

# Alabama WATER RESOURCES Conference

**SEPTEMBER 4-6, 2024**

**PERDIDO BEACH RESORT | ORANGE BEACH | ALABAMA**

# AGENDA OVERVIEW

**WED - 9/4**  
AWRA AL Section Symposium

**11:00 AM Registration Check-in Begins**

**1:00 PM Welcome** | Dr. Eve Brantley & Jessie Curl | Auburn University Water Resources Center  
Bennett Bearden | Geological Survey of Alabama | AWRA Alabama Section President

**1:10 PM** Nate Jones | Assistant Professor | The University of Alabama

**2:05 PM Networking Break**

**2:35 PM** Rachel DuBose | Assistant Center Director | USGS Lower MS-Gulf Water Science Center  
Mitch Reid | State Director | The Nature Conservancy in Alabama  
Sam Blumenfeld | Sustainability & Policy Analyst | The Westervelt Company  
**Water Connectivity Panel**

**3:40 PM Announcements & Adjourn**

**5:30 PM Social & Dinner ( Flora-Bama )**

**THU - 9/5**

**7:00 AM Breakfast Buffet ( Grand Reef )**

**8:00 AM Welcome** | Dr. Eve Brantley & Jessie Curl | Auburn University Water Resources Center  
Ashley McVicar | Alabama Power Company | 2024 ALWRC Committee Chair

**Keynote Address** | Mark Masters | Executive Director | Georgia Water Planning & Policy Center at Albany State University

**8:45 AM Break**

**9:15 AM Concurrent Session 1**

Stormwater 1 | Restoration 1 | Water Quality 1 | Coastal Issues 1 | Modeling & Water Management 1

**10:45 AM Concurrent Session 2**

Stormwater 2 | Restoration 2 | Water Quality 2 | Coastal Issues 2 | Modeling & Water Management 2

**12:15 PM Lunch ( Grand Reef )**

**1:00 PM Mini Job Fair ( Ballroom Lobby )** *All students and sponsors are invited!*

**1:40 PM Concurrent Session 3**

Extension, Outreach & Partners 1 | Water & Energy Management | Water Quality 3 | Water Law & Policy 1 | Modeling & Water Management 3

**3:00 PM Break**

**3:30 PM Concurrent Session 4**

Extension, Outreach & Partners 2 | Water Quantity | Wastewater Systems Management | Water Law & Policy 2 | HABs

**5:30 PM Social & Poster Session ( Grand Reef )** *Refreshments are courtesy of sponsors*

**FRI - 9/6**

**7:00 AM Breakfast Buffet ( Grand Reef )**

**8:00 AM Welcome** | Dr. Eve Brantley & Jessie Curl | Auburn University Water Resources Center  
Ashley McVicar | Alabama Power Company | 2024 ALWRC Committee Chair

**Keynote Address** | Rebecca Bearden | Aquatic Ecologist | Geological Survey of Alabama

**8:45 AM Break**

**9:15 AM Concurrent Session 5**

Water Monitoring | Lightning Talks - Research 1 | Lightning Talks - Outreach | Water Law & Policy Panel | Emerging Contaminants

**10:35 AM Break**

**10:55 AM Concurrent Session 6**

Water Security & Risk | Lightning Talks - Research 2 | Agriculture & Irrigation | Groundwater | GIS

**12:15 PM Conference Adjourns**

**#2024ALWRC**

# SESSION QUICK REFERENCE

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## THURSDAY

### BREAKFAST BUFFET IN GRAND REEF 7:00 - 7:45am

1	STORMWATER 1	RESTORATION 1	WATER QUALITY 1	COASTAL ISSUES 1	MODELING & WATER MANAGEMENT 1
	BALLROOM C	BALLROOM D	BALLROOM E	BALLROOM F	SANDCASTLE

2	STORMWATER 2	RESTORATION 2	WATER QUALITY 2	COASTAL ISSUES 2	MODELING & WATER MANAGEMENT 2
	BALLROOM C	BALLROOM D	BALLROOM E	BALLROOM F	SANDCASTLE

### LUNCH IN GRAND REEF 12:15 - 1:30pm

### MINI JOB FAIR IN BALLROOM LOBBY 1:00 - 1:30pm

3	EXTENSION, OUTREACH & PARTNERS 1	WATER & ENERGY MANAGEMENT	WATER QUALITY 3	WATER LAW & POLICY 1	MODELING & WATER MANAGEMENT 3
	BALLROOM C	BALLROOM D	BALLROOM E	BALLROOM F	SANDCASTLE

### BREAK 3:00 - 3:30pm

4	EXTENSION, OUTREACH & PARTNERS 2	WATER QUANTITY	WASTEWATER SYSTEMS MANAGEMENT	WATER LAW & POLICY 2	HABs & OTHER CONTAMINANTS
	BALLROOM C	BALLROOM D	BALLROOM E	BALLROOM F	SANDCASTLE

### POSTER SESSION & SOCIAL IN GRAND REEF 5:30 - 7:30pm

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## FRIDAY

### BREAKFAST BUFFET IN GRAND REEF 7:00 - 7:45am

5	WATER MONITORING	LIGHTNING TALKS - RESEARCH 1	LIGHTNING TALKS - OUTREACH	WATER LAW & POLICY PANEL	EMERGING CONTAMINANTS
	BALLROOM C	BALLROOM D	BALLROOM E	BALLROOM F	SANDCASTLE

### BREAK 10:35 - 10:55am

6	WATER SECURITY & RISK	LIGHTNING TALKS - RESEARCH 2	AGRICULTURE & IRRIGATION	GROUNDWATER	GIS
	BALLROOM C	BALLROOM D	BALLROOM E	BALLROOM F	SANDCASTLE

### ADJOURN

# SYMPOSIUM SPEAKERS

WEDNESDAY



**NATE JONES**  
Assistant Professor  
*The University of Alabama*

Nate Jones is an Assistant Professor at the University of Alabama and PI of the 'Bama Ecohydrology Lab. He is an interdisciplinary water scientist focused on improving the physical, chemical, and biological integrity of our water resources. His work spans gradients in hydrologic connectivity (e.g., upland wetlands, intermittent streams, and floodplains), spatial scales (e.g., individual soil aggregates to watersheds), and disciplinary boundaries (e.g., engineering, environmental science, and the social sciences).



**RACHEL DUBOSE**  
Assistant Center Director  
*U.S. Geological Survey - Lower Mississippi-Gulf Water Science Center*

Rachel DuBose is an Assistant Center Director for the U.S. Geological Survey Lower Mississippi-Gulf Water Science Center where she is responsible for leading investigations regarding alterations in water quantity and quality across a five-state footprint of Alabama, Arkansas, Mississippi, Louisiana, and Tennessee. Specifically, she is focused on improving understanding of aquatic ecosystems, delivering the best available science, and creating useful tools for managers, decision-makers, and the public.



**MITCH REID**  
State Director  
*The Nature Conservancy in Alabama*

Mitch Reid's passion for Alabama's natural systems and people, creativity, proven management skills and inclusive, collaborative leadership style helps the Alabama Chapter lead and deliver on its ambitious strategic plan for conservation in the forests, rivers, and coastal systems of one of the most biodiverse states in the country. The son of public school educators, Mitch grew up on a farm in the Wiregrass region of Alabama in the small town of Bellwood along the banks of the Choctawhatchee River. He holds a JD from the University of Alabama School of Law (2009) and a BS from the United States Military Academy at West Point in European History and Environmental Engineering (1998).



**SAM BLUMENFELD**  
Sustainability & Policy Analyst  
*The Westervelt Company*

Born and raised in Washington, D.C., Sam Blumenfeld completed his undergraduate and master's degrees in Natural Resources from North Carolina State University. He currently serves as the Sustainability & Policy Analyst for The Westervelt Company, a major forest landowner headquartered in Tuscaloosa, AL. In this role, Sam focuses on environmental, social, and governance initiatives, such as carbon accounting, engaging with external stakeholders, and implementing sustainable practices within the company.

# CONFERENCE KEYNOTES

THURSDAY



**MARK MASTERS**  
Executive Director  
*Georgia Water Planning & Policy Center at Albany State University*

Mark Masters is the Executive Director of the Georgia Water Planning and Policy Center (GWPPC) at Albany State University. Over the past twenty years, Masters has positioned the GWPPC as a trusted resource, working across Georgia to secure the future of the state's water resources. Masters is a nationally recognized leader in agricultural water use and policy, and currently chairs efforts focused on water management for the American Farm Bureau, National Association of Conservation Districts, and the Interstate Council on Water Policy. He also serves as Outreach Director for the Center for Behavioral and Experimental Agricultural Environmental Research, a USDA Center of Excellence focused on applying behavioral

insights and experimentation to improve programs related to agriculture and the environment. Masters also played a pivotal role in developing a Sustainable Water Management Plan for the Apalachicola-Chattahoochee-Flint Basin as the co-founder of ACF Stakeholders, Inc. and serves on various state and national non-profit boards.

FRIDAY



**REBECCA BEARDEN**  
Aquatic Ecologist  
*Geological Survey of Alabama - Ecosystems Investigations Program*

Raised on a cattle ranch in Maplesville, Alabama, Dr. Rebecca Ann Bearden has spent the last 20 years promoting conservation of Alabama's natural resources as an outdoor writer for Southeast Farm Press, a conservation educator for the Alabama Wildlife Federation, and an aquatic ecologist for the Geological Survey of Alabama's Ecosystems Investigations Program. From reporting the benefits of no till agricultural practices in the Wiregrass to researching burrowing crayfish ecology in the Blackbelt, Rebecca applies her experience working with a variety of conservationists to her current role as the outreach and communications lead for the Alabama Rivers and Streams Network, a grassroots group of

volunteer landowners, agencies, NGOs, and industry representatives that use a cooperative, watershed-based framework to successfully assess, restore, recover, and monitor the state's vital aquatic resources. In addition to witnessing the worth of creating trust among various stakeholders, Rebecca has learned that successful natural resource conservation also requires effective science communication to policy makers. Her involvement in policy initiatives at the local, state, and federal level through the American Geophysical Union's Voices for Science and Local Science Partners programs promotes the value of Alabama's water resources and highlights the pressing need for a statewide water management plan.

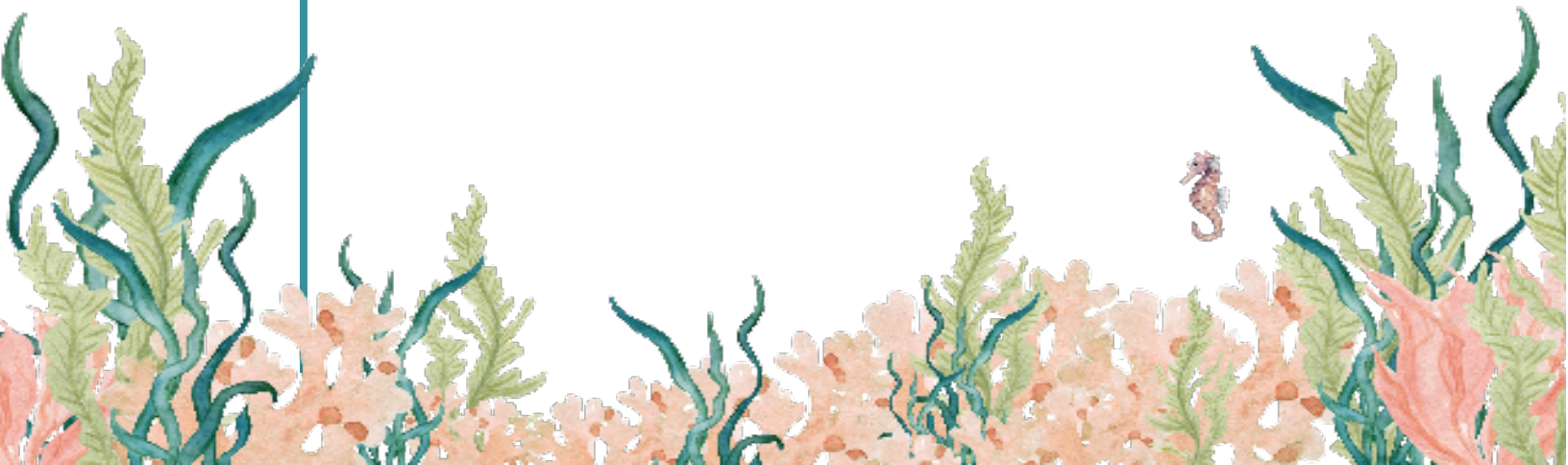
# Alabama Section of the American Water Resources Association

## SYMPOSIUM

WEDNESDAY | SEPT. 4 | 1:00PM - 3:50PM

*At the Water's Edge: Understanding Connections Between  
Groundwater, Surface Water, & Watershed Dynamics*

11:00 AM	<b>Registration Desk Opens (Lobby)</b>
1:00 PM	<b>Welcome &amp; Introductions</b> Eve Brantley & Jessie Curl   Auburn University Water Resources Center Bennett Bearden   AWRA Alabama Section President
1:10 PM	<b>Hydrologic Connectivity: A Unifying Concept for Managing, Restoring, and Understanding Our Water Resources</b> Nate Jones   Assistant Professor   The University of Alabama
2:05 PM	<b>Networking Break</b>
2:30 PM	<b>Delivering Actionable Information and Tools to Inform Water Resource Decisions for Alabama</b> Rachel DuBose   Assistant Center Director   U.S. Geological Survey - Lower Mississippi-Gulf Water Science Center
2:45 PM	<b>Rivers Restored: The Nature Conservancy's Approach to Wholistic Watershed Restoration</b> Mitch Reid   State Director   The Nature Conservancy in Alabama
3:00 PM	<b>At the Forest's Edge: Understanding Water Policy in the Forest Industry</b> Sam Blumenfeld   Sustainability & Policy Analyst   The Westervelt Company
3:15 PM	<b>Water Connectivity Panel &amp; Audience Discussion</b>
3:50 PM	<b>Announcements &amp; Adjourn</b>
5:30 PM	<b>Social &amp; Dinner (Flora-Bama - Casual Beach Attire)</b>



# SESSION 1 THURSDAY | SEPT. 5 | 9:15AM - 10:35AM

## STORMWATER 1

BALLROOM C

MODERATOR: ASHLEY HENDERSON, ALABAMA SOIL & WATER CONSERVATION DISTRICT

1. **Managing Vegetation to Manage Erosion Control.** Perry Oakes, Alabama Soil and Water Conservation Committee. (#004)
2. **Hard Work Pays Off: Leveraging Grant Funding and Sweat Equity to Improve Stormwater Quality and Restore Riparian Stream Buffers at a Wastewater Treatment Facility.** Dusty Kimbrow, The City of Auburn. (#151)
3. **Understanding Different Factors for the Runoff Control of Infiltration Swales Along Roadways.** Yuting Ji\*, Auburn University. (#184)
4. **Stormwater Recharged: Innovating with Electrical Flocculation.** Megan Armstrong\*, Auburn University. (#187)

## RESTORATION 1

BALLROOM D

MODERATOR: MIKE FEDOROFF, ALABAMA WATER INSTITUTE

1. **The Little Lagoon Restoration Project: A Multi-Component Approach to Water Quality and Ecosystem Restoration.** Carl Ferraro, Stantec Consulting Services Inc. (#015)
2. **Freshwater Restoration Across Alabama's Rural Landscape.** Alana Reynolds, The Nature Conservancy. (#079)
3. **Dredging is a Messy Business: Managing Water Quality During Implementation.** Alan Fowler, Geosyntec. (#148)

## WATER QUALITY 1

BALLROOM E

MODERATOR: SHANNON WEAVER, USDA NATURAL RESOURCES CONSERVATION SERVICE

1. **Formation of Mineral Scale on Paper Evaporative Cooling Pads using a Farm Well Water Source.** Kelly Griggs, Auburn University. (#033)
2. **Understanding Fate and Flow of Nitrogen in Commercial Row Crops of Alabama.** Arpita Sharma\*, Auburn University. (#034)
3. **Effect of Treating Poultry Litter with Biochar and Inorganic Amendments on the Potential Release of Phosphorus and Heavy Metals in Soil: Relevance to Water Quality.** Prasenjit Ray, Auburn University. (#056)
4. **Runoff Losses of Phosphorus from Different Cropping Systems in Alabama Row Crop Farms.** Anjan Bhatta\*, Auburn University. (#064)

## COASTAL ISSUES 1

BALLROOM F

MODERATOR: BRYAN HENRY, U.S. GEOLOGICAL SURVEY

1. **Projects using Tied Concrete Block Mat Along Shorelines.** John Slupecki, Flexamat Motz Enterprises, Inc. (#046)
2. **Stakeholder Coastal Hazard Communication and Decision Making in Mobile, AL.** Evan Cass\*, The University of Alabama. (#092)
3. **Machine Learning for Salinity Prediction in a Deltaic Ecosystem: A Case Study of the Mobile-Tensaw Delta.** Thomas Kavoo\*, Auburn University. (#120)
4. **The Effect of Grid Resolution on Hydrodynamic Modeling: A Case for Coarser Resolution Grids.** Anna Linhoss, Auburn University. (#182)

## MODELING & WATER MANAGEMENT 1

SANDCASTLE

MODERATOR: LEE ELLENBURG, THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

1. **Modeling Sedimentation and Hydrology of Geographically Isolated Wetlands with Partial and Fully Agricultural Catchments.** Suranjana Chatterjee\*, Auburn University. (#100)
2. **Long-Term Trends in Streamflow, Water Quality, Climate, and Land-Use Trajectories Across the Mobile Bay Watershed-AL.** Latif Kalin, Auburn University. (#104)
3. **Bayesian Hydrologic Data Assimilation Inside the Next Generation Water Resource Modeling Framework (NextGen).** Ehsan Foroumandi\*, The University of Alabama. (#175)
4. **The Puzzle of Irrigation Water Management: Evaluating and Demonstrating to Alabama Farmers Technologies That Will Increase Water use Efficiency.** Brenda Ortiz, Auburn University. (#196)

\*STUDENT PRESENTER

The number after each presentation refers to the Abstract Index found at [www.aub.ie/alwrc](http://www.aub.ie/alwrc)

# SESSION 2 THURSDAY | SEPT. 5 | 10:45AM - 12:05PM



## STORMWATER 2

BALLROOM C

MODERATOR: EVE BRANTLEY, AUBURN UNIVERSITY WATER RESOURCES CENTER

1. **Performance Evaluation of Slash Mulch Berms as Sediment Control Practices.** Brian Roche\*, Auburn University. (#032)
2. **Designing and Evaluating Infiltration Swales for Retaining and Infiltrating Roadway Stormwater Runoff.** Michael Perez & Wes Donald, Auburn University. (#095)
3. **Evaluation of ALDOT Erosion Control Practices using Rainfall Simulation on Various Soil Types and Slope Gradients.** Jack Cater, Alabama Department of Transportation. (#105)
4. **Retrofitting Stormwater Infrastructure on a Small Commercial Site in Urban Birmingham: A Case Study.** Ben Wegleitner, The Nature Conservancy. (#133)

## RESTORATION 2

BALLROOM D

MODERATOR: LISA HARRIS, CHOCTAWHATCHEE, PEA & YELLOW RIVERS WMA

1. **ARSNiC: This is a Good Thing!** Daniel West, Geological Survey of Alabama. (#047)
2. **Restoring and Recovering Alabama's World Class Aquatic Biodiversity.** Pat O'Neil, Cawaco RC&D Council. (#051)
3. **Native Rivercane Restoration Efforts in Southeastern Watersheds: A Story of Resilience.** Michael Fedoroff, Alabama Water Institute & Katya Menkina, The University of Alabama. (#067)
4. **Restoring Priority Marsh Habitat on Fowl River, Alabama.** Jason Kudulis, Mobile Bay National Estuary Program. (#068)

## WATER QUALITY 2

BALLROOM E

MODERATOR: AMY GILL, U.S. GEOLOGICAL SURVEY

1. **Spatially Referenced Models of Nitrogen and Phosphorus Loads in Streams in Mississippi.** Emily Gain, U.S. Geological Survey. (#080)
2. **Hydrologic Regime Impacts to Nitrogen Removal and Retention in Forested Wetlands.** Lidia Molina Serpas\*, The University of Alabama. (#135)
3. **Using Hydrogeomorphic Features to Quantify Structural and Functional Hydrologic Connectivity in a Coastal Plain Headwater Stream.** Delaney Peterson\*, The University of Alabama. (#142)
4. **Protecting Water Quality with Channel Migration Zone Analysis.** Thomas Loper, Loper Group (#154)

## COASTAL ISSUES 2

BALLROOM F

MODERATOR: MATT WOMBLE, ALABAMA WATER INSTITUTE

1. **Does Thin Layer Placement Lead to Replanting Living Shorelines?** Jannell Clampitt\*, Auburn University. (#045)
2. **Forested Wetland Community Composition Across a Tidal Gradient in the Mobile-Tensaw River Delta.** Andrew Balder\*, Auburn University. (#106)
3. **Leveraging Marine Heatwaves for Improved Rapid Intensification Prediction in the North Atlantic Basin.** Soheil Radfar, The University of Alabama. (#161)
4. **Enhancing Resilience in Coastal Alabama with the Bipartisan Infrastructure Law.** Christian Miller, Mobile Bay National Estuary Program. (#147)

## MODELING & WATER MANAGEMENT 2

SANDCASTLE

MODERATOR: ADAM NEWBY, AUBURN UNIVERSITY WATER RESOURCES CENTER

1. **Evaluating Alternatives in 2D Hydraulic Model for Flood Reduction (Terrain Modification: A Decision-Making Tool).** Binita Shrestha, Waggoner Engineering Inc. (#026)
2. **2D Base Level Engineering Pilot Study: Cahaba Watershed.** Jeff Zanotti, WSP Environment & Infrastructure Inc. (#123)
3. **Implementing National Weather Service Flood Inundation Mapping in Alabama.** Michael Garrison, NOAA/NWS/WFO-BMX. (#141)

LUNCH IN GRAND REEF: 12:15 - 1:30 PM

MINI JOB FAIR IN BALLROOM LOBBY: 1:00 - 1:30 PM

# SESSION 3 THURSDAY | SEPT. 5 | 1:40PM - 3:00PM

## EXTENSION, OUTREACH & PARTNERS 1

BALLROOM C

MODERATOR: MONA DOMINGUEZ, AUBURN UNIVERSITY WATER RESOURCES CENTER

1. **Texas Well Owner Network - County Agent Training.** Joel Pigg, Texas A&M AgriLife Extension. (#011)
2. **Examining Oyster Production Resiliency in the Alabama and Mississippi Oyster Industries.** Jillian Sower\*, Auburn University. (#019)
3. **Improving Surface Water Quality in Texas Through Public Outreach and Education.** Leanne Wiley, Texas A&M AgriLife Extension - Lone Star Healthy Streams. (#017)
4. **Addressing Pathogen Pollution Through Youth-Focused Participatory Science.** Mona Dominguez, Auburn University Water Resources Center. (#059)

## WATER & ENERGY MANAGEMENT

BALLROOM D

MODERATOR: ASHLEY McVICAR, ALABAMA POWER COMPANY

1. **Water Consumption Trends for Modern Commercial Broilers Grown to Nine Weeks.** Carson Edge, Auburn University. (#070)
2. **The Hybrid Approach: Leveraging Big Data and Simulation to Better Manage Water and Energy.** Matt Deavenport, Jacobs. (#157)
3. **Calcium-Modified Biochar for Efficient Removal of Aqueous Phosphate Ions.** Nitesh Kasera, Auburn University. (#158)
4. **Water: The Game Changer.** Caryl Orr, Earth Resource Systems LLC. (#180)

## WATER QUALITY 3

BALLROOM E

MODERATOR: CHRIS JOHNSON, ALABAMA DEPT. OF ENVIRONMENTAL MANAGEMENT

1. **Real Time Monitoring of Water Quality With an Autonomous Surface Vessel in a Coastal Estuary.** Gray Turnage, Mississippi State University. (#010)
2. **Phosphorus Recovery and Removal Using Non-Woven Iron-Amended Geotextiles.** Kaushik Venkiteshwaran, The University of South Alabama. (#058)
3. **Utilizing SWAT+ for Comprehensive Water Quality Analysis in Alabama.** Alexandria Cox\*, The University of Alabama in Huntsville. (#114)
4. **Novel Time-Integrated Quantification of Sediment-Associated Fecal Indicator Bacteria in Rural Alabama Creek with Straight Pipes.** Emily Elliott, The University of Alabama. (#128)

## WATER LAW & POLICY 1

BALLROOM F

MODERATOR: BENNETT BEARDEN, GEOLOGICAL SURVEY OF ALABAMA

1. **Chaos into Clarity: Emerging Issues in Water Policy and Law.** Bennett Bearden, Geological Survey of Alabama. (#006)
2. **“Water” We Talkin’ About? – Facilitating Effective Science Communication for Alabama’s Water Resources.** Rebecca Bearden, Geological Survey of Alabama. (#107)
3. **Watershed Scale Groundwater-Surface Water Interactions in Alabama: Implications for Water Policy and Management Decisions.** Greg Guthrie, Geological Survey of Alabama. (#020)
4. **Should Alabama’s Water Institutions be Reorganized to Implement a State Water Management Plan?** Mary Wallace Pitts, The University of Alabama. (#074)

## MODELING & WATER MANAGEMENT 3

SANDCASTLE

MODERATOR: TODD FOBIAN, ALABAMA DEPT. OF CONSERVATION & NATURAL RESOURCES

1. **Modeling Streamflow Alteration in the Mobile River Basin Using the Cubist Algorithm.** Sabahattin Isik, USGS Lower Mississippi-Gulf Water Science Center. (#007)
2. **Machine Learning Post-Processing Enhances NWM Accuracy by Over 30% in Watersheds With Extensive Water Infrastructure.** Savalan Naser Neisary\*, The University of Alabama. (#042)
3. **Process-Based Modeling of Stream Corridor Hydrologic Fluxes to Investigate the Impacts of Hydrogeomorphology.** Ashleigh Kirker, The University of Alabama. (#137)
4. **Maturation, Complementarity, and Compounding in the Water Use Body of Knowledge: National and Local Interplay in Models, Data, and Expertise.** Vincent White, U.S. Geological Survey. (#191)

\*STUDENT PRESENTER

BREAK: 3-3:30 PM



# SESSION 4 THURSDAY | SEPT. 5 | 3:30PM - 4:50PM



## EXTENSION, OUTREACH & PARTNERS 2

MODERATOR: REBECCA BEARDEN, GEOLOGICAL SURVEY OF ALABAMA

BALLROOM C

1. **Providing Stormwater Education and Outreach to Underserved Communities.** Paige Macdonald\*, Auburn University. (#071)
2. **SipSafe Program: Findings From Three Years of Lead Testing in Drinking Water at Schools and Childcare Facilities.** Jason Barrett, Mississippi Water Resources Research Institute. (#075)
3. **FEMA Flood Risk Outreach in Alabama.** Kelley Rich, WSP Environment & Infrastructure Inc. (#138)
4. **Low-Cost Sensor Suite for Monitoring Nitrogen Remediation in Riparian Zones.** Robert Dean, Auburn University. (#143)

## WATER QUANTITY

MODERATOR: KELLY KIRVEN, KLEINSCHMIDT

BALLROOM D

1. **Water Use in 2020 - Looking Back to 1970 Water Use Projections.** Michael Harper, Alabama Office of Water Resources. (#076)
2. **Comparison of Automated and Manual Rain Gauge Performance During Heavy Rainfall and High Wind Events.** Sytske Kimball, The University of South Alabama. (#057)
3. **Alabama Water Affordability for Community Water Systems and Private Drinking Water Wells.** Rebecca Etter\*, Auburn University. (#018)

## WASTEWATER SYSTEMS MANAGEMENT

MODERATOR: LYNN SISK, JACOBS

BALLROOM E

1. **Exploring Enabling Environments to Address Water and Wastewater Equity Challenges in Alabama.** Jillian Maxcy-Brown, Auburn University & Victoria Miller, Alabama Rivers Alliance. (#013)
2. **Fate of Salmonella from Wastewater to Hydroponic Lettuce in a Pilot-Scale Treatment System.** Wellington Arthur\*, Auburn University. (#023)
3. **Quantifying Phosphorous Adsorption Mechanism of Magnesium-Doped Biochar for Slow-Release Phosphorous Fertilizer.** Vivian Usha\*, Auburn University. (#062)
4. **Impact of Biochar on Phosphate Transport and Deposition Under Varying pH, Ionic Strength, and Biochar Dosage.** Rakesh Kumar, Auburn University. (#084)

## WATER LAW & POLICY 2

MODERATOR: ROY MCAULEY, MANUFACTURE ALABAMA

BALLROOM F

1. **Alabama 811: A Means to Protect Human Health, the Environment, and Water Quality.** Delaney Beier, Bradley Arant Boult Cummings LLP. (#150)
2. **Evaluating the Effectiveness of Fish Consumption Advisories Along Choccolocco Creek.** John Schell, Energy & Environment LLC. (#060)
3. **History and Prospectus of the Alabama Dam Safety Program.** Steve Newton, TTL, Inc. (#003)

## HABs & OTHER CONTAMINANTS

MODERATOR: AMY GILL, U.S. GEOLOGICAL SURVEY

SANDCASTLE

1. **Development of Effective Herbicides Mixtures to Address Microcystis in Aquaculture Ponds.** Andrew Barrick, Auburn University. (#052)
2. **Evaluating the Tolerance of Harmful Algal Blooms to Copper Sulfate Pentahydrate.** Ashley Hennessey\*, Auburn University. (#053)
3. **Relative Sensitivity of Cyanobacteria to Copper.** Md Sayem Ahmed\*, Auburn University. (#098)
4. **Relative Sensitivity of Alabama Endemic Snail Species to Nickel Exposure.** Sean Parham\*, Auburn University. (#109)

**POSTER JUDGES: Meet at the Registration Desk on Thursday after Session 4 concludes (~5:00pm) for your judge packet and instructions.**

\*STUDENT PRESENTER

# POSTER SESSION & SOCIAL

THURSDAY | SEPT. 5 | 5:30PM-7:30PM | GRAND REEF

REFRESHMENTS ARE COURTESY OF 2024 ALWRC SPONSORS

## STUDENT POSTERS

- 1. Engineered Biochar to Improve Nitrogen Use Efficiency and Decrease Nitrous Oxide Emissions From the Agriculture Sector.** Pradip Adhikari, Auburn University. (#073)
- 2. A Comprehensive Database of Carbon Fluxes in U.S. Wetlands.** Ana Flavia Brancalion Costa, Auburn University. (#155)
- 3. Investigating the Impact of Biochar Application Method on Contaminant Leaching in Agricultural Soils Fertilized With Poultry Litter.** Gurparshad Singh Brar, Auburn University. (#048)
- 4. Evaluating IRIS Films in Alabama Blackland Prairie Soils for Wetland Restoration.** Kristen Cartee, Auburn University. (#041)
- 5. A Southeastern US Regional Flash Drought Review and Agriculture Impact Assessment.** Shaelyn Deal, The University of Alabama in Huntsville. (#110)
- 6. Crowded in High Flood Risk Zones: Assessing Flood Risk in Tampa Bay Using a Machine Learning Driven Approach.** Hemal Dey, The University of Alabama. (#072)
- 7. A Surrogate Modeling Approach for the Enhancement of the NOAA Operational Flood Inundation Mapping Framework (OWP HAND-FIM).** Supath Dhital, The University of Alabama. (#063)
- 8. Distribution and Establishment Status of the Invasive Zebra Mussel (*Dreissena polymorpha*) in Alabama Reservoirs.** Liz Farley, Samford University. (#166)
- 9. A Process-Based Approach to Model Pesticide Dynamics in Non-Floodplain Wetlands.** Cristiano Feitosa, Auburn University. (#101)
- 10. Navigating Nature-Based Solutions in Mitigating Compound Flood Risks Through Knowledge Co-Development Process: A Collaborative Study on Mobile Bay.** Md Munjurul Haque, The University of Alabama. (#181)
- 11. Seasonal Characterization of Private Groundwater Well Vulnerability to Indicator Bacteria.** Connor Howard, Miles College. (#099)
- 12. An Analysis of Microbial Source Tracking Metadata in Coastal Alabama.** Brianna Janssen, Dauphin Island Sea Lab. (#028)
- 13. Impact of Dissolved Organic Matter on Perfluoroalkyl Interactions in Soils.** Fatama Tuz Johura, Auburn University. (#096)
- 14. Onsite Wastewater Treatment System Inventory: A Step Towards a National Database.** Mallory Jordan, Auburn University. (#131)
- 15. Frequency of Hydroclimatic Extremes Inferred from Intra-Annual Density Fluctuations in Longleaf Pine.** Shelby Jordan, The University of Alabama. (#066)
- 16. Using StoryMaps as a Tool for Science Communication: A Case Study With the Wyandotte Nation and Flood Risk Perception.** Parker King, The University of Alabama. (#081)
- 17. Does Covering Broiler Litter in Open Field Minimize Nutrient Losses and Reduce Environmental Concerns?** Shruthi Koneti, Auburn University. (#115)
- 18. Influences of Biochar on Soil Health in Row Crop Production Systems.** Alexandra Lindsey, Auburn University. (#024)
- 19. Assessing the Vulnerability of Coastal Roadways to Flood Hazards: A Case Study of the Mobile Causeway in South Alabama.** Faezeh Maghsoodifar, The University of Alabama. (#163)
- 20. Estimation of River Channel Shape Using Regression and Machine Learning Approaches.** Riley Mcdermott, The University of Alabama. (#027)
- 21. Enhancing Tree-Ring Proxy-Based Streamflow Reconstructions Using Machine Learning Techniques.** Mahsa Mirzakhani Nafchi, The University of Alabama. (#065)
- 22. Investigating Hydrological Connectivity as a Framework to Characterize Small Wetland Inundation Regimes and Their Impacts on Downstream Waters.** Jasmine Morejon, The University of Alabama. (#134)
- 23. Comparative Analysis of Flood Inundation Models for the Neuse River, North Carolina: Evaluating Accuracy Across Different Land Use/Land Cover Types.** Parvaneh Nikrou, The University of Alabama. (#189)
- 24. Can Longleaf Pine Restoration Restore Hydrology of Geographically Isolated Wetlands?** Kathryn Perkins, Auburn University. (#021)

25. **Enhancing Water Quality Through Biochar: Evaluating Phosphorus Retention and Release Dynamics of Biochar.** Temitope Popoola, Auburn University. (#061)
26. **Enhancing Urban Flood Modeling Efficiency Using Machine Learning-Based Surrogate Models.** Fatemeh Rezaei Aderyani, The University of Alabama. (#162)
27. **Analyzing Land Use Change in Coastal Alabama: A Two-Decade Perspective.** William Rich, Auburn University. (#139)
28. **Efficacy of Biochar to Reduce Greenhouse Gas Emissions and Improve Nitrogen Dynamics in Cotton.** Maryam Saeed, Auburn University. (#152)
29. **Sensitivity of Flood Inundation Mapping to DEM Type, Resolution and Urban Features in the Amite River Basin.** Reza Saleh Alipour, The University of Alabama. (#185)
30. **A Probabilistic Machine Learning Framework for Daily Extreme Events Forecasting.** Ali Sattari, The University of Alabama. (#183)
31. **A Novel Neural Network-Based Algorithm for Selecting the Most Accurate FIM Model for Desired Area.** Sadra Seyvani, The University of Alabama. (#194)
32. **Data-Driven Water Management: Leveraging Soil Moisture Sensors and Machine Learning.** Vaibhav Shelar, Auburn University. (#055)
33. **How Do Extreme Rainfall Events Influence Surface Runoff from Alabama Cropping Systems?** Rajveer Singh, Auburn University. (#145)
34. **Enhanced Sorption and Degradation of PFAS by Biochar-Enabled Advanced Reduction Process (ARP).** Ziteng Song, Auburn University. (#022)
35. **Cultivation-Independent and Dependent Assessment of Indicator Bacteria in Shellfish Growing Waters.** Monique Speigner, Miles College. (#103)
36. **Exploring the Relationship Between Social Vulnerability and LULC Dynamics in Harris County, Texas.** Annyca Tabassum, The University of Alabama. (#043)
37. **Investigating the Impacts of Land Use on Soil Biogeochemistry in Headwater Wetlands in Baldwin County, Alabama.** Brianna Travis, Auburn University. (#172)
38. **The Chemical and Microbial Impacts of Well Water Quality in Response to Flooding and Purging Following a Major Hurricane.** Alisha Webb, The University of Alabama. (#119)
39. **Bankfull and Mean-Flow Channel Geometry Estimation Through a Hybrid Multi-Regression and Machine Learning Algorithms Across the CONTiguous United States (CONUS).** Reihaneh Zarrabi, The University of Alabama. (#193)

## WATER PROFESSIONAL POSTERS

40. **An Improved Operational HAND FIM Framework for Ungauged Regions Across Contiguous United States.** Anupal Baruah, The University of Alabama. (#116)
41. **Systematic Evaluation of Flood Inundation Area With NOAA OWP HAND FIM.** Dipsikha Devi, The University of Alabama. (#192)
42. **Irrigation in Alabama: A 20-Year Look.** Krel Haynes, The University of Alabama in Huntsville. (#125)
43. **Water is Life: Community Conversations Towards Protecting Alabama's Freshwater Resources.** Kelsey Herndon, The University of Alabama in Huntsville. (#083)
44. **Evaluation of the Effects of Synthetic and Natural Textile Fibers on Aquatic Bacteria, Algae, and Duckweed.** Nhung Nguyen & Alena Sevcu, Institute for Nanomaterials, Advanced Technologies and Innovation. (#035).
45. **Evaluation of the Long-Term Feasibility of Natural and Nature-Based Features to Reduce Flooding of a Coastal Roadway.** Frances O'Donnell, Auburn University. (#149)
46. **Protecting Water Resources Through Conservation Tillage.** Andrew Price, USDA-ARS. (#001)
47. **What is a Flood: Quantitatively Defining Discrete Flood Events in Forested Wetlands.** Elaine Rice, The University of Alabama. (#130)
48. **Hot Spots of Water Quality Impairment Discovered in Coastal Alabama.** Stephanie Rogers, Auburn University. (#088)
49. **The Beginnings of a Unified Alabama Mesonet.** Michael Solomon, The University of Alabama in Huntsville. (#122)
50. **An Overview of the National Weather Service Dynamic Flood Inundation Mapping Methodology.** Haley Stuckey, NOAA/NWS/SERFC. (#146)

### WATER MONITORING

#### BALLROOM C

MODERATOR: LYNN SISK, JACOBS

- 1. ADEM Water Quality Monitoring Programs: Current Status.** Fred Leslie, ADEM/Field Operations Division. (#077)
- 2. The Trials and Tribulations of BoCEPHUS: Troubleshooting and Maintenance of an Outdoor Autonomous Water Quality Sampler.** Blair Morrison, Mobile Bay National Estuary Program. (#113)
- 3. Prioritizing Decisions for Water Resource Management Using High-Definition Stream Survey (HDSS): Hurricane Creek, Alabama.** Brett Connell, Trutta Environmental Solutions. (#124)

### LIGHTNING TALKS - RESEARCH 1

#### BALLROOM D

MODERATOR: PAT O'NEIL, CAWACO RC&D COUNCIL

- 1. Agricultural Soil and Water Conservation Practice Adoption and Disadoption.** Emmanuel Okonkwo\*, Auburn University. (#005)
- 2. Metagenomics Analysis of The Microbial Diversity and Quantitative Co-Relationship to the Pharmaceutical and Pesticide Compounds in Different Seasons in Alabama River, Montgomery.** Md Imam Ul Khabir\*, Alabama State University. (#008)
- 3. Calibrating the APEX Model for Assessing Environmental Impacts of Agricultural Practices: A Case Study in Alabama.** Anh Nguyen, Auburn University. (#050)
- 4. Assessing Aquatic Ecosystem Risks: Investigating Spatiotemporal Dynamics of Climatic Variables on Microbial Fecal Bacteria and Sources Using Novel RatMt Marker.** Ronell Bridgemohan, Bridgemohan Property Management LLC. (#126)
- 5. Alabama the River State.** Donna Matthews, Alabama the River State. (#156)
- 6. Identifying Water Quality Problem Source Areas in Small Coastal Watersheds: The Challenge of Attribution.** David Hensley\*, University of the Virgin Islands. (#170)
- 7. Evaluation of the Canopy Water Stress Index as a Tool for Irrigation Scheduling on Peanut Fields in Alabama.** Bram Parbi\*, Auburn University. (#198)
- 8. Evaluating the Impact of Growth-Stage-Based Deficit Irrigation on Corn Using Crop Growth Simulation Modeling.** Jhoan Velasco\*, Auburn University. (#199)
- 9. Evaluating the Effects of Groundwater on Water Quality Modeling in the Moore's Mill Creek Watershed Using PCSWMM.** Michael Bragg\*, Auburn University. (#201)

### LIGHTNING TALKS - OUTREACH

#### BALLROOM E

MODERATOR: LAURA COOLEY, AUBURN UNIVERSITY WATER RESOURCES CENTER

- 1. The GEO Project: Building Geospatial Capacity with Education and Outreach.** John Cartwright, Mississippi State University, GEO Project (#165)
- 2. Enhancing Community Resilience Through GIS Integration: Applications in Coastal and General Community Planning.** Claire Babineaux, Mississippi State University, GEO Project (#167)
- 3. Communicating Science Through Virtual Reality: An Exploration of Week's Bay National Estuarine Research Reserve (NERR).** Dixie Cartwright & John Van der Zwaag, Mississippi State University, GEO Project. (#085)
- 4. Efficacy of Community-Based Workshops to Increase Community Knowledge Regarding WASH In Rural West Central Alabama.** Jasmine S Kennedy, The University of Alabama at Birmingham. (#090)
- 5. The Alabama Stormwater Association: Entering a New Era.** Scott Rogers, Alabama DOT. (#091)
- 6. The Well Aware Dashboard: Translating Research to Resources.** Ann Ojeda, Auburn University. (#140)
- 7. Alabama Envirothon: Program Growth and Participation Opportunities.** Courtney Curenton Baker, Alabama Association of Conservation Districts. (#160)
- 8. Making Stormwater an Asset: How Auburn University is Using Multifunctional Stormwater Design to Manage Stormwater and Build Community.** Emily Ward\*, Auburn University Water Resources Center. (#082)
- 9. Innovative Perspectives on Water: Enhancing Accessibility Through the AUWRC and BCPP Partnership.** Carolina Ruiz, AUWRC. (#176)
- 10. Retelling the Story of Moores Mill Creek.** Laura Cooley, Auburn University Water Resources Center. (#200)

### WATER LAW & POLICY PANEL

#### BALLROOM F

MODERATOR: NICHOLAS MAGLIOCCA, THE UNIVERSITY OF ALABAMA

**Policy Needs for The Future of Alabama's Agriculture-Water Nexus.** Nicholas Magliocca, The University of Alabama (#049)

- Bennett Bearden, Geological Survey of Alabama
- Cindy Lowry, Alabama Rivers Alliance
- Marie McGruder, McGruder Farms
- Heather Elliott, The University of Alabama
- Darrell McGuire, Deep South Food Alliance
- John Allen Nichols, Alabama Farmers Federation

### EMERGING CONTAMINANTS

#### SANDCASTLE

MODERATOR: AUDREY GAMBLE, AUBURN UNIVERSITY

- 1. How to Proactively Communicate About PFAS: Case Studies From Across the Country.** Mike McGill, WaterPIO/PFASComms.com. (#039)
- 2. PFAS - Real World Consequences of The Pending MCL.** Bryan Pate, Insite Engineering LLC. (#078)
- 3. Assessment of Microplastics Abundance and Distribution in the Alabama River System.** Safeerul Islam Hashmi\*, Auburn University. (#112)
- 4. PFAS Sample Cross-Contamination Caused by Sampling?** Lindsay Boone, Pace Labs. (#117)

# SESSION 6 FRIDAY | SEPT. 6 | 10:55AM - 12:15PM



**BREAK: 10:35-10:55 AM**

## WATER SECURITY & RISK

**BALLROOM C**

MODERATOR: LILLIAN GORDON, GLOBAL WATER SECURITY CENTER

1. **Evaluating the National Water Model's Predictive Ability for Extreme Hydrological Events Across HUC-Level Watersheds in Alabama.** Md Shahabul Alam, Alabama Water Institute. (#025)
2. **Turning the Corner: Improving the Resiliency of the Jackson, MS Water System.** Mia Welch, Jacobs. (#136)
3. **Help Keep Our Waters Clean Project.** Heather Griffin, ADEM. (#203)

## LIGHTNING TALKS - RESEARCH 2

**BALLROOM D**

MODERATOR: ANN OJEDA, AUBURN UNIVERSITY

1. **Marsh Plant Decomposition Rates Along a Salinity Gradient Affected by Litter Bag Mesh Size.** Adam Siders, The University of Alabama. (#054)
2. **Recent Changes to Web Retrievals of U.S. Geological Survey Discrete Water-Quality Data.** Amy Gill, U.S. Geological Survey. (#097)
3. **Determining Habitat Requirements for Restoration of the Threatened Spider Shoal Lily (*Hymenocallis coronaria*).** Sarah Tash\*, Auburn University. (#118)
4. **Drought Impacts on Cogongrass Spread in Alabama.** Rebecca De Fazio\*, The University of Alabama in Huntsville. (#129)
5. **Preparing and Validating National Weather Service Flood Inundation Maps for Alabama.** Nicole Rockwell, NOAA/NWS/SERFC. (#144)
6. **Navigating Trends, Advancements, and Challenges in Climate-Smart Agriculture: An Umbrella Review.** Ruchie Pathak\*, The University of Alabama. (#173)
7. **ArcGIS Online Portal for ALDOT Landslide Monitoring.** Abraham Alvarez\*, Auburn University. (#174)
8. **Evaluating the Use of the ECOSSTRESS NASA Product for Estimation of Within-Field Crop Evapotranspiration Variability on Alabama Fields.** Lorena Rodriguez\*, Auburn University. (#197)

## AGRICULTURE & IRRIGATION

**BALLROOM E**

MODERATOR: BOB PLASTER, ALABAMA DEPT. OF AGRICULTURE & INDUSTRIES

1. **Calibrated WRF-Hydro Implementation for Irrigation Potential in Alabama.** Vikalp Mishra, The University of Alabama in Huntsville. (#127)
2. **Realistic Irrigation Yield Effects: Insights From Variety Trials and Crop Modeling in Alabama.** Thorsten Knappenberger, Auburn University. (#190)
4. **The Profitability of Alabama On-Farm Irrigation: Representative Farms Incorporating Scientific Models of Irrigation Yield Benefits.** Pritam Mitra\*, Auburn University. (#093)
3. **The Development of Watershed Plans to Guide a Sustainable Expansion of Irrigation Water Use in Alabama.** Adam Newby, Auburn University Water Resources Center. (#188)

## GROUNDWATER

**BALLROOM F**

MODERATOR: GREG GUTHRIE, GEOLOGICAL SURVEY OF ALABAMA

1. **Hydrogeological Investigations to Delineate the Recharge Area of Bobcat Cave for the Protection of Alabama Cave Shrimp on Redstone Arsenal, a U.S. Army Facility in Madison County, Alabama, USA.** Gheorghie ML Ponta, Geological Survey of Alabama. (#016)
2. **Seasonal Characterization of Private Groundwater Well Vulnerability to Microbial Contamination and Probable Sources.** Nikaela Flournoy, Miles College. (#102)
3. **Remedy Selection Process and the Selected Targeted Method for Remediation at the Robertsdale Elementary School ADEM Tank Trust Fund Site.** Kendall Rich, WSP Environment & Infrastructure Inc. (#164)
4. **A Daily Baseflow Dataset for Hydrological Modeling and Analysis Across the CONUS.** Parnian Ghaneei\*, The University of Alabama. (#179)

## GIS

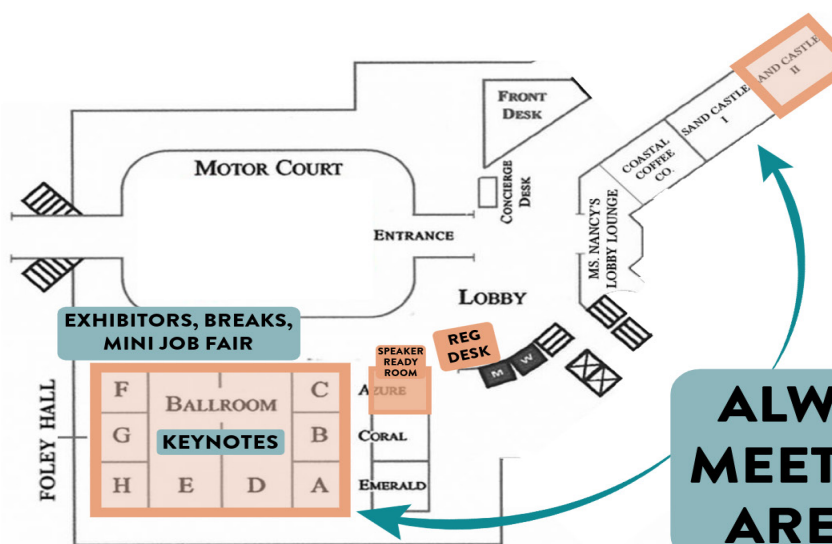
**SANDCASTLE**

MODERATOR: MICHAEL HARPER, ALABAMA OFFICE OF WATER RESOURCES

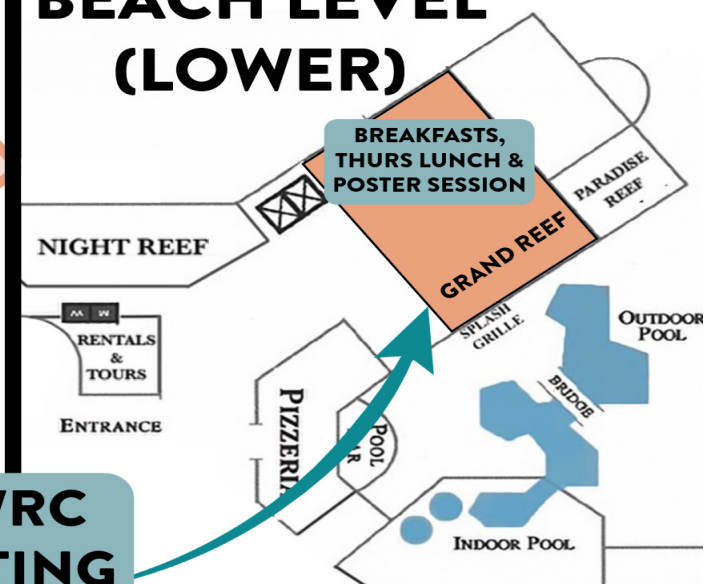
1. **Flooding and Hydrology Issues on The Pinhoti and Chinnabee Silent Trail.** Allie Field\*, Jacksonville State University. (#029)
2. **Leveraging Geographic Information System Tools to Evaluate the Impacts of Sea Level Rise on Coastal Forestry Infrastructure.** Kate Grala, Geosystems Research Institute, MSU. (#044)
3. **Identifying and Mapping Potential Sediment Abatement Priorities of the Southern Appalachians.** Georgia Pearson, The Nature Conservancy. (#171)
4. **Unearthing the Past: A Comprehensive Study of Natural and Anthropogenic Changes at an Archaeological Site Through Hydrogeologic Connectivity Utilizing GIS, Mehlich II Phosphorus Extractant, and pH.** Dana Herren, Jacksonville State University. (#186)

# #2024ALWRCRESOURCES

## LOBBY LEVEL



## BEACH LEVEL (LOWER)



## LINKTREE



Scan the QR Code to view the:

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ALWRC Webpage  
Abstract Index

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Participant List

## REMINDERS

### ALL ATTENDEES:

Check the back of your nametag.

- **QR Code** is for the ALWRC LinkTree (see above)
- **Green dot** = paid for Wed. night's Flora-Bama Social; number in dot = # of guest tickets
- **Yellow dot** = poster judge
- **Pink dot** = standby judge
- **Red ticket** = Friday raffle for a 2-day stay at the PBR following the Keynote

### ORAL PRESENTERS:

After check-in at the Registration Desk, report to the Speaker Ready Room to confirm your presentation is loaded.

### LIGHTNING TALK PRESENTERS:

Please report to your Session Room 5-10 minutes early to check in with your Moderator.

### POSTER PRESENTERS:

You are responsible for setting up your poster in Grand Reef on your assigned easel number between 4:45 - 5:30pm on Thursday.

### POSTER JUDGES:

Meet at the Registration Desk on Thursday after Session 4 concludes (~5:00pm) for your judge packet and instructions.

### MODERATORS:

Please pick up your moderator packet at the Registration Desk; arrive to your Session room 5-10 minutes early.

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The background is a vibrant teal color with a textured, wavy pattern that resembles ocean waves. At the bottom of the image, there are stylized coral reef elements in shades of orange and brown. A semi-transparent grey rounded rectangle is centered in the middle of the image, containing white text.

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SEPTEMBER 3-5, 2025 | ORANGE BEACH | ALABAMA