



2012 Annual Watershed and Research Conference
July 11-12, 2012 · Fayetteville, Arkansas
State Water Planning Process and Reservoir
Management



Welcome to the 2012 Annual Watershed and Research Conference

Arkansas Water Resources Center
203 Engineering Hall
University of Arkansas
Fayetteville, Arkansas 72703

www.uark.edu/depts/awrc

Dr. Brian E. Haggard, Professor and Director
Leslie B. Massey, Project Manager

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Wednesday, July 11, 2012 · Program At-A-Glance

8:00-9:20	Registration/Coffee, Juice & Pastries
9:30-9:40	Welcome and Introduction, Brian Haggard, Director, Arkansas Water Resources Center
9:40-11:30	Session 1: The State Water Planning Process
11:30-12:30	Networking Lunch (Foyer)
12:30-1:30	REU Student Poster Presentations and Competition
1:30-2:30	Session 2: State and Federal Agency Perspective on Water Data Availability
2:30-2:55	Refreshment Break
3:00-4:20	Session 3: Drinking Water Supply Perspective on State Water Planning
7:00-9:00	Evening Social at Farrell's Lounge

AWRC would like to thank the Technical Advisory Committee (TAC) for their service to AWRC. The TAC has the opportunity to evaluate proposals submitted annually to the USGS 104B Program, to recommend session topics included in the annual research conference and to provide general advice to the AWRC Director and staff.



Thursday, July 12, 2012 · Program At-A
-Glance

7:45-8:10	Registration/Coffee, Juice & Pastries
8:15-9:50	Session 4: Source Water Protection to Reservoir Restoration I
9:50-10:15	Refreshment Break
10:15-11:45	Session 5: Source Water Protection to Reservoir Restoration II
11:45-12:55	Networking Lunch (Foyer)
1:00-2:20	Session 6: Source Water Protection to Reservoir Restoration III
2:20-2:50	Refreshment Break
2:50-4:00	Session 7: Source Water Protection to Reservoir Restoration IV
4:00	Adjourn



Wednesday, July 11, 2012 · Oral Sessions

8:00 Registration/Coffee, Juice & Pastries

Session 1: The State Water Planning Process

Moderator: Brian Haggard, Professor and Director, Arkansas Water Resources Center, UA System Division of Agriculture

9:30 **Welcome and Introduction, Brian Haggard**, Professor and Director, Arkansas Water Resources Center, UA System Division of Agriculture

9:40 **Introduction to the Session and Overview of the Legislative Approval Process Authorizing the Update to the Arkansas Water Plan, Edward Swaim**, Arkansas Natural Resources Commission

9:50 **Developing Statewide Water Resource Plans—Select Findings, Trends and Lessons Learned, Rick Brown**, CDM Smith

10:15 **Water Issues in Arkansas—Looking Back-What Do We Know Today about Some of Arkansas’s Water Resource Challenges and Opportunities, Kent Thornton**, FTN & Associates

10:40 **The Update to the Arkansas Water Plan—Looking Forward-The Status and Next Steps for Completing the Arkansas Water Plan, Mike Beezhold**, CDM Smith

11:05 **A Retrospective of the Oklahoma State Water Planning Process, Duane Smith**, Formerly Oklahoma Water Resources Board

Lunch and REU Student Poster Session

11:30 **Lunch Provided in the Foyer**

12:30 **REU Poster Session and Competition**



9. **Phosphorus Dynamics in Soils Amended with Chitosan-Treated Poultry Litter**

REU Student: Willis Runyon, University of Arkansas

Co Authors: Iain Bailey and Dr. Brian Haggard, Department of Biological and Agricultural Engineering, University of Arkansas

10. **Benthic Sedimentation Effects**

REU Student: Dakota Scrivener, University of Arkansas

Co Authors: Katie Rose and Dr. Michelle Evans-White, Department of Biological Sciences, University of Arkansas

11. **Search for New Biofuel Microbes: Isolation of Thermophilic Microbes from Soil**

REU Student: Alexis Solis, Bowie State University

Co Authors: Dr. Ravi Barabote, Department of Biological Sciences, University of Arkansas

12. **A Novel Method to Determine the Threshold Elemental Ratio of the Aquatic Grazer *Stenonema***

REU Student: Katharine Stewart, Northeastern State University

Co Authors: Halvor Halvorson and Dr. Michelle Evans-White, Department of Biological Sciences, University of Arkansas

13. **A Genomic Comparison among Mesophilic and Thermophilic Bacteria**

REU Student: Kip Teegardin, University of Arkansas, Fort Smith

Co Authors: Dr. Ravi Barabote, Department of Biological Sciences, University of Arkansas

14. **What's the Best Method to Measure Sestonic Chlorophyll-a?**

REU Student: Derrick Washington, University of Arkansas

Co Authors: Leslie Massey and Dr. Brian Haggard, Department of Biological and Agricultural Engineering, University of Arkansas

Wednesday, July 11, 2012· Oral Sessions

Session 2: State and Federal Agency Perspectives on Water Data Availability

Moderator: Edward Swaim, Chief, Water Resources Management Division, Arkansas Natural Resources Commission

- 1:30 **Source Water Protection at ADH-Engineering: An Update, Darcia Routh**, Geology Supervisor, AR Department of Health-Engineering
- 1:50 **Groundwater Resources in Arkansas—Building the Framework, Brian Clark**, Hydrologist, U.S. Geological Survey, Arkansas Water Science Center
- 2:10 **Surface Water Data Availability in Arkansas, David Freiwald**, Director, U.S. Geological Survey, Arkansas Water Science Center
- 2:30 **Networking Break**

Session 3: Drinking Water Supply Perspective on State Water Planning

Moderator: Thad Scott, Assistant Professor, Department of Crop, Soil and Environmental Sciences, University of Arkansas

- 3:00 **Updating the State Water Plan, A Water Utility Perspective, Randy Easley**, Director of Water Quality, Central Arkansas Water
- 3:20 **Source Water Protection and Other Water Utility Issues, Robert Hart**, Technical Services Officer, Central Arkansas Water
- 3:40 **Water Supply and Source Water Protection Issues in Northwest Arkansas, Bob Morgan**, Manager of Environmental Quality, Beaver Water District
- 4:00 **Lag in Water Quality from BMP Implementation at the Watershed Scale, Don Meals**, Environmental Scientist, Ice.Nine Environmental Consulting
- 7:00 **Evening Social at Farrell's Lounge**

National Institutes for Water Resources



US Congress passed the Water Resources Research Act in 1964 establishing fifty-four water resources research institutions such as the Arkansas Water Resources Center at land grant universities throughout the United States. The State Water Resources Research Institutes were charged with arranging for competent research that addresses water problems and enhances our understanding, aiding the entry of new research scientists into water resources fields, helping to train future water scientists and engineers, and transferring results of sponsored research to water managers and the public.

Each fall, the AWRC accepts applications for projects funded through the 104b program. This year, the Arkansas Water Resources Center funded three projects including:

- Preparing Drinking Water Utilities on Beaver Lake Reservoir to Meet Disinfection Byproduct Regulations: The Impact of Continued Nutrient Enrichments, Julian Fairey and Wen Zhang, University of Arkansas, \$31,996
- Development and Implementation of Nutrient Runoff Reduction Measures for Poultry Houses, Andrew Sharpley and David Miller, UA Division of Agriculture
- The Effect of Global Climate Change on Algal Biomass and Total Organic Carbon Concentrations in Beaver Lake, Thad Scott, UA Division of Agriculture

For more information about the National Institutes for Water Resources visit niwr.net.



Thursday, July 12, 2012 · Oral Sessions

Coffee, Juice & Pastries 7:15-8:15 AM

Sponsored by BlueInGreen



7:15 Registration/Coffee, Juice & Pastries

Session 4: Source Water Protection to Reservoir Restoration I

Moderator: Steve Patterson, Restoration Ecologist, BioXDesign

- 8:15 **Welcome and Introduction: From Source Water Protection to Restoration and Ecosystem Design**, Steve Patterson, Restoration Ecologist, BioXDesign
- 8:35 **Keynote Speaker:**
17 Methods (of Lake Restoration) in 17 Minutes, Alex Horne, Professor Emeritus, Department of Civil and Environmental Engineering, University of California, Berkeley
- 8:55 **Keynote Speaker:**
Case Studies of Hypolimnetic Oxygenation in Western Lakes and Reservoirs, Marc Beutel, Associate Professor, Department of Civil and Environmental Engineering, Washington State University
- 9:25 **Supersaturated Dissolved Oxygen Injection at Lake Brittany and Other Arkansas Reservoirs**, Clay Thompson, Senior Engineer, BlueInGreen, LLC
- 9:50 Networking Break

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