



**ENVIRONMENTAL &
WATER RESOURCES
INSTITUTE**
St. Louis Chapter

**WATER
INSTITUTE**
SAINT LOUIS UNIVERSITY

ASCE-EWRI - St. Louis Chapter

2025 Environmental & Water Resources Spring Symposium

WATER, WATER, EVERYWHERE

Friday, February 28, 2025

Sign-In and Continental Breakfast 7:30 to 8AM

Technical Program 8AM to 4PM

Location:

Il Monastero at
Saint Louis University
3050 Olive St
St. Louis, MO 63103

To Register Visit:

<https://tinyurl.com/EWRI-2025>



Registration includes:

Up to 6 Professional
Development Hours,
continental breakfast,
and lunch.

Cost: Students \$10 ASCE Members \$90 Non-Members \$120

**NEW THIS
YEAR!**

We are hosting an optional social event after the symposium. Join us at Wellspent Brewing Company for food and drink. Wellspent is right across the street from the symposium. Symposium attendees will receive a free drink. Snacks will be provided.

THIS YEAR'S SPEAKERS INCLUDE

experts from Heartlands Conservancy, Metropolitan St. Louis Sewer District, SIU Edwardsville, Saint Louis University, USGS, Washington University, and more!

PRESENTATIONS INCLUDE

MSD's Green Infrastructure Program, Flooding in Missouri, A Local Watershed Plan and A Flood Buyout Program, Changing Rainfall Patterns in Illinois, Sustainability of Engineering Projects, and more!

For more information, please contact:

Samantha Keeven
Spring Symposium Chair
ASCE-EWRI St. Louis Chapter
skeeven@hrgreen.com

EWRI Spring Symposium Schedule

February 28, 2025

Time	Speaker
7:30-8am	Sign-In and Continental Breakfast
8-8:15am	Welcoming Remarks Samantha Keeven, EWRI Spring Symposium Chair
8:15-8:45am	Prairie du Pont Watershed Plan John O'Donnell, Heartlands Conservancy
8:45-9:15am	Baleen Whale-Inspired Filtration Architectures for Microplastics Removal Across Scales Dr. Jean Potvin, Department of Physics and WATER Institute, Saint Louis University
9:15-9:45am	How Have Floods in Missouri Changed Over the Last 100 Years? Mackenzie Marti, United States Geological Survey
9:45-10am	Break
10-11am	Way Beyond Bigness: The Need for a Watershed Architecture Derek Hoeflerlin, AIA, Affiliate ASLA, Washington University
11-11:30pm	Changing Rainfall Patterns and Associated Impacts in Illinois Trent Ford, Illinois State Climatologist, University of Illinois
11:30am-12pm	Flood Inundation Mapping for the Nation Mark Fuchs, National Weather Service
12-1pm	Lunch
1-1:30pm	MSD's Green Infrastructure Program Jenna Jarvis, PE, Metropolitan St. Louis Sewer District
1:30-2pm	Snakes in the Bathtub: City of Ladue Flood Buyout Program Amanda Griffin, PE, City of Ladue Rachel Dixon, PE, Horner & Shifrin
2-2:30pm	Missouri Hydrology Information Center (MoHIC) Zackary Becker, Missouri Department of Natural Resources
2:30-2:45pm	Break
2:45-3:15pm	Performance Review of Bioretention Basins Steve Roberts, Metropolitan St. Louis Sewer District
3:15-4pm	How do We Know We are More Sustainable? Methods and Tools for Evaluating the Sustainability of Engineering Projects Jianpeng (Jim) Zhou, Ph.D, PE, F.EWRI, Southern Illinois University Edwardsville Michael Buetcher, PE, BC.WRE, F.EWRI, Metropolitan St. Louis Sewer District
4-5:30pm	Optional Social Event at Wellspent Brewing Company Symposium attendees get a free drink and snacks!



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Symposium Speakers

Zackary Becker has been with the Missouri Water Resources Center since 2019. After receiving a degree in Environmental Science, with a focus in soil management, Zack has been involved with environmental restoration projects, flood resilience and planning initiatives, and is currently leading the Missouri Hydrology Information Center. As the Unit Chief of the Center, Zack is focused on expanding the state's soil moisture monitoring, streamgage monitoring, and building out a flooding model for the state. After working through the 2019 Flood, he has a keen interest in helping Missourians understand how flooding happens and working to develop better flood resiliency across Missouri Communities.

Mr. Michael Buechter is a Program Manager at the Metropolitan St. Louis Sewer District (MSD) where he manages a team responsible for the preparation of construction documents for small to mid-sized projects, administration of several consulting engineering contracts, and administration of MSD's Small Contractor Program. Mr. Buechter served in many leadership roles with a range of professional organizations, including as a former President of ASCE St. Louis Section, a former Chair of ASCE's EWRI St. Louis Chapter, and a former member of the EWRI's (national) Governing Board. Mr. Buechter is a EWRI Fellow, earned his M.S. in Civil Engineering's Water Resources from Oklahoma State University, and B.S. in Civil Engineering from Missouri University of Science and Technology.

Rachel Dixon is a Project Manager with Horner & Shifrin where she has worked for six years. She has been involved in the design of drinking water and wastewater treatment facilities and their respective collection and distribution systems. Rachel has also worked on various stormwater infrastructure projects that include the modeling and design of stormwater collection and detention systems, culverts, and flood mitigation structures to protect existing infrastructure and resources.

Rachel obtained her Bachelor's Degree in Environmental Engineering from the Missouri University of Science and Technology in 2014. Her previous work experience includes three years with the Missouri Department of Natural Resources Water Protection Program where she worked in both the Engineering Section of the Water Protection Program and the St. Louis Regional Office.

Dr. Trent Ford is the Illinois State Climatologist and has been with the Prairie Research Institute at the University of Illinois since 2019. He is an expert in climate and climate change and its interactions and impacts, especially as they relate to water. Trent leads climate and drought monitoring, research, and data collection for the state of Illinois. He and his team work with communities, industries, and state agencies on issues related to weather, climate, and climate change in Illinois, and engage the general public through online, media, and educational outreach. A native of Roanoke, Illinois, Ford earned a bachelors in geography from Illinois State University before completing his masters and PhD at Texas A&M University.

A native of St. Louis, **Mark Fuchs** returned to his roots to become the Service Hydrologist for the Weather Forecast Office at St. Louis, MO in March, 2007. Mr. Fuchs graduated from the University of Missouri-Columbia with degrees in Atmospheric Science (1982) and in TV and Radio Journalism (1983).

Mr. Fuchs spent the 1980s working as a TV meteorologist and news reporter for stations in Columbia, MO, Steubenville, OH, Wausau, WI, Huntsville, AL, and Chattanooga, TN. He joined the National Weather Service as a meteorologist intern at the WSO in Huntsville, AL in 1990. In 1994, he moved to Kansas City to serve as a meteorologist instructor at the National Weather Service Training Center, where he was a primary instructor for both the Forecaster Development Course and the Hydrometeorological Technician Course. Mr. Fuchs then moved

on to Peachtree City, GA to work as a river forecaster at the Southeast River Forecast Center from August 1997 until March 2007. As Service Hydrologist in St. Louis, Mr. Fuchs has managed the NWS-St. Louis hydrologic services, guided local multi-agency forecast coordination, and documented a variety of significant impacts through several significant flood seasons for eastern Missouri and southwestern Illinois, most notably the record-breaking years of 2008, 2015, 2017, and 2019.

Amanda Griffin is the Stormwater Engineering Manager for the City of Ladue, Missouri tasked with orchestrating the City's Stormwater Management Program. She manages the City's Stormwater Master Plan, design and construction projects, FEMA Flood Buyout Program, Department of Natural Resources ARPA grant funding, and serves as the City's liaison over Metropolitan St. Louis Sewer District projects underway inside City limits. Prior to her time with the City of Ladue, Amanda served five years in wastewater consent decree program management consulting at Burns & McDonnell in Kansas City.

Amanda is a licensed Professional Engineer and obtained her bachelor's degree in Engineering Management from Missouri University of Science and Technology and her master's degree in Civil Engineering from the University of Missouri - Kansas City.

Her life's greatest accomplishment is keeping two small kids (and a husband) alive, with a third baby 85% baked and due to arrive in April.

Derek Hoeflerlin is an architect and leads [dhd] derek hoeflerlin design, an award-winning architecture, landscape, and urban design practice based in St. Louis, USA. He is a tenured professor and chair of the landscape architecture program at the Sam Fox School of Design & Visual Arts at Washington University in St. Louis.

Hoeflerlin is principal investigator of *Way Beyond Bigness: The Need for a Watershed Architecture*, which is the title of his book (Applied Research + Design Publishing, 2023), where he collaboratively researches integrated water-based design strategies across the Mississippi, Mekong, and Rhine River basins.

Hoeflerlin lectures on his work internationally, and his designs, photography, teachings and writings have been published and exhibited widely, including in *Chasing the City*, *New Orleans Under Reconstruction*, *Designing Suburban Futures*, *Journal of Architectural Education*, *The Anthropocene Review*, *Dwell*, *Landscape Architecture Magazine*, *Wallpaper*, *Metropolis*, *'scape*, *Scenario Journal*, *Architect*, *Places Journal*, *Exhibit Columbus*, and *Haus der Kulturen der Welt*. Hoeflerlin has led or co-led award-winning projects and jury recognized design competitions, including *Designing Resilience International Open Competition* (first prize), *Chouteau Greenway Competition* (finalist), *Rising Tides Competition* (first prize), *Dry Futures Competition* (honorable mention), and *Build a Better Burb Competition* (finalist).

Hoeflerlin received BArch and MArch degrees from Tulane University and a post-professional MArch degree from Yale University.

Jenna Jarvis has a degree in Environmental Engineering from Missouri S&T. She began her career inspecting sewer installations, and spent 6 years on a large diameter CSO tunnel project in Indianapolis. In 2017 she moved back home to St. Louis to work at MSD in the Construction Engineering Department, and in 2021 was lucky enough to become the Green Infrastructure Manager. She currently manages the \$120 million program to provide both large-scale and small-scale grants to reduce combined sewer overflow to the Mississippi River.

John O'Donnell has a Masters of Science in Public Health with a focus on Environmental Health from Tulane University in New Orleans. Originally from St. Louis, he studied and worked in New Orleans in the coastal and water quality environmental fields for 10 years. He has followed the issues of nutrient pollution and erosion upstream on the Mississippi River to the St Louis Metro East region and is working on the issues of environmental justice and human interaction with the environment on the issues of flooding, drought, and water quality through watershed planning, watershed plan implementation, and innovative partnerships between local, state, federal, and ngo partners with intensive community participation.

Mackenzie Marti is a Hydrologist with the U.S. Geological Survey Central Midwest Water Science Center located in Urbana, Illinois. She joined the USGS in 2020 in the Statistical Hydrology and Water Availability section and has focused on data analysis and visualization in R and GIS. Her work covers primarily surface water investigations, including estimating streamflow in ungaged basins, conducting peak-flow frequency analyses, investigating trends in floods, and implementing streamflow tools in StreamStats.

Dr. Jean Potvin is a Professor of Physics at Saint Louis University, Saint Louis Missouri USA, and also a Primary Investigator at the WATER Institute. He is a graduate of Universite Laval (Quebec City, Canada) where he got a BS Physics degree (1978), and of the University of Colorado-Boulder where he got a PhD also in Physics (1985). Since 1994, Dr. Potvin's research has focused on a variety of Applied Fluid Dynamics problems, including the inflation flows of parachutes (since 1994), baleen whale swimming hydrodynamics (since 2008), baleen whale oral cavity hydrodynamics (since 2013) and finally, baleen whale-inspired filtration systems for the removal of micro- and macro-plastics (since 2023). His studies have encompassed the use of fluid flow computer simulations, wind and water tunnel testing, and drops from aircraft (for his parachutes). Currently, Dr. Potvin is operating a custom-built flume for the study of small-scale, low-pressure and low-power crossflow filter designs.

Steve Roberts works for the St. Louis Metropolitan Sewer District as civil engineer of the Development Review Section in the Engineering Department. This group reviews roughly 600 development and redevelopment projects each year for compliance with MSD Regulations. Steve has been at MSD for 16 years, with 3 years in Development Review and 13 years in Program Management. Prior to MSD, he worked in private consulting.

Steve holds a B.S. in Civil Engineering from Michigan State University and is a Missouri Registered Professional Engineer.

Dr. Jianpeng Zhou is Professor of Environmental Engineering in the Civil Engineering Department at Southern Illinois University Edwardsville, IL. He has taught water and wastewater, environmental and sustainable engineering, engineering hydrology and fluid mechanics; directed research in wastewater treatment and biosolids management, green infrastructures for stormwater management, and life cycle assessment. His work had been funded by federal, state, regional, local government agencies, and industries. Dr. Zhou was a Fulbright US Scholar to Brazil in 2017 and is a EWRI Fellow. Dr. Zhou received his Ph.D. and M.A.Sc. degrees from the University of British Columbia, Canada, M.Eng. and B.Eng. degrees from Tsinghua University, China, all in Environmental Engineering.

2025 ASCE/EWRI SYMPOSIUM PLANNING COMMITTEE

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