

WRRRI AC 2023 - March 22

	Room	Session Title	Time	Talk Title	Speaker	Affiliation	
Registration	Lobby and Room 1 D & C		7:30-8:45	Check in and enjoy coffee and hot morning refreshments			
Opening Panel 8:45am-10:00am	1 A & B	Looking Toward Our Water Future		Secretary Elizabeth Biser, NC Department of Environmental Quality Victor Engel, USGS South Atlantic Water Science Center Juanita Wilson, Nikwasi Initiative Bill Holman, The Conservation Fund Moderated Discussion and Audience Questions			
Networking Break	1 D & C		10:00-10:20	Enjoy refreshments and exhibits			
Concurrent Session 1: 10:20am-11:50am	6	Impacts of Animal Agriculture on Water Quality	10:20-10:40	Combined Anaerobic Degradation and Micro-algae treatment of Swine Wastewater using lab-scale bioreactors	Mehdi Lamssali	North Carolina A&T State University	
			10:40-11:00	Assessing temporal variability of antibiotic-resistant E. coli in surface water near animal feeding operations	A B M Tanvir Pasha	North Carolina State University	
			11:00-11:20	Tracing Nutrient Pollution from Industrialized Animal Production in the Cape Fear River Watershed	Colleen Brown	Center for Marine Sciences, University of North Carolina Wilmington	
			11:20-11:40	Effects of Livestock Exclusion on Pollutant Export from a North Carolina Beef Cow Pasture	Danile Line	NCSU Bio. and Ag. Engineering	
			11:40-11:50	Additional time for questions			
	3	Practical Tools for a Sustainable Water Future	10:20-10:40	Let's Get Creative: How to Build a Scalable Real-Time Hydrologic Data Monitoring Network with Cost-Effective DIY Solutions?	Brian Hinckley	ECU	
			10:40-11:00	Low-flow statistics for North Carolina: Today and Tomorrow	J. Curtis Weaver	USGS South Atlantic Water Science Center	
			11:00-11:20	wqReport: A tool for compiling and visualizing watershed data	Michelle Moorman	US Fish and Wildlife Service	
			11:20-11:40	NC DEQ's Updated Stormwater Nitrogen and Phosphorus (SNAP) Tool, version 4.2	Trish D'Arconte	NC Dept of Environmental Quality	
			11:40-11:50	Additional time for questions			
	4	Out of the Box: Creative Approaches to Community Collaboration and Engagement	10:20-10:40	The Past, Present, and Future of Our Coast and Climate	Sheila M. Saia and Corey Davis	State Climate Office of North Carolina	
			10:40-11:00	Water Quality for Fisheries	Riley Lewis	Coastal Carolina Riverwatch	
			11:00-11:20	Can Citizen Scientists Fill the Gap in State Ambient Wetland Monitoring Programs?	Michael R Burchell II	NC State University	
			11:20-11:40	How to enhance your enviroscape presentation	Rebecca Coppa	NCDEQ	
			11:40-11:50	Additional time for questions			
	Networking Lunch	2		11:50-1:30			
	Concurrent Session 2: 1:30pm-3:00pm	6	Too Much Water: Adapting to Change	1:30-1:50	Dynamic Vulnerability: Reconstructing Historical Flood Footprints and Exposure in Eastern North Carolina	Helena Garcia	University of North Carolina at Chapel Hill
				1:50-2:10	Linking Tropical Cyclone Precipitation in Future Climates to Shifts in Flood Exposure	Lauren Grimley	University of North Carolina at Chapel Hill
				2:10-2:30	Emerging research on natural infrastructure for flood mitigation	Adam Gold	Environmental Defense Fund
2:30-2:50				A Changing Lower Cape Fear River Estuary: Impacts of Rising Waters on Ecosystems and Infrastructure	Roger D. Shew	UNCWilmington	
2:50-3:00				Additional time for questions			
3		Innovations in Wastewater Treatment	1:30-1:50	Separation of volatile fatty acids (VFAs) from anaerobic digestion (AD) bioreactors using different electro dialysis (ED) configurations	Holly Haflich and Hezhou Ding	University of North Carolina at Chapel Hill/ North Carolina State University	
			1:50-2:10	Daily Inflow and Infiltration at Wastewater Treatment Plants across North Carolina	Allison Lee	UNC-Chapel Hill	
			2:10-2:30	Evaluating Nitrogen Treatment by Onsite Wastewater Systems in Raleigh Belt Geology: A Preliminary Assessment	Guy Iverson	East Carolina University	
			2:30-2:50	Nutrient and Bacteria Treatment by Five Onsite Wastewater Systems in the Triassic Basin Region of the Falls Lake Watershed, North Carolina	Charles Humphrey	East Carolina University	
			2:50-3:00	Additional time for questions			
4		Utilizing Data to Enhance	1:30-1:50	Using Data Visualizations and Spatial Analysis to Support Environmental Decision Making	Ellie Cardenal	AECOM	
			1:50-2:10	Application of water quality measurement data from stream mitigation to improve standardization of stream project selection and refine pollutant reduction models employed in design justification	Gregory Melia	NCDEQ - Division of Mitigation Services	

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	Room	Session Title	Time	Talk Title	Speaker	Affiliation
Concurrent Session 3: 3:20pm-4:50pm	1 D & C	Decision Making	2:10-2:30	Effects of impoundments on selected flood-frequency and daily mean streamflow characteristics in Georgia, South Carolina, and North Carolina	Toby Feaster	U.S. Geological Survey
			2:30-2:50	Overview of multi-decade water-quality monitoring at Triangle area water supplies	Rosemary Fanelli	U.S. Geological Survey
			2:50-3:00	Additional time for questions		
			3:00-3:20	Enjoy refreshments and exhibits		
	6	Modeling Current and Future Water Quantity and Quality in the Cape Fear River Basin from Community to Watershed Scale	3:20-3:40	Watershed modeling of pollution hotspots under extremes highlights landscape-scale intervention priorities in the Cape Fear River Basin	Danica Schaffer-Smith	The Nature Conservancy
			3:40-4:00	Strategic riparian buffers to improve coastal resilience in the Cape Fear River watershed	Elly Gay	Department of Forestry and Environmental Resources, North Carolina State University
			4:00-4:20	Flood Risk and Reward: Quantifying differences in flood risk under alternative management strategies for vulnerable communities of the Cape Fear River Basin, North Carolina	Jacqueline S. Welles	United States Geological Survey
			4:20-4:50	Q&A/Discussion		
			3:20-3:35	Session overview	Krissy Hopkins	USGS
			3:35-3:50	Charlotte, NC: A large community perspective	Jason Hunt	City of Charlotte
	4	Finding the sweet spot: Information exchange to inform prioritizing stormwater management actions	3:50-4:05	Cary, NC: A small community perspective	Bill Lee	Town of Cary
				Interactive discussion	Krissy Hopkins and Charlie Stillwell	U.S. Geological Survey
			4:05-4:45			
	Panel Discussion on Waters of the US and State				Phil May	Inver Environmental Consulting, LLC
				Kelly Moser	Southern Environmental Law Center	
				Sue Homewood	NC Dept. of Water Resources	
				Norton Webster	Carolina Wetlands Association and Ecoterra	
				Chris Hopper	U.S. Army Corps of Engineers	
Break			4:50-5:00			
Poster Session and Reception	1 D & C		5:00-7:00	Join us for research poster presentations and a chance to meet the poster authors. Network with conference participants and exhibitors. Enjoy heavy hors d'oeuvres, wine, and beer.		

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Registration	Lobby and Room 1 D & C		7:30-8:30	Check in and enjoy coffee and hot morning refreshments			
Opening Panel 8:30am-9:30am	1 A & B	Building Environmental Community Stewardship Through Art		Baxter Miller, Photographer and creative director Derrick Beasley, Multi-disciplinary artist, cultural organizer, and social entrepreneur Tonya Holy Elk Locklear, Poet and author Erika Young, NC Sea Grant Moderated discussion and audience questions			
Networking Break	1 D & C		9:35-9:50	Enjoy refreshments and exhibits			
Concurrent Session 4: 9:50-11:40	3	Calling All Utilities: Sustaining Healthy Water Systems	9:50-10:10	Evolving Stormwater Utilities in NC	Taylor Holiday and Mitchell Turnage	Raftelis	
			10:10-10:30	Healthy Forests = Healthy Watersheds: OWASA's Forest Management Program to Protect Its Water Supplies	Ruth Rouse	OWASA True North Forest Management Services	
			10:30-10:50	Strategies for Addressing Water Affordability through Data, Benchmarking, and Partnerships	Dave Halley	Raftelis	
			10:50-11:10	Pollutant source tracking: using multiple methods to find causes of water quality issues in urban streams	Simon Warren and Rachel Weinberg	Raftelis	
			11:10-11:30	J.V. Loperfido	City of Durham, Public Works Department, Durham, NC		
			11:30-11:40	Prediction of Stormwater Pipeline Condition via Machine Learning	Nicole Barclay	University of North Carolina at Charlotte	
			11:30-11:40	Additional time for questions			
	4	Below the Surface: Understanding Groundwater Quality and Flow	9:50-10:10	Assessing groundwater quality in deep aquifers near Fayetteville, NC: Testing the waters for an alternate drinking water source	Tiffany VanDerwerker	NCSU MEAS	
			10:10-10:30	Predicting future PFAS concentrations in groundwater discharging to streams near the Fayetteville Works Facility	Craig R. Jensen	North Carolina State University	
			10:30-10:50	Utilizing R Statistical Software to Assess PFAS Groundwater Contamination Impacts in North Carolina	Julianna Tresca	NCSU	
			10:50-11:10	Diagnostic Screening of Private Well Water Using High Resolution Mass Spectrometry to Support Well Users and Local Health Officials	Hayden Rudd	NC State University	
			11:10-11:30	Spatial Mapping of Porosity as a Function of Reynolds Number and Pore Scale Geometry	August Young (Frechette)	Duke University	
			11:30-11:40	Additional time for questions			
			11:30-11:40	Additional time for questions			
	6	Changing Streams: Identifying and Managing the Impacts of Erosion	9:50-10:10	Quantifying and Predicting Streambank Erosion in the Ridge and Valley and Blue Ridge Physiographic Regions of Virginia to Benefit Eastern Hellbender Populations	Layla El-Khoury	NC State University	
			10:10-10:30	Using repeat lidar to identify streambank erosion hotspots in Raleigh, North Carolina	Laura Gurley	U.S. Geological Survey	
			10:30-10:50	Channel head erosion in response to anthropogenic landscape modification: A case study from William B. Umstead State Park in the Piedmont of North Carolina, with implications for stream water quality	Karl W. Wegmann	NC State University	
			10:50-11:10	Urban Riparian Buffers: Maintaining and Managing an Ecologically Functioning Riparian Buffer on Little Alamance Creek in Burlington, North Carolina.	Robert Patterson, Amy Barber, Jason Barnhill	City of Burlington	
			11:10-11:30	Flood Mitigation Assessment of Stream Debris Removal	Jack Kurki-Fox	NC State Bio&Ag Engineering	
			11:30-11:40	Additional time for questions			
			11:30-11:40	Additional time for questions			
	Networking and Awards Luncheon	2		11:40-1:00	WRRI Annual Conference student poster competition winners will be announced. NC Department of Environmental Quality will present the Source Water Protection Award Winners.		
	1:00pm-2:30pm	6	Spotlight on Estuaries: What You Need to Know About Water Quality and Public Health	1:00-1:20	Fostering Environmental Health Literacy While Addressing Arsenic Contamination in Private Wells in the Carolina Terrane	Andrew George	UNC Chapel Hill Institute for the Environment; Superfund Research Program
				1:20-1:40	Harmful Cyanobacterial Aerosolization Dynamics in the Airshed of a Eutrophic Estuary	Haley E Plaas	UNC Chapel Hill
				1:40-2:00	Investigating Tryptophan-like fluorescence as a correlate with fecal indicator bacteria in estuarine waters	Julia Harrison	North Carolina State University
				2:00-2:20	Occurrence and Distribution of Per- and Polyfluoroalkyl Substances in Tidal Creeks of Southeastern North Carolina	Emily Corbitt	University of North Carolina Wilmington
				2:20-2:30	Additional time for questions		
				2:20-2:30	Additional time for questions		
			Healthy Waters:	1:00-1:30	Tailoring Ecological Flow Guidance to Coastal Watersheds: Examples from the Trent River	Michael O'Driscoll	East Carolina University
				1:30-2:00	Source identification of dissolved organic matter (DOM) in surface waters using fluorescence and a simple and rapid linear regression method	Christopher L. Osburn	North Carolina State University

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Concurrent Session 5:	4	Nutrients, Flow, and Management	2:00-2:20	Quantifying Water Quality Downgradient from Onsite Wastewater Systems in the Raleigh Belt: A Preliminary Assessment of Phosphorus and <i>Escherichia coli</i> Concentrations	Guy Iverson	East Carolina University	
			2:20-2:30	Nitrogen processing in regenerative stormwater conveyance systems	Colin Finlay	East Carolina University	
	3	Innovative Approaches for Removing Contaminants	1:00-1:20	Biochar – A multi-beneficial and cost-effective amendment to clay soil	Mohammad Khalid	University of North Carolina Charlotte	
			1:20-1:40	Evaluating metal cation diversity in microbial polyphosphate granules and its effect on enhanced biological phosphorus removal from domestic wastewater	Jessica A. Deaver	North Carolina State University	
			1:40-2:00	Hydrolytically Stable Ionic Fluorogels for High-Performance Remediation of Per- and Polyfluoroalkyl Substances (PFAS) from Natural Water	Irene Mulloy Manning	University of North Carolina at Chapel Hill	
			2:00-2:10	Societal Perceptions of PFAS contamination in Eastern North Carolina	Genevieve Guerry	East Carolina University	
			2:10-2:30	Additional time for questions			
	Networking Break		2:30-2:45	Enjoy refreshments and exhibits			
	Concurrent Session 6: 2:45pm-4:15pm	4	Falls Lake Nutrient Management Summary of the Science and Resulting Recommendations for a Revised Strategy	2:45-3:05	Falls Lake Watershed Characterization, Data Evaluation, and Modeling Results to Inform a Revised Nutrient Management Strategy for Falls Lake	Alix Matos and Forrest Westall	Brown and Caldwell and McGill Associates and UNRBA
3:05-3:25				Falls Lake Data Evaluation and Modeling Results to Inform a Revised Nutrient Management Strategy for Falls Lake	Doug Durbin and Alix Matos	Brown and Caldwell	
3:25-3:45				Key Concepts and Principles for Developing a Revised Nutrient Mangement Strategy for Falls Lake	Forrest Westall	McGill Associates and UNRBA	
3:45-4:15				Audience Participatory Feedback Session Regarding Development of a Revised Nutrient Management Strategy for Falls Lake	Forrest Westall	McGill Associates and UNRBA	
6		Let It Rain: Data and Innovative Considerations for Stormwater Management	2:45-3:05	Adaptations in Beaver Habitat Selection May Offer Partial Nature-Based Solutions to Multiple Stormwater Problems in Urban Watersheds	Chris Norcross	North Carolina State University	
			3:05-3:25	Characterizing Water Quality Status, Trends and Potential Watershed Management Opportunities from Charlotte-Mecklenburg National Pollutant Discharge Elimination System (NPDES) Stormwater Data	Barbara Doll	NC Sea Grant and NC State University	
			3:25-3:45	Simulating Green Stormwater Infrastructure Implementation In Residential Areas	Jingyi Qi	UNC Charlotte	
			3:45-4:00	Additional time for questions			
3		Student Networking	2:45-4:15	TBD			

**WRI AC 2023 - March 22nd 5pm-7pm**

**Poster Presentations**

<b>Abstract Title</b>	<b>Presenter Name</b>	<b>Organization/Affiliation</b>
Investigating Ecological Risks Posed by Wastewater-Derived Pesticides	Denise Adjidjonu	UNC Charlotte
Nitrogen and Phosphorus Remediation in Mesocosm Floating Treatment Wetlands?receiving Municipal and Aquacultural Wastewater	Matthew Barnes	East Carolina University
Fecal contamination source tracking and forecasting to support recreational and cultural development in the Great Coharie River watershed	Benjamin Clark	North Carolina State University
A new forensic tool establishing source and fate of Per-and polyfluoroalkyl substances (PFAS): Compound-specific isotopic analysis using gas chromatograph-isotope ratio mass spectrometry	Allison Dombrowski	Department of Earth and Ocean Sciences, University of North Carolina Wilmington
Evaluation of Embedded Benefits for NC Biochar Amended Soil Applications	Neetu Donkada	University of North Carolina Charlotte
Exploring the Drivers of Household Participation in Voluntary Buyouts with an Agent-Based Model	Lauren Grimley	University of North Carolina at Chapel Hill
HARMFUL CYANOBACTERIA BLOOMS PREVAIL IN URABN WATERBODIES AND OUT-COMPETE A DIVERSE COLLECTION OF PHYTOPLANKTON GENERA	Amy Grogan	University of North Carolina Wilmington
Comparison of remotely sensed and water balance-based estimates of evapotranspiration in small headwater catchments	Papa Gueye	USDA Forest Service
The effect of Construction runoff of water within mecklenburg county	Darrell Holmes Jr.	L.E.A.P Foward
Urban Development and Stormwater Sediments: Identifying Vulnerable Populations in Charlotte, NC	Chandler Horton	UNC Charlotte Department of Civil Engineering
Development of large volume filtration-based virus concentration method for increased detection sensitivity of SARS-CoV-2 from wastewater	Md Ariful Islam Juel	UNC Charlotte
Optimization and Comparative Study of SARS-CoV-2 RNA Extraction Protocols for Enhanced Viral RNA Yield in Wastewater Samples	Nita Khanal	UNC Charlotte
Quantifying Algal and Nutrient Concentrations in Urban Stormwater and Beaver Ponds	Emma Lacy	UNC Charlotte
SARS-CoV-2 Epidemiology & Wastewater Surveillance at North Carolina Agricultural and Technical State University	Mehdi Lamssali	North Carolina A&T State University
Biodegradable Dissolved Organic Carbon in Stream Outflow of Urban Stormwater and Beaver Ponds	Jordan Landis	University of North Carolina at Charlotte
Analysis of Variances in Charlotte-Mecklenburg School Systems' School Water Quality as it correlates to other school demographics in the community	Jazzie Lee and Evelyn Romero	Harvesting Humanity LLC. and UNC Charlotte- Department of Civil and Environmental Engineering
Aquifer Response to Changes in Barometric Pressure: Insight into the Degree of Confinement of Aquifers	Madan Maharjan	UNC Pembroke

**WRI AC 2023 - March 22nd 5pm-7pm**

**Poster Presentations**

<b>Abstract Title</b>	<b>Presenter Name</b>	<b>Organization/Affiliation</b>
Distribution of Metals, PAHs and Phosphorus in Sediments of 21 Wet Detention Ponds in Wilmington, N.C.	Michael A. Mallin	University of North Carolina Wilmington
Utilizing High Resolution Mass Spectrometry for the Assessment of Emerging Contaminants in the River and Intracoastal Waters of Wilmington North Carolina	Jacquelin Rose Meade	University of North Carolina at Wilmington
The effects of a beaver complex on the biochemistry of an urban stream	Jamil Millner Jr.	Department of Geography and Earth Sciences, UNC Charlotte
Enhancing Perspectives on Lake Impairments using Satellite Observations	Michael Moerk	Wake Forest University
Analysis of fertilizers in local water supply from residential runoff	Ibrahim A. Mutakabbir	Harvesting Humanity & UNCC civil engineering and environmental engineering department
Application of Sonification to Represent Data in a New Format	Riley Nelson	North Carolina State University
Upstream and Downstream Influences on Spatiotemporal Specific Conductivity Patterns along the Tar-Pamlico River	Michael O'Driscoll	East Carolina University
Factors Influencing Denitrification in Wilmington Stormwater Control Systems	Nicholas Picha	University of North Carolina Wilmington
Extreme weather impacts on long-term trends in organic matter quality in the Neuse River Estuary, eastern North Carolina	Emily Piwowarski	North Carolina State University, MEAS Department
Tailoring activated carbon for improved reactivity towards aqueous contaminant degradation	Ethan Quinn	North Carolina State University
Evaluating spatial overlaps in heat and flood hazards using Bayesian Maximum Entropy: the case study of Durham, NC	Hunter C Quintal	UNC Chapel Hill
Evaluating molecular biomonitoring of macroinvertebrate biodiversity	Rachael Rowe	University of North Carolina at Charlotte
Analysis of Potential Contamination Risks to Waterways As a Result of Construction	Kai Spence	UNCC & Harvesting Humanity
New insight on cyanobacterial diversity and toxin production potential in the Chowan River and Albemarle Sound using metagenomics	Sarah Watson	North Carolina State University - Paerl Lab