

SWPBA

Southeastern Water Pollution Biologist Association



**Newsletter
Volume 33, Number 3
October 2006**



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SWPBA

Southeastern Water Pollution Biologists Association

Letter from the President

Wow time has flown by, only about six weeks to go until the SWPBA meeting. We think we have an outstanding meeting planned with a variety of topics for everyone this year.

We have a few SWPBA executive committee changes to announce. Tim Pugh has left us and has a new job with Paulding County, in Georgia. Due to the late time of the year, the executive committee nominated and voted in Cody Jones as SWPBA secretary. I have asked Susan Salter to serve as Georgia's representative on the executive committee to replace Cody.

Please send in your abstracts and registration forms ASAP, and indicate if you plan to attend the BBQ Monday evening and the Flint River Aquarium on Tuesday night.

We would like you to keep Vince Williams in your thoughts. He was going to be in charge of our BBQ and was so excited, but now is very sick. We are now having the BBQ catered and it will be a little different, you will have your choice of pork or grilled chicken. If anyone has a "meatless" preference for the BBQ dinner, please advise as soon as possible so we can prepare an appropriate side dish.

Please make sure you get your room reservations made if you know you are going to be attending the meeting. I have to adjust the number of rooms if we will not be using them and not many people have made their hotel reservations, so please reserve your rooms **today!!!**

We are still looking for volunteers to be session moderators. If you're having problems justifying your attendance with your managers, your active participation in the meeting may help, so let us know if you're interested as soon as possible.

I want to take this opportunity to thank all the people on the planning committee that have been working so hard to make this possible. I would like to thank the executive committee members for their service. I would like to thank all those people I have come to for advice that have had experience from previous meetings. It has been an honor and a great opportunity to serve as this year's SWPBA president.

Important Dates to remember:

Abstract Deadline – September 29

Aquarium Registration Deadline – October 13

Hotel Room Reservation Deadline – October 29

Registration Deadline – October 13

Send Presentations – October 31

Hotel Cancellation Deadline – Nov 3

Take care and cannot wait to see you in November,

Michele Brossett
SWPBA President, 2006

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Southeastern Water Pollution Biologists Association

From the Secretary's Desk

Hello everyone! As most of you already know I will be taking over the role of secretary for Georgia. Tim Pugh has accepted a position with Paulding County and we all wish him the best in his new job. We still have some space available for state, tribal or EPA presentations, send in those abstracts pronto! We also still need abstracts from some individuals that have already submitted topics for presentations.

We would like to give special thanks to Trish McPherson for scanning, and sending to us, past newsletters for placement in the archives. She has done a great job; this lets us see what the states have been up to in the past (good for those of us who haven't been around that long). We have also received some pictures, but we really need more-it's always nicer to be able to place names to faces. Remember, the pictures of the members do not necessarily have to be at a SWPBA conference, nice field or napping in the office pictures work just as well.

We have some interesting and exciting special sessions and offers this year. Space is limited in some so send in those registrations ASAP to guarantee your space. Monday there is a periphyton workshop. Tuesday evening we have a trip planned to the Flint Riverquarium in Albany. On Wednesday afternoon we have two special options: (1) presentations at, and a tour of, the Jones ecological research center; **OR** (2) Special presentations by Carson Stringfellow (mussels in GA, Flint River Basin), Chris Skelton (crayfish of GA), EPA (Sediment criteria, assessment and restoration methods). Please note that the options on Wednesday afternoon occur concurrently and **space for the Jones center is limited to the first 30 registrants so first registered, first in line!** Thursday afternoon we have two concurrent activities! (1) Dr. John Morse (Clemson) has graciously agreed to proctor the NABS level 2 certification test. It will be advertised on the NABS (www.benthos.org) site but SWPBA members have priority. Interested parties should **register as soon as possible to ensure a spot.** (2) Demonstration of National Lakes Survey Habitat Assessment Methods. Check out the agenda for more details on these. As you can see there is plenty to choose from, but time for registration is getting short!

Looking forward to seeing you all again in November!

Cody Jones
SWPBA Secretary 2006
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SWPBA

Southeastern Water Pollution Biologists Association

Editor's Update

Whew! The last Newsletter of the year and with it I'd like to very sincerely thank everyone who contributed material this past year. I think this year's Newsletter was a big success and due in no small part to the participation by all the states.

Looking forward to seeing everyone in November,

Michael Basmajian
SWPBA Newsletter Editor, 2006
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Agenda
Southeastern Water Pollution Biologists Association Meeting
November 13 –16, 2006

Monday, November 13, 2006

7:30 – 8:00 AM Registration
8:00 AM Welcome and Announcements – Michele Brossett,
 SWPBA President
8:00 AM Introduction of Jan Stevenson – Ed Decker, USEPA

Periphyton Workshop

Moderator: Ed Decker

8:05 AM Introductions and Overview of Workshop

8:30 AM Introduction to Algal Biology, Physiology, and Ecology

10:00 AM Break

10:20 AM Periphyton Ecology & Effects of Nutrients

12:00 – 1:00 PM Lunch on your own

1:00 PM Periphyton Assessment, Program Goals, & Implementation
Strategies

2:00 PM Periphyton Sampling Methods and Rapid Periphyton
Survey

2:45 PM Break

3:05 PM Periphyton Sample & Data Analysis Exercise (via
PowerPoint)

4:00 PM Nutrient Criteria Development Lessons: Criteria
Development for Michigan DEQ

5:00 PM Adjourn Periphyton Workshop

5:30 – 7:00 PM BBQ Dinner (Outside Pavilion) – Included with
registration

Evening Seminar with Jan Stevenson

7:30 PM "Balancing Fairness, Practicality, and Responsible
Stewardship When Developing Environmental
Criteria "

Tuesday, November 14, 2006

- 7:30 – 8:00 AM Registration
- 8:00 AM Welcome – Michele Brossett,
SWPBA President
- 8:05 AM Welcome Address
– Georgia Veterans Memorial State Park Manager
- 8:15 AM Announcements – Michele Brossett

Nutrient/Periphyton Session

Moderator: TBA

- 8:30 AM Nutrient Criteria Update and State Updates
– Ed Decker, USEPA Atlanta
- 8:45 AM Technical Support for Nutrient Criteria Development
– Michael J. Paul, Tetra Tech, Inc.
- 9:00 AM Nutrient Criteria Issues
Fl's Periphyton Methods and Algal Project Goals
– Russ Frydenborg, FLDEP
- 9:30 AM Using diatom and macroinvertebrate data in developing
nutrient criteria for Kentucky streams
- Lara Panayotoff, KYDOW
- 9:45 AM Southeastern Plains In-stream Nutrient and Biological Response
(SPINBR) Study
- Chris Decker, USEPA Athens
- 10:00 AM Alabama Diatom Program
- Lisa Huff, ADEM
- 10:15 AM Development of Regional Macroinvertebrate and Nutrient Criteria
to Assess Wadeable Streams and Rivers in Tennessee
- Deborah Arnwine, TNDEC
- 10:30 AM Break

Outreach & Local Government Water Quality Monitoring Session

Moderator: TBA

- 10:45 AM A Biological Assessment of the Soque River Watershed
- Duncan Hughes, Watershed Coordinator, Soque River Watershed Partnership, North Georgia Technical College
- 11:15 AM An Evaluation of the Physical, Chemical and Biological Response of a Piedmont Headwater Stream to Ten Years of Rapid Development: A Final Report
- Bob Bourne*, Cobb County, GA
- Ted Mikalsen, GAEPD
- 11:30 AM Cobb County Watershed Monitoring: An Evolving Program Supporting County Wide Efforts to Improve Water Quality
- Erin Feichtner & Adam Sukenick, Cobb County, GA
- 11:45 AM Local Stakeholder Input to Watershed-Scale Monitoring Designs: Lake Allatoona/Upper Etowah River Watershed, Georgia
- Mike Morissey, Cherokee County, GA
- 12:00 AM Biological Assessments at Multiple Spatial Scales: Lake Allatoona/Upper Etowah River Watershed, Georgia
- Sam Stribling, Tetra Tech
- 12:15 – 1:30 PM Lunch on your own

Volunteer Monitoring Session

Moderator: Allison Hughes, GAEPD

- 1:30 PM Adopt-A-Stream/Adopt-A-Lake – State Level
- Allison Hughes, GAEPD
- Sally Mason, GAEPD
- 1:45 PM Adopt-A-Stream – State Level (tentative)
- Speaker TBA
- 2:00 PM Adopt-A-Stream – State Level (tentative)
- Speaker TBA
- 2:15 PM Connecting Community and Local Ecology- An Overview of Cobb County Georgia’s Adopt-A-Stream
- Jennifer McCoy, Cobb County, GA

2:30 PM Google Earth, Adopt-A-Stream Package
- Harold Harbert, GAEPD

2:45 PM Rivers Alive
- Mitch Russell, GAEPD

3:00 PM Break

3:30- 5:00 PM **Poster Session**

1. Technical REQuest System for Nutrient Criteria Development Support – Computer Demo (Michael J. Paul, Tetra Tech, Inc.)
2. Adopt-A-Stream Google Earth – Computer Demo (Harold Harbert, GAEPD)
3. Adopt-A-Stream – Display (Allison Hughes & Sally Mason, GAEPD)
4. Rivers Alive – Display (Mitch Russell, GAEPD)
5. Overview of Post Katrina Fecal Monitoring Study (Emily Cotton, MSDEQ)
6. Kentucky’s Freshwater Mussel Database (Paulette Akers, KYDOW)
7. Mississippi’s Contribution to National Coastal Assessment (NCA), An Overview - David Barnes, MSDEQ
8. A model describing the association between landscape-scale environmental characteristics and abundances of catchable sport fishes in Mississippi wadeable streams (Brian Alford, MSDEQ)

2:00 – 4:00 PM **Statistical Analysis Performance Workshop**
Performance/Comparability Pilot Meeting/Workshop
(Performance/Joint Comparability Performance
workgroup)
- Jerry Diamond, Tetra Tech, Inc.
- Sam Stribling, Tetra Tech, Inc.
- Lisa Huff, ADEM

5:30 PM **Flint RiverQuarium**
- Optional Evening Activity

Dinner Dinner on your own

Wednesday, November 15, 2006

7:30 – 8:00 AM Registration

8:00 AM Welcome and Announcements – Michele Brossett

305(b)/303(d) Listing and Reporting Session

Moderator: TBA

8:10 AM 2006 305(b) and 303(d) Reports: Region 4 Successes and Challenges

- Anne Keller, USEPA Atlanta
- Larinda Tervelt, USEPA Atlanta

8:30 AM Q&A for 305(b) & 303(d) Reports

- Anne Keller, USEPA Atlanta
- Larinda Tervelt, USEPA Atlanta

8:50 AM 303(d) Listing of Surface Water Quality Data from Hazardous Waste Remediation Sites

- Kristen Sanford, GAEPD, Hazardous Waste Program

National Lakes Survey Assessment Session

Moderator: TBA

9:15 AM Update and Discussion on the National Lakes Survey Assessment

- Phil Kaufmann, US EPA Region 10
- Marion Hopkins, USEPA Atlanta
- Ellen Tarquinio, USEPA Headquarters

9:45 AM Break

Predictive Tools & Monitoring Equipment Session

Moderator: Kim Sparks, TNDEQ

10:00 AM Landscape/Predictive Tools Methods Development

- Jim Harrison, US EPA Region 4 Atlanta; Standards/Monitoring/TMDL Branch

10:20 AM The Probabilistic Biological Monitoring Program of Kentucky

- Amanda Nelson, KYDOW

10:35 AM Luminescent Dissolved Oxygen Measurement

- Brian Wisheart, Hach Environmental

Mercury & Water Quality Impacts

Moderator: Kim Sparks, TNDEQ

- 10:50 AM Mercury & Air deposition Water quality Impacts
- Jimmy Johnston, GADNR Air Protection Branch
- 11:05 Mercury & Fish Tissue Sampling
- Linda Harn, GADNR
- 11:20 AM – 12:30 PM Lunch on your own

Afternoon Sessions

Choice 1

Special Sessions

Moderator: TBA

- 12:30 – 1:45 PM Freshwater Mussel Research in the ACF Basin
- Carson Stringfellow, Columbus State University
- 1:45 – 2:00 PM Break
- 2:00 – 3:00 PM Introduction to Crayfish Taxonomy, Life History, and Conservation
- Dr. Chris Skelton, Georgia College & State University
- 3:15 – 3:30 PM Break
- 3:30 – 5:00 PM Sediment Criteria, Assessment and Restoration Methods
- Phil Kaufmann, US EPA Region 10
- Jim Harrison, US EPA Region 4; Water Division
- Morris Flexner, US EPA Region 4; Science and Ecosystem Support Division
- Tony Able, US EPA Region 4; Water Division

Choice 2

Jones Ecological Research Center Tour (Limited Attendance)

Moderator: Harold Harbert

- 12:30 – 5:30 PM Presentations and Guided Tour of Jones Center
(<http://www.jonesctr.org>)
- 7:00 PM Banquet at the Lake Blackshear Resort

Thursday, November 16, 2006

- 7:30 – 8:00 AM Registration
- 8:00 AM Welcome and Announcements – Michele Brossett
- Bioassessment & Restoration Projects Session**
Moderator: TBA
- 8:05 AM Update on Macroinvertebrate Comparability Project
- Lisa Huff, ADEM
- 8:20 AM Associations between community structure and environmental quality in Southeastern U.S. wadeable streams: a southern perspective of the National Wadeable Streams Assessment
- Brian Alford, MSDEQ
- 8:35 AM An Evaluation of the Effects of Small, Man-made Impoundments on Stream Macroinvertebrate Communities and Water Quality in Eastern Tennessee
- Larry Everett, TNDEC
- 8:50 AM The effect of stream buffers on water quality as measured by macroinvertebrates
- Stratford Kay, NCDWQ
- Larry Eaton, NCDWQ
- 9:05 AM Development of policy for intermittent stream mitigation - what is needed besides a good idea
- Larry Eaton, NCDWQ
- Sean Doig, NCDWQ
- 9:20 AM Natural Resource Damage Assessment and Restoration Update: Unnamed Tributary to the Leaf River near Collins, Mississippi
- Mike Beiser*, MSDEQ
- Shawn Clark, MSDEQ
- 9:20 – 10:45 AM State, Federal and/or Tribal Presentations – **TBA**
- 10:45 – 11:00 AM Break
- 11: 00 AM – 12:00 PM SWPBA Business Meeting
- 12:00 PM Adjournment
- 12:00 – 1:00 PM Lunch on your own

Post Meeting Sessions

Choice 1

- 1:00 – 4:00 PM NABS Certification Test
(Must be pre-registered and bring microscope and other supplies)
- Dr. John Morse

Choice 2

- 1:00 – 4:00 PM National Lakes Survey Assessment Workshop
(Demonstration on Survey's Lake Habitat Assessment Methods)
- Phil Kaufmann, US EPA Region 10
- Marion Hopkins, USEPA Atlanta
- Ellen Tarquinio, USEPA Headquarters

Monday Night BBQ

5:30 – 7:00 PM

Sign up no later than October 13, 2006

Included in Registration

Located at Beach Pavilion

BBQ Pork

Grilled Chicken

Cole Slaw

Green Beans

Baked Beans

Bread

Pickle

Sweet/Un-sweet Tea

Dessert

Tuesday Evening Activity

Flint RiverQuarium

The Flint RiverQuarium is a modern facility located along the Flint River in Albany, GA. in an area that has recently been redeveloped. The facility was completed in 2004. The main tank is a replica of an exiting (but unnamed) Blue Hole Spring located in Southwest Georgia.

The Aquarium offers a view into a 22-foot deep 175,000-gallon Blue Hole Spring. There are hundreds of fish, turtles, alligators, snapping turtles, and other creatures to view in a natural environment. In addition to the main tank, there are also many smaller fresh and salt-water aquariums with flora and fauna native to the area.

The aquarium is approximately 45 minutes drive time from Lake Blackshear. Everyone that wants to go to the Aquarium will meet at 5:30 PM and carpool together. We will meet at the aquarium at 6:30 PM. This will be an after hours guided tour that will last about an hour. After the tour we can plan to eat in Albany (dinner on your own). The admission price is not included in SWPBA registration price and the discounted price would be \$8.00.

We need to know no later than **October 13, 2006** how many people want to go to the aquarium.

For more information on the aquarium please visit their website at www.flintriverquarium.com.

Wednesday Afternoon Sessions

Choice 1:

Joseph W. Jones Ecological Research Center

[\(http://www.jonesctr.org/\)](http://www.jonesctr.org/)

Please register early if you are interested in a field trip to the Jones Ecological Center because **space is limited** at the center so it will be on a **first come first serve basis**. We will need volunteers to drive and we will carpool together. This is about an hours drive, but it will be worth the trip. The center is by invitation only and thanks to Harold Harbert's contacts with the center, we are getting this great opportunity.

The first half of the visit will be presentations at the center. For the second half of the visit, we will divide into vans and go on a tour of three types of ecosystems at the center: Ichawaynochaway Creek, wetland, and the longleaf pine plantation.

Abstract:

A history and overview of the Jones Research Center and its mission. A synthesis of regional hydrology and water resources issues in the lower Flint River Basin (both talks in class room). The field trip will provide opportunities to visit longleaf pine forest, depressional wetlands, and streams/riparian areas. At each location there will be an opportunity to learn about the unique plants and animals that inhabit the longleaf pine landscape. **Cameras are encouraged.**

Choice 2:

Special Sessions

Speaker 1: Carson Stringfellow

Columbus State University

Instructor of Biology

stringfellow_carson@colstate.edu

Abstract: Freshwater Mussel Research in the ACF Basin

The southeastern United States is home to a diverse assemblage of freshwater mussel species, which are under pressure from rapidly expanding human population, habitat destruction, water use, and agriculture. A review of historical sites showed areas in the basin that had been overlooked in previous survey efforts. Current research is underway to describe and determine the status of populations of Unionidae mussels in the Apalachicola-Chattahoochee-Flint River basin in Alabama, Florida, and Georgia. Columbus State University is focusing, the greatest effort in the Flint River Basin. Some survey work is also being conducted in the Chattahoochee River Basin in Georgia. Additionally, the Chipola River, in the Florida panhandle, is the focus of a study of the *Elliptio chipolaensis* in an attempt to eventually determine its host fish. Tactile,

snorkeling, and scuba search methods have been employed with timed searches as sites required. Thus far, we have identified 32 species in 18 genera in the ACF basin main stem rivers and tributaries. The results of these surveys will be reported to state and federal agencies, increasing the understanding of the freshwater mussel fauna in the ACF watershed.

Speaker 2: Dr. Christopher E. Skelton

Georgia College & State University

Assistant Professor, Biology

PhD, Ecology and Evolutionary Biology, University of Tennessee--Knoxville

chris.skelton@gcsu.edu

<http://www.faculty.de.gcsu.edu/~cskelton/>

Abstract: Introduction to Crayfish Taxonomy, Life History, and Conservation

Crayfishes are found on every continent except Africa and Antarctica, and reach their highest diversity in the southeastern United States. Over 350 species occur in the US with Georgia home to nearly 70. Eighteen species are endemic to Georgia and 8 of those are known from only single river systems. The conservation status of US crayfishes was assessed 10 years ago (Taylor et al., 1996, *Fisheries*) and nearly 50% of the US fauna was deemed to be imperiled in some way. The most serious threat facing crayfishes is the introduction of non-indigenous invasive species. Crayfishes live in a variety of habitats including surface lotic and lentic systems, caves, and burrow systems that may be well away from water. Crayfishes typically mate in the spring and females lay eggs some time after copulation. The female attaches the eggs to the underside of her abdomen and once the eggs hatch, the juveniles stay with her for their first three molts. Crayfish molt about seven times their first year and then molt once or twice a year. The lifespan of lotic species is 2-3 years. Crayfishes have been described as opportunistic omnivores and are important components of aquatic ecosystems.

Speaker 3: Presenters: Jim Harrison,¹ Morris Flexner,² Phil Kaufmann,³ and Tony Able¹

Agency: 1 US EPA Region 4; Water Division

2 US EPA Region 4; Science and Ecosystem Support Division

3 US EPA Office of Research and Development, Corvallis, OR

Abstract: Sediment Criteria, Assessment and Restoration Methods

EPA methods guidance for criteria development for suspended and bedded sediments is now available: the Framework for Developing Suspended and Bedded Sediment (SABS) Water Quality Criteria (2006). Technical approaches covered include: measures taken within the water column (e.g., Secchi depth, turbidity, suspended sediment concentration, and total suspended solids), within bedded sediments (e.g., percent of fine sediments by extent or composition at depth), and within the waterbody environment (channel, shoreline, and bathymetric measures). Relationships to biological indicators of

designated use impairment are also discussed. A seven step process for criteria development is presented.

Qualitative and quantitative field methods for sediment and channel measurement and assessment are needed to implement “clean” sediment criteria development. One qualitative approach that builds on the Rapid Bioassessment Protocol habitat assessment approach is the Rapid Geomorphic Assessment (RGA). The rapid geomorphic assessment (RGA) is a relatively quick and simple field procedure to evaluate sediment and erosion processes, and identify potentially unstable streams. A RGA includes conducting the channel stability ranking scheme (Simon, 2003) at a site, which is the sum of the values obtained at a field site for twelve diagnostic criteria that are totaled to provide an index of channel stability. A score of 10 or less indicates channel stability and a score of 20 or more indicates channel instability. Since staff scientists can’t perform time consuming field surveys at each site, RGAs are an efficient alternative to estimate stream stability conditions.

Quantitative regional assessments of streambed sedimentation and its likely causes are hampered because field investigations typically lack the requisite sample size, measurements, or precision for sound geomorphic and statistical interpretation. We adapted an index of relative bed stability (**RBS**) for data calculated from a national stream survey field protocol to enable general evaluation of bed stability and anthropogenic sedimentation in synoptic ecological surveys. **RBS** is the ratio of bed surface geometric mean particle diameter (**D_{gm}**) divided by estimated critical diameter (**D_{cbf}**) at bankfull flow, based on a modified Shield’s criterion for incipient motion. However, application of **RBS** to adequately depict bed stability in complex natural streams is hampered because typical calculations of **RBS** do not explicitly account for reductions in bed shear stress that result from channel form roughness. In our modified index (**RBS***), we incorporate a reduction in bed shear stress available for sediment transport that results from hydraulic resistance due to large wood and irregularities in channel dimensions (“form roughness”). The synoptic survey methods and designs we used appear adequate to evaluate *regional* patterns in bed stability and sedimentation and their general relationship to human disturbances. Though the **RBS** concept also shows promise for evaluating sediment and bed stability in individual streams, site-specific assessments using rapid field methods might prudently be confined to identifying severe cases of sedimentation or channel alteration. Greater confidence in site-specific assessments could be gained by calculating **RBS*** using more precise field measurements of channel slope and substrate size, and by refining its adjustments for energy loss due to channel form roughness.

Effective environmental policy decisions require stream habitat information that is accurate, precise, and relevant. The national Wadeable Streams Assessment (WSA) required physical habitat information sufficiently comprehensive to facilitate interpreting biotic data. The assessment characterized the major habitat features that may operate as controls or limiting factors on biotic assemblage composition under natural or anthropogenically disturbed circumstances. Two-person crews typically completed WSA habitat measurements in 1.5 to 3.5 hours of field time. The resultant field measurements quantified major dimensions of channel morphology and stream habitat, allowing calculation of measures or indices of stream size and gradient, substrate size and stability, habitat complexity and cover, riparian vegetation cover and structure, anthropogenic

disturbances, and channel-riparian interaction. However, these physical habitat field methods can produce a bewildering array of raw data. We reduce the complexity of this data by calculating metrics that summarize stream reach habitat characteristics, also making an assessment of the repeatability of these metrics. Going beyond simple descriptions, large regional assessments usually require that we evaluate associations that implicate channel responses to basin-riparian disturbances, or biotic responses to habitat alteration. In large regions, human land use disturbances typically overlay wide ranges of natural geomorphic factors that control both habitat characteristics and biotic assemblages. I'll discuss a variety of approaches for estimating the degree to which streams deviate from "natural" or "reference" conditions, including use of historical information, best professional judgment, reference sites, impairment threshold criteria, and the use of process-based or empirical models to estimate reference condition.

Practitioners attempting to restore streams continue to face the question of how much sediment is detrimental to aquatic life. Practitioners continue to need from scientists a quantitative link between sediment loads and biological health. In the *Assessment of Water Quality Conditions, Chattooga River Watershed*, (Melgaard et. al. 1999) EPA cited various studies of the impacts of sediment on salmonid species to establish quantifiable bedload criteria for streams in this part of the Chattahoochee National Forest. Measures evaluated include percent fines in riffles and cobble embeddedness. In the Hyatt Creek Watershed Restoration Project of Western North Carolina, EPA and Haywood Waterways Association are attempting to use pebble counts, sieve analysis of riffles and cobble embeddedness as indicators of stream substrate response to the installation of erosion BMPs. The Whitehouse Office of Management and Budget (OMB) is considering tying agency budgets to measurable environmental results. Therefore, developing sediment standards is critical to giving practitioners measurable targets by which to design watershed restoration projects and demonstrate environmental improvement to OMB.

Thursday Afternoon Sessions

NABS Certification Test

This year SWPBA will be hosting the NABS certification test. So far we have had interest in the EPT and Chironomidae tests. The test will occur on Thursday Nov. 16 from 1-4 PM. Due to time constraints each individual will only be able to take one level 2 test and the cost of the test is \$200. For the level 2 test (generic level) three hours will be allotted for the test, which consists of 20 organisms. We will provide space, electrical power, some extension cords, Petri dishes and alcohol. Participants are required to bring the appropriate microscope, light sources, forceps or other necessary tools and identification literature. If you prefer a specific type of dish or watchglass (or if you have a lucky Petri dish named Percival) then please bring it along. Another good item might be a power strip, we will provide some but having extras on hand cannot hurt. A list of suggested keys and other information can be found at www.benthos.org. For other information concerning the test or registration please contact Cody Jones at cody_jones@dnr.state.ga.us. Please note the registration form sent along with the newsletter must be filled out and received before Thursday October 12 to ensure registration. One should be filled out for each person taking the test can be sent electronically to Cody Jones at the address stated above. The information will then be sent along to the taxonomic testing coordinators.

Lakes Workshop

1:00 – 4:00 PM

National Lakes Survey Assessment Workshop
(Demonstration on Survey's Lake Habitat Assessment Methods)

- Phil Kaufmann, US EPA Region 10
- Marion Hopkins, USEPA Atlanta
- Ellen Tarquinio, USEPA Headquarters

Hotel Information

2006 ANNUAL MEETING OF THE *Southeastern Water Pollution Biologists Association*

Lake Blackshear (Cordele, GA)

November 13 - 16, 2006

Room Reservations must be made by each individual (or each room party) no later than October 29, 2006. Please go ahead and reserve now if you know you will be attending the meeting.

Room Rates:

Lodge/Villas:

\$80.00/per night (Plus applicable state and local taxes.) - Single Occupancy

\$100.00/per night (Plus applicable state and local taxes.) – Double Occupancy
(*\$50 per person*)

Cottages:

\$149.00/per night (Plus applicable state and local taxes.) – Four Occupancy
(*\$37.25 per person*)
(*Very limited numbers*)

Room Block:

November 10 – November 19, 2006 (Friday – Sunday)

Make hotel reservations by calling directly at 229-276-1004 or 1-800-459-1230. Make sure to identify yourself as being part of the Southeastern Water Pollution Biologists Association at the time you are making the reservation in order to receive the special group rate. All reservations must be called in on or before October 29, 2006.

Address:

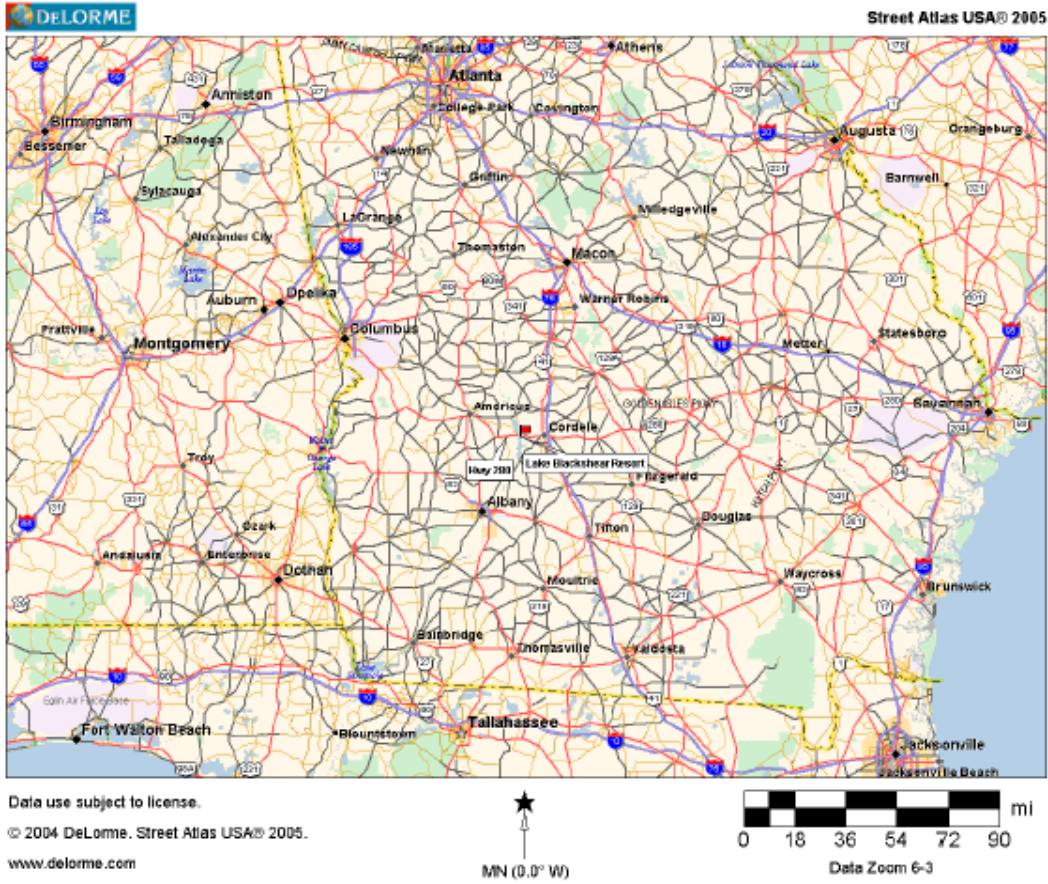
LAKE BLACKSHEAR RESORT & GOLF CLUB
2459-H US Highway 280 West
Cordele, GA 31015

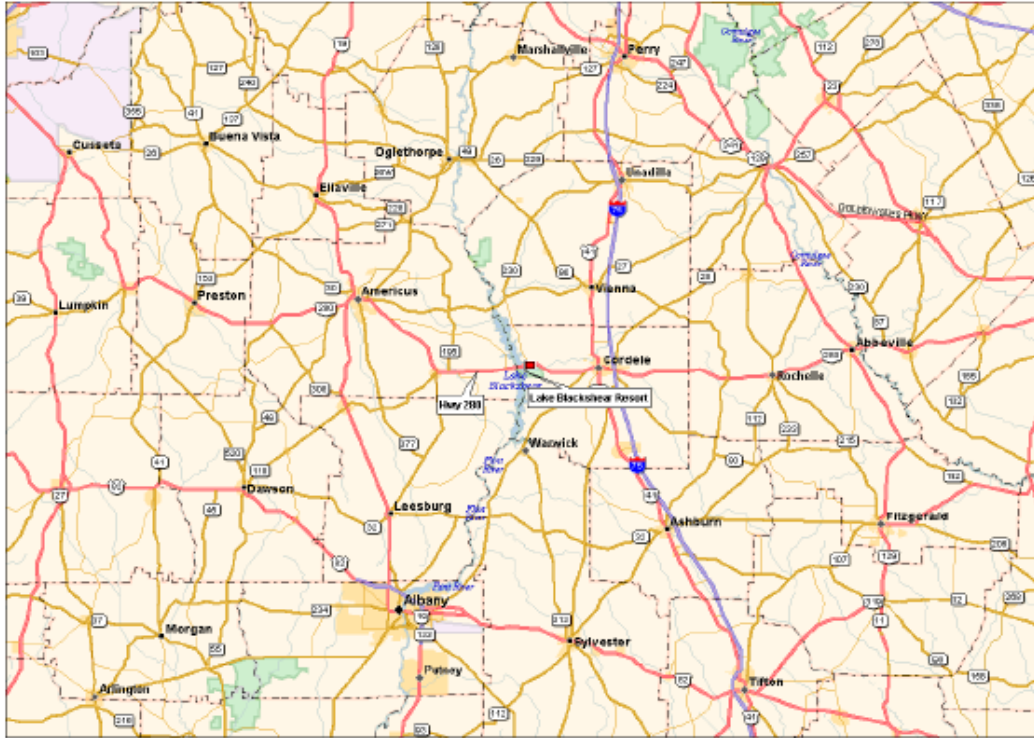
(Nestled in the middle of Georgia Veteran's Memorial State Park.)

www.lakeblackshearresort.com

Room reservation must be canceled no later than November 3, 2006.

Maps to Lake Blackshear Resort





Data use subject to license.

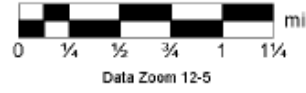
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Restaurant Locations

Restaurants in Cordele

Arbys at PTC No 416
2201 East 16th Avenue, Cordele, GA 31015
(229) 271-6382

Baskin-Robbins Ice Cream Store
1101 Kermit Drive, Cordele, GA 31015
(229) 271-5775

Bryce's BBQ & Rib Shack
2444 Ga Highway 300 South, Cordele, GA 31015
(229) 535-4411

Captain D'S
1710 East 16th Avenue, Cordele, GA 31015
(229) 273-6550

Carter's Hamburgers
1213 South 7th Street, Cordele, GA 31015
(229) 273-5822

Cindy's Diner
404 South 7th Street, Cordele, GA 31015
(229) 273-0231

Cordele Recreation Parlor
105 West 11th Avenue, Cordele, GA 31015
(229) 273-2722

Country Folks
602 South 7th Street, Cordele, GA 31015
(229) 276-0436

Cracker Barrel Old Country Store
1905 Central Avenue, Cordele, GA 31015
(229) 271-0331

Cutter's Steaks & Buffet
1309 East 16th Avenue, Cordele, GA 31015
(229) 273-8204

Daphne Lodge
Cordele, GA 31015
(229) 273-2596

Denny's
2115 East 16th Avenue, Cordele, GA 31015
(229) 276-0962

Domino's Pizza
401 North Pecan Street, Cordele, GA 31015
(229) 273-0003

El Girasol
102 East 14th Avenue, Cordele, GA 31015
(229) 271-0193

El Huasteco
2203 USHighway 41 North, Cordele, GA 31015
(229) 273-0043

El Portal Restaurant
903 E 16th Ave, Cordele, GA 31015
(229) 276-1876

G & D Family Restaurant
801 South Joe Wright Drive, Cordele, GA 31015
(229) 271-6500

Golden Corral Family Steak House
2110 East 16th Avenue, Cordele, GA 31015
(229) 273-7820

Hot Wings To Go
411 West 24th Avenue, Cordele, GA 31015
(229) 271-7435

Jack's Old South BBQ & Grill
2010 Central Ave, Cordele, GA 31015
(229) 271-9144
(229) 322-3811

Jesse's Diner
2062 Ga Highway 300 South, Cordele, GA 31015
(229) 535-3265

Ken's Barbeque
204 West 24th Avenue, Cordele, GA 31015
(229) 273-8251

KFC
1632 E 16th Ave, Cordele, GA 31015
(229) 273-8617

L-Bo's Bbq And Grill
1030 USHighway 280 West, Cordele, GA 31015
(229) 273-4311

Lake Blackshear Resort And Golf Club
2459 USHighway 280 West, Cordele, GA 31015
(229) 276-1004

Los Compadres
1116 East 16th Avenue, Cordele, GA 31015
(229) 273-1350

Main House Chinese Buffett
1101 East 16th Avenue, Cordele, GA 31015
(229) 271-7888

Old Jiffy Jack's
1920 USHighway 41 North, Cordele, GA 31015
(229) 271-1466

Perkins Family Restaurant
2201 East 16th Avenue, Cordele, GA 31015
(229) 271-8681

Pizza Hut
1510 East 16th Avenue, Cordele, GA 31015
(229) 273-1291

R M Dinner Room
208 South Joe Wright Drive, Cordele, GA 31015
(229) 273-6500

Shoney's of Cordele
1712 East 16th Avenue, Cordele, GA 31015
(229) 273-8029

Smoakies Bar-B-Que
107 Cemetery Lane, Cordele, GA 31015
(229) 273-0802

Smoakies Barbque Too
1303 East 16th Avenue, Cordele, GA 31015
(229) 276-1600

T&T Fastfood Galery
307 S 7th St, Cordele, GA 31015
(229) 271-1639

Taqueria Cortez
1315 East 16th Avenue, Cordele, GA 31015
(229) 273-3392

The Courthouse Cafe
101 East 13th Avenue, Cordele, GA 31015
(229) 276-0660

The Farm House
1211 East 16th Avenue, Cordele, GA 31015
(229) 271-8551

The Krystal Company
1815 East 16th Avenue, Cordele, GA 31015
(229) 273-5967

The Olde Inn
2536 USHighway 280 West, Cordele, GA 31015
(229) 273-1229

The Place
908 East 16th Avenue, Cordele, GA 31015
(229) 273-2020

Two Sisters Market Deli And Cafe
2010 Central Avenue Extension, Cordele, GA 31015
(229) 273-1112

Waffle House
2006 East 16th Avenue, Cordele, GA 31015
(229) 271-7976

Wendy's Old Fashioned Hamburgers
1515 East 16th Avenue, Cordele, GA 31015
(229) 273-7577

Willow Creek Restaurant
2016 East 16th Avenue, Cordele, GA 31015
(229) 273-5842

Zaxby's
2002 Central Avenue Extension, Cordele, GA 31015
(229) 273-2223

Zydeco
1707 East 16th Avenue, Cordele, GA 31015
(229) 273-6210

Restaurants Located outside Park

Hours: Tuesday thru Saturday 6:00 till 9pm T-Th, Friday and Saturday 6:00 till 10:00pm

The Olde Inn 229-273-1229

Daphane 229-273-2596

Lake Blackshear Resort Dining

Dining at Cordelia's

(Visit website for more information <http://www.lakeblackshearresort.com>)

Alternate Activities

During your down time, or if you choose not to go on the Aquarium Field Trip, or if you choose to arrive early or stay late to the conference, please remember there are many things to do in and around Lake Blackshear. Below is a list of suggested activities we observed while touring the site and others found on the Georgia State Park website (<http://www.gastateparks.org/info/georgiavet/>).

Activities:

Walking/Hiking

Boating and Waterskiing - private boats permitted

Boat rental

Fishing - bass, crappie, catfish, bream

Birding

Georgia Veteran's Memorial Golf Course

Disc Golf (also called Ball Golf, Stick Golf or Frisbee Golf)

Nearby Attractions:

SAM Shortline Excursion Train

Albany CVB

Americus Sumter County Tourism Council

Andersonville National Historic Site

Providence Canyon State Conservation Park

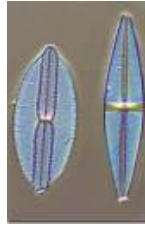
Georgia Rural Telephone Museum

Jimmy Carter National Historic Site

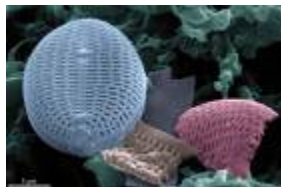
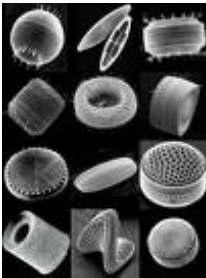
Warner Robins Air Museum

Chehaw Wild Animal Park

Jefferson Davis Memorial State Historic Site



STATE UPDATES



News from Georgia

WATERSHED PLANNING AND MONITORING PROGRAM

Coosa River Modeling Project:

All 5 Units within the WPMP have been heavily involved in conducting the field monitoring for the 6 modules of this project assigned to the Ambient and Facilities Monitoring and Intensive Surveys Units. During the summer intensive phase of this second and final year of monitoring, drought conditions continued with temperatures running in the high 90's throughout most of July and August. Due to continued staff deficits, associates from other programs within the Watershed Protection Branch have continued to assist in field monitoring activities. Monitoring for this project will conclude in October.



Pumpkinvine Creek (a watershed undergoing rapid development), following one of the far and few rain events of 2006

EPA National Lake Assessment Study:

A final decision has not yet been made if Georgia will participate in the field monitoring component of the National Lake Assessment Study. The Georgia component calls for

monitoring of 14 reservoir/lake/pond systems, with resampling at two sites. Currently, land owners of Georgia Panel 1 and Oversample sites are being contacted and sites are being evaluated from aerial photographs and site reconnaissance. Many of the Georgia sites selected by EPA are in the South Georgia Coastal Plain and may be more wetland in character and have practical boat access limitations. The Habitat Assessment and Benthos Indicator components now proposed in the study coverage are of most concern to Georgia due to the additional resources that will have to be committed to accomplish that additional monitoring. Participation in the NLS will require a substantial commitment of the Intensive Surveys and Ambient Monitoring Unit field monitoring personnel who are already heavily committed to other monitoring projects in 2007.

Lake Lanier Nutrient/Chlorophyll a 2007 TMDL Modeling Study Planning:

Site-specific lake standards were adopted for Lake Sydney Lanier in 2000 and annual monitoring has been conducted since that time. Part of Lake Lanier was assessed as impaired due to exceedences of chlorophyll a standards, and was added to Georgia's draft 2006 305(b)/303(d) List submitted to EPA Region 4 this spring. Staff are currently engaged in the planning and study design of the 2007 monitoring that will support development of a nutrient TMDL for Lake Lanier. The study will require further resource commitment by monitoring staff in the Ambient and Facilities Monitoring and Intensive Surveys Units.

EPA Clean Air Mercury Rule (CAMR) and Georgia EPD Air Quality Actions:

The EPD Air Quality Branch has been working since 2005 on the Georgia position on CAMR and what regulatory action will be proposed for mercury emissions from coal-fired power plants. The EPD AQ Branch has hosted multiple public and stakeholder meetings through this process and established a docket website. The website address is: <http://www.georgiaair.org/airpermit/>.

The WPMP has been working with the AQ Branch by providing documentation and technical assistance on the impact of mercury from air deposition and the bioaccumulation of methyl mercury in fish and other aquatic life. The establishment of a mercury in fish trend station network is intended to provide a database to evaluate the impact of future reductions in mercury emissions from fossil fuel utility plants.

Staff Changes:

The Ambient Monitoring Unit (AMU) welcomed Channing St. Aubin to their ranks of biologists in August. Channing has brought expertise in freshwater mussels to the program. The AMU took Tim Pugh to lunch on his last day on September 15. Tim left to take a position with Paulding County, Georgia, where he will work on watershed assessments, erosion and sedimentations and other water quality projects for the County.

Joe Fievet of the Intensive Surveys Unit will be transferring to the EPD Environmental Radiation Program in November following completion of this year's field monitoring.

Ambient Monitoring Unit:

Staff members are finishing up the Coosa River Modeling Project sampling while starting up with benthic monitoring. Macroinvertebrate assessments are planned this fall for several 319 Grant projects to document pre-site restoration conditions. These sites will also be re-evaluated after the restoration is complete. Staff members are also involved in periphyton collections and collaborative macroinvertebrate collections for nutrient criteria development and the EPA SPINBR project.

Work plans are being developed for 2007 surface water monitoring that will focus efforts in the Savannah/Ogeechee River Basins in Georgia, as well as the upper reaches of the Chattahoochee River Basin. Monitoring data collected will support the rotating river basin monitoring project, as well as supply data to assist with the development of the TMDL for Lake Lanier as mentioned above.

2006 305(b)/303(d) Report Status:

As described in the July newsletter, EPD received a substantial number of comments on our draft 2006 305(b)/303(d) report. The majority of the comments revolved around two issues: 1) the assessment of data for chlorophyll *a* and the listing of a number of major lakes in Georgia; and 2) the removal of a number of southern Georgia blackwaters from the list based on "natural" dissolved oxygen concentrations that were established in total maximum daily loads. EPD held a meeting on July 26, 2006 with those persons who submitted comments during the public comment period. Approximately 30 people attended the meeting representing both municipalities/permittees and environmental groups. EPD considered all comments received on the list and submitted the final list to EPA for approval on August 18, 2006.

ADB Training:

EPD Personnel received training from EPA's contractors (RTI International) on the use of the EPA's Assessment Database (ADB) on September 13-14, 2006. EPD used its own Access database for the development of the draft 2006 305(b)/303(d) list, but is planning to convert to ADB in 2008. The training was very helpful in preparing EPD to make this transition.



Tim Pugh enjoying his last week with GA-DNR out in the field.

Intensive Surveys Unit:

Lake Standards monitoring of lake stations on Lakes Lanier, West Point, W.F. George, Carters, Allatoona and Jackson have continued monthly and will be concluded in October. The third quarter monitoring of the Chattahoochee/Flint Basin lakes (Harding, Goat Rock, Oliver, Andrews, Seminole, Blackshear and Worth/Chehaw), was conducted in August and September. The final fourth quarter of basin lakes monitoring will be conducted in October and November.

ISU staff have continued their heavy field monitoring schedule for the 3 assigned modules of the Coosa River Modeling Project, and shared responsibility with AMU for a fourth module. Progressively lower stream flows and high July and August ambient temperatures have provided markedly different hydrologic and water quality conditions from the Summer of 2005 where tropical systems delivered significant amounts of precipitation over the July through early September period.

NON-POINT SOURCE PROGRAM

Georgia Adopt-A-Stream:

Adopt-A-Stream Paddles the Etowah River

This year Georgia Adopt-A-Stream partnered with the Georgia River Network to educate paddlers participating in Paddle Georgia 2006. As paddlers meandered down the Etowah they received Adopt-A-Stream chemical training. The Etowah River provided a great location for the workshop. Participants were able to see first hand examples of point source discharge sites as well as nonpoint source pollutants as we were teaching the class. Examples for point source discharge included several industrial operations, each of which posted large signs to explain that their NPDES permit allows them to discharge treated effluent into the river. We also floated by farms where the cows were allowed to walk all

the way to the river and paddled passed homes which had their lawns mowed down to the riverbanks. This provided us with great examples of how nonpoint sources of pollution enter the river. When it rained, we witnessed sediment-choked streams dump their turbid water into the Etowah. This unique opportunity allowed us to see and discuss the effects that human impact has on water quality.

The Paddle Georgia event also gave us the opportunity to gather chemical water quality data on 120 miles of the Etowah River. Each day, certified monitoring teams set out on their paddle with monitoring equipment in hand. Each team measured temperature, pH, dissolved oxygen, conductivity and collected grab samples for fecal coliform and E. coli testing. Overall, the groups sampled over 50 sites. Results from the study will soon be available and a summary will be published in an upcoming newsletter.

Oct 18th is World Water Monitoring Day

America's Clean Water Foundation (ACWF) and the International Water Association (IWA), along with many global partners, coordinate a world water-monitoring event across the globe. While AAS comprehensive monitoring goes on all year, World Water Monitoring Day unites volunteers and water professional, alike, to highlight the important role that monitoring plays in protecting water quality. This effort establishes a worldwide water quality snapshot by monitoring local streams, rivers, lakes, ponds and other water resources anytime between September 18 and October 18.

We encourage our volunteers to join thousands of other volunteers across the globe to report their water quality results to this database. As a certified AAS volunteer your data does follow a quality assurance program. If you collected benthic data (macroinvertebrate or "bug" counts), you may enter that data, as well as chemical/physical data, but please remember to send your data to AAS as well. You do not need to be a certified AAS volunteer to participate in World Water Monitoring Day. The event does offer inexpensive kits and instruction for anyone interested in participating. To register your site and data visit: www.worldwatermonitoringday.org.

Rivers Alive:

Rivers Alive has a record 178 organizers signed up representing over 700 separate groups ranging from government agencies, nonprofits, Scout groups, civic organizations, corporations and individuals. These organizers are expecting over 33,000 volunteers to participate! Don't you want to be counted in the 33,000 volunteers? Visit, www.riversalive.org to learn more or find a clean-up in your community.

EPA REGION IV UPDATES

EPA SESD Summary of Biological Work 2006

During 2006, the Ecological Assessment Branch of EPA's Science and Ecosystem Support Division (SESD) has been involved in 2 special study projects, as well as, several general water quality studies.

The Southeastern Plains In-stream Nutrient and Biological Response (SPINBR) study was proposed and agreed to by all the participants at the 2005 Periphyton Workshop held in Athens, GA. The study is a multi-agency collaborative project designed to describe, examine and characterize the relationship between biological response and aquatic nutrients. Project activities include the collection of surface water nutrient samples, periphyton community samples, habitat assessments, stream algal coverage estimates, aquatic macroinvertebrate samples, and stream channel geomorphic data. Ultimately, the SPINBR data will help create models of periphyton species presence and tolerance, lists of taxa in specific nutrient conditions and indicators of ecological health. During the summer of 2006, EPA staff visited 90 sites (covering 7 states) and sampled 50 for nutrients and periphyton. Staff also sampled 25 sites for macroinvertebrates.

EPA SESD has been investigating the natural condition of dissolved oxygen (DO) in blackwater streams. As part of this investigation, SESD has continuously monitored DO for 30 days on three different blackwater streams in Ecoregion 75(f), Sea Island Flatwoods. The 30 days of monitoring has been followed by a macroinvertebrate sampling event. Flow, nutrients, chl a, AGPT, and color were also sampled. SESD completed the Spring phase this past April-May and is in the midst of a monitoring prior to a Fall sampling event in mid-October. This project is anticipated to continue through 2007, targeting seasonal phases.

In June, SESD sampled macroinvertebrates for bioassessments on a number of streams in the Choctawhatchee River Basin in an area surrounding Dothan, Alabama. Sampling was limited due to low flow conditions.

SESD staff have also been working on a number of comprehensive water quality studies in the Yazoo River Basin, Mississippi; Pond Creek, Alabama; Pearl River, Mississippi; Tuscumbia Canal, Mississippi; and Estero Bay, Florida.

STATE OF SOUTH CAROLINA

Department of Health and Environmental Control

Non-Point Source Monitoring Team Update

We (David Eargle and Ann-Marie Denman) have finished up our bug sampling for the 303d list. This year we were focused in the Broad River basin. Monthly sampling for bacteria in the Congaree River and tide creeks in Charleston county continue on as do a few new projects to keep us busy. When we're not out and about sampling, we'll continue to ID our bugs.

Looking forward to the Georgia meeting!

NORTH CAROLINA

The building has been empty much of the last couple of months, with teams out sampling across the state. The following is a quick summary of some of those activities.

Biological Assessment Unit July - September 2006

Staff Addition

The Biological Assessment Unit welcomed Michelle Simonson as its newest hire. Michelle, who graduated in May from Peace College with a BA in Biology, will assist Staff in field and laboratory work with the stream fish community assessment and benthic community monitoring programs; in water quality instrumentation, and in QA/QC procedures.

Stream Fish Community Assessment Program

During these last three months, the stream fish community assessment program finished up its 2006 basinwide monitoring and special studies. To date, the program sampled 113 sites, primarily in the Yadkin River Basin. Two Use Attainability Studies, reclassifying streams for more stringent water quality protection and in this for the protection and reproduction of trout, were completed for two watersheds in the French Broad River Basin. Collaboration with North Carolina State University continues with a presentation to students and faculty at the September meeting of the Student Chapter of the American Fisheries Society and in the early designs for developing IBI metrics for Sand Hills streams in the Cape Fear, Lumber, and Yadkin River basins. The QAPP for the stream fish community assessment program was finalized and sent to US EPA Region 4.

Fish Tissue

The DWQ statewide survey for organic pollutants in fish tissue was completed during late summer. The survey is intended to further assess the character of pesticide contamination throughout the state. The survey is intended as a Tier 1 type study whose primary goal is to identify mainstem inland waterbodies where organic contaminants exceed specified human health screening values for edible fish. Sites where contaminants are identified would require more intensive follow-up sampling. Staff members collected a top predator (often Largemouth Bass or Smallmouth Bass) and bottom feeding species (e.g., Common Carp or redhorse species) from Lake Santeetlah, Appalachia Lake, Fontana Lake, the French Broad River at Hot Springs, and the Nolichucky River at Poplar, NC.

DWQ continues to assist the NC Department of Health and Human Services (DHHS) and USEPA in the collection of fish samples from Crabtree Creek in Raleigh. Further sampling was requested to augment studies performed by EPA and to further delineate current PCB advisories in the watershed. At present DHHS has posted an advisory for Brier, Little Brier, and Crabtree Creeks, Lake Crabtree, and the entire creek from Lake Crabtree to its confluence with the Neuse River. This summer, Staff collected

Largemouth Bass and catfish species samples from an additional six stations throughout the Crabtree Creek watershed and near the creek's confluence with the Neuse River.

Fish Kills

DWQ has so far received 13 reports of fish kills across the state for 2006. These events have involved a total of around 27,000 fish.

Further information on the fish community, fish tissue, and fish kill programs can be found at: <http://www.esb.enr.state.nc.us/> or by contacting Bryn Tracy, Mark Hale, or Jeff DeBerardinis at (firstname.lastname@ncmail.net).

Benthic Macroinvertebrate Program

During the months of July and August, 98 benthic community samples were collected. More than three-fourths of these samples were collected as part of the Lumber and Yadkin River Basins 5-year monitoring cycle program. Other special studies were conducted at the request of the Division's regional offices, in response to NPDES permit and 303 (d) list concerns, and US EPA (compressibility sampling).

SWPBA Update

Kentucky

401 Certification

We are excited about the recent hiring of Alan Grant. He comes to us from Risk Assessment and is quickly adjusting to the 401 way of life. We are expecting to draft state 404 regulations this fall in coordination with the CWA Section 404 Task Force and working on backlogged permits.

Project Managers will be attending stream assessment training under Dr. Art Parola (University of Louisville) this winter. We also plan to hire 3-5 additional project managers this winter if all goes well – that should allow us more time to write these blurbs.

Ecological Support

Gary Beck retired from the position of Laboratory Scientist (formerly known as microbiologist) after 30+ years of service to the Commonwealth. We are currently recruiting for his replacement. We have been short handed this summer after losing Mike “Stretch” Compton to Texas, so we are still out playing in streams. A new Ichthyologist has been recommended and will hopefully be joining our ranks very soon. Morgan Jones, our Wild Rivers Coordinator, has been being up land as quickly as he can, and has recently purchased areas in the Green River, Martins Fork and Rockcastle River watersheds.

We have been collecting water samples for nutrient analysis to give us more information for nutrient criteria development. We continue with field work in the Green and Tradewater River basins. Everyone has been taking advantage of the rainy days to catch up on some identification time.

Standards and Specifications

Since the last update, the Standards and Specifications Section has been busy getting our summer biosurveys complete for the probability program, lakes monitoring and ongoing year-round monitoring of ambient water quality stations. The probability biosurvey field work in the Green – Tradewater BMU is complete and bug id’s underway.

A special study that is in the planning stages regards potential selenium issues related to coal mining. There have been elevated concentrations of selenium found associated with hollow fills (valley fills) in West Virginia, and we are undertaking this research project to be proactive in determining if elevated concentrations of this metal are affecting water

quality and being biomagnified in the food web of these watersheds. Selenium occurs naturally in the geologic strata of certain coal seams, but is only liberated when these strata are fractured resulting in a change of rock layers exposed to base flow in these streams. To date, no selenium concentrations have been recorded at our primary ambient water quality stations; however, these stations are in large watersheds.

We are in the early stages regarding the triennial review process. It is anticipated this will be a significant undertaking over the next several months. Assessment work for 305(b) reporting will soon be underway in preparation for electronic submission to EPA next spring.

TMDL

The whole crew is busily working on assessments and TMDL monitoring and can't provide an update right now. Diel DO sondes have been deployed at few sites and we are anticipating many more locations with beautiful curves by the end of spring.

Watershed Management Branch Nonpoint Source Section

The NPS Section is currently working on watershed monitoring reports for the Upper Licking River, Obion Creek and Wilson Creek projects. Data is being analyzed and reports are coming together. The field season is almost completed with sampling in the Sinking Creek watershed in Laurel County. Biological data has been collected and water chemistry data will be collected until December. Planning for next year's monitoring is underway. Jessica Bevins and Rodney Pierce attended Dr. Morse's "Biology and Identification of Southeastern Mayfly, Stonefly and Caddisflies" course at Highlands Biological Station in August and brought back mounds of new taxonomy knowledge for use in NPS.

Florida's Update

Statewide Nutrient Criteria Development

Florida is developing the conceptual process for determining Statewide nutrient criteria, using EPA's suggested reference site approach. Minimally disturbed reference sites are selected by examining land use data, specifically, the Landscape Development intensity Index (Brown and Vivas 2005), and then applying local knowledge to eliminate sites with potential human inputs not captured by the LDI. It is anticipated that that an upper percentile (e.g., 75th to 90th) of the data distribution will be chosen to represent a nutrient threshold. Below this threshold, the assumption would be that benign, naturally occurring concentrations of nutrients would be present. Sites exceeding this level will likely receive diagnostic biological studies to confirm impairment status.

Periphyton Surveys and Index Development

As part of conducting diagnostic studies, FDEP is developing a rapid periphyton survey, consisting of 99 observations in a 100 m stream reach, to better quantify the extent and thickness of algae. This survey is coupled with a 10 aliquot, natural substrate periphyton sampling method for determination of algal community composition. Using these data, we hope to validate a Stream Algal Index to be used to assess when nutrients have interfered with the designated use of a waterbody.

Comprehensive Everglades Restoration

Using FDEP's biological Quality Assurance program as a template, various entities involved in Everglades Restoration will be comprehensively trained in QA procedures, with the ultimate goal of making sure that data collected by disparate groups is comparable, with known and acceptable precision, sensitivity and bias.

News from Tennessee

Fall 2006

Routine Monitoring

July 2006 marked the beginning of the third rotation of the five-year watershed cycle in Tennessee (Figure 1). This fall the division of Water Pollution Control continues to monitor Group 1 watersheds. Each of the eight Environmental Field Offices is busy collecting biological, chemical, and bacteriological samples to assess water quality for both streams and reservoirs in these nine watersheds. Antidegradation assessments are conducted as needed generally in response to requests for new or expanded NPDES and ARAP permits. Since permit requests generally cannot be anticipated, they do not follow the watershed cycle.

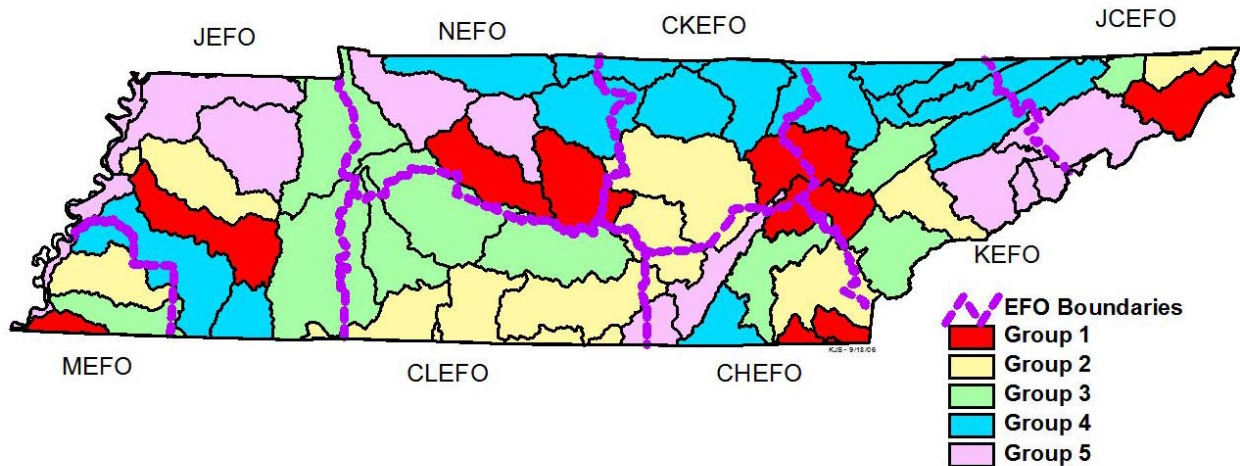


Figure 1: Watersheds and Environmental Field Offices in Tennessee.

Special Projects

- *Pigeon River Reintroductions*

The Knoxville Environmental Field Office in partnership with Tennessee Wildlife Resources Agency (TWRA) and US Geological Survey (USGS) have helped reintroduce several species that had disappeared from the Pigeon River. Successful spawning and colonization of the gilt darters and stripetail darters have been documented. Five other fish species are surviving well, and surveys are planned this fall to look of reproduction. *Pleurocera sp.* and *Leptoxis sp.* are also reproducing and *Io fluvialis* is surviving well, although reproduction is not yet confirmed.

- *EPA Region IV Periphyton Study*

EPA has designed a special project to study periphyton in select ecoregions in the southeastern states. Water Pollution Control biologists in the Jackson Environmental Field Office are collecting periphyton samples according to the protocols developed by EPA Region IV.

- *Method Performance/Data Comparability Workgroup*

This summer Tennessee in partnership with the other EPA Region IV states collected biological samples at selected sites to test macroinvertebrate bioassessment method and data comparability. Tennessee biologists have completed joint monitoring with North Carolina and Kentucky.

- *Probabilistic Impounded Streams Study*

In 2003/2004, streams downstream of 75 small impoundments were studied. A draft report describing macroinvertebrate, chemical, geomorphology, periphyton abundance, and habitat on streams below 75 small impoundments across the state is currently being reviewed. The final report should be published and posted on TDEC's website by October.

Alabama Highlights

As mentioned in the last newsletter, ADEM's Field Operations moved into our new facility (office and lab space) mid-June – right smack dab in the middle of our monitoring season. We are slowly but surely getting settled in—the Central Laboratory is up and running, although we are still shuttling some sample types to our satellite laboratories in Mobile and Birmingham. Our microscope room is pretty much functional. However, the Department has decided that all historical documents, data files, and reports must be entered into FileNET and most of our taxonomists and many of our other staff have been working very hard to get this information into FileNET before the September 30th deadline.

ADEM's Monitoring Strategy

Many of you may remember that ADEM revised its monitoring strategy during 2005. It is comprised of several programs, but our activities during July-September have focused on the Rivers and Streams, Rivers and Reservoirs, Ambient, and Targeted Monitoring Programs. Each year, a Surface Water Quality Monitoring Plan is developed, and monitoring conducted for each of these programs is coordinated under the Rivers and Streams Monitoring Program (wadeable) and the Rivers and Reservoirs Monitoring Program (nonwadeable). To date, physical characterization and *in situ* data from 684 site visits have been transferred to ADEM's Central 2006 Surface Water Quality Monitoring Plan ACCESS database. Laboratory data from 323 site visits were downloaded from the LIMS database. These records are currently being QAed by EIS personnel for transfer into ADEM's Central Database. A table summarizing the activities conducted July-September for each program is included.

River and Streams Monitoring Program (RSMP)

2006 RSMP: During 2006, monitoring conducted by the Environmental Indicators Section (EIS) has focused on the Escatawpa, Mobile Bay, Tombigbee (EMT) River Basins in accordance with ADEM's basin rotation schedule. By the end of the 4th quarter, the EIS will have collected samples at 107 locations, primarily located within the EMT. These activities are summarized in the Rivers and Streams Water Quality Monitoring Program Table. This year, we cut back on the number of macroinvertebrate and periphyton surveys normally scheduled from ~125 to ~70 due to the move. Only 44 of 70 were completed due to severe drought conditions. Processing of these samples has begun.

2003-2004 RSMP Reports: The Results of ADEM's 2003 §303(d) and Reference Reach Monitoring Report was completed. The report summarizes results of intensive chemical sampling and habitat and macroinvertebrate biological assessments conducted at 24 ecoregional reference reaches and eighteen §303(d) stream segments. The EIS is also completed the final draft of the *Surface Water Quality Screening Assessment of the Southeast Alabama River Basins – 2004 – Part I. Wadeable Rivers and Streams*. It should be available for download from our website shortly. The report summarizes results of screening-level habitat and macroinvertebrate biological assessments conducted at sixty-two stream reaches at risk to impairment from rural nonpoint sources.

Summary of Rivers and Streams Water Quality Monitoring Program activities, July-September, 2006.

Study	Station Visits	Chemical Samples ^a	Biological Assessments ^b	In situ Measurements ^c
Ambient Trend Monitoring	45	205	86	240
Reference	9	51	18	57
Targeted Monitoring (§303(d)/TMDL/UAA)	70	186	95	301
Clean Water Partnership Requests	0	0	0	0
Probabilistic Basin Assessment	119	646	231	740
Total	243	1,088	430	1,338

- a. Chem. Assessments = Iced + Sulfuric + Nitric + Filtered Nitric + Dissolved Reactive Phosphorus + Ultimate BOD + Atrazine + SW8141 and 8081A pesticides + 8270C Semi-volatiles + Metals.
- b. Biol. Assessments = Macroinvertebrate + Periphyton Chlorophyll a + Diatoms + Filamentous Algae + AGPT + Water Column Chlorophyll a + fecal coliforms+ Fish IBI.
- c. In situ measurements = (Habitat Assessment + Air Temp + H2O Temp + DO + Conduct. + pH + Turbidity+Flow) x # of station visits

Rivers and Reservoirs Monitoring Program (RRMP)

RRMP 2006: Sampling continued for the project *Surface Water Quality Screening Assessment of Rivers, Reservoirs, and Tributary Embayments of the Tombigbee, Mobile, and Escatawpa River Basins*. Monthly sampling, April-October, is currently being conducted at 37 Tombigbee River, reservoir, and embayment sites.

Compliance monitoring of certain reservoirs for established lake-specific nutrient criteria was initiated in April 2006. Compliance monitoring of Smith, Bankhead, Holt, Oliver, Tuscaloosa, Warrior, Purdy and Inland Reservoirs began in April. Monthly sampling of twenty stations on these reservoirs will continue through October.

Reporting: The *Water Quality Assessment of the Southeast Rivers and Reservoirs 2004* Report was completed.

Summary of Rivers and Reservoirs Water Quality Monitoring Program activities, July-September, 2006.

Study	Stations Sampled (Stations x Sampling Events)	Chemical Samples*	Biological Samples*	In situ Measurements **
Basin Intensive Survey	111	341	166	888
Compliance Station	75	225	102	600
Biennial Critical Period***	13	39	26	104
303d				
Ambient Trend Monitoring	22	107	44	177
Total	221	712	338	1769

*Chem. samples/station = Iced + acid + orthophosphorus. Duplicates and blanks included.

*Biol. samples/station = chlorophyll a + fecal coliforms + AGPT. Duplicates and blanks included.

**In situ measurements/station = (# profile measurements x parameters) + secchi + photometer + turbidity

***Biennial Critical Period = August only sampling

Emergency Response (ER)

The EIS is also responsible for emergency response conducted by ADEM Montgomery Branch. In summary, the EIS has responded to at least 3 spills related to sunken boat (1) or tractor trailer (2) accidents.

MISSISSIPPI PROGRAM

HIGHLIGHTS

Here in Ole Miss, we definitely have Georgia on our minds. We're looking forward to Lake Blackshear. We hope to be well-represented and active participants in this year's annual meeting. We continue to resurrect some important studies along the gulf coast, namely beach monitoring, storm water sampling on the Back Bay of Biloxi, fish tissue sampling for dioxin. We are awaiting the results and the fish based IBI for the Delta region of the state, and we have completed our additional data collection in non-wadeable streams that Hurricane Katrina caused us to cancel last year. Once again, our staff will participate in the National Coastal Assessment.

A large part of our focus since the last issue of the newsletter has been directed at our agency's participation in the Great Rivers EMAP project to take place along the "lower" Mississippi River. "Lower" is defined as from the confluence with the Ohio River to the mouth. Additional information regarding this project will be given on the following pages.

Field Activities

Non-wadeable Rivers and Streams IBI Development Study

All of the benthic samples collected during 2005 and 2006 have been processed. Taxonomy of the benthics will be underway shortly. Phytoplankton taxonomy began last year, and continues with the material sampled in 2006. All chemical analyses of water column samples collected during 2005 and 2006 have been completed. Due to Hurricane Katrina and the massive fish kills it brought to the Pascagoula River during 2005, the 22 sites scheduled to be sampled in this basin were sampled in 2006. In addition several sites from the Big Black and Tombigbee basins that were completed last year were re-sampled in 2006 in an effort to document any Katrina-based effects. It is our intention to develop a macroinvertebrate-based IBI as well as a phytoplankton-based IBI for assessment of the data.

National Coastal Assessment

Currently we are working under a 2-year contract that is a follow-up to the 5-year original project known as the National Coastal Assessment program. For these 2 years, 2005 and 2006, the number of sites was cut in half to 25 each year for the state of Mississippi. The sampling effort last year went well and was completed one week before Katrina devastated the area. Unfortunately, there was not time enough for analysis to be completed, and most of the stored samples, some waiting for shipment and some just for analysis, were lost either literally or due to lengthy power loss. An effort was made to recover anything salvageable from these samples. Also, EPA mounted a sampling effort

designed very much like that of NCA without trawl sampling and with several microbial elements added. This effort covered the Mississippi Sound and west to the Lake Bourne, LA area. Results of this sampling are to be compared with historic NCA findings.

We have completed the 2006 sampling, and analysis of these samples is underway. One of our biggest concerns this year was trawling the post-Katrina waters. We didn't know what hangs and obstacles to expect. Nor did we know what to expect as far as changes to the fish population. The net was hung only once at the edge of a channel. The drag was aborted, and the trawl was successfully recovered without damage. Another drag was made in its place. There were several sites (7) that produced no fish chemistry samples. While the drags were successful and produced fish community data, there were insufficient targets to make a sample or justify dragging again to supplement. Our deepest site had a severely low D.O. on the bottom leaving no surprise that no fish were caught, only starfish and sea cucumbers that couldn't quickly leave the anoxic area. There was more than the usual number of injuries to fish this year. They were fresh injuries that appeared to be healing normally, so they were not saved for pathological examination. The occurrence of dolphins following the trawl and damaging fish in the attempt to remove them was higher than usual. Fish species diversity appeared fairly high with some rarely seen species appearing.

Beach Monitoring

Sampling for MDEQ's beach monitoring program was temporarily put on hold due to Hurricane Katrina. Our contractor, the Gulf Coast Research Laboratory (GCRL) suffered major damage due to the storm. The entire facility lost the majority of their buildings and countless equipment needed for analysis of samples. Despite all of this, they managed to get back to sampling all of the beaches along the Gulf Coast by mid-October 2005.

Currently, all of the beaches in Hancock and Harrison counties are closed due to marine debris in the water. Until the US Coast Guard and MS Dept of Marine Resources contracts out marine debris removal and jobs are completed at beach sites, the beaches will remain closed to swimming. Sections of sand in Harrison County (Biloxi, Gulfport, Pass Christian, and Long Beach) have been opened to the public by the Harrison County Sand Beach Dept. Jackson County has all of its beaches open for swimming.

Current data and status of all beaches monitored in Mississippi can be seen at our website, www.deq.state.ms.us and then follow the link to Beach Advisories.

Back Bay Storm Water Project

This project is a measure of pollution inputs into the Back Bay of Biloxi from storm water. It was another of our many efforts that had to be suspended after Katrina. It was reinstated in May 2006 to capture samples from the "contact period". Unfortunately, we are experiencing an exceptional drought, and have been unable to get into the field to collect samples.

Great Rivers EMAP coming to the Lower Mississippi

As mentioned in the introduction, MDEQ biologists will begin participating in a four-year effort to collect and assess data from the lower Mississippi River. This project will be coordinated out of the EPA ORD facility in Duluth, MN, and involves state agencies from Missouri, Arkansas, Louisiana, Tennessee, Kentucky, and of course Mississippi. The MDEQ biologists, like many of the other states will be partnering with the USGS field offices to accomplish the work. Our portion of the study area will be that part of the river from the Arkansas/Mississippi border south to the Mississippi/Louisiana border. We will sample a total of 26 sites each year for the first three years of the project. Al Gibson, fishery biologist with MDEQ will lead the fish community team, and the USGS will lead the habitat assessment/water quality sampling effort. Year four of the project will be compilation, analysis and assessment of the data.

TMDL and Waste Load Allocation Studies

Data collected for this project support Total Maximum Daily Load (TMDL) and Waste Load Allocation (WLA) development required by Section 303(d) of the Clean Water Act. These efforts provide data in corroboration of Total Maximum Daily Load (TMDL) and Waste Load Allocation (WLA) development and assessment of water quality impacts of point and non-point sources on dissolved oxygen (DO) in selected streams in Mississippi. Specifically, the data will be used to calibrate water quality models to evaluate dissolved oxygen levels and assimilative capacity in streams impaired due to low dissolved oxygen.

Development of the TMDLs will involve assessing existing data, conducting a field survey, selecting and calibrating a model, evaluating pollutant sources, and formulating TMDLs, including a load allocation, waste load allocation, and margin of safety.

Led by Pete Howard, MDEQ personnel (assisted by contract staff and Regional Office staff) conducted surveys of Bridge Creek, (including Elam Creek and the Tuscumbia River Canal), Big Creek and tributaries, Mill Creek, the Pearl River near Jackson, and Lead Bayou and tributaries (the latter two with the assistance of EPA) – sites identified by MDEQ as having potential water quality issues. Other MDEQ field biologists that worked on these intensive studies include Brian Alford, Chip Bray, Alice Dossett, and Al Gibson. Also assisting with various aspects of this work were Tony Cox, Jeffrey Estridge, Jeff Jones and Randy Jones from the MDEQ Regional Offices. MDEQ contractors who assisted were Christine Bertz, Charles Cockrell, Jeff Thomas, and Eleana Woodard.

Samples were collected and analyzed for ammonia nitrogen, 5-day BOD, ultimate BOD, total organic carbon, total Kjeldahl nitrogen, nitrate + nitrite nitrogen, total phosphorus, and turbidity. In-situ parameters were also measured. Additional measurements at selected sites included physical measurements of stream geomorphology, re-aeration, P/R Ratios, Sediment Oxygen Demand, and flow. These were conducted by personnel from the MDEQ Office of Land and Water Resources.

Estuarine Nutrient Criteria Development Study

The final report for the first portion of our Estuarine Nutrient Study has been completed. This study was a collaborative effort with the University of Southern Mississippi Gulf Coast Research Laboratory. Twenty-eight sites across the Mississippi Gulf Coast were sampled quarterly over a 2 year period. Aside from general parameters such as dissolved oxygen, water temperature, pH, and salinity, water samples were collected and analyzed for total Kjeldahl nitrogen, nitrate + nitrite, total phosphorous, total suspended solids, total ammonia and chlorophyll *a*. As expected the majority of the nutrients analyzed were low with spikes occurring near discharges and industrial areas such as Bayou Casotte.

The rest of the study included two 24-hour sampling periods. One occurred during a period of high-flow and the other during a low-flow period. A total of nine sites were sampled. Six deep water sites and three wadeable beach stations were sampled every six hours for 24 hours. Six data sondes were also deployed at the deep water sites over the 24 hour period. At present we are working checking the data and beginning the final report.

Due to the historic information that we had on these sites prior to Hurricane Katrina, the initial 28 sites were sampled again in October 2005 following the storm to assess any impacts. We are also in the process of checking this data prior to writing the report.