

Dr. Anne J. Jefferson

Department of Geology, Kent State University

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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

2020-2023	Geomorphic effects and distribution of anthropogenic debris in urban streams PI: A. Jefferson Funding Agency: National Science Foundation Geomorphology and Land Use Dynamics Amount: \$339,063
2020-2021	Dynamics of plastic pollution in Lake Erie urban tributaries and beaches PI: A. Jefferson Co-PI: E. Stachew (U. Akron) Funding Agency: Ohio Sea Grant Amount: \$10,000
2020-2021	RAPID: Collaborative Research: Increased access to infrastructure for distance education in hydrologic science PI: Adam Ward (Indiana U.) Co-PIs: R. Barnes (Colorado C.), N. Basu (U. Waterloo), A. Jefferson , S. Loheide (U. Wisconsin) Funding Agency: National Science Foundation, Hydrologic Sciences and Education and Human Resources Amount: \$49,611 overall
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: \$240,953 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, Black Swamp Conservancy of Ohio, \$25,874
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- 2012-2017 Bridging the Conceptual Divide Between Theoretical and Applied Environmental Chemistry, National Science Foundation, Division of Undergraduate Education (DUE 1140980), \$189,235
- 2010-2015 Influence of stormwater management structures on ecological function in urban streams, National Science Foundation, Environmental Engineering (CBET 1034043), \$391,341
- 2014-2015 Testing the (storm) Waters: Techniques for Surface Reclamation on Urban Brownfields, U.S. Environmental Protection Agency P3: People, Prosperity and the Planet Student Design Competition, \$14,685
- 2014-2015 Characterizing stream restoration's water quality improvement potential through hyporheic exchange enhancement, Ohio Water Resources Center (USGS funds), \$18,878
- 2014-2015 Assessing the Effects of Green Infrastructure on Metals Concentrations in Stormwater Runoff, Cleveland Metroparks, \$4,693
- 2011-2012 Evaluating Restoration Success in the Watershed Context, North Carolina Water Resources Research Institute, \$50,000
- 2007-2008 Contributions of Glacier Melt to Upper Hood River Streamflow and Implications of Climate Change, Oregon Institute for Water and Watersheds, \$30,000
- 2005-2006 Influence of climate change on water supply in the McKenzie River Basin: Analysis of long-term and spatial hydrologic data, Oregon Center for Water and Environmental Sustainability, \$41,212
- 2004-2006 Discharge, source areas, and water ages of spring-fed streams and implications for water management in the McKenzie River Basin, Eugene Water and Electric Board, \$95,000
- 2004-2005 Drainage development on highly-permeable basaltic lavas of the Oregon Cascades, Geological Society of America student research grant, \$2,800

Active Internal Research Funding

- 2020-2022 Geomorphic and watershed context of plastic pollution and trash in northeast Ohio urban streams, \$3500

Publications

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

1. *Ruggles, T.A., Gerrath, J.A., Rubm, C.T., Jefferson, A.J., Davis, C.A., and Blackwood, C.B. in press.* Reclaimed surface mines show little progress towards native species forest restoration following 35 years of passive management. *Land Degradation and Development*.
2. Avellaneda, P.M. and **Jefferson, A.J.** 2020. Sensitivity of streamflow metrics to infiltration-based stormwater management networks. *Water Resources Research*. doi: 10.1029/2019WR026555
3. Bell, C.D., Wolfand, J., *Panos, C.*, Bhaskar, A., *Gilliom, R.*, Hogue, T., Hopkins, K.G., **Jefferson, A.J.** 2020. Stormwater control impacts on runoff volume and peak flow: A meta-analysis. *Hydrological Processes*. doi: 10.1002/hyp.13784
4. Costello, D., *Hartung, E.W., Stoll, J.T.*, and **Jefferson, A.J.**, 2020, Bioretention cell age and construction style influence stormwater pollutant dynamics. *Science of the Total Environment*, 712: 135597, doi:10.1016/j.scitotenv.2019.135597
5. *Blanch, 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.
6. *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
7. **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
8. 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
9. **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.
10. 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.

11. 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
12. Thapaliya, D., Helwig, E.J., Kadariya, J., Grenier, D., **Jefferson, A.J.**, Dalman, M., Kennedy, K., DiPerna, M., Orihill, 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.
13. 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.
14. 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.
15. 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.
16. **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
17. 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.
18. 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.
19. **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.
20. **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.
21. 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.
22. **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.

23. **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.
24. 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.
25. 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.
26. **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.
27. **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.
28. **Jefferson, A.J.**, Nolin, A., Lewis, S., and Tague, C., 2008. Hydrogeologic controls on streamflow sensitivity to climatic variability, *Hydrological Processes*. 22: 4371–4385.
29. 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.
30. **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.J.**, 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.J.**, 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, Galapagos, 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.J.**, 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.J.**, 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)

Publications in review (*italics* denote student co-author)

1. *Fillo, N.F.*, Bhaskar, A.S., and **Jefferson, A.J.**. *in review*. Lawn irrigation contributions to semi-arid urban baseflow based on water-stable isotopes. *Water Resources Research*.
2. Luce, C., **Jefferson, A.J.**, Nislow, K. The Impacts of Climate Change on Water Resources in the Wildland-Urban Interface. *USDA Forest Service General Technical Report*.

Presentations

Invited Seminars

- 2020 National Association of Geoscience Teachers (NAGT), webinar, November 5, 2020
- Kent State University, Department of Geology, September 18, 2020
- 2019 Colorado School of Mines, Department of Civil and Environmental Engineering, November 1, 2019
- Colorado State University, Department of Civil and Environmental Engineering, October 25, 2019
- University of Colorado (Boulder), Department of Civil and Environmental Engineering, September 11, 2019

- Northeast Ohio Regional Sewer District, Lunch and Learn Series, May 9, 2019
- Case Western Reserve University, Earth, Environmental, and Planetary Science Department, April 5, 2019
- 2018 University of Nevada Reno Hydrology Graduate Program “Water Visions” seminar series, October 9, 2018
- Oregon State University Water Resources Seminar Series, April 18, 2018
- Portland State University Department of Geology/ U.S. Geological Survey Oregon Water Science Center, April 17, 2018
- Cornell University Biogeochemistry, Environmental Science and Sustainability group, March 23, 2018
- University of Wisconsin, Madison, Department of Geography, March 12, 2018
- Cuyahoga Valley National Park All-Park-Staff meeting, January 16, 2018
- 2017 University of Pittsburgh, Department of Geology and Environmental Science, November 2017
- University of Akron, Integrated Bioscience Ph.D. program, April 2017
- 2016 Kent State University, Department of Biological Sciences, December 2016
- University of Vermont, Department of Plant and Soil Sciences, September 2016
- Indiana University of Pennsylvania, Summer Scholar Program, August 2016
- University of Buffalo, Department of Environmental Engineering, April 2016
- 2015 Cleveland Metroparks, Natural Resources Research Symposium, December 2015
- Cleveland State University, Department of Biological, Geological, and Environmental Sciences, October 2015
- 2014 CUAHSI Cyberseminar Series on Sustainable Urban Streams, Cyberseminar (<https://www.cuahsi.org/Posts/Entry/13551>), December 2014
- Ohio State University, School of Earth Sciences, Columbus, OH, September 2014
- Northeast Section of the Ohio Water Environment Association, Parma, OH, April 2014
- 2013 Kent State University Water Symposium, Kent, OH, November 2013
- Kent State University, Department of Biological Sciences, Kent, OH, March 2013

- Denison University, Department of Geosciences, Granville, OH, March 2013
- North Dakota State University, Department of Geosciences, Fargo, ND, March 2013
- 2012 The Johns Hopkins University, Department of Geography & Environmental Engineering, Baltimore, MD, November 2012
- Ashland University, Environmental Lecture Series, Ashland, OH, October 2012
- 2011 University of South Carolina, Department of Geography, Columbia, SC, 2011
- University of Iowa, Department of Geological Sciences, Iowa City, IA, February 2011
- University of North Carolina at Chapel Hill, Department of Geological Sciences, Chapel Hill, NC, January 2011
- 2009 Utah State University, Department of Watershed Sciences, Logan, UT, March 2009
- University of Montana, Department of Geosciences, Missoula, MT, February 2009
- 2007 UNC Charlotte Infrastructure and Environmental Systems, Charlotte, NC, October 2007
- Climate Change Film Festival and Forum, Bend, OR, April 2007
- 2006 Association of Power Biologists 47th Annual Workshop, Eugene, OR, May 2006
- 2005 U.S. Geological Survey Oregon Water Science Center, Portland, OR, February 2005
- 2004 Oregon Water Resources Department Commissioners, Salem, OR, October 2004
- "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 US Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS, July 1997

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

- 2019 **Jefferson, A.**, *Plauche, M.*, Elliott, E. Streamflow generation is linked to water quality dynamics in urban headwater streams. American Geophysical Union Fall Meeting, San Francisco, CA, December 2019
- Jefferson, A.**, Kinsman-Costello, L.E., Grieser, J.M., Avellaneda, P.M., *Buzulencia, H.*, *Stofan, M.*, *Sugano, L.L.* What We've Really Learned After 5 years of Green Infrastructure Monitoring. American Geophysical Union Fall Meeting, San Francisco, CA, December 2019

- Bell, C.D., Wolfand, J., *Panos, C.*, Bhaskar, A.S., *Gilliom, R.*, **Jefferson, A.**, Hogue, T.S., Hopkins, K.G. Stormwater control impacts on urban hydrology: A meta-analysis. American Geophysical Union Fall Meeting, San Francisco, CA, December 2019
- 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, past 5 years (*italics* denote student co-author)

2020 **Jefferson, A.**, Grieser, J.M., and Kinsman-Costello, L.E. Green Infrastructure Monitoring through a Cleveland Metroparks - Kent State University Partnership. Ohio Stormwater Conference, Sandusky, OH, August, 2020.

2019 **Jefferson, A.** and Blauch, G. Highly mobile wood and sediment in northeast Ohio urban streams. 50th Binghamton Geomorphology Symposium, Denver, CO, October 2019.

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.**, *Rubm, 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

Blanch, G. and A. Jefferson, Urban Influence on Large Wood Abundance in Streams. University Council on Water Resources Conference, Pittsburgh, PA, June 2018

Planche, 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.

Blanch, 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.

Blanch, 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.

Teaching

Courses Taught at Kent State University

Ph.D./M.S. level

Advanced Topics in Hydrology (3 credits)	F2018, F2020
Fluvial Processes (3 credits)	F2016
Graduate Student Orientation (1 credit)	F2018
Writing in the Earth Sciences (1 credit)	S2018, S2019, S2020
College Teaching of Applied Geology (1 credit)	F2012; F2013
Climate Change Impacts on the Water Cycle (1 credit)	S2020

M.S./Advanced Undergraduate level

Watershed Hydrology (3 credits)	S2014, F2015, S2017, S2018, S2019, S2020
Urban Hydrology (3 credits)	S2013
Fluvial Processes (3 credits)	F2013

Core Classes

Environmental Earth Science (3 credits)	F2014 (honors), S2016, F2016, F2018, F2020 (honors)
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Courses Taught at UNC Charlotte

Ph.D./M.S. level

Analysis and Acquisition of Scientific Data (3 credits)	F2009; F2010
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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
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Courses Taught at Oregon State University

The Earth Surface and Laboratory (4 credits)	Sum2005
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Mentoring

Post-doctoral Scholars (1)

Pedro M. Avellaneda, February 2016-August 2017

Graduate Students and Theses (16)

1. Jeffrey Timmons, M.S. Geology, Kent State University, December 2020,
Identifying the Isotopic Signature of Lake Effect Precipitation on the Northeast Ohio
Isoscape
2. Hayley Buzulencia, M.S. Geology, Kent State University, October 2019,
The Characterization and Survey of Inorganic Sulfur Redox Associated with Wetland
Hydrological Fluctuations
3. Mary Plauche, M.S. Geology, Kent State University, June 2019
Land Cover and Infrastructure Influences on Chloride and Nitrate Concentrations of Urban
Streams in Northeast Ohio
4. Krista Brown, M.S. Geology, Kent State University, April 2019
Groundwater-stream interactions and water quality of former reservoirs in Northeast Ohio
5. 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
6. Garrett Blauch, M.S. Geology, Kent State University, June 2018
Abundance, Mobility, and Geomorphic Effects of Large Wood in Urban Streams
7. Laura Sugano, M.S. Geology, Kent State University, April 2018
Comparing Bioretention Cell and Green Roof Performance in Parma, Ohio
8. 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
9. 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.
10. Darren Reilly, M.S. Geology, Kent State University, April 2014.
Identification of Local Ground Water Pollution in Northeastern Pennsylvania: Marcellus
Flow-back or Not?
11. Mackenzie Osypian, M.S. Civil Engineering, UNC Charlotte, April 2013
Evaluating restoration effects on transient storage and hyporheic exchange in urban and
forested streams
12. 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
13. Brandon Blue, M.S. Earth Sciences, UNC Charlotte, August 2012
Seasonal Urban Stream Temperature Response to Storm Events Within the Piedmont of
North Carolina
14. 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
15. 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.
16. 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 (3)

1. Zia Ul Hassan, Ph.D. Applied Geology, Kent State University, 2019-present
2. Nageen Farooq, Ph.D. Applied Geology, Kent State University, 2020-present
3. Christopher Greising, M.S. Geology, Kent State University, 2020-present

Graduate Committee Membership (12 in progress, 8 PhD completed, 6 MS completed)

Shahidul Muzemder, Ph.D., Applied Geology, Kent State University, in progress
 Andrea Fitzgibbon, Ph.D., Biological Sciences, Kent State University, in progress
 Corey Coakley, Ph.D., Geography, Kent State University, in progress
 Elana Stachew, Ph.D., Integrated Bioscience, University of Akron, in progress
 Gabrielle Russell, 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
 Brianne Yarger, M.S., Geology, Kent State University, in progress
 Jacob Bradley, M.S., Geology, Kent State University, in progress
 Erika Hiwiller, M.S., Geology, Kent State University, in progress
 Alexander Miller, M.S., Geology, Kent State University, in progress

Israel Olaoye, Ph.D. Applied Geology, Kent State University, 2020
 EmmaLeigh Givens, Ph.D., Biological Sciences, Kent State University, 2020
 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
 Shahidul Muzemder, M.S., Geology, Kent State University, 2020
 Marissa Tomin, M.S., Geology, Kent State University, 2020
 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 (9, all with at least 1 conference presentation)

1. Azure Fernsler, Kent State University Environmental Studies major, 2020, "Volunteer cleanup efforts reveal differences in anthropogenic litter composition found in shoreline and riverine environments"
2. Alex Mailhot, Kent State University Anthropology major, 2018-2019, "Dynamics of Urban Stream Water Sources During Storms"
3. Cody Unferdorfer, Kent State University Geology major, 2016, "Controls on Wetland Suspended Sediment Concentrations, West Creek Reservation, Parma, OH"

4. 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.
5. Sean Robertson, Kent State University Geology major, 2014. "Soil moisture and hydraulic conductivity of bioretention cells."
6. Allison Reynolds, Kent State University Geology major, 2013-2014. "Sensitivity of precipitation isotope meteoric water lines and seasonal signals to sampling frequency and location"
7. 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.
8. Kayla Holleman, UNC Charlotte Geology major, 2009. "Variability in precipitation isotopes on the Carolina Piedmont"
9. Shawn Majors, Oregon State University Geology major, 2006. "Water chemistry of Cascades springs"

Undergraduate Research Assistants (14)

Azure Fernsler (2020), Alex Mailhot (2018-2019); Andy Molledor (2018); Kyle Tobias (2017-2018); Kyle Sarven (2017); Heather Eaken (2016); 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)

Professional Service

Editing

- Editorial Board, Hydrological Processes, 2019-present
- Associate Editor, Water Resources Research, 2017-present
- Associate Editor, Geological Society of America Bulletin, 2012-2014
- Guest Editor, Hydrological Processes, Special Issue "Women Advancing Hydrology Research", 2019-present
- Guest Editor, Anthropocene, [Special Issue "Geomorphology of the Anthropocene"](#), 2013

Reviewing

- National Science Foundation (panel and ad hoc), 2008-present
- Sea Grant (multiple states), 2015-present
- Scientific journals, 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; Geomorphology; Journal of the American Water Resources Association

Professional Society Leadership

- Board Member, Consortium of Universities for the Advancement of Hydrologic Science, Incorporated (CUAHSI), 2020-present
- Outstanding Student Presentation Award Committee, Hydrology Section, American Geophysical Union, 2019-2021
- Communications Coordinator, Quaternary Geology and Geomorphology Division, Geological Society of America, 2015-2019
- Panelist, Quaternary Geology and Geomorphology Division, Geological Society of America, 2010-2012
- At-large member, Diversity in the Geosciences committee, Geological Society of America, 2010-2013
- Campus Representative, Consortium of Universities for the Advancement of Hydrologic Science, Incorporated (CUAHSI), 2011-present

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

- 6 topical sessions, Geological Society of America annual meeting, 2009-2018
- 3 topical sessions, American Geophysical Union annual meeting, 2014-2020
- 1 session, ScienceOnline, 2010

Science Policy

- Ad-hoc subcommittee of the Geological Society of America Geology and Public Policy Committee, charged with writing society position statement on flood risks, September 2019-May 2020
- Nature Worldview article: Jefferson, A.J., 2019, [Shutdown will cast a long shadow over research](#). *Nature* 565, 399, doi: 10.1038/d41586-019-00207-9
- >10 National and international media interviews on the effects of the federal government shutdown on science research and education, January-February 2019
- Op-ed: "Continued federal investment in science is critical for Lake Erie and the region", Cleveland Plain-Dealer and Cleveland.com, May 26, 2017

University Service

- Department of Geology, Graduate Studies Coordinator, 2016-present
- KSU AAUP Council, Department of Geology representative, 2016-present
- Department of Geology, Graduate Studies Committee, 2012-present
- Department of Geology, Hydrogeology Search Committee Chair, 2016-2017
- Environmental Science and Design Research Symposium, organizing committee, 2018-2019
- Water and Land Symposium, co-chair, 2016
- Water Research Symposium organizing committee, 2014-2015
- 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

Twitter account @highlyanne, with 9793 followers and ~228,000 impressions per month, focused on water and geosciences topics, 2010-present

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 per month, 2008-2018

9 Local to national media stories featuring my research, 2015-present (contact me for list)

6 extended interviews and podcasts, 2007-present (contact me for list)

Media quotes on water resources and science issues, ~5 times per year, 2007-2018 (contact me for list)

Pre-K-12 educational engagement, 2-3 activities per year

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 "Isotope Hydrograph Separation" module, 2016

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