

Admin Husic, Ph.D.

Associate Professor, Civil & Environmental Engineering, Virginia Tech
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EDUCATION

Doctor of Philosophy (Ph.D.), Civil Engineering, University of Kentucky	July 2018
Master of Science (MS), Civil Engineering, University of Kentucky	Dec 2015
Bachelor of Science (BS), Civil Engineering, University of Kentucky	May 2014

ACADEMIC APPOINTMENTS

Associate Professor Aug. 2024 – Present
 Department of Civil and Environmental Engineering
 Virginia Tech (VT), Blacksburg, VA

Assistant Professor Aug. 2018 – Aug. 2024
 Department of Civil, Environmental, and Architectural Engineering
 University of Kansas (KU), Lawrence, KS

MENTORING EXPERIENCE

Primary Research Mentorship	Total	Current	Graduated
Doctoral Research	2	1	1
Masters Research	8	4	4
Undergraduate Research	14	-	14
External Committee Member			
Doctoral Research	11	8	3
Masters Research	2	-	2

PEER-REVIEWED JOURNAL ARTICLES (student advisees indicated by underscore)

In Review

- Husic, A.**, Hammond, J., Price, A., and Roundy, J. (2024). Interrogating process deficiencies in large-scale hydrologic models with interpretable machine learning. *Hydrology and Earth System Sciences, In Review*.
- Pandit, A., Golden, H., Christensen, J., Lane, C. R., and **Husic, A.** (2024). Hydrologic and anthropogenic controls of riverine nitrate export revealed by deep learning and aquatic sensing. *Water Resources Research, In Review*.
- Appel, E., Enderami, A., Sutley, E., and **Husic, A.** (2024). Historically redlined communities are prone to greater flood exposure. *Nature Cities, In Review*.

4. Mohn, A. and **Husic, A.** (2024). The transport of riverine microplastics is decoupled from sediment transport. *Environmental Science & Technology, In Review.*
5. Pandit, A., Mahoney, D. T., Wellen, C., and **Husic, A.** (2024). Establishing performance metrics for watershed-scale sediment and nutrient models. *Water Research, In Prep.*
6. Golden, H., Christensen, J., McMillan, H., Kelleher, C., Lane, C., **Husic, A.**, Li, L., Ward, A., Hammond, J., Seybold, E., Jaeger, K., Zimmer, M., Sando, R., Jones, N., Segura, C., Mahoney, T., Price, A., and Cheng, F. (2024). Advancing the Science of Headwater Streamflow for Global Water Protection. *Nature Water, In Review.*
7. Li, J., Wang, G., Ma, J., Huang, P., Song, C., Sun, S., Guo, L., Li, K., Wang, H., Li, D., and **Husic, A.** (2024). Structural Connectivity Shaped by Cryospheric Degradation Modulates Sediment Transport Dynamics in High Mountain Asia. *Water Resources Research, In Review.*
8. Bettel, L., Fox, J., **Husic, A.**, Mahoney, T., Martin, A., Zhu, J., Tobin, B., Al-Aamery, N., and Osborne, C. (2024). Hydrologic pathways and baseflow contributions, and not the proximity of sediment sources, determine the shape of sediment hysteresis curves: theory development and application in a karst basin in Kentucky USA. *Journal of Hydrology, In Review.*
9. Spellman, P., **Husic, A.**, and Hasenmueller, E. (2024). Characterizing storm-induced solute transport in a triple porosity, eogenetic karst aquifer using high temporal resolution nitrate and specific conductance. *Journal of Hydrology, In Review.*

Published

1. Clune, J., Cravotta, C., **Husic, A.**, Abraham, H., and Schmidt, K. (2024). Complex hydrology and variability of nitrogen sources in a karst watershed. *Journal of Environmental Quality*, 53, 492-507.
2. Zarnaghsh, A., Kelly, M., Burgin, A., and **Husic, A.** (2024). Revealing nitrate uptake and dispersion dynamics using high-frequency sensors and two-dimensional modeling in a large river system. *Advances in Water Resources*, 187, 104693.
3. Rider, Z., Percich, A., Hiripitiyage, Y., Harris, T., Sturm, B., Wilson, A., Pollock, E., Beaver, J., and **Husic, A.** (2024). Drivers of cyanotoxin and taste-and-odor compound presence within the benthic algae of human-disturbed rivers. *Water Research*, 253, 121357.
4. Michalek, A., Villarini, G., and **Husic, A.** (2023). Climate change projected to impact structural hillslope connectivity at the global scale. *Nature Communications*, 14, 6788.
5. Zarnaghsh, A. and **Husic, A.** (2023). An index for inferring dominant transport pathways of solutes and sediment: assessing land use change with high-frequency conductivity and turbidity sensor data. *Science of the Total Environment*, 894, 164931.
6. McVey, Z. Michalek A., Mahoney, T., and **Husic, A.** (2023). Urbanization as a limiter and catalyst of watershed-scale sediment transport: insights from probabilistic connectivity modeling. *Science of the Total Environment*, 894, 165093.
7. **Husic, A.**, Fox, J., Clare, E., Mahoney, T., and Zarnaghsh, A. (2023). Nitrate hysteresis as a tool for revealing storm-event dynamics and improving water quality model performance. *Water Resources Research*, 59(1), e2022WR033180.

8. Gerlitz, M., Fox, J., Ford, W., **Husic, A.**, Mahoney, T., Armstead, M., Hendricks, S., Crain, A., Backus, J., Pollock, E., Wei, R., Bo, T., Riddle, B., and White, D. (2023). Nitrate sensors suggest soil-plant processes produce three distinct seasonal patterns of nitrate in the Ohio River Basin. *Journal of the American Water Resources Association*, , 59(4), 635-651.
9. **Husic, A.** and Michalek, A. (2022). Structural hillslope connectivity is driven by tectonics more than climate and modulates hydrologic extremes and benefits. *Geophysical Research Letters*, 49(15), e2022GL099898. *Selected by Editors as a Research Spotlight.
10. Percich, A., **Husic, A.**, and Ketterer, M. (2022). Plutonium isotopes: an effective tool for fluvial sediment sourcing in urbanized catchments. *Geophysical Research Letters*, 49(2), e2021GL094497.
11. **Husic, A.** Al Aamery, N., and Fox, J. (2022). Simulating hydrologic pathway contributions in fluvial and karst settings: an evaluation of conceptual, physically-based, and deep learning modeling approaches. *Journal of Hydrology X*, 17, 100134.
12. Bettel, L., Fox, J., **Husic, A.**, Zhu, J., Al-Aamery, N., Mahoney, T., and Gold-McCoy, A. (2022). Sediment transport investigation in a karst aquifer hypothesizes controls on internal versus external sediment origin and saturation impact on hysteresis. *Journal of Hydrology*, 613, 128391.
13. Michalek, A., **Husic, A.**, Roundy, J., and Hansen, A. (2021). Assessment of climatic and anthropogenic controls on bridge deck drainage and sediment removal. *Water*, 13(24), 3556.
14. Zarnaghsh, A. and **Husic, A.** (2021). Degree of anthropogenic land disturbance controls fluvial sediment hysteresis. *Environmental Science and Technology*, 55(20), 13737–13748.
15. Kelly, M., Zeglin, L., **Husic, A.**, and Burgin, A. (2021). High Supply, High Demand: A Unique Nutrient Addition Decouples Nitrate Uptake and Metabolism in a Large River. *Journal of Geophysical Research: Biogeosciences*, 126(12), e2021JG006469.
16. **Husic, A.**, Fox, J., Al-Aamery, N., Pollock, E., Ford, W., Agouridis, C., and Backus, J. (2021). Seasonality of recharge drives spatiotemporal nitrate removal in a karst conduit as evidenced by sediment nitrogen isotopes. *Journal of Geophysical Research: Biogeosciences*, 126(10), e2021JG006454.
17. Michalek, A., Zarnaghsh, A., and **Husic, A.** (2021). Modeling linkages between erosion and connectivity in an urbanizing landscape. *Science of the Total Environment*, 764, 144255.
18. Al Aamery, N., Adams, E., Fox, J., **Husic, A.**, Gerlitz, M., Agouridis, C., and Zhu, J. (2021). Pathway connectivity in an epigenetic fluviokarst system: insight from a numerical modelling study in Kentucky USA. *Journal of Hydrology*, 593, 125844.
19. **Husic, A.**, Fox, J., Mahoney, T., Gerlitz, M., Pollock, E., and Backus, J. (2020). Optimal Transport for Assessing Nitrate Source-Pathway Connectivity. *Water Resources Research*, 56(10), e2020WR027446.
20. **Husic, A.**, Fox, J., Adams, E., Pollock, E., Ford, W., Agouridis, C., and Backus, J. (2020). Quantification of nitrate removal in karst conduits using stable isotopes and numerical modeling. *Water Research* (170), 115348.

21. Ford, W., **Husic, A.**, Fogle, A., and Taraba, J. (2019) Long-term assessment of nutrient flow pathway dynamics and in-stream fate in a temperate karst agroecosystem watershed. *Hydrological Processes*, 33 (11), 1610-1628.
22. **Husic, A.**, Fox, J., Ford, W., Agouridis, C., Currens, J., and Backus, J. (2019). Nitrate pathways, processes, and timing in an agricultural karst system: development and application of a numerical model. *Water Resources Research*, 55(3), 2079-2103.
23. Ghesemi, A., Fox, J., and **Husic, A.** (2019). Predicting macroturbulence energy and timescales for open channel flow over a gravel bed: experimental results and scaling laws. *Geomorphology*, 322, 122-137.
24. **Husic, A.**, Fox, J., Adams, E., Backus, J., Pollock, E., Ford, W., and Agouridis, C. (2019) Inland impacts of atmospheric river and tropical cyclone extremes on nitrate transport and stable isotope measurements. *Environmental Earth Science*, 78(36).
25. Jensen, A., Ford, W., Fox, J., and **Husic, A.** (2018). Improving water quality models using stable isotope tracers: a review and synthesis. *Transactions of the American Society of Agricultural and Biological Engineers*, 61, 139-157.
26. **Husic, A.**, Fox, J., Agouridis, C., Currens, J., Ford, W., and Taylor, C. (2017). Sediment carbon source, fate, and transport in a fluviokarst watershed (Part 1): conceptual model development. *Journal of Hydrology*, 549, 179-193.
27. **Husic, A.**, Fox, J., Ford, W., Agouridis, C., Currens, J., and Taylor, C. (2017). Sediment carbon source, fate, and transport in a fluviokarst watershed (Part 2): numerical model development and application. *Journal of Hydrology*, 549, 208-219.

AWARDED GRANTS as PI (by date) (total: **\$2,235,709** since 2019)

1. **Husic, A.** 2024–2029. CAREER: Dynamic connectivity: a research and educational frontier for sustainable environmental management under climate and land use uncertainty. National Science Foundation. **\$609,734**.
2. **Husic, A.** and Layzell, T. 2024–2026. A statewide inventory of the dominant reservoir sedimentation sources to inform targeted watershed conservation and upstream mitigation practices. Kansas Water Office. **\$210,387**.
3. **Husic, A.** Gido, K., Harris, T., and Bigham, K. 2023–2026. Collaborative Research: Can Human-Induced Turbidity Currents Enable Sustainability of Freshwater Reservoirs? National Science Foundation. **\$500,000** (\$350,000 to KU, \$150,000 to KSU).
4. **Husic, A.** 2023–2024. RII Track-4: Assessing Dynamic Connectivity of Streams and Wetlands across Spatial and Human Gradients with Deep Learning. National Science Foundation. **\$259,515**.
5. **Husic, A.** 2023–2024. The inequity of urban flooding: exploring societal and climatic drivers across scales. NSF Kansas EPSCoR ARISE Program. **\$50,000**.
6. **Husic, A.** 2022–2024. Monitoring and modeling Hillsdale Lake under changing land use and climate drivers to assess tipping point of hypereutrophic lake conditions. Kansas Department of Health and the Environment. **\$92,142**.

7. **Husic, A.**, and Zipper, S. 2022–2024. Forecasting streamflow and groundwater depletion with deep learning models to sustain Kansan water resources. Kansas Water Resources Research 104(b) Program. **\$50,000** (+\$50,000 in-kind cost share).
8. **Husic, A.** 2022–2023. How does urbanization change nitrate source-zone activation? Real-time insights from rapidly-expanding Johnson County, Kansas. University of Kansas Office of Research General Research Fund. **\$13,000**.
9. **Husic, A.**, and Sutley, E. 2022–2023. Evaluating the Racial Equity of Flooding Hazards in the Kansas City Metropolitan Area. KU Racial Equity Research, Scholarship & Creative Activity Fund. **\$19,607**.
10. **Husic, A.** 2021–2024. Identifying the Source of Sediment for Targeted Best Management Practices in Urban and Rural Areas of Johnson County. Johnson County Stormwater Management Program. **\$175,175**.
11. **Husic, A.** 2021–2022. Influences of urbanization on the tipping points of benthic algae mat growth, decay, and toxin production. NSF Kansas EPSCoR MAPS Program. **\$141,777**.
12. **Husic, A.**, Collins, W., Lequesne, R., and Roundy, J. 2021–2022. Development of Condition Factors and Bridge Load Ratings through Statistical Analyses of the NBI Database. Kansas Department of Transportation. **\$46,500**.
13. **Husic, A.**, Harris, T., Sturm, B., 2020–2022. Benthic cyanobacterial mats: a potential source of harmful and nuisance compounds to Kansas streams. Kansas Water Resources Research 104(b) Program. **\$40,000** (+\$80,000 in-kind cost share).
14. **Husic, A.** 2020–2021. Sediment tracing with plutonium isotopes to assess urbanization impact on sources of erosion. University of Kansas Office of Research General Research Fund. **\$7,872**.
15. **Husic, A.** 2019–2021. Optimal Transport for Assessing Nitrate Source and Pathway Connectivity in Human-Disturbed Watersheds. University of Kansas Office of Research New Faculty General Research Fund. **\$20,000**.

AWARDED GRANTS as Co-PI (by date) (total: \$8,222,877 since 2019)

1. Hotchkiss, R., **Husic, A.**, and Minear, T. 2023–2025. Understanding Reservoir Sedimentation Sources and Economics in the Kansas River Basin for US Army Corps of Engineers Kansas City District. U.S. Army Corps of Engineers. **\$316,000** (\$100,000 to KU/VT, \$166,000 to BYU, and \$50,000 to CUB).
2. Bennet, C., Lequesne, R., Li, J., Collins, W., Lepage, A., Darwin, D., O'Reilly, M., Hansen, A., and **Husic, A.** 2022–2027. Improving the Performance of Concrete Dam Infrastructure Through Use of Fiber-Reinforced Polymers. U.S. Army Corps of Engineers. **\$7,740,921**.
3. Layzell, T. and **Husic, A.** 2023–2024. Streambank Evaluation of the Cottonwood and Neosho Rivers above John Redmond Reservoir. Kansas Water Office. **\$100,000**.
4. Roundy, J., Hansen, A., and **Husic, A.** 2018–2020. Bridge Deck Drainage: Evaluation of KDOT's Current Design Guidance. Kansas Department of Transportation. **\$65,956**.

INVITED RESEARCH PRESENTATIONS (by **me** as presenting author)

1. **Husic, A.** (2024, December). Built environments modulate sediment delivery: results from local to continental scales. American Geophysical Union. Fall Meeting. Washington, DC. Oral Presentation.
2. **Husic, A.** (2024, December). Assessing continental gradients in the significance of runoff and baseflow to turbidity generation in streams. University of Maryland – Baltimore County. Center for Urban Environmental Research and Education. Baltimore, MD. Oral Presentation.
3. **Husic, A.** (2024, September). XAI for Catchment Science. Federal University of Mato Grosso do Sul. Campo Grande, Brazil. Workshop Presentation.
4. **Husic, A.** (2023, December). Urban connectivity: pathways and processes of solute and sediment delivery to rivers. American Geophysical Union. Fall Meeting. San Francisco, CA. Oral Presentation.
5. **Husic, A.** (2023, February). Using radioactive fallout to quantify streambank erosion in urbanizing Johnson County, Kansas. Mid-America Regional Stormwater Council. KC Urban Stormwater Conference. Lenexa, KS. Oral Presentation.
6. **Husic, A.** (2022, December). Hydrologic connectivity: a management frontier for water quality conservation. American Geophysical Union. Fall Meeting. Chicago, IL. Oral Presentation.
7. **Husic, A.** (2022, November). Hydrologic connectivity in the Anthropocene: sensing and untangling pathways of water and sediment from local to continental scales. Lawrence Berkely National Lab. Environmental and Earth Sciences Modeling Forum. Berkeley, CA. Oral Presentation.
8. **Husic, A.** (2022, November). Nitrogen fate and transport in fluviokarst systems: evidence from high-frequency sensing, stable isotope tracing, and numerical modeling. Chesapeake Bay Factors Team Meeting. Virtual Oral Presentation.
9. **Husic, A.** (2021, March). Untangling the Controls of Water and Nutrient Connectivity in Karst Aquifers. Kansas State University Geology Seminar. Manhattan, KS. Virtual Oral Presentation.

STUDENT PRESENTATIONS (by student advisee as presenting author, * indicates award)

1. Shrestha, S., Hotchkiss, R, Minear, T., and **Husic, A.** (2024, December). Evaluating the potential for low-head dams to serve as major sediment sources to federal reservoirs in Kansas. American Geophysical Union Fall Meeting. Washington, DC.
2. Sigdel, N. and **Husic, A.** (2024, December). Integrating sensor data and deep learning for CONUS-scale suspended sediment prediction. American Geophysical Union Fall Meeting. Washington, DC.

3. Percich, A. and **Husic, A.** (2024, December). Identifying erosional sources in an urbanizing landscape using sediment fingerprinting. American Geophysical Union Fall Meeting. Washington, DC.
4. Pandit, A. and Golden, H., Christensen, J., Lane, C., **Husic, A.** (2024, June). Transfer learning for the prediction of nitrate loads in ungauged basins. WaterSciCon. St. Paul, MN.
5. Percich, A., VanderMeulen, L., and **Husic, A.** (2024, June). Sediment source prediction for ungauged basins with machine learning. WaterSciCon. St. Paul, MN.
6. Pandit, A. and Golden, H., Christensen, J., Lane, C., **Husic, A.** (2023, December). A continental-scale long short-term memory model for predicting nitrate dynamics. American Geophysical Union Fall Meeting. San Francisco, CA.
7. Mohn, A. and **Husic, A.** (2023, December). Microplastics in Stormwater: Quantifying Abundance, Characterizing Sources, and Understanding Associations with Water Parameters. American Geophysical Union Fall Meeting. San Francisco, CA.
8. Appel, E. Enderami, A., Sutley, E., and **Husic, A.** (2023, December). Evaluating the racial inequity of flooding: historical policies, modern consequences. American Geophysical Union Fall Meeting. San Francisco, CA.
9. Pandit, A. and **Husic, A.** (2023, November). Forecasting the tipping points of hypereutrophic lake conditions under changing climate and land use scenarios. Governor's Conference on the Future of Water in Kansas. Manhattan, KS. Poster Presentation.
10. Mohn, A*. and **Husic, A.** (2023, November). Microplastics within Fluvial Sediment: Quantifying Abundance, Characterizing Sources, and Understanding Drivers. Governor's Conference on the Future of Water in Kansas. Manhattan, KS. Poster Presentation.
**Awarded First Place Outstanding Undergraduate Poster Presentation.*
11. Appel, E. Enderami, A., Sutley, E., and **Husic, A.** (2023, November). Troubled waters: redlined communities and present-day flooding. Governor's Conference on the Future of Water in Kansas. Manhattan, KS. Poster Presentation.
12. Percich, A. and **Husic, A.** (2023, November). Sediment Fingerprinting to Assess Sources of Erosion in Urbanizing Johnson County. Governor's Conference on the Future of Water in Kansas. Manhattan, KS. Poster Presentation.
13. Cappotto, K., Harris, T., Gido, K., Moore, T., and **Husic, A.** (2023, November). Water injection dredging and human-induced turbidity currents as an alternative strategy for reservoir sedimentation management. Governor's Conference on the Future of Water in Kansas. Manhattan, KS. Poster Presentation.
14. Zarnaghsh, A. and **Husic, A.** (2023, May). Assessing continental gradients in the significance of runoff and baseflow to turbidity generation in streams. SEDHYD - Sedimentation and Hydrologic Modeling Conference. St. Louis, MO. Oral Presentation.
15. Pandit, A. and **Husic, A.** (2023, May). Get with the timeseries: establishing metrics for water quality model performance. HydroML Symposium. Berkeley, CA. Poster Presentation.
16. Zarnaghsh, A. and **Husic, A.** (2022, December). Coupling High-frequency Sensing and 2-d Numerical Modelling to Analyze Nitrate Dynamics in a Large River. American Geophysical Union. Fall Meeting. Chicago, IL. Oral Presentation.

17. McVey, Z., **Husic, A.**, Michalek, Z., and Mahoney, T. (2022, December). Land Use Change Impacts on Dynamic Sediment Connectivity in an Urbanizing Region. American Geophysical Union. Fall Meeting. Chicago, IL. Poster Presentation.
18. Pandit, A. and **Husic, A.** (2022, November). Forecasting the Tipping Points of Hypereutrophic Lake Conditions Under Changing Climate and Land Use Scenarios. Governor's Conference on the Future of Water in Kansas. Manhattan, KS. Poster Presentation.
19. Zarnaghsh, A. and **Husic, A.** (2022, November). Quantifying Runoff and Baseflow Controls on Stream Turbidity. Governor's Conference on the Future of Water in Kansas. Manhattan, KS. Poster Presentation.
20. Vaez, M. and **Husic, A.** (2022, November). Sediment fingerprinting as a tool for identifying sources of erosion in Johnson County, Kansas. Governor's Conference on the Future of Water in Kansas. Manhattan, KS. Poster Presentation.
21. Rider, Z., **Husic, A.**, Sturm B., and Harris, T. (2022, November). Widespread presence of cyanotoxins and taste-and-odor compounds within benthic algae of human-disturbed rivers. Governor's Conference on the Future of Water in Kansas. Manhattan, KS. Poster Presentation.
22. McVey, Z., **Husic, A.**, Michalek, Z., and Mahoney, T. (2022, November). Land Use Impacts on Dynamic Sediment Connectivity Across an Urbanizing Region. Governor's Conference on the Future of Water in Kansas. Manhattan, KS. Poster Presentation.
23. Rider, Z., **Husic, A.**, Sturm B., and Harris, T. (2022, April). Algae mats as sources of cyanotoxins and taste-and-odor compounds. University of Kansas Environmental and Water Resources Engineering Seminar Series. Lawrence, KS. Poster Presentation.
24. Zarnaghsh, A. and **Husic, A.** (2021, December). High-Frequency Sensing of Specific Conductance to Understand Transport Mechanisms Across an Urbanization Gradient. American Geophysical Union. New Orleans, LA. Poster Presentation.
25. Rider, Z., **Husic, A.**, Sturm B., and Harris, T. (2021, December). Land Use Impacts on the Development of Cyanotoxins and Taste-and-Odor Compounds in Benthic Algae Mats. American Geophysical Union. New Orleans, LA. Poster Presentation.
26. McVey, Z. and **Husic, A.** (2021, December). Land Use Impacts on Dynamic Sediment Connectivity Across an Urbanizing Region. American Geophysical Union. New Orleans, LA. Poster Presentation.
27. Zarnaghsh, A.*. and **Husic, A.** (2021, November). High-Frequency Sensing of Specific Conductance to Understand Solute Transport Mechanisms During Storm Events in Johnson County, KS. Governor's Conference on the Future of Water in Kansas. Virtual. Poster Presentation.
*Awarded First Place Outstanding Graduate Poster Presentation.
28. Rider, Z., **Husic, A.**, Sturm B., and Harris, T. (2021, November). Investigating the drivers of cyanotoxins and taste-and-odor compounds in streambed algal mats. Governor's Conference on the Future of Water in Kansas. Virtual. Poster Presentation.

29. McVey, Z. and **Husic, A.** (2021, November). Modeling streamflow in rural and urban basins: applications to Johnson County, KS. Governor's Conference on the Future of Water in Kansas. Virtual. Poster Presentation.
30. Zarnaghsh, A., Kelly, M., Burgin, A., and **Husic, A.** (2021, May). Coupling high-frequency sensing and 2-D numerical modeling to analyze nitrate dynamics in a large river. Society of Freshwater Sciences. Virtual. Oral Presentation.
31. Zarnaghsh, A. and **Husic, A.** (2020, December). High-frequency sensing of sediment hysteresis to understand storm event dynamics across an urbanization gradient. American Geophysical Union Fall Meeting. Oral Presentation.
32. Michalek, A., Zarnaghsh, A., and **Husic, A.** (2020, December). Modeling linkages between erosion and connectivity in an urbanizing landscape: a coupled sensing, geomorphometric, and field assessment approach. American Geophysical Union Fall Meeting. Virtual. Poster Presentation.
33. Percich, A. and **Husic, A.** (2020, December). Sediment source assessment along an urban to rural transition using plutonium isotopes and sediment fingerprint modeling. American Geophysical Union Fall Meeting. Virtual. Poster Presentation.
34. Zarnaghsh, A.*. and **Husic, A.** (2020, November). High-Frequency Sensing of Sediment Hysteresis to Understand Storm Event Dynamics in Johnson County, KS. Governor's Conference on the Future of Water in Kansas. Wichita, KS. Poster Presentation.
**Awarded First Place Outstanding Graduate Poster Presentation.*
35. Michalek, A., Zarnaghsh, A., and **Husic, A.** (2020, November). Identifying erosion and connectivity hotspots in urbanizing Johnson County, KS. Governor's Conference on the Future of Water in Kansas. Poster Presentation. Wichita, KS. Poster Presentation.
36. Percich, A.*. and **Husic, A.** (2020, November). Plutonium Isotopes as Tracers of Sediment in an Urbanizing Landscape. Governor's Conference on the Future of Water in Kansas. Wichita, KS. Poster Presentation.
**Awarded First Place Outstanding Undergraduate Poster Presentation.*
37. Zarnaghsh, A. and **Husic, A.** (2019, November). High-resolution sensors for assessing the impact of rapid land use change on the processes governing stream biogeochemistry. Governor's Conference on the Future of Water in Kansas. Wichita, KS. Poster Presentation.
38. Wilson, L. and **Husic, A.** (2019, November). Hydrologic modeling along an urbanization gradient: application of the SWAT model to five Johnson County watersheds. Governor's Conference on the Future of Water in Kansas. Wichita, KS. Poster Presentation.
39. Percich, A.*. and **Husic, A.** (2019, November). Sediment source assessment along an urban to rural transition using stable isotopes and geochemical tracers. Governor's Conference on the Future of Water in Kansas. Wichita, KS. Poster Presentation.
**Awarded First Place Outstanding Undergraduate Poster Presentation.*
40. Depew, A.*. and **Husic, A.** (2019, November). Designing and implementing a platform for remotely sensing high-frequency water quality data across an urbanization gradient. Governor's Conference on the Future of Water in Kansas. Wichita, KS. Poster Presentation.
**Awarded Runner-up Outstanding Undergraduate Poster Presentation.*

RESEARCH PRESENTATIONS, NON-INVITED (by me as presenting author)

1. **Husic, A.** (2024, December). Game theory for catchment science. American Geophysical Union. Fall Meeting. Washington, DC.
2. **Husic, A.** (2024, May). Game theory for catchment science. HydroML Symposium. Richland, WA. Oral Presentation.
3. **Husic, A.** and Pandit, A. (2023, December). Large-sample water quality: exploring, modeling, and testing benchmark datasets for transferrable insights. American Geophysical Union. Fall Meeting. San Francisco, CA.
4. **Husic, A.** and Juracek, K. (2023, November). Sediment Fingerprinting of Sources of Reservoir Infilling in an Eastern Kansas Basin, USA. Oral Presentation. Governor's Conference on the Future of Water in Kansas. Manhattan, KS.
5. **Husic, A.** et al., (2023, June). Hydrologic connectivity and its influence on the pathways, processes, and timing of water quality degradation in the Anthropocene. Poster Presentation. Gordon Research Conference. Andover, NH.
6. **Husic, A.** et al., (2022, December). Benchmarking deep learning model estimates of hydrologic pathway contribution to streams and springs using conceptual and physically-based models. Poster Presentation. American Geophysical Union. Fall Meeting. Chicago, IL.
7. **Husic, A.** and Michalek, A. (2021, December). Structural hillslope connectivity modulates hydrologic extremes and benefits. Oral Presentation. American Geophysical Union. Fall Meeting. New Orleans, LA.
8. **Husic, A.** and Percich, A. (2021, November). Using plutonium fallout to quantify streambank erosion in urbanizing Johnson County, Kansas. Oral Presentation. Governor's Conference on the Future of Water in Kansas. Virtual.
9. **Husic, A.** and Michalek, A. (2021, May). Quantifying Hydrologic Connectivity at the Continental Scale: Drivers and Implications. Oral Presentation. Society of Freshwater Sciences. Virtual.
10. **Husic, A.** et al., (2020, December). High-frequency sensing of nitrate to improve numerical model performance: insights from an extensively modeled spring. Poster Presentation. American Geophysical Union Fall Meeting. San Francisco, CA.
11. **Husic, A.** et al., (2020, July). Beyond EMMA: Optimal Transport for Assessing Nitrate Source-Pathway Connectivity. Oral Presentation. Aquatic OpenScience DataScience Summit. Held virtually on Zoom & YouTube.
12. **Husic, A.** et al., (2019, December). Optimal Transport for Assessing Nitrate Source and Pathway Connectivity in a Human-Disturbed Watershed. Poster Presentation. American Geophysical Union Fall Meeting. San Francisco, CA.
13. **Husic, A.** et al., (2019, June). Sediment nitrogen stable isotopes and numerical modeling show hot moments, hot spots, and environmental drivers in the surficial fine-grained laminae of karst beds. Oral Presentation. ASCE World Environmental and Water Resources Congress. Pittsburgh, PA.

14. **Husic, A.** (2019, April). Nitrogen cycling in subsurface rivers: evidence from hydrogeochemical and isotopic modeling. Oral Presentation. Kansas Biological Survey Ecology Seminar. Lawrence, KS.
15. **Husic, A.** et al., (2018, December). Nitrate Removal in a Phreatic Karst Conduit: Estimating Nitrification and Denitrification Rates using Stable Isotopes and Numerical Modeling. Poster Presentation. American Geophysical Union Fall Meeting. Washington, D.C.
16. **Husic, A.** (2018, September). Contaminant Fate and Transport in a Karst Watershed (What Goes Down Must Come Up). Oral Presentation. University of Kansas Department of Geology Colloquium. Lawrence, KS.
17. **Husic, A.** et al., (2018, June). Application of isotopic and elemental data streams for estimating source and transformation processes in an agricultural karst system. Oral Presentation. ASCE World Environmental and Water Resources Congress. Minneapolis, MN.
18. **Husic, A.** et al., (2018, March). Water, Sediment, and Nutrient Data Streams in a Fluviokarst Watershed in the Kentucky Bluegrass: Insights from Elemental, Isotopic, and High-Resolution Sensor Data. Oral Presentation. Kentucky Water Resources Research Institute Symposium. Lexington, KY.
19. **Husic, A.** et al., (2017, December). Nitrogen fate in a phreatic fluviokarst watershed: a stable isotope, sediment tracing, and numerical modeling approach. Poster Presentation. American Geophysical Union Fall Meeting. New Orleans, LA.
20. **Husic, A.** (2017, December). Contaminant Fate and Transport in a Highly-Coupled Watershed: Integrating Stable Isotopes, Sediment Tracing, and Numerical Modeling to Assess Stream Function and Ecosystem Health. Oral Presentation. University of Kansas Department of Civil, Environmental, and Architectural Engineering Seminar. Lawrence, KS.
21. **Husic, A.** et al., (2017, May). Nitrate leaching and pathways in agricultural fluviokarst systems. Oral Presentation. ASCE World Environmental & Water Resources Congress. Sacramento, CA.
22. **Husic, A.** et al., (2017, March). Nitrate leaching in an agricultural fluviokarst system in the Bluegrass Region. Oral Presentation. Kentucky Water Resources Research Institute Symposium. Lexington, KY.
23. **Husic, A.** et al., (2016, March). Data and model investigation of a fluviokarst system in the Bluegrass Region: water, sediment, and carbon interactions. Oral Presentation. Kentucky Water Resources Research Institute Symposium. Lexington, KY.
24. **Husic, A.** et al., (2015, December). Sediment organic carbon fate and transport in a fluviokarst watershed in the Bluegrass Region. Poster Presentation. American Geophysical Union Fall Meeting. San Francisco, CA.
25. **Husic, A.** et al., (2015, December). Sediment carbon fate in a fluviokarst watershed in the Bluegrass Region. Poster Presentation. 5th Annual Sustainability Forum. Lexington, KY.

26. **Husic, A.** et al., (2015, May). Investigation of source, fate, and transport of sediments in a karst dominated watershed. Oral Presentation. ASCE World Environmental & Water Resources Congress. Austin, TX.
27. **Husic, A.** et al., (2015, March). Sediment transport mechanisms in a fluvial karst system in Bluegrass Region. Oral Presentation. Kentucky Water Resources Research Institute Annual Symposium. Lexington, KY.
28. **Husic, A.** et al., (2015, February). Sediment organic carbon fate and transport mechanisms in a fluvial karst system in the Bluegrass Region. Poster Presentation. Posters-at-the-Capitol. Frankfort, KY.

TEACHING EXPERIENCE

Courses Taught (mean eval.: 4.7/5.0)	Semester	Enrollment
CE 330 Fluid Mechanics	F-23	51
	F-22	48
	F-21	30
	F-20	48
CE 331 Fluid Mechanics Lab	F-23	27
	F-22	35
	F-21	22
	F-20	34
CE 755 Open Channel Flow	S-22	11
	S-21	11
	S-20	4
	S-19	6
CE 857 Sediment Transport	F-22	3
	F-20	3
	F-18	7
CE 859 Erosion and Sedimentation	F-23	7
	F-21	9
	F-19	5

DIVERSITY, EQUITY, INCLUSION, & BELONGING (DEIB)

1. Founding Member, DEIB committee, KU School of Engineering (2021 – 2024)
2. Mentor, Nine under-represented students in undergraduate research at KU (2019 – 2024)
3. Chair, Founder, DEIB committee, KU Department of Civil, Environmental, and Architectural Engineering (2021 – 2023)
4. Chair, Founder, Diversity and Equity Task Force, KU Department of Civil, Environmental, and Architectural Engineering (2020 – 2021)
5. Member, Diversity Task Force, KU School of Engineering (2019 – 2021)

SERVICE & PROFESSIONAL ACTIVITIES

Professional Committees

AGU Water Quality Committee, Member (2019 – Present), Chair (2021 – 2023), Deputy Chair (2020 – 2021)
ASCE Sedimentation Committee, Member (2018 – Present)

Peer Reviewer

Nature Sustainability, Journal of Geophysical Research: Biogeosciences, Water Research, Water Resources Research, Journal of Hydrology, Agriculture Ecosystems and Environment, Hydrology and Earth System Sciences, Journal of Hydraulic Engineering, Journal of Hydrologic Engineering, Environmental Earth Sciences, Hydrological Processes, and the Transactions of the ASABE

Proposal Reviewer

U.S. National Science Foundation (NSF), German Research Foundation (DFG), French National Research Agency (ANR)

SOCIETY MEMBERSHIPS

Member of the American Society of Civil Engineers (ASCE)
Member of the American Geophysical Union (AGU)
Member of the Association for the Sciences of Limnology and Oceanography (ASLO)
Member of the American Water Works Association (AWWA)
Member of the Water Environment Federation (WEF)
Member of the Tau Beta Pi Engineering Honor Society (TBP)
Member of the Chi Epsilon Civil Engineering Honor Society (XE)
Member of the Omicron Delta Kappa Leadership Society (ODK)

HONORS & AWARDS

NSF CAREER Award (2024)
NSF EPSCoR Track-4 Research Fellow (2023)
KU School of Engineering Bellows Faculty Scholar Award (2023)
KU School of Engineering Miller Faculty Scholar Award (2021)
KU Center for Teaching Excellence Course Transformation Grant (2021)
KU Nominated for Undergraduate Research Mentor Award (2021)
KU One University Open Access Fund Award (2021)
NSF NEON Early Career Scholar (2020)
ASCE ExCEED Teaching Fellow (2019)
Outstanding Reviewer Award, *Journal of Hydrology* (2018)
National Ground Water Association Past President's Award (2017)
Burton E. Heard Graduate Fellowship (2017)
KY-TN American Water Works Association Fellowship (2017)

Burton E. Heard Graduate Fellowship (2016)

Great Lakes National Scholarship (2016)

USGS KY Water Resources Research Institute Research Enhancement (2015)

ASCE J. Waldo Smith Hydraulic Fellowship (2015)

Robert Eugene Fish Hydraulic Fellowship (2014)