

# 2025 TENNESSEE WATER RESOURCES SYMPOSIUM

Montgomery Bell State Park

April 9-11, 2025

## Symposium Chair

Richard Cochran,

TN Section President

TDEC-Division of Water Resources

Watershed Planning Unit Manager



*Mystery Picture courtesy of Tennessee State Parks*

## Keynote Speaker on Wednesday, April 9<sup>th</sup>



Amanda Rosenberger

TTU Professor &

USGS Cooperative Fish and Wildlife Research Units Program: Tennessee

**“Mussel Power: How Freshwater Mussels Shape Our Water Resources and Future in Tennessee”**

## Luncheon Speaker on Thursday, April 10<sup>th</sup>



Andy Carroll

Co-Founder and Chief Technology Officer at Skytec

**“Development of the Tennessee Wetland Screening Tool”**

## Pre-symposium Session: Wednesday, April 9<sup>th</sup>, 9:00 am – 11:30 am

Discussion of Tennessee Stream Quantification Tools

Presented by:

Cidney Jones, PE & CFM  
Water Resources Engineer  
Ecosystem Planning &  
Restoration

Anthony Brais, PE  
Project Manager  
Stantec

John S. Schwartz, PhD, PE  
Professor and Director of the TN Water  
Resources Research Center  
University of Tennessee Knoxville

## 2025 TN AWRA SYMPOSIUM AGENDA

Wednesday, April 9 <sup>th</sup>	DAY 1	
7:00 a.m. – 11:30 a.m.	Exhibitor set up in Room C	
	Pre-symposium Session: Discussion of Tennessee Stream Quantification Tools (SQT)	
9:00 a.m. – 9:30 a.m.	Cidney Jones “Stream Functions Pyramid and Quantification Tool Introduction”	
9:30 a.m. – 10:00 a.m.	Anthony Brais “Lessons learned from Implementing TN SQT V1”	
10:00 a.m. – 11:00 a.m.	John Schwartz “TN SQT V2 for Compensatory Mitigation”	
11:00 a.m. – 11:30 a.m.	Q&A	
12:00 p.m.	Lunch in Rooms A and B Keynote Speaker: Amanda Rosenberger, TTU Professor and USGS Fisheries Biologist “Mussel Power: How Freshwater Mussels Shape Our Water Resources and Future in Tennessee”	
	Room A	Room B
	Water Quality Moderator: Richard Cochran, TDEC	Mitigation Moderator: John Schwartz, UTK
1:30 p.m.	Caroline Hitchcock “Microplastics in Tennessee’s Wastewater Treatment Plants and Receiving Streams: A Method for Quantification and Identification”	David Spinks “Navigating CLOMR Complexity: Moving a Project with Over a Mile of Natural Stream Design & 9 New Structures Through FEMA’s CLOMR Process”
2:00 p.m.	Ryan Jackwood “Investigating the Cause of Excessive Bacterial Growth in a Small Rural Tributary to the Harpeth River”	Ceara Parks Oliver “Compensatory Mitigation for Stream Restoration: A Process-Based Approach to Quantifying Ecological Uplift”
2:30 p.m.	Justin Murdock “Per- and polyfluoroalkyl substances (PFAS) bioaccumulation in stream food webs and transport across the stream and terrestrial boundary”	Matt Clabaugh “Stream Mitigation at Dry Creek Water Reclamation Facility”
3:00 p.m.	Coffee Break in the Exhibit Room	
	Modeling Moderator: Ingrid Luffman, ETSU	GIS Moderator: Andrea Ludwig, UTK
3:30 p.m.	Ben Crary “Navigating the Waters: Using CE-QUAL-W2 to Assess the Murfreesboro Water Resources Recovery Facility Expansion”	Sarah Terpstra “The Future of Wetland Mapping in Tennessee: A Comparison Between the National Wetlands Inventory and a New Predictive Model”
4:00 p.m.	Rebecca Ransom “TN-SWAPyT: A Python Tool to Automate Tennessee’s Source Water Assessment Program Reports”	Madison Johnson “Delineating Riparian Boundaries for Stream Networks in Tennessee and Assessing Policy Implications”
4:30 p.m.	David Ladd “Estimates of Flood Frequency and Magnitude for Urban and Rural Tennessee Streams”	Sanghamitra Sengupta & George Williford “Assessing Stream Health in West Tennessee: Advancing Scalable GIS and Remote Sensing Techniques for Stream System Analysis”
6:00 p.m.	Dinner in Rooms A and B	
6:00 p.m. – 8:00 p.m.	Poster Session: All Poster Presenters will be available for questions about their displayed poster	

Thursday, April 10 <sup>th</sup>	DAY 2	
7:30 a.m.	Breakfast in Exhibit Room	
	Room A	Room B
	Algae Moderator: Jessica Rader, TDEC	Sediment Moderator: Forbes Walker, UTK
8:30 a.m.	Jeff Lebckuecher "Development of an Index using Diatoms to Determine the Trophic State of Infralittoral Sites in Tennessee Reservoirs"	Elizabeth Heal "Alluvial Fans at Reelfoot Lake in Northwestern Tennessee"
9:00 a.m.	Jingjing Li "The Influence of Nutrient Availability on Algal Growth, Community Composition, and Microcystin Production in Large Rivers"	Ian Simpson "Updates to the Tennessee Erosion Prevention and Sediment Control Handbook"
9:30 a.m.	Andrea Jaegge "Microcystins in Middle Tennessee Waterways"	John Schwartz "Performance Evaluation of Sediment Basin Designs for Construction Sites in Tennessee"

10:00 a.m.	<b>Coffee Break in Exhibit Room</b>	
	<b>Groundwater/Aquifers (Part I)</b> Moderator: Mersadies Burch, Protect Our Aquifer	<b>Stormwater</b> Moderator: Paul Davis
10:30 a.m.	Spencer Smith "Data Collection Efforts in Shelby County Tennessee"	Janey Camp "A Review of Funding Mechanisms for Improved Stormwater Management"
11:00 a.m.	Ryan Adams "High-Resolution Geophysical Mapping of Aquifer Structure: Assessing Geologic Complexity and Water Availability in Northern Shelby County, Tennessee"	Francesco Dell'Aira "Prioritizing Green Stormwater Infrastructure Layout Using Hydrologic Disconnection Metrics to Evaluate Land-Cover Change Scenarios"
11:30 a.m.	Leslie Duncan "Development of a dynamic modeling framework for water availability assessments: Mississippi Alluvial Plain"	Yujuan Chen "Recycling Urban Stormwater Runoff Using Nature-based and Engineering Solutions"
Noon	<b>Lunch in Rooms A and B</b> <b>Luncheon Speaker: Andy Carroll, Skytec Co-Founder and CTO</b> <b>"Development of the Tennessee Wetland Screening Tool"</b>	
	<b>Groundwater/Aquifers (Part II)</b> Moderator: Rodrigo Villalpando-Vizcaino, CAESER	<b>Flooding</b> Moderator: Sharon Gordon, TLE
1:30 p.m.	Kapil Karki "Investigation of the influence of geological structures on groundwater flow in the Memphis aquifer: An AEM-based study"	Jeremy Thompson "Monitoring Stormwater Control Measures for Flooding and Water Quality Concerns"
2:00 p.m.	Mary Yaeger "From Soil Water Retention to Aquifer Recharge: Conceptualizing Multi-Scale Hydrological Processes in Tennessee's Agricultural Loess Hills"	Naisyun Chuang "Emerging Flood Monitoring Technology - the use of Electrical Conductivity (EC) Profiling"
2:30 p.m.	Wade Kress "Bridging the Gap: Development of a Next-Generation Hydrogeologic Model for Future Water Resource Management in the Mississippi Embayment"	Nischal Kafle "Evaluating Methods for Trend Detection in Short-Duration Extreme Precipitation: A Case Study in the Southeastern US"
3:00 p.m.	<b>Coffee Break in the Exhibit Room</b>	
	<b>Groundwater/Aquifers (Part III)</b> Moderator: Drew Westerman, USGS	<b>Dams / Geology</b> Moderator: Adrian Ward, Barge Design
3:30 p.m.	Sarah Houston "Managing an Aquifer: What does groundwater protection look like in Tennessee?"	Jeremy Melton "A Dam Conundrum: Updating the Bays Mountain Dam Emergency Action Plan"
4:00 p.m.	Kristi Hill "Groundwater quality of the major supply aquifers of West Tennessee"	Terrell Hendren "TN Safe Dams Program Overview"
4:30 p.m.	Mersadies Burch "Water Warriors: A new look at community engagement and action."	Amy Hourigan "Geospatial geologic structural datasets, Chattanooga Shale, Wells Creek Dolomite, and Knox Group, Tennessee"
5:00 p.m.	<b>Vendor Equipment Demonstration Session at the dock behind the hotel restaurant</b>	
6:00 p.m.	<b>Dinner in Rooms A&amp;B followed by TN AWRA Business Meeting and Poster Session Awards</b>	

<b>Friday, April 11<sup>th</sup></b>	<b>DAY 3</b>	
7:30 a.m.	<b>Breakfast in Exhibit Room</b>	
	<b>Room A</b>	<b>Room B</b>
	<b>Technology</b> Moderator: Shannon Williams, USGS	<b>Helene</b> Moderator: Daniel Saint, TVA
8:30 a.m.	Peter Li "Leveraging AI, Machine Learning, and GIS for Watershed Analysis"	Ingrid Luffman "Hurricane Helene impact on east Tennessee rivers: peak stage recurrence intervals and preliminary water quality findings"
9:00 a.m.	Paulina Reyes-Garcia "Advancing Groundwater Monitoring with MONET: A Unified Framework for Multi-Aquifer Data Collection"	Evan Hart "Analysis of Tropical Storm Helene Flooding in Western North Carolina and East Tennessee in Context of USGS Peak Discharge Records"
9:30 a.m.	Brett Connell "High Definition Stream Survey (HDSS): Addressing Water Quality Challenges in the Hurricane Creek Watershed"	Tom Zimmerman "A Look Inside the Tennessee Valley Authority's Management of Flooding from Hurricane Helene"
10:00 a.m.	<b>Coffee Break in Exhibit Room</b>	
10:30 a.m. – 12:00 p.m.	<b>Panel Discussion: Legislative Update</b> <b>Lead by: Michael Atchley, Deputy Director, TDEC Division of Water Resources</b>	