



# **2015**

## **Alabama Water Resources Conference & Symposium**

**September 9-11, 2015**

**Perdido Beach Resort  
Orange Beach, Alabama**

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# Alabama Section of the American Water Resources Association Symposium Program

**Wednesday, September 9, 2015**

***Theme: Integrated Water Service Centers***

<b>10:00 a.m.</b>	<b>Registration</b>	<b>Registration Open – (Lobby)</b>
<b>1:00 p.m. - 1:05 p.m.</b>		<b>Introduction &amp; Welcome – (Salons E-H)</b> Sam Fowler, President, AWRA Alabama Section
<b>1:05 p.m. - 1:10 p.m.</b>		<b>Symposium Introduction – (Salons E-H)</b> Amanda Fleming, President Elect, AWRA Alabama Section
<b>1:10 p.m. - 2:15 p.m.</b>		<b><i>National Water Center: Initial Operating Capabilities and Collaborations</i></b>
		<b><i>Introduction and Overview of 2014/2015 Activities and Plans for 2015/2016</i></b> , CDR Nathan Hancock, NOAA <b><i>NWC-focused funding opportunities during 2015/2016</i></b> , Sam Contorno, NOAA <b><i>National Flood Interoperability Experiment (NFIE) Overview</i></b> , CDR Nathan Hancock, NOAA <b>NFIE Themes:</b> <b><i>NFIE-Hydro</i></b> , Sagy Cohen, University of Alabama <b><i>Field Experience/NFIE-River</i></b> , Sarah Praskievicz, University of Alabama <b><i>NFIE-Response</i></b> , Joseph Gutenson, University of Alabama
<b>2:15 p.m. – 2:45 p.m.</b>		<b>Break (Ballroom Foyer)</b>
<b>2:45 p.m. - 3:15 p.m.</b>		<b><i>Troy University Center for Water Resource Economics: Start Up Actions and Activities</i></b> , Billy Turner, Director of the Troy Center for Water Resource Economics
<b>3:15 p.m. – 3:45 p.m.</b>		<b><i>The University of Alabama Water Policy and Law Institute: Bridging the Water Science-Policy-Law Interface</i></b> , Bennett Bearden, Director of the Water Policy and Law Institute at the University of Alabama
<b>3:45 p.m. - 4:15 p.m.</b>		<b><i>Auburn University Water Resources Center: Current Activities and Vision for Sustainable Water Resources Management in Alabama</i></b> , Puneet Srivastava, Director of the Auburn University Water Resources Center
<b>4:15 p.m. - 4:45 p.m.</b>		<b><i>USGS Water Resources Research Institute Program: A Federal-State Collaboration</i></b> , Earl Greene, Coordinator of the National Institute of Water Resources Chief of External Research for USGS
<b>5:30 p.m. - Until</b>		<b>Social and Dinner (Flora-Bama)</b> (Casual/Beach Attire)

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## Alabama Water Resources Conference Program Overview

### Thursday, September 10, 2015

7:30 a.m.	<b>Registration Open (Lobby) and Continental Breakfast (Ballroom Foyer)</b>		
8:00 a.m. - 8:40 a.m.	<b>Welcome</b> – Marlon Cook, Chairman, Conference Organizing Committee (Salons E-H) <b>Introduction of Keynote</b> – Shannon Weaver, USDA-NRCS and Conference Planning Committee <b>Keynote Address: <i>Near-term Opportunities and Challenges in Southeast Water Resource Management</i></b> , Steve McNulty, Director, USDA Southeast Regional Climate Hub, Raleigh, NC		
8:40 a.m. - 9:15 a.m.	<b><i>Discovering Alabama "North River/ Lake Tuscaloosa Watershed"</i></b> (Salons E-H) Dr. Doug Phillips, Discovering Alabama		
9:15 a.m. - 9:35 a.m.	<b>Break (Ballroom Foyer)</b>		
	<b>Salon E</b>	<b>Salons F-H</b>	<b>Salon D</b>
9:35 a.m. - 11:05 a.m.	<i>Concurrent Session One</i>		
	<b>Water Policy/Law</b>	<b>Aquatic Biology/Ecology I</b>	<b>Flood Issues</b>
11:05 a.m. - 12:35 p.m.	<i>Concurrent Session Two</i>		
	<b>Water Availability/Use</b>	<b>Drought/Climate Issues</b>	<b>Aquatic Biology/Ecology II</b>
12:35 p.m. - 1:35 p.m.	<b>Lunch (Grand Point)</b>		
1:35 p.m. - 3:05 p.m.	<i>Concurrent Session Three</i>		
	<b>Groundwater Availability</b>	<b>Water Quality I</b>	<b>Restoration/Remediation</b>
3:05 p.m. - 3:20 p.m.	<b>Break (Ballroom Foyer)</b>		
3:20 p.m. - 4:50 p.m.	<i>Concurrent Session Four</i>		
	<b>Ecological Flows</b>	<b>Stormwater Management</b>	<b>GIS in Water Management</b>
5:00 p.m. - 5:30 p.m.	<b>AWRA State Section Business Meeting (Salons E-H)</b>		
5:30 p.m. - 7:00 p.m.	<b>Social Hour and Poster Presentations (Salons E-H)</b> Refreshments are courtesy of corporate sponsors.		

### Friday, September 11, 2015

7:30 a.m.	<b>Continental Breakfast (Ballroom Foyer)</b>		
8:00 a.m. - 8:50 a.m.	<b>Welcome and Announcements</b> – Marlon Cook, Conference Planning Committee (Salons E-H) <b>Keynote Presentation</b> Introduction by Allison Jenkins, AL CWP and Conference Planning Committee Member <b>Keynote Address: <i>A Geological History of Alabama's Rivers: Clues to the Ancient Origins of the State's Aquatic Biodiversity</i></b> , Jim Lacefield, Ed.D., (Retired) Adjunct Professor of Biology and Earth Science at the University of North Alabama <b>Student poster presentation competition awards</b> – Amanda Fleming (Salons E-H)		
	<b>Salon E</b>	<b>Salons F-H</b>	<b>Salon D</b>
9:00 a.m. - 10:30 a.m.	<i>Concurrent Session Five</i>		
	<b>Coastal Issues</b>	<b>Watershed Management</b>	<b>Water Resource Education and Stewardship</b>
10:30 a.m. - 10:45 a.m.	<b>Break (Ballroom Foyer)</b>		
10:45 a.m. - 12:15 p.m.	<i>Concurrent Session Six</i>		
	<b>Water Quality II</b>	<b>Aquatic Biology/Ecology III</b>	<b>Modeling in Water Management</b>
12:15 p.m.	<b>Conference Adjourns</b>		



# Alabama Water Resources Conference

## Session Topics and Presenters

<b>Concurrent Session One</b>	<b>Thursday, 9:35 a.m. – 11:05 a.m.</b>	<b>Salon E</b>	<b>Session One (A): Water Policy/Law</b> <i>Session Chair: Barbara Gibson, Choctawhatchee, Pea and Yellow Rivers Watershed Management Authority</i>
			<b><i>“Alice In Groundwater Land”: Adams v. Lang And “Nominal” Reasonable Use In Alabama Water Law And Policy</i></b> , Bennett Bearden, Water Policy and Law Institute, University of Alabama <b><i>Alabama’s Drought Planning – Policy Moving Forward</i></b> , Tom Littlepage, Alabama Office of Water Resources <b><i>The Transition From Common-law To Statutory Regulation Of Water Resources: Lessons From Other States</i></b> , Heather Elliott, University of Alabama School of Law
		<b>Salons F-H</b>	<b>Session One (B): Aquatic Biology/Ecology I</b> <i>Session Chair: Eric Reutebuch, Auburn University Water Resources Center</i>
			<b><i>Implications Of Land Use Change On Coastal Wetlands And Headwaters Of Alabama</i></b> , Christopher Anderson, Auburn University <b><i>Ecosystem Engineers Alter Multi-trophic Species Diversity Across Spatial And Temporal Scales In Ponds</i></b> , Jennifer Howeth, University of Alabama <b><i>Why So Different? Mercury Levels In Largemouth Bass (Micropterus Salmoides) In Two Adjacent Alabama Rivers</i></b> , Robert Findlay, University of Alabama <b><i>Using Population Models To Evaluate Management Alternatives For Gulf-strain Striped Bass</i></b> , Alex Aspinwall, Alabama Cooperative Fish and Wildlife Research Unit
		<b>Salon D</b>	<b>Session One (C): Flood Issues</b> <i>Session Chair: Brian Atkins, Alabama Office of Water Resources</i>
			<b><i>The Benefits Of A Well Managed Reservoir System Using As An Example The Tennessee Valley Authority's Management Of The Tennessee River Basin To Reduce Flooding</i></b> , Daniel Saint, Tennessee Valley Authority <b><i>Hot Springs Flood Warning Information System</i></b> , Joseph Fleming, USGS Lower Mississippi Gulf Coast Water Science Center <b><i>Flood Prediction Using Artificial Neural Networks: A Case Study Of Lower Tallapoosa, Alabama</i></b> , Rajesh Sawant, Auburn University <b><i>Application Of SWMM Of Urban Flooding In A Coastal Alabama Watershed</i></b> , Enis Baltaci, Auburn University

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## Session Topics and Presenters

<b>Concurrent Session Two</b>	<b>Thursday, 11:05 a.m. – 12:35 p.m.</b>	<b>Salon E</b>	<b>Session Two (A): Water Availability/Use</b> <i>Session Chair: Tom Littlepage, Alabama Office of Water Resources</i>
			<b><i>Water Use In Alabama</i></b> , Michael Harper, Alabama Office of Water Resources <b><i>2015 Water-use Compilation: A National Perspective</i></b> , Michael Bradley, U.S. Geological Survey <b><i>The Economic Impact Of Alabama's Navigable Waterways</i></b> , J. Craig Stepan, Tennessee Tombigbee Waterway Development Council <b><i>Quantitative Estimation Of Land Use Land Cover Evolution Across The Middle Tennessee Elk Region Over The Past Four Decades</i></b> , Mezemir Wagaw, Alabama Agricultural and Mechanical University
		<b>Salons F-H</b>	<b>Session Two (B): Drought/Climate Issues</b> <i>Session Chair: Marlon Cook, Geological Survey of Alabama</i>
			<b><i>Artificial Neural Network Prediction Of Future Rainfall Intensity In The Southeastern United States</i></b> , Ryan McGehee, Auburn University <b><i>Combined Effect Of Irrigation And Droughts On Surface And Baseflow Levels In The Lower Flint River Basin</i></b> , Sarmistha Singh, Auburn University <b><i>Quantitative Study Of The Present-day Climate Of The Middle Tennessee Elk Watershed Area From Global And Regional Climate Model Simulation</i></b> , Girma Kebede, Cooperative Extension System of Alabama <b><i>Developing A Multi-sector, Multi-basin Drought Decision Support System Incorporating Economic Consequence Assessment</i></b> , Lian Zhu, University of Alabama
		<b>Salon D</b>	<b>Session Two (C): Aquatic Biology/Ecology II</b> <i>Session Chair: Billy Turner, Troy University</i>
			<b><i>40 Years Of Biological Sampling In The Locust Fork Watershed: What Have We Learned?</i></b> , Patrick O'Neil, Geological Survey of Alabama <b><i>The Shape Of Things To Come: Reverse-engineering Periphyton Colonization Processes Using 3D Printing</i></b> , David Blersch, Auburn University <b><i>Microhabitat Preferences Of Federally Threatened Freshwater Mussel Species In Coastal Plain Streams</i></b> , Jonathan Miller, Troy University <b><i>Acute Toxicity Of Mobile River Basin Endemic Freshwater Mollusks</i></b> , Paul Stewart, Troy University

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## Session Topics and Presenters

Concurrent Session Three	Thursday, 1:35 p.m. – 3:05 p.m.	<b>Session Three (A): Groundwater Availability</b> <i>Session Chair: Sabra Sutton, CH2M</i>	
		Salon E	<p><b>Hydrogeologic Characterization And Groundwater Source Development Assessment For Area 2, Southwestern Alabama</b>, Gheorghe M. Ponta, Marlon Cook, and Steve Jennings, Geological Survey of Alabama</p> <p><b>Simulation Of Groundwater Flow In The “1,500-foot” Sand And “2,000-foot” Sand, With Scenarios To Mitigate Saltwater Migration In The “2,000-foot” Sand Of The Baton Rouge Area, Louisiana</b>, John Lovelace, U. S. Geological Survey</p> <p><b>U.S. Geological Survey NAWQA Principal Aquifer Surveys In Alabama</b>, Amy Gill, U.S. Geological Survey</p> <p><b>Effect Of Irrigation Pumpage During Drought On Karst Aquifer Systems In Highly Agricultural Watersheds</b>, Subhasis Mitra, Auburn University</p>
		Salons F-H	<b>Session Three (B): Water Quality I</b> <i>Session Chair: Roy McAuley, Alabama Pulp and Paper Council</i>
			<p><b>Nutrient Concentration Trends In Surface Waters In Two Southeastern States</b>, Lynn Sisk, TTL, Inc.</p> <p><b>A Practical Tool For Modeling Wetland Nutrient Cycling</b>, Latif Kalin, Auburn University</p> <p><b>Evaluation of the Effectiveness of "No Dumping Signs" in Preventing Chemical Contamination of Inlet Stormwater (Preliminary Research)</b>, Dana Lackey, University of Alabama at Birmingham</p> <p><b>Simulation Of Pollutant Transport In The Damietta And The Rosetta Branches Before And After Building The Ethiopian Dam</b>, Mohamed Mostafa and Robert Peters , University of Alabama at Birmingham</p>
		Salon D	<b>Session Three (C): Restoration/Remediation</b> <i>Session Chair: Shannon Weaver, USDA, Natural Resources Conservation Service</i>
			<p><b>Monitoring And Restoration Of Alabama Coastal Streams</b>, Marlon Cook, Geological Survey of AL</p> <p><b>Supplemental Tools For Natural Channel Design In Urban Systems</b>, William K. Barry, S&amp;ME Inc.</p> <p><b>Arlington Cove Living Shoreline - Partnership For Natural Infrastructure Design, Installation And Education</b>, David Stejskal, CH2M</p> <p><b>Proposed Metric For Measuring Shifts In Ecological Function Of Impaired Streams</b>, Stacey Sloan-Blersch, SUNY at Buffalo</p>

Concurrent Session Four	Thursday, 3:20 p.m. – 4:50 p.m.	Salon E	<b>Session Four (A): Ecological Flows</b> <i>Session Chair: Stan Cook, Alabama Department of Conservation and Natural Resources (retired)</i>
			<p><b>"It's Hard To Fish In A Dried Up Stream": The Science And Policy Of Water Quality Standards For Flow Protection</b>, Mitch Reid, Alabama Rivers Alliance</p> <p><b>Streamflow Reconstruction Potential: Choctawhatchee River</b>, Glenn Tootle, University of Alabama</p> <p><b>Water Governance In The Southeast United States: Informing Decisions Regarding Water Allocation With Flow-ecology Data</b>, Elise Irwin, U.S. Geological Survey, Alabama Cooperative Fish and Wildlife Research Unit</p> <p><b>Connecting Water Level To Biological Health In Alabama Streams</b>, Rodney Knight, USGS Lower Mississippi-Gulf Water Science Center</p>
		Salons F-H	<b>Session Four (B): Stormwater Management</b> <i>Session Chair: Charles Stover, Alabama Power Company</i>
			<p><b>We've Come A Long Way Baby: History Of Alabama's Erosion And Sediment Control Program For Construction</b>, Earl Norton of AL Soil and Water Conservation Committee</p> <p><b>"Tweak, Tweak, Tweak", The Latest Changes To The AL Handbook For Erosion And Sediment Control</b>, Perry Oakes, Alabama Erosion Control Partnership</p> <p><b>ALDOT MS4 IDDE Program-Uses Of Innovative Technology For Outfall Mapping And Screening</b>, Richard Klinger, Alabama Department of Transportation and Brian Kane, Trimble</p> <p><b>Creating A Clean Water Future</b>, Christian Miller, Mobile Bay National Estuary Program, Ashley Campbell, City of Daphne, and Leslie Gahagan, City of Foley</p>

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## Session Topics and Presenters

	Thursday, 3:20 p.m. – 4:50 p.m.	Salon D	<b>*Thursday-Concurrent Session Four continued*</b>
			<p style="text-align: center;"><b>Session Four (C): GIS in Water Management</b>  <i>Session Chair: Puneet Srivastava, Auburn University Water Resources Center</i></p> <p><b>Chattanooga WPA Program: Innovative Solutions To Infrastructure Assessment &amp; Rehabilitation</b>, Bradley Heilwagen, Amec Foster Wheeler</p> <p><b>The Role Of Information Management In Coastal Hazard Analysis</b>, Jeff Zanotti, Amec Foster Wheeler</p> <p><b>Predicting Stream Channel Head Locations In The State Of Alabama</b>, Burak Avcioglu, Auburn University</p> <p><b>Updating Soil Hydraulic Properties Under Changing Land Use/ Land Cover For Improved Hydrologic Prediction</b>, Guleser Sufraci, Auburn University</p>

<b>Concurrent Session Five</b>	Friday, 9:00 a.m. – 10:30 a.m.	Salon E	<b>Session Five (A): Coastal Issues</b> <i>Session Chair: Todd Boatman, U.S. Army Corps of Engineers, Mobile District</i>
			<p><b>Restoration Of The Northern Tip Of Mon Louis Island - Surmounting Challenges To Project Implementation Through Teamwork</b>, Tom Herder, Mobile Bay National Estuary Program</p> <p><b>Influence Of Low-intensity Watershed Development On Small Coastal Alabama Streams</b>, Brad Schneid, Auburn University</p> <p><b>A Regional Holistic Approach To Watershed Management - To Protect And Enhance Ecosystem Services For Future Generations</b>, Barbara Albrecht, Panhandle Watershed Alliance</p> <p><b>Examining The Importance Of Submarine Groundwater Discharge (SGD) In A River Dominated Estuary: Example Of Mobile Bay, AL</b>, Daniel Montiel, University of Alabama</p>
		Salons F-H	<b>Session Five (B): Watershed Management</b> <i>Session Chair: Roy McAuley, Alabama Pulp and Paper Council</i>
			<p><b>Management Plan For The Choctawhatchee, Pea And Yellow Rivers Watersheds - A Roadmap For The Future Based On Sustainable Water Resource Management Planning</b>, Barbara Gibson and Marlon Cook, Choctawhatchee, Pea and Yellow Rivers Watershed Management Authority and GSA</p> <p><b>Apalachicola-Chattahoochee-Flint Stakeholders: Working Together To Share A Common Resource</b>, Bradford Moore, ACFS</p> <p><b>Promoting The Watershed Approach: Plan, Implement, Monitor, Respond, And Adapt</b>, Christian Miller, Alabama Clean Water Partnership</p> <p><b>Communicating Risk in a Short Attention Span World</b>, Leslie Durham, ADECA Office of Water Resources</p>
		Salon D	<b>Session Five (C): Water Resource Education and Stewardship</b> <i>Session Chair: Allison Jenkins, Alabama Clean Water Partnership</i>
			<p><b>Alabama Water Watch – Rising to Evolving Water Resource Management Challenges</b>, Eric Reutebuch, Auburn University</p> <p><b>Global Water Watch: An Update Of Watershed Stewardship Beyond Alabama</b>, Sergio RuizCordova, Global Water Watch</p> <p><b>Flashy And Trashy: Tale Of An Urban Stream</b>, Alex James, Alabama Cooperative Extension System</p> <p><b>Fight The Bite: How You Can Reduce The Risk Of West Nile Virus</b>, Michelle Cole, Auburn University</p>

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## Session Topics and Presenters

Concurrent Session Six	Friday, 10:45 a.m. – 12:15 p.m.	Salon E	<b>Session Six (A): Water Quality II</b>
			<i>Session Chair: Marlon Cook, Geological Survey of Alabama</i>
			<b><i>Alabama's First Aquifer Storage And Recovery And Water Reuse Programs</i></b> , Sarah Stokes, Southern Environmental Law Center
			<b><i>Sources of Escherichia coli In Lake Martin, Alabama</i></b> , Brian Burnes, University of West Alabama
		Salons F-H	<b><i>Bacteriological Sampling Of High-Use Sites On The Upper Cahaba River</i></b> , Myra Crawford, Cahaba Riverkeeper
			<b><i>Effects Of Upstream Disturbances On Downstream Sediment Yield And Stream Channel Structure In An Actively Managed Forested Watershed</i></b> , Ilkim Cavus, Auburn University
			<b>Session Six (B): Aquatic Biology/Ecology III</b>
			<i>Session Chair: Bennett Bearden, Water Policy and Law Institute, University of Alabama</i>
		Salon D	<b><i>Exploring Past Velocity Conditions In Southeastern Streams Using USGS Flow Records</i></b> , Fay Baird, Normandeau Associates, Inc.
<b><i>Watershed Assessment Of The Big Canoe Creek System For The Recovery And Restoration Of Imperiled Aquatic Species</i></b> , Anne Wynn, Geological Survey of Alabama			
<b><i>An Evaluative Tool For Prioritizing Removal Of Hazardous Debris To Improve The Watershed; A Final Review</i></b> , Caitlin Wessel, University of South Alabama			
<b><i>The Use Of Biological Data To Achieve Compliance With The Final 316(b) Rule For Cooling Water Intakes</i></b> , Paul Geoghegan, Normandeau Associates, Inc.			
Salon D	<b>Session Six (C): Modeling in Water Management</b>		
	<i>Athena Clark, U.S. Geological Survey, Alabama Water Science Center</i>		
	<b><i>Riverine Water, Sediment And Nutrient Flux Predictions: The Spatially And Temporally Explicit WBMsed Model</i></b> , Sagy Cohen, University of Alabama		
	<b><i>Small Sample Sizes, Collinear Predictors And Linear Modeling: A Simulation Study Comparing Alternative Methods For Landscape-Water Quality Research</i></b> , Brad Schneid, Auburn University		
Salon D	<b><i>Development Of A Procedure For Watershed Prioritization And Evaluation</i></b> , Madhu Akasapu-Smith, Tetra Tech, Inc.		
	<b><i>Data-driven Lake And Reservoir Monitoring Using Real-time 3-D Hydrodynamic And Water-quality Simulations</i></b> , Reed Green, U.S. Geological Survey		

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