# 2020 Kentucky Water Resources Annual Symposium

**March 23, 2020**  
**Marriott Griffin Gate Resort, Lexington, Kentucky**

## Registration and Continental Breakfast (7:30 a.m. - 8:00 a.m.)

## PLENARY SESSION (8:00 a.m. - 9:30 a.m.)  
**Location: Salons E and F**

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Details</th>
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<tr>
<td>8:00</td>
<td><strong>Welcome &amp; Introduction</strong>, Dr. Lindell Ormsbee, Director, Kentucky Water Resources Research Institute</td>
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<tr>
<td>8:15</td>
<td>Michael Griffin, Director, USGS Ohio-Kentucky-Indiana Water Science Center</td>
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<tr>
<td>8:35</td>
<td>Carey Johnson, Assistant Director, Kentucky Division of Water</td>
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<td>8:55</td>
<td>Ron Brooks, Director of Fisheries, Kentucky Department of Fish and Wildlife Resources</td>
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<tr>
<td>9:15</td>
<td>Panel Discussion and Q &amp; A</td>
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### Break (9:30 a.m. - 9:40 a.m.)

## SESSION 1 (9:40 a.m. - 11:00 a.m.)  
**Location: Salons E and F**

### Track 1A: Climate Change  
**Moderators: TBD**

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<tr>
<td>9:40</td>
<td><strong>Kentucky Climate Consortium</strong>, Carmen Agouridis, Dept. of Biosystems &amp; Ag, Engineering, UK, and Alice Turkington, Dept. of Geography, UK.</td>
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<tr>
<td>10:00</td>
<td><strong>Assessment of Water Temperature Trends at 40 Sampling Locations in the Ohio River Basin</strong>, Lynn Jarrett, US Army Corp of Engineers (Retired).</td>
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<tr>
<td>10:40</td>
<td><strong>A Comparison of River Flooding on the Ohio River at McAlpine Upper During Two Months in 2018 with Record Setting Rainfall</strong>, Andrea Schoettmer, National Weather Service, Louisville, Kentucky.</td>
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### Track 1B: Karst and HAB Case Studies  
**Moderators: TBD**

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<tr>
<td>9:40</td>
<td><strong>Investigation and Remediation of an Urban Karst Gasoline Leak at Lost River Cave</strong>, Bowling Green, Kentucky, Jason Polk, CHNGES &amp; HydroAnalytical Lab, WKU.</td>
</tr>
<tr>
<td>10:00</td>
<td><strong>Nitrogen Fate and Transport Dynamics in Karst Agroecosystem Bedrock Channels of Central Kentucky: Insight from Numerical Modeling and High-Resolution Sensors</strong>, Nolan Bunnell, Dept. of Biosystems and Ag. Engineering, UK.</td>
</tr>
<tr>
<td>10:20</td>
<td><strong>Correlating Nutrient Availability and Environmental Conditions with Algal Bloom Formation: A Case Study of Private Ponds in Madison County</strong>, Kentucky, Lauren Sutton, Dept. of Chemistry, EKU.</td>
</tr>
<tr>
<td>10:40</td>
<td><strong>Seasonal Primary Productivity in the Greenup Pool of the Ohio River</strong>, Mindy Armstead, Dept. of Natural Resources and Environment, Marshall University.</td>
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### Break (11:00 a.m. - 11:10 a.m.)

## SESSION 2 (11:10 a.m. - 12:10 p.m.)  
**Location: Salons E and F**

### Track 2A: PFAS  
**Moderators: TBD**

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<tr>
<td>11:10</td>
<td><strong>Evaluation of Kentucky Community Drinking Water for Per- &amp; Poly-Fluoroalkyl Substances</strong>, Rob Blair, Kentucky Division of Water.</td>
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<td>11:30</td>
<td><strong>Fabrication of a Novel Reactive Membrane for Degradation of Polyfluorinated Compounds</strong>, Joyner Eke, Dept. of Chemical &amp; Materials Engineering, UK.</td>
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<td>11:50</td>
<td><strong>Temperature Swing Adsorption of Perfluoroorganics By Poly(N-isopropylacrylamide) Hydrogels and Membranes</strong>, Rollie Mills, Dept. of Chemical &amp; Materials Engineering, UK.</td>
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### Track 2B: Studies in Forested Watersheds  
**Moderators: TBD**

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<tr>
<td>11:30</td>
<td><strong>Forty Years of Data: Challenges and Opportunities Afforded by Long-Term Data Sets</strong>, Kenton Sena, Lewis Honors College, UK.</td>
</tr>
<tr>
<td>11:50</td>
<td><strong>High Frequency Monitoring and Modeling of Sedimentation Dynamics in River-Tributary Backwater Confluences</strong>, Ciara Pickering, Dept. of Biosystems &amp; Ag. Engineering, UK.</td>
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</table>
**AWARDS LUNCHEON (12:15 p.m. - 1:15 p.m.)**
Location: Salon C and D

**SESSION 3 (1:20 p.m. - 2:20 p.m.)**
Location: Salons E and F

**Track 3A: Community Engagement**
Moderators: TBD

1:20  Community-Engaged Science to Address Drinking Water Contaminant Exposure in Martin County Kentucky, Jason Unrine, Dept. of Plant and Soil Sciences, UK.


2:00  Rethinking Community Engagement Strategies in the North Fork of the Kentucky River Watershed Plan, Caitlin Myers, Headwaters, Inc.

**Track 3B: Groundwater Data**
Moderators: TBD

Recent Efforts to Improve Usefulness of, and Access to, Kentucky Groundwater Data, Chuck Taylor, Kentucky Geological Survey, UK.

Improving Groundwater and Karst Data Content and Curation, Sarah Arpin, Kentucky Geological Survey, UK.


POSTER SESSION (2:20 p.m. - 3:30 p.m.)
Location: Dixiana & Lands End and Calumet & Darby Dan

SESSION 4 (3:30 p.m. - 4:50 p.m.)
Location: Salons E and F

**4A - Innovations in Water & Wastewater Treatment and Env. Management**
Moderators: TBD

3:30  Tetracycline Sorption-Desorption Equilibrium and Kinetics from Municipal Biosolids and Poultry Litter by Diffusive Gradients in Thin Films (DGT), Elisa D’Angelo, Dept. of Plant and Soil Sciences, UK.

3:50  *Metal-Oxide Photocatalyst Hybrid Materials for Environmental Cleaning Applications, Matthew Nee, Dept. of Chemistry, WKU.

4:10  Comprehensive Utility-Wide Greenhouse Gas Inventory for Wastewater Treatment Facilities, Milad Ebrahimi, Louisville/Jefferson County Metropolitan Sewer District.

4:30  Watershed Management and Hazard Mitigation Planning: Collaborative Benefits in a Changing Climate, Mahtaab Bagherzadeh, Kentucky Division of Water.

**4B - BMP Monitoring and Stream Restoration**
Moderators: TBD

Optimizing Stormwater Management for Stream Integrity - a Northern Kentucky Case Study on the Science and Implementation, Matt Wooten, Sanitation District No. 1 of Northern Kentucky.


Use of Small Unmanned Aircraft Systems (sUAS) in the Kentucky Division of Water, Wesley Turner, Kentucky Division of Water.

Stream Restoration and Infrastructure Protection: North Branch Sycamore Creek, Amy Schultz, Beaver Creek Hydrology.

4:50 p.m. Announcement of Student Awards and Adjourn
Location: Salon F

* Denotes project supported by USGS 104b grant funds.
**Poster Session (2:20 p.m. - 3:30 p.m.)**

1. **Climate Change Impacts on Surface and Subsurface Water Pathways in a Mature Karst System, Cane Run Royal Spring Basin**, Nabil Al Aamery, Department of Civil Engineering, University of Kentucky.


3. *Assessment of Predictive Measures of Cyanobacteria in Three Recreational Lakes in the South-Central Kentucky*, Swade Barned, Department of Environmental Health Science, Eastern Kentucky University.

4. **Source, Fate, and Transport of Sediment Using Stable Carbon and Nitrogen Isotopes in Mature and Immature Karst Systems**, Leonie Bettel, Department of Civil Engineering, University of Kentucky.

5. **Monitoring of Suspended Sediment Load and Runoff-plots Soil Loss in an Agroforestry Watershed at Karst Plateau, Southwest of China**, Le Cao, State Key Laboratory of Environmental Geochemistry, Institute of Geochemistry, Chinese Academy of Sciences.

6. Developing ANN Model for Predicting Lake Michigan E. Coli Counts, Chandra Chandramouli, Department of Civil Engineering, Purdue University Northwest.

7. Examining Long Term Trends in Rainfall and Stream Flow at Upper Wabash River Basin Using Self Organizing Map, Chandra Chandramouli, Department of Civil Engineering, Purdue University Northwest.


10. Quantifying Climatic Controlled Variation of Groundwater Recharge with a Water Budget Approach for Isolated Ridgetops in the Daniel Boone National Forest, Daniel Draper, Department of Geosciences, Eastern Kentucky University.


12. *Comparison between PSC Water Loss and AWWA Free Water Audit*, Natalie Fields, Department of Civil Engineering, University of Kentucky.

13. **Stream Power in Correlation to Channel Morphology in Murray Central Park**, Morgan Franklin, Hancock Biological Station, Murray State University.

14. **Assessment of Nitrate Seasonality in the Ohio River Basin**, Morgan Gerlitz, Department of Civil Engineering, University of Kentucky.

15. **Seasonal Trends in Primary Productivity in Fourpole Creek**, Alice Hall, Department of Natural Resources and the Environment, Marshall University.


17. **Assessment of Water Chemistry's Influence on Carbon Cycling and Microbial Respiration using Standardized Substrates in Upper Ohio River Watersheds**, Emily Huff, Department of Natural Resources and Mathematics, West Liberty University.

18. Agricultural Runoffs in Karst Landscapes: Assessment of Glyphosate Concentration in Kentucky Watersheds, Pedro Martin, Department of Civil Engineering, University of Kentucky.

19. **Reduced Graphene Oxide Membranes: Properties and Potential Drinking Water Applications**, Trisha Nickerson, Department of Chemical and Materials Engineering, University of Kentucky.

20. **Continuous Nutrient Sensors Used to Predict Harmful Algal Bloom Events in the South Elkhorn Watershed**, John Pike, Department of Civil Engineering, University of Kentucky.

21. Quantifying the Dissolved Reactive Phosphate Dynamics in Karst Drainage of the Inner-Bluegrass using Oxygen Isotopes, Cory Radcliff, Department of Biosystems and Agricultural Engineering, University of Kentucky.
Poster Session (2:20 p.m. - 3:30 p.m.) cont.


24. Comparing the Characteristic Soil Moisture Curves of Natural, Constructed, and Experimental Ridgetop Wetland Soils, James Thompson, Department of Geosciences, Eastern Kentucky University.


26. Thio-Functionalized Membranes for the Removal of Heavy-Metal Ions from Wastewater, Ronald Vogler, Department of Chemical and Materials Engineering, University of Kentucky.

27. Salinization and Alkalization of Kentucky Lake: A Result of Human Activity? David White, Hancock Biological Station, Murray State University.

28. Elevated Streamwater Conductivity Reduces Carbon-Processing Rate, James Wood, Department of Natural Resources and Mathematics, West Liberty University.

* Denotes project supported by USGS 104b grant funds.

The 2020 Kentucky Water Resources Annual Symposium was made possible with support from:

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