

Admin Husic, Ph.D.

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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

<i>Assistant Professor</i>	Aug. 2018 - Present
Department of Civil, Environmental, and Architectural Engineering University of Kansas, Lawrence, KS	

TEACHING EXPERIENCE

List of Courses Taught

- CE 857 Sediment Transport (Fall 2018) – Enrolled: 7.
- CE 755 Free Surface Flow I (Spring 2019) – Enrolled: 6.
- CE 895 Reservoir Sedimentation (Fall 2019) – Enrolled: 5.
- CE 490 Special Problems (Fall 2019) – Enrolled: 1.
- CE 755 Free Surface Flow I (Spring 2020) – Enrolled: 4.

Student Advising

- Undergraduate Academic (12 current, 12 total)
- Undergraduate Research (3 current, 8 total)
- Masters (1 current, 1 total)
- Doctoral (1 current, 1 total)

Defense Committees

- Masters (0 current, 1 total)
- Doctoral (1 current, 1 total)

RESEARCH PAPERS

- Husic, A.**, Fox, J., Mahoney, T., and Clare, E. (2020). High-frequency sensing of nitrate to improve numerical model performance: insights from an extensively modeled karst spring. *Journal of Hydrologic Engineering, In Prep.*
- Husic, A.**, Fox, J., Al-Aamery, N., Pollock, E., Ford, W., Agouridis, C., and Backus, J. (2020). Nitrogen stable isotopes and numerical modeling show hot spots, hot moments, and environmental drivers in a karst conduit. *Journal of Hydrology, In Prep.*
- Husic, A.**, Fox, J., Mahoney, T., Gerlitz, M., Pollock, E., and Backus, J. (2020). Optimal Transport for Assessing Nitrate Source and Pathway Connectivity in a Human-Disturbed Watershed. *Water Resources Research, In Prep.*

4. Al Aamery, N., Adams, E., Fox, J., **Husic, A.**, Gerlitz, M., Agouridis, C., and Zhu, J. (2019). Pathway connectivity in an epigenetic fluviokarst system: insight from a numerical modelling study in Kentucky USA. *Journal of Hydrology, In Review*.
5. Kelly, M., Zeglin, L., **Husic, A.**, and Burgin, A. (2019). High Supply, High Demand: A Unique Nutrient Addition Decouples Nitrate Uptake and Metabolism in a Large River. *Journal of Geophysical Research: Biogeosciences, In Review*.
6. **Husic, A.**, Fox, J., Adams, E., Pollock, E., Ford, W., Agouridis, C., and Backus, J. (2019). Quantification of nitrate removal in karst conduits using stable isotopes and numerical modeling. *Water Research (170)*, 115348.
7. 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.
8. **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.
9. 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.
10. **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).
11. 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.
12. **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.
13. **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.

RESEARCH PRESENTATIONS (by student advisees)

1. 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. Poster Presentation. Wichita, KS.
2. 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. Poster Presentation. Wichita, KS.
3. 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. Poster Presentation. Wichita, KS.

*Awarded First Place Outstanding Undergraduate Poster Presentation.

4. 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. Poster Presentation. Wichita, KS. *Awarded Runner-up Outstanding Undergraduate Poster Presentation.

RESEARCH PRESENTATIONS (as presenting author)

1. **Husic, A.** et al., (2020, May). High-frequency sensing of nitrate to improve numerical model performance: insights from an extensively modeled karst spring. Oral Presentation. ASCE World Environmental and Water Resources Congress. Henderson, NV.
2. **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.
3. **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.
4. **Husic, A.** (2019, April). Nitrogen cycling in subsurface rivers: evidence from hydrogeochemical and isotopic modeling. Oral Presentation. Kansas Biological Survey Ecology Seminar. Lawrence, KS.
5. **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.
6. **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.
7. **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.
8. **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.
9. **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.
10. **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.

11. **Husic, A.** et al., (2017, May). Nitrate leaching and pathways in agricultural fluviokarst systems. Oral Presentation. ASCE World Environmental & Water Resources Congress. Sacramento, CA.
12. **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.
13. **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.
14. **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.
15. **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.
16. **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.
17. **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.
18. **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.

AWARDED GRANTS

1. **Husic, A.**, Harris, T., Sturm, B., 2019. 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). PI: Admin Husic.
2. **Husic, A.** 2019. 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**. PI: Admin Husic.
3. Roundy, J., Hansen, A., and **Husic, A.** 2018. Bridge Deck Drainage: Evaluation of KDOT's Current Design Guidance. Kansas Department of Transportation. **\$65,956**. Co-PI: Admin Husic.
4. Fox, J. and **Husic, A.** 2015. Investigation of Source, Fate, and Transport of Sediments in a Karst Dominated Watershed. USGS Kentucky Water Resources Research Institute 104(b) Program. **\$5,000**. Co-PI: Admin Husic.

GRANTS IN REVIEW

1. Armstead, M., Fox, J., Ford, W., and **Husic, A.** 2020. RII Track-2 FEC: A West Virginia, Kentucky and Kansas Partnership to Harness Big Data: Solving the Hazardous Algal Bloom Problem in Regulated Rivers. National Science Foundation EPSCoR. **\$5,994,127.** Co-PI: Admin Husic.
2. Fryar, A., Ford, W., Fox, J., Shepard, C., Tobin, B., Kirk, M., Ghanbarian, G., Langston, A., Groves, C., Florea, L., Zhu, C., Suarez, M., Zhang, C., and **Husic, A.**, 2019. Collaborative Research: Network Cluster: Linking Midcontinent Carbonate Terrain Critical-Zone (MCTCZ) Studies across Climatic, Lithologic, and Land-Use Gradients. National Science Foundation EAR - CZO. **\$2,087,341.** SP: Admin Husic.
3. Sturm, B., Hutchison, J., Kastens, J., Krause, R., Sutley, E., **Husic, A.**, Mitchell, J., and Rose, J. 2019. Integrating Flood Risk, Pathogen Exposure, and Social Network Analysis to Increase Resiliency in Rural Communities. EPA Science to Achieve Results (STAR) Program. **\$799,991.** Co-PI: Admin Husic.
4. **Husic, A.** 2019. Untangling Controls of Water, Nutrient, and Matter Connectivity through an Integrated Optimal Transport Modeling Framework. Kansas NSF EPSCoR Microbiomes of Aquatic, Plant, and Soil First Award Program. **\$142,371.** PI: Admin Husic.
5. **Husic, A.** and Hansen, A. 2019. Updating KDOT's Design Guidance for Scour and Erosion Potential using Two-Dimensional Hydraulic Modeling. Kansas Department of Transportation. **\$69,840.** PI: Admin Husic.

NON-AWARDED GRANTS

1. Roundy, J., Harris, T., Hansen, A., and **Husic, A.** 2019. Monitoring and Predicting CyanoHABs in Kansas. Kansas NASA EPSCoR Seed Research Initiation Program. **\$183,749.** Co-PI: Admin Husic.
2. **Husic, A.** and Olson, J., 2019. Water Injection Dredging (WID): A Feasibility Study of WID Implementation at Tuttle Creek Reservoir, Manhattan, Kansas. United States Bureau of Reclamation Water Challenge. **\$15,000.** PI: Admin Husic.
3. **Husic, A.** 2018. Identifying Efficient Aquatic Microbiome Structures for the Removal of Contaminants using Ambient Stable Isotopes and Numerical Modeling. Kansas NSF EPSCoR Microbiomes of Aquatic, Plant, and Soil Systems Program. **\$95,191.** PI: Admin Husic.
4. Roundy, J., Harris, T., Hansen, A., and **Husic, A.** 2018. Utilizing NASA tools for Monitoring CyanoHABs in Kansas. Kansas NASA EPSCoR Seed Research Initiation Program. **\$144,286.** Co-PI: Admin Husic.
5. **Husic, A.** 2014. Is Agricultural Land-use Responsible for Lack of Clean Water in Karst Topography? NSF Graduate Research Fellowship Program. **\$132,000.** PI: Admin Husic.

SERVICE & PROFESSIONAL ACTIVITIES

Active Committees

AGU Water Quality Committee (2019 – Present)
ASCE Sedimentation Committee (2018 – Present)
KU Engineering School Library Committee (2018 – Present)
KU School of Engineering Diversity Task Force (2019 – Present)

Peer Reviewer

Journal of Geophysical Research: Biogeosciences, 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

Other Activities

Review Committee for University of Kentucky Civil Engineering Department Chair (2017)
Civil Engineering Representative to UK Graduate Student Congress (2016-17)
Graduate Student Rep. to the UK Civil Engineering Education Team (2015-17)
Engineer in Training Professional Designation (2014)
President of the University of Kentucky ASCE Student Chapter (2013-14)

SOCIETY MEMBERSHIPS

Member of the American Society of Civil Engineers (ASCE)
Member of the American Geophysical Union (AGU)
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

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)