

# Agenda

Wednesday March 22

<b>7:30-8:45 am</b>	<b>Registration</b>
<b>Lobby</b>	Check in and enjoy coffee and hot morning refreshments
<b>8:45-10:00 am</b>	<b>Opening Panel</b>
<b>Room 1A</b>	<b>Looking Toward Our Water Future</b> <b>Moderator: Susan White, NC Water Resources Research Institute, NC Sea Grant, and NC Space Grant</b> 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
<b>Room 1 D&amp;C</b> 10:00-10:20	<b>Networking Break:</b> Enjoy refreshments and exhibits
<b>10:20-11:50 am</b>	<b>Concurrent Session 1</b>
<b>Room 6</b>	<b>Impacts of Animal Agriculture on Water Quality</b> <b>Moderator: Haley E. Plaas, UNC Chapel Hill</b>
10:20-10:40	Mehdi Lamssali, North Carolina A&T State University, Combined Anaerobic Degradation and Microalgae Treatment of Swine Waste Water Using Lab-Scale Bioreactors
10:40-11:00	A B M Tanvir Pasha, NC State University, Assessing Temporal Variability of Antibiotic-Resistant E. Coli in Surface Water Near Animal Feeding Operations
11:00-11:20	Colleen Brown, UNC Wilmington, Tracing Nutrient Pollution from Industrialized Animal Production in the Cape Fear River Watershed
11:20-11:40	Daniel Line, NC State University, Effects of Livestock Exclusion on Pollutant Export from a North Carolina Beef Cow Pasture
11:40-11:50	Additional time for questions
<b>Room 3</b>	<b>Practical Tools for a Sustainable Water Future</b> <b>Moderator: Caroline Loop, Wake County Environmental Services</b>
10:20-10:40	Brian Hinckley, East Carolina University, Let's Get Creative: How to Build a Scalable Real-Time Hydrologic Data Monitoring Network with Cost-Effective DIY Solutions
10:40-11:00	J. Curtis Weaver, USGS South Atlantic Water Science Center, Low-flow Statistics for North Carolina: Today and Tomorrow
11:00-11:20	Michelle Moonman, US Fish and Wildlife Service, wqReport: A Tool for Compiling and Visualizing Watershed Data
11:20-11:40	Trish D'Arconte, NC Dept of Environmental Quality, NC DEQ's Updated Stormwater Nitrogen and Phosphorus (SNAP) Tool, Version 4.2
11:40-11:50	Additional time for questions

# Agenda continued

<b>Room 4</b>	<p><b>Out of the Box: Creative Approaches to Community Collaboration and Engagement</b>  <b>Moderator: Frank López, NC Sea Grant and NC WRI</b></p> <p>10:20-10:40 Sheila M. Saia and Corey Davis, State Climate Office of North Carolina, The Past, Present, and Future of Our Coast and Climate</p> <p>10:40-11:00 Riley Lewis, Coastal Carolina Riverwatch, Water Quality for Fisheries</p> <p>11:00-11:20 Michael R. Burchell, NC State University, Can Citizen Scientists Fill the Gap in State Ambient Wetland Monitoring Programs?</p> <p>11:20-11:40 Rebecca Coppa, NC DEQ, How to Enhance Your Enviroscope Presentation</p> <p>11:40-11:50 Additional time for questions</p>
<b>Room 2</b> 11:50-1:30	<p><b>Networking Lunch:</b>          Specific tables have been reserved for students</p>
<b>1:30-3:00 pm</b>	<p><b>Concurrent Session 2</b></p>
<b>Room 6</b>	<p><b>Too Much Water: Adapting to Change</b>  <b>Moderator: Cayla Cothron, NC Sea Grant</b></p> <p>1:30-1:50 Helena Garcia, UNC Chapel Hill, Dynamic Vulnerability: Reconstructing Historical Flood Footprints and Exposure in Eastern North Carolina</p> <p>1:50-2:10 Lauren Grimley, UNC Chapel Hill, Linking Tropical Cyclone Precipitation in Future Climates to Shifts in Flood Exposure</p> <p>2:10-2:30 Adam Gold, Environmental Defense Fund, Emerging Research on Natural Infrastructure for Flood Mitigation</p> <p>2:30-2:50 Roger D. Shew, UNC Wilmington, A Changing Lower Cape Fear River Estuary: Impacts of Rising Waters on Ecosystems and Infrastructure</p> <p>2:50-3:00 Additional time for questions</p>
<b>Room 3</b>	<p><b>Innovations in Wastewater Treatment</b>  <b>Moderator: Layla El-Khoury, NC State University</b></p> <p>1:30-1:50 Holly Haflich, UNC Chapel Hill, and Hezhou Ding, NC State University, Separation of Volatile Fatty Acids (VFAs) from Anaerobic Digestion (AD) Bioreactors Using Different Electrodialysis (ED) Configurations</p> <p>1:50-2:10 Allison Lee, UNC Chapel Hill, Daily Inflow and Infiltration at Wastewater Treatment Plants across North Carolina</p> <p>2:10-2:30 Guy Iverson, East Carolina University, Evaluating Nitrogen Treatment by Onsite Wastewater Systems in Raleigh Belt Geology: A Preliminary Assessment</p> <p>2:30-2:50 Charles Humphrey, East Carolina University, Nutrient and Bacteria Treatment by Five Onsite Wastewater Systems in the Triassic Basin Region of the Falls Lake Watershed, North Carolina</p> <p>2:50-3:00 Additional time for questions</p>
<b>Room 4</b>	<p><b>Utilizing Data to Enhance Decision Making</b>  <b>Moderator: Tiffany VanDerwerker, NC State University</b></p> <p>1:30-1:50 Ellie Cardenal, AECOM, Using Data Visualizations and Spatial Analysis to Support Environmental Decision Making</p> <p>1:50-2:10 Gregory Melia, NC DEQ - Division of Mitigation Services, 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</p> <p>2:10-2:30 Toby Feaster, U.S. Geological Survey, Effects of Impoundments on Selected Flood-Frequency and Daily Mean Streamflow Characteristics in Georgia, South Carolina, and North Carolina</p> <p>2:30-2:50 Rosemary Fanelli, U.S. Geological Survey, Overview of Multi-Decade Water-Quality Monitoring at Triangle Area Water Supplies</p> <p>2:50-3:00 Additional time for questions</p>
<b>Room 1 D&amp;C</b> 3:00-3:20	<p><b>Networking Break:</b> Enjoy refreshments and exhibits</p>

# Agenda continued

3:20-4:50 pm

## Concurrent Session 3

**Room 6**

### **Modeling Current and Future Water Quantity and Quality in the Cape Fear River Basin from Community to Watershed Scale**

**Moderator: Danica Schaffer-Smith, The Nature Conservancy**

3:20-3:40

Danica Schaffer-Smith, The Nature Conservancy, Watershed Modeling of Pollution Hotspots Under Extremes Highlights Landscape-Scale Intervention Priorities in the Cape Fear River Basin

3:40-4:00

Elly Gay, NC State University, Strategic Riparian Buffers to Improve Coastal Resilience in the Cape Fear River Watershed

4:00-4:20

Jacqueline S. Welles, U.S. Geological Survey, Flood Risk and Reward: Quantifying differences in flood risk under alternative management strategies for vulnerable communities of the Cape Fear River Basin, North Carolina

4:20-4:50

Panel discussion

**Room 4**

### **Finding the Sweet Spot: Information Exchange to Inform Prioritizing Stormwater Management Actions**

**Moderator: Kristina Hopkins, U.S. Geological Survey**

*A single abstract for this panel is included under "Kristina Hopkins" on page 28.*

3:20-3:35

Kristina Hopkins, U.S. Geological Survey, Session Overview

3:35-3:50

Jason Hunt, City of Charlotte, Charlotte, NC: A Large Community Perspective

3:50-4:05

Bill Lee, Town of Cary, Cary, NC: A Small Community Perspective

4:05-4:45

Kristina Hopkins and Charlie Stillwell, USGS: Interactive Discussion

**Room 3**

### **Panel Discussion on the Waters of the US and State**

**Moderator: Rick Savage, Carolina Wetlands Association**

*A single abstract for this panel is included under "Rick Savage" on page 33.*

3:20-4:50

Phil May, Inver Environmental Consulting, LLC

Kelly Moser, Southern Environmental Law Center

Sue Homewood, NC Division of Water Resources

Norton Webster, Carolina Wetlands Association and Ecoterra

Chris Hopper, U.S. Army Corps of Engineers

4:50-5:00

**Break**

**Room 1 D&C**

5:00-7:00

### **Poster Session and Reception**

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, beer, and refreshments.

# Agenda

Thursday March 23

8:30-9:30 am

## Opening Panel

Room 1A

### Building Community Stewardship Through Art

Moderator: Christy Perrin, NC WRRRI and NC Sea Grant

Baxter Miller, Photographer and Creative Director

Derrick Beasley, Multidisciplinary Artist, Cultural Organizer, and Social Entrepreneur

Tonya Holy Elk Locklear, Poet and Author

Erika Young, NC Sea Grant Educator and Potter

Moderated discussion and audience questions

Room 1 D&C  
9:30-9:50

**Networking Break:** Enjoy refreshments and exhibits

9:50-11:40 am

## Concurrent Session 4

Room 3

### Calling All Utilities: Sustaining Healthy Water Systems

Moderator: Kaitlin Tucker, NC WRRRI

9:50-10:10

Taylor Holiday and Mitchell Turnage, Raftelis, Evolving Stormwater Utilities in NC

10:10-10:30

Ruth Rouse and Dave Halley, OWASA and True North Forest Management Services, Healthy Forest = Healthy Watersheds: OWASA's Forest Management Program to Protect its Water Supplies

10:30-10:50

Simon Warren and Rachel Weinberg, Raftelis, Strategies for Addressing Water Affordability through Data, Benchmarking, and Partnerships

10:50-11:10

J.V. Loperfido, City of Durham, Public Works Department, Pollutant Source Tracking: Using Multiple Methods to Find Causes of Water Quality Issues in Urban Streams

11:10-11:30

Nicole Barclay, UNC Charlotte, Prediction of Stormwater Pipeline Condition via Machine Learning

11:30-11:40

Additional time for questions

Room 4

### Below the Surface: Understanding Groundwater Quality and Flow

Moderator: Sascha Medina, NC Space Grant

9:50-10:10

Tiffany VanDerwerker, NC State University, Assessing groundwater quality in deep aquifers near Fayetteville, NC: Testing the waters for an alternate drinking water source

10:10-10:30

Craig R. Jensen, NC State University, Predicting future PFAS concentrations in groundwater discharging to streams near the Fayetteville Works Facility

10:30-10:50

Julianna Tresca, NC State University, Utilizing R Statistical Software to Assess PFAS Groundwater Contamination Impacts in North Carolina

10:50-11:10

Hayden Rudd, NC State University, Diagnostic Screening of Private Well Water Using High Resolution Mass Spectrometry to Support Well Users and Local Health Officials

11:10-11:30

August Young (Frechette), Duke University, Spatial Mapping of Porosity as a Function of Reynolds Number and Pore Scale Geometry

11:30-11:40

Additional time for questions

# Agenda continued

<b>Room 6</b>	<p><b>Changing Streams: Identifying and Managing the Impacts of Erosion</b>  <b>Moderator: Susan White, NC WRRRI, NC Sea Grant, and NC Space Grant</b></p> <p>9:50-10:10 Layla El-Khoury, NC State University, Quantifying and Predicting Streambank Erosion in the Ridge and Valley and Blue Ridge Physiographic Regions of Virginia to Benefit Eastern Hellbender Populations</p> <p>10:10-10:30 Laura Gurley, U.S. Geological Survey, Using Repeat Lidar to Identify Streambank Erosion Hotspots in Raleigh, North Carolina</p> <p>10:30-10:50 Karl W. Wegmann, NC State University, 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</p> <p>10:50-11:10 Robert Patterson, Amy Barber, Jason Barnhill, City of Burlington, Urban Riparian Buffers: Maintaining and Managing an Ecologically Functioning Riparian Buffer on Little Alamance Creek in Burlington, North Carolina.</p> <p>11:10-11:30 Jack Kurki-Fox, NC State University, Flood Mitigation Assessment of Stream Debris Removal</p> <p>11:30-11:40 Additional time for questions</p>
<b>11:40-1:00 pm</b>	<p><b>Networking and Awards Luncheon</b></p>
<b>Room 2</b>	<p>Bradley Whitman and Danny Edwards of NC Department of Environmental Quality, Division of Water Resources Public Water Supply Section will present the Source Water Protection Award winners. WRRRI Annual Conference student poster competition winners will be announced.</p>
<b>1:00-2:30 pm</b>	<p><b>Concurrent Session 5</b></p>
<b>Room 6</b>	<p><b>Spotlight on Estuaries: What You Need to Know About Water Quality and Public Health</b>  <b>Moderator: Riley Lewis, Coastal Carolina Riverwatch</b></p> <p>1:00-1:20 Andrew George, UNC Chapel Hill, Fostering Environmental Health Literacy While Addressing Arsenic Contamination in Private Wells in the Carolina Terrane</p> <p>1:20-1:40 Haley E. Plaas, UNC Chapel Hill, Harmful Cyanobacterial Aerosolization Dynamics in the Airshed of a Eutrophic Estuary</p> <p>1:40-2:00 Julia Harrison, NC State University, Investigating Tryptophan-like Fluorescence as a Correlate with Fecal Indicator Bacteria in Estuarine Waters</p> <p>2:00-2:20 Emily Corbitt, UNC Wilmington, Occurrence and Distribution of Per-and Polyfluoroalkyl Substances in Tidal Creeks of Southeastern North Carolina</p> <p>2:20-2:30 Additional time for questions</p>
<b>Room 4</b>	<p><b>Healthy Waters: Nutrients, Flow, and Management</b>  <b>Moderator: Erika Young, NC Sea Grant</b></p> <p>1:00-1:30 Michael O'Driscoll, East Carolina University, Tailoring Ecological Flow Guidance to Coastal Watersheds: Examples from the Trent River</p> <p>1:30-2:00 Christopher L. Osburn, NC State University, Source Identification of Dissolved Organic Matter (DOM) in Surface Waters Using Fluorescence and a Simple and Rapid Linear Regression Method</p> <p>2:00-2:20 Guy Iverson, East Carolina University, Quantifying Water Quality Downgradient from Onsite Wastewater Systems in the Raleigh Belt: A Preliminary Assessment of Phosphorus and Escherichia coli Concentrations</p> <p>2:20-2:30 Colin Finlay, East Carolina University, Nitrogen Processing in Regenerative Stormwater Conveyance Systems (Lightning)</p>
<b>Room 3</b>	<p><b>Innovative Approaches for Removing Contaminants</b>  <b>Moderator: John Fear, NC WRRRI and NC Sea Grant</b></p> <p>1:00-1:20 Mohammad Khalid, UNC Charlotte, Biochar – A Multi-Beneficial and Cost-Effective Amendment to Clay Soil</p> <p>1:20-1:40 Jessica A. Deaver, NC State University, Evaluating Metal Cation Diversity in Microbial Polyphosphate Granules and its Effect on Enhanced Biological Phosphorus Removal from Domestic Wastewater</p>

# Agenda continued

1:40-2:00	Irene Mulloy Manning, UNC Chapel Hill, Hydrolytically Stable Ionic Fluorogels for High-Performance Remediation of Per- and Polyfluoroalkyl Substances (PFAS) from Natural Water
2:00-2:10	Genevieve Guerry, East Carolina University, Societal Perceptions of PFAS Contamination in Eastern North Carolina (Lightning)
2:10-2:30	Additional time for questions
<b>Room 1 D&amp;C</b> 2:30-2:45	<b>Networking Break:</b> Enjoy refreshments and exhibits
<b>2:45-4:15 pm</b>	<b>Concurrent Session 6</b>
<b>Room 4</b>	<b>Falls Lake Nutrient Management Summary of the Science and Resulting Recommendations for a Revised Strategy</b> <b>Moderator: Forrest Westall, McGill Associates and Upper Neuse River Basin Association</b>
2:45-3:05	Alix Matos and Forrest Westall, Brown and Caldwell, McGill Associates, and UNRBA, Falls Lake Watershed Characterization, Data Evaluation, and Modeling Results to Inform a Revised Nutrient Management Strategy for Falls Lake
3:05-3:25	Doug Durbin and Alix Matos, Brown and Caldwell, Falls Lake Data Evaluation and Modeling Results to Inform a Revised Nutrient Management Strategy for Falls Lake
3:25-3:45	Forrest Westall, McGill Associates and UNRBA, Key Concepts and Principles for Developing a Revised Nutrient Management Strategy for Falls Lake
3:45-4:15	Forrest Westall, McGill Associates and UNRBA, Audience Participatory Feedback Session Regarding Development of a Revised Nutrient Management Strategy for Falls Lake
<b>Room 6</b>	<b>Let It Rain: Data and Innovative Considerations for Stormwater Management</b> <b>Moderator: Gloria Putnam, NC Sea Grant</b>
2:45-3:05	Chris Norcross, NC State University, Adaptations in Beaver Habitat Selection May Offer Partial Nature-Based Solutions to Multiple Stormwater Problems in Urban Watersheds
3:05-3:25	Barbara Doll, NC Sea Grant and NC State University, Characterizing Water Quality Status, Trends and Potential Watershed Management Opportunities from Charlotte-Mecklenburg National Pollutant Discharge Elimination System (NPDES) Stormwater Data
3:25-3:45	Jingyi Qi, UNC Charlotte, Simulating Green Stormwater Infrastructure Implementation In Residential Areas
3:45-4:00	Additional time for questions
<b>Room 1B</b>	<b>Student Networking and Career Panel</b> <b>Moderator: Annie Grant, NC WRRRI and NC Sea Grant</b>
2:45-4:15	Create connections with fellow students and learn about different career pathways in water resources. Ice cream will be provided by NC Water Resources Association! This session will be facilitated by NC WRRRI.
4:15pm	<b>Conference Adjourns</b>