2012 Georgia Newsletter

Ambient Monitoring

The Georgia Environmental Protection Division (GA EPD) Watershed Planning and Monitoring Program (WPMP) is in its third year of state-wide monitoring, working out of the main Atlanta office and 3 district offices. In 2012, the ambient monitoring staff collected monthly water quality and nutrient data at 181 streams, 54 lakes, and 8 estuarine sites. Quarterly metal samples were collected at 64 of the stream sites, and quarterly, 30-day geometric means for fecal coliform were collected at 74. Lake and estuarine sampling is conducted from April to October and includes Chlorophyll a monitoring and zooplankton collection. Wadeable stream sampling included 48 diatoms sites, 38 planned macroinvertebrate sites, and 83 fish sites. (Fish sampling is conducted by the Georgia Wildlife Resources Division.)

<u>National Aquatic Resource Survey</u>

WPMP also participated in EPA's probabilistic National Lake Assessment (NLA). WPMP staff, coordinated by Chip Scroggs, conducted intensive lake sampling at 11 lakes (plus 2 revisits), including 9 lakes not routinely sampled. WPMP also plans to participate in the National Rivers and Streams Assessment next year.

Immediate Right: Glen Behrend collecting a NLA vegetation sample
Far Right: Bob Tolford collecting a NLA Sediment Core

<u>Steam Flow</u>

EPD purchased two acoustic Doppler velocimeters (Son Tek's River Surveyors). They use Doppler technology to measure instantaneous bathometry and flow to calculate discharge. Once all the kinks are worked out, WPMP hopes to use the River Surveyors during wadeable stream sampling and possibly during routine water quality monitoring.

Immediate Right: Jeremy Smith preparing the River Surveyor
Far Right: Jeremy Smith and Brandon Moody measuring stream flow

Due to continued drought, in July of 2012, EPD suspended consideration of agricultural water withdrawal permits in two highly affected areas, the Lower Flint and Chattahoochee river basins of southwest Georgia. Just recently on November 1st, the Flint River near Carsonville (USGS

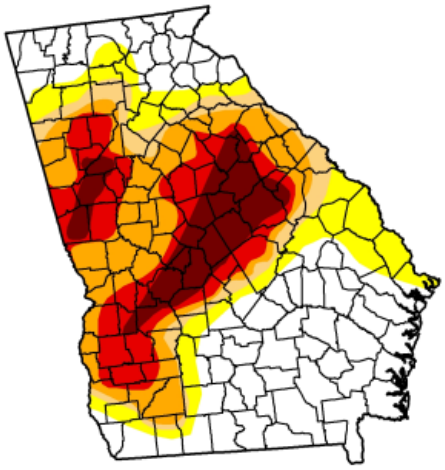
02347500) set a new 90-year record low flow at 85 ft^3/sec. (The 7Q10 is about 160 ft^3/sec and the mean flow is 1,030 ft^3/sec.) Low or absent stream flows around the state have affected ambient monitoring as well. While there are typically dry streams during the summer months, especially in southern Georgia, long time residents have reported seeing streams without water that they have never seen dry in their lifetime.

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	39.60	60.40	47.11	40.12	23.25	10.03
Last Week (10/16/2012 map)	40.73	59.27	46.56	39.53	22.69	9.93
3 Months Ago (07/24/2012 map)	18.45	81.55	71.38	56.47	40.95	23.43
Start of Calendar Year (12/27/2011 map)	12.07	87.93	85.36	81.00	63.92	0.00
Start of Water Year (09/25/2012 map)	37.30	62.70	52.44	42.66	34.04	17.18
One Year Ago (10/18/2011 map)	4.54	95.46	90.70	83.33	64.50	0.00

Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

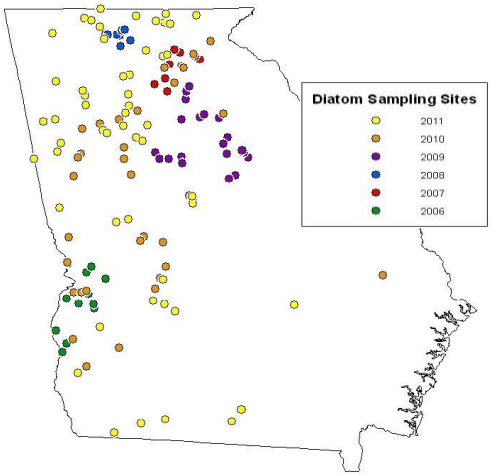
http://droughtmonitor.unl.edu

Released Thursday, October 25, 2012
Brad Rippey, U.S. Department of Agriculture

Georgia State-wide Water Plan Update

In 2011, the Georgia EPD Director adopted the recommended regional water plan for all ten of Georgia's regional water councils. The Metro District Plan update covering Metro Atlanta was previously adopted in 2008. Local and regional water users will implement the management practices in the plans based on the menu-oriented, sequential approach outlined in the regional water plans. EPD will use the plans to guide permitting decisions and non-regulatory activities in the context of the full existing framework of laws, rules, and guidance. In the interim between the 2011 adoption of the plans and the five-year review and revision cycle, EPD is committed to supporting and tracking implementation of the plans and to continued engagement with the Water Planning Councils, as envisioned in the adopted plans and as resources allow.

Monitoring for Standards Development



<u>Nutrients</u>

Working with Dr. Kalina Manoylov, EPD hopes to develop a Nutrient Pollution Tolerance Index for Georgia Diatoms to eventually use in establishing nutrient criteria. Since 2006, WPMP staff (led by Cody Jones and Michele Brossett) has collected diatom samples from 219 sites. Next year's work will target diatom sampling from high, medium, and low nutrient water quality streams as well as

collecting water quality data from reference streams. The lake and estuarine Chlorophyll a and zooplankton samples will also be analyzed for potential development of reservoir nutrient criteria.

Dissolved Oxygen

WPMP staff continues to study DO in the estuaries for potential revision of the Coastal DO standards based on natural conditions. The Brunswick office (Reid Jackson and Janice Kohler) deployed continuous Hydrolab monitors for approximately four weeks each in nine estuarine sites behind Cumberland, Sapelo, and Ossabaw islands.

Wetlands

The WPMP wetland monitoring group (Brandon Moody, Danielle Floyd, Mark Ibbbetson, and Mike Weaver) recently completed their second year of wetland assessment work, conducting soil and botanical surveys of fifteen forested sites throughout the Southeastern Plains Ecoregion. The purpose of their work is to determine possible metrics of wetland condition and function and to develop a rapid assessment method based on those metrics. Ultimately, the data will be used to generate water quality standards for wetlands throughout the state.

Beginning early 2013, the crew will return to the sites to conduct benthic macroinvertebrate and amphibian surveys. Next year will also mark the beginning of WPMP foray into the use of wildlife song meters, which will be deployed at every site, in an attempt to gain a more comprehensive picture of the frog populations within each wetland. WPMP will also begin field testing the recently completed statewide Wetland Condition Index, which ranks known wetlands in the state based on relative interactivity to various anthropogenic stressors, connectivity to conservation areas, and hydrologic connectivity to other wetlands. The monitoring group plans to visit the Ridge and Valley Ecoregion next year, followed by the Coastal Plains in 2014.

Paddle Georgia and Adopt-a-Stream Coordination

GA Paddle

The 2012 Paddle Georgia (PG) event, sponsored by the Georgia River Network (GRN), took over 300 paddlers down a 105-mile stretch of the Altamaha River. The Altamaha River is one of Georgia's last remaining free flowing streams. Created by the merging of two major rivers, the Oconee and Ocmulgee, the Altamaha flows through the Coastal Plain 137 miles before reaching the Atlantic Ocean. As our largest watershed in Georgia, the river drains over 14,000 square miles and is reportedly the third largest contributor of fresh water to the Atlantic Ocean from North America. The Altamaha River receives inputs from several permitted discharges stemming from paper mills, water reclamation facilities and nuclear power facilities. Some stretches of the river are on Georgia's 305(b)/303(d) list of impaired waters. The Altamaha River and its tributaries are listed for violations of fecal coliform bacteria, dissolved oxygen, and for not supporting fish communities due to nonpoint source pollution such as urban runoff and other sources like municipal facilities.

This year, Jeremy Smith and Brandon Moody, members of EPD's Ambient Monitoring Unit, were able to contribute their resources and knowledge during the Paddle Georgia event. They worked with Georgia Adopt-A-Stream, GA's volunteer water quality monitoring program, to create a sampling strategy for the river and its tributaries. Floating along the river, the sampling

strategy targeted tributaries and sections of the mainstem that were listed as impaired or had major discharges that might influence the water quality. We sampled before and after these streams and inputs to determine if there were any major influences to the river. In-situ (DO, pH, conductivity, temperature) measurements and chemical samples (nutrients, heavy metals, BOD, alkalinity, ect.) were taken at 29 locations along the river and major tributaries.

Overall, tributary sites had a broader range of values than the mainstem sites. The major influences on the river were found to be the large blackwater streams that flow into the Altamaha.

GA Adopt-A-Stream New Habitat Visual Survey

Georgia Adopt-A-Stream (GA AAS) is housed in the EPD's Non Point Source Program funded by a Section 319(h) Grant. The goals of GA ASS are to (1) increase public awareness of the State's nonpoint source pollution and water quality issues, (2) provide citizens with the tools and training to evaluate and protect their local waterways, (3) encourage partnerships between citizens and their local government, and (4) collect quality baseline water quality data. GA AAS monitoring information is often consulted in determining WPMP water quality monitoring strategy and sites.

AAS has recently developed a rapid habitat assessment call the 'Stream Habitat Survey' to compliment their macroinvertebrate monitoring program. The stream habitat survey was created from a concerted effort within the AAS community from AAS local coordinators and trainers to the advisory board to AAS volunteers. AAS wanted to create a rapid assessment that worked both as an educational and scientific tool to evaluate overall stream habitat condition. The survey is specific to Georgia's eco-regions and stream types, and it combines aspects of many other rapid assessments (Michigan's volunteer survey, EPA's survey and Georgia EPD's protocols) using images, drawings and words to evaluate the 10 parameters.

Right: Two AAS volunteers conducting the Stream Habitat Survey

The survey can be found at:
http://www.georgiaadoptastream.org/Manuals_etc/MonitoringForms/StreamHabitatSurvey.pdf