reyes, Renfrow, J., 2023, A comparison of riparian plant traits influencing channel morphodynamic processes, AGU Annual Meeting.
- Christensen\*, N., Morrison, R., **Rathburn, S.**, Wohl, E., 2023, Ecohydraulic interactions in headwater floodplains promote flood attenuation, AGU Annual Meeting.
- Kemper\*, J., **Rathburn, S.**, Mueller, E., and Wohl, E., 2022, Geomorphic effects of increased sediment supply in low-gradient, alluvial rivers, AGU Annual Meeting.
- Friedman, J., Butzke\*, S., Kemper\*, J., Thaxton, R., Scott, M., Woodhouse, C., and **Rathburn, S.**, 2022, Reconstruction of streamflow in the Yampa River, CO using tree rings of riparian cottonwoods and high-elevation conifers, AGU Annual Meeting.
- Rathburn, S.**, Eysteinnsson, P., Sæmundsson, P., Kemper\*, J., and Wieting\*, C., 2022, Root distribution, tensile strength, and streambank cohesion of taxa used in afforestation along Icelandic Rivers, GSA Annual Meeting.
- Dunn\*, S., Stitch\*, J., and **Rathburn, S.**, 2022, Post-fire watershed resilience: beaver ponds as sites of sediment attenuation, GSA Annual Meeting.
- Doebley\*, V., Ronayne, M., Suhr\*, C., **Rathburn, S.**, Putteney-Desmond, K., 2022, Controls on groundwater-surface water interaction in a formerly glaciated valley, Rocky Mountains, Northern Colorado, GSA Annual Meeting.
- Rathburn, S.**, Eysteinnsson, P., Sæmundsson, P., Kemper\*, J., and Wieting\*, C., 2021, Putting down roots: Afforestation and bank cohesion of Icelandic Rivers, AGU annual meeting.
- Kemper\*, J., Thaxton\*, R., **Rathburn, S.**, Friedman, J., Mueller, E., and Scott, M., 2021, Sediment-ecological connectivity in a large river network, AGU Annual Meeting.
- Wieting\*, C., Friedman, J., **Rathburn, S.**, 2021, Channel morphologic response to invasive vegetation removal across the Southwestern U.S., AGU Annual Meeting.
- Kemper\*, J., **Rathburn, S.**, Friedman, J., Nelson\*, J., and Mueller, E., 2021, Tributary basin contributions to floodplain sediments: Sediment fingerprinting in the Yampa River Basin, CO, AGU Annual Meeting.

- Reynolds, L., Jaeger, K., Cubley, E., Wieting\*, C., Cooper, D., **Rathburn, S.**, 2021, Floodplain plant community and stream channel response following tamarisk and Russian olive removal on a desert stream: 14 years of change, AGU Annual Meeting.
- Suhr\*, J.C., **Rathburn, S.**, McGrath, D., and Delgado\*, C., 2021, Post-glacial alluvial valley dynamics in a headwater river of the Colorado Front Range, Geological Society of America *Abstracts with Programs*, Vol. 53, No. 6., doi:10.1130/abs/2021AM-368188.
- Wieting\*, C., **Rathburn, S.**, Friedman, J., 2021, Channel morphologic change associated with invasive vegetation removal, AGU Hydrology Days, Colorado State University, Fort Collins, CO.
- Kemper\*, J., Thaxton\*, R., **Rathburn, S.**, Friedman, J., Scott, M., and Mueller, E., 2020, Connecting the dots: building a sediment-ecological connectivity framework to link tributary erosion to downstream floodplain forest establishment in a large river network, AGU Annual Meeting, online.
- Wieting\*, C., **Rathburn, S.**, and Friedman, J., 2020, QGG J. Hoover Mackin Award: Channel morphologic change associated with invasive vegetation removal, GSA Annual Meeting.
- Kemper\*, J., Thaxton\*, R., **Rathburn, S.**, Friedman, J., Scott, M., and Mueller, E., 2020, Sediment-ecological connectivity: Exploring the links between tributary erosion and floodplain forest establishment in a large river basin, GSA Annual Meeting, online.
- Sutfin, N., Wohl, E., **Rathburn, S.**, and Lininger, K., 2019, Burning River: The influence of wildfire on sediment and carbon dynamics within Rocky Mountain floodplains, AGU Annual Meeting, San Francisco, CA.
- Rathburn, S.**, Ryan, S., Eidmann\*, J., and Patton\*, P., 2019, Fires, floods, and debris flows: Understanding sediment flux, geomorphic impacts, and fluvial system recovery following disturbances, GSA Annual Meeting, Phoenix, AZ.
- Kemper\*, J., **Rathburn, S.**, and Friedman, J., 2019, QGG Stanley A. Schumm Award: Floodplain forest establishment and legacy sediment within the Yampa River Basin, Northern CO, GSA Annual Meeting, Phoenix, AZ.
- Timilsina\*, S., Niemann, J., **Rathburn, S.**, and Rengers, F., 2019, Modeling hydrologic processes associated with soil saturation and debris flow initiation during the September 2013 storm, Colorado Front Range, AGU Hydrology Days, Colorado State University, Fort Collins, CO.
- Rathburn, S.**, Patton\*, A., and Bilderback, E., 2019, Historical debris-flow occurrence in Rocky Mountain National Park, CO, 7<sup>th</sup> International Conference on Debris-Flow Hazard Mitigation, Golden, CO.
- Rathburn, S.**, and Eidmann\*, J., 2018, Channel and delta response to export of 2013 Flood sediment and wood, North St. Vrain Creek, CO, AGU Annual Meeting, Washington DC.
- Anthony, R., Aster, R., Ryan, S., **Rathburn, S.**, Baker\*, M., and Ringler, A., 2018, Fluvial seismology: Using seismograms to infer discharge, bedload and other river processes, AGU Annual Meeting, Washington DC.
- Timilsina\*, S., Niemann, J., **Rathburn, S.**, and Rengers, F., 2018, Exploring hydrologic controls on patterns of debris flow initiation in the Colorado Front Range during the September 2013 Flood, AGU Annual Meeting, Washington DC.
- Rathburn, S.**, 2018, Shedding Sediment: Post-disturbance sediment recovery and resilience, GSA Annual Meeting, Indianapolis, IN.
- Patton\*, A., **Rathburn, S.** and Capps, D., 2018, Morisawa Award: Landslide response to climate change in permafrost regions, GSA Annual Meeting, Indianapolis, IN.

- Eidmann\*, J., **Rathburn, S.**, and Huson, K., 2018, Tracking the fate of sediment after an extreme flood, AGU Hydrology Days, Colorado State University, Fort Collins, CO.
- Eidmann\*, J., **Rathburn, S.**, and Huson, K., 2017, Tracking the fate of sediment after an extreme flood, Rocky Mountain Hydrologic Research Center, 72<sup>nd</sup> Annual meeting, University of Colorado, Boulder, CO.
- Patton\*, A., **Rathburn, S.**, Capps, D., Ruleman, C., 2017, Preliminary surficial mapping of the Denali National Park and Preserve Road Corridor: Implications for landslide hazards in a changing climate, GSA Abstracts with Program, vol. 49, no. 6, doi:10.1130/abs/2017AM-302437.
- Van\*, B., Merrill\*, J., and **Rathburn, S.**, 2017, Wood loads and jam spacing on the Upper Colorado River, Rocky Mountain National Park, Celebrate Undergraduate Research and Creativity, Colorado State University, April 17.
- Bennett, G., Kean, J., Rengers, F., Ryan, S., and **Rathburn, S.**, 2017, Landslide-channel feedbacks amplify flood response and channel erosion, Geophysical Research Abstracts vol. 19, EGU General Assembly 2017.
- Rathburn, S.**, Bennett, G., L., and Wohl, E., 2016, The tumbling triumvirate: Quantifying flood-related sediment, wood and carbon, GSA Abstracts with Program, vol. 48, no. 7, doi:10.1130/abs/2016AM-280739 (invited speaker).
- Schook\*, D., **Rathburn, S.**, Friedman, J., 2016, Variable channel migration rates over the past two centuries, Powder River, MT, GSA Abstracts with Programs, vol. 48, no. 7, doi:10.1130/abs/2016AM-281437.
- Patton\*, A., **Rathburn, S.**, and Bilderback, E., 2016, Geochronology of debris flows near Bighorn Ranger Station, Rocky Mountain National Park, CO, GSA Abstracts with Program, vol. 48, no. 7, doi:10.1130/abs/2016AM-280489.
- Sparacino\*, M., **Rathburn, S.**, and Singha, K., 2016, Monitoring the effects of river realignment on the Upper Colorado River, Rocky Mountain National Park, GSA Abstracts with Program, vol. 48, no. 7, doi:10/1130/abs/2016AM-282959.
- Ryan, S., Bennett, G., and **Rathburn, S.**, 2016, Complex response of channels in forested watersheds to floods: Assessing the geomorphic impacts of the 2013 Colorado Flood on national forest and park lands, GSA Abstracts with Program, vol. 48, no. 7, doi:10.1130/abs/2016AM-283016.
- Bennett, G., Rathburn, S., Ryan, S., Wohl, E., and Blair, A., 2016, Assessing the role of large wood entrained in the 2013 Colorado Front Range flood in ongoing channel response to reservoir management, Geophysical Research Abstracts vol. 18, EGU General Assembly 2016.
- Amponsah\*, W., Righini\*, M., Wohl, E., Borga, M., Marchi, L., **Rathburn, S.**, Surian, N., and Zocatelli, D., 2016, Geomorphically effective energy expenditure for quantifying channel responses to extreme floods, Geophysical Research Abstracts vol. 18, EGU General Assembly 2016.
- Rathburn, S.**, Comiti, F., Brardinoni, F., Sparacino\*, M., and Schook\*, D., 2015, Drainage basin sensitivity to climate change in the Eastern Italian Alps, EP33A-1047, AGU Abstracts with Program, AGU Annual Meeting, San Francisco, CA.
- Patton\*, A., **Rathburn, S.**, and Bilderback, E., 2015, Upland processes and controls on September 2013 debris flows, Rocky Mountain National Park, CO, EP53A-0954A, AGU Abstracts with Program, AGU Annual Meeting, San Francisco, CA.



- Richards\*, M., **Rathburn, S.**, Booth, D., Capps, D., 2015, Braided river response to eight decades of human disturbance, Toklat River, Denali National Park and Preserve, AK, EP33A-1041, AGU Abstracts with Program, AGU Annual Meeting, San Francisco, CA.
- Schook\*, D., **Rathburn, S.**, and Friedman, J., 2015, A riparian approach to dendrochronological flow reconstruction, Yellowstone River, Montana, PP51A-225A, AGU Abstracts with Program, AGU Annual Meeting, San Francisco, CA.
- Rathburn, S.**, McElroy, B., Wohl, E., Sutfin\*, N., and Huson, K., 2014, RAPID Assessment of extreme reservoir sedimentation resulting from the September 2013 Flood, North St. Vrain Creek, CO, EP32A-05, AGU Abstracts with Program, AGU Annual Meeting, San Francisco, CA.
- Schook\*, D., Friedman, J., and **Rathburn, S.**, 2014, Using cottonwood dendrochronology to reconstruct river discharge and floodplain dynamics, Yellowstone River, Montana, AGU Abstracts with Program, EP51B-3525, AGU Annual Meeting, San Francisco, CA. (AGU Outstanding Student Paper Award).
- Shahverdian\*, S., **Rathburn, S.L.**, Ryan, S., Dixon, M., and Writer, J. 2013. Mechanisms and Controls on Post-High Park Fire Sediment Delivery in the South Fork Cache la Poudre Basin: Preliminary Results, GSA Abstracts with Program, Vol. 45, No. 7, GSA Annual meeting, Denver, CO.
- Mangano\*, J., and **Rathburn, S.L.**, 2013. Evaluating Channel Morphologic Changes and Quantifying Bed-material Transport using Airborne LiDAR, Upper Colorado River, Rocky Mountain National Park, CO, GSA Abstracts with Program, Vol. 47, No. 7, GSA Annual meeting, Denver, CO.
- Rathburn, S. L.**, Ronayne, M., Anderson, S., Smith, M., Caldwell, 2012. Contextual learning of surface and groundwater processes, GSA Abstracts with Program, Paper No. 123-9, Vol. 44, No. 7, p. 310, GSA Annual Meeting, Charlotte, NC.
- Rathburn, S.L.**, Grimsley\*, K.J., and Rubin, Z.K., 2011. Sediment transport and bed material grain size distribution along the Upper Colorado River, Rocky Mountain National Park, CO, AGU Abstracts with Program, AGU Annual meeting, San Francisco, CA.
- Grimsley\*, K.J., **Rathburn, S. L.**, and Grosicki, G., 2011. A debris flow chronology and an analysis of controls on debris flow occurrence in the Upper Colorado River Valley, CO, AGU Abstracts with Program, AGU Annual meeting, San Francisco, CA.
- Rathburn, S.L.**, Rubin\*, Z.K., and Wohl, E.E., 2010. Quantifying fluvial processes along Lulu Creek and Colorado River: Planning for river restoration, Rocky Mountain National Park, Colorado, Annual Research Symposium, Rocky Mountain National Park, Estes Park, CO.
- Rathburn, S.L.**, and Rubin\*, Z.K., 2009. Effects of the 2003 Grand Ditch Breach on Lulu Creek and the Colorado River, Rocky Mountain National Park, CO, GSA Abstracts with Program, GSA Annual Meeting, Portland, OR.
- Rathburn, S.L.**, Rubin\*, Z., Henkle\*, J., Cooper, D., Bobowski, B., VanMouwerik, M., and Wohl, E., 2008. Channel restoration planning for the Colorado River and Lulu Creek, Rocky Mountain National Park, Colorado River Basin Science and Resource Management Symposium, Scottsdale, AZ.
- Rathburn, S.L.**, Merritt, D.M., Wohl, E.E., Knight, H.A., and Sanderson, J., 2007. Streamflow and sediment management for maintenance of river ecosystems: North Fork Cache la Poudre River, Colorado, GSA Abstracts with Program, GSA Annual meeting, Denver, CO.

- Warnock, A.C., Viney, M.D., **Rathburn, S.L.**, Sanford, W.E., and Swartz, D., 2007. On the design of a classroom and field-based professional development course for key surface and groundwater concepts, GSA Abstracts with Program, GSA Annual meeting, Denver, CO.
- Rathburn, S.L.**, Warnock, A.C., Sanford, W.E., and Harry, D.L., 2006. The Colorado State University GetWET Observatory: a fluid learning environment promoting deeper understanding, GSA Abstracts with Program, GSA Annual meeting, Philadelphia, PA.
- Spence\*, C., and **Rathburn, S.L.**, 2006. Site characterization of the GetWET Observatory at CSU, Research Experience for Undergraduates – Program in Water Research at Colorado State University Symposium, July 25.
- Cadol\*, D., and **Rathburn, S.L.**, 2006. Aerial photographic analysis of riparian vegetation growth and channel change at Canyon de Chelly National Monument, Arizona, 1935-2004. AGU Hydrology Days, Fort Collins, Colorado.
- Cadol\*, D., and **Rathburn, S.L.**, 2005. Aerial photographic analysis of historic riparian vegetation growth and channel change at Canyon de Chelly National Monument, Arizona: Preliminary results, AGU Abstracts with Program, AGU Annual Meeting, San Francisco, CA.

#### **Other Roles at Professional Meetings, Workshops, and Seminars:**

- 2023 Co-convener, Session EP043: Ecohydraulics and Ecomorphodynamics: Biophysical Interactions within Fluvial Systems across an Elevation Gradient, AGU Annual meeting, San Francisco, CA, December.
- 2023 Invited speaker, Rocky Mountain Hydrologic Research Center, Geomorphic Response along North St. Vrain Creek to the 2013 Flood: Ten Years after a 1000-year rainstorm, 77<sup>th</sup> Annual Meeting, University of Northern Colorado.
- 2022 Invited speaker, Session T10. Physical and Biological Processes, Interactions, and Restoration in River Systems, *Root distribution, tensile strength, and streambank cohesion of taxa used in afforestation along Icelandic Rivers*, GSA Annual Meeting, October.
- 2021 Invited speaker, Water Engineering and Science Seminar, Colorado State University, Civil and Environmental Engineering Department, *Channel response and reservoir delta evolution from source to sink following an extreme flood*, November 18.
- 2021 Invited speaker, Central Washington University, Department of Geosciences, *Channel response and reservoir delta evolution from source to sink following an extreme flood*, November 12.
- 2021 Invited field trip leader, Fulbright-Hays Program, *Geology of north Iceland*, July 1.
- 2021 Invited speaker, Fulbright-Hays Program, *Putting down roots: Afforestation and channel stability of Icelandic rivers*, Akureyri, Iceland, June 30.
- 2021 Invited speaker, University of Iceland, Institute for Earth Sciences, *Putting down roots: Afforestation and channel stability of Icelandic rivers*, Reykjavik, Iceland, May 14.
- 2021 Invited speaker, Fulbright Commission Iceland, *Putting down roots: Afforestation and channel stability of Icelandic rivers*, Reykjavik, Iceland, May 10.
- 2020 Invited speaker, Idaho State University, *Arroyo incision: Pay dirt for downstream floodplain forests*, Department of Geosciences, Pocatello, ID, April 7 (cancelled due to COVID).
- 2019 Invited speaker, EGU Galileo Conference, Perturbations of Earth Surface Dynamics Caused by Extreme Events, *Fires, Floods, and Debris Flows: Assessing sediment flux*,

- geomorphic impacts, and fluvial system recovery following extreme events*, Nepal, Oct. 13-19.
- 2019 Invited speaker and field trip leader, 7<sup>th</sup> International Conference on Debris-Flow Hazards Mitigation (DFMH7), *Historical debris-flow occurrence in Rocky Mountain National Park, CO*, Golden, CO, June 9-13.
- 2018 Invited speaker, Session T59: Human Alterations to Landscape Connectivity, GSA Annual Meeting, *Shedding Sediment: Post-disturbance sediment recovery and resilience*, Indianapolis, IN, Nov.
- 2018 Invited presentation, Grand Ditch Riparian/Wetland Restoration Workshop, *Geomorphologic data on the Upper Colorado River, Rocky Mountain National Park*, Colorado State University, Nov. 8.
- 2018 Invited presentation, Session EP002: Advances in Incorporating Geomorphology and Flooding – Feedbacks and Impacts on Flood Risk, *Channel and delta response to export of 2013 Flood sediment and wood, North St. Vrain Creek, CO*, AGU Annual Meeting, Washington DC, Dec.
- 2018 Co-convener, Session EP021: The Role and Relevance of Thresholds, Event Variability, and Disturbances across Landscapes, AGU Annual meeting, Washington, D.C., December.
- 2018 Invited speaker, 13<sup>th</sup> Hydrologic Sciences Symposium, *By water, land and air: Tracking the fate of 2013 Flood sediment and wood, North St. Vrain Creek, CO*, CU Boulder, April.
- 2017 Invited speaker, 48<sup>th</sup> Annual Binghamton Geomorphology Symposium, Resilience and Bio-Geomorphologic Systems, *Post-disturbance sediment recovery: Implications for watershed resilience*, Texas State University, Oct. 2017.
- 2017 Invited visiting professor, The Free University of Bozen-Bolzano, Italy, *Glaciers-to-Rivers Sediment Transfer in Alpine Basins*, Sept. 1-16.
- 2016 Invited speaker, Session T62: Quantifying the Geomorphic Response to Floods, *The tumbling triumvirate: Quantifying flood-related sediment, wood, and carbon*, GSA Annual Meeting, Denver, CO, Sept.
- 2016 Invited speaker, High Park Fire – Post Fire Science Workshop, *Post-High Park Fire sediment response: It is all about connectivity*, Coalition for the Poudre River Watershed, Fort Collins, CO, Nov. 15.
- 2016 Convener, Session on Restoration and Management of Fluvial Systems, GSA Annual Meeting, Denver, CO.
- 2015 Invited speaker, University of Colorado, Colorado Springs, *Debris flow occurrence in Rocky Mountain National Park, CO*, Oct.
- 2014 Invited speaker, Poudre River Forum: Working River, Healthy River, *Flow: The master variable that shapes, maintains, and supports rivers*, Feb.
- 2014 Convener, Restoration Workshop, Upper CO River, Rocky Mountain National Park, 14 participants, Sept. 19-20.
- 2014 Invited participant, Developing sustainable networks of women scientists for addressing issues of disasters related to weather and changing climate, COACH Program, Jamaica, Oct.
- 2013 Invited workshop leader, University of Colorado, NSF Cutting Edge: *Preparing for an Academic Career in the Geosciences: Workshop for Graduate Students and Post-Doctoral Fellows*, Boulder, CO, July 7-10.

- 2012 Invited speaker, University of Northern Colorado, *Historical range of variability as a context for landscape restoration: Upper CO River*, Department of Earth and Atmospheric Sciences, Greeley, CO, Sept.
- 2011 Invited speaker, University of Oregon, *Controls on sediment transport following an extreme sedimentation event, Upper CO River*, Feb.
- 2011 Invited speaker, Colorado Geomorphological Group (CoGo), *Evaluating channel response to an extreme sedimentation event in the context of historical range of variability*, Colorado State University, May 11.
- 2010 Invited speaker, University of Vermont, *Channel stability in a changing landscape: Planning for restoration of Lulu Creek and Colorado River, Rocky Mountain National Park*, Dec. 2010.
- 2010 Co-leader, Kirk Bryan Field trip, Historical Range of Variability in the Colorado Rockies, GSA Annual Meeting, Denver, CO, Nov. 2010.
- 2010 Co-convener, topical session on Historical Range of Variability in Landscapes, GSA Annual Meeting, Denver, CO, Nov. 2010.
- 2010 Invited speaker, *Critical thinking and learning in Natural Resources for undergraduates*, The Institute for Learning and Teaching Summer Conference on Learning, Teaching, and Critical Thinking, May 19, 2010.
- 2009 Invited speaker, University of Cincinnati, *Channel stability in a changing landscape: Planning for restoration of Lulu Creek and Colorado River, Rocky Mountain National Park*, April 2009.
- 2008 Invited speaker, *Critical thinking: Does it vary across the disciplines?*, The Institute for Learning and Teaching Summer Conference on Learning, Teaching, and Critical Thinking, May 21, 2008.
- 2008 Co-leader, Classroom and Field Strategies for Teaching Key Surface and Groundwater Concepts, GetWET Teacher Training Workshop with American Ground Water Trust, July 30-31, 2008.
- 2008 Professional Development Institute, Colorado State University, Innovative Testing Strategies, Jan. 2008.
- 2007 Invited panelist *Balancing Career and Family*, Association of Women Geoscientists Annual Meeting, Oct. 2007.
- 2007 Co-convener, topical session on Management and Restoration of Fluvial Systems with Broad Historical Changes and Human Impacts, GSA Annual Meeting, Denver, CO, Oct. 2007.
- 2007 Invited speaker, *Fluvial processes in dryland rivers*, Nuclear Regulatory Commission, ACNW, March 2007.
- 2006 Convener, topical session on Watershed-based Approaches to River Restoration, GSA Annual Meeting, Philadelphia, PA, Oct. 2006.

## GRANTS

### Externally Funded Projects as PI

- 2021-2023 Assessing Drainage Basin History Using Delta Stratigraphy at Halligan Reservoir, North Fork Cache la Poudre River, City of Fort Collins, \$39,730.
- 2020-2021 Putting Down Roots: Afforestation and Channel Stability of Icelandic Rivers, US Department of State, Fulbright-NSF Arctic Research Grant, 4-month stipend and travel.

2020-2021 Geologic Mapping of a Portion of the Pingree Park Quadrangle, Colorado: Evolution of the South Fork Cache la Poudre River Valley at Colorado State University's Mountain Campus, US Department of Interior, US Geological Survey, EDMAP, \$17,495.

2020-2024 Collect Baseline Geomorphology Data to Aid in Deadman Wash Site Preservation, US Department of Interior, National Park Service, \$115,753.

2018-2019 Channel Change and Floodplain Forest Establishment in the Colorado River Basin, US Department of Interior, US Geological Survey, \$34,999.

2018-2020 Cottonwood Forest Establishment along the Green and Yampa Rivers, US Department of Interior, National Park Service, \$42,299.

2018-2019 Detailed Surficial Mapping of Major Mass Movement Deposits and Adjacent Bedrock along the Park Road Corridor, Denali National Park and Preserve, AK, US Department of Interior, US Geological Survey, EDMAP, \$17,481.

2017-2019 Mass Movement Response to Climate Change in Denali National Park, AK, US Department of Interior, Denali National Park and Preserve, \$24,996.

2017 Geomorphic Damage Assessment from the 2017 Lady Creek Event, Rocky Mountain National Park, US Department of Interior, National Park Service, \$9,983.

2017-2019 Post-Flood Sediment and Wood Flux into Ralph Price Reservoir, North St. Vrain Creek, CO, City of Longmont, \$47,136.

2015-2018 Wood Loading and Jam Characteristics Following Disturbances on the Upper Colorado River, Rocky Mountain National Park, US Department of Interior, National Park Service, \$15,203.

2015-2016 Electrical Resistivity Imagining for Phase I Effectiveness Monitoring: Upper Colorado River, co-PI K. Singha, US Department of Interior, Rocky Mountain National Park, \$2,401.

2015-2016 Are All Dams Created Equal? Implications for Carbon Storage, Gladys W. Cole Memorial Research Award, Geological Society of America QG&G Division, \$9,125.

2015-2018 Phase I Restoration Design, Implementation and Effectiveness Monitoring, Upper Colorado River, US Department of Interior, Rocky Mountain National Park, \$83,402; Addendum \$9946.

2014-2017 US-Italy Research Project Development on Alpine Mountain Drainage Basin Response to Climatic Warming, NSF Catalyzing New International Collaborations, \$73,742.

2013-2016 Collaborative Research: RAPID Assessment of 2013 Flood Sedimentation, Button Rock Reservoir, North St. Vrain Watershed, CO, E. Wohl, B. McElroy, N. Sutfin, NSF GLD Collaborative Research, \$11,475.

2013-2015 Mechanisms and Controls on Post-Fire Sediment Delivery: The High Park burn in South Fork Cache la Poudre Basin, US Forest Service, Rocky Mountain Research Station, and Cities of Fort Collins and Greeley, \$70,402.

2013-2015 Reconstructing Flow and Climate History of the Yellowstone River, Eastern MT, using Cottonwood Dendrochronology, US Geological Survey, \$43,448.

2013-2015 Upland Processes and Controls on September 2013 Mass Movements, Rocky Mountain National Park, US Department of Interior, National Park Service, \$67,836.

2013-2015 Assessing the Annual Sediment Budget, Toklat River, Denali National Park, AK, US Department of Interior, National Park Service, \$68,267.

- 2012-2014 Evaluating River Morphologic Changes for Restoration Planning, Design, and Monitoring using Airborne LiDAR, Upper Colorado River, US Department of Interior, National Park Service, \$55,410.
- 2011-2012 Dendrochronologic Research on Western Rivers, US Geological Survey, \$34,745.
- 2011-2012 Hydrologic and Sediment Transport Monitoring during 2011 and 2012: Planning for Channel Restoration along Lulu Creek and Colorado River, US Department of Interior, Rocky Mountain National Park, \$29,119.
- 2010-2013 Developing a Debris Flow Chronology and Assessing Controls on Debris Flow Occurrence along the Upper Colorado River, US Department of Interior, National Park Service, \$18,000.
- 2009-2010 Establishing a Context for River Restoration along the Upper Colorado River in Rocky Mountain National Park, US Department of Interior, Rocky Mountain National Park, \$30,783.
- 2008-2009 Channel restoration planning and preparation for Lulu Creek and the Colorado River, Rocky Mountain National Park, US Department of Interior, Rocky Mountain National Park, \$27,783.
- 2006-2009 GetWET Observatory: A Fluid Learning Environment for Undergraduates, NSF, Division of Undergraduate Education, \$147,749.
- 2006-2008 Analytical framework for assessing effects of stream hydrology on fish habitat and riparian vegetation on mountain streams in Western US, US Department of Agriculture, US Forest Service, \$35,000.
- 2004-2005 Channel restoration of Lulu Creek and the Colorado River, Phase II, US Department of Interior, Rocky Mountain National Park, \$28,497.
- 2003-2004 Channel restoration of Lulu Creek and the Colorado River, US Department of Interior, Rocky Mountain National Park, \$12,373.
- 2003-2004 Sediment transport and deposition within the Colorado River resulting from the Spring 2003 Grand Ditch Failure, US Department of Interior, Rocky Mountain National Park, Rocky Mountain National Park, \$23,700.
- 2001-2005 Sediment budget for Halligan Reservoir, North Fork Cache la Poudre River, City of Fort Collins and North Poudre Irrigation Co., \$12,037.

#### **Externally Funded Projects as Co-PI**

- 2021-2022 Scoping of Ecosystem Restoration Opportunities in the Kawuneeche Valley, Kawuneeche Ecosystem Restoration Collaborative, Norther Water Conservation District, PI D. Cooper, \$60,389.
- 2021-2022 Ecosystem restoration of select sites in the Kawuneeche Valley, Colorado, Colorado Water Conservation District, PI D. Cooper, \$73,550.
- 2020-2021 Wildfire impacts on snowpack, flow paths, and sediment dynamics across an elevation gradient, NSF Rapid, PI S. Kampf, \$49,787.
- 2020-2021 Interactions among vegetation and fluvial geomorphic processes along the Rio Grande in Big Bend National Park, Department of Interior, National Park Service, PI D. Schook, \$46,529.
- 2019 Galileo Symposium, Perturbations of Earth Surface Dynamics Caused by Extreme Events, NSF GLD, S. Gallen, \$1,500 travel grant as invited speaker,

- 2015-2017 Connectivity in Geomorphology: The 47<sup>th</sup> Annual Binghamton Geomorphology Symposium, 2015-2017, NSF – GLD, w/ E. Wohl and F. Magilligan, \$42,000
- 2006-2009 Research Experience for Undergraduates – Program in Water Research at Colorado State University, NSF, PI J. Ramirez. \$316,551.

### **Internally Funded Projects**

- 2021-2022 High Elevation Controls on River and Reservoir Algal Blooms, Colorado Water Center, CSU Water Center Team Grant, PI M. Ross, \$35,000.
- 2020-2021 Building a Long-Term Watershed Research Site at CSU Mountain Campus, Colorado Water Center, CSU Water Center Team Grant, co-PIs K. Puntteney-Desmond, M. Ronayne, D. McGrath, S. Kampf, S. Fassnacht, M. Ross, R. Morrison, K. Rasmussen, S. Webb, J. Heath, \$24,997.
- 2020 Geologic and Geomorphologic Assessment of the South Fork Cache la Poudre River Valley at the Mountain Campus, WCNR Research Grant, \$3,058.
- 2019 Geologic and Geomorphologic Assessment of the South Fork Cache la Poudre River Valley at the Mountain Campus, WCRN Research Grant, PI S. Fassnacht, \$3,275.
- 2018 Building CSU Expertise at the Nexus of Hydrology and Geophysics, PI D. McGrath, \$1500.
- 2018 WCNR Student Technology Fee Grant, PI D. McGrath, \$13,581.
- 2016 Renovation of GEOL121 Laboratory Classroom and Study Space: PIs J. Putman, R. Aster, S. Rathburn, S. Bryan, CSU Facility Fee Advisory Board, \$134,359.
- 2015-2016 CSU Flow, Sediment Transport and Nutrient Flux Monitoring using Seismic and Infrasound Signals, co-PIs R. Aster, T. Covino, B. Bledsoe, Water Center Multidisciplinary Research, \$23,794.
- 2014 Redesign of GEOL121 Introductory Geology Laboratory, PIs S. Bryan and S. Rathburn, The Institute for Learning and Teaching (TILT) Provost's Course Redesign Competition, \$5,000.
- 2013 State of the Cache la Poudre: A watershed monitoring network, PI S. Kampf, co-PIs M. Laituri, S. Fassnacht, P. Evangelista, Warner College of Natural Resources Mini-grant, \$10,047.
- 2013 Sediment Dynamics in Alpine Rivers in Response to Climatic Warming Faculty Research Travel Grant, CSU Office of International Programs, \$2,000.
- 2012 Fostering Learning of Water (FLOW) in WCNR Students, co-PIs M. Ronayne, W. Sanford, E. Wohl, S. Fassnacht, S. Kampf, Warner College of Natural Resources Mini-grant, \$10,744.
- 2011 Proposal to Ease Enrollment Pressures in GEOL121 Introductory Geology Laboratory, co-PI P. Newman, S. Sutton, \$17,500 annual support for additional graduate teaching assistant.
- 2010 Upgrade of WCNR Geophysical Equipment Pool, Warner Legacy Grant, PI D. Harry, Co-PIs E. Wohl, W. Sanford, M. Ronayne, S. Rathburn, M. Lefsky, and D. Cooper, \$45,000.
- 2009 Pingree Park Hydro-meteorological Installation, Warner College of Natural Resources Mini-grant, PI S. Fassnacht, co-PI S. Kampf, \$10,000.

2007-2008 Upgrade and Modernize the Surface Water Monitoring Station at the GetWET Observatory, Warner College of Natural Resources Mini-grant, co-PIs M. Ronayne, W. Sanford \$9,850.

2006-2007 Effective Assessment of GCC120 Student Learning within the Affective Domain, CSU, The Institute for Learning and Teaching Course Redesign Initiative, \$10,103.

## **RESEARCH COLLABORATORS**

Porsteinn Sæmundsson, Pröstur Eysteinnsson, Daniel McGrath, John Singleton, Erich Mueller, Matt Ross, Stephanie Kampf, Jonathan Friedman, Mike Scott, Derek Schook, David Dean, Sharon Bywater-Reyes, Georgina Bennett, Sandra Ryan, Ellen Wohl, Brandon McElroy, Mike Ronayne, Christy Briles, Kamini Singha, Francesco Comiti, David Dust, Francesco Brardinoni, Eric Bilderback, Ken Huson, Derek Booth, Denny Capps, Rick Aster, Tim Covino, Francesca Cotrufo, Cal Ruleman

## **GRADUATE STUDENTS, POST-DOCS AND VISITING STUDENTS**

Connor Mertz – MS (current)

Warner Graduate Research Award 2023

Celeste Wieting – PhD (current)

Colorado Riparian Association Student Award 2021

GSA Student Research Grant 2021

GSA QG&G J. Hoover Mackin Research Award and Student Research Grant 2020

Sarah Dunn – MS 2023 (USGS, Washington Water Science Center, Tacoma, WA)

Colorado Water Center Grant 2022

GSA Continental Scientific Drilling Student Award 2022

Warner Graduate Research Award 2021

American Water Resources Association Award 2021

GSA Student Research Grant 2022

Christoph Suhr –MS 2022 (Inter-fluve, Hood River, OR)

American Water Resources Association Award

GSA Student Research Grant 2020

Colorado Scientific Society Scholarship

John Kemper – PhD 2022 (Post-doc, University of Vermont)

AAG Reds Wolman Student Research Award 2021

GSA Robert K. Fahnestock Memorial Research Award 2020

GSA QG&G Stanley A. Schumm Research Award and Student Research Grant 2019

SW Climate Adaptation Science Center Natural Resources Workforce Fellowship

Colorado Water Center Grant

American Water Resources Association Award

Warner Graduate Research Award

Annette Patton – PhD 2019 (Lead Geologist, Sitka Sound Science Center, AK)

Editor's Choice Award, ESPL 2018

GSA John & Carol McGill and QG&G Marie Morisawa Student Research Awards

Warner Graduate Research Award; GSA Student Research Grant

Johanna Eidmann – MS 2018 (Data Scientist, ChampionX)

Colorado Water Institute Grant

American Water Resources Association Awards



Matthew Sparacino – MS 2017 (Water Resources Project Manager, City of Greeley, CO)  
Colorado Water Institute Grant  
American Water Resources Association Awards

Derek Schook – PhD 2017 (National Park Service, Ft. Collins, CO)  
NSF IGERT Fellow  
GSA Student Research Grant  
Outstanding Student Paper Award, AGU Annual Meeting, Dec. 2014

Georgina Bennett – Post-doctoral Fellow 2015-2016, co-funded with S. Ryan, USFS (Faculty, University of Exeter)

Mariah Richards – MS 2016 (MER Design, <https://www.instagram.com/maisie.made.it/>)  
GSA QG&G Arthur D. Howard Award and GSA Student Research Grant

Annette Patton – MS 2016 (PhD student CSU)  
Purdue PRIME Lab Seed Grant

Francesco Midityeri – Visiting PhD student, University of Salerno, Italy 2015-2016

Scott Shahverdian – MS 2015 (USU –Ecogeomorphology & Topographic Analysis Lab)  
USFS National Fire Plan Grant  
City of Fort Collins, CO Grant

Joseph Mangano – MS 2014 (USGS Washington Water Science Center, Tacoma, WA)  
GSA Student Research Grant

Cory Williams – MS 2014 (USGS Grand Junction, CO)  
USGS Graduate Research Assistantship

Kyle Grimsley – MS 2012 (Leidos Consulting – Washington DC)  
GSA Student Research Grant

Zan Rubin – MS 2010 (Balance Hydrologics Inc., Berkeley, CA)  
GSA Student Research Grant

Daniel Cadol – MS 2007 (Associate Professor, New Mexico Tech)  
NPS Graduate Research Assistantship

## **UNDERGRADUATE STUDENT RESEARCH**

Colby Carlson, Sarah Daniel, Adam Rang, John Nelson, Jacob Flack, Sara Newman, Iliana Ingamellis, Sarah Lowe, Anthony Mainiero, Breanna Van, Jay Merrill, Tavon Bowman, Benjamin Rodwell, Brandon Elba, Fisher Ankney, Thomas Luckie, Geoff Lee, Rafael Rivera, Austin Best, David Weber, Todd Green, Joseph Orlando

## **SERVICE AND OUTREACH**

### **Professional Service**

Board of Trustees, Rocky Mountain Hydrologic Research Center 2023-present  
Co-host, 47<sup>th</sup> Annual Binghamton Geomorphology Symposium, Connectivity in Geomorphology, E. Wohl and F. Magilligan, Colorado State University, Sept. 2016  
Chair, Geological Society of America Quaternary Geology and Geomorphology Division, 2011-2012; 1<sup>st</sup> Vice Chair 2010-2011; 2<sup>nd</sup> Vice Chair 2009-2010  
Panelist GSA Quaternary Geology and Geomorphology Division, 2005-2007  
External Reviewer for Promotion and Tenure, approximately 2 dossiers/year, 2019-present

### **Grant and Award Review Panels**

NSF, Dynamics of Coupled Natural and Human Systems, 2015

NSF, Division of Undergraduate Education/CCLI Phase I Panel Review, 2007  
NSF, Division of Undergraduate Education/CCLI Phase II Panel Review, 2008  
GSA Quaternary Geology and Geomorphology Division

- Kirk Bryan Award; Gladys Cole Award; Distinguished Career Award
- J. Hoover Mackin & Arthur Howard Student Awards and Student research proposal review (2011, 2015, 2018, 2020, 2021)

### **Grant Refereeing**

National Science Foundation, Hydrologic Sciences Division, Geomorphology and Land Use Dynamics Division, Faculty Early Career Development, and Division of Undergraduate Education, Course, Curriculum, and Laboratory Improvement  
USDA National Institute of Food and Agriculture

### **Editorial Roles and Manuscript Refereeing**

Associate Editor *Water Resources Research* (2018-2022); *Environmental Management Review Board* (2016-present)  
Earth Surface Processes and Landforms, Geological Society of America Bulletin, GSA Geology, Water Resources Research, Geomorphology, Journal of Geoscience Education, River Research and Applications, Environmental Management, American Society of Civil Engineers Journal of Hydrologic Engineering, Bioscience, Annals of the American Association of Geographers, 7<sup>th</sup> International Debris-Flow Hazards Mitigation volume

### **University Committees, year(s)**

CoTL, Institutional Learning Outcomes (ILO) subcommittee, 2017, 2018  
Graduate Center for Inclusive Mentoring (GCIM), 2018-present  
<https://graduateschool.colostate.edu/cimer-faculty/>  
Steering Committee – New Building WCNR, 2016  
Udall Scholarship Review, 2012  
Goldwater Scholarship Review, 2011  
STEM Ed Faculty, 2011 (Spring only), 2010, 2009, 2008  
Provost Course Redesign, 2008  
Graduate Teaching Certificates Review Board, 2007-2009

### **College Committees, year(s)**

Diversity and Inclusion Subcommittee, Field Training 2020  
Mountain Campus Instrumentation, 2018-present  
Scholarship Committee, 2010 (sabbatical replacement), 2017  
Commencement, 2017  
National Western Water Center, 2015, 2016  
IT Director Search, 2015  
Riordan Family Leadership, 2013  
Warner Mini-grant Review, 2013  
Watershed Hydrology Search, 2013  
University Education in Natural Resources 2011, 2012  
Curriculum, 2011  
Master Teacher Initiative, College Representative 2008-2011

RamWelcome, 2008

### **Department Committees, year(s)**

Search Committee – New Department Head 2023-2024  
Promotion and Tenure Steering Committee, 2020-present (Chair in 2023)  
Curriculum, 2008, 2009, 2016, 2018-present  
Scholarship and Awards, 2010- 2014, 2016 (Chair), 2017, 2023 (Chair)  
Geoscience Advisory Committee (GAC)/Alumni Affairs, 2011, 2012, 2013 (sp)  
RamWelcome, 2008 -2013 (Chair), 2014 (fall), 2018  
RamWelcome Faculty Panel, 2017, 2019  
Search Committee (Chair) Critical Zone Geoscientist, 2016, 2017  
Post-doctoral Search, 2015  
Hydrogeology Search, 2008

### **Other Service to Department**

Near Surface Steering Committee, 2019  
NTT Department Policy, 2019  
Student Technology Fee Departmental funding, 2019  
Independent Study/Research Credit review, 2018  
Representative for NR316 renovation and repurposing classroom, assisted classroom design, sorted collections, 2016-2018  
Environmental Geology Concentration Coordinator, 2016-Present  
Assisted writing Vision Statement (with D. Schutt, M. Ronayne, L. Stright and input from all faculty), 2017  
Prep for remodel of NR336A including cleaned out NR316 Lab and NR336A, reorganized field camp equipment and GEOL121 teaching supplies, 2012

Host for seminar speakers:

2019 Danica Roth, Colorado Schools of Mines  
2018 Sharon Bywater-Reyes, University of Northern Colorado  
2017 Erich Mueller, University of Wyoming  
2017 Cal Ruleman, USGS  
2016 Jeffrey Coe, USGS  
2016 Georgina Bennett, post-doc CSU/USFS  
2015 Eric Bilderback, National Park Service  
2014 Dorothy Merritts, Franklin and Marshall  
2014 Jonathan Friedman, USGS  
2013 Brandon McElroy, University of Wyoming; and Joe Sertich, Denver Museum of Nature and Science  
2011 Diane McKnight, University of Colorado

### **Other Service to College**

2021 Host and panel speaker *Picture a Scientist* documentary  
2021 Mountain Campus Vision Statement to Dean Hayes  
2019 Undergraduate Research Award Review  
2019 Research Mentor Training for Faculty: Improving the Effectiveness of Mentors, Warner College of Natural Resources and Graduate Degree Program in Ecology

2019-present Center for the Improvement of Mentored Experiences in Research (CIMER) trained faculty member <https://graduateschool.colostate.edu/cimer-faculty/>  
2018 White, S., **Rathburn, S.**, and others, Forest Health and Water Quantity and Quality, APLU Forest Health Initiative White Paper.  
2017 Invited platform announcer, Spring Commencement  
2013, 2014 Watershed Faculty Search

### **Other Service to the University**

2023 Search committee for Civil and Environmental Engineering faculty position  
2020 Invited speaker, Colorado Water Center Research Grant Webinar  
2018 Invited speaker, Watershed Science as a Sense of Place, Noyce Professional Development Series, CSU, Fort Collins, CO.  
2018 Introduction for Dr. Joe Sertich, Curator of Dinosaurs, Denver Museum of Natural and Science, Alumni Night, CSU, April 4.  
2018 Interview for CSU Alumni Magazine article on Dr. Joe Sertich, *Dinosaur devotee becomes world-renowned paleontologist*, by A. Manning, Science Writer and Senior Public Relations Specialist, Division of External Relations, CSU, <https://magazine.source.colostate.edu/dig-it/>  
2011 Dog fest in CSU dormitories  
2008, 2010 Meet and Greet for undergraduate students  
2006-2007 Faculty advisor for Cycling and Crew Club teams

### **Service to Community:**

2023 From Burn to Bloom: The Art + Science of Wildfire Recovery, booth display on post-fire research, Odell Brewery, Aug. 19  
2020 Invited panelist *River Voices: The Confluence of Art and Science*, Longmont Museum, March 12 (cancelled due to COVID).  
2020 Invited presentation, *A Tale of Two Rivers in Rocky Mountain National Park*, Front Range Forum, Senior Center of Fort Collins  
2019 Invited panelist *River Voices: The Confluence of Art and Science*, Lincoln Center, Aug. 22  
2019 Commented on NISP EIS; Dam enlargement for Halligan Reservoir  
2018 Volunteer monitoring channel restoration for Estes Valley Watershed coalition; Met with Discovery Museum staff regarding summer geology program for adults,  
2018-present Volunteer for Animal Alliance, dog foster care  
2017 Led geology tour for Fort Collins residents interested in local geology  
2016 Invited career panel, Colorado College, Parent's Weekend  
2015 Co-authored article for Rocky Mountain Conservancy newsletter; Volunteer for Writer's Workshop, Dunn Elementary School 2<sup>nd</sup> grade  
2014 Assisted in two videos including Research Spotlight and Centennial Celebration for Rocky Mountain National Park  
2013 Invited presentation, *Effects of Fire on Watersheds*, Optimist Club, Boulder, CO  
2013 Interviewed by Bennett Elementary 5<sup>th</sup> grade students; Met with Leshner Middle School student interested in a career in geology; Supervised IB students at Poudre High School on Creativity, Action and Service  
2010 Invited presentation, *Geology of Colorado*, Optimist Club, Boulder, CO

2009 Assisted Science Olympiad students with fossil identification, Poudre High School and Blevins Middle School; Assisted 180 Rocky Mountain High School students visiting GetWET groundwater well field on campus; Volunteer Trout Unlimited Summer Fly Fishing Camp

2008 Hosted 3-part environmental geology session for local 6<sup>th</sup> graders, final day included all-day on campus workshop; Co-taught 2-day teacher training workshop at GetWET; Assisted 120 and 180 Rocky Mountain High School students visiting GetWET during spring and fall 2008, respectively; Led Coyote Ridge hike for local K-6 kids; Led river exploring hike for The Nature Conservancy; Met with Woodlin High School science class to discuss Science Fair projects, On-going communication with high school student interested in geosciences

2007-2008 Expert Testimony for National Park Service 99JJ Natural Resource Damage Claim

### **Media Coverage**

Icelandic Forest Service October 2022, Birch and yellow willow save the banks

<https://www.skogur.is/is/um-skograektina/frettir-og-vidburdir/frettir-og-pistlar/birki-og-gulvidir-bjarga-bokkunum>

CSU SOURCE, September 2021, CSU geomorphologist awarded Fulbright grant to study afforestation and bank cohesion along rivers in Iceland

<https://warnercnr.source.colostate.edu/csu-geomorphologist-awarded-fulbright-grant-to-study-afforestation-and-bank-cohesion-along-rivers-in-iceland/>

CSU SOURCE, May 2020, Colorado Water Center: Funding the future of water research at CSU

<https://source.colostate.edu/colorado-water-center-funding-the-future-of-water-research-at-csu/>

KCSU Interview, March 2020, Rocky Mountain Review Exclusive: Rock Your Socks Off with Geologist Sara Rathburn <http://kcsufm.com/2020/03/rmr-exclusive-geologist-sara-rathburn/>

CSU SOURCE, February 2020, You'll find her by the river

[https://warnercnr.source.colostate.edu/youll-find-her-by-the-river/?utm\\_source=newsletter&utm\\_medium=email&utm\\_campaign=m0213-20](https://warnercnr.source.colostate.edu/youll-find-her-by-the-river/?utm_source=newsletter&utm_medium=email&utm_campaign=m0213-20)

CSU Annual 1870 Dinner, February 9, 2019, Writing Our Story,

[https://www.youtube.com/watch?v=QM\\_dh7YjhLY&feature=youtu.be](https://www.youtube.com/watch?v=QM_dh7YjhLY&feature=youtu.be)

NPR Podcast, September 19, 2018, Flood Waters Fundamentally Changed the Front Range – In Landscape and Human Tragedy by Luke Runyon <http://www.kunc.org/post/flood-waters-fundamentally-changed-front-range-landscape-and-human-tragedy#stream/0>

Scientific American 60-Second Science by Julia Rosen

<https://www.scientificamerican.com/podcast/episode/extreme-storms-are-extreme-eroders/>

Featured in Rocky Mountain National Park Centennial Celebration Video *Wilderness, Wildlife, Wonder*– by Fall River Productions

Rocky Mountain National Park Post-Flood Research video  
<https://www.nps.gov/rlc/continentaldive/current-research.htm>  
*Coloradoan* article on post-flood research, with Bryony Wardell, 2014

WCNR Department of Geosciences video  
<https://www.youtube.com/watch?v=7mN1WBkndaI&feature=youtu.be>