The background of the entire image is a repeating pattern of oyster shells and pearls. The oyster shells are shown in cross-section, revealing a golden-yellow interior. The pearls are small, round, and have a soft pinkish-purple hue. They are arranged in a grid-like fashion across the white background.

# Alabama WATER RESOURCES Conference

**SEPTEMBER 6-8, 2023**  
**PERDIDO BEACH RESORT | ORANGE BEACH | ALABAMA**

# AGENDA OVERVIEW

**WED - 9/6**  
AWRA AL Section Symposium

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

**1:00 PM Welcome** | Dr. Eve Brantley & Rachel McGuire | Auburn University Water Resources Center  
Kenneth Odom | Alabama Power | AWRA Alabama Section President

**1:15 PM** Michael Villafranca | American Geophysical Union | Senior Specialist - Science Policy & Government Relations

**1:45 PM** Molly Samuel | NPR WABE | Deputy Managing Editor  
Jason Smith | FOX10 TV - WALA Mobile | Chief Meteorologist

**3:00 PM Networking Break**

**3:20 PM** Dr. Adam Brooks | The University of Alabama College of Communication & Information Sciences | Associate Professor

**4:40 PM** Announcements & Adjourn

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

**THU - 9/7**

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

**8:00 AM Welcome** | Dr. Eve Brantley & Rachel McGuire | Auburn University Water Resources Center  
Lynn Sisk | Jacobs | 2023 ALWRC Committee Chair  
**Keynote Address** | Daniel Irwin | Global Program Manager | SERVIR

**8:45 AM Break**

**9:15 AM Concurrent Session 1**  
Wastewater Systems | Restoration 1 | Water Quality 1 | Lightning Talks - Outreach | Drought & Climate 1

**10:45 AM Concurrent Session 2**  
Stormwater 1 | Restoration 2 | Water Quality 2 | Lightning Talks - Research | Drought & Climate 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**  
Stormwater 2 | Coastal Issues 1 | Water Quality 3 | Aquatic Ecology 1 | Drought & Climate 3

**3:00 PM Break**

**3:30 PM Concurrent Session 4**  
ARSNiC & Stream Crossing Training | Coastal Issues 2 | Water Law & Policy | Aquatic Ecology 2 | Infrastructure

**5:30-7:30 PM Social & Poster Session ( Grand Reef )** *Refreshments are courtesy of sponsors*

**FRI - 9/8**

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

**8:00 AM Welcome** | Dr. Eve Brantley & Rachel McGuire | Auburn University Water Resources Center  
Lynn Sisk | Jacobs | 2023 ALWRC Committee Chair  
Dr. Paul Patterson | Auburn University College of Agriculture  
**Keynote Address** | Tommy Tuberville | U.S. Senator - Alabama

**8:45 AM Break**

**9:15 AM Concurrent Session 5**  
Modeling & Water Mgmt. 1 | PFAS | Agriculture & Irrigation | GIS

**10:35 AM Break**

**10:55 AM Concurrent Session 6**  
Modeling & Water Mgmt. 2 | Water Monitoring | Water Quantity | Well Water | Outreach, Extension & Partnerships

**12:15 PM Conference Adjourns**

**#2023ALWRC**

# SESSION QUICK REFERENCE

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## THURSDAY

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

**1**

**WASTEWATER  
SYSTEMS**  
CORAL

**RESTORATION 1**  
BALLROOM C

**WATER QUALITY 1**  
BALLROOM D

**LIGHTNING TALKS -  
OUTREACH**  
BALLROOM E

**DROUGHT &  
CLIMATE 1**  
BALLROOM F

**2**

**STORMWATER 1**  
CORAL

**RESTORATION 2**  
BALLROOM C

**WATER QUALITY 2**  
BALLROOM D

**LIGHTNING TALKS -  
RESEARCH**  
BALLROOM E

**DROUGHT &  
CLIMATE 2**  
BALLROOM F

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

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

**3**

**STORMWATER 2**  
CORAL

**COASTAL  
ISSUES 1**  
BALLROOM C

**WATER QUALITY 3**  
BALLROOM D

**AQUATIC  
ECOLOGY 1**  
BALLROOM E

**DROUGHT &  
CLIMATE 3**  
BALLROOM F

**BREAK 3:00 - 3:30pm**

**4**

**ARSENIC &  
SPECIAL TRAINING**  
CORAL

**COASTAL  
ISSUES 2**  
BALLROOM C

**WATER LAW &  
POLICY**  
BALLROOM D

**AQUATIC  
ECOLOGY 2**  
BALLROOM E

**INFRASTRUCTURE**  
BALLROOM F

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

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## FRIDAY

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

**5**



**MODELING &  
WATER MGMT. 1**  
BALLROOM C

**PFAS**  
BALLROOM D

**AGRICULTURE &  
IRRIGATION**  
BALLROOM E

**GIS**  
BALLROOM F

**BREAK 10:35 - 10:55am**

**6**

**MODELING & WATER  
MGMT. 2**  
CORAL

**WATER  
MONITORING**  
BALLROOM C

**WATER  
QUANTITY**  
BALLROOM D

**WELL  
WATER**  
BALLROOM E

**OUTREACH, EXTENSION  
& PARTNERSHIPS**  
BALLROOM F

**ADJOURN**

**[www.aub.ie/alwrc](http://www.aub.ie/alwrc)**



# SYMPOSIUM SPEAKERS

WEDNESDAY



**MICHAEL VILAFRANCA**  
American Geophysical Union  
Senior Specialist - Science Policy  
& Government Relations

Michael Villafranca is responsible for advancing the interests of AGU and its members. He also advocates for the Earth and space sciences with key U.S. congressional and administration staff members and offices, as well as other key policymakers.



**MOLLY SAMUEL**  
NPR - WABE ATLANTA  
Deputy Managing Editor

Molly Samuel is the deputy managing editor at WABE, the National Public Radio station in Atlanta. Previously, she worked as an environment reporter and editor for 15 years in Atlanta and the San Francisco Bay Area. She's won awards for her reporting on coal ash, wildfires, sea level rise, and stargazing.



**JASON SMITH**  
FOX10 NEWS - WALA MOBILE  
Chief Meteorologist

Jason Smith has provided weathercasts on WALA Mobile for more than 23 years and served as Chief Meteorologist for the past 13 years. He is also the host of Fox Ten Outdoors, which features fishing, hunting, and related activities on Fox Ten.



**DR. ADAM BROOKS**  
The University of Alabama  
Associate Professor \ Director of the  
Speaking Studio

Dr. Adam Brooks is a national award-winning speaker and communication expert focused on helping people make their ideas more effective. He is an Associate Professor at The University of Alabama where he helped found and directs the award winning public speaking program, The Speaking Studio.

# CONFERENCE KEYNOTES

THURSDAY



**DANIEL IRWIN**  
NASA Marshall Space Flight  
Center Research Scientist  
& SERVIR Global Manager

Daniel Irwin is a research scientist at the NASA Marshall Space Flight Center and the Global Program Manager for SERVIR, a program with activities in over 50 countries throughout Eastern and Southern Africa, West Africa, the Hindu Kush Himalaya, lower Mekong, and Amazonia regions. He has over 25 years of experience in satellite remote sensing applications and GIS in the developing world. Daniel also served as a lead remote sensing specialist in support of NASA's space archeology program, with a focus on detecting structures of the ancient Maya.

FRIDAY



**TOMMY TUBERVILLE**  
United States Senator -  
Alabama

Elected in 2020, Senator Tommy Tuberville — better known to most people as “Coach” — is currently serving his first term representing Alabama in the United States Senate. A former college football coach, Senator Tuberville is a proven winner and leader, with a unique ability to bring people together. Coach's top priorities include strengthening the U.S. military, supporting Alabama's farmers, standing up for our nation's veterans, and promoting pro-growth economic policies.



Alabama Section of the  
American Water Resources Association  
**SYMPOSIUM**  
WEDNESDAY | SEPT. 6 | 1:00PM - 4:40PM  
“Science Communications”

11:00 AM	<b>Registration Desk Opens (Lobby)</b>
1:00 PM	<b>Welcome &amp; Introductions</b> Dr. Eve Brantley & Rachel McGuire   Auburn University Water Resources Center Kenneth Odom   AWRA Alabama Section President
1:20 PM	<i>Bridging the Science-Policy Gap: The Role of the 21st Century Scientist</i> Michael Villafranca   Senior Specialist - Science Policy & Government Relations   American Geophysical Union
2:00 PM	<b>Panel: Communicating Water Resources Issues and Sciences to the Media</b> <i>Using a solutions journalism approach to environment reporting: The philosophy behind solutions journalism, and how reporters approach solutions stories.</i> Molly Samuel   Deputy Managing Editor   National Public Radio - WABE Atlanta <i>Hydrology and Meteorology “Watering it Down”</i> Jason Smith   Chief Meteorologist   FOX10 News - WALA Mobile
3:00 PM	<b>Networking Break</b>
3:20 PM	<i>Improve Science Storytelling Through Presentations</i> Dr. Adam Brooks   Associate Professor   The University of Alabama College of Communication & Information Sciences
4:40 PM	<b>Announcements &amp; Adjourn</b>
5:30 PM	<b>Social &amp; Dinner ( Flora-Bama - casual beach attire )</b>



Dedicated to Jennifer Rasberry,  
Alabama Power Company



# SESSION 1

THURSDAY | SEPT. 7 | 9:15AM - 10:35AM

## WASTEWATER SYSTEMS

CORAL

MODERATOR: GREG GUTHRIE, GEOLOGICAL SURVEY OF ALABAMA

1. **The Status of Wastewater Affordability for Households Connected to Sewer Systems and Households with Onsite Wastewater Treatment Systems in Alabama.** Jillian Maxcy Brown, The University of Alabama. (#2)
2. **Long Term Outdoor Algal Production on Undiluted Anaerobic Digestate in the Southeastern US.** Qichen Wang, Auburn University. (#19)
3. **Evaluation of Pathogenic Bacteria in a Pilot-Scale Wastewater Treatment System for Hydroponic Irrigation in Controlled Environment Agriculture.** Wellington Arthur\*, Auburn University. (#21)
4. **Towards a More Sustainable Aquaponics System: Investigating Algal-biofloc and Decoupling Effects.** Shima Rezaei\*, Auburn University. (#24)

## RESTORATION 1

BALLROOM C

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

1. **Managing Forestlands for Increased Water Yields: Economic and Ecological Tradeoffs.** Steven Brantley, Jones Center at Ichauway. (#46)
2. **Demonstrating Uplift in Ecological Function for Alabama's Restoration Projects using Natural Capital Accounting.** Eldon Blancher, Moffatt & Nichol. (#74)
3. **1D/2D Hydraulic Modeling for Stream Restoration Optimization.** Annelise Dodd, Volkert, Inc. (#115)
4. **Developing Riverscapes of Local Hydrology Using Terrestrial LiDAR.** Ranbir Kang, Kennesaw State University. (#123)

## WATER QUALITY 1

BALLROOM D

MODERATOR: CHRIS JOHNSON, ALABAMA DEPT. OF ENVIRONMENTAL MANAGEMENT

1. **Phosphorus Loss at Field Scale: Insights for Enhancing the Alabama Phosphorus Index.** Anjan Bhatta\*, Auburn University. (#35)
2. **Metal Bioavailability and Toxicity to Aquatic Organisms: Implications for Risk Assessment and Development of Relevant Environmental Quality Criteria.** Tham Hoang, Auburn University. (#47)
3. **Biochar-Enabled Platform Emerges as a Cost-Effective and Efficient Solution for PFAS Removal from Water.** Kevin Wang, Auburn University. (#62)
4. **Plant Growth Evaluation of Novel Poultry-Litter Derived Fertilizer.** Austin Lindquist\*, Auburn University. (#130)

## LIGHTNING TALKS - OUTREACH

BALLROOM E

MODERATOR: EVE BRANTLEY, AUBURN UNIVERSITY WATER RESOURCES CENTER

1. **H2Alabama Water Well Program.** Stacy McKean, H2Alabama. (#20)
2. **Harnessing Precision Agriculture Tools for Accurate and Sustainable Water Management.** Guilherme Morata, Alabama Cooperative Extension System. (#22)
3. **First Biennial State of the Bays Report: A Health Check-up for the Pensacola and Perdido Bays.** Haley Gancel, Pensacola and Perdido Bays Estuary Program. (#28)
4. **Alabama Drought Reach Program.** Brianne Minton, Auburn University. (#58).
5. **Building a Statewide Soil Moisture Network Data Portal.** Krel Haynes, The University of Alabama in Huntsville. (#98)
6. **Everything Water Resources Starts Here.** Sytske Kimball, University of South Alabama. (#100)
7. **Using Private Well Contamination Risk Visualizations to Educate Impacted Communities.** Ellie Tidwell\*, Auburn University. (#114)
8. **Alabama Envirothon Program Update and Opportunities for Water Resource Professionals.** Courtney Curenton Baker, Alabama Association of Conservation Districts. (#142)
9. **Engaging Partners and Empowering Communities: Establishing a Well Water Network in Alabama.** Jessica Curl, Auburn University. (#166)

## DROUGHT & CLIMATE 1

BALLROOM F

MODERATOR: PAT O'NEIL, GEOLOGICAL SURVEY OF ALABAMA (RETIRED)

1. **Assessment of Improved Host Model for Analysis of Hydrologic Drought.** Krzysztof Raczyński, Mississippi State University. (#17)
2. **From Flood Particles to Flood Plans: Using Extreme Paleoflood Data to Revise Flood Frequency Analyses Used in TVA River Infrastructure Safety Assessments.** Lisa Davis, The University of Alabama. (#75)
3. **Exploring the Influence of Stakeholders' Opinions on the Selection and Weighing of Social Vulnerability/Community Resilience Variables in Flood Risk Management.** Md Munjurul Haque\*, The University of Alabama. (#141)
4. **Crossing the Valley of Death: Ways CIROH Enables Operations to Research and Research to Operations in Hydrologic Forecasting.** Steve Burian, The University of Alabama. (#160)

\*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. 7 | 10:45AM - 12:05PM



## STORMWATER 1

## CORAL

MODERATOR: ASHLEY HENDERSON, ALABAMA SOIL & WATER CONSERVATION DISTRICT

1. **Quick Fire - Over 50 Erosion and Sediment Control Tips.** Perry Oakes, Alabama Soil and Water Conservation Committee. (#1)
2. **Performance Evaluation of Sediment Barrier Practices through Large-Scale Testing.** Brian Roche\*, Auburn University. (#39)
3. **Guidance for Using Flocculants on Construction Sites.** Jannell Clampitt\*, Auburn University. (#44)
4. **Research Update for the Auburn University - Stormwater Research Facility.** Wes Donald, Auburn University. (#57)

## RESTORATION 2

## BALLROOM C

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

1. **Recovery and Research Summary for Rare Freshwater Mollusks in Alabama.** Paul Johnson, Alabama Dept. of Conservation & Natural Resources. (#49)
2. **Deer River Coastal Marsh Restoration.** Jason Kudulis, Mobile Bay National Estuary Program. (#63)
3. **Reconnecting the Alabama River.** Jason Throneberry, The Nature Conservancy. (#64)
4. **Responsible Remediation: Balancing Environmental Cleanup and Habitat Preservation.** Alan Fowler, Geosyntec Consultants, Inc. (#147)

## WATER QUALITY 2

## BALLROOM D

MODERATOR: KELLY KIRVEN, KLEINSCHMIDT

1. **Synthesizing a Decade of Watershed Plan Development and Implementation in Coastal Alabama.** Christian Miller, Mobile Bay National Estuary Program. (#55)
2. **Flooding and Rural Drinking Water Resources Along the Gulf Coast.** Nate Jones, The University of Alabama. (#91)
3. **Physical Drivers of Streamflow and Drying Vary Across a Physiographic Gradient in the Southeastern US.** Delaney Peterson\*, The University of Alabama. (#106)
4. **Water Quality Considerations for Solar Project Development and Management in the Southeast U.S.** Richard Hall, Auburn University. (#140)

## LIGHTNING TALKS - RESEARCH

## BALLROOM E

MODERATOR: PAT O'NEIL, GEOLOGICAL SURVEY OF ALABAMA (RETIRED)

1. **Evaluating the Efficacy of Recycled Glass Sand as a Soil Substrate for Gulf Coast Marsh Plants in Restoration Projects.** Ansley Levine, Mississippi State University. (#7)
2. **Wetland Accretion Rate Model of Ecosystem Resilience (WARMER) and Its Application to Coastal Transportation Infrastructure.** John Anderson Jr.\*, Auburn University. (#9)
3. **Detecting and Quantifying Sub-seasonal Teleconnections of Regional Soil Moisture Flash Droughts Using Causal Networks.** Sudhanshu Kumar\*, Auburn University. (#23)
4. **Assessment of Barriers to Connectivity in the Uphabee Creek Watershed.** Susan Fuller, Auburn University. (#37)
5. **Assessment of Barriers to Connectivity in the Upper Pea River Strategic Habitat Unit.** Josiah Gullatte\*, Auburn University. (#40)
6. **Assessment of Barriers to Connectivity in the Uchee Creek Watershed.** Colin Nunn\*, Auburn University. (#42)
7. **Environmental Toxicology from Fundamentals to Applied Science: Case Studies with Heavy Metals and Insecticides.** Tham Hoang, Auburn University. (#48)
8. **Enhancing Water Quality Analysis to Benefit Sustainable Irrigation in Alabama: Addressing Data Limitations with Modeling Approaches.** Alexandria Cox\*, The University of Alabama in Huntsville. (#68)
9. **Coastal Nature-based Solutions to Mitigate Flood Impacts and Enhance Resilience in Mobile Bay, Alabama.** Javier Robles Camacho\*, The University of Alabama. (#129)
10. **Large Inland River Sampling in Alabama: An Update on the USGS National Water Quality Program Surface Water-Quality Sampling.** Amy Gill, U.S. Geological Survey. (#153)

## DROUGHT & CLIMATE 2

## BALLROOM F

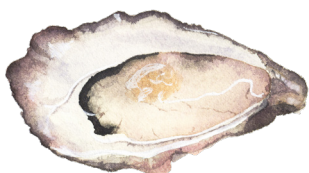
MODERATOR: BOB PLASTER, ALABAMA DEPT. OF AGRICULTURE & INDUSTRIES

1. **Assessment of the Drought Cycle Impact on the Uppermost Aquifer Across Alabama: Utilizing Groundwater Elevation Data from ADEM LUST Sites and Drought Data from the National Integrated Drought Information System.** Terri Osborne, Geological Survey of Alabama. (#94)
2. **Towards a Distributed Soil Moisture Network in Alabama: Opportunities for Low-Cost, Easy Deployable Sensors.** Lee Ellenburg, The University of Alabama in Huntsville. (#101)
3. **Evaluating the Impacts of Different Cover Crop Grazing Intensities on Soil Health and Crop Yields.** Wade Reiter\*, Auburn University. (#111)
4. **Investigating the Changing Patterns of Severity and Frequency of Multi-Year Hydrological Droughts.** Savalan Naser Neisary\*, The University of Alabama. (#158)

\*STUDENT PRESENTER

LUNCH IN GRAND REEF: 12:15 - 1:30 PM  
MINI JOB FAIR IN BALLROOM LOBBY: 1:00 - 1:30 PM





## SESSION 3 THURSDAY | SEPT. 7 | 1:40PM - 3:00PM

### STORMWATER 2

### CORAL

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

1. **Optimization of Sediment Basin Configurations.** Megan Armstrong\*, Auburn University. (#78)
2. **Mapping Bayou la Batre Stormwater for Community Resilience.** Mary Kate Brown, The Nature Conservancy. (#99)
3. **Five Good Neighbor Policies.** Wade Burcham, 5020 Engineering Resource Group, Christian Miller, Mobile Bay NEP, and Ashley Campbell, Baldwin County. (#125)
4. **Stormwater Detention: How Effective Is It from a Regional Perspective?** Jon Rasmussen, Flood-Con LLC. (#164)

### COASTAL ISSUES 1

### BALLROOM C

MODERATOR: MONA DOMINGUEZ, AUBURN UNIVERSITY WATER RESOURCES CENTER

1. **Using Social Science to Manage Human-Wildlife Conflict of Bottlenose Dolphins in the Gulf of Mexico.** Hannah Henry\*, Auburn University. (#4)
2. **Angler Conflict with Coastal Wildlife on the Alabama Coast: Protecting Sea Turtles with Greater Awareness.** TiAnna Olivas\*, Auburn University. (#8)
3. **Shift of Stakeholder Perception Through Knowledge Co-Development in Mobile Bay.** Wanyun Shao, The University of Alabama. (#108)
4. **Simulating How Freshwater Diversions Impact Salinity Regimes in an Estuarine System.** Anna Linhoss, Auburn University. (#128)

### WATER QUALITY 3

### BALLROOM D

MODERATOR: CHRIS JOHNSON, ALABAMA DEPT. OF ENVIRONMENTAL MANAGEMENT

1. **Novel Time-Integrated Quantification of Sediment-Associated Fecal Indicator Bacteria in Rural Alabama Creek with Straight Pipes.** Corinne Baroni\*, The University of Alabama. (#18)
2. **The Use of Drones for Monitoring Water Quality: Considerations and Best Practices.** Stephanie Rogers, Auburn University. (#127)
3. **Case Study on the Locust Fork and Village Creek Nutrient TMDL: Tracking Implementation and Observed Instream Nutrient Reductions.** James Mooney, Alabama Dept. of Environmental Management. (#134)
4. **Persistence of Host-Associated Bacterial and Mitochondrial DNA Markers in Sediment.** Wenjing Ren\*, Auburn University. (#136)

### AQUATIC ECOLOGY 1

### BALLROOM E

MODERATOR: EVE BRANTLEY, AUBURN UNIVERSITY WATER RESOURCES CENTER

1. **"Now Showing": The Alabama Rivers and Streams Network Story.** Rebecca Bearden, Geological Survey of Alabama. (#43)
2. **Effects of Select Herbicides for Management of American Frogbit Grown in Mesocosms.** Gray Turnage, Mississippi State University. (#178)
3. **Exploring the Role of Hydrologic Connectivity on Denitrification in Non-Perennial Headwater Streams.** Kaci Zarek\*, The University of Alabama. (#95)
4. **Understanding New Invasions by Bighead Carp *Hypophthalmichthys nobilis* and Silver Carp *Hypophthalmichthys molitrix*: Drivers of Occupancy and Recruitment.** Shannon Brewer, Alabama Cooperative Fish and Wildlife Research Unit. (#112)

### DROUGHT & CLIMATE 3

### BALLROOM F

MODERATOR: MICHAEL HARPER, ALABAMA OFFICE OF WATER RESOURCES

1. **Alabama's Drought Planning – Policy Moving Forward.** Mary Blackmon, Alabama Office of Water Resources. (#31)
2. **Meta-Analysis of Predictors of GHG Emissions from Wetlands.** Ana Flavia Brancalion Costa\*, Auburn University. (#85)
3. **Reservoir Hydrologic Residence Time Drives Nitrogen Deposition in Reservoirs Observed from Aquatic Sediments.** Benjamin Webster\*, Auburn University. (#144)
4. **Recent Operational Applications of the SPoRT-Land Information System.** Robert Junod, The University of Alabama in Huntsville. (#150)

# SESSION 4 THURSDAY | SEPT. 7 | 3:30PM - 4:50PM



## ARSNiC & STREAM CROSSING ASSESSMENT TRAINING

CORAL

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

1. **An Update on Prioritizing Aquatic Organism Passage and Infrastructure in Alabama.** Daniel West, Geological Survey of Alabama. (#12)
2. **Advancing Aquatic Connectivity Through Collaboration and Partnerships.** Shawna Fix & Kat Hoenke, Southeast Aquatic Research Partnership. (#173)
3. **Sedimentation Risk Index Manual Updates: Evaluating Stream Connectivity, Aquatic Organism Passage, and Habitat Through Stream Crossing Assessments.** Jennifer Grunewald, U.S. Fish & Wildlife Service. (#174)

**Special Training** - ARSNiC Stream Crossing Assessment Training

## COASTAL ISSUES 2

BALLROOM C

MODERATOR: AMY GILL, U.S. GEOLOGICAL SURVEY

1. **Alabama Coastal Comprehensive Plan Website Presentation.** Ashley Forwood, U.S. Army Corps of Engineers. (#6)
2. **Impacts of Watershed Land Use and Land Cover Changes on Estuarine Hydrography: Case Studies of Wolf-Perdido Bay, Saint Andrew Bay, and Saint Joseph Bay.** Zhilong Liu, University of South Alabama. (#84)
3. **Differences in Tolerance and Responses to Thermal Stress in Hyposaline Conditions Between Diploid and Triploid Oysters.** Kayla Boyd\*, Auburn University. (#120)
4. **Impact of Prescribed Fire on Carbon and Nutrient Cycling in a Hurricane-Damaged Coastal Ecosystem in Weeks Bay, Alabama.** Sushant Bhandari\*, Auburn University. (#113)

## WATER LAW & POLICY

BALLROOM D

MODERATOR: BENNETT BEARDEN, GEOLOGICAL SURVEY OF ALABAMA

1. **The First Shall Be Last: Native American Water Rights and Future Water Policy.** Bennett Bearden, Geological Survey of Alabama. (#11)
2. **Remaining Barriers to Sustainable Wastewater Solutions in the Alabama Black Belt in a Time of Federal Infrastructure Funds.** Mark Elliott, The University of Alabama. (#25)
3. **Can Alabama's Groundwater Resources Be Managed Sustainably?** Mary Pitts, The University of Alabama. (#26)
4. **Water Management Districts as a Foundation for State Water Policy Planning.** Gregory Guthrie, Geological Survey of Alabama. (#34)

## AQUATIC ECOLOGY 2

BALLROOM E

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

1. **A Review of Temperature, Hypoxia, and Other Water Quality Stressors to Freshwater Mussels.** Kaelyn Fogelman, Auburn University. (#121)
2. **Alterations to Organismal Behavior due to Micro- and Nanoplastic Exposures.** Andrew Barrick, Auburn University. (#138)
3. **Linking Thermal Tolerance and Distribution Among Freshwater Mussel Species in the Pea River.** Hannah Adkins\*, Auburn University. (#154)

## INFRASTRUCTURE

BALLROOM F

MODERATOR: LYNN SISK, JACOBS

1. **Effect of Pipe Replacement on Environmental Impacts of Water Distribution Systems.** Jonathan Clayton\*, The University of Alabama. (#10)
2. **Status of the Alabama Dam Safety Program.** Steve Newton, TTL, Inc. (#45)
3. **Generational Funding Opportunity for Water and Wastewater Infrastructure.** Eric Reidy, Alabama Dept. of Environmental Management. (#83)
4. **Simple Stream Simulation Design Overview for Aquatic Organism Passage (AOP) Using the United State Forest Service (USFS) Design Method and Guidelines.** Fred Halterman and Natasha Sewell, Moffatt and Nichol. (#93)

\*STUDENT PRESENTER



# POSTER SESSION & SOCIAL

THURSDAY | SEPT. 7 | 5:30PM-7:30PM | GRAND REEF  
REFRESHMENTS ARE COURTESY OF 2023 ALWRC SPONSORS



## STUDENT POSTERS

- 1. Assessing Flood-Induced Contamination Risks in the Coosa River Basin: A Geospatial Approach.** Al Artat Bin Ali, Auburn University. (#67)
- 2. Development of Soil Moisture and Precipitation Thresholds for a GIS-Based Landslide Prediction Tool for Alabama.** Abraham Alvarez, Auburn University. (#152)
- 3. Assessing Tidal Extant of the Mobile-Tensaw-Apalachee River Delta's Forested Wetlands Through Vegetative Indicators.** Andrew Balder, Auburn University College of Forestry, Wildlife and Environment. (#13)
- 4. Reconstructing Sediment Transport Rates Using Magnetic Susceptibility Analysis of Floodplain Sediments in the Ocoee River, Tennessee.** Emma Butler, The University of Alabama. (#81)
- 5. Understanding the Effect of Climate and Land Use on Sedimentation Rates in Geographically Isolated Wetlands with the Modified Universal Soil Loss Equation (MUSLE) Supported by a GIS Framework.** Suranjana Chatterjee, Auburn University. (#60)
- 6. Integrating Amplicon Sequencing and Community Science to Survey the Biodiversity of Organisms with Complex Life Cycles.** Sarah Shinker Connelly, The University of Alabama at Birmingham. (#143)
- 7. Tree Cover as a Predictor of the Rate of Bank Erosion in a Channelized Portion of Shades Creek in Homewood, Alabama.** Karis Cook, Samford University. (#161)
- 8. Clustering Methods for Analyzing Predictors of CH<sub>4</sub> Fluxes from Wetlands.** Ana Flavia Brancalion Costa, Auburn University. (#162)
- 9. Evaluating the Use of Sustainability Indicators in Crop Management on Peanut and Cotton Rotation as an Engagement Tool.** Marina Duarte de Val, Auburn University. (#102)
- 10. Old Sediments Give New Insights into Floods, Climate and Watershed Changes in the Clinch River, Tennessee.** Mary Eminue, The University of Alabama. (#41)
- 11. Exploring the Role of Land Use on Headwater Wetland Functions in Coastal Alabama.** Kurtis Fisher, Auburn University. (#170)
- 12. Investigating the Impacts of Inundation on Cambium Cell Growth in Bald Cypress.** Zachary Foley, The University of Alabama. (#82)
- 13. Nitrification Inhibition Potential of Ammonium Thiosulfate and Potassium Thiosulfate in Soils and Corn (*Zea mays* L.) and Cotton (*Gossypium hirsutum* L.) Production.** Lane Galloway, Auburn University. (#110)
- 14. Detecting Global Declines of Stoneflies at a Local Scale: Measuring Changes in Stonefly Diversity in a Tributary of the Cahaba River of Central Alabama.** Gabriella Gentry, Jacksonville State University. (#86)
- 15. Concerning Contaminants: Coal Combustion Byproducts in the Coosa River.** Emma Henderson, Auburn University. (#27)
- 16. Characterizing the Influence of Rainfall on Groundwater Microbial Indicator Organisms and Sources of Contamination.** Jaylin Jones, Miles College. (#59)
- 17. Increasing Community Self-Efficacy to Advocate for Access to Water and Wastewater Infrastructure in Rural West Central Alabama.** Jasmine Kennedy, The University of Alabama at Birmingham. (#38)
- 18. Molecular Level Analysis of Microbial Communities in Different Seasons of the Alabama River in Montgomery, Alabama.** Md Imam Ul Khabir, Alabama State University. (#103)
- 19. Predicting and Equipping Private Well Owners at Risk of Microbial Contamination After Flooding Events.** Jourdan Kiaupa, The University of Alabama. (#69)



- 20. Nutrient Release Characteristics of a Novel Poultry-Litter Derived Fertilizer.** Austin Lindquist, Auburn University. (#131)
- 21. Campylobacter Prevalence in Seabirds Associated with Floating Oyster Gear.** Luke Matvey, Auburn University. (#148)
- 22. Bankfull Channel Geometry and Attribute Estimation Using a Large Observational Dataset across the US.** Riley McDermott, The University of Alabama. (#165)
- 23. A Comparative Study of Different Manning's Coefficients on Flood Inundation in a Modeled River System.** Parvaneh Nikrou, The University of Alabama. (#145)
- 24. Assessing Crop Evapotranspiration and Rainfall Impact on Corn Water Supply by Integrating MODIS and CHIRPS Data.** Lucas Nunes, Auburn University. (#119)
- 25. Enhanced PFAS Removal through Synergistic Biofiltration and Nanofiltration Treatment.** Sarah Ortbal, The University of Alabama. (#61)
- 26. Does Manure Type and Their Application Rate Affect Runoff, Sediment and Nutrient Losses in a Conventional Tillage System?** Chhabi Raj, Auburn University. (#89)
- 27. Understanding Nitrogen Dynamics from Agricultural Watershed in Alabama.** Arpita Sharma, Auburn University. (#52)
- 28. Investigating the Effects of Freshwater Mussel Density on the Bedload Characteristics of a Gravel-bedded Stream: Sipsey River, Alabama.** Taylor Tatum, The University of Alabama. (#132)
- 29. Impacts of Soybean Expansion on Hydrological Characteristics and Nitrogen Use in the La Plata River Basin, South America.** Hua Yan, Auburn University. (#66)
- 30. Bankfull Channel Geometry Estimation over the Continental United States (CONUS).** Reihaneh Zarrabi, The University of Alabama. (#79)

## WATER PROFESSIONAL POSTERS

- 31. Twelve Years After: Disparate Effects of a Stream Restoration Project on Benthic Communities.** Elizabeth Dobbins, Samford University. (#167)
- 32. Using Paleohurricane Records and Coastal Geomorphology to Contextualize 21st Century Storms along the Northern Gulf of Mexico.** Emily Elliott, The University of Alabama. (#171)
- 33. Evidence for Hydrologic Engineering in the Ancient Americas Using NASA Earth Observations.** Robert Griffin, The University of Alabama in Huntsville. (#36)
- 34. Riverside Chats: Community Conversations towards Protecting Alabama's Freshwater Resources.** Kelsey Herndon, The University of Alabama in Huntsville. (#29)
- 35. Quantifying Heat Risk in Alabama: A Comparative Analysis of Wet Bulb Globe Temperature (WBGT) and Heat Index (HI).** Robert Junod, The University of Alabama in Huntsville. (#97)
- 36. Measuring Rainfall with the South Alabama Mesonet.** Sytske Kimball, University of South Alabama. (#104)
- 37. NEON in Alabama: Aquatic Data and Resources to Understand Changing Ecosystems.** Matt Koerner, National Ecological Observatory Network (Battelle). (#16)
- 38. Water Quality and Hydrologic Dynamics of a Permeable Pavement and Bioretention in Series.** Frances O'Donnell, Auburn University. (#122)
- 39. The Commercial Oyster Aquaculture Sector Training (COAST) Program.** Andrea Tarnecki, Auburn University. (#146)



## SESSION 5

FRIDAY | SEPT. 8 | 9:15AM - 10:35AM



ADD YOUR PHOTOS TO THE #2023ALWRC PHOTOSTREAM!

### MODELING & WATER MANAGEMENT 1

BALLROOM C

MODERATOR: KENNETH ODOM, ALABAMA POWER COMPANY

1. **Life Cycle Assessment of Decentralized Wastewater Treatment and Disposal Technologies: A Case Study in the Alabama Black Belt.** Rachel Chai\*, University of South Alabama. (#33)
2. **Assessing the Predictive Capability of National Water Model in the Coastal and Higher-Order Watersheds in Alabama.** Md Shahabul Alam, The University of Alabama. (#88)
3. **High Resolution Site Characterization for Targeted Groundwater Remediation at the Robertsdale Elementary School ADEM Tank Trust Fund Site.** Kendall Rich, WSP Environment and Infrastructure, Inc. (#157)

### PFAS

BALLROOM D

MODERATOR: EVE BRANTLEY, AUBURN UNIVERSITY WATER RESOURCES CENTER

A Special Session that will attempt to address all your utility's concerns relating to the who, what, when, where, and how your utility is impacted by UCMR5 as well as current and proposed PFAS advisories and regulations. Each segment will be covered by an expert who has dedicated a minimum of 10 years of their career to PFAS-related issues in drinking water. (#65)

1. Mike McGill, WaterPIO
2. Jeaniece Slater, West Morgan-East Lawrence Water & Sewer Authority
3. Bryan Pate, InSite Engineering LLC
4. Lindsay Boone, Pace Laboratories

### AGRICULTURE & IRRIGATION

BALLROOM E

MODERATOR: SHANNON WEAVER, USDA NATURAL RESOURCES CONSERVATION SERVICE

1. **Potential of Flue Gas Desulfurization Gypsum Used as a Litter Amendment in Broiler House to Mitigate Phosphorus Loading During Runoff Events.** Debolina Chakraborty, Auburn University. (#71)
2. **Evaluating the Impact of Soil Water Deficit Levels on Peanut Yield Using Simulation Modeling.** Marina Duarte de Val\*, Auburn University. (#105)
3. **A Decade of Irrigation - Crop Yield Response to Watering Alabama Black Belt Soils.** Issa Diaz\*, Auburn University. (#124)
4. **Agricultural and Aquacultural Water-Use Withdrawals: Metering, Modeling, and Lessons Learned.** Vincent White, U.S. Geological Survey. (#172)

### GIS

BALLROOM F

MODERATOR: LEE ELLENBURG, THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

1. **A New Perspective on Water Quality Trends: Exploring Spatial and Temporal Patterns of Impaired Waters in Alabama.** Mallory Jordan\*, Auburn University. (#92)
2. **Use of Geospatial Technologies to Spatially Assess the Sea Level Rise Impacts on Coastal Infrastructure.** Kate Grala, Mississippi State University. (#135)
3. **AlabamaFlood.com: How to Use It (and Upcoming Improvements).** Jeff Zanotti, WSP Environment and Infrastructure, Inc. (#139)
4. **A Geospatial Framework for the Assessment of Coastal Vulnerability for Improved Resilience.** John Cartwright, Mississippi State University. (#156)

\*STUDENT PRESENTER

BREAK: 10:35-10:55 AM

# SESSION 6

FRIDAY | SEPT. 8 | 10:55AM - 12:15PM



## MODELING & WATER MANAGEMENT 2

CORAL

MODERATOR: ASHLEY MCVICAR, ALABAMA POWER COMPANY

1. **Scaling Up: Can Point Scale Calibration Using NEON Observations Improve Coupled Carbon-water Cycle in Community Land Model (CLM) at a Regional Scale?** Thomas Kavoo\*, Auburn University. (#87)
2. **Computational Assessment of an Amine-Based Solvent Library for High-Salinity Brine Desalination.** Gabriel Duarte Barbosa, The University of Alabama. (#90)
3. **Evaluating Irrigation Strategies with the DSSAT CERES-Maize Model: A Study on Water Conservation and Crop Yield for Corn Farmers in Alabama.** Lucas Nunes\*, Auburn University. (#116)

## WATER MONITORING

BALLROOM C

MODERATOR: KELLY KIRVEN, KLEINSCHMIDT

1. **Identification of Fecal Contamination in the Grand Bay National Estuarine Research Reserve.** Amanda Free, Mississippi State University. (#3)
2. **Match Made in "Heaven": Auburn University and Alabama Water Watch.** Michael Freeman, Auburn University Risk Management & Safety. (#5)
3. **Baldwin County Land Use Trends: Water Quality and Quantity Patterns.** Ann Arnold, Geological Survey of Alabama. (#72)
4. **An Introduction to Karst - Features and Landforms.** Gheorghe Ponta, Geological Survey of Alabama. (#168)

## WATER QUANTITY

BALLROOM D

MODERATOR: ADAM NEWBY, AUBURN UNIVERSITY WATER RESOURCES CENTER

1. **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. (#15)
2. **Updating eWater - OWR's Water Management Database.** Michael Harper, Alabama Office of Water Resources. (#30)
3. **Impacts of DEM Resolution on Rapid Flood Inundation Mapping Using a Deep Convolutional Neural Network.** Reza Saleh Alipour\*, The University of Alabama. (#159)
4. **SWAT vs SWAT+ Comparison in the Pampa Region of South America.** Elzon Rippel\*, Auburn University. (#163)

## WELL WATER

BALLROOM E

MODERATOR: GREG GUTHRIE, GEOLOGICAL SURVEY OF ALABAMA

1. **A Geodemographic Analysis of Private Well Users in the U.S. Southeast and Beyond.** Jake Nelson, Auburn University. (#32)
2. **Developing a Geospatial Model to Identify Private Well Contamination Risk in Alabama.** Sk Nafiz Rahaman\*, Auburn University. (#53)
3. **Assessing the Vulnerability of Private Wells to Microbial Contamination Following Flooding.** Leigh Terry, The University of Alabama and Nikaela Flournoy, Miles University. (#54)
4. **Assessing the Accuracy of At-home Test Kits for Well Water Monitoring.** Sidney Millner\*, Auburn University. (#73)
5. **An Inventory of Private Well Programs across the United States.** Bethany Foust\*, Auburn University. (#96)
6. **Using a Community-Engaged Framework in Groundwater Research.** Ann Ojeda, Auburn University. (#137)

## OUTREACH, EXTENSION, & PARTNERSHIPS

BALLROOM F

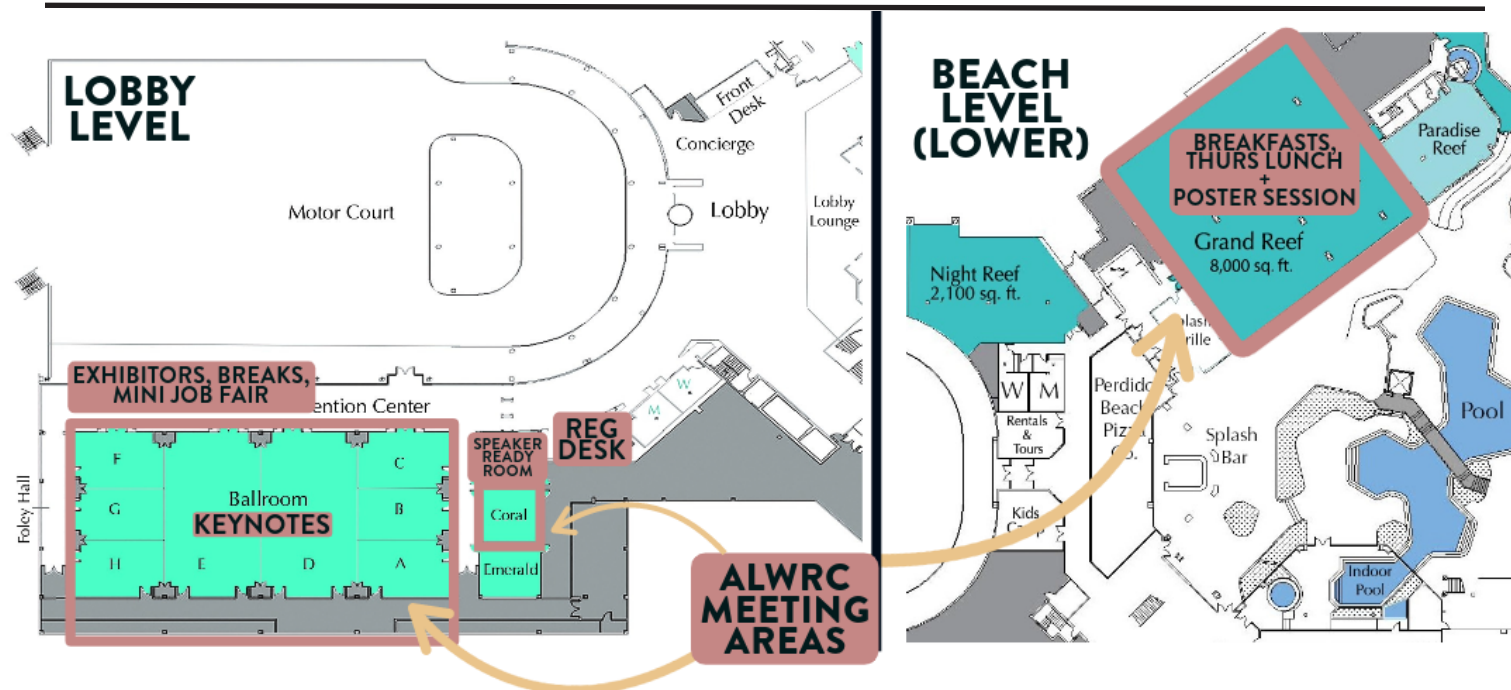
MODERATOR: ASHLEY HENDERSON, ALABAMA SOIL & WATER CONSERVATION DISTRICT

1. **Fostering Resilience through Community Engagement: The Northwest Florida Military Installation Resilience Review.** Tanya Gallagher, Jacobs. (#51)
2. **Partnerships Between Academics and Consultants Enhance Applications of FEMA Flood Risk Products in Alabama.** Kelley Rich, WSP Environment and Infrastructure, Inc. (#117)
3. **Ecotourism Opportunities for Choccolocco Creek.** Jennifer Yates Hudson, Choccolocco Creek Watershed. (#149)
4. **Mississippi Private Wells: Water Quality Characteristics and Owner Demographics.** Jason Barrett, Mississippi Water Resources Research Institute. (#169)

\*STUDENT PRESENTER



# #2023ALWRC RESOURCES



## LINKTREE



Scan the QR Code to view the:

Digital Program  
ALWRC Webpage  
Abstract Index

PollEverywhere (for Plenary Q&A and live polls)

PhotoStream

Student Oral/Lightning Competition Evaluation Form

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
- **Orange dot** = paid for Thurs. luncheon; 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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## SILVER



## BRONZE



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The background of the entire image is a vibrant teal color with thick, expressive brushstrokes that create a sense of movement, resembling ocean waves. In the bottom left corner, there is an illustration of a brown shrimp. Next to it is a piece of orange coral. To the right of the coral is an open oyster shell showing its interior. Further right is a pinkish-purple sea urchin and some dark purple seaweed or kelp. In the bottom right corner, there is a dark brown, rounded object that looks like a piece of driftwood or a small rock.

**JOIN US NEXT YEAR!**  
**SEPTEMBER 4-6, 2024 | ORANGE BEACH | ALABAMA**