

# 2019 Kentucky Water Resources Annual Symposium

March 25, 2019

Marriott Griffin Gate Resort, Lexington, Kentucky

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## Registration and Continental Breakfast (8:00 - 8:30)

### PLENARY SESSION (8:30 - 10:00)

Location: Salons E and F

- 8:30 Welcome & Introduction by Kelly Pennell, Acting Director, Kentucky Water Resources Research Institute, University of Kentucky
- 8:45 Secretary Charles G. Snaveley, Energy and Environment Cabinet, Commonwealth of Kentucky
- 9:05 Donna McNeil, Executive Director of the Kentucky Infrastructure Authority, Commonwealth of Kentucky
- 9:25 Greg Heitzman, President of BlueWater Kentucky
- 9:45 Panel Discussion and Q & A

### POSTER SESSION 1 (10:00 - 11:00)

Location: Dixiana & Lands End and Calumet & Darby Dan

### SESSION 1 (11:00 - 12:20)

Location: Salons E and F

#### Track A

##### 1A—Nutrients and Sediment

- 11:00 *Nutrient Concentrations, Loads, and Yields at Ambient Water Quality Monitoring Stations, 2005-2017*, Caroline Chan, Watershed Management Branch, Kentucky Division of Water.
- 11:20 *Advancement in Watershed and Sediment Transport Modeling Using Dynamic Lateral, Longitudinal, and Vertical Sediment (Dis)connectivity Prediction*, Tyler Mahoney, Dept. of Civil Engineering, University of Kentucky.
- 11:40 *\*Canine Nutrient Contributions to the Urban Environment*, Brad Lee, Dept. of Plant & Soil Sciences, University of Kentucky.
- 12:00 *Continuous Nutrient and Turbidity Sensors Reveal the Response of Watershed Sources Connected During Storm Events*, Evan Clare, Dept. of Civil Engineering, University of Kentucky.

#### Track B

##### 1B—Ecological Restoration

- Monitoring McConnell Springs Stormwater Wetland Pond & Gainesway Pond Retrofit: 2010-2018*, David Price, Division of Water Quality, LFUCG.
- Using Multiple Methods for Better Stream Restoration: Including 2-Dimensional Modeling*, Wanda Lawson, Stantec Consulting Services, Inc.
- The Restoration of Cane Run Creek through Lexington's Coldstream Park and UK's Coldstream Research Campus*, Jennifer Carey, Division of Water Quality, LFUCG.
- Reclaiming Mill Creek: A Case Study in Urban Stream Restoration*, Jonathan Scheibly, Stantec Consulting Services, Inc.

### AWARDS LUNCHEON (12:25—1:25)

Location: Bluegrass Pavilion

**Lunch Presentation:** *An Ongoing Success Story: How Data, Persistence and Patience is Paying Off in the Hanging Fork Watershed*, John Webb, Watershed Management Branch, Kentucky Division of Water.

**SESSION 2 (1:30 - 3:10)**

**Location: Salons E and F**

**2A—Ecology, Biology, and Climate**

- 1:30 *Ecological Monitoring of WRP Easements in Western Kentucky*, Karen Baumann, Dept. of Biological Sciences, Murray State University.
- 1:50 *Discussion of Factors Influencing Ecosystem Productivity in the Greenup Pool of the Ohio River*, Mindy Armstead, Dept. of Integrated Science and Technology, Marshall University.
- 2:10 *Biotic Interactions Between a Bloom-Forming Cyanobacteria and a Planktonic Protist: Implications for Toxin Production*, Sarah Princiotta, Hancock Biological Station, Murray State University.
- 2:30 *The Use of Multiple Large and Detailed Databases to Evaluate the Impacts of Climate Change on Water Resources in the Ohio River Basin*, Lynn Jarrett, US Army Corp of Engineers (Retired).
- 2:50 *\*Evaluating and Addressing Climate Awareness and Water in Kentucky*, Lauren Cagle, Dept. of Writing, Rhetoric, and Digital Studies, University of Kentucky.

**2B—Groundwater and Karst**

- Incorporating Machine Learning with LiDAR for Delineating Sinkholes*, Junfeng Zhu, Kentucky Geological Survey, University of Kentucky.
- Advances in Urban Karst Hydrological and Contaminant Monitoring Techniques for Real-Time and High-Resolution Applications*, Jason Polk, CHNGES & HydroAnalytical Lab, Western Kentucky University.
- Finding the Edge: Assessing How to Apply Edge of Field Monitoring to Karst*, Benjamin Tobin, Kentucky Geological Survey, University of Kentucky.
- \*An Urban Karst Groundwater Evaluation and Monitoring Toolbox*, Rachel Kaiser, Dept. of Geography & Geology, Western Kentucky University.
- Center-Pivot Irrigation in Western Kentucky: Adding Context to the Discussion*, Glynn Beck, Kentucky Geological Survey, University of Kentucky.

**POSTER SESSION 2 (3:10- 4:10)**

**Location: Dixiana & Lands End and Calumet & Darby Dan**

**SESSION 3 (4:10 - 5:10)**

**Location: Salons E and F**

**3A—Drinking Water**

- 4:10 *\*Evaluating Potential Health Threats from Untreated Karst Springs as Community Drinking Water Sources, Monroe County, Kentucky*, Cayla Baughn, Crawford Hydrology Lab, Western Kentucky University.
- 4:30 *Benefits of Energy Savings Performance Contracting for Water and Wastewater Treatment Facilities*, Greg Copley, Center for Applied Energy Research, University of Kentucky.
- 4:50 *Self-Cleaning Nanocomposite Membranes with Phosphorene-Based Pore Fillers for Water Treatment*, Joyner Eke, Dept. of Chemical and Materials Engineering, University of Kentucky.

**3B—Pollutant Removal**

- Investigation of PolarClean and Gamma-Valerolactone as Solvents for Polysulfone Membrane Fabrication*, Xiaobo Dong, Dept. of Chemical and Materials Engineering, University of Kentucky.
- Selenium Removal Using Bacteria Entrapped Alginate Gel Beads in a Packed-Bed Reactor*, Yuxia Ji, Dept. of Civil Engineering, University of Kentucky.
- Nanotechnology and Membranes: Water Detoxification from Lab Scale to Real Site Applications*, Honygi Wan, Dept. of Chemical and Materials Engineering, University of Kentucky.

**5:15 Announcement of Student Awards and Adjourn**

**Location: Salon F**

\* Denotes project supported by 2018-2019 USGS 104b grant funds.

**Poster Session 1 (10:00 - 11:00)**

1. *Evaluating Soil Characteristics in Rural and Urban Areas*, Gabby Barnes, Huston School of Agriculture, Murray State University.
2. *Use of eDNA in Detection of Multiple Salamander Species in Eastern Kentucky Streams*, Florene Bell, Dept. of Natural Sciences, Asbury University.
3. *Evaluation of Biomass and Filtration Method on eDNA Detection of Fantail Darters (*Etheostoma flabellare*)*, Ben Brammell, Dept. of Natural Sciences, Asbury University.
4. *The Impact of Agricultural Development on Nutrient Contamination Hotspots Within a Small, Intermittent Watershed at EKU's Meadowbrook Farm, Madison County, Kentucky*, Reid Buskirk, Dept. of Geosciences, Eastern Kentucky University.
5. *How Does Drought Length Impact the Runoff and Nutrient Storm Response in an Agricultural, Intermittent Catchment in Central Kentucky*, Trevor Clemons, Dept. of Geosciences, Eastern Kentucky University.
6. *Analyzing Sanitary Sewer Overflow Sensitivity to Storm Characteristics*, Andrew Day, Dept. of Geography and Geosciences, University of Louisville.
7. *Evaluating Soil Properties in No-Till and Conventional Tillage Systems*, River Dowell, Huston School of Agriculture, Murray State University.
8. *Assessment of the Impact of Forest Degradation Caused by Human Activities on a Lake in Omo – Sasha – Oluwa Forest Reserves, Southwestern Nigeria*, Judith Eke, Environmental and Resource Management, National Open University-Nigeria.
9. *Soil Responses to Tillage Practices and Cover Crops*, Carrie Ann Followell, Huston School of Agriculture, Murray State University.
10. *Chlorophyll a and Primary Productivity Dynamics in Kentucky Lake*, Morgan Franklin, Dept. of Earth and Environmental Sciences, Murray State University.
11. *Kentucky Backyard Streams Program*, Amanda Gumbert, Cooperative Extension, University of Kentucky.
12. *E. coli in Urban Streams*, Emily Huff, Dept. of Natural Sciences & Mathematics, West Liberty University.
13. *Assessment of Microbial Respiration and Carbon Loss Rates in the Upper Ohio River and Selected Tributaries in the Northern Panhandle of West Virginia*, Emma McClelland, Dept. of Natural Sciences & Mathematics, West Liberty University.
14. *Fabrication of a Novel Reactive Membrane for Water Treatment*, Alex Mills, Dept. of Chemical and Materials Engineering, University of Kentucky.
15. *Temperature Responsive Membranes and Perfluorochemical Adsorption*, Rollie Mills, Dept. of Chemical and Materials Engineering, University of Kentucky.
16. *What are the LiDAR-Revealed Depressions in Alluvium Along Major Rivers in Kentucky*, Adam Nolte, Kentucky Geological Survey, University of Kentucky.
17. *Nutrient Export and Remediation at Meadowbrook Farm, Madison County, Kentucky: Steps Toward Improving Local and Regional Water Quality*, Ryan Penn, Dept. of Geosciences, Eastern Kentucky University.
18. *Functionalization of PVDF Membranes with Thiol Groups for Heavy-Metal Capture*, Ronald Vogler, Dept. of Chemical and Materials Engineering, University of Kentucky.

**Poster Session 2 (3:10 - 4:10)**

1. *Climate Change Impacts on Sediment Transport in a Lowland Watershed System: Controlling Processes and Projection*, Nabil Al Aamery, Dept. of Civil Engineering, University of Kentucky.
2. *\*Assessment of MRSA Presence in Suburban WWTPs Effluent and Receiving Streams in Lexington, Kentucky*, Atena Amirsoleimani, Dept. of Civil Engineering, University of Kentucky.
3. *Heavy Metal Capture and Detection using Colored Synthetic Dithiol*, Shashika Bandara, Dept. of Chemistry, University of Kentucky.
4. *Quantifying Nutrient Fate and Transport in Karst Agroecosystems of Central Kentucky: Application of High-Resolution Sensors, Numerical Modeling, and Isotope Tracers*, Nolan Bunnell and Cory Radcliff, Dept. of Biosystems & Agricultural Engineering, University of Kentucky.
5. *Magnetic Nanocomposite Materials for the Detection and Removal of Halogenated Organic Pollutants in Contaminated Water Sources*, Molly Frazar, Dept. of Chemical and Materials Engineering, University of

## **Poster Session 2 (3:10 - 4:10) cont.**

6. *Measuring and Modeling Morphologic Processes in Karst to Sustain Water Resources in the Future*, Morgan Gerlitz, Dept. of Civil Engineering, University of Kentucky.
7. *Impedance Spectroscopy Based Evaluation of Phytoplankton Health*, Margaret Jett, Dept. of Mechanical Engineering, University of Louisville.
8. *Assessing the Performance of Brookville Flood Control Reservoir*, Mingda Lu, Dept. of Mechanical & Civil Engineering, Purdue University Northwest.
9. *Monitoring and Modelling of Phosphorus Flux Dynamics in Tile-Drained Landscapes: Quantifying the Role of Sediment-bound Phosphorus Fluxes*, Saeid Nazari, Dept. of Biosystems & Agricultural Engineering, University of Kentucky.
10. *Quantifying the Role of Particulate Nitrogen in Disturbed Forested Watershed Nitrogen Budgets: Influences of a Lowland Confluence Wetland*, Ciara Pickering, Dept. of Biosystems & Agricultural Engineering, University of Kentucky.
11. *Insight to the Mineralization of Fine Sediment Organic Matter in Streams Using Stable Isotopes Experiments*, Brenden Riddle, Dept. of Civil Engineering, University of Kentucky.
12. *The Potential Influence of Barge and Boat Traffic on Phytoplankton in the Greenup Pool of the Ohio River*, Cody Schumacher, Dept. of Environmental Science, Marshall University.
13. *Human Exposure Risk Assessment Model: Combining Subsurface and Aboveground Fate and Transport Processes*, Elham Shirazi, Dept. of Civil Engineering, University of Kentucky.
14. *\*The Impact of Ryegrass Root Exudates on Element Release in a Fragipan Soil*, Keegan Smith, Dept. of Plant & Soil Sciences, University of Kentucky.
15. *Vegetated Filter Strip Management Planning of Deep River Portage-Burns Waterway Watershed Using SWAT*, Linji Wang, Dept. of Mechanical & Civil Engineering, Purdue University Northwest.

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 **Kentucky Water  
Resources Research Institute**

