

**ANDREW C. WILCOX**  
Department of Geosciences  
University of Montana  
Missoula, MT 59812  
Phone: (406) 243-4761

E-mail: [andrew.wilcox@umontana.edu](mailto:andrew.wilcox@umontana.edu)

URL: <http://hsweb.hs.umt.edu/geosciences/faculty/wilcox/>

---

## EDUCATION

*Ph.D.*, Geosciences, Colorado State University, 2005  
*M.S.*, Energy and Resources Group, University of California, Berkeley, 1996  
*B.A.*, History, Stanford University, 1992

## APPOINTMENTS

*Professor*, Department of Geosciences, University of Montana, 2018–present  
*National Academy of Sciences Jefferson Science Fellow*, U.S. Department of State, Bureau of Energy Resources, 2021–2022  
*Chair*, Department of Geosciences, University of Montana, 2018–2021  
*Associate Professor*, Department of Geosciences, University of Montana, 2013–2018  
*Assistant Professor*, Department of Geosciences, University of Montana, 2007–2013  
*Director*, UM Center for Riverine Science and Stream Renaturalization, 2011–present  
*Associate Director*, Montana Water Center, 2015–2022  
*National Research Council Post-Doctoral Research Associate*, U.S. Geological Survey, Geomorphology and Sediment Transport Laboratory, Golden, CO, 2005–2007  
*Geomorphologist*, Stillwater Sciences, Berkeley, CA, 1997–2000

## TEACHING

*University of Montana, Department of Geosciences, Courses taught:*

- The Nexus of Water, Energy, and Food Systems (Geo 540, 3 credits)
- Energy and the Environment (Geo 322, 3 credits)
- Process Geomorphology (Geo 460, 4 credits)
- Fluvial Geomorphology (Geo 560, 3 credits)
- Surface Processes (Geo 318, 3 credits)
- Tectonic Geomorphology (Geo 582, 3 credits)
- Fundamentals of Graduate Research (Geo 508, 2 credits)
- Advanced Topics in Geomorphology (Geo 587, 2 credits)
- Fluvial Geomorphology and Riverine Ecosystems (Geo 587, 1-3 credits)
- Physical Geology (Geo 100, 2 credits)
- Introduction to Science Communication (Geo 542, 1 credit)

## PUBLICATIONS (\*=STUDENT AUTHOR)

Adams, K.V.\*, J.L. Dixon, A.C. Wilcox, and D. McWethy. 2023. "Fire-produced coarse woody debris and its role in sediment storage on hillslopes." In press, *Earth Surface Processes and Landforms*.

- Bywater-Reyes, S., R.M. Diehl, A.C. Wilcox, J.C. Stella, and L. Kui, 2022. “A Green New Balance: Interactions among riparian vegetation plant traits and morphodynamics in alluvial rivers.” *Earth Surface Processes and Landforms*. 47:2420-2436, <https://doi.org/10.1002/esp.5385>.
- Benjamin, S.S.\*, J.L. Dixon, and A.C. Wilcox. 2022. “Capturing the complexity of soil evolution: Heterogeneities in rock cover and chemical weathering in Montana’s Rocky Mountains.” *Geomorphology*. 404, <https://doi.org/10.1016/j.geomorph.2022.108186>.
- Gilbert, J.\* and A.C. Wilcox. 2021. “An ecogeomorphic framework coupling sediment modeling with invasive riparian vegetation dynamics.” *Journal of Geophysical Research-Earth Surface* 126(6), e2021JF006071, 10.1029/2021JF006071.
- Welling, R.\*, A.C. Wilcox, and J.L. Dixon. 2021. “Large wood and sediment storage in a mixed bedrock-alluvial stream, western MT, USA.” *Geomorphology* 34, <https://doi.org/10.1016/j.geomorph.2021.107703>
- Diehl, R.M., A.C. Wilcox, and J.C. Stella. 2020. “Evaluation of the integrated riparian ecosystem response to future flow regimes on semiarid rivers in Colorado, USA.” *J. Environmental Management* 271, <https://doi.org/10.1016/j.jenvman.2020.111037>.
- Gilbert, J.T.\* and A.C. Wilcox. 2020. “Sediment Routing and Floodplain Exchange (SeRFE): A spatially explicit model of sediment balance and connectivity through river networks.” *Journal of Advances in Modeling Earth Systems*. doi:10.1029/2020MS002048.
- Wade, A.A., A. Grant, S. Karasaki\*, R. Smoak\*, D. Cwiertny, A.C. Wilcox, L. Yung, K. Sleeper\*, and A. Anandhi, 2020. “Developing leaders to tackle wicked problems at the nexus of food, energy, and water systems.” *Elementa: Science of the Anthropocene*, 8: 11, <https://doi.org/10.1525/elementa.407>.
- Bellmore, J.R., G.R. Pess, J.J. Duda, J.E. O’Connor, A.E. East, M.M. Foley, A.C. Wilcox, J.J. Major, P.B. Shafroth, C.S. Magirl, C.W. Anderson, J.E. Evans, C.E. Torgerson, L. Craig. 2019. “Conceptualizing ecological responses to dam removal: If you remove it, what’s to come?” *BioScience*. 69: 26-39, doi:10.1093/biosci/biy152.
- Kui, L., J. Stella, R. M. Diehl, A.C. Wilcox, A. Lightbody, L. Sklar. 2019. “Can environmental flows moderate riparian invasions? The influence of seedling morphology and density on scour losses in experimental floods” *Freshwater Biology* 64: 474–484 DOI: 10.1111/fwb.13235.
- Landers, J.\*, S. Sullivan, L. Eby, A.C. Wilcox, H. Langner. 2019. “Metal contamination and food web changes alter exposure to upper trophic levels in upper Blackfoot River basin streams, Montana.” *Hydrobiologia* 830:93 – 113, doi: 10.1007/s10750-018-3857-8.
- Lightbody, A., L. Kui\*, J. Stella., K. Skorko\*, S. Bywater-Reyes\*, A.C. Wilcox. 2019. “Riparian vegetation and sediment supply regulate the morphodynamic response of an experimental stream to floods.” *Frontiers in Environmental Science*, 7(40), <https://doi.org/10.3389/fenvs.2019.00040>.
- Bywater-Reyes, S.\*, R.M. Diehl, and A.C. Wilcox. 2018. “The influence of a vegetated bar on channel-bend flow dynamics.” *Earth Surface Dynamics*, 6, 487-503, <https://doi.org/10.5194/esurf-6-487-2018>.
- Diehl, R.M., A.C. Wilcox, D.M. Merritt, D.W. Perkins, and J.A. Scott. 2018. “Development of an ecogeomorphic modeling framework to evaluate riparian ecosystem response to flow-regime changes.” *Ecological Engineering* 123: 112–126, <https://doi.org/10.1016/j.ecoleng.2018.08.024>.
- Woelber, B.\*, M.P. Maneta, J. Harper, K.G. Jencso, W.P. Gardner, A.C. Wilcox, and J.I. Lopez-Moreno. 2018. “The influence of diurnal snowmelt and transpiration on hillslope throughflow and stream response.” *Hydrology and Earth System Science* 22, 4295–4310, <https://doi.org/10.5194/hess-22-4295-2018>.
- Bywater-Reyes, S.\*, A.C. Wilcox, R.M. Diehl. 2017. “Multi-scale influence of riparian trees on fluvial topography quantified with ground-based and airborne LiDAR.” *Journal of Geophysical Research-Earth Surface*. 122: 1218-1235, doi: 10.1002/2016JF004058.
- Diehl, R.M., D. Merritt, A.C. Wilcox, and M. Scott. 2017. “Applying functional traits to eco-geomorphic processes within riparian ecosystems.” *BioScience*, 67(8): 729-743, doi:10.1093/biosci/bix080.

- Diehl, R.M., A.C. Wilcox, J.C. Stella, L. Kui, L. Sklar, A. Lightbody. 2017. "Fluvial sediment supply and pioneer woody seedlings as a control on bar-surface topography." *Earth Surface Processes & Landforms* 42(5): 724–734, doi: 10.1002/esp.4017.
- Foley, M.M. et al. (22 co-authors, including ACW). 2017. "Dam removal—Listening in." *Water Resources Research*. 53, 5229–5246, doi: 10.1002/2017WR020457.
- Kui, L.\*, J. Stella, P. Shafroth, P.K. House, A.C. Wilcox. 2017. "The long-term legacy of geomorphic and riparian vegetation feedbacks on the dammed Bill Williams River, USA." *Ecohydrology*, 10:e1839, doi: 10.1002/eco.1839.
- Major, J.J., A.E. East, J.E. O'Connor, G.E. Grant, A.C. Wilcox, C.S. Magirl, M.J. Collins, and D.D. Tullios. 2017. "Geomorphic responses to U.S. dam removal—A two-decade perspective." In *Gravel-Bed Rivers 8: Rivers and Disasters*. J. Laronne and D. Tsutsumi, eds. Wiley and Sons, pp. 355-383.
- Wilcox, A.C. 2017. "Effects of Dams on Rivers." In *Oxford Bibliographies in Environmental Science*. E. Wohl, ed. New York: Oxford University Press, doi: 10.1093/OBO/9780199363445-0068. ([www.oxfordbibliographies.com](http://www.oxfordbibliographies.com))
- Hyde, K.\*, K. Jencso, A.C. Wilcox, and S. Woods. 2016. "The influence of vegetation disturbance on hydrogeomorphic response following wildfire." *Hydrological Processes* 30(7): 1131-1148, doi: 10.1002/hyp.10691.
- Imhoff, K.S.\* and A.C. Wilcox. 2016. "Coarse bedload routing and dispersion through tributary confluences." *Earth Surface Dynamics*. 4(3): 591-605, doi: 10.5194/esurf-4-591-2016.
- Tullios, D., M.J. Collins, R. Bellmore, J.A. Bountry, P.J. Connolly, P.B. Shafroth, A.C. Wilcox. 2016. "Synthesis of common management concerns associated with dam removal." *Journal of the American Water Resources Association*. 52(5): 1179- 206. doi: 10.1111/1752-1688.12450.
- Wilcox, A.C., C. Escarriaza, R. Agredano\*, E. Mignot, V. Zuazo\*, S. Otarola\*, L. Castro, J. Gironas, R. Cienfuegos, L. Mao. 2016. "An integrated analysis of the March 2015 Atacama floods." *Geophysical Research Letters*. 43: 8035-8043, doi:10.1002/2016GL069751.
- Bean, J.R.\*, A.C. Wilcox, W. Woessner, and C. Muhlfeld. 2015. "Multi-scale hydrogeomorphic influences on bull trout spawning habitat in snowmelt-dominated headwater streams." *Canadian Journal of Fisheries and Aquatic Sciences* 72(4): 514-526, doi: 10.1139/cjfas-2013-0534.
- Bywater-Reyes, S.\*, A.C. Wilcox, J.C. Stella, and A.F. Lightbody. 2015. "Flow and scour constraints on uprooting of pioneer woody seedlings." *Water Resources Research* 51, doi:10.1002/2014WR016641.
- Manners, R., A.C. Wilcox, L. Kui, A. Lightbody, J. Stella, and L. Sklar. 2015. "When do plants modify fluvial processes? Plant-hydraulic interactions under variable flow and sediment supply rates." *Journal of Geophysical Research-Earth Surface* 120:325-345, doi: 10.1002/2014JF003265.
- Wohl, E., S.N. Lane, and A.C. Wilcox. 2015. "The science and practice of river restoration." *Water Resources Research* 51, 5974–5997, doi:10.1002/2014WR016874.
- Wohl, E., B. Bledsoe, R. B. Jacobson, N. L. Poff, S.L. Rathburn, D. Walters, A.C. Wilcox. 2015. "The natural sediment regime in rivers: Broadening the foundation for ecosystem management." *Bioscience* 65(4): 358-371, doi:10.1093/biosci/biv002.
- Evans, E.\* and A. C. Wilcox. 2014. "Fine-sediment infiltration dynamics in a gravel-bed river following a sediment pulse." *River Research and Applications* 30(3): 372-384, doi: 10.1002/rra.2647.
- Hyde, K.\*, A.C. Wilcox, K. Jencso, S. Woods. 2014. "Effects of vegetation disturbance by fire on channel initiation thresholds." *Geomorphology* 214:84-96, doi: 10.1016/j.geomorph.2014.03.013
- Kui, L.\*, J. Stella, A. Lightbody, and A.C. Wilcox. 2014. "Ecogeomorphic feedbacks and flood loss of riparian tree seedlings in meandering channel experiments." *Water Resources Research* 50: 9366–9384, doi: 10.1002/2014WR015719.
- Peckarsky, B.L., A.R. McIntosh, S.C. Horn, K. McHugh, D.J. Booker, A.C. Wilcox, W. Brown, M. Alvarez. 2014. "Characterizing disturbance regimes of mountain streams." *Freshwater Science* 33(3): 716-730, doi: <http://dx.doi.org/10.1086/677215>.
- Wilcox, A.C., J. Major, and J. O'Connor. 2014. "Rapid reservoir erosion, hyperconcentrated flow, and downstream deposition triggered by breaching of 38 m tall Condit Dam, White Salmon River, Washington." *Journal of Geophysical Research-Earth Surface* 119, doi: 10.1002/2013JF003073.

- Wilcox, A.C., A.A. Wade and E.G. Evans\*. 2014. "Drainage events from a glacier-dammed lake, Bear Glacier, Alaska: Remote sensing and field observations." *Geomorphology* 220: 41–49, doi: 10.1016/j.geomorph.2014.05.025.
- Wilcox, A. C. and P. B. Shafroth. 2013. "Coupled hydrogeomorphic and woody-seedling responses to controlled flood releases in a dryland river." *Water Resources Research* 49, 2843–2860, doi:10.1002/wrcr.20256.
- Moore, J.N., A.S. Arrigoni\*, and A.C. Wilcox. 2012. "Impacts of dams on annual flow regimes in three headwater sub-basins of the Columbia River Basin, USA. *Journal of the American Water Resources Association* 48(5): 925-938, doi: 10.1111/j.1752-1688.2012.00660.x.
- Woelfle-Erskine, C.\*, A. C. Wilcox, and J. N. Moore. 2012. "Combining historical and process perspectives to infer ranges of geomorphic variability and inform river restoration in a wandering gravel-bed river." *Earth Surface Processes & Landforms* 37: 1302-1312 doi: 10.1002/esp.3276.
- Fuller, B. M.\*, L. S. Sklar, Z. G. Compson\*, K. J. Adams\*, J. C. Marks, and A. C. Wilcox. 2011. "Ecogeomorphic feedbacks in regrowth of travertine step-pool morphology after dam decommissioning, Fossil Creek, Arizona." *Geomorphology* 126:314-332, doi:10.1016/j.geomorph.2010.05.010.
- Wilcox, A. C., F. Comiti, E. E. Wohl, and L. Mao. 2011. "Hydraulics, morphology and energy dissipation in an alpine step-pool channel ." *Water Resources Research* 47: W07514, doi:10.1029/2010WR010192.
- Shafroth, P. B., A. C. Wilcox, D.A. Lytle, J. T. Hickey, D. C. Andersen, V.B. Beauchamp, A. Hautzinger, L. McMullen\*, and A. Warner. 2010. "Ecosystem effects of environmental flows: modeling and experimental floods in a dryland river." *Freshwater Biology* 55:68-85, doi:10.1111/j.1365-2427.2009.02271.x.
- Cui, Y. and A. C. Wilcox. 2008. "Development and application of numerical modeling of sediment transport associated with dam removal." In M. Garcia, ed. *Sedimentation Engineering: Theory, Measurements, Modeling and Practice* (ASCE Manuals and Reports on Engineering Practice No. 110). American Society of Civil Engineers. pp. 995–1020.
- Wilcox, A. C., B. L. Peckarsky, B. W. Taylor, and A. C. Encalada. 2008. "Hydraulic and geomorphic effects on mayfly drift in high-gradient streams at moderate discharges." *Ecohydrology* 1:176-186.
- Comiti, F., L. Mao, A. Wilcox, E. E. Wohl, and M. A. Lenzi. 2007. "Field-derived relationships for flow velocity and resistance in step-pool streams." *Journal of Hydrology* 340:48–62.
- Wilcox, A. C. and E. E. Wohl. 2007. "Field measurements of three-dimensional hydraulics in a step-pool channel." *Geomorphology* 83:215–231.
- Wilcox, A. C. and E. E. Wohl. 2006. "Flow resistance dynamics in step-pool channels: 1. Large woody debris and controls on total resistance." *Water Resources Research* 42: W05418, doi:10.1029/2005WR004277.
- Wilcox, A. C., J. M. Nelson, and E. E. Wohl. 2006. "Flow resistance dynamics in step-pool channels: 2. Partitioning between grain, spill, and woody debris resistance." *Water Resources Research* 42: W05419, doi:10.1029/2005WR004278.
- Wohl, E. E. and A. Wilcox. 2005. "Channel geometry of mountain streams in New Zealand." *Journal of Hydrology* 300:252–256.
- Wilcox, A. and J. Harte. 1997. "Ecosystem services in a modern economy: Gunnison County, Colorado." In G. Daily, ed. *Nature's Services: Societal Dependence on Natural Ecosystems*. Island Press, Washington, D.C. pp. 311–328.

## OTHER PUBLICATIONS

- Wilcox, A. and F. Dekker. 2013. Analysis of sediment dynamics in the Bill Williams River, Arizona. Report prepared for U.S. Fish and Wildlife Service, via Rocky Mountains Cooperative Ecosystem

Studies Unit. [http://www.cfc.umt.edu/CESU/Reports/FWS/2010/10\\_11Wilcox\\_UM\\_Bill\\_Williams\\_River\\_fnlrpt.pdf](http://www.cfc.umt.edu/CESU/Reports/FWS/2010/10_11Wilcox_UM_Bill_Williams_River_fnlrpt.pdf)

- Wilcox, A., A. Wade and E. Evans. 2013. Glacial Outburst Flooding, Bear Glacier, Kenai Fjords National Park, Alaska. Report prepared for National Park Service, via Rocky Mountains Cooperative Ecosystem Studies Unit (Agreement Number: H2370094000).
- NSF GLD SEES Workshop Group. 2011. "Research in Landscape Sustainability: Earth-surface processes in the SEES context." White paper, October 6-7. (ACW is coauthor with 18 other workshop attendees).
- Rathburn, S. L., A. Meyer, C. Ferrantelli, A. Wilcox, D. Cadol, D. Kreiner, and T. Birdsall. 2007. "Introductory Geology Laboratory Manual for Colorado State University Students." Pearson Custom Publishing, Boston, MA. 155 p.
- Wilcox, A. C. 2005. "Interactions between Flow Hydraulics and Channel Morphology in Step-pool Streams." Ph.D. thesis. Department of Geosciences. Colorado State University.
- Wilcox, A. and D. M. Merritt. 2005. "Effects of modified flow regimes on the Dolores River." In *Riparian Response to Altered Flow Regimes*, Proceedings of the Colorado Riparian Assoc. 18<sup>th</sup> Annual Conference. Durango, CO. pp. 69–83.
- Wilcox, A. C. 1996. "Transmountain Water Diversions in the Colorado Rockies." M.S. thesis. Energy and Resources Group. University of California, Berkeley.

## INVITED TALKS

- U.S. Forest Service Region 1 Soil, Water and Fish Annual Meeting, 30 November 2022
- Jefferson Science Fellow Distinguished Lecture series. National Academy of Sciences, Engineering, and Medicine. Washington DC, April 2022
- University of Rochester, 22 October 2020
- U.S. Forest Service Region 1 Soil, Water and Fish Annual Meeting, 3 December 2019
- Northwestern University, 27 September 2019
- Javeriana University, Bogotá, Colombia, 6 February 2019
- EAFIT University, Medellín, Colombia, 21 March 2018
- Montana State University, Dept. of Earth Sciences, Bozeman, 27 October 2016
- Montana FLOW Seminar. University of Montana, 6 September 2016
- Stream Restoration Forum: Science and Regulatory Connections, Baltimore, MD, 8 June 2016
- Rivers, Regolith, Estuaries and Deltas Geomorphology Meeting, US Geological Survey, Reston, VA 13 May 2016
- Montana Institute on Ecosystems Rough Cut Seminar. Montana St. Univ., Bozeman 24 February 2016
- Universidad de Concepcion, Chjle, Seminario sobre crecidas y procesos fluviales, 20 May 2015
- Universidad de Catolica, Facultad de Agronomía e Ingeniería Forestal, Santiago, Chile, 25 May 2015
- Eco-hidro-morfología de los ríos Chilenos: Estado del arte, desafíos y futuras direcciones (Workshop on eco-hydro-morphology of Chilean rivers: state of the art, challenges, and future directions), Universidad de Catolica, Santiago, Chile, 10 April 2015
- Department of Geosciences Colloquium, University of Montana, 4 Feb. 2013, 22 Oct. 2012
- Montana Institute on Ecosystems Rough Cut Seminar. University of Montana, 15 October; Montana State University, 17 October 2012
- Elwha River Science Symposium, Port Angeles, WA, 22 August 2012
- Institut de Physique du Globe – Paris, 4 April 2012
- Free University of Bozen-Bolzano, Italy, 29 March 2012
- Ecole Normale Supérieure de Lyon, France, 9 March and 20 April 2012
- University College Cork, Ireland, 12 and 13 March 2012
- University of Aix-Marseille and Centre Européen de Recherche et d'Enseignement des Géosciences de l'Environnement (CEREGE). Aix-en-Provence, France, 10 February 2012

College of Forestry and Conservation, University of Montana, 12 November 2010  
Utah State University Spring Runoff Conference. Logan, UT, 2–3 April 2009  
Rocky Mountain Biological Laboratory, Gothic, CO, 5 August 2008  
USGS National Research Program seminar, Lakewood, CO, 29 November 2005  
University of Padua, Italy, 20 May 2004

### CONFERENCE PRESENTATIONS, LAST 5 YEARS (\*=STUDENT AUTHOR)

- Wilcox, A.C., Z. DeLuca, L. Persico, J. Dixon. 2023. Spatial variation in the geomorphic effects of the 2022 floods in Yellowstone National Park, USA. Gravel Bed Rivers 9 conference, Villarica, Chile, January.
- Adams, K., J. Dixon, A. Wilcox. 2022. How (Un)important are Channel Heads to Hillslope-Channel Sediment Connectivity? AGU Fall Meeting EP21A-02.
- Wilcox, A.C. 2022. Hydropower Systems at the Nexus of Water, Energy, and Climate Security: Contrasting Cases from South America and Africa. AGU Fall Meeting GC22L-0730.
- Busby, D.M.\* and A.C. Wilcox. 2021. Hydrogeomorphic response of steep streams after wildfire in the western Cascades, Oregon. AGU Fall Meeting, H55X-1009.
- Benjamin, S.S., J. Dixon, A.C. Wilcox. 2021. Quantifying heterogeneities in soil cover and weathering in Montana's Rocky Mountains. AGU Fall Meeting, EP41A-02.
- Gilder, C.R.\*, A.C. Wilcox, and D. Whited. 2021. Mapping groundwater flow in riparian ecosystems through thermal and multispectral UAV surveys of surface water and vegetation. AGU Fall Meeting, EP25C.
- Wilcox, A.C. and H. Angarita. 2021. Quantifying river sediment regimes to evaluate the sustainability of hydropower systems. AGU Fall Meeting, GC12C-07.
- Wilcox, A.C., R.T. Welling\*, J.L. Dixon, K. Adams\*. 2020. Wood and vegetation effects on sediment connectivity in the Bitterroot River basin, Montana. GSA Annual Meeting.
- Adams, K.\*, J.L. Dixon, A.C. Wilcox. 2020. How important are channel heads? Analysis of hillslope-channel connectivity in morphologically distinct catchments. GSA Annual Meeting.
- Gilbert, J.\* and A.C. Wilcox, 2019. Modeling spatial and temporal variation in sediment balance in the Santa Clara River, CA. AGU Fall Meeting, EP33E-2380, San Francisco, CA.
- Bellmore, R., G. Pess, J. Duda, J.E. O'Connor, A. East, M. Foley, A. Wilcox, J. Major, P. Shafroth, S. Morley, C. Magirl, C. Anderson, J. Evans, C. Torgersen and L. Craig. 2019. If you remove it, what's to come: predicting ecological outcomes of removing dams and reconnecting rivers, American Fisheries Society Meeting, 2 October 2019.
- Bywater-Reyes, S., R. M. Diehl, L. Kui, J. Stella, and A.C. Wilcox. 2019. *Tamarix* versus *Populus* plant traits differentially influence river morphodynamics in alluvial rivers. GSA Annual Meeting, Phoenix, AZ.
- Bywater-Reyes, S., R. M. Diehl, L. Kui, A. Lightbody, J. Stella, and A.C. Wilcox. 2018. Flume and field investigations link woody riparian vegetation plant traits to morphodynamics across scales. AGU Fall Meeting, Abstract EP34B-04.
- Stella, J.C., L. Kui, R.M. Diehl, A.C. Wilcox, A. Lightbody, L.S. Sklar. 2018. Feedbacks between fluvial forces and differing vegetation morphologies moderate riparian seedling losses during experimental floods; implications for restoration using environmental flows. AGU Fall Meeting, Abstract EP33B-06.
- Smoak, R.\*, A. Grant, D. Cwiertny, A.A. Wade, A.C. Wilcox, L. Yung. 2018. Critical skills for next generation leaders in food, energy, and water systems. AGU Fall Meeting, Abstract ED33D-2569.
- Welling, R.\*, and A.C. Wilcox. 2018. Influence of large wood on sediment routing in a mixed bedrock-alluvial stream. AGU Fall Meeting, Abstract EP41D-2711.
- Wilcox, A.C. 2018. Multiyear geomorphic evolution following the removal of Milltown Dam, Clark Fork River, Montana. AGU Fall Meeting, Abstract EP41C-2676.

Wilcox, A.C. 2018. Dams and fluvial sediment dynamics: Scientific and management approaches, and examples from the U.S. and Colombia. Workshop on Applied tools to monitor water discharge and flooding for South American Rivers. 21-22 March. EAFIT University, Medellin, Colombia. (invited)

## GRANTS

- NSF, Geomorphology and Land-use Dynamics, “Collaborative Research: RAPID: Flooding and geomorphic change in Yellowstone National Park.” 2022 – 2023
- Montana Space Grant Consortium and Montana NASA EPSCoR, “Evaluation of water and sediment connectivity in tropical rivers using Surface Water and Ocean Topography mission data,” 2022 – 2023
- NSF, International Research Experiences for Students, “Collaborative Research: Rivers of the Andes Field Training.” 2021 – 2024
- Fulbright Specialist Program (Council for International Exchange of Scholars), “Sediment and river dynamics in the Magdalena River, Colombia,” 2019 (in collaboration with The Nature Conservancy Colombia)
- NSF, Geomorphology and Land-use Dynamics, “Collaborative Research: Sediment connectivity and its morphologic and vegetative controls: Linking soils and streams in mountain landscapes of the northern Rockies,” 2017–2022
- NSF, National Research Traineeship. “UM BRIDGES: Bridging Divides Across the Food, Energy, and Water Nexus.” NSF DGE 1633831, 2016 – 2022 (ACW is one of two lead co-PIs)
- Fulbright Scholar Program (Council for International Exchange of Scholars). “Enhancing graduate education in river processes; Investigating disturbance and channel response in Chilean mountain rivers,” Santiago, Chile, February-May 2015
- Montana Institute on Ecosystems Research Projects Program. “Modeling of climate change effects on watershed hydrogeomorphology and habitat.” 2011–2017
- Montana Water Center / U.S. Geological Survey 104(b) Water Resources Research Program. “Thresholds in fluvial systems: Flood-induced channel change on Montana rivers.” 2012–2014
- University of Montana International Faculty Exchange Grant. 2012
- NSF, “Infrastructure via Science and Technology Enhanced Partnerships III.” 2011 – 2017 (EPSCoR grant to Montana University System; ACW is one of 6 lead scientists on the grant; is not a PI)
- US Geological Survey-CESU. “Geomorphic and hydrogeological influences on bull trout spawning habitat.” 2011–2012
- PRIME Lab. “Quantifying erosion and sediment dynamics at variable time scales in a dryland river.” Seed grant for cosmogenic nuclide analysis at Purdue Rare Isotope Measurement Laboratory, 2011
- NSF, “Collaborative Research: Quantifying feedbacks between fluvial morphodynamics and pioneer riparian vegetation in sand-bed rivers.” EAR-1025076, 2010–2015
- US Fish and Wildlife Service-CESU. “Analysis of sediment dynamics in the Bill Williams River, Arizona.” 2010-2012
- NSF, “Sediment routing in gravel-bed rivers following dam removal.” EAR-0922296, 2009–2012
- National Park Service, Intermountain Region-CESU. “Glacial outburst analysis and report study, Bear Glacier, Kenai Fjords National Park, Alaska.” 2009–2012
- National Park Service, Intermountain Region-CESU. “Coal mine and coalbed methane development threats to aquatic biota of Glacier National Park.” 2009–2012
- USEPA and US Forest Service. “Linkages among river restoration, physical habitat, ecosystem processes, and water quality: Upper Blackfoot River, Mike Horse Mine, Montana.” 2009–2013
- University Grant Program. “Sediment routing in gravel-bed rivers following dam removal.” U. Montana, 2009
- Trout Unlimited. “Proposal for Mattie V Creek channel design.” 2008–2009

NSF, Small Grant for Exploratory Research (SGER). “Dam removal and the response of gravel-bed rivers to sediment pulses: Sediment transport and channel evolution in the Clark Fork River, MT following removal of Milltown Dam.” EAR-0809082, 2008–2010

Montana Water Center / U.S. Geological Survey 104(b) Water Resources Research Program. “Evolution of channel morphology and aquatic habitat in the Middle Clark Fork River following removal of Milltown Dam.” 2008–2010

University Grant Program. “Dam removal and river response to increased sediment supply: Investigation of downstream sediment transport and channel change in the Clark Fork River following removal of Milltown Dam.” U. Montana, 2008

NSF, International Program Grant. “Flow hydraulics along step-pool channels.” 2003–2004

## **SYNERGISTIC ACTIVITIES**

### ***Advising***

- Graduate students (main thesis advisor):
  - Current: Jordan Gilbert, Claire Gilder, Stuart Blundell, Serena Butler, Zack DeLuca
  - Former students:
    - Dave Busby (M.S., 2022; Hydrogeomorphic Response of Steep Streams following Severe Wildfire in the Western Cascades, Oregon)
    - Luke Fisher (M.S. 2020; “Sediment dynamics in the Magdalena River basin, Colombia: Implications for understanding tropical river processes and hydropower development”)
    - Robin Welling (M.S. 2019; “Influence of large wood on sediment routing in a mixed bedrock-alluvial stream”)
    - Sam Box (M.S. 2018; “Impacts of vegetation growth on reach-scale flood hydraulics in a sand-bed river and the implications for vegetation-morphology coevolution”)
    - Sharon Bywater-Reyes (Ph.D. 2015; “The Influences of Pioneer Riparian Vegetation on River Processes from the Plant to the Reach Scale”)
    - April Sawyer (M.S. 2015; “Flood Duration and Chute Cutoff Formation in a Wandering Gravel-bed River”)
    - Kurt Imhoff (M.S. 2015; “Sediment Routing through Channel Confluences: Particle Tracing in a Gravel-bed River Headwaters”)
    - Erika Colaiacomo (M.S. 2014; “Downstream Spatial and Temporal Response to Dam Removal, White Salmon River, WA”)
    - Kevin Hyde (Ph.D. 2013; “Control by Vegetation Disturbance on Gully Rejuvenation Following Wildfire”)
    - Andrea Stanley (M.S. 2013; “Hydrologic Conditions and Streamflow Change in an Evolving Semi-arid Agricultural Watershed, Smith River, Montana”)
    - Jared Bean (M.S. 2012; “Multiscale Hydrogeomorphic Influences on Bull Trout Spawning Habitat in Snowmelt-Dominated Headwater Streams”)
    - Franklin Dekker (M.S. 2012; “Sediment Dynamics in a Dryland River: Grain-Size Variations, Erosion Rates, Sediment Mixing, and Dam Effects”)
    - Elena Evans (M.S. 2011; “Temporal and Spatial Variation of Fine Sediment Infiltration in a Gravel-Bed River”)
    - James Johnsen (M.S. 2011; “Sampling and Modeling of Sediment Transport and Reservoir Erosion following Dam Removal: Milltown Dam, Montana”)
    - Joshua Epstein (M.S. 2009; “Upstream Geomorphic Response to Dam Removal: The Blackfoot River, Montana”)
- Other graduate students advised (as committee member): Ph.D.=6; M.S.=12

- Undergraduate senior thesis research (main advisor): Doug Brinkerhoff (2009), Cleo Woelfle-Erskine (2009), Ben Gardner (2011), Robert Livesay (2013), Brooke Hess-Homeier (2016), Caelan Simeone (2016), Wendell Elliott (2022)
- Undergraduate advisor, Dept. of Geosciences 2008–2011
- Former postdoctoral researchers: Rebecca Manners Diehl, Phairot Chatanantavet

### **Reviewer**

- Journals: *Geophysical Research Letters*, *Geology*, *GSA Bulletin*, *Water Resources Research*, *Annals of Botany*, *Earth Science Reviews*, *Earth Surface Processes and Landforms*, *Ecological Modelling*, *Environmental Management*, *Freshwater Biology*, *Geomorphology*, *Hydrological Processes*, *Journal of the American Water Resources Association*, *Journal of Geophysical Research - Earth Surface*, *L&O: Methods*, *River Research and Applications*, *Resources*, *Scientific Reports (Nature)*
- Other publications: *GSA Special Paper*, *Treatise on Geomorphology*
- National Science Foundation: Geomorphology and Land-Use Dynamics, Hydrologic Sciences, Critical Zone Observatory, Geography and Regional Science, Collaborations in Mathematical Geosciences, Geobiology and Low-Temperature Geochemistry, Geophysics, Software Infrastructure for Sustained Innovation, Integrated Earth Systems, MRI, NRT
- Other: American Chemical Society, CalFed Science Program, Chesapeake Bay Restoration Trust, Murdock College Research Program for Natural Sciences, U.S. Geological Survey, Trinity River Restoration Program, Sacramento Municipal Utility District

### **Member / Contributor**

- National / International:
  - Associate Editor, *Journal of Geophysical Research, Earth Surface*, 2022–present
  - Science Advisor, *EOS*, 2015–2022
  - Associate Editor, *Environmental Management*, 2012–2015
  - Executive Committee, American Geophysical Union, Earth and Planetary Surface Processes (EPSP) Section, 2014–2021
  - Awards Committee, AGU EPSP, 2016–2020 (chair 2019 – 2020)
  - Program Committee for Fall Meeting, AGU EPSP, 2013–2016
  - U. Montana representative to WIN SAR, UNAVCO-adjacent group for geodetic imaging
  - Panel member, Geol. Soc. of Amer. Quat. Geol. & Geomorphology Div., 2013–2015
  - USGS Powell Center Working Group on Dam Removal, 2013–2016
  - Fulbright Chile Review Panel, Santiago, Chile, 2015
  - Judge, Student posters and oral sessions, Fall 2011, 2012, 2013, 2014 AGU Meeting
  - Member, AGU, GSA, GSA Quaternary Geology and Geomorphology Division; European Geosciences Union
  - Federal Advisory Comm. on Water Information Subcomm. on Sedimentation, 2008–2011
  - Environmental Flows Advisor, The Nature Conservancy Colorado, 2004–2007
  - Dolores River (CO) Dialogue Science Committee, 2004–2007
- Montana:
  - Member, Provost Faculty Advisory Council, 2022 – 2023
  - Chair, Department of Geosciences, 2018–2021
  - Member, College of Humanities & Sciences restructuring committee, 2021
  - Participant, Unlearning Racism in Geosciences (URGE), U. Montana pod, 2021
  - Director, UM Center for Riverine Science and Stream Renaturalization, 2011–present (Associate Director, 2009–2011)
  - Associate Director, Montana Water Center, 2015–present (Interim Director 2017–2018)
  - University Water Initiative organizing committee (co-lead), 2016–present

- Organizer, Montana Aquatic Research Colloquium, Flathead Lake Bio. Station, 2017, 2019
- University Research & Creative Scholarship Committee, 2017–2019
- Focus Area Science Leader, Montana Institute on Ecosystems, 2011–2014
- U. Montana Faculty Senate, 2009–2012
- U. Montana Dept. of Geosciences, Graduate Admissions Committee
- U. Montana Dept. of Geosciences, Faculty Evaluation Committee (Chair) 2015-2018, 2022
- U. Montana Search Committees: Aquatic Invertebrate Ecologist (2008), Watershed Hydrologist (2009), Hydrogeologist (2014; Chair)
- Missoula County, MT Stream Protection Technical Advisory Committee, 2008–2011
- Instructor, Big Sky Science Partnership, June 2010

### ***Honors, Fellowships, Scholarships***

- National Academy of Sciences Jefferson Science Fellow (US Department of State, Bureau of Energy Resources)
- Geological Society of America Fellow
- Merit Award for outstanding faculty performance, Univ. of Montana (awarded 6 times)
- AGU Editors' Citation for Excellence in Refereeing, *Water Resources Research*, 2005
- First place, Colorado Scientific Society Student Oral Presentation Competition, 2004
- First place, CSU Dept. of Geosciences Student Oral Presentation Competition, 2004
- Colorado State University: Anderson Graduate Scholarship (2003–2004), Lary Kent Burns Memorial Scholarship (2002–2003), Stanley Schumm Graduate Scholarship, (2001–2002), University Supplemental Fellowship (2000–2001)
- Edward M. Warner Research Assistant, CSU Dept. of Geosciences, 2003–2004
- Geological Society of America Outstanding Student Research Award, Research grant proposal recognized for exceptional high merit in concept and presentation, 2002
- J. Hoover Mackin Award, Honorable Mention, Quaternary Geology Division, GSA, 2002
- Richard M. Herbert Memorial Scholarship, American Water Resources Association, 2001
- National Science Foundation Graduate Research Fellowship Honorable Mention
- Best M.S. Student Poster, AGU Hydrology Days Conference, Fort Collins, CO, 1996
- Graduated with Honors and Distinction in major, Stanford Univ., 1992
- Robert M. Golden Medal for Excellence in Humanities and Creative Arts, Stanford Univ., 1992

### ***Workshops, Short Courses, Conference Sessions***

- American Geophysical Union Fall Meeting Session Convener: “Multiscale Sediment Connectivity” (2020); “Surface Processes in the Anthropocene: (2016); “Advances in Research on Fluvial Sediment Regimes: Processes and Management” (2014, 2015); “Interactions of Vegetation, Water, and Sediment in Rivers and Wetlands” (2012); “River Restoration Science: Research and Application in Restoration Design and Environmental Flows” (2007); San Francisco, CA
- Geological Society of America Annual Meeting Session Convener: “Linking Physical and Ecological Processes from Source-to-Sink to Investigate Multi-scale Response to Restoration” (2017) Seattle, WA
- “Short Course on R in Hydrologic Sciences.” European Geosciences Union, 2012, Vienna, Austria
- “Research in Landscape Sustainability: Earth-surface Processes in the SEES Context” NSF Geomorphology and Land-use Dynamics SEES workshop group, October 6-7, 2011, Minneapolis, MN.

- “New Tools in Process-Based Analysis of Lidar Topographic Data,” National Center for Airborne Laser Mapping Workshop, Boulder, CO, 2010
- “Teaching Geomorphology in the 21<sup>st</sup> Century,” On the Cutting Edge, National Association of Geoscience Teachers, Fort Collins, CO, 2008
- “Studying Earth Surface Processes with High-Resolution Topographic Data Workshop,” National Center for Airborne Laser Mapping, Boulder, CO, 2008
- “Meeting of Young Researchers in Earth Sciences (MYRES): Dynamic Interactions of Life and Its Landscape,” New Orleans, LA, 2008
- “Pathways to Scientific Teaching,” University of Montana, 2007
- “Low-slope sand-bed rivers,” National Center for Earth-surface Dynamics, 2006
- “Multidimensional Surface Water Modeling System,” USGS, 2001

### **Media**

- Interview about river ice. Backroads of Montana, Episode 150, Montana PBS.  
<https://www.montanapbs.org/programs/BackroadsofMontana/150/>
- Interview about dam removal. Radio Javeriana, Bogotá Colombia (English with Spanish voiceover), <http://www.javerianaestereo.com/bitacora-marzo-de-2019/>
- “ESA-Listed Bull Trout: Spawning Preferences Make Fish Sensitive To Flow Regime Changes, Temperature.” *Columbia Basin Fish & Wildlife News Bulletin*, 2/13/15,  
<Http://www.cbbulletin.com/433151.aspx>
- “Floe, frazil ice decorate Clark Fork River in downtown Missoula.” R. Chaney, *Missoulian*, 11/23/14, [https://missoulian.com/lifestyles/territory/floe-frazil-ice-decorate-clark-fork-river-in-downtown-missoula/article\\_062ef120-faa9-55cf-a680-13d838f5ee1b.html](https://missoulian.com/lifestyles/territory/floe-frazil-ice-decorate-clark-fork-river-in-downtown-missoula/article_062ef120-faa9-55cf-a680-13d838f5ee1b.html)
- “Blowing the dam.” J. Williams, *The Source Weekly*, Bend, OR, 12/20/12,  
<http://www.bendsource.com/bend/blowing-the-dam/Content?oid=2203201>
- “Blast drains Condit Dam’s reservoir on White Salmon River; Dam structure removal set for spring 2012.” B. Espenson, *Columbia Basin Bulletin*, 11/10/11,  
<http://www.cbbulletin.com/413585.aspx>
- “Changes evident on Clark Fork River as silt settles after flooding.” R. Chaney, *Missoulian*, 7/31/11, page A1, [http://missoulian.com/news/local/article\\_7b3108de-bb24-11e0-9035-001cc4c03286.html](http://missoulian.com/news/local/article_7b3108de-bb24-11e0-9035-001cc4c03286.html)
- “Flooding flushes, changes river.” K. Maki, NBC Montana television segment, 8/1/11.
- “Murky movement: Milltown Dam removal releases sediments,” P. Stephens, *Vision 2009*: 22-24, <http://www2.umt.edu/urelations/vision/2009/murky%20movement.html>
- “River of research: For UM scientist, breach a study opportunity,” J. Cramer, *Missoulian* 28 March 2008, [http://missoulian.com/news/state-and-regional/milltown-cleanup-river-of-research-for-um-scientist-breach-a/article\\_285b9e32-f8a5-5690-b9ad-248be518215e.html](http://missoulian.com/news/state-and-regional/milltown-cleanup-river-of-research-for-um-scientist-breach-a/article_285b9e32-f8a5-5690-b9ad-248be518215e.html)