13th Annual State of the Lake Address
Lewis Smith Lake

Bill Deutsch
Eric Reutebuch
Mona Scruggs
Sergio Ruiz-Cordova
November 14, 2009
13th Annual State of the Lake Address

- AWW Program Update
- Agency assessment of Smith Lake
- Monitoring activities on Smith Lake
- What’s the Plan?
  - Watershed management planning:
    - Rock Creek Watershed
    - Ryan Creek Watershed
Lewis Smith Lake Statistics

- Lake Type: Artificial Reservoir, Dammed
- Completion Year: 1961
- Water Level Control: Alabama Power
- Surface Area: 21,200 acres
- Shoreline Length: 500 miles
- Normal Elevation (above sea level): 510 feet
- Maximum Elevation: 522 feet
- Catchment/Drainage Area: 944 square miles
- Maximum Depth: 264 feet (average ~ 65 feet)*
- Water Volume: 1,390,000 acre-feet**
- Water Residence/Cycle Time: 435 days*
Lewis Smith Lake

Sipsey Fork, Clear Creek, Rock Creek, Dismal, Crooked Creek, Ryan Creek, Simpson

21,000 acres of water, 944 square miles of watershed
A program dedicated to developing Citizen Volunteer Water Monitoring of Alabama's lakes, streams and coasts.

Cumulative 1993-2009

- 255 Citizen Groups
- 5,200 Certified Monitors
- 1,990 Sites
- 58,500 Water Quality Records
- 40 Active Citizen Trainers
- 1,385 Workshops
AWW Program Update

Agency assessment of Smith Lake
THE TROPHIC STATE INDEX

OLIGOTROPHIC

EUTROPHIC

enrichment

2008 INTEGRATED WATER QUALITY MONITORING AND ASSESSMENT REPORT

Water Quality in Alabama
2006-2007

http://www.adem.state.al.us/WaterDivision/WQuality/305b/WQ305bReport.htm
<table>
<thead>
<tr>
<th>Trophic State Designation</th>
<th>Index</th>
<th>Reservoir</th>
<th>River Basin</th>
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*Analytical holding times for chlorophyll a (used in calculating TSI) in 2005 were exceeded, therefore the reported values are estimated. **Average values (1985-present) from dam forebay stations during August/September.*
13th Annual State of the Lake Address

- AWW Program Update
- Agency assessment of Smith Lake
- Monitoring activities on Smith Lake
  - AWW monitoring groups
  - AWW versus ADEM monitoring
  - Long-term trends in water quality
  - Water quality snapshot of the whole lake
• 15 active volunteer monitoring groups
• 43 groups total
Volunteer Citizen Monitoring in the Smith Lake Watershed

- Smith Lake Civic Association
- Camp McDowell
- Winston Co. Smith Lake Advocacy
- Smith Lake Environmental Preservation Committee
- Cullman Co. SWCD
### Smith Lake Certified Monitors

- Winston County Smith Lake Advocacy Inc
  - Mike Akers
  - Linda Atkinson
  - Richard Atkinson
  - Larry Barkey
  - Vesta Beatty
  - Bob Beatty
  - Gwen Blackburn
  - Bill Crunk
  - Mary Ann Crunk
  - Betty Denton
  - Ben Denton
  - Ray Durham
  - Jim Fisher
  - Paul Gillette
  - Dean Gillette
  - Richard Greenwood
  - Tom Grubbs
  - Barry Johnson
  - Burt Jones
  - Judith Lambert
  - Warne Lambert
  - LaVerne Matheson
  - Shirley Parkhurst
  - Bob Parkhurst
  - Larry Welton

### Smith Lake Environmental Preservation Committee

- Debby Barrett
- Debbie Berry
- Bob Berry
- Brenda Bigelow
- Dale Brown
- Deniece Hand
- Katie Harris
- Susan H. Harris
- Dyana McKee
- Stephen Morros
- Melba Powell
- Kathy Scott
- V. C. Scott
- Bill Slack
- Susan Stark
- Jan Street
- Russell Street
- Jeff Warner

### Smith Lake Civic Association

- Joe Batton
- Jim Beason
- Charles B. Boyd
- Brent Boyd
- Frank Dail
- Mack Gross
- John S. Kulbitskas
- Gary Martin
- Don McCarty
- Curtis Poe
- Melba Powell
- Danny Powell
- Thomas Ray
- James E. Sanders
- Hollie Sandlin

### Camp McDowell

- Wes Hauffe
- Heather Martin
- Sara Mitchener
- Jonathan Nee
- Doug Smith
- Elizabeth Troughton

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64!
Smith Lake Monitors – New Recruits

NEW TRAINERS

Larry Barkey

NEW MONITORS

John Kulbitskas
New Monitors:
- Debby Barrett
- Joe Batton
- Richard Greenwood
- Deniece Hand
- Bill Lollar
- Gary Martin
- Dyana McKee
- Stephen Morros
- Susan Stark

New Trainers:
- Larry Barkey
- John Kulbitskas
## Volunteer Citizen Monitoring in the Smith Lake Watershed

<table>
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<tr>
<th>Select Group</th>
<th>Group Abbrev</th>
<th>Group Name</th>
<th>Last Date</th>
<th>Active Sites</th>
<th>Inactive Sites</th>
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<th>No. Bac</th>
<th>No. Bio</th>
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<td>267</td>
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**Total** = 31 | 28 | 1,484 | 145 | 13 | 1,642
Smith Lake Water Quality Testing

- 7 sites with more than 5+ years of monitoring
- 3 sites with 10+ years of monitoring
- Comparison to ADEM sampling:

  # of records in past 5 years (dates x sites)

<table>
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<th>ADEM</th>
<th>AWWW Monitors</th>
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<td>116</td>
<td>709</td>
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(3-11 sites per yr) (31 sites, chem.)
And a Lot More!

FAWN: Water Quality by Judy Lambert and Mary Ann Crunk

Exploring Alabama’s Living Streams at Camp McDowell

Stream Bioassessment by Bob Keefe and Wallace State students

SLEPC lake clean up
What gets you excited about water?

Water monitoring really turns my crank!
SLEPC Site 1 (10011001) – Smith Lake @ Simpson Creek-Berry Dock

Citizen Monitors: Debbie and Bob Berry

Dissolved Oxygen at AWW Site 10011001 (# Samples: 115)
Site Location: Simpson Creek Berry Dock at in Cullman County
Latitude: 34.03342 N, Longitude: -86.94342 W
Low dissolved oxygen, especially in the drought
lake acres affected by toxicants appear in Table 3-7. Lake acreage monitored for toxicants consists of lakes for which fish have been collected and analyzed through the ADEM Fish Tissue Monitoring Program and the TVA Reservoir Program. Lake acreage with elevated levels of toxicants consists of lake areas upon which health advisories have been instituted that relate to consumption of fish contaminated with certain priority pollutants.

Fish will continue to be collected from major lakes, rivers, and certain waterbodies of concern and analyzed for toxic pollutants as part of the ADEM Fish Tissue Monitoring Program. Fish tissue sampling results are contained in the Fish Tissue Monitoring section of Part V Public Health Information.

3.7 Acid Effects on Lakes

The number and acreage of lakes affected by acidity appear in Table 3-8. The number and acreage of lakes affected by sources of high acidity appear in Table 3-9. No reservoirs monitored by the ADEM have been determined to be impacted by high acidity based on data collected through the RWQM Program. However, the following reservoirs are considered vulnerable to acidity based on low alkalinitities and pH values observed in monitoring data that were near limits of specific ADEM water quality criteria: Big Creek; Inland; Jackson; Point A; Smith; and Tuscaloosa. Low pH values measured in Big Creek, Jackson, and Point A Reservoirs are determined to be of natural origin and are considered unlikely to cause adverse impacts. In the case of both Smith and Tuscaloosa Reservoirs, mining activities in the watershed were also considered in determining the vulnerability of the reservoirs to acid effects.

Table 3-7 Total Reservoir Size Affected by Toxicants

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<th>Waterbody</th>
<th>Size Monitored for Toxicants</th>
<th>Size with Elevated Levels of Toxicants</th>
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<tr>
<td>Rivers (miles)</td>
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<td>Lakes (acres)</td>
<td>339,406</td>
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<td>Estuaries (sq. miles)</td>
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<td>Coastal waters (miles)</td>
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<td>Freshwater wetlands (acres)</td>
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<td>Tidal wetlands (acres)</td>
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Table 3-8 Lakes Affected By Acidity

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<tr>
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<th>Number of Lakes</th>
<th>Acreage of Lakes</th>
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<td>Assessed for Acidity</td>
<td>41</td>
<td>481,757</td>
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<td>Impacted by High Acidity</td>
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<tr>
<td>Vulnerable to Acidity</td>
<td>6</td>
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The AWW test kit is a valuable tool!
Average Secchi disk reading over the past year.
AWW Program Update

Agency assessment of Smith Lake

Monitoring activities on Smith Lake
- AWW monitoring groups
- AWW versus ADEM monitoring
- Long-term trends in water quality
- Water quality snapshot of the whole lake

What’s the Plan?
- Watershed management planning:
  - Rock Creek Watershed
  - Ryan Creek Watershed
Why Rock and Ryan Watersheds?
Alabama Department of Environmental Management

*Final TMDL Development for*
Rock Creek AL/03160110-080_01
Low Dissolved Oxygen/Organic Loading

Water Quality Branch
Water Division
February 2002

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**Final TMDL for Fecal Coliform Bacteria: Rock Creek**

January 2003

**TOTAL MAXIMUM DAILY LOAD (TMDL) DEVELOPMENT**

For FECAL COLIFORM in the

**ROCK CREEK WATERSHED**

(HUC 03160110)

Cullman, Lawrence, and Winston Counties, Alabama
A meeting was held on June 17th by Winston County Smith Lake Advocacy Inc. (WSLAI) to discuss the possibility of improving the Smith Creek watershed. Of particular concern is Rock Creek, which is an impaired stream. At the meeting, opening comments were made by Laverne Maheser, WSLAI, and Auburn graduate student Mona Staff. Debra Jones, a member of the Alabama Water Watch, also spoke to the group about the benefits of a watershed plan. She highlighted the resources at Auburn University that could be used to help implement a plan.

The Rock Creek Watershed Management Project is a special to Smith Lake Living Magazine by Marcia state. The project involves improving the water quality in the Rock Creek watershed. The project is funded by the Alabama Department of Environmental Management and is being coordinated by the Auburn University Watershed Management Program. The project includes the installation of stormwater management structures, the improvement of riparian buffers, and the implementation of best management practices for agricultural and residential land.

The project is expected to result in a significant improvement in the water quality of Rock Creek. The project will also provide educational opportunities for students and the public. The project is expected to be completed in 2010.
Draft
Total Maximum Daily Load (TMDL)
For
Ryan Creek
Assessment Unit ID # AL03160110-0502-100
Pathogens (fecal coliform)

Alabama Department of Environmental Management
Water Quality Branch
Water Division
August 2009

Prepared by ADEM/Water Quality Branch
So...AWW Water Monitoring for:

- Evaluating Conditions and Trends
- Public Education/Awareness
- Protecting the Good, Restoring the Bad
- Planning and Implementation
- Local Stakeholders as Full Participants in important decisions about Smith Lake and its Watershed
Contact AWW at:

Alabama Water Watch
250 Upchurch Hall, 361 Mell Street
Auburn University, AL 36849-5419
www.alabamawaterwatch.org
Toll Free: 1-888-844-4785
Fax: 334-844-9208
e-mail: awwprog@auburn.edu