

Stream and River Monitoring in Georgia  
March 9, 2007  
Kate Dunbar  
Upper Altamaha Practicum

Over 70% of Georgia's freshwater resources are from surface flow. Monitoring the quality and quantity of this water is crucial for both social and environmental wellbeing. Comprehensive monitoring of Georgia's streams and rivers will fulfill several important objectives. Flow monitoring helps predict and prevent flooding as well as assist in the determination of water supply allocation. Water quality monitoring also informs permit requirements for point and non-point sources, build cases for the addition or removal of a water body from impaired listings, as well as constructing a picture of the health of our waters. Most importantly, continual comprehensive water quality and quantity monitoring will ensure that the rules and regulations put in place by Georgia's policy makers are achieving the results deemed necessary for human and ecosystem health.

Monitoring water quality in Georgia is mandated under both federal and state laws. According to the federal Clean Water Act, whose goal is to reduce water pollution, each state must prepare an annual report of its water quality. The Environmental Protection Agency (EPA) sets guidelines and standards for water quality monitoring programs and other goals for states to achieve, and they also review annual reports from each state on the quality of their water. Actual implementation of pollution reduction strategies now lie with the states and their planning and monitoring programs. Annual reporting documents required under the Clean Water Act include the ability of waterways to support fish, wildlife and other designated uses such as drinking and recreation and the plans and programs in place for the elimination or mitigation of point and non-point pollution sources.

According to the Upper Chattahoochee Riverkeeper, the most salient of the state water laws are the Georgia Water Quality Act which serves to implement the federal Clean Water Act requirements, Georgia's Erosion and Sediment Control Act and the Metropolitan River Protection Act. Watershed protection in Georgia is structured around river basin management plans, mandated by the Georgia River Basin Management Planning Act<sup>1</sup> developed in 1993. These plans are developed by the Georgia Environmental Protection Department (EPD) for each of the major river basins. In 2004, the Georgia General Assembly passed the Comprehensive State-wide Water Management Planning Act<sup>2</sup> that requires a state-wide plan for water management to be developed by 2007 that coordinates with current basin management plans. In addition to these state programs for water protection, county and city ordinances also aim to protect the quality of water within their governance, many times these regulations are stricter than state and federal requirements, although they vary greatly throughout the state.

The 2002 Water Quality in Georgia Report to the EPA states that there are about 70,000 miles of rivers and streams in Georgia. According to RiverTalk, the Upper Chattahoochee

---

<sup>1</sup> Senate Bill 637

<sup>2</sup> House Bill 237

Riverkeeper’s newsletter, and other non-governmental organizations only a very small percent of these waters are being monitored. The Georgia Conservancy states that about 16% of Georgia’s streams and rivers are being monitored. The EPA also reports this figure, but it provides further contextualization that this number only takes into consideration state and federal monitoring assessments.<sup>3</sup>

The difficulty in answering questions about which rivers are being monitored, when and for what is exacerbated by the multitude of agencies doing various sampling. There are several governmental agencies monitoring water quality at national, state, county and city levels. According to the EPA, state and territory agencies are responsible for the brunt of monitoring, and are supported by grants and methodological advice from national authorities. Under the Environmental Monitoring and Assessment Program, the EPA monitors for compliance and inspection purposes as well as targeting for statistical trends or specific questions. Other federal agencies involved are the USGS which conducts chemical monitoring through the National Stream Quality Accounting Network (NASQAN), the U.S. Fish and Wildlife Service, the National Oceanic and Atmospheric Administration, the U.S. Army Corps of Engineers and the Tennessee Valley Authority. Additionally, there are many private institutions monitoring water quality and quantity such as university departments, watershed associations, environmental groups, volunteers trained in monitoring procedures and even those permitted entities discharging into the Georgia waterways. Below in Figure 1, the 2002 Water Quality Report for Georgia has listed contributors of water quality data for Georgia.

*Figure 1: Contributors of Water Quality Data for Assessment of Georgia Waters*

GAEPD Watershed Planning and Monitoring Program	City of Gainesville
GAEPD Permitting and Compliance Program	City of LaGrange
DNR Coastal Resources Division	Georgia Mountains RDC
DNR Wildlife Resources Division	City of Conyers
State University of West Georgia	Kennesaw State University
Gainesville College	Lake Blackshear Watershed Association
Georgia Institute of Technology	University of Georgia
U.S. Environmental Protection Agency	LaGrange College/Auburn University
U.S. Geological Survey	Georgia Power Company
U.S. Army Corps of Engineers	Oglethorpe Power Company
U.S. Forest Service	South Carolina Electric & Gas Co.
Tennessee Valley Authority	South Carolina DHEC
Cobb County	Jones Ecological Research Center
DeKalb County	Alabama DEM
Douglas County WSA	City of College Park
Fulton County	Columbus Water Works
Gwinnett County	Columbus Unified Government
City of Clayton	St. Johns WMD
Cartersville	Town of Trion
Georgia Ports Authority	Clayton County Water Authority
Cherokee County	City of Atlanta

Source: Georgia 305(b) Report, Water Quality in Georgia, 2002

Although there are various groups monitoring our waters, Georgia EPD is responsible for gathering these data together for reporting to the multitude of federal and state agencies responsible for determining health and compliance with water standards. The EPD

<sup>3</sup> [http://iaspub.epa.gov/waters/w305b\\_report\\_v2.state?p\\_state=GA#assessed\\_waters](http://iaspub.epa.gov/waters/w305b_report_v2.state?p_state=GA#assessed_waters)

Watershed Planning and Monitoring Program is tasked with conducting monitoring of Georgia streams, rivers, lakes and estuaries to determine compliance with water quality standards, developing River Basin Management Plans for river basins in Georgia, conducting water quality modeling for wasteload allocations, water use classifications, and water quality standards in Georgia; and collecting samples of facility discharges for laboratory testing of samples. Each of the River Basin Management Plans cites the EPD as responsible for most of the water quality monitoring in the basin, and includes a detailed summary of assessed waters in the basin divided by whether or not they are meeting their designated uses. These plans also include an appendix with the Adopt-A-Stream members who are monitoring streams, but no mileage figures. River Basin Management Plans have been developed for the Chattahoochee, Flint, Coosa, Tallapoosa, Oconee, Savannah, Ogeechee, Ochlockonee, Suwannee, Satilla, St. Marys, Ocmulgee, Altamaha, and the Tennessee Rivers.

Records from Michael Basmajian of the DNR/EPD Watershed Protection Branch show 193 monitoring stations in 2005 down from 271 in 2004. In another map (Appendix 2) from the USGS 198 monitoring sites are shown state-wide which account for federal, state and local testing sites across Georgia. These sites are made up of core, continuous and basin monitoring stations. The “core” sites are sampled once a month for air and water temperature, dissolved oxygen, pH, conductivity, turbidity sometimes nutrients and every three months for bacteria. There are 5 continuous, long-term water quality monitoring stations that measure dissolved oxygen, temperature, pH and conductivity; however, all of these stations are above the fall line in Georgia. Basin monitoring stations are sampled following the basin rotation system or for special events, but lie dormant when the monitoring cycle is not focused on that basin. According to the EPA’s STORET, an online database with water quality data from state and federal environmental agencies, universities, non-governmental organizations and private citizens, there are 1,443 river and stream monitoring stations in Georgia.

These 1,443 stations likely include county and city monitoring data, as well as volunteer data such as Adopt-A-Stream which, according to the 2002 Georgia Water Quality Report, monitors over 235 sites (these sites include streams and rivers, but also lakes, wetlands, and other water bodies). Although we have many local, university and volunteer programs that monitor above and beyond the 11,000 miles covered by state and federal agencies, the data are generally not consistent enough to be included in state or basin reports. For data continuity and in order to report monitoring figures to the state, constant monitoring under certain methodologies must be undertaken across the state and incorporated into a comprehensive database of river and stream monitoring data.

According to Mr. Basmajian the monitoring focus cycles through the major basins in Georgia based on a 5-year cycle. This system is designed to focus attention on one basin each year so as to gather as much data as possible for streams and rivers considering the limited budget. For example, in the Coosa River basin there are 7 water quality stations in place to receive data for the TMDL process, but this study will end this year. There has been a continual downward trend in the number of monitoring stations across Georgia, which basically speaks to both a decrease in funding and also a decrease in how far

funding can spread considering increasing gas prices, lab efforts and other operational costs.

In the 2007 Governor’s Budget Report, \$400,000 from state appropriations was marked for improving the stream flow gauging and monitoring network. The General Assembly proposed cutting this line item, which would have entirely eliminated the monitoring program in Georgia. According to RiverChat, the federal government matched the states \$400,000 for 2007 through grant programs such as the Clean Water State Revolving Fund through the EPA. However, RiverChat claims this is a fraction of the money necessary to adequately monitor stream flow and that Georgia’s 1 million dollar monitoring program is a ‘bare bones’ program. The \$400,000 from the state comes through the EPD, which is the minimum needed for the 50 core monitoring stations.

Georgia is not alone in its inability to adequately monitor its waters. In a national report of water quality assessments by the EPA, of the 3,692,830 miles of rivers and streams in the nation, only 699,946 miles are currently being monitored, which is only 19% of the nation’s river and stream miles. The table below shows neighboring state monitoring programs by percentage of streams and rivers assessed and reported to the EPA.

*Table 1: Rivers and Streams with sufficient monitoring data to be assessed in the Water Quality Reports sent to the EPA as part of the Clean Water Act requirements.*

State	Total Miles of Streams and Rivers	Miles Assessed	Percentage Monitored
South Carolina	15,386.07	29,794.00	51.64%
Florida	51,858.00	164.20	0.32%
Tennessee	61,075.00	29,552.10	48.39%
Mississippi	84,003.00	528.00	0.63%
Georgia	70,150.00	11,285.00	16.09%

Source: 2002 National Assessment Database<sup>4</sup>

More funding is necessary in Georgia to significantly increase the percentage of stream and river miles monitored. While no state or federal documents took a stand on whether Georgia’s program for monitoring is adequate, several non-governmental organizations working with streams and rivers find these monitoring programs to be severely lacking. Of the 11,000 miles assessed by Georgia, over half of these stream and river miles are impaired. If more than half of what we are monitoring is impaired, it seems likely that streams and rivers in areas of the state not being monitored are also suffering. While most of the core or continuous monitoring focuses in and around the metro Atlanta area, where no doubt much contamination is causing problems, agricultural and other practices throughout the state of Georgia, are surely affecting the quality of our waters as well.

<sup>4</sup> <http://www.epa.gov/waters/305b/index.html>

## References

Michael Basmajian, DNR/EPD Watershed Protection Branch, Ambient Monitoring Unit, Personal Communication, January 31 and February 13, 2007

Clean Water Act (EPA)

<http://www.epa.gov/region5/water/cwa.htm>

Georgia EPD

[www.gaepd.org](http://www.gaepd.org)

Georgia River Network

<http://www.garivers.org/>

Georgia Water Council

<http://www.georgiawatercouncil.org/>

April Ingle, Executive Director, Georgia River Network, Personal Communication, January 31, 2007

National Water Quality Inventory Report

<http://www.epa.gov/305b/2000report/chp2.pdf>

North Carolina Clean Water Management Trust Fund

<http://www.cwmtf.net/>

North Carolina Department of Environment and Natural Resources

<http://www.enr.state.nc.us/>

North Carolina Division of Water Quality

<http://h2o.enr.state.nc.us/>

Shana Udvardy, Georgia Conservancy, Personal Communication, January 31, 2007

Upper Chattahoochee Riverkeeper

<http://www.ucriverkeeper.org/>

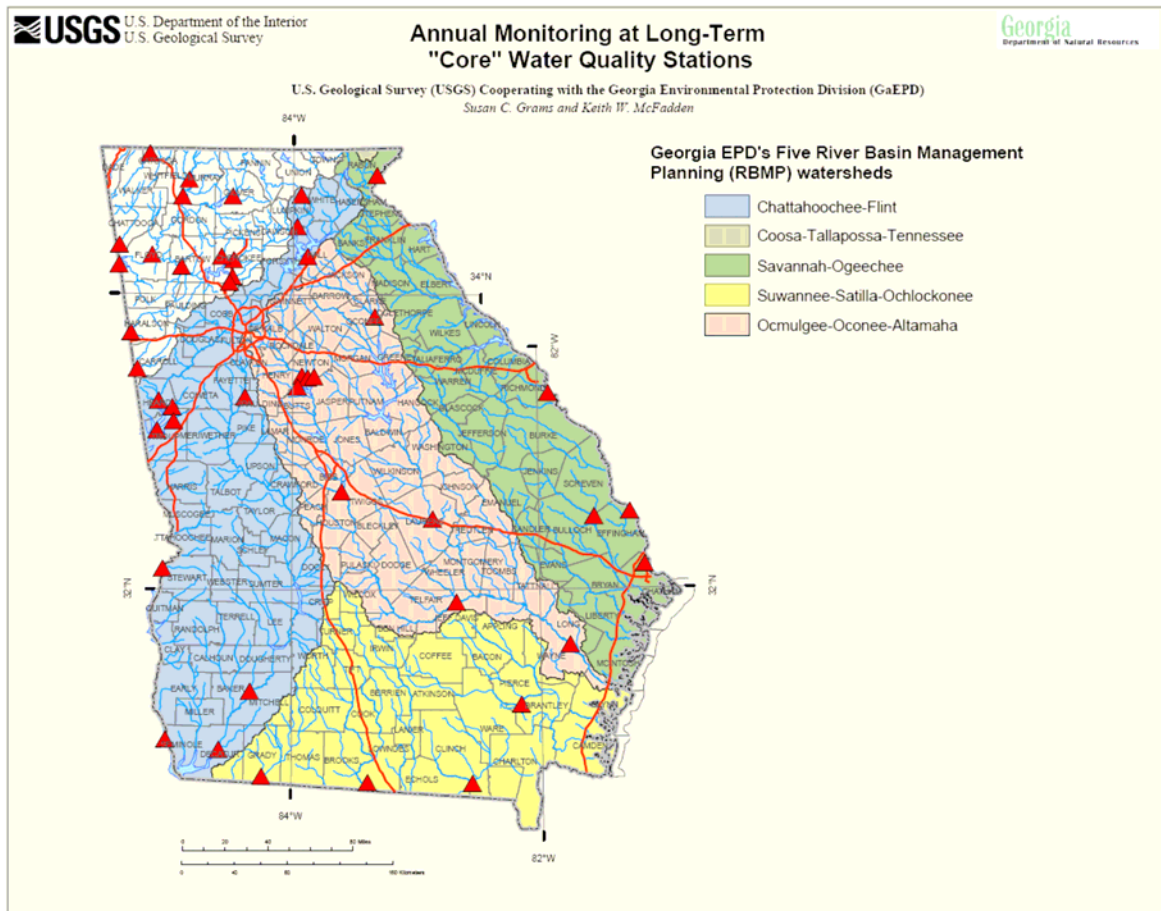
Upper Oconee Watershed Network

<http://www.uown.org/>

Watershed Protection Branch (Georgia EPD)

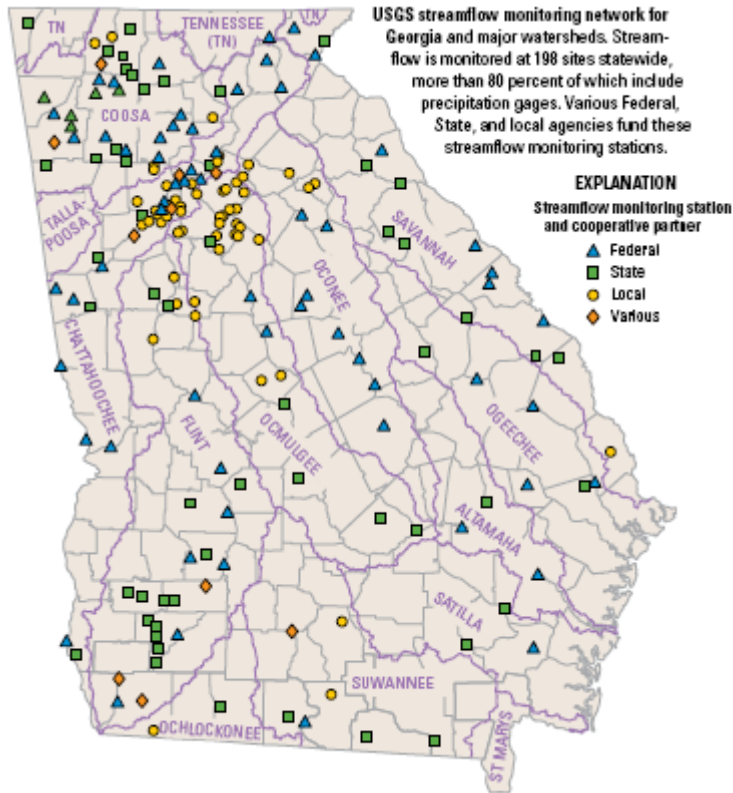
[http://www.gaepd.org/Documents/index\\_water.html](http://www.gaepd.org/Documents/index_water.html)

## Appendix 2: Annual Monitoring at Long-Term “Core” Water Quality Stations



Source: Shana Udvardy, Georgia Conservancy

## Appendix 2: Surface Water Resources and Streamflow Monitoring Network



Source: USGS Water Science Center, 2006