Kentucky Water Resources Annual Symposium

March 19, 2018

Marriott Griffin Gate Resort, Lexington, Kentucky

7:30 Registration

8:00 Welcome & Introduction by Dr. Lindell Ormsbee, Director, Kentucky Water Resources Research Institute, University of Kentucky

PLENARY SESSION

8:30 *Joining Forces to Tackle the Dead Zone*, Amanda Gumbert, Agriculture Extension Programs, University of Kentucky

8:50 *Water Resources Applications of KyAPED Airborne LiDAR Data: A New Era for Hydroscience in Kentucky*, Bill Haneberg, Kentucky Geological Survey, University of Kentucky

9:10 *Temporal Performance Assessment of Wastewater Treatment Plants by Using Multivariate Statistical Analysis,* Milad Ebrahimi and Thomas D. Rockaway, Center for Infrastructure Research, University of Louisville

9:30 - 10:30 Poster Session 1

Track 1

1A—Groundwater and Karst

10:30 *Analysis of the Ambient Groundwater Quality Monitoring Network Data*, Caroline Chan and Robert Blair, Kentucky Division of Water

10:50 *Improving Karst/Sinkhole Hazard Assessment for Kentucky*, Junfeng Zhu, Kentucky Geological Survey, University of Kentucky

11:10 *Combination of Wind and Stack Effects on Indoor, Atmospheric, and Subsurface Domains in VI Studies*, Elham Shirazi and Kelly G. Pennell, Dept. of Civil Engineering, University of Kentucky

11:30 *Characterization of Spring Discharge and Karst Drainage at the Homeplace on Green River, Campbellsville*, Charles J. Taylor, Kentucky Geological Survey, University of Kentucky

Track 2

2A—Membranes and Pollutant Removal

Ozonation, Biofiltration and the Role of Membrane Surface Charge and Hydrophobicity in Removal and Destruction of Algal Toxins at Basic pH Values, Joyner Eke, Dept. of Chemical and Materials Engineering, University of Kentucky

Iron/Palladium Nanoparticles Immobilized Membrane Platforms for Chlorinated Organics Treatment, Hongyi Wan, Dept. of Chemical and Materials Engineering, University of Kentucky

Using a Bio-Derived Solvent to Cast Polysulfone Ultrafiltration Membranes, Xiaobo Dong and Isabel C. Escobar, Dept. of Chemical and Materials Engineering, University of Kentucky

Selenium Removal Using Activated Alumina in a Packed-Bed Reactor, Yuxia Ji and Yi-tin Wang, Dept. of Civil Engineering, University of Kentucky

11:50 - 1:10 Awards Luncheon: Awards for Outstanding Contributions Related to Water Resources

1B—Biology

1:10 *Kentucky Lake Undergoing a "Change of State": Trend Analyses Indicate Potential Tipping Points Are Being Reached for Several Limnological Variables*, D. White et. al, Hancock Biological Station and Dept. of Chemistry, Murray State University

1:30 *A Preliminary Environmental Assessment of the Green River, Mammoth Cave National Park Following the Removal of Lock and Dam #6*, Michael Compton, Brian Yahn, and Logan Phelps, Kentucky State Nature Preserves Commission

1:50 *Water Quality and Primary Productivity in Minor E. Clark Fish Hatchery Ponds*, Brian C. Reeder, Dept. of Biology and Chemistry, Morehead State University

2B—Sediments and Nutrients

Water, Sediment, and Nutrients Data Streams in a Fluviokarst Watershed in the Kentucky Bluegrass: Insights from Elemental, Isotopic, and High Resolution Sensor Data, Admin Husic et al., University of Kentucky

Effects of Stream Restoration on Pollutant Load Reductions in an Urban Watershed, Sam Austen and Carmen Agouridis, Biosystems & Ag. Engineering, University of Kentucky

Watershed Sediment Transport Modeling Using Dynamic Lateral, Longitudinal, and Vertical Sediment (Dis)connectivity, Tyler Mahoney et al., Dept. of Civil Engineering, University of Kentucky

2:10 - 3:10 Poster Session 2

	1C—Hydrology	2C—Soils and Agriculture
3:10	*Comparing the Hydrological Function of Natural and Constructed Ridge Top Isolated Wetlands*, Jonathan M. Malzone and Ethan Sweet, Dept. of Geosciences, Eastern Kentucky University	*Soil Phosphorus in Urban Kentucky: Lawn and Gardening Our Way to Hell in a Vegetable Basket,* Brad Lee, Dept. of Plant & Soil Sciences, University of Kentucky
3:30	*Streamflow Gain and Loss, Hydrograph Separation, and Water-Quality of Abandoned Mine Lands in the Daniel Boone National Forest, Eastern Kentucky, 2015-17*, Mac A. Cherry, U.S. Geological Survey Ohio-Kentucky-Indiana Water Science Center	*Optimizing Yield and Water Use Efficiency of Soybean Production in Kentucky – Experimental and Modeling Approach*, Maria Morrogh Bernard and Montserrat Salmeron Cortasa, Dept. Plant and Soil Sciences, University of Kentucky
3:50	*Hydrology: Old Science, New Applications for the Blanchard River in Ohio*, Erman Caudill, Stantec Consulting Services Inc.	*Variations in Soil Saturated Hydraulic Conductivity Across Multiple Land Uses in Fayette County, Kentucky*, Dwayne Edwards, Carmen Agouridis, and Sam Austen, Biosystems & Agricultural Engineering Dept., University of Kentucky, and Y.M. Huang, Lafayette High School

4:15 Student Award Presentations and Closing Remarks

Poster Session 1: (9:30 - 10:30)

1. *The Ecological Importance of Perched Aquifers and their Hydrological Connectivity to Ridge Top Ephemeral Wetlands in Daniel Boone National Forest*, Ethan Sweet and Jonathan Malzone, Dept. of Geosciences, Eastern Kentucky University
2. *Water, Bugs and Bacteria: Creating a Water Quality Monitoring Program for the Wheeling Creek Watershed in the Northern Panhandle of West Virginia,* James Wood et al., West Liberty University, Murray State University, Marshall University, and University of Kentucky
3. *Use of eDNA to Detect Salamander Species in Central Kentucky Streams*, Ronald B. Sams et al., Dept. of Science and Health, Asbury University
4. *Hydrogeological Properties of Natural and Constructed Wetlands in Kentucky's Daniel Boone National Forest*, Selsey A. Stribling and Jonathan M. Malzone, Dept. of Geosciences, Eastern Kentucky University
5. *Use of eDNA in Multiple Species Fish Biomass Determinations in Small to Mid-sized Lotic Systems*, Ramon A. Guivas, Kyle T. Laufenburger, Ben F. Brammell, Dept. of Science and Health, Asbury University
6. *Rainfall Runoff Model Development Using HSPF for a Flood Control Reservoir System to Examine Long Term Benefits*, C.V.Chandramouli, Mingda Lu, and Linji Wang, Mechanical and Civil Engineering Dept., Purdue University Northwest.
7. *Examining the Usefulness of Self Organizing Maps in Drought Analysis*, Yuqian Jia, C.V.Chandramouli, Mechanical and Civil Engineering Dept., Purdue University Northwest
8. *Modeling and Evaluating the Influences of Class V Injection Wells on Urban Karst Hydrology*, James Shelley, Jason Polk, Matt Powell, Dept. of Geography and Geology, Western Kentucky University and City of Bowling Green
9. *Isomotive Dielectrophoresis Based Characterization of Chlamydomonas Cells*, M.Z. Rashed et al., University of Louisville and Murray State University
10. *Role of Cross-Linker Concentration on the Performance of pH Responsive Membrane and its Application on PCB 126 Degradation*, Mohammad Saiful Islam et al., Dept. of Chemical and Materials Engineering, University of Kentucky
11. *The Effect of Applied Electric Potential on the Performance of Nanofiltration Membranes*, Sarah Kintner, Dept. of Chemical and Materials Engineering, University of Kentucky
12. *Polyphenolic Nanocomposite Materials for the Capture and Sensing of Chlorinated Organic Contaminants in Water Sources*, Angela M. Gutierrez et al., Dept of Chemical and Materials Engineering, University of Kentucky
13. *Investigation of a Lignin-Derived Solvent in Polymeric Membrane Fabrication*, Josh Bolvin, Xiaobo Dong, Isabel Escobar, Dept of Chemical and Materials Engineering, University of Kentucky
14. *Investigation of Phosphorene's Potential Properties in Membrane Filtration*, Joyner Eke, Dept. of Chemical and Materials Engineering, University of Kentucky
15. *Investigation of a New Mixing Method in the Preparation of Polymeric Solutions for Membrane Fabrication*, Monica Alden, Xiaobo Dong, Isabel Escobar, Dept. of Chemical and Materials Engineering, University of Kentucky
16. *Water Quality Analysis in Municipal Water Supply System for Lexington, KY with a Focus on Corrosivity*, Amanda R. Sherman et al., University of Kentucky
17. *Using Anthropogenic Compounds in Sewage to Create New Fecal Source and Fecal Age Indicators for Use in Protecting and Improving Water Quality in Kentucky Watersheds*, Ashley M. Hall and Gail Brion, Dept. of Civil Engineering, University of Kentucky
18. *Assessment of MRSA Presence in Lexington, Kentucky WWTPs with New Selective Growth Media*, Atena Amirsoleimani and Gail Brion, Dept. of Civil Engineering, University of Kentucky

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

1. *Kentucky Lake Undergoing a "Change of State": Trend Analyses Indicate Potential Tipping Points Are Being Reached for Several Limnological Variables*, S. Hendricks et al, Hancock Biological Station and Dept. of Chemistry, Murray State University
2. *Investigating Preferential Sewer Pathways: Geospatial Screening and Field Sampling to Reduce Inhalation Exposure Risks*, Evan J. Willett and Kelly G. Pennell, Dept. of Civil Engineering, University of Kentucky
3. *Fate and Transport of Volatile Organic Compounds (VOCs) in a Sewer System: Numerical Model and Field Study*, Mohammadyousef Roghani and Kelly G. Pennell, Dept. of Civil Engineering, University of Kentucky
4. *Soil Moisture Conditions and Yield Across Fragic Soils Under Irrigated Management in Western Kentucky,* Jesse Bowling et al., Dept. of Geography and Geology, Western Kentucky University, Dept. of Plant & Soil Sciences, University of Kentucky, Kentucky Geological Survey, and USDA Natural Resource Conservation Service
5. *Nutrient Contamination from an Agricultural Non-Point Source and its Mitigation: A Case Study of EKU Meadowbrook Farm, Madison County, KY*, Walter S. Borowski et al., Dept. of Geosciences, Eastern Kentucky University
6. *Characterization of Groundwater and Surface Water Geochemistry in an Agricultural Setting at EKU Meadowbrook Farm, Madison County, KY,* Reid E. Buskirk, Walter S. Borowski, and Jonathan M. Malzone, Dept. of Geosciences, Eastern Kentucky University
7. *Nutrient Export from a Proximal, Intermittant Stream Draining EKU Meadowbrook Farm, Madison County, KY,* James Scott Winter, Walter S. Borowski, and Jonathan M. Malzone, Dept. of Geosciences, Eastern Kentucky University
8. *Spatial Characterization of Soil Saturated and Near-Saturated Hydraulic Conductivity at the Field Scale*, Xi Zhang and Ole Wendroth, Dept. of Plant and Soil Sciences, University of Kentucky
9. *Soil Properties of Farms in Marion County, KY*, G. J. Barnes, Steven Still & Iin Handayani, Hutson School of Agriculture, Murray State University
10. *An Opportunity for Environmental Ag Education: Using GIS Technology to Compare Beef Cattle Density on Water Quality Parameters in Two Barren County, KY Streams*, Tammy Barnes, Amanda Gumbert, and Brian Lee, Cooperative Extension Service and Dept. of Landscape Architecture, University of Kentucky
11. *Blue Water Farms: Edge-of-Field Monitoring of Nutrient and Sediment Loss from Wetland Watersheds in the Northern Mississippi Embayment*, Leighia Eggett et al., University of Kentucky
12. *Blue Water Farms: Edge-of-field Monitoring of Nutrient and Sediment Loss from No-Till Corn and Soybean Fields in the Lower Green River Watershed*, Mark Akland et al., University of Kentucky
13. *Edge-of-Field Modeling to Quantify the Contribution of Macropore Flow into Nitrogen Loading for Poorly Drained Agricultural Fields*, Saeid Nazari, William l. Ford, Kevin W. King, Biosystems and Agricultural Engineering, University of Kentucky and USDA-ARS Soil Drainage Research Unit
14. *High Resolution Sensing of Nitrogen Dynamics in a Mixed-Use Appalachian Watershed: Influences of a Backwater Riparian Wetland*, Alexandria Jensen, William Ford, Biosystems & Agricultural Engineering Dept., University of Kentucky
15. *Climate Change Impacts on Sediment Transport in Kentucky: Sensor Validation, Controlling Processes, and Future Projections*, Nabil Al Aamery, Tyler Mahoney, Jimmy Fox, Dept. of Civil Engineering, University of Kentucky
16. *Water Supply Impacted by Algae and Sedimentation in Kentucky: Advancing Sensors and Nonconservative Tracers*, Brenden Riddle et al., Dept. of Civil Engineering, University of Kentucky
17. *Coupled Hydraulic and Sediment Transport Modeling of a Fluvial Karst Aquifer in the Bluegrass Region of Kentucky*, Ethan Adams et al., University of Kentucky
18. *Temporal Variations of High Resolution Nutrient Concentrations in Mature vs. Immature Karstic Watersheds*, Evan Clare, Tyler Mahoney, Jimmy Fox, Dept. of Civil Engineering, University of Kentucky
19. *Synthesis of Biologically-Inspired Nanofiltration Membranes Using Protected and Mutated Aquaporins*, Priyesh Wagh and Isabel C. Escobar, Dept. of Chemical and Materials Engineering, University of Kentucky