

Dr. Anne J. Jefferson

Department of Geology, Kent State University

221 McGilvrey Hall,
Kent, Ohio, 44242

ajeffer9@kent.edu
<http://all-geo.org/jefferson>

Education and Degrees

- 2006 **Ph.D., Geology, Oregon State University**
“Hydrology and geomorphic evolution of basaltic landscapes, High Cascades, Oregon”
- 2002 **M.S., Water Resources Science, University of Minnesota**
“Early Tertiary and modern hydrologic environments of the Stenkul Fiord area, Ellesmere Island, Canada”
- 2001 **B.A., Earth and Planetary Science, The Johns Hopkins University**
“Pedologic comparison and hydrogen and oxygen isotopic analysis of water extracted from eight soil orders.” University and departmental honors.

Experience

- 2016-present **Associate Professor**, Department of Geology, Kent State University, Kent, Ohio
Graduate Studies Coordinator, Department of Geology, Kent State University, Kent, Ohio
- 2016-2017 **Public Engagement Fellow**, Leshner Leadership Institute, American Association for the Advancement of Science
- 2012-2016 **Assistant Professor**, Department of Geology, Kent State University, Kent, Ohio
- 2007-2012 **Assistant Professor**, Department of Geography and Earth Sciences, University of North Carolina at Charlotte, Charlotte, North Carolina
- 2006-2007 **Post-doctoral Research Associate**, Department of Geosciences, Oregon State University, Corvallis, Oregon
- 2002-2006 **National Science Foundation Graduate Research Fellow**, Department of Geosciences, Oregon State University, Corvallis, Oregon
- 2001-2002 **Editorial and Teaching Assistant**, Water Resources Center and Water Resources Science program, University of Minnesota, St. Paul, Minnesota
- 2001 **Water Resources Planning Assistant**, Scott County, Shakopee, Minnesota

Research Funding

Active External Research Funding

- 2018-2021 Collaborative Research: Connecting local stormwater decision-making to environmental outcomes
PI: **A. Jefferson**
Co-PIs: D. Costello (Kent State U.), Aditi Bhaskar (Colorado State U.), V. Kelly Turner (UCLA)
Funding Agency: National Science Foundation, Environmental Sustainability
Amount: \$300,000 overall; \$236,633 to Kent State U.
- 2014-2020 Hydrology and Water Quality Performance of Green Infrastructure, Watershed Stewardship Center, West Creek Reservation
PI: **A. Jefferson**
Co-PIs: L. Kinsman-Costello and R. Coffman (Kent State U.)
Funding agency: Cleveland Metroparks
Amount: \$135,436 to Kent State U.

Completed External Research Funding

- 2016-2018 Black Swamp Conservancy Forrest Woods Harper Property Stream and Wetland Restoration Monitoring
PI: L. Kinsman-Costello
Co-PI: **A. Jefferson**
Funding Agency: EnviroScience, Inc. / Black Swamp Conservancy of Ohio
Amount: \$25,874 to Kent State U.
- 2012-2017 Bridging the Conceptual Divide Between Theoretical and Applied Environmental Chemistry
PI: **A. Jefferson**
Co-PIs: J. Ortiz, D. Dees (Kent State U.), E. Griffith (U Texas)
Funding agency: National Science Foundation, Division of Undergraduate Education (DUE 1140980)
Amount: \$189,235 to Kent State U.
- 2010-2015 Influence of stormwater management structures on ecological function in urban streams
PI: S. McMillan (UNCC)
Co-PIs: **A. Jefferson** and S. Clinton (UNCC), C. Tague (Univ. California Santa Barbara)
Funding agency: National Science Foundation, Environmental Engineering (CBET 1034043)
Amount: \$391,341 to UNCC

- 2014-2015 Testing the (storm) Waters: Techniques for Surface Reclamation on Urban Brownfields
 PI: R. Coffman
 Co-PIs: C. Blackwood, **A. Jefferson**, R. Liu
 Funding agency: U.S. Environmental Protection Agency P3: People, Prosperity and the Planet Student Design Competition
 Amount: \$14,685 to Kent State U.
- 2014-2015 Characterizing stream restoration's water quality improvement potential through hyporheic exchange enhancement
 PI: **A. Jefferson**
 Funding agency: Ohio Water Resources Center (USGS funds)
 Amount: \$18,878 to Kent State U.
- 2014-2015 Assessing the Effects of Green Infrastructure on Metals Concentrations in Stormwater Runoff
 PI: **A. Jefferson**
 Funding agency: Cleveland Metroparks
 Amount: \$4,693 to Kent State U.
- 2011-2012 Evaluating Restoration Success in the Watershed Context
 PI: S. Clinton (UNCC)
 Co-PIs: **A. Jefferson** and C.J. Allan (UNCC)
 Funding agency: North Carolina Water Resources Research Institute
 Amount: \$50,000 to UNCC
- 2007-2008 Contributions of Glacier Melt to Upper Hood River Streamflow and Implications of Climate Change
 PI: A. Nolin (Oregon State Univ.)
 Co-PIs: **A. Jefferson** and S. Lewis (Oregon State Univ.)
 Funding agency: Oregon Institute for Water and Watersheds
 Amount: \$30,000 to Oregon State Univ.
- 2005-2006 Influence of climate change on water supply in the McKenzie River Basin: Analysis of long-term and spatial hydrologic data
 PI: A. Nolin (Oregon State Univ.)
 Co-PIs: **A. Jefferson** (Oregon State Univ.) and G. Grant (USDA Forest Service)
 Funding agency: Oregon Center for Water and Environmental Sustainability
 Amount: \$41,212 to Oregon State Univ.
- 2004-2006 Discharge, source areas, and water ages of spring-fed streams and implications for water management in the McKenzie River Basin
 PI: G. Grant (USDA Forest Service)
 Co-PIs: **A. Jefferson** and S. Lewis (Oregon State Univ.)
 Funding agency: Eugene Water and Electric Board
 Amount: \$95,000 to Oregon State Univ.

2004-2005 Drainage development on highly-permeable basaltic lavas of the Oregon Cascades
 PI: **A. Jefferson**
 Funding agency: Geological Society of America student research grant
 Amount: \$2,800

Active Internal Research Funding

2018-2020 FoSTERing Restoration Success in Cuyahoga Valley National Park
 PIs: **A. Jefferson, C. Bahlai, B. Mulvey**
 Funding agency: Kent State University, Environmental Science and Design
 Research Initiative
 Amount: \$12,000

2017-2018 Riparian land use and urban stream water quality
 PI: **A. Jefferson**
 Funding agency: Kent State University, University Research Council
 Amount: \$3,500

Completed Internal Research Funding

2015-2017 Answering the “What IF” Questions about Green Infrastructure Through Numerical
 Modeling of Urban Stormwater Management
 PI: **A. Jefferson**
 Funding agency: Kent State University, Research and Sponsored Programs,
 Post-doctoral Scholars competition
 Amount: 1 year salary + benefits for post-doctoral scholar

2013-2014 The Cuyahoga River as a Laboratory for Water Resources Research
 Co-PIs: **A. Jefferson, R. Coffman, C. Blackwood, L. Leff**
 Funding agency: Kent State University, College of Arts & Sciences
 Amount: \$39,526 (internal)

2013-2014 Surveyor’s Total Station: Vital Resource for Collaborative Research in the Geology
 Department
 PI: **A. Jefferson**
 Co-PIs: **A. Shakoor, N. Wells, R. Feldmann, C. Schweitzer**
 Funding agency: Kent State University, College of Arts & Sciences Research
 Resources Award
 Amount: \$7,990 (internal)

2011 Characterizing the spatial variability of stable isotopes of water in a watershed
 PI: **A. Jefferson**
 Funding agency: UNCC College of Liberal Arts and Sciences
 Amount: \$793 (internal)

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| 2009-2010 | Groundwater interactions with headwater streams: a proposal to foster an independent research program for a junior faculty member |
| | PI: A. Jefferson |
| | Funding agency: UNCC ADVANCE Bonnie Cone Fellowship |
| | Amount: \$17,730 (internal) |
| 2008-2009 | Patterns and processes of island evolution in a large, regulated river |
| | PI: A. Jefferson |
| | Funding agency: UNCC Faculty Research Grant |
| | Amount: \$6,000 (internal) |

Publications

Journal Articles and Monograph Chapters (*italics* denote student co-author)

1. *Blauch, G.* and **Jefferson, A.J.**, 2019., If a tree falls in an urban stream, does it stick around? Mobility, characteristics, and geomorphic influence of large wood in urban streams in northeastern Ohio, USA., *Geomorphology*. 337: 1—14. doi: 10.1016/j.geomorph.2019.03.033.
2. *Scarlett, R., McMillan, S.K., Bell, C.D., Clinton, S.M., Jefferson, A.J., and Rao, S.* 2019. Influence of Stormwater Control Measures on Water Quality at Nested Sites in a Small Suburban Watershed. *Urban Water Journal*. doi:10.1080/1573062X.2019.1579347
3. **Jefferson, A.J.**, Kenney, M., Hill, T., and Selin, N. 2018. Universities Can Lead the Way Supporting Engaged Geoscientists. *Eos*. 99, doi:10.1029/2018EO111567
4. Singer, D.M., **Jefferson, A.J.**, *Traub, E.L.*, and Perdrial, N. 2018. [Mineralogical and geochemical variation in stream sediments impacted by acid mine drainage is related to hydro-geomorphic setting](#). *Elementa: Science of the Anthropocene*. 6(1): 31. doi:10.1525/elementa.286
5. **Jefferson, A.J.**, Bhaskar, A., Fanelli, R., Hopkins, K.G., Avellaneda, P.M., and McMillan, S.K. 2017. [Stormwater management network effectiveness and implications for urban watershed function: a critical review](#). *Hydrological Processes*. 31 (23): 4056–4080, doi:10.1002/hyp.11347.
6. Avellaneda, P.M., **Jefferson, A.J.**, Grieser, J.M., and *Bush, S.A.*, 2017. [Simulation of the cumulative hydrological response to green infrastructure](#). *Water Resources Research*. 53, doi:10.1002/2016WR019836.
7. *Bell, C.D., McMillan, S.K., Clinton, S.M., and Jefferson, A.J.*, 2017. [Characterizing the Effects of Stormwater Mitigation on Nutrient Export and Stream Concentrations](#). *Environmental Management*. 59: 604. doi:10.1007/s00267-016-0801-4
8. *Thapaliya, D., Hellwig, E.J., Kadariya, J., Grenier, D., Jefferson, A.J., Dalman, M., Kennedy, K., DiPerna, M., Oribill, A., Taha, M., Smith, T.C.* 2017. [Prevalence and characterization of](#)

- [Staphylococcus aureus and methicillin-resistant Staphylococcus aureus \(MRSA\) on public recreational beaches in Northeast Ohio](#). *GeoHealth*. 1: doi:10.1002/2017GH000106.
9. Bell, C.D., McMillan, S.K., Clinton, S.M., and **Jefferson, A.J.** 2016. [Hydrologic response to stormwater control measures in urban watersheds](#). *Journal of Hydrology*. 541: 1488-1500. doi: 10.1016/j.jhydrol.2016.08.049.
 10. Turner, V.K., Jarden, K.M., and **Jefferson, A.J.** 2016. [Resident perspectives on green infrastructure in an experimental suburban stormwater management program](#). *Cities and the Environment*, 9(1): art. 4.
 11. Jarden, K.M., **Jefferson, A.J.**, and Grieser, J.M. 2016. [Assessing the effects of street-scale green infrastructure retrofits on hydrograph characteristics, northeastern Ohio, USA](#), *Hydrologic Processes*, 30(10):1536-1550. doi: 10.1002/hyp.10736.
 12. **Jefferson, A.J.**, Bell, C.D., Clinton, S., and McMillan, S. 2015. [Application of isotope hydrograph separation to understand urban stormwater dynamics](#), *Hydrological Processes*, 29(25): 5290-5306. doi: 10.1002/hyp.10680
 13. Griffith, E.M., Ortiz, J.D., and **Jefferson, A.J.**, 2015. [Mimicking the Rayleigh isotope effect in the oceans](#), *Oceanography*, 28(4): 96-101. doi: 10.5670/oceanog.2015.89.
 14. Reilly, D., Singer, D., **Jefferson, A.J.**, and Eckstein, Y. 2015. [Identification of Local Groundwater Pollution in Northeastern Pennsylvania: Marcellus Flow-back or Not?](#), *Environmental Earth Sciences*, 73(12): 8097-8109. doi:10.1007/s12665-014-3968-0.
 15. **Jefferson, A.J.**, Ferrier, K., Perron, J.T., and Ramalho, R. 2014. [Controls on the hydrological landscape evolution of shield volcanoes and volcanic ocean islands](#), pp. 185-214 in Harpp, K.S., Mittelstaedt, E., d'Ozouville, N., and Graham, D.W. (eds), *The Galapagos: A Natural Laboratory for the Earth Sciences*, AGU Geophysical Monograph Series.
 16. **Jefferson, A.J.**, Wegman, K., and Chin, A. 2013. [Geomorphology of the Anthropocene: Understanding the surficial legacy of past and present human activities](#), *Anthropocene*, 2: 1-3, doi:10.1016/j.ancene.2013.10.005.
 17. Freyer, J.B. and **Jefferson, A.J.**, 2013. [An exception to island loss in the engineered Upper Mississippi River: history of land growth in Pool 6 and implications for restoration](#), *Anthropocene*, 2: 65-75, doi:10.1016/j.ancene.2013.10.004.
 18. **Jefferson, A.J.** and McGee, R.W. 2013. [Channel network extent in the context of historical land use, flow generation processes, and landscape evolution](#), *Earth Surface Processes and Landforms*, 38(6): 601-613, doi:10.1002/esp.3308.
 19. **Jefferson, A.J.** 2011. [Seasonal versus transient snow and the elevation dependence of climate sensitivity in maritime mountainous regions](#), *Geophysical Research Letters*, 38, L16402, doi:10.1029/2011GL048346.

20. Nolin, A., *Phillippe, J.*, **Jefferson, A.J.**, and Lewis, S. 2010. [Present and future contributions of glacier melt to summer flows in a Pacific Northwest watershed](#), *Water Resources Research*, W12509, doi:10.1029/2009WR008968.
21. O'Driscoll, M., Clinton, S., **Jefferson, A.J.**, Manda, A., and McMillan S. 2010. [Urbanization Effects on Watershed Hydrology and In-Stream Processes in the Southern United States](#), *Water*, 3 (2), 605-648.
22. **Jefferson, A.J.**, Hannula, K.A., Campbell, P.B., & Franks, S.E., 2010, [The Internet as a resource and support network for diverse geoscientists](#), *GSA Today*, 20 (9), 59-61.
23. **Jefferson, A.J.**, Grant, G., Lancaster, S., and Lewis, S., 2010, [Coevolution of hydrology and topography on a basalt landscape in the Oregon Cascade Range, USA](#), *Earth Surface Processes and Landforms*, 35(7): 803-816. doi: 10.1002/esp.1976.
24. **Jefferson, A.J.**, Nolin, A., Lewis, S., and Tague, C., 2008. [Hydrogeologic controls on streamflow sensitivity to climatic variability](#), *Hydrological Processes*. 22: 4371–4385.
25. Tague, C., Grant, G., Farrell, M., Choate, J., and **Jefferson, A.J.**, 2008, [Deep groundwater mediates streamflow response to climate warming in the Oregon Cascades](#), *Climatic Change* 86:189-210.
26. **Jefferson, A.J.**, Grant, G., and Rose, T., 2006, [The influence of volcanic history on groundwater patterns on the west slope of the Oregon High Cascades](#), *Water Resources Research*, 42, W12411, doi: 10.1029/2005WR004812.

Other Peer-Reviewed Publications

1. Keim, R., Kendall, C., and **Jefferson, A.**, 2014, [The Expanding Utility of Laser Spectroscopy: Laser Specs for Field Hydrology and Biogeochemistry: A USGS-CUAHSI Virtual Workshop; 27 January to 28 February 2014](#) [meeting report], *Eos*. 95(17): 144. DOI: 10.1002/2014EO170007
2. Clinton, S.M., **Jefferson, A.J.**, Allan, C.J., and Osypian, M., 2014, [Evaluating Restoration Success in the Watershed Context](#), North Carolina Water Resources Research Institute Project Report 11-02-S. 49 pp.
3. **Jefferson, A.**, Lees, J.M., McClinton, T. 2011. [Synthesizing Knowledge of Ocean Islands Chapman Conference on The Galápagos as a Laboratory for the Earth Sciences; Puerto Ayora, Galapágos, Ecuador, 25-30 July 2011](#) [meeting report], *Eos*. 92(44): Article number: 2011ES003632R
4. Cashman, K.V., Deligne, N.I., Gannett, M.W., Grant, G.E, and **Jefferson, A.**, 2009, [Fire and water: Volcanology, geomorphology, and hydrogeology of the Cascade Range, central Oregon](#), in O'Connor, J.E., Dorsey, R.J., and Madin, I.P., eds., *Volcanoes to Vineyards: Geologic Field Trips through the Dynamic Landscape of the Pacific Northwest*: Geological Society of America Field Guide 15, p. 539-582, doi: 10.1130/2009.fld015(26).

5. **Jefferson, A.**, Grant, G., and Lewis, S., 2007. [A river runs underneath it: geological control of spring and channel systems and management implications, Cascade Range, Oregon](#). In M.J. Furniss, C.F. Clifton, and K.L. Ronnenberg, eds. *Advancing the Fundamental Sciences: Proceedings of the Forest Service National Earth Sciences Conference*. PNW-GTR-689. Portland, OR: U.S.D.A. Forest Service, PNW Research Station. p. 391-400.

Other Publications

1. **Jefferson, A.J.**, 2019, [Shutdown will cast a long shadow over research](#). *Nature* 565, 399, doi: 10.1038/d41586-019-00207-9
2. Selin, N.E., Kenney, M., **Jefferson, A.J.**, Dukes, J.S., Hill, T.M., Olabisi, L.M., and Duffy, M.A. 2018, Call for new AAAS harassment policy. *Science*. 361(6406): 984. DOI: 10.1126/science.aav1680. (letter to the editor)
3. **Jefferson, A.J.** and Kenney, M. 2018. Efforts large and small speed science reform. *Science*. 360(6385): 164. doi:10.1126/science.aat6341. (letter to the editor)

Presentations (*italics* indicate student co-author)

Invited Seminars

- 2019 Signals of Stormwater Management Across Scales
Northeast Ohio Regional Sewer District, Lunch and Learn Series, May 9, 2019
- “Hydrology of the Anthropocene”
Case Western Reserve University, Earth, Environmental, and Planetary Science Department,
April 5, 2019
- 2018 “Hydrology of the Anthropocene”
University of Nevada Reno Hydrology Graduate Program “Water Visions” seminar series,
October 9, 2018
- “Signals of Stormwater Management Across Scales”
Oregon State University Water Resources Seminar Series, April 18, 2018
- “Signals of Stormwater Management Across Scales”
Portland State University Department of Geology/ U.S. Geological Survey Oregon Water
Science Center, April 17, 2018
- “Stormwater Management Across Scales: Insights from Isotopes and Hydrographs”
Cornell University Biogeochemistry, Environmental Science and Sustainability group, March
23, 2018
- “Scaling Up Stormwater Management: How Well Are We Doing?”

- University of Wisconsin, Madison, Department of Geography, March 12, 2018
- “Stopping Stormwater: Science and Strategies for Improving Stream Health”
Cuyahoga Valley National Park All-Park-Staff meeting, January 16, 2018
- 2017 “Scaling Up Stormwater Management: How well are we doing?”
University of Pittsburgh, Department of Geology and Environmental Science, November 2017
- "Evaluating the Effectiveness of Stormwater Management at the Site, Street, and Watershed Scale"
University of Akron, Integrated Bioscience Ph.D. program, April 2017
- 2016 "Evaluating the Effectiveness of Stormwater Management at the Site, Street, and Watershed Scale"
Kent State University, Department of Biological Sciences, December 2016
- "Evaluating the Effectiveness of Stormwater Management at the Site, Street, and Watershed Scale"
University of Vermont, Department of Plant and Soil Sciences, September 2016
- "Stopping Stormwater: An Interdisciplinary Approach to Improving the Urban Environment"
Indiana University of Pennsylvania, Summer Scholar Program, August 2016
- "Stormwater-stream connectivity: Context and Process."
University of Buffalo, Department of Environmental Engineering, April 2016
- 2015 "Stormwater-Stream Connectivity in Urban Watersheds"
Cleveland Metroparks, Natural Resources Research Symposium, December 2015
- "Stormwater-stream connectivity: Process, context, and tradeoffs."
Cleveland State University, Department of Biological, Geological, and Environmental Sciences, October 2015
- 2014 "Stormwater-stream connectivity: Process, context, and tradeoffs."
CUAHSI Cyberseminar Series on Sustainable Urban Streams, Cyberseminar (<https://www.cuahsi.org/Posts/Entry/13551>), December 2014
- "Complexity²: Process insights in urban and restored streams and watersheds"
Ohio State University, School of Earth Sciences, Columbus, OH, September 2014
- "The Flow Below: Hyporheic exchange and groundwater-stream interactions"
Northeast Section of the Ohio Water Environment Association, Parma, OH, April 2014
- 2013 "Evaluating success of urban stream restoration in an ecosystem services context"
Kent State University Water Symposium, Kent, OH, November 2013

- "Evaluating success of urban stream restoration in an ecosystem services context"
Kent State University, Department of Biological Sciences, Kent, OH, March 2013
- "Drainage network evolution is driven by coupled changes in landscape properties and hydrologic response."
Denison University, Department of Geosciences, Granville, OH, March 2013
- "Evaluating success of urban stream restoration in an ecosystem services context"
North Dakota State University, Department of Geosciences, Fargo, ND, March 2013
- 2012 "Drainage network evolution is driven by coupled changes in landscape properties and hydrologic response."
The Johns Hopkins University, Department of Geography & Environmental Engineering, Baltimore, MD, November 2012
- "The Science of Streams in the City"
Ashland University, Environmental Lecture Series, Ashland, OH, October 2012
- 2011 "Where do streams come from? Interplay of geology and hydrology on North Carolina and Oregon landscapes"
University of South Carolina, Department of Geography, Columbia, SC, 2011
- "Where do streams come from? Interplay of geology and hydrology on North Carolina and Oregon landscapes"
University of Iowa, Department of Geological Sciences, Iowa City, IA, February 2011
- "Tracing water sources and dynamics in forested and urban headwater streams of North Carolina's Piedmont"
University of North Carolina at Chapel Hill, Department of Geological Sciences, Chapel Hill, NC, January 2011
- 2009 "Geological regulation of flowpaths and hydrographs: Lessons from the Oregon Cascades"
Utah State University, Department of Watershed Sciences, Logan, UT, March 2009
- "Geological regulation of flowpaths and hydrographs: Lessons from the Oregon Cascades"
University of Montana, Department of Geosciences, Missoula, MT, February 2009
- 2007 "Drainage density: A framework for predicting peak and low flows in ungauged catchments"
UNC Charlotte Infrastructure and Environmental Systems Seminar, Charlotte, NC, October 2007
- "Climate change now: On-going and future changes to Oregon's snowpack and streamflow"
Climate Change Film Festival and Forum, Bend, OR, April 2007
- 2006 "Hydrology of the McKenzie River watershed"
Association of Power Biologists 47th Annual Workshop, Eugene, OR, May 2006

- 2005 "Five years from snowfall to spring water: Understanding the sources of streamflow in the Oregon Cascades"
U.S. Geological Survey Oregon Water Science Center, Portland, OR, February 2005
- 2004 "Understanding the source of water in Cascades rivers and planning for climate change"
Oregon Water Resources Department Commissioners, Salem, OR, October 2004
- "Research activities on spring-fed streams in the McKenzie River watershed"
"Spring Fling", workshop for Forest Service and BLM personnel to discuss the management implications of large springs on federal lands, Corvallis, OR, June 3, 2004
- 1997 "Island and delta development, sediment loads, and deposition in Lower Pool 6, Mississippi River"
US Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS, July 1997

Invited Conference Presentations (*italics* denote student co-author)

- 2017 **Jefferson, A.**, Avellaneda, P.M., Turner, V.K., *Jarden, K.M.*, and Grieser, J.M. "Scaling Up Green Infrastructure in Residential Landscapes: Lessons from northeastern Ohio"
International Association for Landscape Ecology – US Conference, Baltimore, MD, April 2017.
- 2016 **Jefferson, A.** "Social Media for Community Building Among Geoscientists from Under-represented Groups." American Geophysical Union Fall Meeting, San Francisco, CA, December 2016
- Jefferson, A.** "The Case for Urban CZOs", Critical Zone Observatory Townhall, American Geophysical Union Fall Meeting, San Francisco, CA, December 2016
- 2015 **Jefferson, A.**, *Jarden, K.*, and Grieser, J.M. Retrofitting stormwater retention on headwater streets: hydrologic effects of catchment-scale green infrastructure. Geological Society of America Annual Meeting, Baltimore, MD, November 2015.
- Jefferson, A.**, *Bell, C.D.*, McMillan, S. and Clinton S. Quantifying the influences of stormwater control measures on urban headwater streamflow. Geological Society of America Annual Meeting, Baltimore, MD, November 2015.
- Jarden, K.*, **Jefferson, A.**, Turner, V.K., Grieser, J.M., Schaefer, D. Assessing hydrologic impacts of street-scale green infrastructure investments for suburban Parma, Ohio. Association of American Geographers, Chicago, IL, April 2015
- 2014 **Jefferson, A.**, McMillan, S., and Clinton, S. Evaluating the success of urban stream restoration on hyporheic exchange and nutrient retention, [British Hydrological Society, Birmingham, UK](#), September 2014
- 2013 **Jefferson, A.**, Clinton, S., *Osypan, M.*, McMillan, S., *Tuttle, A.* Evaluating the success of urban stream restoration in an ecosystem services and watershed context, [Upper Midwest Stream Restoration Symposium, La Crosse, WI](#), February 2013 (*keynote speaker*)

2012 **Jefferson, A.** Evaluating the success of urban stream restoration in an ecosystem services context, Kent State University Water Symposium, Kent, OH, October 2012

Jefferson, A. Timescales of drainage network evolution are driven by coupled changes in landscape properties and hydrologic response, Consortium of Universities for the Advancement of Hydrologic Sciences, Inc. (CUAHSI) Biennial Meeting, Boulder, CO, July 2012

2011 **Jefferson, A.** and *McGee, R.W.*, Understanding channel network extent in the North Carolina Piedmont in the context of legacy land use, flow generation processes, and landscape dissection, American Geophysical Union Fall Meeting, San Francisco, CA, December 2011.

Jefferson A. and d'Ozouville, N. Controls on the hydrologic evolution of Quaternary volcanic landscapes, American Geophysical Union Fall Meeting, San Francisco, CA, December 2011.

Jefferson, A. Top down or bottom up? Volcanic history, climate, and the hydrologic evolution of volcanic landscapes, [Chapman Conference on The Galápagos as a Laboratory for the Earth Sciences; Puerto Ayora, Galapagos, Ecuador](#), July 2011 (*plenary speaker*)

2009 **Jefferson, A.** On a template set by basalt flows, hydrology and erosional topography coevolve in the Oregon Cascade Range, Geological Society of America Annual Meeting, Portland, OR, October 2009.

Conference Abstracts (*italics* denote student co-author)

2018 **Jefferson, A.** and Avellaneda, P.M. Identifying Hydrologic Sensitivity to Infiltration-based Stormwater Management at the Watershed Scale. American Geophysical Union Fall Meeting, Washington, D.C., December 2018.

Jefferson, A., Grieser, J.M., Kinsman-Costello, L.E., Coffman, R., and Lorch, P.D. A Park-University Partnership on Science for Stewardship in Urban Environments. American Geophysical Union Fall Meeting, Washington, D.C., December 2018.

Kenney, M.A, **Jefferson, A.**, Hill, T.M., and Selin, N.E. Supporting Engaged Scientists: How Universities Can Lead the Way. American Geophysical Union Fall Meeting, Washington, D.C., December 2018.

Plauche, M. and **Jefferson, A.** Land Cover and Seasonal Influence on Chloride and Nitrate Concentrations along Urban Streams with Similar Impervious Surface Cover. American Geophysical Union Fall Meeting, Washington, D.C., December 2018.

Ruggles, T., Minerovic, A., **Jefferson, A.**, *Ruhm, C.*, Davis, C., and Blackwood, C. Influence of the invasive, nitrogen fixing shrub, autumn olive on soil chemistry and vegetation in reclaimed surface mines. American Geophysical Union Fall Meeting, Washington, D.C., December 2018.

- Jefferson, A.** and *Blauch, G.* Wood in Urban Streams is a Function of Watershed Impervious Area and Riparian Buffers. Geological Society of America Annual Meeting, Indianapolis, IN, November 2018
- Rubm, C.*, Davis, C., **Jefferson, A.**, Blackwood, C., Bahlai, C., and *Ruggles, T.* Soil Properties Impede Reforestation of Abandoned Mine Sites in Cuyahoga Valley National Park. Geological Society of America Annual Meeting, Indianapolis, IN, November 2018
- Timmons, J.S.* and **Jefferson, A.** Small Scale (<10,000 km²) Isoscapes Reveal Spatially Variable Water Sources for Northeastern Ohio Precipitation, Surface Water, and Groundwater. Geological Society of America Annual Meeting, Indianapolis, IN, November 2018
- Jefferson, A.** and Avellaneda, P.M. Identifying Hydrologic Sensitivity to Infiltration-Based Stormwater Green Infrastructure at the Watershed Scale. University Council on Water Resources Conference, Pittsburgh, PA, June 2018
- Blauch, G.* and A. Jefferson, Urban Influence on Large Wood Abundance in Streams. University Council on Water Resources Conference, Pittsburgh, PA, June 2018
- Plauche, M.* and A. Jefferson, Spatial and Temporal Variability of Chloride Concentrations in Urban Streams in Northeast Ohio as a Function of Land Cover. University Council on Water Resources Conference, Pittsburgh, PA, June 2018
- 2017 **Jefferson, A., L.L. Sugano, H. Buzulencia,** P.M. Avellaneda, L. Kinsman-Costello, Storage Dynamics Revealed by Water Isotopes Provide Insight into Water Quality Function of Stormwater Green Infrastructure. Geological Society of America Annual Meeting, Seattle, WA, October 2017.
- Blauch, G.* and **A. Jefferson.** Abundance and Geomorphic Function of Wood in Urban Stream Systems. Geological Society of America Annual Meeting, Seattle, WA, October 2017.
- Rubm, C., A. Jefferson,* C. Blackwood, A. Minerovic, and C. Davis, Soils and Geomorphology of Five Reclaimed Surface Mine Sites in the Cuyahoga Valley National Park, Ohio. Geological Society of America Annual Meeting, Seattle, WA, October 2017.
- Jefferson, A.** Water isotopes provide insights into the ecohydrologic functioning of stormwater green infrastructure. HydroEco 2017, Birmingham, UK, June 2017.
- Jefferson, A.** and P.M. Avellaneda. Runoff reduction with neighborhood-scale green infrastructure: insights from modeling. Ohio Stormwater Conference, Sandusky, OH, May 2017.
- Bingham, J. and **A. Jefferson.** Incorporating Nutrient Reduction Design Into a Maumee Watershed Restoration Project, Ohio Stormwater Conference, Sandusky, OH, May 2017.

Blauch, G., C. Rubm, L.L. Sugano, and A. Jefferson. Streambed sediment and hydraulic geometry in the post-glacial landscape of northeastern Ohio. Geological Society of America Northeastern-North Central Meeting, Pittsburgh, PA, March 2017.

Jefferson, A., L.L. Sugano, P.M. Avellaneda, L. Kinsman-Costello, Water isotopes provide insights into the hydrologic functioning of stormwater green infrastructure. Geological Society of America Northeastern-North Central Meeting, Pittsburgh, PA, March 2017.

2016 **Jefferson, A., P.M. Avellaneda, K. Jarden., V.K. Turner, J.M. Grieser.** A Neighborhood-Scale Green Infrastructure Retrofit: Experimental Results, Model Simulations, and Resident Perspectives, American Geophysical Union Fall Meeting, San Francisco, CA, December 2016

Jefferson, A., J. Ortiz, D. Dees, E. Griffith, and W. Merchant. Data-driven Approaches to Teaching Stable Isotopes in Hydrology and Environmental Geochemistry, American Geophysical Union Fall Meeting, San Francisco, CA, December 2016

McKinnon, M. and Jefferson, A. Staying Safe While Doing Science in Public: Emerging Best Practices for Social Media, American Geophysical Union Fall Meeting, San Francisco, CA, December 2016

Jefferson, A., P. Avellaneda, K. Jarden., V.K. Turner, J.M. Grieser. A Neighborhood-Scale Green Infrastructure Retrofit: Experimental Results, Model Simulations, and Resident Perspectives, Water Management Association of Ohio meeting, Columbus, OH, November 2016

Unferdorfer, C., Jefferson, A., Kinsman-Costello, L., Buzulencia, H., Sugano, L. Surface runoff from a closed landfill and the effects on wetland suspended sediment and water quality. Geological Society of America Annual Meeting, Denver, CO, September 2016

Sugano, L., Jefferson, A., Kinsman-Costello, L., Avellaneda, P. Evaluating Bioretention Cell and Green Roof Hydrologic Performance in northeastern Ohio, Geological Society of America Annual Meeting, Denver, CO, September 2016.

Sugano, L., Jefferson, A., Kinsman-Costello, L., Avellaneda, P. Evaluating Bioretention Cell and Green Roof Hydrologic Performance in northeastern Ohio, Consortium of Universities for the Advancement of Hydrologic Science, Inc. Biennial Colloquium, Sheperdstown, WV, July 2016.

P. Avellaneda, **Jefferson, A.,** Grieser, J.M., Long-term simulation of green infrastructure effects at a catchment scale, Consortium of Universities for the Advancement of Hydrologic Science, Inc. Biennial Colloquium, Sheperdstown, WV, July 2016.

Sarazen, J.C., Kinsman-Costello, L.E., Jefferson, A.J., Scholl, A. The effect of antecedent soil moisture conditions on green roof runoff water quality and quantity. 59th Annual Conference on Great Lakes Research, Guelph, ON, Canada, May 2016.

- 2015 **Jefferson, A.** and *Baker, S.B.* Dynamic Hydraulic Conductivity, Streambed Sediment, and Biogeochemistry Following Stream Restoration, American Geophysical Union Fall Meeting, San Francisco, CA, December 2015.
- Bell, C.D.*, *McMillan, S.*, *Clinton, S.*, and **Jefferson, A.** Hydrologic response to watershed metrics describing urban development and mitigation with stormwater control measures, Geological Society of America Annual Meeting, Baltimore, MD, November 2015.
- Lewis, S.L.*, *Grant, G.E.*, *Nolin, A.W.*, *Hempel, L.*, **Jefferson, A.**, and *Selker, J.* How low will they go? The response of headwater streams in the Oregon Cascades to the 2015 drought. Geological Society of America Fall Meeting, Baltimore, MD, November 2015.
- Jarden, K.*, **Jefferson, A.**, *Grieser, J.M.*, *Schaefer, D.* Assessing hydrologic impacts of street-scale green infrastructure investments for suburban Parma, Ohio. Ohio Stormwater Conference, Sandusky, OH, May 2015.
- Baker, S.B.* and **Jefferson, A.** Changes in hyporheic exchange and subsurface processes following stream restoration. Upper Midwest Stream Restoration Symposium, Dubuque, IA, February 2015.
- 2014 **Jefferson, A.**, *Griffith, E.M.*, *Ortiz, J.D.*, *Dees, D.* and *Merchant, W.*, Hands-on Experiences with Stable Isotopes in the Geosciences Curriculum. Geological Society of America Annual Meeting, Vancouver, BC, October 2014.
- Baker, S.B.* and **Jefferson, A.** Changes in hyporheic exchange and subsurface processes following stream restoration. Geological Society of America Annual Meeting, Vancouver, BC, October 2014.
- Brown, K.M.* and **Jefferson, A.** After the dam comes down: groundwater-stream interactions and water quality effects of restored and unrestored reaches in northeastern Ohio, Geological Society of America Annual Meeting, Vancouver, BC, October 2014.
- Griffith, E.M.*, *Ortiz, J.D.*, **Jefferson, A.**, *Dees, D.* and *Merchant, W.*, Rayleigh Isotope Distillation Module – Development and Transferability in Geoscience Education. Geological Society of America Annual Meeting, Vancouver, BC, October 2014.
- Jarden, K.*, **Jefferson, A.**, *Grieser, J.*, and *Schafer, D.* Assessing hydrologic impacts of street-scale green infrastructure investments for suburban Parma, Ohio. Geological Society of America Annual Meeting, Vancouver, BC, October 2014.
- Reynolds, A.* and **Jefferson, A.** Sensitivity of precipitation isotope meteoric water lines and seasonal signals to sampling frequency and location. Geological Society of America Annual Meeting, Vancouver, BC, October 2014.
- Traub, E.L.*, **Jefferson, A.**, and *Singer, D.M.* The effects of biogeochemical sinks on the mobility of trace metals in an area affected by acid mine drainage, Huff Run, Ohio. Geological Society of America Annual Meeting, Vancouver, BC, October 2014.

- Baker, S.B.* and **Jefferson, A.**, Development of hyporheic exchange and nutrient uptake following stream restoration, CUAHSI Biennial Colloquium, July 2014
- Brown, K.* and **Jefferson, A.** After the dam comes out: groundwater-stream interactions and water quality impacts of former reservoir sites, CUAHSI Biennial Colloquium, July 2014
- Garner, G., Jefferson, A., McMillan, S., Bell, C.,* and Hannah, D.M., Stormwater control measures modify event-based stream temperature dynamics in urbanized headwaters, CUAHSI Biennial Colloquium, July 2014
- Jarden, K., Jefferson, A., Grieser, J.,* and Schafer, D. Assessing impacts of green infrastructure at the watershed scale for suburban streets in Parma, Ohio, CUAHSI Biennial Colloquium, July 2014
- Jefferson, A.**, Griffith, E., Ortiz, J., and Dees, D., Hands-On Experiences with Stable Isotopes in the Geosciences Curriculum, Laser Specs for Field Hydrology and Biogeochemistry (CUAHSI/USGS workshop), February 2014
- Reynolds, A.* and **Jefferson, A.**, Sensitivity of precipitation isotope meteoric water lines and seasonal signals to sampling frequency and location, Laser Specs for Field Hydrology and Biogeochemistry (CUAHSI/USGS workshop), February 2014
- 2013 **Jefferson, A.**, Clinton, S., *Oypian, M.*, Transient storage versus hyporheic exchange in low-gradient headwater streams, American Geophysical Union Fall Meeting, San Francisco, CA, December 2013.
- Lewis, S.L., Safeeq, M., **Jefferson, A.**, and Grant, G.E., Revisiting watershed drainage density: New considerations for hydrologic prediction, Geological Society of America Annual Meeting, Denver, CO, October 2013.
- Jefferson, A.**, Clinton, S., *Oypian, M.*, Evaluating the effectors of restoration on transient storage and ecosystem services in urban headwater streams, Society for Ecological Restoration, Midwest-Great Lakes Meeting, Wooster, OH, April 2013
- Deligne, N.I.,* Cashman, K.V., Grant, G.E., and **Jefferson, A.** Potential impact of lava flows on regional water supplies: case study of central Oregon Cascades volcanism and the Willamette Valley, USA, European Geosciences Union annual meeting, Vienna, Austria, April 2013
- 2012 **Jefferson, A.**, *Blue, B.,* McMillan, S. Characterizing the effects of hydrometeorology and stream networks on urban stream temperature response to precipitation, Geological Society of America Annual Meeting, Charlotte, NC, November 2012.
- Bell, C.,* McMillan, S., **Jefferson, A.**, Tague, C., and Clinton, S. Using Computer Modeling To Assess Hydraulic Parameter Transferability From An Undeveloped To An Urban Watershed With Stormwater Infrastructure, Geological Society of America Annual Meeting, Charlotte, NC, November 2012.

- Osygian, M.*, Clinton, S., and **Jefferson, A.** Evaluating restoration effects on transient storage and hyporheic exchange in urban and forested streams, Geological Society of America Annual Meeting, Charlotte, NC, November 2012.
- Safrit, C.*, Clinton, S., McMillan, S. and **Jefferson, A.** Impacts of Stormwater Management on Temperature Response in Urban Streams, Geological Society of America Annual Meeting, Charlotte, NC, November 2012.
- Bell, C.*, McMillan, S., Tague, C., **Jefferson, A.** and Clinton, S. Using Watershed Modeling to Optimize Management of Urban Stormwater to Control Stream Nitrogen, American Ecological Engineering Society, Syracuse, NY, June 2012.
- Osygian, M.*, Clinton, S., and **Jefferson, A.** Evaluating restoration effects on transient storage and hyporheic exchange in urban and forested streams, Society for Freshwater Science Annual Meeting, Louisville, KY, May 2012.
- 2011 **Jefferson, A.** and *Moore, C.* Spatial variability in groundwater-stream interactions in first-order North Carolina Piedmont streams, Geological Society of America Annual Meeting, Minneapolis, MN, October 2011.
- 2010 **Jefferson, A.**, Spatial heterogeneity in isotopic signatures of baseflow in small watersheds: implications for understanding watershed hydrology, American Geophysical Union Fall Meeting, San Francisco, CA, December 2010.
- Grant, G., **Jefferson, A.**, Tague, C., Lewis, S., The Geologic Sponge: What Do Storage Dynamics Reveal About Runoff Generation In Young Volcanic Landscapes?, American Geophysical Union Fall Meeting, San Francisco, CA, December 2010.
- Jefferson, A.**, *McGee, R.*, *Moore, C.* and *Caveny-Cox, C.* Hydrogeomorphic controls on the expression of stream water in less than 1 km² Piedmont watersheds, Northeastern/Southeastern Geological Society of America Meeting, Baltimore, MD, March 2010.
- Freyer, J.B.* and **Jefferson, A.** Effects of river management & sediment supply on island evolution in Pool 6 of the Upper Mississippi River, southeast Minnesota, Upper Midwest Stream Restoration Symposium, LaCrosse, WI, February 2010.
- 2009 **Jefferson, A.**, Abraham, J., Campbell, T., and *Moore, C.* Groundwater contributions to headwater streams on fractured rock in the North Carolina Piedmont and Blue Ridge. Geological Society of America Annual Meeting, Portland, OR, October 2009.
- Moore, C.* and **Jefferson, A.** Sediment size distributions in forested headwater streams of the North Carolina Piedmont. Geological Society of America Annual Meeting, Portland, OR, October 2009.
- Hannula, K., **Jefferson, A.**, Campbell, P. and Franks, S. Blogs as a resource and social support network for women geoscientists. Geological Society of America Annual Meeting, Portland, OR, October 2009.

- 2008 **Jefferson, A.** Secular Streamflow Trends in Watersheds Receiving Mixed Rain and Snow, Pacific Coast and Cascades Ranges. American Geophysical Union Fall Meeting, San Francisco, CA, December 2008.
- Grant, G., Tague, C., **Jefferson, A.**, Lewis, S. Geological framework for interpreting streamflow and temperature regimes under climate warming. American Fisheries Society Western Division Annual Meeting, Portland, OR, June 2008.
- 2007 **Jefferson, A.**, Grant, G., and Lewis, S. Drainage Density: A Framework for Predicting Peak and Low Flows in Ungaged Catchments, American Geophysical Union Fall Meeting, San Francisco, CA, December 2007.
- Jefferson, A.**, Nolin, A., Lewis, S. and Tague, C. Groundwater influences summer streamflow response to climate change in the Oregon Cascades, Geological Society of America Annual Meeting, Denver, CO, October 2007.
- Grant, G., **Jefferson, A.**, Lewis, S. and O'Connor, J. Drainage density integrates geology and climate, reflects landscape evolution, and constrains paleoflood magnitudes, 4th International Paleoflood Workshop, Crete, Greece, June 2007.
- 2006 **Jefferson, A.**, Nolin, A., Lewis, S., Payne, M., and Grant, G. Climate variability, snowmelt distribution, and effects on streamflow in a Cascades watershed, Eastern Snow Conference, Newark, DE, June 2006.
- 2005 **Jefferson, A.** and Grant, G., Drainage network development on a porous landscape, American Geophysical Union Fall Meeting, San Francisco, CA, December 2005.
- Tague, C., Grant, G., Farrell, M., and **Jefferson, A.**, Characterizing regional spatial variation in summer streamflow response to climate warming in the mountains of the Western US, American Geophysical Union Fall Meeting, San Francisco, CA, December 2005.
- Jefferson, A.**, and Grant, G., Groundwater systems of the McKenzie River watershed, Oregon High Cascades, Groundwater Under the Pacific Northwest: Integrating Research, Policy, and Education, Stevenson, WA, November 2005.
- Grant, G., O'Connor, J., Wampler, P., Lancaster, S., **Jefferson, A.**, Lewis, S., and Ronnenberg, K. Geological controls on the abundance of gravel in rivers, International Conference on Gravel Bed Rivers VI, Lienz, Austria, September 2005.
- Jefferson, A.**, Rose, T., and Grant, G., Volcanic aquifers feed large springs on the Oregon High Cascades mafic platform, American Geophysical Union Joint Assembly, New Orleans, LA, May 2005.
- Grant, G., Tague, C., and **Jefferson, A.**, The ultimate hydrologic sponge: hydrology and dynamics of a young volcanic arc in a Mediterranean climate, American Geophysical Union Joint Assembly, New Orleans, LA, May 2005.

- 2004 **Jefferson, A.**, Grant, G., Lewis, S., and Tague, C., Geology broadly predicts summer streamflow in volcanic terrains: lessons from the Oregon Cascades, American Geophysical Union Fall Meeting, San Francisco, CA, December 2004.
- Grant, G., Tague, C., and **Jefferson, A.**, Geologically mediated groundwater storage can be a first-order control on streamflow response to changing climate, American Geophysical Union Fall Meeting, San Francisco, CA, December 2004.
- 2003 **Jefferson, A.**, and Grant, G., Recharge areas and discharge of groundwater in a young volcanic landscape, McKenzie River, Oregon, Geological Society of America Annual Meeting, Seattle, WA, November 2003.
- Grant, G., **Jefferson, A.**, O'Connor, J.E., Tague, C., Lewis, S., and Haluska, T.L., Drainage network evolution in volcanic landscapes: how much time does it take to get the river flowing?, Geological Society of America Annual Meeting, Seattle, WA, November 2003.
- 2002 **Jefferson A.** and Jahren, A.H., Isotopic characterization of summer streamflow at Stenkul Fiord, Ellesmere Island, American Institute of Hydrology Annual Meeting, October 2002.
- 2001 Jefferson, C. and **Jefferson, A.**, 100 years of change in island morphology and backwater bathymetry in pools 6-10, Mississippi River Research Consortium, La Crosse, WI, May 2001.
- 1997 **Jefferson, A.** and Jefferson, C., Changes in island morphology, delta development, sediment loads and deposition in Pool 6, Upper Mississippi River, American Association for the Advancement of Science Annual Meeting, Seattle, WA, February 1997.
- 1996 Jefferson C. and **Jefferson, A.**, Sedimentation in Trempealeau Bay, Pool 6, Mississippi River. Mississippi River Research Consortium, La Crosse, WI, May 1996.

Teaching

Courses Taught at Kent State University

Ph.D./M.S. level

| | |
|--|--------------|
| Advanced Topics in Hydrology (3 credits) | F2018 |
| Fluvial Processes (3 credits) | F2016 |
| Graduate Student Orientation (1 credit) | F2018 |
| Writing in the Earth Sciences (1 credit) | S2018, S2019 |
| College Teaching of Applied Geology (1 credit) | F2012; F2013 |

M.S./Advanced Undergraduate level

| | |
|---------------------------------|-----------------------------------|
| Urban Hydrology (3 credits) | S2013 |
| Fluvial Processes (3 credits) | F2013 |
| Watershed Hydrology (3 credits) | S2014, F2015, S2017, S2018, S2019 |

Core Classes

Environmental Earth Science (3 credits)

F2014 (honors), S2016, F2016,
F2018

Courses Taught at UNC Charlotte

Ph.D./M.S. level

Analysis and Acquisition of Scientific Data (3 credits)

F2009; F2010

M.S./Advanced Undergraduate level

Fluvial Processes and Laboratory (4 credits)

S2008; S2009; S2010; F2011

Hydrogeology and Laboratory (4 credits)

F2008; S2010; S2012

Advanced Undergraduate level

Earth Sciences Seminar: Climate Change (1 credit)

F2008; F2009(x2); F2010

Earth Sciences Seminar: Natural Disasters (1 credit)

F2011

Introductory Undergraduate level

Earth Sciences – Geography (3 credits)

F2007; S2008; S2009

Courses Taught at Oregon State University

The Earth Surface and Laboratory (4 credits)

Sum2005

Post-doctoral Scholars Mentored

Pedro M. Avellaneda February 2016-August 2017

- 2 co-authored publications (Avellaneda *et al.*, 2017, Jefferson *et al.*, 2017)

Graduate Students Theses

Krista Brown

M.S. Geology, Kent State University, April 2019

Groundwater-stream interactions and water quality of former dam reservoirs in Northeast Ohio

Catherine Ruhm

M.S. Geology, Kent State University, November 2018

The Effects of Two Types of Reclamation on Abandoned Non-Coal Surface Mines in Cuyahoga Valley National Park, Ohio

Garrett Blauch

M.S. Geology, Kent State University, June 2018

Abundance, Mobility, and Geomorphic Effects of Large Wood in Urban Streams

- 1 co-authored publication (Blauch and Jefferson, 2019)

Laura Sugano

M.S. Geology, Kent State University, April 2018

Comparing Bioretention Cell and Green Roof Performance in Parma, Ohio

- Eric Traub M.S. Geology, Kent State University, May 2016
[The Effects of Biogeochemical Sinks on the Mobility of Trace Metals in an Area Affected By Acid Mine Drainage, Huff Run, Ohio](#) (co-advised by David Singer)
 • 1 co-authored publication (Singer et al, 2018)
- Kimberly Jarden M.S. Geology, Kent State University, April 2015
[Assessing impacts of green infrastructure at the watershed scale for suburban streets in Parma, Ohio.](#)
 • 2 co-authored publications (Jarden *et al.*, 2016, Turner *et al.*, 2016)
- Darren Reilly M.S. Geology, Kent State University, April 2014
[Identification of Local Ground Water Pollution in Northeastern Pennsylvania: Marcellus Flow-back or Not?](#)
 • 1 co-authored publication (Reilly *et al.*, 2015)
- Mackenzie Osypian M.S. Civil Engineering, UNC Charlotte, April 2013
[Evaluating restoration effects on transient storage and hyporheic exchange in urban and forested stream](#) (co-advised by Sandra Clinton and John Daniels)
- Brock Freyer M.S. Earth Sciences, UNC Charlotte, April 2013
[Fluvial Response to River Management and Sediment Supply: Pool 6 of the Upper Mississippi River System, Southeastern Minnesota](#)
 • 1 co-authored publication (Freyer and Jefferson, 2013)
- Brandon Blue M.S. Earth Sciences, UNC Charlotte, August 2012
[Seasonal Urban Stream Temperature Response to Storm Events Within the Piedmont of North Carolina](#) (co-advised by S. McMillan)
- Alea Tuttle M.S. Earth Sciences, UNC Charlotte, August 2012
[Post-project evaluations of urban stream restoration sites in the southeastern Piedmont: streambed sediment denitrification and geomorphic complexity](#) (co-advised by S. McMillan)
 • 2 publications with co-advisor
- Ralph W. McGee M.S. Earth Sciences, UNC Charlotte, May 2011
[Hydrogeomorphic processes influencing ephemeral streams in forested watersheds of the southeastern Piedmont U.S.A.](#)
 • 1 co-authored publication (Jefferson and McGee, 2013)
- Cameron Moore M.S. Earth Sciences, UNC Charlotte, May 2011
[Surface/Groundwater Interactions and Sediment Characteristics of Headwater Streams in the Piedmont of North Carolina](#)

Graduate Students In Progress

- Mary Plauche M.S. Geology, Kent State University, 2017-present

Land Cover and Infrastructure Influences on Chloride and Nitrate Concentrations of Urban Streams in Northeast Ohio

Jeffrey Timmons M.S. Geology, Kent State University, 2017-present
Groundwater, surface water, and precipitation isoscapes of northeastern Ohio

Hayley Buzulencia M.S. Geology, Kent State University, 2015-present
The Characterization and Survey of Inorganic Sulfur Redox Associated with Wetland Hydrological Fluctuations (co-advised by Lauren Kinsman-Costello)

Graduate Committee Membership

Israel Olaoye, Ph.D. Applied Geology, Kent State University, in progress
Andrea Fitzgibbon, Ph.D, Biological Sciences, Kent State University, in progress
Deshawn Johnson, Ph.D., Biological Sciences, Kent State University, in progress
Corey Coakley, Ph.D., Geography, Kent State University, in progress
Elana Satchew, Ph.D., Integrated Bioscience, University of Akron, in progress
Kyle Carey, M.S., Geology, Kent State University, in progress
Courtney Smith, M.S., Geology, Kent State University, in progress
Brienne Yarger, M.S., Geology, Kent State University, in progress
Marissa Tomin, M.S., Geology, Kent State University, in progress
Jacob Bradley, M.S., Geology, Kent State University, in progress

Jonathon Van Gray, Ph.D., Biological Sciences, Kent State University, 2019
Dulcinea Avouris, Ph.D. Applied Geology, Kent State University, 2018
Johnathon Kirk, Ph.D., Geography, Kent State University, 2017
Nicholas Bonini, Ph.D., Applied Geology, Kent State University, 2016
Chandawimal Siriwardana, Ph.D., Applied Geology, Kent State University, 2014
Suchismita Ghosh, Ph.D., Biological Sciences, Kent State University, 2013
Jason Shiflet, Ph.D., Infrastructure and Environmental Systems, UNC Charlotte, 2016
Vijaya Gagrani, Ph.D., Infrastructure and Environmental Systems, UNC Charlotte, 2012
Meaghan Shaw, M.S., Geology, Kent State University, 2018
Eric Hartung, M.S. Ecology, Kent State University, 2017
Phil Edwards, M.S. Earth Sciences, UNC Charlotte, 2011
Thomas Barto, M.S. Earth Sciences, UNC Charlotte, 2010
Mary Cauthen, M.S. Earth Sciences, UNC Charlotte, 2010
Anthony Layzell, M.S. Earth Sciences, UNC Charlotte, 2010

Undergraduate Research Projects Supervised

Alex Mailhot Kent State University Anthropology major, 2018-2019, "Dynamics of Urban Stream Water Sources During Storms"
• Poster at Kent State Undergraduate Research Symposium, April 2019

Cody Unferdorfer Kent State University Geology major, 2016, "Controls on Wetland Suspended Sediment Concentrations, West Creek Reservation, Parma, OH"

- Posters at the Geological Society of America Annual Meeting, Kent State Water and Land Symposium, September-October 2016
 - 1st place at Kent State Undergraduate Research Symposium, March 2016
- Jillian Sarazen Oberlin College Biology major, 2015, "The effects of antecedent soil moisture conditions on green roof runoff water quality and quantity", Ecology REU program, summer 2015.
- Posters at the 59th Annual Conference on Great Lakes Research, Kent State Water Symposium and Cleveland Metroparks Research Symposium, October 2015-May 2016
- Sean Robertson Kent State University Geology major, 2014. "Soil moisture and hydraulic conductivity of bioretention cells."
- Posters at the Kent State Water Symposium and Cleveland Metroparks Research Symposium, October-November 2014
- Allison Reynolds Kent State University Geology major, 2013-2014. "Sensitivity of precipitation isotope meteoric water lines and seasonal signals to sampling frequency and location"
- Poster at the CUAHSI/USGS Laser Specs virtual workshop, February 2014
 - Talk at the Geological Society of America meeting, October 2014
 - 1st place at Kent State Undergraduate Research Symposium, April 2014
- Sidney Bush University of Virginia Environmental Science major, 2014. "Soil moisture dynamics and their effect on bioretention performance in Northeast Ohio" Ecology REU program, summer 2014.
- Poster at American Geophysical Union meeting, December 2014
 - Co-author of Avellaneda et al. in *Water Resources Research* in 2017
- Kayla Holleman UNC Charlotte Geology major, 2009. "Variability in precipitation isotopes on the Carolina Piedmont"
- 3rd place in UNCC Undergraduate Research Fair, April 2009
- Shawn Majors Oregon State University Geology major, 2006. "Water chemistry of Cascades springs"

Undergraduate Research Assistants

| | |
|------------------|--------------|
| Alex Mailhot | 2018-present |
| Andy Molledor | 2018 |
| Kyle Tobias | 2017-present |
| Kyle Sarven | 2017 |
| Cody Unferdorfer | 2015-2016 |
| Jillian Sarazen | 2015 |
| Sean Roberts | 2014 |

Sidney Bush 2014
S. Lindsay Poluga 2012-2013
Allison Reynolds 2013-2014
Robert Q. Lewis 2010
Kayla Holleman 2009

High School Research Intern

Heather Eaken 2016

Professional Service

Editing and Reviewing

Editorial Board, Hydrological Processes, 2019-present

Associate Editor, Water Resources Research, 2017-present

Associate Editor, Geological Society of America Bulletin, 2012-2014.

Guest Editor, Anthropocene, [Special Issue “Geomorphology of the Anthropocene”](#), 2012-2013

Reviewer for National Science Foundation (panel and ad hoc), 2008-present

Manuscript reviewer, 2006-present

Journals include Water Resources Research; Hydrological Processes; Advances in Water Resources; Journal of Hydrology; Journal of Geophysical Research – Earth Surface; Hydrology and Earth System Science; Earth Surface Processes and Landforms; Journal of the American Water Resources Association; Journal of Geoscience Education; Forest Ecology and Management; Computers, Environment, and Urban Systems

Professional Society Leadership

Communications Coordinator, Quaternary Geology and Geomorphology Division, Geological Society of America, 2015-present

Panelist, Quaternary Geology and Geomorphology Division, Geological Society of America, October, 2010-2012

At-large member, Diversity in the Geosciences committee, Geological Society of America, July 2010-2013

Campus Representative, Consortium of Universities for the Advancement of Hydrologic Science, Incorporated (CUAHSI),
Kent State University, 2013-present
University of North Carolina, 2011-2012

Conference and Short Course Organizing

Organizing committee, HydroEco 2017, 6th International Multidisciplinary Conference on Hydrology and Ecology, Birmingham, UK, June 18-23, 2017

Short Course Convener, "Hands-on Experiences with Stable Isotopes in the Geosciences Curriculum", Geological Society of America Meeting, October 18, 2014

Organizing committee, Laser Specs for Field Hydrology and Biogeochemistry: A USGS-CUAHSI Virtual Workshop; 27 January to 28 February 2014

Field trip co-leader, Kirk Bryan Field Trip at Geological Society of America Annual Meeting, November 2012.

Events Co-chair, Geological Society of America, Southeastern Section meeting, April 2008.

Session Convener

Co-convener, Geological Society of America annual meeting, topical sessions:

- Human Alterations to Landscape Connectivity, November 2018
- Geomorphology of Human-Altered Landscapes, October 2017
- Geomorphology of the Anthropocene: The surficial legacy of past and present human activities, November 2012
- Hydrology of Urban Groundwater, Streams, and Watersheds, November 2012
- Hydrogeomorphic Processes in Hillslopes, Rivers, and Landscapes, October 2010
- Stream-Groundwater Interaction: New Understanding, Innovations, and Applications at Bedform, Reach, and River Network Scales, October 2009

Co-convener, American Geophysical Union annual meeting, topical session:

- Behind the Scenes on the Front Lines of Science Communication: How Institutions Can Support and Reward Scientists Who Do Public Engagement Work, December 2018
- Water, Energy and Society in Urban Systems, December 2014

Convener, ScienceOnline conference, session: Casting a wider net: Promoting gender and ethnic diversity in STEM, January 2010

University Service

Department of Geology, Graduate Studies Coordinator, 2016-present

Department of Geology, Hydrogeology Search Committee Chair, 2016-2017

Environmental Science and Design Research Symposium, organizing committee, 2018-2019

Kent State University Water and Land Symposium, co-chair, 2016

Department of Geology, Graduate Studies Committee, 2012-present

Water Research Symposium organizing committee, 2014-2015

Architect's Stormwater Advisory Committee, 2014-present

Department of Geology, Colloquium Coordinator, 2013-2014

UNC Charlotte departmental committees including two search committees, Graduate Advisory Council, MS Earth Science Committee, Mentoring Committee, 2007-2012

Outreach and Community Service

Writer for Highly Allochthonous (<http://www.all-geo.org/highlyallochthonous>), winner of the 2010 Research Blogging award for Conservation or Geosciences, ~30,000 page views / month, 2008-present

Twitter account @highlyanne, with 9317 followers and ~228,000 impressions / month, focused on water and geosciences topics, 2010-present

Op-eds

- “[Continued federal investment in science is critical for Lake Erie and the region](#)”, Cleveland Plain-Dealer and Cleveland.com, May 26, 2017

Public Talks, 2017-present

- Cleveland Metroparks Watershed Volunteer Program, “Working Wetland: Water Quality and Quantity” (with Lauren Kinsman-Costello), November 1, 2017
- Cleveland Metroparks Watershed Volunteer Program, “Green Infrastructure Research Update” (with Lauren Kinsman-Costello), March 15, 2017

Media featuring my research, 2012-present

- WKSU (NPR affiliate), “Road salt is having an effect on local ecosystems”, February 6, 2018
- Record-Courier, “KSU professor: Road salt appears to be affecting local ecosystems”, February 5, 2018 (front page story)
- Cleveland News 19 (CBS affiliate), “Road salt choking ecosystems and contaminating water, says Kent State professor,” January 31, 2018
- Civil Engineering magazine, “Researchers evaluate effectiveness of ‘green’ infrastructure at the neighborhood scale”, March 2016 (2 full page feature)
- Record-Courier, “KSU study: gardens help storm runoff”, November 30, 2015
- Cleveland.com, “Cheers and Jeers: editorial”, November 25, 2015
- Cleveland.com “Missing Brooklyn girl may have run away; Kent State, Cleveland Metroparks study reduced storm water in Parma: Best of the Beat”, November 22, 2015
- Cleveland.com “Kent State University, Cleveland Metroparks project reduces storm water, pollution in Parma neighborhoods”, November 20, 2015
- Kent Wired, “Kent professor researches urban storm management”, November 7, 2015

Extended interviews and podcasts, 2007-present

- [“Dr. Anne Jefferson”](#), Elevations (radio program on WKSU), March 24, 2018
- [“Flooded”](#), Science for the People (podcast), September 15, 2017
- [Ask-Me-Anything](#) (with Kim Cobb), Reddit (r/AskScienceDiscussion), June 8, 2016
- [“Dr. Anne Jefferson: Studying Stormwater Systems and Urban Streams,”](#) People Behind the Science (podcast), 43 minute interview, January 26, 2015
- [“Studying rivers means wading into more than just water”](#), Student Science (website), October 30, 2013, 30 minute video interview on the site

Selected media quotes on water resources and science issues, 2007-2018 (contact me for an up to date list)

- STAT, “Scientific leaders urge new efforts to curb sexual harassment in the field,” September 20, 2018
- Pacific Standard, “One of the world’s biggest scientific societies made it possible to strip an honor from alleged harassers,” September 19, 2018
- ProPublica, “To see how levees increase flooding, we built our own,” August 6, 2018
- ProPublica, “Flood thy neighbor: who stays dry and who decides,” August 6, 2018
- Yahoo News, “Everything that’s wrong with Donald Trump’s latest climate change tweet, according to scientists,” December 29, 2017
- WNPR (NPR affiliate), “Tunneling 200 Feet Underneath Connecticut For Cleaner Water, At A Cost,” November 7, 2017
- LiveScience, “Puerto Rico’s Hilly Terrain Worsened Hurricane Maria’s Damage,” September 26, 2017
- Great Lakes Today, “How can cities keep sewage out of the Great Lakes? Dig.,” June 6, 2017
- Los Angeles Times, “UCSD scientists worry Trump could suppress climate change data”, March 12, 2017
- New York Times, “Activists Rush to Save Government Science Data – If They Can Find It”, March 7, 2017 (reprinted on Dayton Daily News and Columbus Dispatch)
- ClimateWire (syndicate), “Sewage floods like to rise”, August 19, 2016 (reprinted on Scientific American.com and part of E&E News)
- Grist (website), “How to be a science girl in a Barbie world”, December 17, 2014
- WKSU (NPR affiliate), “How flooding affects the Cuyahoga Valley National Park, and vice versa”, June 10, 2014
- Boing boing (website), “The West Virginia Chemical Spill is just one example of a much bigger problem”, January 13, 2014
- The Week (magazine), “18 complicated scientific ideas, explained simply,” February 8, 2013
- Charlotte Observer (newspaper), “Parents find [science] fun online for kids, June 5, 2011
- McClatchey News Syndicate (national newspaper syndicate), “Extreme Weather’s Frequency to Increase”, May 25, 2011
- Io9 (website), “The weirdest crop circles you’ve ever seen”, November 5, 2010
- Charlotte Now with Mike Collins WJZY (TV show), expert on drought, aired Oct. 28, 2007
- WSOC (TV station), interviewed on drought, Oct. 22, 2007

- WCCB (TV station), interviewed on drought, Oct. 22, 2007

Book reviewer, EARTH magazine

“The West Without Water”, May 2014

“Blue Revolution”, June 2012

Pre-K-12 Educational Engagement

- First Lego League Robotic challenge, 1 hour Skype consultation and email followups, with team focused on combined sewer overflows, November 2017
- Earth System Science summer institute for middle school and high school teachers, lead ½ day field trip on fluvial geomorphology and water quality, July 2017
- Kent State University Child Development Center, Math and Science Night, February 2017 (hands on demonstration of soil infiltration)
- Earth System Science summer institute for middle school and high school teachers, lead ½ day field trip on fluvial geomorphology and water quality, July 2016
- Judge and mentor for local, regional, and international science and engineering fairs for middle school and high school students through Society for Science and the Public, 2001-2008
- Instructor, Willamette Valley Watershed Partnership Project, 2 week summer institute and follow-up workshops for middle school and high school environmental science teachers, 2005-2006

External Recognition and Awards

Leshner Leadership Institute Public Engagement Fellow, American Association for the Advancement of Science, 2016-2017

Inclusion in the National Association of Geoscience Teachers' [On the Cutting Edge Exemplary Teaching Activity collection](#), based on review of the “Take A Hike Assignment”, 2013,

“Strange Quark” (second place) award for Three Quarks Daily Online Science Writing contest for essay on “Levees and the Illusion of Flood Control.”, 2011. This essay also appeared on the Scientific American website.

Honorable Mention, Universities Council on Water Resources Dissertation Award, 2006. This award is given to the top 3 PhD dissertations on water science in the United States each year.

John Montagne Fund Student Research Grant Award, Geological Society of America, 2004.

National Science Foundation Graduate Research Fellowship, 2002-2005.

Phi Beta Kappa, 2001.

Internal Recognition and Awards

- Kent State University Student Accessibility Services, May 2019
- “Mothers, Mentors, and Muses” award, Kent State University Women’s Center, April 2019

- First prize poster: "Hands-on Experiences with Stable Isotopes in the Geosciences Curriculum", 2014, Kent State University 21st Annual Conference Celebrating Teaching.

Professional Memberships

American Geophysical Union, 2003-present

Geological Society of America, 2003-present

Earth Science Women's Network, 2008-present

American Association for the Advancement of Science, 2015-present

Working Group Member, "Evolving Urban-Water Systems", International Association for Hydrological Sciences, Panta Rhei Scientific Decade, 2013-2022