CHAPTER 1
Executive Summary

Purpose

This report, *Water Quality in Georgia, 2004-2005*, was prepared by the Georgia Environmental Protection Division (GAEPD) of the Department of Natural Resources (DNR). The DNR Coastal Resources (CRD) and Wildlife Resources Divisions (WRD), the Georgia Forestry Commission, and the Georgia Soil and Water Conservation Commission also contributed portions of the report. In addition, water quality data was provided by a number of governmental agencies and universities.

The report is often referred to as the Georgia 305(b) Report as portions of the report are prepared to comply with this section of the Federal Clean Water Act. Section 305(b) requires that each State prepare and submit to the Administrator of the United States Environmental Protection Agency (USEPA) a report, biennially, which describes water quality conditions of navigable waters across the State. The USEPA provides guidance to the States to establish a framework for consistent reporting across the nation. The USEPA reviews the individual State reports and uses the information to develop a national water quality inventory report, which is transmitted to the Congress of the United States.

This report provides an assessment of the water quality conditions of surface and groundwater in Georgia and includes a description of the nature, extent and causes of documented water quality problems. This assessment of water quality problem areas serves as the basis for lists required by Sections 303(d), 314, and 319 of the Clean Water Act. The report also includes a review and summary of ongoing wetland, estuary, and coastal public health/aquatic life issues; and water protection, groundwater, and drinking water program summaries.

In addition to complying with the Federal Clean Water Act, the major objective of this report is to provide Georgians a broad summary of information on water quality and the programs being implemented by the GAEPD and its partners to protect water resources across the State.

Water Protection In Georgia

The GAEPD is and has been since its inception in 1972 a comprehensive environmental agency responsible for environmental protection, management, regulation, permitting, and enforcement in Georgia. The GAEPD has for many years aggressively sought most available program delegations from the USEPA in order to

achieve and maintain a coordinated, integrated approach to environmental management. Today the GAEPD administers regulatory programs for water pollution control, water supply and groundwater management, surface water allocation, hazardous waste management, air quality control, solid waste management, strip mining, soil erosion control, geologic survey activities, radiation control, underground storage tanks, and safe dams.

This integrated approach to water pollution control originated in 1964 with the predecessor of the GAEPD, the Georgia Water Quality Control Board. The Georgia Water Quality Control Act of 1964 established the Board and consolidated all water pollution control functions under the Board. Early efforts by the Board in the late 1960s and early 1970s included documentation and assessment of water quality conditions, followed by judicial actions to force cleanup of targeted, priority water pollution problem areas. Another major action by the Board during this period was the establishment of water quality standards.

The Federal Clean Water Act of 1972 established the national goal of the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water wherever attainable. Most industries in Georgia had installed effective water pollution control facilities by the end of 1972. In the mid/late 1970s, the GAEPD placed emphasis on the construction of municipal treatment plants, issuance of NPDES permits to municipal and industrial discharges, and the initiation of programs to monitor permit compliance and take appropriate enforcement actions. Major monitoring, modeling, and basin planning work was coordinated in support of treatment plant design and permitting programs. Priority was placed on targeted waters and on discharges to water quality limited stream segments through the construction grant priority funding list.

Today the Watershed Protection Branch of the GAEPD, in cooperation with many local, state, and federal agencies, coordinates programs to address most aspects of water pollution control including, monitoring; water quality modeling to develop wasteload allocations and total maximum daily loads (TMDLs); TMDL implementation plans; river basin management planning and the continuing planning process; water quality standards; local watershed assessment and watershed protection plans; nonpoint source management; erosion and sedimentation; stormwater management; the State revolving loan process for funding municipal water pollution control plant construction; the NPDES permit and enforcement program for municipal and industrial point sources; industrial pretreatment; land application of treated wastewater and regulation of concentrated animal feedlot operations (CAFOs).

The GAEPD has designated the Georgia Soil and Water Conservation Commission as the lead agency for dealing with water quality problems caused by agriculture. The Georgia Forestry Commission has been designated by the GAEPD as the lead agency to deal with water quality problems due to commercial forestry operations.

Water Protection Programs

Background. Georgia is rich in water resources. According to USEPA estimates, the State has 44,056 miles of perennial streams, 23,906 miles of intermittent streams, and 603 miles of ditches and canals for a total of 70,150 stream miles. Also, the State has 4.8 million acres of wetlands (9% tidally affected), 425,582 acres of public lakes and reservoirs, 854 square miles of estuaries, and 100 miles of coastline. This rich water heritage is often taken for granted. However, unusual events such as the flood in the summer of 1994 and drought conditions experienced throughout Georgia in 1986, 1988 and 1999-2002 serve as reminders that water resources cannot be taken for granted and sound regulatory programs are necessary to protect the resources.

In 2004-2005, the GAEPD placed emphasis on comprehensive statewide water management planning, monitoring and assessment, water quality modeling and TMDLs, TMDL implementation plan development, State revolving loan programs, NPDES permitting and enforcement, nonpoint source pollution abatement, stormwater management, erosion and sediment control and public participation projects.

Comprehensive Statewide Water Management Planning. In 2004 the Georgia General Assembly passed new water planning legislation to take the place of river basin planning. The 2004 Comprehensive State-wide Water Management Planning Act calls for the EPD to prepare a comprehensive water plan and provides fundamental goals and guiding principles for the development of the plan. This work is discussed in Chapter 2. Georgia will continue to use a rotating basin approach as a basis for watershed protection including monitoring, assessment, listing, TMDL development and NPDES permit reissuance.

Watershed Projects. The GAEPD is working with the United States Environmental Protection Agency (USEPA) and South Carolina on several Savannah River projects; with the USEPA and the Alabama Department of Environmental Management (ADEM) on water quality issues in the Coosa River and Lake Weiss; and with the Florida Department of Environmental Protection and the Suwannee River Water Management District to coordinate water protection efforts in the Suwannee River Basin.

Monitoring and Assessment. Georgia's waters are currently classified for one of the following water use classifications: drinking water, recreation, fishing, coastal fishing, wild river, or scenic river. Specific water quality standards are assigned to support each water use classification. The use classifications and standards are discussed in some detail in Chapter 3. The quality of Georgia's waters is judged by the extent to which the waters support the uses (comply with standards set for the water use classification or designations) for which they have been designated. Water quality monitoring programs

and information on assessments of Georgia's waters are discussed in Chapter 3.

Water Quality Modeling/Wasteload Allocation/TMDL Development. In 2004-2005, a significant amount of modeling work was conducted in support of the development of wasteload allocations and TMDLs. During this period TMDLs were established for 303(d) listed waters in the Coosa, Tallapoosa and Tennessee River Basins. These TMDLs were finalized by EPD and approved by the EPA in 2004. TMDLs were also developed by EPD for listed waters in the Savannah and Ogeechee River basins and approved by the EPA in 2005. In addition, TMDLs were developed by EPD for listed waters in the Ochlockonee, Suwanee, Satilla and St. Marys and publicly noticed in 2005. These TMDLs will be finalized and submitted to the EPA for approval in 2006. This work is discussed in Chapter 3. Over the two-year period, more than 135 TMDLs were developed. To date more than 1250 TMDLs have been developed for 303(d) listed waters in Georgia.

TMDL Implementation Plan Development. In 2004 a total of 213 TMDL implementation plans and revisions were developed for TMDLs in the Chattahoochee and Flint River Basins. Another 147 plans and revisions for TMDLs in the Coosa, Tallapoosa and Tennessee River Basins were initiated in 2005 and are scheduled for completion in 2006. To date a total of 864 TMDL plans and revisions have been prepared to implement TMDLs in Georgia. This work is discussed in Chapter 7.

State Revolving Loan Fund and Georgia Loan Fund. In March 1988, Georgia became the third State in the nation to receive a Capitalization Grant from the USEPA for implementation of the State Revolving Loan Fund (SRF). In 2004-2005 more than 132 million dollars were obligated to communities for wastewater system improvements through the Georgia Environmental Facilities Authority (GEFA) in the form of low-interest, SRF and Georgia Fund loans. The loan programs are discussed in Chapter 7.

GEFA Implementation Unit. The Metropolitan North Georgia Water Planning District (District) was created on April 5, 2001 (2001 S.B. 130) as a planning entity dedicated to developing comprehensive regional and watershed-specific plans to be implemented by local governments in the District.

The enabling legislation required the District to develop plans for stormwater management, wastewater treatment, and water supply and conservation in its 16-county area that includes Bartow, Cherokee, Clayton, Cobb, Coweta, DeKalb, Douglas, Fayette, Fulton, Forsyth, Gwinnett, Hall, Henry, Paulding, Rockdale and Walton Counties. These plans are designed to protect water quality and public water supplies, protect recreational values of the waters, and to minimize potential adverse impacts of development on waters in and downstream of the region.

Limited water resources combined with the region's growth places the District in a

unique position relative to other areas in Georgia. With a finite water resource and a population of nearly 4 million and growing, the need to carefully and cooperatively manage and protect Metropolitan Atlanta's rivers and streams has become a priority.

The GAEPD was charged with the enforcement of these plans. The Watershed Protection Branch, GEFA Implementation Unit, was assigned the responsibility of ensuring the implementation of the plans developed by the District.

NPDES Permitting and Enforcement. A considerable amount of time was allocated to treated wastewater discharge permit reissuance activities in 2004-2005. NPDES permits were modified or reissued to 208 municipal/private dischargers and to 150 industrial dischargers. In addition, 55 private dischargers were covered under general permit No. GA550000. Since the initiation of the program in 1974, NPDES permit issuance and enforcement has been a high priority for the GAEPD.

Compliance and enforcement activities continued to receive significant attention in 2004-2005. By the end of 2005, of 125 major municipal discharges, 119 facilities were in general compliance with final limitations. The remaining six facilities are under compliance schedules to resolve the noncompliance or implementing infiltration/ inflow strategies. Enforcement action has been taken by the GAEPD to insure problems are alleviated. Of 42 major industrial discharges, 40 facilities were achieving permit compliance at the end of 2005. The one major industrial discharger not in compliance at the end of 2005 is under an order to attain compliance.

The GAEPD utilizes all reasonable means to attain compliance, including technical assistance, noncompliance notification letters, conferences, consent orders, and civil penalities. Emphasis is placed on achieving compliance through cooperative action. However, compliance cannot always be achieved in a cooperative manner. The Director of the GAEPD has the authority to negotiate consent orders or issue administrative orders. In 2004-2005 768 Orders were issued and a total of $3,200,000 in negotiated settlements was collected. This includes enforcement actions for all aspects of the water protection program including violations of the Georgia Water Quality Control Act, the Federal Clean Water Act and NPDES permits, excluding stormwater. In 2004-2005 a total of 339 stormwater Orders were issued and a total of $1,073,312 in negotiated settlements was collected. Permitting, compliance and enforcement work is discussed in Chapter 7.

Concentrated Animal Feeding Operations. Georgia adopted rules for swine feeding operations in 1999. Rules were adopted for animal (non-swine) feeding operations in 2001. During 2002 and 2003 rules were developed and implemented for large chicken feeding operations. Work was continued in 2004-2005 to implement this program. This process is discussed in Chapter 7.

Zero Tolerance. In response to a resolution adopted in 1998 by Georgia Department of Natural Resources that directed EPD to provide the "best quality of effort possible enforcing Georgia's environmental laws", a "zero tolerance" strategy was adopted for certain high growth areas of the state requiring enforcement action on any and all noncompliance issues. Significant work was conducted in 2004-2005 to implement this strategy. This process is discussed in Chapter 7.

Nonpoint Source Management Program. Nonpoint source management programs have allowed the GAEPD to place increasing emphasis on the prevention, control and abatement of nonpoint sources of pollution. The GAEPD is responsible for administering and enforcing laws to protect the waters of the State, defined to include surface and ground water. Consequently, the GAEPD has been designated as the administering or lead agency for implementing the State's Nonpoint Source Management Program. This program combines regulatory and non-regulatory approaches, in cooperation with other State and Federal agencies, local and regional governments, State colleges and universities, businesses and industries, non-governmental organizations and individual citizens.

Georgia's initial Nonpoint Source Assessment Report was completed in compliance with the Federal Clean Water Act and approved by the USEPA in January 1990. This report, as required by Section 305(b) of Public Law 92-500, serves as the current process to update the Nonpoint Source Assessment Report.

In January 1997, the GAEPD initiated efforts with the University of Georgia - Institute of Community Affairs and Development to revise and update the Nonpoint Source Management Program. This revision of the State's Nonpoint Source Management Program is intended to meet the requirements for funding under Section 319(b) of the Federal Clean Water Act and to delineate short and long-term goals and implementation strategies. Just as important, it is also designed to be an information resource for the wide range of stakeholders across the State who are involved in the prevention, control and abatement of nonpoint sources of pollution. It has been developed as an inventory of the full breadth of nonpoint source management (regulatory and non-regulatory) in Georgia, including activities, which are currently underway or planned for the time period FFY 2000 through FFY 2004.

The State's Nonpoint Source Management Program focuses on the comprehensive categories of nonpoint sources of pollution identified by the USEPA: Agriculture, Silviculture, Construction, Urban Runoff, Hydrologic/Habitat Modification, Land Disposal, Resource Extraction and Other Nonpoint Sources. This revision of the State's Nonpoint Source Management Program was developed through a consultatory process, incorporating input from a wide range of stakeholders involved in nonpoint source management activities throughout the State: local, regional, State and Federal agencies, as well as private, non-governmental organizations. This process encouraged

intergovernmental resource sharing and increased stakeholder involvement. This revision of the State's Nonpoint Source Management Program established new partnerships and strengthened existing partnerships in the development and implementation of nonpoint source strategies.

Under Section 319(h) of the Federal Clean Water Act, the USEPA awards a Nonpoint Source Implementation Grant to the GAEPD to fund eligible projects, which support the implementation of the State's Nonpoint Source Management Program. Section 319(h) Grant funds for the prevention, control and/or abatement of nonpoint sources of pollution are made available annually to public agencies in Georgia. With funding from Section 319(h) FY96 – FY05 Grants, the GAEPD has awarded over $25 million in grant funds to State agencies, local and regional governments, Resource Conservation and Development Councils, State colleges and universities to fund eligible projects supporting the State's Nonpoint Source Management Program. The nonpoint source programs are described in Chapter 7.

Stormwater Management. The GAEPD developed its Storm Water Permitting Strategy in February 1991, and revised it in February 1997. Georgia's Phase II Storm Water Permitting Strategy was approved by USEPA in May 2000, and Phase II designation criteria was developed by GAEPD in July 2002. In 1994-1995 a total of 58 NPDES permits were issued to large and medium municipal separate storm sewer systems (MS4s). The 45 NPDES permits covering the Atlanta metro area were reissued in 1999 and 2004. The 13 NPDES permits for medium MS4s were reissued in 2000 and 2005. In December 2002, GAEPD issued an NPDES General Permit for Phase II MS4s, and this permit currently regulates 84 cities and counties.

In 1993, a general NPDES permit for storm water associated with industrial activity was issued. This permit was reissued in 1998. The permit was administratively extended in 2003, with approximately 3500 facilities retaining coverage. Multiple stakeholder meetings were held in the following two years, leading to a new permit issuance in March 2005. This permit was appealed in April 2005 by one industry and several environmental groups. Many months of negotiation meetings are expected to result in a new draft permit in 2006.

The general permit for storm water from construction activities was issued in September 1996, appealed, and eventually overturned by a State Administrative Law Judge in April 1998. The permit was redrafted and issued in July 1999 and was subsequently appealed. Settlement negotiations began in October 1999. A revised general NPDES permit for construction activities was issued on June 12, 2000, and became effective on August 1, 2000. The permit was reissued by GAEPD on August 13, 2003. The permit was re-issued as three permits; Stand Alone, Infrastructure and Common Development, and required coverage for projects disturbing one acre or more. Storm water management is discussed in Chapter 7.

Erosion and Sediment Control. The Georgia Erosion and Sedimentation Act was signed into law in 1975 and has been amended several times since that date, most recently 2001.The legislative intent of the Act was to establish a comprehensive and statewide soil, erosion and sedimentation control program to protect and conserve air, land and water resources through the adoption and implementation of local ordinances and programs which regulate certain land disturbing activities generally associated with urban development. EPD implements the program where there is no local ordinance.

The Act requires an erosion and sedimentation control plan and a land disturbing activity permit for sites greater than 1 acre. Erosion and Sedimentation control plans must be reviewed and approved by the Soil and Water Conservation District or by the local issuing authority before the land disturbing activity permit can be issued. Buffers of 25 feet for warm water streams and 50 feet for trout streams are required by the Act for the protection of water quality. The Act provides for a variance from these buffers under certain circumstances. Variances can only be issued by EPD. Procedures and criteria for obtaining a stream buffer variance are outlined in DNR's Erosion and Sedimentation Control Rules and Regulations and become part of the Land Disturbing Activity Permit. The Act provides for monetary penalties of up to $2,500 per day, enforced by EPD or by the local issuing authority.

The Act was amended by House Bill 285 in 2003 to create an integrated permitting program for erosion and sedimentation control for land disturbing activities of one acre or greater, thereby standardizing the requirements for local Land Disturbing Activity Permits and the NPDES Construction Storm Water Permits. HB 285 also established a new, mandatory training and certification program for all individuals involved with erosion and sediment control. This new program, which is being administered by the Georgia Soil and Water Conservation Commission, requires those individuals to obtain the applicable certification by December 31, 2006. The third major component of HB 285 was to authorize the first NPDES permit fee program in Georgia. The bill authorized a fee of up to $80 per disturbed acre, with half of that amount to go to the local issuing authority. The amendments required the Georgia Board of Natural Resources to adopt amendments to the Erosion and Sedimentation Rules to implement these requirements. Local issuing authorities were required to amend their local ordinances to implement the changes in the Act by July 1, 2004. The Act was amended by Senate Bill 460 in 2004 to add three new criteria under which the EPD director can consider stream buffer variances. The legislation also required The Georgia Board of Natural Resources to adopt amendments to the Erosion and Control Rules to implement the new criteria.

Major Issues and Challenges

Georgia is one of the fastest growing states in the nation. The burgeoning population places considerable demands on Georgia's ground and surface water resources in

terms of water supply, water quality and assimilative capacity. The problems and issues are further complicated by the fact that surface water resources are limited in South Georgia and groundwater resources are limited in North Georgia. In some locations, the freshwater resources are approaching their sustainable limits. Thus, several key issues and challenges to be addressed now and in the future years include (1) minimizing withdrawals of water by increasing conservation, efficiency and ruse, (2) maximizing returns to the basin through reducing interbasin transfers and limiting use of septic tanks and land application of treated wastewater where water is limited, (3) meeting instream and offstream water demands through storage, aquifer management and reducing water demands, (4) protecting water quality by reducing wastewater discharges and runoff from land to below the assimilative capacity of the streams. The implementation of the Comprehensive Statewide Water Management Planning process in Georgia provides a framework for addressing each of the key issues.

The pollution impact on Georgia streams has radically shifted over the last two decades. Streams are no longer dominated by untreated or partially treated sewage discharges which resulted in little or no oxygen and little or no aquatic life. The sewage is now treated, oxygen levels have returned and fish have followed. However, another source of pollution is now affecting Georgia streams. That source is referred to as nonpoint and consists of mud, litter, bacteria, pesticides, fertilizers, metals, oils, suds and a variety of other pollutants being washed into rivers and lakes by stormwater. This form of pollution, although somewhat less dramatic than raw sewage, must be reduced and controlled to fully protect Georgia's streams. Structural and nonstructural techniques such as pollution prevention and best management practices must be significantly expanded to minimize nonpoint source pollution. These include both watershed protection through planning, zoning, buffer zones, and appropriate building densities as well as increased use of stormwater retention ponds, street cleaning and perhaps eventual limitations on pesticide and fertilizer usage.

Another issue of importance is the reduction of toxic substances in rivers, lakes, sediment and fish tissue is extremely important in protecting both human health and aquatic life. The sources are widespread. The most effective method to reduce releases of toxic substances into rivers is pollution prevention, which consists primarily of eliminating or reducing the use of toxic materials or at least reducing the exposure of toxic materials to drinking water, wastewater and stormwater. It is very expensive and difficult to reduce low concentrations of toxic substances in wastewaters by treatment technologies. It is virtually impossible to treat large quantities of stormwater and reduce toxic substances. Therefore, toxic substances must be controlled at the source.

It is clear that local governments and industries, even with well-funded efforts, cannot fully address the challenges of toxic substances and nonpoint source pollution control. Citizens must individually and collectively be part of the solution to these challenges. The main focus is to achieve full public acceptance of the fact that some of everything

put on the ground or street ends up in a stream. Individuals are littering, driving cars which drip oils and antifreeze, applying fertilizers and pesticides and participating in a variety of other activities contributing to toxic and nonpoint source pollution. If streams and lakes are to be pollutant free, then some of the everyday human practices must be modified. The GAEPD will be emphasizing public involvement; not only in decision-making but also in direct programs of stream improvement. The first steps are education and adopt-a-stream programs.

CHAPTER 2
Comprehensive Statewide Water Management Planning

Background

Georgia's future relies on the protection and sustainable management of the state's limited water resources. The 2004 Comprehensive Statewide Water Management Planning Act mandates the development of a statewide water plan that supports a far-reaching vision for water resource management:

> "Georgia manages water resources in a sustainable manner to support the state's economy, to protect public health and natural systems, and to enhance the quality of life for all citizens". (O.C.G.A. 12-5-522(a))

The Act also identifies the following nine principles to guide the water planning process:

1. Effective water resources management protects public health, safety and welfare of Georgia's citizens.

2. Water resources are managed in a sustainable manner so that current and future generations have access to adequate supplies of quality water that supports both human needs and natural systems.

3. All citizens have a stewardship responsibility to conserve and protect the water resources of Georgia.

4. Water management efforts recognize that economic prosperity and environmental quality are interdependent.

5. Water quality and quantity and surface and ground water are interrelated and require integrated planning as well as reasonable and efficient use.

6. A comprehensive and accessible database is developed to provide sound scientific and economic information upon which effective water management decisions can be based.

7. Water resource management encourages local/regional innovation, implementation, adaptability and responsibility for watershed and river basin management.

8. Sound water resources management involves meaningful participation, coordination and cooperation among interested and affected stakeholders and citizens as well as all levels of governmental and other entities managing and/or utilizing water.

9. Periodic revisions of the plan are required to incorporate new scientific and policy insights, as well as changing social, economic, cultural, and environmental factors.

The legislation in 2004 created a framework for developing Georgia's first comprehensive statewide water management plan by providing a vision/goal for water management and guiding principles for developing the plan. In addition, the planning process must:

1. Evaluate water trends and conditions to determine the types of challenges that we face now or will face in the future;

2. Evaluate our legal/management structure (i.e., statutes, rules, programs, policies) to address those challenges;

3. Identify gaps and other weaknesses in our water management approach; and

4. Identify options for addressing these gaps and weaknesses and the benefits and drawbacks of each option.

The Act charges the Georgia Environmental Protection Division with development of the statewide water plan and creates the Georgia Water Council, to oversee plan development. Currently, state and federal statutes form the foundation for Georgia's water management programs. Two goals that resonate throughout federal and state statutes can be summed up as:

Protect public health and environmental quality; and

Meet future needs while protecting aquifers, instream uses and downstream users.

The goals of the Comprehensive Statewide Water Management Planning Act are aligned with these statutory goals. Achieving the goals with the increasing demands for water for all purposes will require a comprehensive approach to planning and managing

water resources.

The statewide water planning process presents Georgians the opportunity to comprehensively evaluate and adjust statutes, regulations, and management programs to achieve sustainable management of our water resources. An opportunity of this nature has not presented itself since water management programs first began to take shape, over thirty years ago.

Major Water Management Planning Objectives

The Comprehensive Statewide Water Management Planning Act does not define the mechanisms by which the state is to achieve its vision for water management. For this reason EPD, using products from the efforts of the 2001 Joint Water Study Committee and with oversight of the Water Council, has prioritized four major water management objectives to guide the research and planning strategies for the initial plan development:

1. Minimize withdrawals of water by increasing conservation, reuse, and efficiency. Because of increasing demands being placed on Georgia's water resources, the comprehensive statewide water plan must address increasing efforts related to 1) conservation, 2) efficiency, and 3) water reuse. These three sub-objectives are the focus of minimizing withdrawals.

Water conservation, the "beneficial reduction in water use, waste, and loss," is a broad and varied water policy area. Water efficiency, or using the least possible amount of water necessary to achieve a desired result, is generally considered an aspect of conservation. Water reuse, or the use of reclaimed or recycled water, although specifically a water supply mechanism, is often used as one of the tools for conserving water resources.

The University of Georgia's Carl Vinson Institute of Government produced for EPD a research document titled, *Water Conservation, Efficiency and Reuse*. EPD used this report along with other reference material to develop policy options for review by a series of advisory committees.

2. Maximize returns of water to the basin through the management of interbasin transfers, land application and on-site sewage disposal systems. Georgia's water resources are becoming increasingly strained by greater demands as the State's population and economy grow. As a result, specific policies that clearly define a strategy for maximizing return flows to water bodies have become more critical. Land application of wastewater, septic systems, and interbasin transfers are all consumptive uses of water that do not return water to the point of withdrawal, at least in a timely and quantifiable manner. Nevertheless, all three of these water uses also serve beneficial purposes that are valuable to society.

The principle of reasonable use that underlies Georgia's water management program includes a responsibility to return water for reasonable use downstream. Returning water to its river basin is valuable and Georgian's have a responsibility to return as much water as practicable based on water quality and economic conditions. Because of this responsibility, it is important to develop water management policies that balance the water demands of our growing population against the equally important need to maximize water returns to our river basins. Careful development of policy options for these three consumptive water uses will be an important part of the water plan's role in meeting the requirements of the Comprehensive Statewide Water Management Act.

The University of Georgia's Carl Vinson Institute of Government prepared for EPD a research document titled, *Maximizing Water Returns to River Basins*. This document examines the water management objective of maximizing water returns to river basins in terms of current knowledge and water policies adopted in other states.

3. Meet instream and offstream demands for water through surface storage, aquifer management and reducing water demands. Long-term management of water resources is a growing concern in many parts of the State. As economic development and population growth increases, new policies and practices will be needed to meet the vision for sustainable management of Georgia's water resources.

The quantity of water resources in the State is influenced by precipitation, ground cover, water storage, aquifer/surface water interaction, water withdrawals, and wastewater returns. Although Georgia's climate provides generally for abundant precipitation, it does not necessarily occur where and when needed to meet the demands of society and natural systems.

Sustainable management of Georgia's waters means ensuring that water is available, now and in the future, for people's use away from the water source, also known as offstream uses. These uses include water supply for domestic use, for industrial purposes, and for agricultural uses, including irrigation, all of which are fundamental to the state's economy and to the quality of life of Georgia residents.

To fully accomplish this vision, however, Georgia's waters must, at the same time, be managed to meet instream needs. The term "instream uses" addresses fish and wildlife and ecosystem support, but goes beyond that to include water that provides other benefits while in the stream including hydropower production, navigation, and recreation. Finally, instream flows also transport water to meet the needs of downstream water users, water that provides for both offstream and instream use in lower segments of our river basins.

Meeting offstream and instream needs for water is, of course, complicated by the fact

that precipitation varies, with resultant variations in streamflow and groundwater levels. Storing water at higher flow times in order to meet demand at lower flow times can provide ways to adapt. As stated by the Carl Vinson Institute of Government, the question inherent in this management objective can be stated as follows:

> "How will it be possible to spread the water supplies over time and space such that human needs are met while natural systems are kept healthy and continue to provide crucial environmental services upon which we depend?"

Three sets of policy tools that can help us address this challenge will be the focus of policy options developed to address this management objective: surface storage or reservoir policies, instream flow policies, and aquifer management policies. The University of Georgia's Carl Vinson Institute of Government produced for EPD a research document titled, *Balancing Instream and Offstream Uses*, that addresses these three sets of policy tools.

4. Protect water quality by reducing discharges of pollutants to streams and runoff from land, so as not to exceed the assimilative capacity of the streams is the fourth and last major objective to be addressed in the first iteration of the comprehensive statewide water plan.

Georgia's continued growth and development will be accompanied by significant increases in the volume and character of pollutants discharged to our waters from point and nonpoint sources. These increases, if not managed appropriately, will compromise the ability to use these waters in beneficial ways. To achieve this objective, Georgia will need to protect clean waters, restore impaired waters and maintain assimilative capacity for current and future users.

The University of Georgia's Carl Vinson Institute of Government produced for EPD a research document titled, *Protecting Water Quality*, that provides information on federal and state water law, water quality standards and monitoring, stormwater management, on-site wastewater management and infrastructure financing. This document, as well as those mentioned above, is available at www.cviog.uga.edu/services/policy/environmental/policyreports.

Stakeholder Participation

The process used to develop the statewide plan provides for meaningful participation, coordination, and cooperation among interested and affected stakeholders and citizens as well as all levels of governmental and other entities managing or utilizing water. Opportunities to become involved in the statewide plan development are provided

through over-sight by the Water Council, the use of advisory committees, opportunities for stakeholders to provide comments and/or information on the development of water management objectives/sub-state planning and their related tools and options, and by participating in Water Council town hall meetings.

The Water Council is a coordinating committee created by the Comprehensive Statewide Water Management Planning Act. According to the Act, the Water Council's purpose is to:

- Ensure coordination, cooperation and communication among state agencies and their water-related efforts in the development of a comprehensive statewide water management plan
- Provide input to the Environmental Protection Division (EPD) of the Georgia Department of Natural Resources concerning development of the plan
- Review, modify if necessary, and approve the final draft of the proposed plan
- Recommend such proposed plan for consideration by the General Assembly

The Water Council consists of eight state agency officials who serve ex officio; the chairperson of the Senate Natural Resources and Environment Committee, ex officio, and an additional member of that committee selected by the committee chairperson; the chairperson of the House Natural Resources and Environment Committee, ex officio, and an additional member of that committee selected by the committee chairperson; one member who is not a member of the General Assembly who is appointed by the Speaker of the House of Representatives; and one member who is not a member of the General Assembly who is appointed by the President Pro Tempore of the Senate. The director of the Georgia Environmental Protection Division serves as the chairperson of the Water Council.

The members of the Water Council are:

- Dr. Carol A. Couch -- Director, Environmental Protection Division (Chairperson)
- Mike Beatty -- Commissioner, Georgia Department of Community Affairs
- Gus Bell -- Savannah, Georgia
- David Bennett -- Executive Director, Georgia Soil and Water Conservation Commission

- Senator John Bulloch, District 11
- Paul Burks -- Executive Director, Georgia Environmental Facilities Authority
- Noel Holcomb -- Commissioner, Georgia Department of Natural Resources
- Tommy Irvin -- Commissioner, Georgia Department of Agriculture
- Jerry Lane -- Claxton, Georgia
- Representative Tom McCall, District 30
- Representative Lynn Smith, District 70
- Kenneth Stewart Jr. -- Director, Georgia Forestry Commission
- Senator Ross Tolleson, District 20
- B.J. Walker -- Commissioner, Georgia Department of Human Resources

The Statewide Advisory Committee (SAC) provides EPD with statewide perspectives on Georgia's overarching goals for water management, water management objectives, and the array of new policy tools identified for development in the first state water plan. Statewide perspectives are needed to bring the full range of Georgia's geographic, economic, cultural, jurisdictional, and water resource realities into discussions of the water management. The committee is primarily composed of representatives of organizations that have statewide constituencies and interest.

The primary purpose of the statewide advisory committee is to provide structured "Statewide" perspectives and input on water management policy tools and/or options. The state advisory committee is not asked to reach consensus on specific decisions, but to assess each set of policy option in some detail for the purpose of providing insight from diverse perspectives to help EPD refine and improve Georgia's water management policies and/or options. Each policy options package presented to the SAC, along with the meeting summaries, is posted at http://www.gadnr.org/gswp/.

Technical Advisory Committees (TAC) provide early input, when needed, by answering specific technical questions needed to inform water policy options. The technical advisors have extensive expertise and are actively working on and/or researching the topic being addressed. TAC members bring a broad range of scientific, technical, and practical experience to EPD during the planning process. These technical advisory committees work with EPD associates to build the scientific and technical foundation upon which policy options will be developed. Two TACs, one to address

water conservation and one to address water reuse, were convened to support work on the first water management objective, minimizing withdrawals.

The Basin Advisory Committees are shown in Figure 1. The committees represent the groups of basins shown on the map along with a separate committee focused on aquifers along the coast and a committee focused on the North Georgia Metro Water Planning District. Because water follows geographic boundaries defined by nature, these basin advisory committees are organized along river basin and aquifer boundaries. The primary purpose of the basin advisory committees is to provide structured “regional” perspectives and input on water management objectives and potential policy tools and/or options. Each policy options package presented to the BACs, along with the meeting summaries, is posted at http://www.gadnr.org/gswp/.

Tasks and Milestones

EPD is developing the first Statewide Comprehensive Water Plan to be provided to the Georgia Water Council in July 2007. This initial statewide plan will focus on the policy framework and an array of tools necessary for developing the region-specific management strategies to be developed for subsequent editions of the statewide plan. The first iteration of the plan will identify and fill the "gaps" that may exist in Georgia’s current array of water laws, regulations, and policies that may impede progress toward the four water management objectives.

Figure 1. Basin Advisory Committees

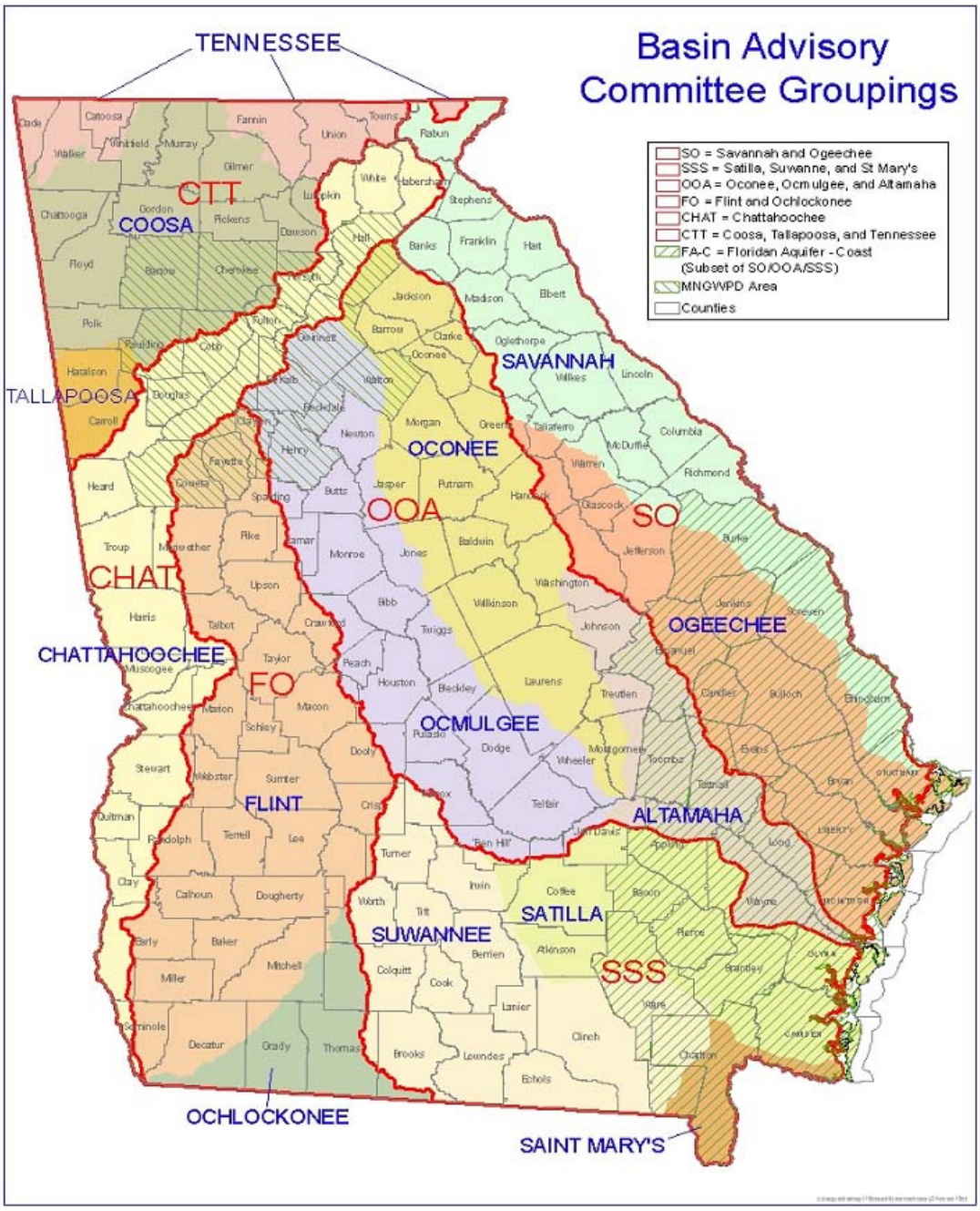
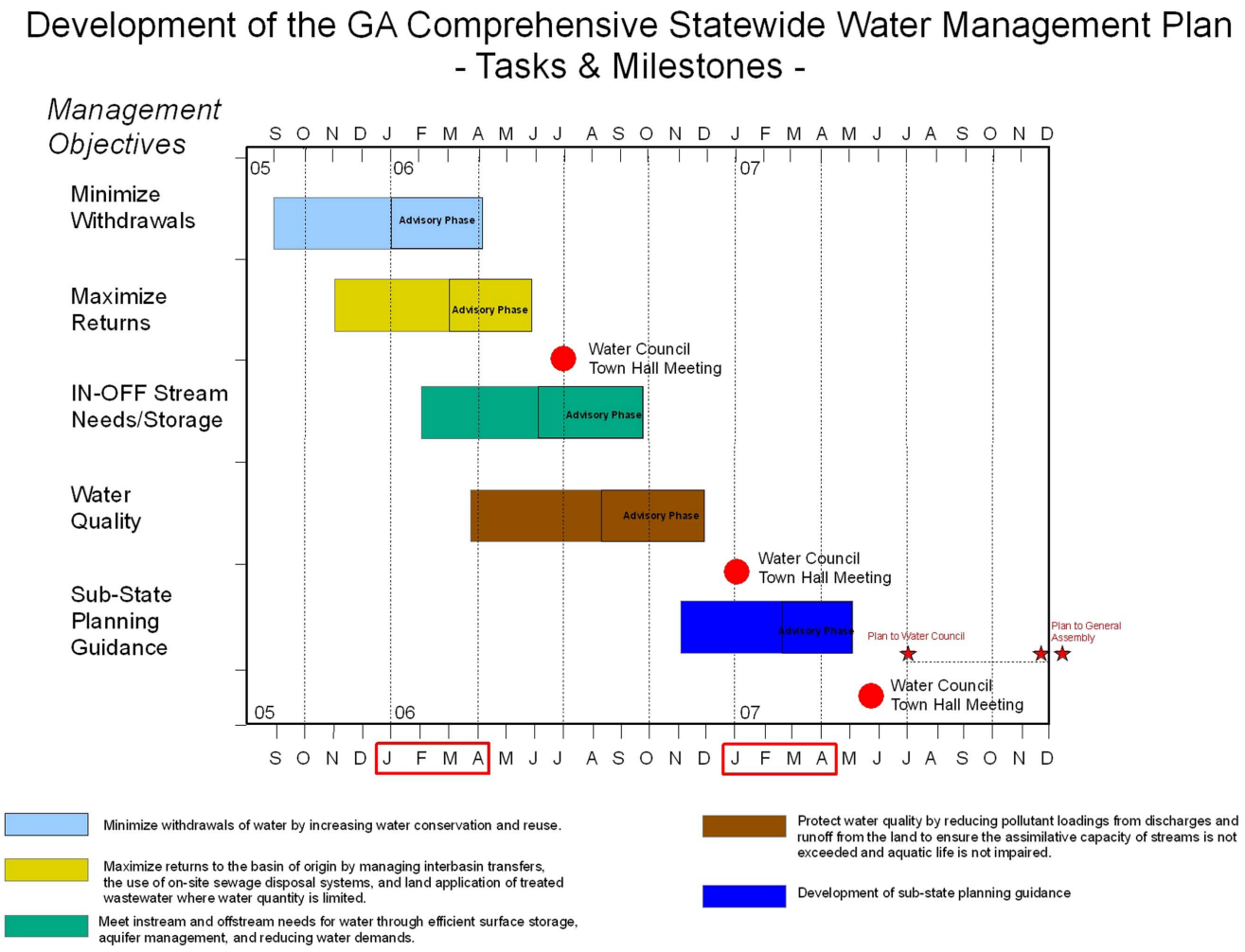


Figure 2 shows the tasks, milestones and advisory periods for the first four water management objectives and sub-state planning. The first iteration of the plan will not

include the actual development of region-specific water management strategies. The first iteration will evaluate water trends and

Figure 2. Tasks and Milestones



conditions to determine the types of challenges that the state may face in advancing the four water management objectives; evaluate legal/management structure (i.e., statutes, rules, programs, policies) to address those challenges; identify gaps and other weaknesses in Georgia's current management approach; identify options for addressing

these gaps and weaknesses; and outline guidance for region-specific water management strategies. The first iteration will, however, include the framework and an array of tools necessary for developing the region-specific management strategies to be developed for subsequent editions of the statewide plan.

CHAPTER 3
Water Quality Monitoring And Assessment

Background

Water Resources Atlas. In an effort to move toward national consistency in estimating river miles and lake acreage, the U.S. Environmental Protection Agency in cooperation with the U.S. Geological Survey (USGS) developed and provided to the States in 1992 estimates for use in this report. The estimates were based on the USGS 1:100,000 Digital Line Graph (DLG) which provides a national database of hydrologic traces. The DLG in coordination with the USEPA River Reach File provided a consistent computerized methodology for summing river miles and lake acreage for each State. The estimates are based on hydrologic features on the USGS 1:100,000 scale map series. The 1:100,000 scale map series is the most detailed scale available nationally in digital form and includes 75 to 90 percent of the hydrologic features on the USGS 1:24,000 scale topographic map series. Included in river mile estimates are perennial streams (streams that flow all year), intermittent streams (streams that stop flowing during dry weather), and ditches and canals (waterways constructed by man). Since 1992, USEPA enhanced the database from which the original estimates were made. The miles of streams were reduced by nearly 1,000 miles while the total acreage estimate for lakes increased by nearly 4000 acres.

The estimates for Georgia used in this report are 44,056 miles of perennial streams, 23,906 miles of intermittent streams, and 603 miles of ditches and canals for a total of 70,150 geological stream miles. The information provided by the USEPA estimates the number of lakes in Georgia to be 11,813 with a total acreage of 425,382. This information is summarized in Table 1.

Georgia has 14 major river basins. These are the Altamaha, Chattahoochee, Coosa, Flint, Ochlockonee, Ocmulgee, Oconee, Ogeechee, St. Marys, Satilla, Savannah, Suwannee, Tallapoosa, and the Tennessee. The rivers in Georgia provide the water needed by aquatic life, animals and humans to sustain life. Water also provides significant recreational opportunities, is used for industrial purposes, drives turbines to provide electricity, and assimilates our wastes.

Water Use Classifications and Water Quality Standards. The Board of Natural Resources was authorized through the Rules and Regulations for Water Quality Control promulgated under the Georgia Water Quality Control Act of 1964, as amended, to establish water use classifications and water quality standards for the waters of the State. The water use classifications and standards were first established by the

TABLE 1. WATER RESOURCES ATLAS

State Population	8,383,915
State Surface Area	58,910 square miles
Number of Major River Basins	14
Number of Perennial River Miles	44,056 miles
Number of Intermittent River Miles	23,906 miles
Number of Ditches and Canals	603 miles
Total River Miles	70,150 miles
Number of Lakes Over 500 Acres	48
Acres of Lakes Over 500 Acres	265,365 acres
Number of Lakes Under 500 Acres	11,765
Acres of Lakes Under 500 Acres	160,017 acres
Total Number of Lakes & Reservoirs, Ponds	11,813
Total Acreage of Lakes, Reservoirs, Ponds	425,382 acres
Square Miles of Estuaries	854 square miles
Miles of Coastline	100
Acres of Freshwater Wetlands	4,500,000 acres
Acres of Tidal Wetlands	384,000 acres

Georgia Water Quality Control Board in 1966. Georgia was the second State in the nation to have its water use classifications and standards for intrastate waters approved by the federal government in 1967. For each water use classification, water quality standards or criteria were developed which established a framework to be used by the Water Quality Control Board and later the Environmental Protection Division in making water use regulatory decisions. The water use classification system was applied to interstate waters in 1972 by the GAEPD. Georgia was again one of the first states to receive federal approval of a statewide system of water use classifications and standards. Table 2 provides a summary of water use classifications and criteria for each use.

In the latter 1960s through the mid-1970s there were many water quality problems in Georgia. Many stream segments were classified for the uses of navigation, industrial, or urban stream. Major improvements in wastewater treatment over the years have allowed the stream segments to be raised to the uses of fishing or coastal fishing which include more stringent water quality standards. The final two segments in Georgia were upgraded as a part of the triennial review of standards completed in 1989. All of Georgia's waters are currently classified as either fishing, recreation, drinking water, wild river, scenic river, or coastal fishing. This action represented the culmination of 25 years of effort to improve and protect water quality in order that all waters in Georgia could be classified for uses in accordance with goals in the Federal Clean Water Act

TABLE 2. GEORGIA WATER USE CLASSIFICATIONS AND INSTREAM WATER QUALITY STANDARDS FOR EACH USE

	Bacteria (fecal coliform)		Dissolved Oxygen (other than trout streams)[1]		pH	Temperature (other than trout streams)[1]	
Use Classification	**30-Day Geometric Mean[2] (no./100 ml)**	**Maximum (no./100ml)**	**Daily Average (mg/l)**	**Minimum (mg/l)**	**Std. Units**	**Maximum Rise (°F)**	**Maximum (°F)**
Drinking Water requiring treatment	1,000 (Nov-April) 200 (May-Oct)	4,000 (Nov-April)	5.0	4.0	6.0-8.5	5	90
Recreation	200 (Freshwater) 100 (Coastal)	--	5.0	4.0	6.0-8.5	5	90
Coastal Fishing[3]							
Fishing	1,000 (Nov-April) 200 (May-Oct)	4,000 (Nov-April)	5.0	4.0	6.0-8.5	5	90
Wild River		No alteration of natural water quality					
Scenic River		No alteration of natural water quality					
Agriculture[4]	5,000	--	--	3.0	6.0-8.5	5	90
Industrial[4]	--	--	--	3.0	6.0-8.5	5	90
Navigation[4]	5,000	--	--	3.0	6.0-8.5	5	90
Urban Stream[4]	2,000	5,000	--	3.0	6.0-8.5	--	--

[1]Standards for Trout Streams for dissolved oxygen are an average of 6.0 mg/l and a minimum of 5.0 mg/l. No temperature alteration is allowed in Primary Trout Streams and a temperature change of 2°F is allowed in Secondary Trout Streams.
[2]Geometric means should be "based on at least four samples collected from a given sampling site over a 30-day period at Intervals not less than 24 hours." The geometric mean of a series of N terms is the Nth root of their product. Example: the geometric mean of 2 and 18 is the square root of 36.
[3]Standards are same as fishing with the exception of dissolved oxygen which is site specific.
[4]Improvements in water quality since the water use classifications and standards were originally adopted in 1972 provided the opportunity for Georgia to upgrade all stream classifications and eliminate these use designations in 1993.

which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water. This goal had been interpreted by the USEPA to be achieved if waters of the State achieved standards associated with the classifications of fishing (including secondary contact recreation) or recreation. Based on Georgia's progress to achieve this goal, the USEPA had reviewed and approved Georgia standards every three years since 1972.

However, in the 1989 triennial review, the USEPA changed its interpretation of the Clean Water Act goal to include the requirement that all waters be classified to protect the use of swimming or primary contact recreation. In order to comply with this change

in Federal requirements, the Board of Natural Resources adopted in December 1989, revised standards which established a fecal coliform bacteria standard of a geometric mean of 200 per 100 ml for all waters with the use designations of fishing or drinking water to apply during the months of May - October (the recreational season). This standard provides the regulatory framework to support the USEPA requirement that States protect all waters for the use of primary contact recreation.

In addition, Congress made changes in the Clean Water Act in 1987 which required each State to adopt numeric limits for toxic substances for the protection of aquatic life and human health. In order to comply with these requirements, the Board of Natural Resources adopted 31 numeric standards for protection of aquatic life and 90 numeric standards for the protection of human health. Table 3 provides a summary of toxic substance standards that apply to all waters in Georgia.

In 1995, the Board of Natural Resources adopted additional water quality standards for West Point Lake. Additional standards for Lakes Jackson and Walter F. George were adopted in 1996. Standards were adopted for chlorophyll a, pH, total nitrogen, phosphorus, fecal coliform bacteria, dissolved oxygen, and temperature. Also, standards for major tributary phosphorus loading were established. Water quality standards were adopted by the Board for Lakes Lanier and Allatoona in 2000 and Carters in 2002. The standards for the six lakes are summarized in Table 4.

Water Quality Monitoring

Goals. The goal of the water protection program in Georgia is to effectively manage, regulate, and allocate the water resources of Georgia. In order to achieve this goal, it is necessary to monitor the water resources of the State to establish baseline and trend data, document existing conditions, study impacts of specific discharges, determine improvements resulting from upgraded water pollution control plants, support enforcement actions, establish wasteload allocations for new and existing facilities, develop TMDLs, verify water pollution control plant compliance, and document water use impairment and reasons for problems causing less than full support of designated water uses. Trend monitoring, intensive surveys, lake, estuary, biological, toxic substance monitoring, aquatic toxicity testing, and facility compliance sampling are some of the monitoring tools used by the GAEPD.

Trend/River Basin/TMDL Monitoring. Long term monitoring of streams at strategic locations throughout Georgia, trend or ambient monitoring, was initiated by the GAEPD during the late 1960s. This work is conducted by EPD associates and through cooperative agreements with federal, state, and local agencies who collect samples from groups of stations at specific, fixed locations throughout the year.

TABLE 3. Georgia Instream Water Quality Standards For All Waters: Toxic Substances

(Excerpt From Georgia Rules and Regulations for Water Quality Control Chapter 391-3-6-.03 - Water Use Classifications and Water Quality Standards)

(i) Instream concentrations of the following chemical constituents which are considered to be other toxic pollutants of concern in the State of Georgia shall not exceed the criteria indicated below under 7-day, 10-year minimum flow (7Q10) or higher stream flow conditions except within established mixing zones:

1. 2,4-Dichlorophenoxyacetic acid (2,4-D)	70 µg/l
2. Methoxychlor	0.03 µg/l*
3. 2,4,5-Trichlorophenoxy propionic acid (TP Silvex)	50 µg/l

(ii) Instream concentrations of the following chemical constituents listed by the U.S. Environmental Protection Agency as toxic priority pollutants pursuant to Section 307(a)(1) of the Federal Clean Water Act (as amended) shall not exceed the acute criteria indicated below under 1-day, 10-year minimum flow (1Q10) or higher stream flow conditions and shall not exceed the chronic criteria indicated below under 7-day, 10-year minimum flow (7Q10) or higher stream flow conditions except within established mixing zones or in accordance with site specific effluent limitations developed in accordance with procedures presented in 391-3-6-.06. Unless otherwise specified, the criteria below are listed in their total recoverable form. Because most of the numeric criteria for the metals below are listed as the dissolved form, total recoverable concentrations of metals that are measured instream will need to be translated to the dissolved form in order to compare the instream data with the numeric criteria. This translation will be performed using guidance found in "Guidance Document of Dynamic Modeling and Translators August 1993" found in Appendix J of EPA's Water Quality Standards Handbook: Second Edition, EPA-823-B-94-005a or by using other appropriate guidance from EPA.

		Acute	Chronic
1.	Arsenic		
	(a) Freshwater	340 µg/l [1]	150 µg/l [1]
	(b) Coastal and Marine Estuarine Waters	69 µg/l [1]	36 µg/l [1]
2.	Cadmium		
	(a) Freshwater	2.0 µg/l [1, 3]	1.3 µg/l [1, 3]
	(b) Coastal and Marine Estuarine Waters	42 µg/l [1]	9.3 µg/l [1]
3.	Chromium III		
	(a) Freshwater	320 µg/l [1,3]	42 µg/l [1,3]
	(b) Coastal and Marine Estuarine Waters	--	--
4.	Chromium VI		
	(a) Freshwater	16 µg/l [1]	11 µg/l [1]
	(b) Coastal and Marine Estuarine Waters	1,100 µg/l [1]	50 µg/l [1]
5.	Copper		
	(a) Freshwater	7.0 µg/l [1,2*,3]	5.0 µg/l [1,2*,3]
	(b) Coastal and Marine Estuarine Waters	4.8 µg/l [1,2]	3.1 µg/l [1,2]
6.	Lead		
	(a) Freshwater	30 µg/l [1,3]	1.2 µg/l [1,2*,3]
	(b) Coastal and Marine Estuarine Waters	210 µg/l [1]	8.1 µg/l [1]
7.	Mercury		
	(a) Freshwater	1.4 µg/l	0.012 µg/l [2]
	(b) Coastal and Marine Estuarine Waters	1.8 µg/l	0.025 µg/l [2]
8.	Nickel		
	(a) Freshwater	260 µg/l [1,3]	29 µg/l [1,3]
	(b) Coastal and Marine Estuarine Waters	74 µg/l [1]	8.2 µg/l [1]
9.	Selenium		
	(a) Freshwater	--	5.0 µg/l
	(b) Coastal and Marine Estuarine Waters	290µg/l [1]	71 µg/l [1]
10.	Silver	-- [4]	-- [4]
11.	Zinc		
	(a) Freshwate	65 µg/l [1,3]	65 µg/l [1,3]
	(b) Coastal and Marine Estuarine Waters	90 µg/l [1]	81 µg/l [1]
12.	Lindane [Hexachlorocyclohexane (g-BHC-Gamma)]		
	(a) Freshwater	0.95 µg/l	
	(b) Coastal and Marine Estuarine Waters	0.16 µg/l	

[1] The in-stream criterion is expressed in terms of the dissolved fraction in the water column . Conversion factors used to calculate dissolved criteria are found in the EPA document – National Recommended Water Quality Criteria – Correction, EPA 822-Z-99-001, April 1999.

[2] The in-stream criterion is lower than the EPD laboratory detection limits (A "*" indicates that the criterion may be higher than or

lower than EPD laboratory detection limits depending upon the hardness of the water).
[3] The aquatic life criteria for these metals are expressed as a function of total hardness (mg/l) in a water body. Values in the table above assume a hardness of 50 mg/l CaCO3. For other hardness values, the following equations from the EPA document – National Recommended Water Quality Criteria – Correction, EPA 822-Z-99-001, April 1999 should be used. The minimum hardness allowed for use in these equations shall not be less than 25 mg/l, as calcium carbonate and the maximum shall not be greater than 400 mg/l as calcium carbonate.

Cadmium
acute criteria = $(e^{(1.128[\ln(\text{hardness})] - 3.6867)})(1.136672-[(\ln \text{hardness})(0.041838)]$ µg/l
chronic criteria = $(e^{(0.7852[\ln(\text{hardness})] - 2.715)})(1.101672-[(\ln \text{hardness})(0.041838)]$ µg/l

Chromium III
acute criteria = $(e^{(0.8190[\ln(\text{hardness})] + 3.7256)}$ (0.316) µg/l
chronic criteria = $(e^{(0.8190[\ln(\text{hardness})] + 0.6848)})$(0.860) µg/l

Copper
acute criteria = $(e^{(0.9422[\ln(\text{hardness})] - 1.700)})$(0.96) µg/l
chronic criteria = $(e^{(0.8545[\ln(\text{hardness})] - 1.702)})$(0.96) µg/l

Lead
acute criteria = $(e^{(1.273[\ln(\text{hardness}) - 1.460)})(1.46203 - [(\ln \text{hardness})(0.145712)])$ µg/l
chronic criteria = $(e^{(1.273[\ln(\text{hardness}) - 4.705)})(1.46203 - [(\ln \text{hardness})(0.145712)])$ µg/l

Nickel
acute criteria = $(e^{(0.8460[\ln(\text{hardness})] + 2.255)})$(.998) µg/l
chronic criteria = $(e^{(0.8460[\ln(\text{hardness})] + 0.0584)})$(.997) µg/l

Zinc
acute criteria = $(e^{(0.8473[\ln(\text{hardness})] + 0.884)})$(0.978) µg/l
chronic criteria = $(e^{(0.8473[\ln(\text{hardness})] + 0.884)})$(0.986) µg/l

[4] This pollutant is addressed in 391-3-6-.06.

(iii) Instream concentrations of the following chemical constituents listed by the U.S. Environmental Protection Agency as toxic priority pollutants pursuant to Section 307(a)(1) of the Federal Clean Water Act (as amended) shall not exceed criteria indicated below under 7-day, 10-year minimum flow (7Q10) or higher stream flow conditions except within established mixing zones or in accordance with site specific effluent limitations developed in accordance with procedures presented in 391-3-6-.06.

1.	Chlordane	
	(a) Freshwater	0.0043 µg/l*
	(b) Coastal and Marine Estuarine Waters	0.004 µg/l*
2.	Cyanide	
	(a) Freshwater	5.2 µg/l*
	(b) Coastal and Marine Estuarine Waters	1.0 µg/l*
3.	Dieldrin	
	(a) Freshwater	0.056 µg/l*
	(b) Coastal and Marine Estuarine Waters	0.0019 µg/l*
4.	4,4'-DDT	0.001 µg/l*
5.	a-Endosulfan	
	(a) Freshwater	0.056 µg/l*
	(b) Coastal and Marine Estuarine Waters	0.0087 µg/l*
6.	b-Endosulfan	
	(a) Freshwater	0.056 µg/l*
	(b) Coastal and Marine Estuarine Waters	0.0087 µg/l*
7.	Endrin	
	(a) Freshwater	0.036 µg/l*
	(b) Coastal and Marine Estuarine Waters	0.0023 µg/l*
8.	Heptachlor	
	(a) Freshwater	0.0038 µg/l*
	(b) Coastal and Marine Estuarine Waters	0.0036µg/l*
9.	Heptachlor Epoxide	
	(a) Freshwater	0.0038 µg/l*
	(b) Coastal and Marine Estuarine Waters	0.0036 µg/l*

10	Pentachlorophenol	
	(a) Freshwater	2.1 µg/l*
	(b) Coastal and Marine Estuarine Waters	7.9 µg/l*
11.	PCBs	
	(a) Freshwater	0.014 µg/l*
	(b) Coastal and Marine Estuarine Waters	0.03 µg/l*
12.	Phenol	300 µg/l
13.	Toxaphene	0.0002 µg/l*

*The in-stream criterion is lower than the EPD laboratory detection limits.

(iv) Instream concentrations of the following chemical constituents listed by the U. S. Environmental Protection Agency as toxic priority pollutants pursuant to Section 307(a)(1) of the Federal Clean Water Act (as amended) shall not exceed criteria indicated below under annual average or higher stream flow conditions:

1.	Acenaphthene	2700 µg/l
2.	Acenaphthylene	**
3.	Acrolein	780 µg/l
4.	Acrylonitrile	0.66 µg/l
5.	Aldrin	0.00014 µg/l
6.	Anthracene	110000 µg/l
7.	Antimony	4300 µg/l
8.	Arsenic	50 µg/l
9.	Benzidine	0.00054 µg/l
10.	Benzo(a)Anthracene	0.049µg/l
11.	Benzo(a)Pyrene	0.049µg/l
12.	3,4-Benzofluoranthene	0.049µg/l
13.	Benzene	71 µg/l
14.	Benzo(ghi)Perylene	**
15.	Benzo(k)Fluoranthene	0.049µg/l
16.	Beryllium	**
17.	a-BHC-Alpha	0.013 µg/l
18.	b-BHC-Beta	0.046 µg/l
19.	Bis(2-Chloroethyl)Ether	1.4 µg/l
20.	Bis(2-Chloroisopropyl)Ether	170000 µg/l
21.	Bis(2-Ethylhexyl)Phthalate	5.9 µg/l
22.	Bromoform (Tribromomethane)	360 µg/l
23.	Butylbenzyl Phthalate	5200
24.	Carbon Tetrachloride	4.4 µg/l
25.	Chlorobenzene	21000 µg/l
26.	Chlorodibromomethane	34 µg/l
27.	2-Chloroethylvinyl Ether	**
28.	Chlordane	0.0022 µg/l
29.	Chloroform (Trichloromethane)	470 µg/l
30.	2-Chloronaphthalene	4300 µg/l
31.	2-Chlorophenol	400 µg/l
32.	Chrysene	0.049 µg/l
33.	Dibenzo(a,h)Anthracene	0.049 µg/l
34.	Dichlorobromomethane	46 µg/l
35.	1,2-Dichloroethane	99 µg/l
36.	1,1-Dichloroethylene	3.2 µg/l
37	1,2 – Dichloropropane	39 µg/l
38.	1,3-Dichloropropylene	1700 µg/l
39.	2,4-Dichlorophenol	790 µg/l
40.	1,2-Dichlorobenzene	17000 µg/l
41.	1,3-Dichlorobenzene	2600 µg/l
42.	1,4-Dichlorobenzene	2600 µg/l
43.	3,3'-Dichlorobenzidine	0.077 µg/l
44.	4,4'-DDT	0.00059 µg/l
45.	4,4'-DDD	0.00084 µg/l
46.	4,4'-DDE	0.00059 µg/l
47.	Dieldrin	0.00014 µg/l

48.	Diethyl Phthalate	120000 µg/l
49.	Dimethyl Phthalate	2900000 µg/l
50.	2,4-Dimethylphenol	2300 µg/l
51.	2,4-Dinitrophenol	14000 µg/l
52.	Di-n-Butyl Phthalate	12000 µg/l
53.	2,4-Dinitrotoluene	9.1 µg/l
54.	1,2-Diphenylhydrazine	0.54 µg/l
55.	Endrin	0.81 µg/l
56.	Endrin Aldehyde	0.81 µg/l
57.	alpha – Endosulfan	240 µg/l
58.	beta – Endosulfan	240 µg/l
59.	Endosulfan Sulfate	240 µg/l
60.	Ethylbenzene	29000 µg/l
61.	Fluoranthene	370 µg/l
62.	Fluorene	14000 µg/l
63.	Heptachlor	0.00021 µg/l
64.	Heptachlor Epoxide	0.00011 µg/l
65.	Hexachlorobenzene	0.00077 µg/l
66.	Hexachlorobutadiene	50 µg/l
67.	Hexachlorocyclopentadiene	17000 µg/l
68.	Hexachloroethane	8.9 µg/l
69.	Indeno(1,2,3-cd)Pyrene	0.049 µg/l
70.	Isophorone	2600 µg/l
71.	Lindane [Hexachlorocyclohexane (g-BHC-Gamma)]	0.063 µg/l
72.	Methyl Bromide (Bromomethane)	4000 µg/l
73.	Methyl Chloride (Chloromethane)	**
74.	Methylene Chloride	1600 µg/l
75.	2-Methyl-4,6-Dinitrophenol	765 µg/l
76.	3-Methyl-4-Chlorophenol	**
77.	Nitrobenzene	1900 µg/l
78.	N-Nitrosodimethylamine	8.1 µg/l
79.	N-Nitrosodi-n-Propylamine	1.4 µg/l
80.	N-Nitrosodiphenylamine	16 µg/l
81.	PCBs	0.00017 µg/l
82.	Pentachlorophenol	8.2 µg/l
83.	Phenanthrene	**
84.	Phenol	4,600,000 µg/l
85.	Pyrene	11,000 µg/l
86.	1,1,2,2-Tetrachloroethane	11 µg/l
87.	Tetrachloroethylene	8.85 µg/l
88.	Thallium	6.3 µg/l
89.	Toluene	200000 µg/l
90.	Toxaphene	0.00075 µg/l
91.	1,2-Trans-Dichloroethylene	140000
92.	1,1,2-Trichloroethane	42 µg/l
93.	Trichloroethylene	81 µg/l
94.	2,4,6-Trichlorophenol	6.5 µg/l
95.	1,2,4-Trichlorobenzene	940 µg/l
96.	Vinyl Chloride	525 µg/l

**These pollutants are addressed in 391-3-6-.06.

(v) Site specific criteria for the following chemical constituents will be developed on an as-needed basis through toxic pollutant monitoring efforts at new or existing discharges that are suspected to be a source of the pollutant at levels sufficient to interfere with designated uses:

1. Asbestos

(vi) instream concentrations of 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) must not exceed 0.0000012 µg/l under long-term average stream flow conditions.

(f) Applicable State and Federal requirements and regulations for the discharge of radioactive substances shall be met at all times.

TABLE 4. WATER QUALITY STANDARDS FOR MAJOR LAKES

(16) **Specific Criteria for Lakes and Major Lake Tributaries**. In addition to the general criteria, the following lake specific criteria are deemed necessary and shall be required for the specific water usage as shown:

(a) West Point Lake: Those waters impounded by West Point Dam and downstream of U.S. 27 at Franklin.

(i) Chlorophyll a: For the months of April through October, the average of monthly photic zone composite samples shall not exceed 27 µg/l at the LaGrange Water Intake.

(ii) pH: Within the range of 6.0 - 9.5.

(iii) Total Nitrogen: Not to exceed 4.0 mg/l as Nitrogen in the photic zone.

(iv) Phosphorus: Total lake loading shall not exceed 2.4 pounds per acre foot of lake volume per year.

(v) Fecal Coliform Bacteria:

1. U.S. 27 at Franklin to New River: Fecal coliform bacteria shall not exceed the Fishing criterion as presented in 391-3-6-.03(6)(c).

2. New River to West Point Dam: Fecal coliform bacteria shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b).

(vi) Dissolved Oxygen: A daily average of 5.0 mg/l and no less than 4.0 mg/l at all times at the depth specified in 391-3-6-.03(5)(f).

(vii) Temperature: Not to exceed 90°F. At no time is the temperature of the receiving waters to be increased more than 5°F above intake temperature.

(viii) Major Lake Tributaries: For the following tributaries, the annual total phosphorus loading to West Point Lake shall not exceed the following:

1.	Yellow Jacket Creek at Hammet Road:	11,000 pounds.
2.	New River at Hwy 100:	14,000 pounds.
3.	Chattahoochee River at U.S. 27:	1,400,000 pounds.

(b) Lake Walter F. George: Those waters impounded by Walter F. George Dam and upstream to Georgia Highway 39 near Omaha.

(i) Chlorophyll a: For the months of April through October, the average of monthly photic zone composite samples shall not exceed 18 ug/l at mid-river at U.S. Highway 82 or 15 ug/l at mid-river in the dam forebay.

(ii) pH: Within the range of 6.0-9.5 standard units.

(iii) Total Nitrogen: Not to exceed 3.0 mg/l as nitrogen in the photic zone.

(iv) Phosphorous: Total lake loading shall not exceed 2.4 pounds per acre-foot of lake volume per

year.

(v) Fecal Coliform:

1. Georgia Highway 39 to Cowikee Creek: Fecal coliform bacteria shall not exceed the Fishing criterion as presented in 391-3-6-.03(6)(c)(iii).

2. Cowikee Creek to Walter F. George Dam: Fecal coliform bacteria shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(I).

(vi) Dissolved Oxygen: A daily average of no less than 5.0 mg/l and no less than 4.0 mg/l at all times at the depth specified in 391-3-6-.03(5)(f).

(vii) Temperature: Water temperature shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(iv).

(viii) Major Lake Tributary: The annual total phosphorous loading to Lake Walter F. George, monitored at the Chattahoochee River at Georgia Highway 39, shall not exceed 2,000,000 pounds.

(c) Lake Jackson: Those waters impounded by Lloyd Shoals Dam and upstream to Georgia Highway 36 on the South and Yellow Rivers, upstream to Newton Factory Bridge Road on the Alcovy River and upstream to Georgia Highway 36 on Tussahaw Creek.

(i) Chlorophyll a: For the months of April through October, the average of monthly mid-channel photic zone composite samples shall not exceed 20 ug/l at a location approximately 2 miles downstream of the confluence of the South and Yellow Rivers at the junction of Butts, Newton and Jasper Counties.

(ii) pH: Within the range of 6.0-9.5 standard units.

(iii) Total Nitrogen: Not to exceed 4.0 mg/l as nitrogen in the photic zone.

(iv) Phosphorous: Total lake loading shall not exceed 5.5 pounds per acre-foot of lake volume per year.

(v) Fecal Coliform: Fecal coliform bacteria shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(I).

(vi) Dissolved Oxygen: A daily average of 5.0 mg/l and no less than 4.0 mg/l at all times at the depth specified in 391-3-6-.03(5)(f).

(vii) Temperature: Water temperature shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(iv).

(viii) Major Lake Tributaries: For the following major tributaries, the annual total phosphorous loading to Lake Jackson shall not exceed the following:

1.	South River at Island Shoals:	179,000 pounds
2.	Yellow River at Georgia Highway 212:	116,000 pounds
3.	Alcovy River at Newton Factory Bridge Road:	55,000 pounds
4.	Tussahaw Creek at Fincherville Road.:	7,000 pounds

(d) Lake Allatoona: Those waters impounded by Allatoona Dam and upstream to State Highway 5 on the Etowah River, State Highway 5 on Little River, the Lake Acworth dam, and the confluence of Little Allatoona Creek and Allatoona Creek. Other impounded tributaries to an elevation of 840 feet mean sea level corresponding to the normal pool elevation of Lake Allatoona.

(i) Chlorophyll a: For the months of April through October, the average monthly mid-channel photic zone composite samples shall not exceed the chlorophyll a concentrations at the locations listed below:

1.	Upstream from the Dam	10 ug/l
2.	Allatoona creek upstream form I-75	10 ug/l
3.	Mid-Lake downstream from Kellogg Creek	10 ug/l
4.	Little River upstream from Highway 205	15 ug/l
1.	Etowah River upstream from Sweetwater Creek	12 ug/l

(ii) pH: within the range of 6.0-9.5 standard units

(iii) Total Nitrogen: Not to exceed 4 mg/l as nitrogen in the photic zone.

(iv) Phosphorous: Total lake loading shall not exceed 1.3 pounds per acre-foot of lake volume per year.

(v) Fecal Coliform:

1. Etowah River, State Highway 5 to State Highway 20: Fecal coliform bacteria shall not exceed the Fishing Criterion as presented in 391-3-6-.03(6)(c)(iii).

2. Etowah River, State Highway 20 to Allatoona Dam; Fecal coliform bacteria shall not exceed the Recreation criteria as presented in 391-3-6-.03(6)(b)(i).

(vi) Dissolved Oxygen: A daily average of 5.0 mg/l and no less than 4.0 mg/l at all times at the depth specified in 391-3-6-.03(5)(g).

(vii) Temperature:

1. Etowah River, State Highway 5 to State Highway 20: Water temperature shall not exceed the Fishing criterion as presented in 391-3-6-.03(6)(b)(iv).

2. Etowah River State Highway 20 to Allatoona Dam: Water temperature shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(iv).

(viii) Major Lake Tributaries: For the following major tributaries, the annual total phosphorous loading to Lake Allatoona shall not exceed the following:

1.	Etowah River at State Highway 5 spur and 140, at the USGS gage	340,000 lbs/yr
2.	Little River at State Highway 5 (Highway 754)	42,000 lbs/yr
3.	Noonday Creek at North Rope Mill Road	38,000 lbs/yr
4.	Shoal Creek at State Highway 108 (Fincher Road)	9,200 lbs/yr

(e) Lake Sidney Lanier. Those waters impounded by Buford Dam and upstream to Belton Bridge Road on the Chattahoochee River, 0.6 miles downstream from State Road 400 on the Chestatee River, as well as other impounded tributaries to an elevation of 1070 feet mean sea level

corresponding to the normal pool elevation of Lake Sidney Lanier.

(i) Chlorophyll a: For the months of April through October, the average of monthly mid-channel photic zone composite samples shall not exceed the chlorophyll a concentrations at the locations listed below:

1.	Upstream from the Buford Dam forebay	5 ug/l
2.	Upstream from the Flowery Branch confluence	5 ug/l
3.	At Browns Bridge Road (State Road 369)	5 ug/l
4.	At Bolling Bridge (State Road 53) on Chestatee River	10 ug/l
5.	At Lanier Bridge (State Road 53) on Chattahoochee River	10 ug/l

(ii) pH: Within the range of 6.0-9.5 standard units.

(iii) Total Nitrogen: Not to exceed 4 mg/l as nitrogen in the photic zone.

(iv) Phosphorous: Total lake loading shall not exceed 0.25 pounds per acre-foot of lake volume per year.

(v) Fecal Coliform: Fecal coliform bacteria shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(l).

(vi) Dissolved Oxygen: A daily average of 5.0 mg/l and no less than 4.0 mg/l at all times at the depth specified in 391-3--6-.03(5)(g).

(vii) Temperature: Water temperature shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(iv).

(viii) Major Lake Tributaries: For the following major tributaries, the annual total phosphorous loading to Lake Sidney Lanier shall not exceed the following:

1.	Chattahoochee River at Belton Bridge Road	178,000 pounds
2.	Chestatee River at Georgia Highway 400	118,000 pounds
3.	Flat Creek at McEver Road	14,400 pounds

(f) Carters Lake: Those waters impounded by Carters Dam and upstream on the Coosawattee River as well as other impounded tributaries to an elevation of 1072 feet mean sea level corresponding to the normal pool elevation of Carters Lake.

(i) Chlorophyll a: For the months of April through October, the average of monthly mid-channel photic zone composite samples shall not exceed the chlorophyll a concentrations at the locations listed below:

1.	Carters Lake upstream from Woodring Branch	5 ug/l
2.	Carters Lake at Coosawattee River embayment mouth	10 ug/l

(ii) pH: within the range of 6.0 – 9.5 standard units.

(iii) Total Nitrogen: Not to exceed 4.0 mg/l as nitrogen in the photic zone.

(iv) Phosphorous: Total lake loading shall not exceed 172,500 pounds or 0.46 pounds per acre-foot of lake volume per year.

(v) Fecal Coliform: Fecal coliform bacteria shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(i).

(vi) Dissolved Oxygen: A daily average of 5.0 mg/l and no less than 4.0 mg/l at all times at the depth specified in 391-3-6-.03(5)(g).

(vii) Temperature: Water temperature shall not exceed the Recreation criterion as presented in 391-3-6-.03(6)(b)(iv).

(viii) Major Lake Tributaries: For the following major tributaries, the annual total phosphorous loading at the compliance monitoring location shall not exceed the following:

1.	Coosawattee River at Old Highway 5	151,500 pounds
2.	Mountaintown Creek at U.S. Highway 76	8,000 pounds

The cooperating agencies conduct certain tests in the field and ship stream samples to the GAEPD or USGS laboratories for additional laboratory analyses. Although there have been a number of changes over the years, much of the trend monitoring is still accomplished through similar cooperative agreements.

Today the GAEPD contracts with the United States Geological Survey (USGS) for the statewide trend sampling work, and with the Columbus Water Works for samples on the Chattahoochee River below Columbus. In addition to monthly stream sampling, a portion of the work with the USGS involves continuous monitoring at several locations across the State. Automatic monitors which continuously record dissolved oxygen, temperature, pH and conductivity data are located on the Chattahoochee and South Rivers downstream of Atlanta, the Conasauga River below Dalton, the Coosa River at the State Line and the Ocmulgee River downstream of Macon.

In addition to work done through cooperative agreements, GAEPD associates collect monthly samples from a number of locations across the state as part of the trend monitoring program. In 2000-2001 the GAEPD added two trend monitoring sampling teams. One team works from the Brunswick District Office and the second team works from the EPD Atlanta Office. The Brunswick sampling team conducts monthly sampling at locations across south Georgia in the Ochlockonee, Suwannee, Satilla, Altamaha, Savannah and Ogeechee River basins. The Atlanta sampling team conducts monthly sampling at stations across the Coosa, Tallapoosa, Chattahoochee, Flint, Oconee and Ocmulgee River basins. The work of the two sampling teams adds significantly to the number of locations sampled each year which compliments the rotating basin trend monitoring program.

The trend monitoring network in place in 1994 is shown in Figure 1. In 1995, the GAEPD adopted and implemented significant changes to the strategy for trend monitoring in Georgia. The changes were implemented to support River Basin Management Planning and TMDL programs. The number of fixed stations statewide was reduced in order to focus resources for sampling and analysis in a particular group of basins in any one year in accordance with the basin planning schedule. Statewide trend monitoring was continued at the core station locations, in the Chattahoochee in the Atlanta and Columbus areas, and at all continuous monitoring locations. The remainder of the trend monitoring resources were devoted to the basins of focus each year. As a result, more sampling was conducted along the mainstem and in the smaller tributaries of each river. In 1995 the Chattahoochee and Flint River basins were the basins of monitoring focus; in 1996 was the Coosa, Tallapoosa and Oconee; 1997 the Savannah and Ogeechee River basins; in 1998 the Ochlockonee, Suwannee, Satilla, and the St. Marys; and in 1999 the Ocmulgee, Oconee, and Altamaha. This completed the initial five year cycle of focused river basin monitoring. A second cycle was completed in 2000-2004 and a third cycle was be initiated in 2005.

FIGURE 1
GEORGIA TREND MONITORING NETWORK
STATION LOCATIONS 1994

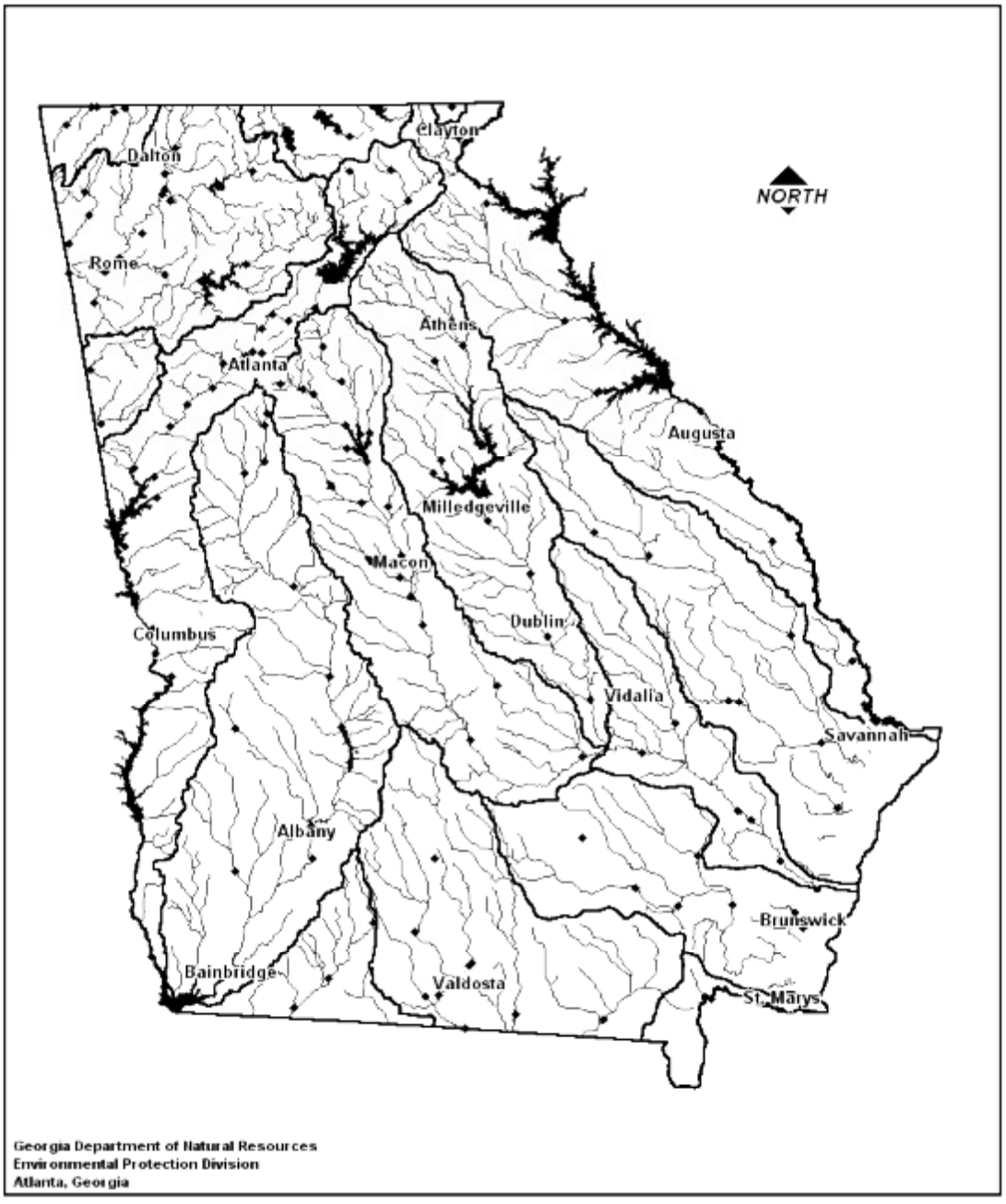


FIGURE 2
GEORGIA TREND MONITORING NETWORK
STATION LOCATIONS 2000-2004

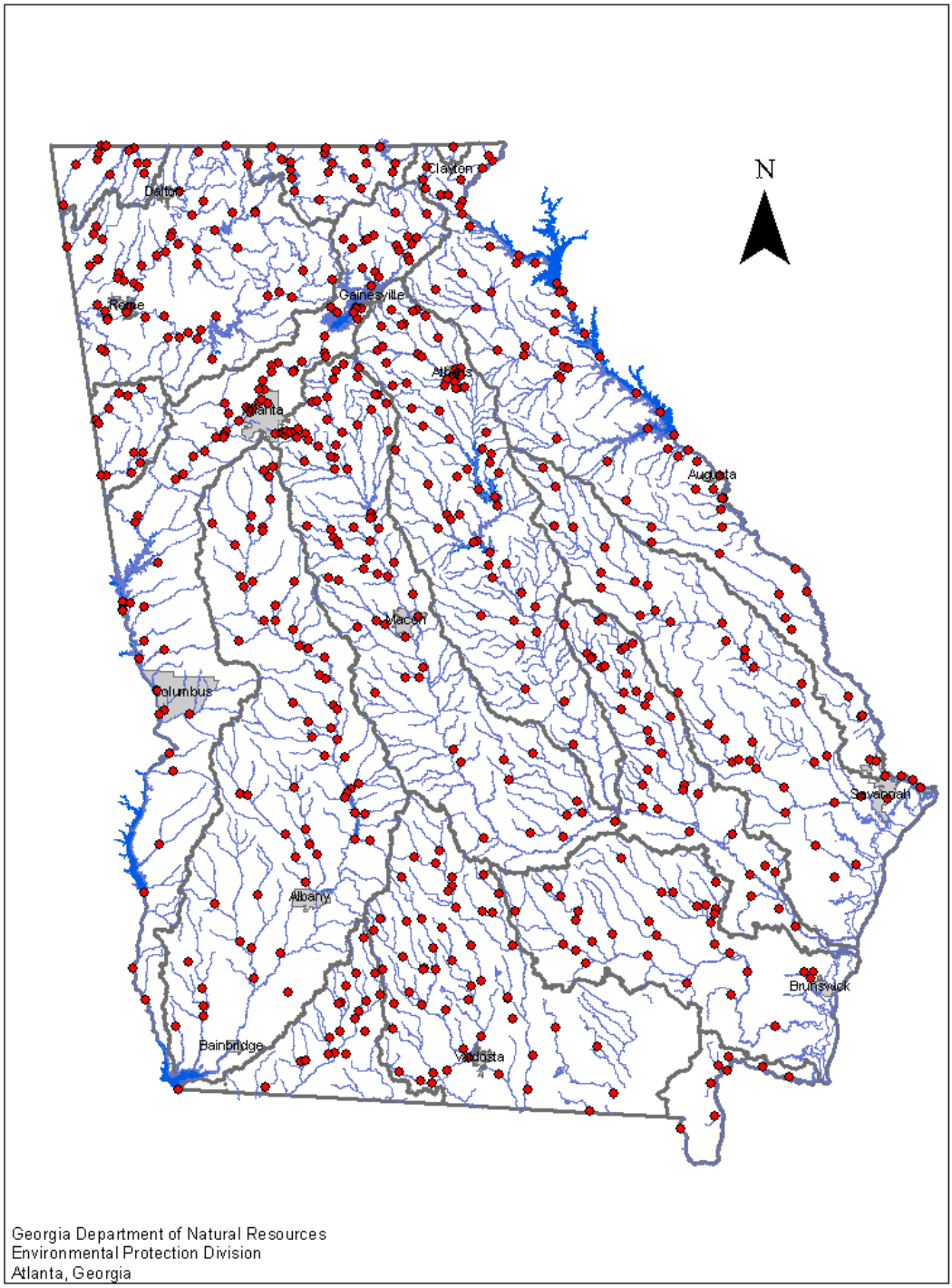


Figure 2 shows the monitoring network stations for the period 2000-2004. Figures 3

and 4 show the trend monitoring station locations in 2004 and 2005, and Tables 5 and 6 provide a list of stations and parameters for the 2004 and 2005 monitoring networks.

Intensive Surveys. Intensive surveys complement long term fixed station monitoring as these studies focus intensive monitoring on a particular issue or problem over a shorter period of time. Several basic types of intensive surveys are conducted including model calibration surveys and impact studies. The purpose of a model calibration survey is to collect data to calibrate a mathematical water quality model. Models are used for wasteload allocations and/or TMDLs and as tools for use in making regulatory decisions. Impact studies are conducted where information on the cause and effect relationships between pollutant sources and receiving waters is needed. In many cases biological information is collected along with chemical data for use in assessing environmental impacts.

Biological Monitoring. Biological monitoring is performed in order to assess the biological integrity of the States waters. The Department of Natural Resources' Wildlife Resource Division has been conducting bioassessments using fish as the indicator species since the early 1990's. The primary technique for determining the quality of fish communities is called the Index of Biotic Integrity (IBI). This index utilizes the numbers and types of fish species present in a stream to produce a stream score or rating for comparison across streams within a particular ecoregion or to the same stream over time. Biological monitoring is useful in detecting intermittent sources of pollution that may not be caught in trend monitoring of water quality parameters. The Tennessee Valley Authority has also collected fish IBI data in Georgia.

Lake Monitoring. The GAEPD has maintained monitoring programs for Georgia's public access lakes for many years. In the late 1960's, lake water quality studies were conducted on Lake Lanier and Jackson Lake. Also at that time a comprehensive statewide study was conducted to assess fecal coliform levels at public beaches on major lakes in Georgia as the basis for water use classifications and establishment of water quality standards for recreational waters. In 1972, GAEPD staff participated in the USEPA National Eutrophication Survey which included fourteen lakes in Georgia. Additional lake monitoring continued through the 1970s. The focus of these studies was primarily problem/solution oriented and served as the basis for regulatory decisions. Georgia's water quality monitoring network has collected long term data from sites in four major lakes including Lake Lanier, West Point Lake, Lake Harding, and Jackson Lake.

In 1980-1981, the GAEPD conducted a statewide survey of public access freshwater lakes. The study was funded in part by USEPA Clean Lakes Program funds. The survey objectives were to identify freshwater lakes with public access, assess each lake's trophic condition, and develop a priority listing of lakes as to need for restoration and/or protection. In the course of the survey, data and information were collected on

FIGURE 3
GEORGIA TREND MONITORING NETWORK
STATION LOCATIONS 2004

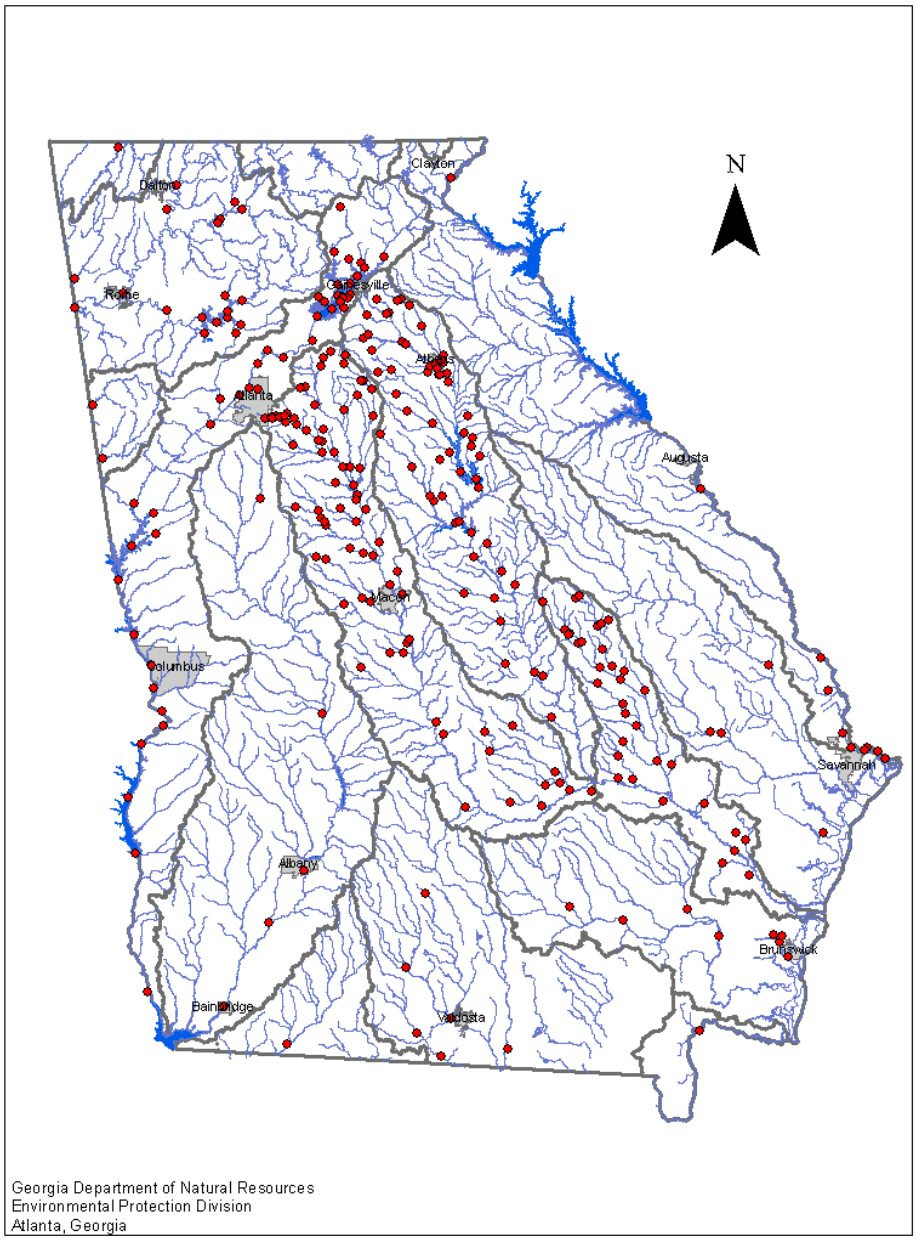


FIGURE 4
GEORGIA TREND MONITORING NETWORK
STATION LOCATIONS 2005

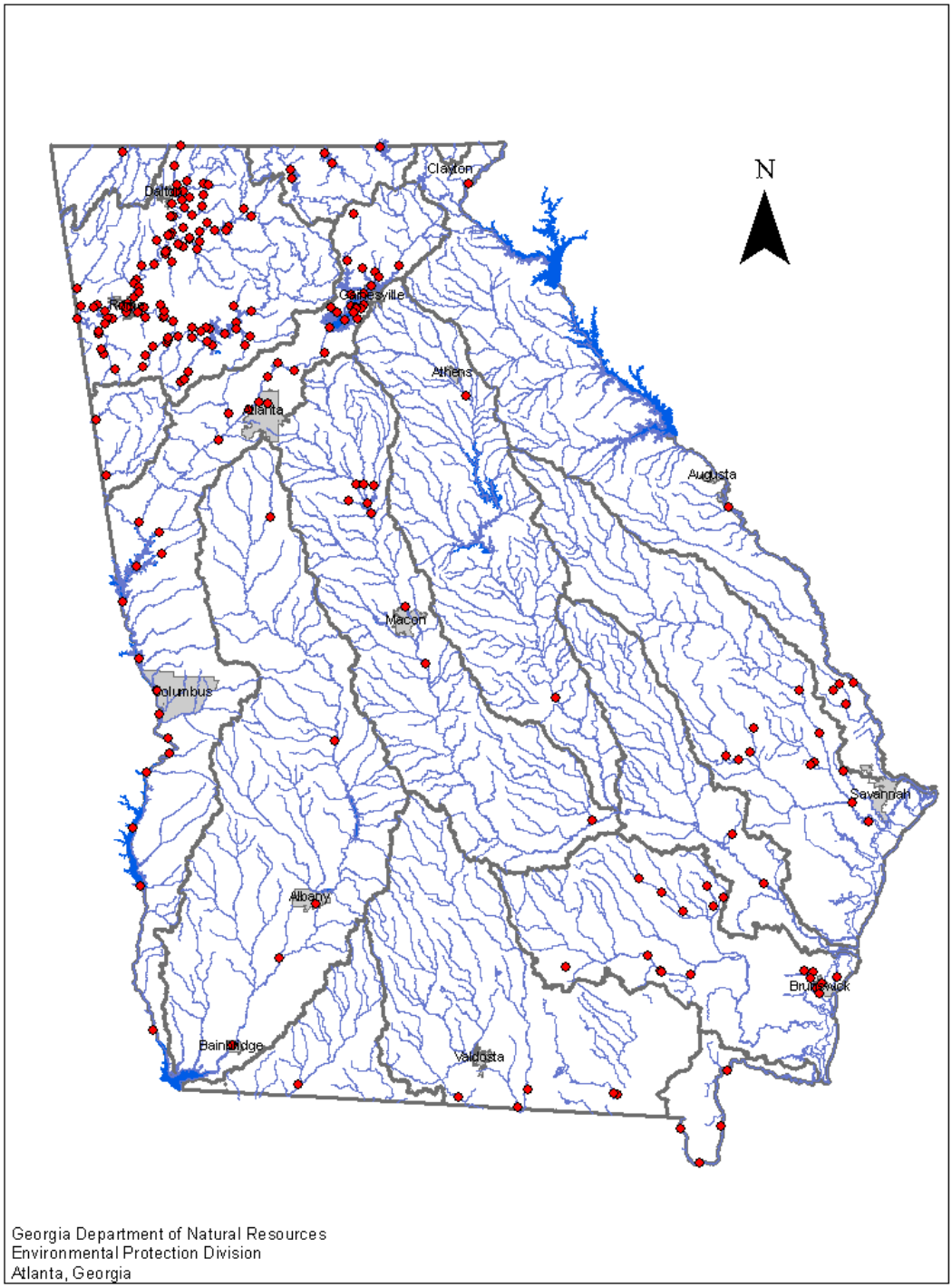


TABLE 5. GEORGIA TREND MONITORING NETWORK 2004

STATION NUMBER	LOCATION	TYPE[1]	PARAMETERS[2]
01001001	Chattooga River at U.S. Highway 76 near Clayton, Georgia	C	Standard
01011001	Savannah River at 0.5 Mile Downstream from Spirit Creek near Augusta	C	Standard
01014001	Savannah River at Seaboard Coast Line Railway near Clyo, Georgia	C	Standard
01015001	Savannah River - U.S. Highway 17	C	Standard
02023001	Ogeechee River at State Road 24 near Oliver, Georgia	C	Standard
03035001	Oconee River at FAS 1086 near Watkinsville, Georgia	C	Standard
03051001	Oconee River at Interstate Highway 16 near Dublin, Georgia	C	Standard
04140001	South River at Island Shoals Road near Snapping Shoals, Georgia	A	Standard
04220001	Yellow River at State Road 212 near Stewart, Georgia	C	Standard
04250001	Ocmulgee River - 1.1 Miles Downstream From Yellow and South	C	Standard + Chlorophyll
04310001	Alcovy River at Newton Factory Bridge Road near Stewart, Georgia	C	Standard
04450001	Tussahaw Creek at Fincherville Road near Jackson, Georgia	A	Standard
05010001	Ocmulgee River at Macon Water Intake near Macon, Georgia	C	Standard
05015001	Ocmulgee River - 6.0 Miles D/S from Tobesofkee Creek	C	Standard
05025001	Ocmulgee River at U.S. Highway 341 at Lumber City, Georgia	C	Standard
06016001	Altamaha River - 6.0 Miles Downstream From Doctortown near Gardi	C	Standard
07005801	Brunswick River - U.S. Highway 17	C	Standard
07021001	Satilla River at State Roads 15/121 near Hoboken, Georgia	C	Standard
09001001	Suwannee River at U.S. Highway 441 near Fargo, Georgia	C	Standard
09044501	Withlacoochee River at Clyattville-Nankin Road near Clyattville, Georgia	C	Standard
10017001	Ochlockonee River - Bridge 3.2 Miles North of State Line near Calvary	C	Standard
11011001	Flint River at State Road 138 near Jonesboro, Georgia	BM	Standard, Metals
11013001	Flint River at State Road 54 near Fayetteville, Georgia	BM	Standard, Metals
11013401	Camp Creek at State Road 85 near Fayetteville, Georgia	BM	Standard, Metals
11015001	Flint River at Ackert Road near Inman, Georgia	BM	Standard, Metals
11018001	Flint River at State Road 92 near Griffin, Georgia	C	Standard, Metals
11019801	Wildcat Creek at Moon Road near Griffin, Georgia	BM	Standard, Metals
11020001	Flint River at State Road 16 near Griffin, Georgia	BM	Standard, Metals
11024501	Whitewater Creek at Morgan Mill Road near Brooks, Georgia	BM	Standard, Metals
11025001	Line Creek at State Road 16 near Digbey, Georgia	BM	Standard, Metals
11027201	White Oak Creek at State Road 54 near Sharpsburg, Georgia	BM	Standard, Metals
11028001	White Oak Creek at State Road 85 near Alvaton, Georgia	BM	Standard, Metals
11031201	Red Oak Creek at Harman Hall Road near Imlac, Georgia	BM	Standard, Metals
11031801	Flint River at State Road 18 near Molena, Georgia	BM	Standard, Metals
11032301	Elkins Creek at State Road 109 near Molena, Georgia	BM	Standard, Metals
11035501	Flint River at State Road 36 near Thomaston, Georgia	BM	Standard, Metals
11036501	Lazer Creek at State Road 41 near Talbotton, Georgia	BM	Standard, Metals
11039001	Potato Creek at Alabama Road near Piedmont, Georgia	BM	Standard, Metals
11040001	Potato Creek at State Road 74 near Thomaston, Georgia	BM	Standard, Metals
11041501	Bell Creek at Gordon School Road near Lincoln Park, Georgia	BM	Standard, Metals
11045501	Swift Creek at State Road 3 near Thomaston, Georgia	BM	Standard, Metals
11050001	Flint River at U.S. Highway 19 near Culloden, Georgia	BM	Standard, Metals
11051001	Ulcohatchee Creek at Charlie Reeves Road near Roberta, Georgia	BM	Standard, Metals
11054651	Patsiliga Creek at Patsiliga Creek Bridge Road (CR 128) near Reynolds	BM	Standard, Metals
11056401	Horse Creek at Miona Springs Road near Marshallville, Georgia	BM	Standard, Metals
11056501	Flint River at State Road 127 near Marshallville, Georgia	BM	Standard, Metals
11058401	Whitewater Creek at State Road 3 near Butler, Georgia	BM	Standard, Metals

TABLE 5. GEORGIA TREND MONITORING NETWORK 2004

STATION NUMBER	LOCATION	TYPE[1]	PARAMETERS[2]
11058501	Whitewater Creek at State Road 195 near Ideal, Georgia	BM	Standard, Metals
11059801	Buck Creek at State Road 240 near Ideal, Georgia	BM	Standard, Metals
11060001	Flint River at State Roads 26/49 near Montezuma, Georgia	C	Standard, Metals
11060191	Camp Creek at State Road 49 near Oglethorpe, Georgia	BM	Standard, Metals
11060201	Beaver Creek at State Road 49 near Montezuma, Georgia	BM	Standard, Metals
11060501	Hogcrawl Creek at River Road near Montezuma, Georgia	BM	Standard, Metals
11061101	Pennahatchee Creek at Baggs Road near Vienna, Georgia	BM	Standard, Metals
11061201	Turkey Creek at State Road 230 at Drayton, Georgia	BM	Standard, Metals
11061301	Flint River at State Road 27 near Vienna, Georgia	BM	Standard, Metals
11061421	Lime Creek at Spring Hill Church Road near Cobb, Georgia	BM	Standard, Metals
11061901	Gum Creek at U.S. Highway 280 at Coney, Georgia	BM	Standard, Metals
11062771	Swift Creek at Jamestown Road near Warwick, Georgia	BM	Standard, Metals
11064001	Muckalee Creek at State Road 30 near Americus, Georgia	BM	Standard, Metals
11064201	Muckalee Creek at State Road 118 near Smithville, Georgia	BM	Standard, Metals
11064451	Muckaloochee Creek at Smithville Road near Starksville, Georgia	BM	Standard, Metals
11064501	Muckalee Creek at State Road 195 near Leesburg, Georgia	BM	Standard, Metals
11065001	Kinchafoonee Creek at State Road 41 near Preston, Georgia	BM	Standard, Metals
11065501	Lanahassee Creek at State Road 153 near Preston, Georgia	BM	Standard, Metals
11067501	Kinchafoonee Creek at State Road 118 near Smithville, Georgia	BM	Standard, Metals
11068001	Kinchafoonee Creek at Prison Farm Road near Dawson, Georgia	BM	Standard, Metals
11079501	Fowltown Creek at Palmyra Road near Albany, Georgia	BM	Standard, Metals
11090401	Flint River at State Road 234 near Albany, Georgia	BM	Standard, Metals
11101001	Raccoon Creek at State Road 3 near Baconton, Georgia	BM	Standard, Metals
11101801	Cooleewahee Creek at State Road 91 at Newton, Georgia	BM	Standard, Metals
11102001	Flint River at State Road 37 at Newton, Georgia	BM	Standard, Metals
11105501	Pachitla Creek at State Road 37 near Edison, Georgia	BM	Standard, Metals
11106001	Ichawaynochaway Creek at State Road 216 near Milford, Georgia	BM	Standard, Metals
11106201	Chickasawhatchee Creek at State Road 234 near Albany, Georgia	BM	Standard, Metals
11106301	Chickasawhatchee Creek at State Road 37 near Elmodel, Georgia	BM	Standard, Metals
11106501	Ichawaynochaway Creek at State Road 91 near Newton, Georgia	BM	Standard, Metals
11107501	Big Slough at State Road 65 near Camilla, Georgia	BM	Standard, Metals
11107801	Big Slough at State Road 97 near Bainbridge, Georgia	BM	Standard, Metals
11109001	Flint River at U.S. Highway 27-B near Bainbridge, Georgia	BM	Standard, Metals
11430001	Dry Creek at County Road 279 near Hentown, Georgia	BM	Standard, Metals
11450001	Spring Creek at State Road 91 near Colquitt, Georgia	BM	Standard, Metals
11470001	Aycocks Creek at Holmes Road near Boykin, Georgia	BM	Standard, Metals
11490001	Spring Creek near Iron City, Georgia	BM	Standard, Metals
11780501	Fishpond Drain at State Road 39 near Donalsonville, Georgia	BM	Standard, Metals
12010001	Chattahoochee River at State Roads 17/75 near Nacooche, Georgia	BM	Standard, Metals
12020001	Chattahoochee River at State Road 115 near Leaf, Georgia	BM	Standard, Metals
12024001	Soque River at State Road 197 near Clarkesville, Georgia	BM	Standard, Metals
12028001	Soque River at State Road 105 near Demorest, Georgia	BM	Standard, Metals
12030001	Chattahoochee River at Duncan Bridge Road near Cornelia, Georgia	BM	Standard, Metals
12030021	Mossy Creek at State Road 254 near Cleveland, Georgia	BM	Standard, Metals
12030085	Chattahoochee River at Belton Bridge Road near Lula, Georgia	A	Standard, Metals
12030141	West Fork Little River at Jess Helton Road near Clermont, Georgia	BM	Standard, Metals
12030201	Lake Sidney Lanier at Lanier Bridge (SR 53) on Chattahoochee River	A	Standard, Chlorophyll
12033201	Dicks Creek at Forest Service Road 144-1 near Neels Gap, Georgia	C	Standard, Metals
12034681	Tesnatee Creek at County Road 200 near Cleveland, Georgia	BM	Standard, Metals
12035001	Chestatee River at Georgia Highway 52 near Dahlonega, Georgia	BM	Standard, Metals

TABLE 5. GEORGIA TREND MONITORING NETWORK 2004

STATION NUMBER	LOCATION	TYPE[1]	PARAMETERS[2]
12035071	Yahoola Creek at State Road 60 near Dahlonega, Georgia	BM	Standard, Metals
12035101	Yahoola Creek at Georgia Highway 52 near Dahlonega, Georgia	BM	Standard, Metals
12035401	Chestatee River at State Road 400 near Dahlonega, Georgia	A	Standard, Metals
12037001	Lake Sidney Lanier at Boling Bridge (State Road 53) on Chestatee River	A	Standard, Chlorophyll
12038001	Lake Sidney Lanier at Browns Bridge Road (State Road 369)	A	Standard, Chlorophyll
12038501	Flat Creek at McEver Road near Gainesville, Georgia	A	Standard, Metals
12039401	Lake Sidney Lanier upstream from Flowery Branch Confluence	A	Standard, Chlorophyll
12040001	Lake Sidney Lanier upstream from the Buford Dam Forebay	A	Standard, Chlorophyll
12043001	Chattahoochee River at State Road 20 near Buford, Georgia	BM	Standard, Metals
12048001	Chattahoochee River at McGinnis Ferry Road	BM	Standard, Metals
12050001	Chattahoochee River - Gwinnett County Water Intake	BM	Standard, Metals
12050301	Suwanee Creek at U.S. Highway 23 near Suwanee, Georgia	BM	Standard, Metals
12054401	Johns Creek at Old Alabama Road near Alpharetta, Georgia	BM	Standard, Metals
12055001	Chattahoochee River - DeKalb County Water Intake	BM	Standard, Metals
12055361	Crooked Creek at Spalding Drive near Norcross, Georgia	BM	Standard, Metals
12060001	Big Creek at Roswell Water Intake near Roswell, Georgia	BM	Standard, Metals
12064001	Willeo Creek at State Road 120 near Roswell, Georgia	RC	Standard, Metals
12070001	Chattahoochee River at Cobb County Water Intake near Roswell	RC	Standard, Metals
12070011	Chattahoochee River at Johnson Ferry Road near Atlanta, Georgia	BM	Standard, Metals
12072101	Sope Creek at Columns Drive near Marietta, Georgia	BM	Standard, Metals
12073201	Long Island Creek at Northside Drive near Atlanta, Georgia	BM	Standard, Metals
12073901	Rottenwood Creek at Interstate North Parkway near Smyrna, Georgia	BM	Standard, Metals
12080001	Chattahoochee River - Atlanta Water Intake	RC	Standard, Metals
12090001	Peachtree Creek at Northside Drive near Atlanta, Georgia	RC	Standard, Metals
12090901	Nancy Creek at West Wesley Road near Atlanta, Georgia	BM	Standard, Metals
12105001	Chattahoochee River - I-285 Upstream from Proctor Creek	RC	Standard, Metals
12105701	Proctor Creek at Northwest Drive near Atlanta, Georgia	BM	Standard, Metals
12106001	Chattahoochee River at Bankhead Highway	BM	Standard, Metals
12109001	Nickajack Creek at Bankhead Highway (U.S. 78) near Mableton, Georgia	BM	Standard, Metals
12109451	Sandy Creek at Bolton Road near Atlanta, Georgia	BM	Standard, Metals
12113051	Utoy Creek at Great Southwest Parkway near Atlanta, Georgia	BM	Standard, Metals
12118001	Sweetwater Creek at Powder Springs Road near Austell, Georgia	BM	Standard, Metals
12120001	Sweetwater Creek at Interstate Highway 20	RC	Standard, Metals
12130001	Chattahoochee River at State Road 166 near Ben Hill, Georgia	BM	Standard, Metals
12134501	Camp Creek at Cochran Road near Fairburn, Georgia	BM	Standard, Metals
12138501	Deep Creek at Cochran Road near Fairburn, Georgia	BM	Standard, Metals
12140001	Chattahoochee River - Georgia Highway 92	RC	Standard, Metals
12140201	Anneewakee Creek at State Road 166 near Douglasville, Georgia	BM	Standard, Metals
12140501	Chattahoochee River at Capps Ferry Road near Rico, Georgia	C	Standard, Metals
12141511	Bear Creek at State Road 70 near Rico, Georgia	BM	Standard, Metals
12145001	Snake Creek at Banning Mill Road near Whitesburg, Georgia	BM	Standard, Metals
12148001	Cedar Creek at Brimer Road near Roscoe, Georgia	BM	Standard, Metals
12150001	Chattahoochee River at State Road 16 near Whitesburg, Georgia	BM	Standard, Metals
12169801	Centralhatchee Creek at U.S. Highway 27 near Franklin, Georgia	BM	Standard, Metals
12170001	Chattahoochee River at U.S. Highway 27 near Franklin, Georgia	A	Standard, Metals
12171201	Hillabahatchee Creek at State Road 34 near Franklin, Georgia	BM	Standard, Metals
12174301	New River at State Road 100 near Corinth, Georgia	A	Standard, Metals
12180001	Chattahoochee River at LaGrange Water Intake near LaGrange, Georgia	A	Standard, Chlorophyll
12181601	Yellow Jacket Creek at Hammet Road near Hogansville, Georgia	A	Standard, Metals
12181801	Beech Creek at Hammett Road near LaGrange, Georgia	BM	Standard, Metals

TABLE 5. GEORGIA TREND MONITORING NETWORK 2004

STATION NUMBER	LOCATION	TYPE[1]	PARAMETERS[2]
12190001	Long Cane Creek at Webb Road near West Point, Georgia	BM	Standard, Metals
12200001	Chattahoochee River - 1.0 Mile U/S from U.S. Hwy. 29 near West Point	BM	Standard, Metals
12201301	Flat Shoals Creek at State Road 18 near West Point, Georgia	BM	Standard, Metals
12201901	Mountain Oak Creek at State Road 103 near Hamilton, Georgia	BM	Standard, Metals
12210001	Chattahoochee River - Upstream from Bartletts Ferry Dam	BM	Standard, Metals
12211201	Mulberry Creek at Hamilton-Mulberry Grove Road near Mulberry Grove	BM	Standard, Metals
12212001	Chattahoochee River at Columbus Water Intake near Columbus, Georgia	BM	Standard, Metals
12214651	Bull Creek at U.S. Highway 27 near Columbus, Georgia	BM	Standard, Metals
12216001	Chattahoochee River - Downstream from Columbus WTF	BM	Standard, Metals
12216701	Upatoi Creek at Red Arrow Road (Fort Benning) near Columbus, Georgia	BM	Standard, Metals
12218001	Chattahoochee River - Downstream Oswichee Creek	C	Standard, Chlorophyll
12218901	Hannahatchee Creek at Toby Road near Union, Georgia	BM	Standard, Metals
12219001	Chattahoochee River at Spur 39 near Omaha, Georgia	A	Standard, Metals
12219101	Chattahoochee River/Walter F. George Lake at U.S. Highway 82	A	Standard, Chlorophyll
12219301	Pataula Creek at State Road 50 near Georgetown, Georgia	BM	Standard, Metals
12219501	Chattahoochee River/Walter F. George Lake at Dam Forebay	A	Standard, Chlorophyll
12219601	Chattahoochee River at State Road 37 near Fort Gaines, Georgia	BM	Standard, Metals
12219801	Chattahoochee River at State Road 62 near Hilton, Georgia	BM	Standard, Metals
12220001	Chattahoochee River at U.S. Highway 84 near Alaga, Georgia	BM	Standard, Metals
12230001	Chattahoochee River at State Road 91 near Steam Mill, Georgia	C	Standard, Metals
13030001	Tallapoosa River at U.S. Highway 78 near Tallapoosa, Georgia	A	Standard
14010051	Coosa River at U.S. Highway 76 near Dalton, Georgia	C	Standard
14030001	Conasauga River at Tilton Bridge near Tilton, Georgia	C	Standard
14250001	Oostanaula River at Rome Water Intake near Rome, Georgia	C	Standard
14300001	Etowah River at State Road 5 spur near Canton, Georgia	C	Standard
14300601	Shoal Creek at State Road 108 near Waleska, Georgia	A	Standard
14302001	Lake Allatoona - Off Fields Landing - 44E-45E	A	Standard
14304001	Little River at State Road 5 near Woodstock, Georgia	A	Standard
14304221	Noonday Creek at North Rope Mill Road near Woodstock, Georgia	A	Standard
14304801	Lake Allatoona - Little River Emb - Upstream Highway 205	A	Standard
14305801	Lake Allltoona - North Of Galts Ferry Landing	A	Standard
14307501	Lake Allatoona At Highway 293	A	Standard
14309001	Lake Allatoona 300 Meters Upstream Dam	A	Standard
14330001	Etowah River at FAS 829 near Euharlee, Georgia	C	Standard
14450001	Coosa River at Georgia/Alabama State Line near Coosa, Georgia	C	Standard
14560001	Chattooga River at FAS 1363 near Chattoogaville, Georgia	C	Standard
15090001	West Chickamauga Creek at State Road 146 near Lakeview, Georgia	C	Standard

[1]There are three major types of stations: core(C), annual (A), and basin monitoring (BM).

[2]Standard parameters include gage height, air temperature, water temperature, dissolved oxygen, turbidity, conductivity, BOD5, pH, alkalinity, hardness, ammonia, nitrite+nitrate, phosphorus, TOC, and fecal coliform bacteria.

TABLE 6. GEORGIA TREND MONITORING NETWORK 2005

STATION NUMBER	LOCATION	TYPE[1]	PARAMETERS[2]
01001001	Chattooga River at U.S. Highway 76 near Clayton, Georgia	C	Standard
01011001	Savannah River 0.5 Mile d/s from Spirit Creek near Augusta, Georgia	C	Standard
01013001	Brier Creek near Millhaven, Georgia	A	Standard
01014001	Savannah River at Seaboard Coast Line Railway near Clyo, Georgia	C	Standard
01014501	Ebenezer Creek at Half Moon Landing	A	Standard
02010001	Ogeechee River at Georgia Highway 78 near Wadley, Georgia	A	Standard
02011701	Williamson Swamp Creek at Georgia Highway 231	A	Standard
02023001	Ogeechee River at State Road 24 near Oliver, Georgia	C	Standard
02027001	Canoochee River at U.S. Highway 301	A	Standard
02027201	Canoochee River near Daisy, Georgia	A	Standard
02029501	Canoochee River at Georgia Highway 67	A	Standard
02350001	North Newport River at Halfmoon Landing	A	Standard
03015001	North Oconee River - Athens Water Intake	A	Standard
03035001	Oconee River at FAS 1086 near Watkinsville, Georgia	C	Standard
03036701	Apalachee River - Near Bostwick	A	Standard
03041701	Little River at State Road 16 near Eatonton, Georgia	A	Standard
03043401	Murder Creek at New Glenwood Springs Road (FAS 777) nr Eatonton	A	Standard
03045001	Oconee River - Milledgeville Water Intake	A	Standard
03046001	Oconee River - 1 Mile Downstream Central State Hospital	A	Standard
03047501	Oconee River at Georgia Highway 57	A	Standard
03051001	Oconee River at Interstate Highway 16 near Dublin, Georgia	C	Standard
04108001	South River - Bouldercrest Road	A	Standard
04111001	South River - Georgia Highway 155	A	Standard
04111701	South River - Klondike Road	A	Standard
04140001	South River at Island Shoals Road near Snapping Shoals, Georgia	C	Standard
04205001	Yellow River - Killian Hill Road	A	Standard
04210001	Yellow River - Conyers Water Intake	A	Standard
04220001	Yellow River at State Road 212 near Stewart, Georgia	C	Standard
04310001	Alcovy River at Newton Factory Bridge Road near Stewart, Georgia	C	Standard
04350051	Lake Jackson – Confluence of South, Alcovy & Yellow Rivers	A	Standard, Chlorophyll
05005001	Ocmulgee River - Georgia Highway 16	A	Standard
05007001	Towaliga River - Georgia Highway 83	A	Standard
05007501	Falling Creek - FAS 1640 Near East Juliet	A	Standard
05010001	Ocmulgee River at Macon Water Intake near Macon, Georgia	C	Standard
05013601	Tobesofkee Creek - U.S. Highways 41 and 129	A	Standard
05015001	Ocmulgee River - 6.0 Miles D/S from Tobesofkee Creek near Warner Robins	C	Standard
05025001	Ocmulgee River at U.S. Highway 341 at Lumber City, Georgia	C	Standard
06010001	Ohoopee River at Georgia Highway 56	A	Standard
06014001	Altamaha River at U.S. Highway 301	A	Standard
06016001	Altamaha River - 6.0 Miles Downstream From Doctortown near Gardi	C	Standard
06017001	Altamaha River at Seaboard Railway at Everett	A	Standard
07004001	Turtle River off Hermitage Island	A	Standard
07005201	Turtle River at Georgia Highway 303	A	Standard
07005801	Brunswick River at U.S. Highway 17	C	Standard
07016601	Seventeen Mile Creek at Georgia Highway 64	A	Standard
07019001	Satilla River at FAS 598 North of Waycross	A	Standard
07021001	Satilla River at State Roads 15/121 near Hoboken, Georgia	C	Standard
07025001	Little Satilla River at Seaboard Railroad at Offerma	A	Standard
07026001	Satilla River at U.S. Highway 84	A	Standard

TABLE 6. GEORGIA TREND MONITORING NETWORK 2005

STATION NUMBER	LOCATION	TYPE[1]	PARAMETERS[2]
08010001	Saint Marys River at U.S. Highway 301	A	Standard
09001001	Suwannee River at U.S. Highway 441 near Fargo, Georgia	C	Standard
09012001	Alapaha River at Georgia Highway 94 nr Statenville	A	Standard
09018301	New River at U.S. Highway 82 near Tifton, Georgia	A	Standard
09029501	Withlacoochee River at McMillian Road near Bemiss, Georgia	A	Standard
09036001	Withlacoochee River at Georgia Highway 94	A	Standard
09038401	Indian Creek at FAS 1753 near Berlin, Georgia	A	Standard
09040001	Withlacoochee River at U.S. Highway 84	A	Standard
09042001	Okapilco Creek at U.S. Highway 84	A	Standard
09044501	Withlacoochee River at Clyattville-Nankin Road near Clyattville, Georgia	C	Standard
10003001	Ochlockonee River at FAS 1205 near Moultrie, Georgia	A	Standard
10010001	Ochlockonee River at U.S. Highway 84	A	Standard
10017001	Ochlockonee River - Bridge 3.2 Miles North of State Line near Calvary	C	Standard
11011001	Flint River at State Road 138 near Jonesboro, Georgia	A	Standard
11013001	Flint River at State Road 54 near Fayetteville, Georgia	A	Standard
11018001	Flint River - Georgia Highway 92	C	Standard
11025001	Line Creek at State Road 16 near Digbey, Georgia	A	Standard
11050001	Flint River at U.S. Highway 19 near Culloden, Georgia	A	Standard
11060001	Flint River - Georgia Highways 26 and 49	C	Standard
11090401	Flint River at State Road 234 near Albany, Georgia	A	Standard
11102001	Flint River at State Road 37 at Newton, Georgia	C	Standard
11109001	Flint River at U.S. Highway 27-B near Bainbridge, Georgia	C	Standard
12010001	Chattahoochee River at State Roads 17/75 near Nacooche, Georgia	A	Standard
12030001	Chattahoochee River at Duncan Bridge Rd. near Cornelia, Georgia (Hwy 384)	A	Standard
12030085	Chattahoochee River at Belton Bridge Road near Lula, Georgia	A	Standard
12030141	West Fork Little River at Jess Helton Rd. near Clermont	A	Standard
12030151	East Fork Little River at Honeysuckle Rd. near Clermont	A	Standard
12030161	Lake Sidney Lanier – Little River Embayment between M1WC & 3LR	A	Standard, Chlorophyll
12030171	Wahoo Creek at Ben Parks Road near Murrayville, GA	A	Standard
12030201	Lake Sidney Lanier at Lanier Bridge (SR 53) on Chattahoochee River	A	Standard, Chlorophyll
12033201	Dicks Creek at Forest Service Road 144-1 near Neel Gap, Georgia	C	Standard
12035401	Chestatee River at State Road 400 near Dahlonega, Georgia	A	Standard
12037001	Lake Sidney Lanier at Boling Rd. (SR 53) on Chestatee River	A	Standard, Chlorophyll
12038001	Lake Sidney Lanier at Browns Bridge Rd. (SR 369)	A	Standard, Chlorophyll
12038501	Flat Creek at McEver Road near Gainesville, Georgia	A	Standard
12038610	Balus Creek at McEver Road near Oakwood, Georgia	A	Standard
12038651	Lake Sidney Lanier - Flat Creek Embayment, 100' U/S M7FC	A	Standard, Chlorophyll
12038681	Lake Sidney Lanier – Balus Creek Embayment, 0.34 mi. SE M6FC	A	Standard, Chlorophyll
12038781	Mud Creek at McEver Road near Flowery Branch, GA	A	Standard
12038801	Lake Sidney Lanier – Mud Creek Embayment, between Marina and Ramp	A	Standard, Chlorophyll
12039401	Lake Sidney Lanier upstream from Flowery Branch confluence	A	Standard, Chlorophyll
12039601	Six Mile Creek at Burrus Mill Road near Coal Mountain, GA	A	Standard
12039621	Lake Sidney Lanier – Six Mile Creek Embayment, 300’ E M9SM	A	Standard, Chlorophyll
12040001	Lake Sidney Lanier upstream from the Buford Dam Forebay	A	Standard, Chlorophyll
12048001	Chattahoochee River at McGinnis Ferry Road	A	Standard
12055001	Chattahoochee River at DeKalb County Water Intake	A	Standard
12060001	Big Creek at Roswell Water Intake near Roswell, Georgia	A	Standard
12070001	Chattahoochee River at Cobb County Water Intake	C	Standard
12080001	Chattahoochee River at Atlanta Water Intake	A	Standard

TABLE 6. GEORGIA TREND MONITORING NETWORK 2005

STATION NUMBER	LOCATION	TYPE[1]	PARAMETERS[2]
12090001	Peachtree Creek at Northside Drive near Atlanta, Georgia	A	Standard
12106001	Chattahoochee River at Bankhead Highway	A	Standard
12120001	Sweetwater Creek at Interstate Highway 20	A	Standard
12140001	Chattahoochee River at Georgia Highway 92	C	Standard
12140501	Chattahoochee River at Capps Ferry Road near Rico, Georgia	A	Standard
12150001	Chattahoochee River at State Road 16 near Whitesburg, Georgia	A	Standard
12170001	Chattahoochee River at U.S. Highway 27 near Franklin, Georgia	A	Standard
12174301	New River at State Road 100 near Corinth, Georgia	A	Standard
12180001	West Point Lake at LaGrange Water Intake near LaGrange, Georgia	C	Standard, Chlorophyll
12181601	Yellow Jacket Creek at Hammet Road near Hogansville, Georgia	A	Standard
12190001	Long Cane Creek at Webb Road near West Point, Georgia	A	Standard
12200001	Chattahoochee River - 1.0 Mile U/S from U.S. Highway 29 near West Point	A	Standard
12210001	Chattahoochee River upstream from Bartletts Ferry Dam	A	Standard
12212001	Chattahoochee River at Columbus Water Intake	A	Standard
12216001	Chattahoochee River d/s from Columbus Wastewater Treatment Plant	A	Standard
12218001	Chattahoochee River downstream from Oswichee Creek near Columbus	C	Standard
12219001	Chattahoochee River at Spur 39 near Omaha, Georgia	A	Standard
12219101	Lake Walter F. George at U.S. Hwy. 82 near Georgetown, Georgia	A	Standard, Chlorophyll
12219501	Lake Walter F. George 300 Meters Upstream Dam	A	Standard, Chlorophyll
12230001	Chattahoochee River at Georgia Highway 91	C	Standard
13010001	Little Tallapoosa River at Georgia Highway 100 near Bowdon, Georgia	BM	Standard, Metals
13012001	Indian Creek at State Line Road near Bowdon, Georgia	BM	Standard, Metals
13013001	Buffalo Creek at Bethesda Church Road near Roopville, Georgia	BM	Standard, Metals
13014101	Buffalo Creek at Martin Cemetery Road near Carrollton, Georgia	BM	Standard, Metals
13015701	Little Tallapoosa River at U.S. Highway 27 near Carrollton, Georgia	BM	Standard, Metals
13017001	Buck Creek at State Road 16 near Carrollton, Georgia	BM	Standard, Metals
13020501	Tallapoosa River at Rockmart Road near Draketown, Georgia	BM	Standard, Metals
13020901	Little River at East Church Road near Buchanan, Georgia	BM	Standard, Metals
13021001	Tallapoosa River at U.S. Highway 27 near Felton, Georgia	BM	Standard, Metals
13028001	Tallapoosa River at Jacksonville Road near Tallapoosa, Georgia	BM	Standard, Metals
13030001	Tallapoosa River at Georgia Highway 8 near Tallapoosa, Georgia	BM	Standard, Metals
13030501	Walker Creek at Providence Church Road near Tallapoosa, Georgia	BM	Standard, Metals
14005951	Jacks River at County Road 187 near Higdon, Georgia	BM	Standard, Metals
14006001	Jacks River at Old Highway 2 near Alaculsy, Georgia	BM	Standard, Metals
14007021	Conasauga River at Carlton Petty Road near Gregory, Georgia	BM	Standard, Metals
14010051	Conasauga River at U.S. Highway 76 near Dalton, Georgia	C	Standard, Metals
14015401	Coahulla Creek at U.S. Highway 76 near Dalton, Georgia	BM	Standard, Metals
14018501	Holly Creek at State Road 61 near Chatsworth, Georgia	BM	Standard, Metals
14020501	Holly Creek at Georgia Highway 225 near Chatsworth, Georgia	BM	Standard, Metals
14030001	Conasauga River at Tilton Bridge near Tilton, Georgia	C	Standard, Metals
14040001	Conasauga River at State Road 136 near Resaca, Georgia	BM	Standard, Metals
14056901	Ellijay River at State Road 5 near Ellijay, Georgia	BM	Standard, Metals
14079011	Cartecay River at State Road 2 Connector near Ellijay, Georgia	BM	Standard, Metals
14109901	Coosawattee River at Georgia Highway 5 near Ellijay, Georgia	BM	Standard, Metals
14115001	Mountaintown Creek at State Road 282 near Ellijay, Georgia	BM	Standard, Metals
14116001	Tails Creek at State Road 282 near Ellijay, Georgia	BM	Standard, Metals
14119301	Carters Lake (CR1) - Upper Lake, Coosawattee Arm	A	Standard, Chlorophyll
14119401	Carters Lake (CR3) - Midlake	A	Standard, Chlorophyll
14119901	Talking Rock Creek at Georgia Highway 136 near Blaine, Georgia	BM	Standard, Metals

TABLE 6. GEORGIA TREND MONITORING NETWORK 2005

STATION NUMBER	LOCATION	TYPE[1]	PARAMETERS[2]
14120001	Coosawattee River at U.S. Highway 411 near Carters, Georgia	BM	Standard, Metals
14125001	Pine Log Creek at Georgia Highway 53 near Sonoraville, Georgia	BM	Standard, Metals
14125501	Salacoa Creek at Lovebridge Road NE near Redbud, Georgia	BM	Standard, Metals
14130001	Coosawattee River at State Road 225 near Calhoun, Georgia	BM	Standard, Metals
14220001	Oostanaula River at U.S. Highway 41 near Resaca, Georgia	BM	Standard, Metals
14230031	Oothkalooga Creek at State Road 156 near Calhoun, Georgia	BM	Standard, Metals
14230101	Oostanaula River at Georgia Highway 156 near Calhoun, Georgia	BM	Standard, Metals
14234001	Johns Creek at State Road 156 near Curryville, Georgia	BM	Standard, Metals
14237001	Little Armuchee Creek at Big Texas Valley Road NW near Armuchee, Georgia	BM	Standard, Metals
14237501	Heath Creek at Texas Valley Road NW near Rome, Georgia	BM	Standard, Metals
14238001	Lavendar Creek at Little Texas Valley Road NW near Rome, Georgia	BM	Standard, Metals
14239001	Armuchee Creek at Old Dalton Road near Rome, Georgia	BM	Standard, Metals
14239501	Woodward Creek at Bells Ferry Road NE near Rome, Georgia	BM	Standard, Metals
14250001	Oostanaula River at Rome Water Intake near Rome, Georgia	C	Standard, Metals
14270001	Etowah River at State Road 53 near Dawsonville, Georgia	BM	Standard, Metals
14271001	Amicalola Creek at State Road 53 near Dawsonville, Georgia	BM	Standard, Metals
14281001	Etowah River at Yellow Creek Road near Ball Ground, Georgia	BM	Standard, Metals
14290501	Long Swamp Creek at Conn's Creek Road near Ball Ground, Georgia	BM	Standard, Metals
14295001	Sharp Mountain Creek at State Road 5 near Ball Ground, Georgia	BM	Standard, Metals
14300001	Etowah River at State Road 5 spur near Canton, Georgia	A	Standard, Metals
14300601	Shoal Creek at State Road 108 near Waleska, Georgia	A	Standard, Metals
14302001	Lake Allatoona at Etowah River upstream from Sweetwater Creek	A	Standard, Chlorophyll
14304001	Little River at State Road 5 near Woodstock, Georgia	A	Standard, Metals
14304101	Noonday Creek at Georgia Highway 92 near Woodstock, Georgia	A	Standard, Metals
14304801	Lake Allatoona at Little River upstream from Highway 205	A	Standard, Chlorophyll
14305801	Lake Allatoona downstream from Kellogg Creek	A	Standard, Chlorophyll
14306471	Stamp Creek at State Road 20 near Cartersville, Georgia	BM	Standard, Metals
14307001	Allatoona Creek at Stilesboro Lane near Kennesaw, Georgia	BM	Standard, Metals
14307501	Lake Allatoona at Allatoona Creek upstream from Interstate 75	A	Standard, Chlorophyll
14309001	Lake Allatoona Upstream from Dam	A	Standard, Chlorophyll
14310011	Etowah River at U.S. Highway 41 near Cartersville, Georgia	BM	Standard, Metals
14317501	Etowah River at State Road 61 near Cartersville, Georgia	BM	Standard, Metals
14325001	Pumpkinvine Creek at County Road 636 near Emerson, Georgia	BM	Standard, Metals
14326001	Raccoon Creek at State Road 113 near Stilesboro, Georgia	BM	Standard, Metals
14329501	Euharlee Creek at County Road 32 near Stilesboro, Georgia	BM	Standard, Metals
14330001	Etowah River at Hardin Bridge near Euharlee, Georgia	C	Standard, Metals
14340201	Two Run Creek at Reynolds Bridge Road near Kingston, Georgia	BM	Standard, Metals
14340991	Spring Creek at State Road 20 near Rome, Georgia	BM	Standard, Metals
14350011	Etowah River at Turner Mccall Boulevard near Rome, Georgia	BM	Standard, Metals
14357551	Silver Creek at Crescent Avenue near Rome, Georgia	BM	Standard, Metals
14401011	Coosa River at Blacks Bluff Road near Rome, Georgia	BM	Standard, Metals
14401501	Webb Creek at Blacks Bluff Road SW near Rome, Georgia	BM	Standard, Metals
14403901	Beech Creek at Mays Bridge Road SW near Rome, Georgia	BM	Standard, Metals
14407901	Cabin Creek at State Road 20 near Rome, Georgia	BM	Standard, Metals
14425001	Cedar Creek at Cave Springs Road near Cedartown, Georgia	BM	Standard, Metals
14450001	Coosa River - Georgia/Alabama State Line Monitor	C	Standard, Metals
14491001	Duck Creek at State Road 337 near LaFayette, Georgia	BM	Standard, Metals
14540001	Spring Creek at State Road 337 near Trion, Georgia	BM	Standard, Metals
14544001	Cane Creek at Club Drive near Trion, Georgia	BM	Standard, Metals

TABLE 6. GEORGIA TREND MONITORING NETWORK 2005

STATION NUMBER	LOCATION	TYPE[1]	PARAMETERS[2]
14550001	Chattooga River - 600 Feet Below U.S. Highway 27 near Summerville	BM	Standard, Metals
14555001	Raccoon Creek at State Road 114 near Summerville, Georgia	BM	Standard, Metals
14560001	Chattooga River at Holland-Chattoogaville Road near Summerville, Georgia	C	Standard, Metals
14565001	East Fork Little River at State Road 48 near Cloudland, Georgia	BM	Standard, Metals
15006001	Little Tennessee River at Georgia Highway 246 near Dillard, Georgia	BM	Standard, Metals
15019901	Mill Creek at Mill Creek Road near Presley, Georgia	BM	Standard, Metals
15019991	Hiawassee River at Streak Hill Road near Presley, Georgia	BM	Standard, Metals
15026001	Lake Chatuge (LMP 12) - at State Line	BM	Standard, Chlorophyll
15026501	Brasstown Creek at U.S. Highway 76 near Blairsville, Georgia	BM	Standard, Metals
15027001	Brasstown Creek at State Road 66 near Young Harris, Georgia	BM	Standard, Metals
15030000	Lake Nottely (LMP 15A) - at Reece Creek	BM	Standard, Chlorophyll
15034001	Nottely River at State Road 180 near Blairsville, Georgia	BM	Standard, Metals
15035001	Nottely River at Morgan Bridge near Blairsville, Georgia	BM	Standard, Metals
15037001	Youngcane Creek at Byers Road near Youngcane, Georgia	BM	Standard, Metals
15039801	Lake Nottely (LMP 15) - at Dam Pool	BM	Standard, Chlorophyll
15040000	Lake Blue Ridge (LMP18A) - 4 Miles Upstream Dam	BM	Standard, Chlorophyll
15040051	Nottely River at John Smith Road near Ivylog, Georgia	BM	Standard, Metals
15048701	Cooper Creek at State Road 60 near Suches, Georgia	BM	Standard, Metals
15058001	Toccoa River at Shallowford Bridge near Dial, Georgia	BM	Standard, Metals
15059901	Lake Blue Ridge (LMP 18) - Dam Pool	BM	Standard, Chlorophyll
15060401	Hemptown Creek at State Road 245 near Mineral Bluff, Georgia	BM	Standard, Metals
15060501	Toccoa River at Curtis Switch Road near Mineral Bluff, Georgia	BM	Standard, Metals
15061001	Fighting Town Creek at West Tennessee Road near McCaysville, Georgia	BM	Standard, Metals
15072001	Little Chickamauga Creek at Hackett Mill Road near Ringgold, Georgia	BM	Standard, Metals
15073001	East Chickamauga Creek at Bandy Road near Ringgold, Georgia	BM	Standard, Metals
15074001	Dry Creek at Houston Valley Road near Ringgold, Georgia	BM	Standard, Metals
15075001	Tiger Creek at State Road 3 near Ringgold, Georgia	BM	Standard, Metals
15080001	South Chickamauga Creek at FAS 819 near Graysville, Georgia	BM	Standard, Metals
15081001	Peavine Creek at Old Dixie Highway near Graysville, Georgia	BM	Standard, Metals
15089001	West Chickamauga Creek at Glass Mill Road near Chickamauga, Georgia	BM	Standard, Metals
15090001	West Chickamauga Creek at Georgia Highway 146 near Lakeview, Georgia	C	Standard, Metals
15099001	Chattanooga Creek at State Road 341 near Chattanooga, Tennessee	BM	Standard, Metals
15099501	Rock Creek at State Road 193 at Flintstone, Georgia	BM	Standard, Metals
15100001	Chattanooga Creek at Burnt Mill Road at St. Elmo, Tennessee	BM	Standard, Metals
15299951	Dry Creek at Maple Street near Chattanooga, Tennessee	BM	Standard, Metals
15300001	McFarland Branch at State Line Road near Chattanooga, Tennessee	BM	Standard, Metals
15350001	Lookout Creek at Old Cloverdale Road near Sulphur Springs, Georgia	BM	Standard, Metals
15400001	Lookout Creek at Creek Road near New England, Georgia	BM	Standard, Metals

[1]There are three major types of stations: core(C), annual (A), and basin monitoring (BM).

[2]Standard parameters include gage height, air temperature, water temperature, dissolved oxygen, turbidity, conductivity, BOD5, pH, alkalinity, hardness, ammonia, nitrite+nitrate, phosphorus, TOC, and fecal coliform bacteria.

175 identified lakes in 340 sampling trips. The data collected included depth profiles for dissolved oxygen, temperature, pH, and specific conductance, Secchi disk transparency, and chemical analyses for chlorophyll a, total phosphorus, nitrogen

compounds, and turbidity. The three measures of Carlson'sTrophic State Index were combined into a single trophic state index (TTSI) and used with other field data and observations to assess the trophic condition of each lake and to establish categories of lakes relative to need for restoration and/or protection. Eight lakes were determined to have the a need for restoration and/or protection (Category A), twenty-eight lakes were found to have moderate need for protection (Category B), and one hundred twenty-seven lakes were found to have few water quality problems (Category C).

Monitoring efforts have continued since the 1980-1981 Lake Classification Survey with a focus on Category A lakes and major lakes (those with a surface area greater than 500 acres). Five lakes (Hillsboro Lake, Floyd State Park Upper and Lower Lakes, Rome City Park Pond, and Heath Park Lake) were removed from Category A and placed in Category B in 1984. Even though their trophic condition remained unchanged, the lake management authorities for these lakes indicated no conflict between the lake condition and intended uses. Three lakes remained as Category A lakes: Jackson Lake, High Falls Lake, and Williams Public Fishing Area Lake. Point source nutrient reduction has been implemented in the Jackson Lake and High Falls Lake watersheds and these lakes have been changed to Category B. Williams Public Fishing Area Lake was drained in the early 1990s due to problems with the dam and there are no plans to fill the lake.

The monitoring of major lakes (> 500 acres) since 1984 has continued to use the TTSI as a tool to mark trophic state trends. The major lakes are listed in Table 7 are ranked according to the TTSI for the period 1986-2003. Work on major lakes is now conducted as a part of the river basin planning process. Quarterly major lakes monitoring was conducted in 2002 and 2003 according to the river basin monitoring schedule. Basin major lakes monitored in 2002 were lakes Hartwell, Russell and Clarks Hill (Savannah). In 2003 the only major lake in the basins of focus was Banks Lake (Suwannee).

A Clean Lakes Phase I Diagnostic/ Feasibility study was conducted for Jackson Lake in 1989 and 1990. This study documented reductions in phosphorus loading. Despite this, the lake remains nutrient sensitive. Consequently, it was recommended that the total phosphorus loading from all sources be held constant or reduced. This study also documented an approximate 40% reservoir storage loss since inundation in 1910 due to sedimentation. Since sedimentation in the upper reaches of the lake interferes with recreation, sediment removal was offered as a management option.

A joint GAEPD-USEPA study of West Point Lake was conducted in 1987-1988. Sufficient data were available at the end of 1988 for the GAEPD to document nutrient problems and implement a control strategy. Because the nutrient loading was point source dominated, all major point sources were directed to reduce total phosphorus to 0.75 mg/l by 1992 with a 50% reduction by the middle of 1990. The phosphorus reduction process was aided in the 1990 when the Georgia General Assembly adopted legislation for a statewide ban on high phosphate detergents. This action along with the

TABLE 7. MAJOR LAKES RANKED BY SUM OF TROPHIC STATE INDEX VALUES 1986-2005

1985		1986		1987		1988		1989	
Sinclair	188	Harding	177	Harding	184	Harding	178	Blackshear	209
Seminole	184	Oliver	176	Oliver	177	High Falls	177	WF George	192
Blackshear	181	Seminole	175	Goat Rock	174	Blackshear	177	Harding	191
Worth	177	Goat Rock	171	Jackson	170	Seminole	174	High Falls	191
Jackson	172	Jackson	170	Worth	167	Goat Rock	173	Jackson	188
Harding	171	Worth	164	Blackshear	<167	Oliver	171	Oliver	184
Oconee	169	High Falls	163	Carters	166	Banks	169	Tobesofkee	180
High Falls	168	WF George	162	Tugalo	166	West Point	169	Goat Rock	179
WF George	161	Blackshear	162	Seminole	<160	WF George	168	Carters	179
Oliver	161	Oconee	161	High Falls	157	Oconee	164	Seminole	174
West Point	157	West Point	160	Banks	<157	Worth	164	Allatoona	171
Goat Rock	155	Allatoona	157	West Point	<156	Jackson	<158	Worth	170
Tobesofkee	152	Tobesofkee	155	Sinclair	<154	Sinclair	<152	Sinclair	169
Nottely	148	Sinclair	152	Clarks Hill	151	Tobesofkee	<151	Banks	166
Chatuge	145	Tugalo	148	Tobesofkee	<146	Russell	<145	Oconee	165
Tugalo	144	Chatuge	147	Oconee	<145	Allatoona	<141	West Point	164
Allatoona	136	Carters	144	Allatoona	<143	Chatuge	139	Nottely	158
Banks	135	Nottely	142	WF George	<141	Tugalo	<133	Tugalo	156
Carters	134	Banks	140	Nottely	<137	Lanier	<132	Russell	156
Blue Ridge	125	Juliette	135	Russell	<133	Nottely	<132	Clarks Hill	153
Juliette	125	Russell	131	Chatuge	<132	Carters	<127	Chatuge	151
Lanier	123	Lanier	128	Rabun	<130	Juliette	<123	Juliette	141
Clarks Hill	123	Clarks Hill	123	Hartwell	<126	Burton	<120	Hartwell	138
Rabun	122	Hartwell	121	Lanier	<123	Blue Ridge	<119	Blue Ridge	133
Russell	122	Blue Ridge	119	Burton	<119	Clarks Hill	<118	Rabun	128
Burton	121	Rabun	117	Blue Ridge	<117	Hartwell	<114	Lanier	<128
Hartwell	116	Burton	114	Juliette	<108	Rabun	111	Burton	123

1990		1991		1992		1993		1997-2001 Basin Cycle		
										Year
Sinclair	182	Blackshear	193	High Falls	194	High Falls	195	High Falls	169	1999
Blackshear	178	High Falls	190	Seminole	183	Blackshear	185	West Point	164	2000
Oliver	177	Harding	185	WF George	181	Seminole	175	Tobesofkee	164	1999
Harding	174	Seminole	181	Tobesofkee	176	Goat Rock	173	WF George	163	2000
Tobesofkee	173	Worth	176	Blackshear	176	Jackson	173	Oconee	162	1999
Jackson	168	Goat Rock	174	Goat Rock	173	Sinclair	172	Jackson	161	1999
Goat Rock	167	WF George	172	Sinclair	172	Worth	172	Blackshear	160	2000
Oconee	166	West Point	171	Oliver	168	Oconee	172	Sinclair	160	1999
Worth	163	Allatoona	167	Harding	166	Harding	170	Worth	157	2000
Chatuge	161	Banks	164	Jackson	166	Oliver	170	Carters	155	2001
Tugalo	161	Jackson	162	Oconee	163	Tobesofkee	169	Harding	155	2000
High Falls	159	Oconee	161	West Point	163	WF George	169	Tugalo	154	1997
Seminole	154	Oliver	157	Nottely	161	West Point	163	Goat Rock	153	2000
Allatoona	146	Sinclair	150	Tugalo	157	Allatoona	158	Seminole	152	2000
WF George	145	Tobesofkee	149	Worth	157	Russell	156	Oliver	152	2000
Clarks Hill	145	Clarks Hill	146	Banks	156	Carters	154	Russell	141	1997
Rabun	142	Russell	141	Allatoona	156	Banks	154	Allatoona	139	2001
West Point	141	Nottely	141	Chatuge	155	Clarks Hill	153	Rabun	136	1997
Burton	138	Chatuge	138	Burton	149	Hartwell	146	Chatuge	135	2001
Hartwell	136	Blue Ridge	136	Russell	147	Nottely	145	Juliette	131	1999
Blue Ridge	135	Carters	135	Carters	143	Chatuge	145	Burton	129	1997
Nottely	132	Juliette	133	Rabun	143	Burton	145	Clarks Hill	129	1997
Juliette	132	Tugalo	133	Blue Ridge	141	Tugalo	143	Nottely	127	2001
Russell	128	Hartwell	132	Hartwell	138	Blue Ridge	140	Lanier	127	2000
Lanier	126	Burton	130	Lanier	138	Rabun	140	Hartwell	127	1997
Banks	<122	Rabun	122	Clarks Hill	131	Juliette	136	Blue Ridge	119	2001
Carters	118	Lanier	121	Juliette	131	Lanier	122			

implementation of phosphorus reduction at the majority of the major metropolitan Atlanta water pollution control plants has resulted in a significant reduction in phosphorus reaching West Point Lake. In March 1990, the Georgia General Assembly passed Senate Bill 714 which mandated the State conduct comprehensive studies of publicly owned lakes (in excess of 1,000 acres) and develop water quality standards for pH, fecal coliform bacteria, chlorophyll a, total nitrogen, total phosphorus loading, and epilimnion dissolved oxygen. The Bill also requires that nutrient limits be established for major tributary streams to the lakes. The Bill mandated that comprehensive studies of Lake Lanier, Lake Walter F. George and West Point Lake be initiated in 1990, and three additional studies be performed each subsequent year on the remaining lakes of 1,500 acres or more, providing funds were available.

In March 1990, the GAEPD applied to and received from the USEPA Clean Lakes Phase I funds to be used to initiate studies of Lakes Lanier, Walter F. George, and West Point. Studies were begun in late 1990 and early 1991. Subsequently, EPD applied for funding for Lakes Allatoona and Blackshear. These were funded and sampling was initiated in April, 1992. Supplemental funding was awarded by Congress for the Lake Allatoona and Lake Lanier Phase I studies. Reports on these studies were completed in 1999. The GAEPD applied for Clean Lakes funds to conduct a Phase I Diagnostic-Feasibility study for Carters Lake in 1995. The application was approved and the field work for the Carters Lake project was completed in 1998. The Carters lake Phase I Diagnostic Feasibility Report was completed in 2000. Water quality standards were adopted for Carters Lake in 2002.

The Lake Walter F. George Phase I Diagnostic/Feasibility study was conducted by the GAEPD in 1990 and 1991. In 1992 and 1993, the work was continued by the Alabama Department of Environmental Management (ADEM) and Auburn University. These studies found the lake in relatively good condition. No water use (i.e. recreation or fishing) impacts were documented. Therefore, the management of nutrient loading, particularly phosphorus, was noted as an important longterm objective in maintaining the water quality of Lake Walter F. George. The Lake Walter F. George Phase I Diagnostic Feasibility Study Report was submitted to and approved by the USEPA in 1997.

The West Point Lake Clean Lakes study was completed in 1994 and the GAEPD proposed water quality standards for the lake which, after public review, were adopted by the Board of Natural Resources in 1995. The lake water quality standards for Walter F. George and Jackson Lakes were proposed and adopted by the Board of Natural Resources in October, 1996. The Clean Lakes studies for Lakes Allatoona and Lanier, conducted by Kennesaw State College and the University of Georgia, respectively, were completed in 1999 and water quality standards adopted by the Board of Natural Resources in 2000.

In 2004 and 2005, lake standards monitoring was conducted April through October, at the specified lake locations on Lakes West Point, Jackson, Walter F. George, Allatoona Lanier and Carters in accordance with the lakes standards law. In addition, tributary sampling was conducted monthly. In addition to monitoring for the required parameters of chlorophyll a, pH, total nitrogen, phosphorus and fecal coliform bacteria, water quality profile data were collected at each lake monitoring station.

The Little River Embayment of Lake Allatoona was included on Georgia's 2002 303(d) list for chlorophyll *a*. A Total Maximum Daily Load was completed in 2004 for this portion of the lake. Portions of Lake Allatoona, Lanier, Carters and Walter F. George were included on Georgia's 2006 303(d) list of waters for chlorophyll *a*. GAEPD is in the process of collecting nutrient data on the lakes that were listed, as well as their tributaries, in order to develop models on which to base total maximum daily loads. Sampling is being conducted in the tributaries to Lake Lanier in 2007.

Fish Tissue Monitoring. This assessment project is focused on fish tissue sampling and analyses, risk-based data assessment, and annual publication of consumption guidance in Georgia's Freshwater & Saltwater Sport Fishing Regulations and in Guidelines for Eating Fish from Georgia Waters. Fish tissue samples are collected in the fall from Georgia lakes and rivers, and analyzed in the winter and spring. Site-specific sampling in Georgia estuaries occurs between the spring and fall on a case specific basis. The sampling is conducted by either the GADNR Wildlife Resources Division (WRD), or the Coastal Resources Division (CRD), depending on whether the site is freshwater (WRD), or estuarine/marine waters (CRD). Samples are catalogued and transported to GAEPD or University of Georgia laboratories and results are reported to the GAEPD the following late summer or early fall. The data are assessed in the fall and winter and consumption guidance is updated each spring. The first risk-based consumption guidance was published in 1995.

In the fall of 2004 sampling was focused in the Oconee, Ocmulgee and Altamaha River basins. In the fall of 2005 sampling was focused in the Chattahoochee and Flint River basins. The data from the annual collections are utilized in reassessments that are incorporated annually into the *Guidelines for Eating Fish For Georgia Waters* and *Georgia's Freshwater and Saltwater Sport Fishing Regulations*.

Toxic Substance Stream Monitoring. The GAEPD has focused resources on the management and control of toxic substances in the State's waters for many years. Toxic substance analyses have been conducted on samples from selected trend monitoring stations since 1973. Wherever discharges were found to have toxic impacts or to include toxic pollutants, the GAEPD has incorporated specific limitations on toxic pollutants in NPDES discharge permits. In 1983 the GAEPD intensified toxic substance stream monitoring efforts. This expanded toxic substance stream monitoring project included facility effluent, stream, sediment, and fish sampling at specific sites downstream of selected industrial and municipal discharges. From 1983 through 1991,

ten to twenty sites per year were sampled as part of this project. Future work will be conducted as a part of the rotating basin monitoring program.

Aquatic Toxicity Testing. In 1982 the GAEPD incorporated biomonitoring or aquatic toxicity testing in selected industrial NPDES permits. Biomonitoring requirements are currently addressed in all municipal and industrial NPDES permits. In January 1995, the GAEPD issued approved NPDES Reasonable Potential Procedures which further delineated required conditions for conducting whole effluent toxicity (WET) biomonitoring for municipal and industrial discharges. The Reasonable Potential Procedures were updated in 2001. In addition, GAEPD developed a Whole Effluent Toxicity Strategy in 2001 which provided more detail as to how the State would determine what facilities needed a whole effluent toxicity limit in their permit and which outlined minimum data requirements for different types of facilities. The GAEPD started conducting aquatic toxicity tests on municipal and industrial water pollution control plant effluents in 1985. In 1988, the GAEPD constructed laboratory facilities to support chronic and acute testing capabilities. All toxicity testing was conducted in accordance with appropriate USEPA methods. The aquatic biomonitoring project (ABP) was initially funded with Federal CWA Section 205(j) Grant money, and later under Section 604(b). Requests for State funding were proposed annually and were unsuccessful. Continued funding under Section 604(b) met with difficulties and absorption of costs into the State budget not possible with the State government redirection priorities and privatization initiatives that were implemented in 1995. When reorganization of the Water Protection Branch was finalized in June 1996, the resources of the ABP were redirected into monitoring and TMDL areas. It was decided that the ABP would be phased out over the FY1997 period with the aquatic toxicity testing laboratory to be closed down by July 1, 1997. In addition to funding and redirection issues, it was decided that toxicity testing work would be required of individual permittees in the future.

Coastal Monitoring. The majority of coastal monitoring is conducted by the Coastal Resources Division (CRD). This work includes the national coastal assessment program, beach water quality monitoring, estuarine nutrient monitoring, shellfish sanitation monitoring and monitoring for harmful algae including Pfiesteria. This work is discussed in Chapter 5.

Facility Compliance Sampling. In addition to surface water quality monitoring, the GAEPD conducts evaluations and compliance sampling inspections of municipal and industrial water pollution control plants and on industrial pretreatment systems. Compliance sampling inspections include the collection of 24-hour composite samples, and an evaluation of the permittee sampling and flow monitoring operations. In excess of 350 sampling inspections were conducted by the GAEPD staff in 2004-2005. The results were used, in part, to verify the validity of permittee self-monitoring data and as supporting evidence, as applicable, in enforcement actions. In 2004 this work was focused in the Oconee, Ocmulgee and Altamaha River basins and in 2005 in the

Ochlockonee, Suwannee, Satilla and St. Marys River basins in support of the River Basin Planning process.

Surface Water Quality Summary

Data Assessment. Water quality data are assessed to determine if standards are met and if the waterbody supports its designated or classified water use. If monitoring data show that standards are not achieved, depending on the frequency standards are not met, the waterbody is said to be partially or not supporting the designated use. The data reviewed included GAEPD monitoring data, and data from other State, Federal, local governments, contracted Clean Lakes projects, data from three electrical utility companies and data from groups with approved QA/QC programs. Table 8 provides a list of agencies that contributed data for use in assessing water quality in this report.

The majority of coastal monitoring is conducted by the Coastal Resources Division. This work includes the national coastal assessment program, beach water quality monitoring, estuarine nutrient monitoring, shellfish sanitation monitoring and monitoring for harmful algae including Pfiesteria.

Appendix A includes lists of streams and rivers, lakes, and estuaries for which data have been assessed and indications are that designated uses for those waters are not fully supported. The lists are organized by river basin and include information on the location, data source, designated water use classification, criterion violated, potential cause, actions planned to alleviate the problem, and estimates of stream miles, lake acres and square miles of estuaries affected. The list is further coded to indicate status of each waterbody under several sections of the Federal Clean Water Act (CWA). Different sections of the CWA require states to assess water quality (Section 305(b)), to list waters with water quality standards violations for which no actions have been initiated and therefore a TMDL is needed (Section 303(d)), and to document waters with nonpoint source problems (Section 319).

The Appendix A waters are described in the following categories: waters supporting designated uses, waters partially supporting designated uses, and waters not supporting designated uses. Waters were placed on the partially or not supporting lists based on the following assessments.

Fecal Coliform Bacteria. Georgia water quality standards establish a fecal coliform bacteria criterion of a geometric mean (four samples collected over a 30-day period) of 200 MPN/100 ml for all waters in Georgia during the recreational season of May through October. This is the year-round standard for waters with the water use classification of recreation. For waters classified as drinking water, fishing, or coastal fishing, for the period of November through April, the fecal coliform bacteria criterion is a geometric mean (four samples collected over a 30-day period) of 1,000 per 100 ml and not to exceed 4,000 per 100 ml for any one sample.

The goal of fecal coliform sampling in 2004-2005 was to collect four samples in a thirty day period in each of four calendar quarters. If one geometric mean was in excess of the standard then the stream segment was placed on the partial support list. If more than one geometric mean was in excess of the standard the stream was placed on the not support list.

TABLE 8
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
GAEPD Brunswick District Office	City of Savannah
GAEPD Hazardous Waste Branch	Chatham County
DNR, Georgia Parks Recreation & Historic Sites Division	City of Augusta
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 Allatoona (Kennesaw State University)
Georgia Institute of Technology	Lake Lanier (University of Georgia)
Chattahoochee/Flint RDC	West Point (LaGrange College/Auburn University)
Upper Etowah Adopt-A-Stream	Lake Blackshear Watershed Association
Middle Flint RDC	University of Georgia
Heart of Georgia RDC	Southwire Company
Central Savannah RDC	Ellijay High School
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

In some cases the number of samples was not adequate to calculate geometric means due to sampling or laboratory difficulties. In these cases, the USEPA recommends the use of a review criterion of 400 per 100 ml to evaluate sample results. This bacterial density (400 per 100 ml) was used to evaluate data from the months of May through October and the maximum criterion of 4,000 per 100 ml was used in assessing the data

from the results of November through April when geometric mean data was not available. Thus, where geometric mean data was not available, waters were deemed not supporting uses when 26 percent or more of the samples had fecal coliform bacterial densities greater than the applicable review criteria (400 or 4,000 MPN/100 ml) and partially supporting designated uses when 11 to 25 percent of the samples were in excess of the review criterion.

Metals. In general, data on metals from any one given site are not frequent. Clean sampling techniques are used when metals are collected. If one sample was in excess of a standard, the stream segment was placed on the partial support list. If two samples indicated exceedence of water quality standards, the stream segment was placed on the not support list. This is in accordance with USEPA guidance which suggests listing if more than one sample exceeds the criteria. In addition, an asterisk is placed beside metals data in those cases where there is a minimal database. In 2004-2005, the goal was to collect metals samples in the winter and summer in the river basins of monitoring focus for comparison to water quality standards. Due to budget constraints, EPD was only able to monitor metals at new stations in the basins of focus in 2004 and was unable to monitor any of the basin streams for metals in 2005.

Toxicity Testing/Toxic Substances. Data from GAEPD toxicity testing of water pollution control plant effluents were used to predict toxicity in the receiving stream at critical 7Q10 low flow conditions. Based on the effluent toxicity, receiving waters were evaluated as not supporting when one or more tests gave a clear indication of instream toxicity and as partially supporting when based on predicted instream toxicity. Effluent data for toxic substances were used to designate either partial support or non-support based on whether instream corroborating data were available. When instream data were available, the stream was determined to be not supporting. When instream data were not available, the stream was listed as partially supporting.

Dissolved Oxygen, pH, Temperature. When available data indicated that these parameters were out of compliance with state standards more than 25% of the time, the waters were evaluated as not supporting the designated use. Between 11% and 25% noncompliance resulted in a partially supporting evaluation. Chapter 391-3-6-.03(7) of the Rules and Regulations for Water Quality Control states that “It is recognized that certain natural waters of the State may have a quality that will not be within the general or specific requirements contained herein. These circumstances do not constitute violations of water quality standards. This is especially the case for the criteria for dissolved oxygen, temperature, pH and fecal coliform.” South Georgia blackwater streams were not evaluated for compliance with the state pH standards because these streams have naturally low pH. In addition, a number of streams in the Ochlockonee, St. Marys, Satillia and Suwannee River Basin were removed from the partially supporting and not supporting lists for dissolved oxygen in 2006 based on the fact that these streams were determined to have naturally low dissolved oxygen concentrations. The

fact that the low dissolved oxygen in these streams is naturally occurring is documented in the dissolved oxygen Total Maximum Daily Loads that were established for them.

Fish/Shellfish Guidelines. USEPA guidance for evaluating fish consumption guidelines formation for 305(b)/303(d) use support determinations has been to assess a water as fully supporting uses if fish can be consumed in unlimited amounts; as partially supporting if consumption needs to be limited; and, as not supporting if no consumption is recommended. Georgia followed this guidance in evaluating the fish consumption guidelines for the 2000 and earlier 305(b)/303(d) lists. This assessment methodology was followed again in developing the 2002 305(b)/303(d) List for all fish tissue contaminants except mercury. Mercury in fish tissue was assessed and a segment or waterbody was listed if the Trophic-Weighted Residue Value (as described in the October 19, 2001 GAEPD "Protocol"), was in excess of the new USEPA water quality criterion (*Water Quality Criterion for the Protection of Human Health: Methylmercury*, EPA-823-R-01-001, January 2001). The USEPA criteria represents a national approach to address what mercury levels are protective for fishing waters. For mercury, waters were placed on the partial support list if the calculated Trophic-Weighted Residue Value was greater than 0.3 µg/g wet weight total mercury, and less than 2 µg/g wet weight, and on the not support list if the value was greater than 2 µg/g wet weight. Waters were included on the supporting list (assuming all other criteria were met) if the calculated Trophic-Weighted Residue Value was less than or equal to 0.3 µg/g. It is possible that some of these waters may have fish consumption guidelines in place for mercury. Georgia's fish consumption guidelines were developed using a risk-based approach to generate simple, understandable information for fish consumption that is species specific, and in many cases, size specific. It is published to help consumers of locally caught fish to make choices regarding consumption. However, for the purpose of assessing State waters, it is appropriate to use the State's criteria which accounts for different contaminant loads in different trophic levels of fish.

Biotic Data. The "Biota Impacted" designation in the "Criterion Violated" column indicates that studies showed a modification of the biotic community. Communities utilized were fish. Studies of fish populations by the DNR Wildlife Resources Division and the Tennessee Valley Authority used the Index of Biotic Integrity (IBI) to identify affected fish populations. The IBI values were used to classify the population as Excellent, Good, Fair, Poor, or Very Poor. Stream segments with fish populations rated as "Poor" or "Very Poor" were included in the partially supporting list.

Evaluation of Use Support. Table 9 provides summary information from Appendix A on the total number of stream miles, lake acres, or square miles of estuaries that fall in each use support category. Separate totals are given for waterbodies that were monitored, for which the assessment is based on current water quality data, and waters that were evaluated, for which assessment was made based on older data, location, and/or professional judgment. Many additional streams, particularly in urban areas may

not meet all standards, but monitoring resources are not adequate to sample all streams.

Assessment of Causes of Nonsupport of Designated Uses. There are many potential pollutants which may interfere with the designated use of a river, stream, lake, or estuary. These can be termed the causes of use nonsupport. Based on information presented in Appendix A, Table 10 summarizes the parameters of concern or the causes which contributed to nonsupport of water quality standards or designated uses of a particular waterbody.

Assessment of Potential Sources of Nonsupport of Designated Uses. Pollutants which impact waterbodies in Georgia may come from point or nonpoint sources. Point sources are discharges into waterways through discrete conveyances, such as pipes or channels. Municipal and industrial wastewater treatment facilities are the most common point sources. Point sources also include overflows of combined storm and sanitary sewers. Nonpoint sources are diffuse sources of pollution primarily associated with run off from the land following a rainfall event. Table 11 summarizes detailed information presented in Appendix A concerning the sources of pollutants which prevent achievement of water quality standards and use support in various waterbodies in Georgia.

Priorities for Action. The list of waters in Appendix A and B includes all waters for which available data indicate that water quality standards are or are not being met and designated uses are supported or not fully supported. This list of waters has become a comprehensive list of waters for Georgia incorporating the information requested by Sections 305(b), 303(d), 314, and 319 of the Federal CWA. As noted, waters listed as partially or not supporting their designated uses are active 305(b) waters. The list of lakes or reservoirs listed as partial or not supporting designated uses provides the information requested in Section 314 of the CWA. Waters with nonpoint sources identified as a potential cause of a standards violation are considered to provide the information requested in the CWA Section 319 nonpoint assessment. The 303(d) designation is described in the following paragraph.

The 303(d) list is a subset of the 305(b) listed waters. To develop the 303(d) list, the 305(b) list was reviewed and coded based on the guidance provided by the USEPA. First, segments were identified where enforceable State, local or Federal requirements have led to or will lead to attainment of water quality standards. Segments with ongoing action which will lead to attainment of water quality standards were assigned a “2" code under 303(d) status. A “3" code was assigned to segments where TMDLs have been developed and approved. The remaining segments are marked with an “X” and represent 303(d) listed waters for Georgia. In addition to these waters, the USEPA added waters to the Georgia 303(d) list on December 31, 1996, June 25, 1997, and

TABLE 9
Evaluation of Use Support By Waterbody Type
2004-2005

Degree of Use Support	Streams/Rivers (miles)			Lakes/Reservoirs (acres)			Estuaries (sq. miles)		
	Assessment Basis			Assessment Basis			Assessment Basis		
	Evaluated	Monitored	Total	Evaluated	Monitored	Total	Evaluated	Monitored	Total
Supported	2,417	2,941	5,359	978	232,710	233,688	741	20	761
Partially Supported	887	2,991	3,878	20	107,194	107,214	0	4	4
Not Supported	288	2,817	3,105	0	55,950	55,950	68	21	89
TOTAL	3,592	8,750	12,342	998	395,854	396,852	809	45	854

June 18, 1999. Those waters are shown in Appendix B. All the USEPA added waters have had TMDLs completed for them at this time and are no longer part of the 303(d) list. To summarize, the Georgia 303(d) list of waters is made up of those waters with an "X" in the column marked 303(d) in Appendix A.

Georgia is implementing a watershed approach to water resource management through a rotating basin approach. This approach provides the framework and schedule for actions to address waters on the Georgia 303(d) list. The rotating basin approach provides an opportunity to focus monitoring, assessment, problem prioritization, TMDL development, water resource protection strategy development and implementation resources in specific basins on an orderly five year rotating basis. Of course, significant problems may arise in basins other than the basins of focus and the GAEPD will continue to respond in an appropriate manner. Thus, a discussion for prioritization of the 305(b)/303(d) list must be made in the context of the river basin planning program and in the context of current actions underway to address water quality problems documented in the Georgia 305(b) report. The majority of resources will be directed to insuring the ongoing pollution control actions are completed and water quality improvements are achieved. This work applies to those waters which are identified as 305(b) waters and coded with a "2" in the 303(d) status column of the table. These stream segments while listed on the 305(b) report list are not segments on the Georgia 303(d) list in accordance with USEPA guidance as actions are ongoing which will resolve the issues. However, these streams are the highest priority waters as these segments will continue to require sources to complete actions and insure standards are achieved.

TABLE 10. Causes of Nonsupport of Designated Uses By Waterbody Type 2004-2005

Cause Cateogry	Rivers/Streams (miles) Contribution to Impairment[1]	
	Major[2]	Moderate/Minor[3]
Fish Guidance	777	602
Toxicity	0	36
Pesticides	0	0
Priority Organics	1	0
Metals	1	42
Ammonia	0	0
PH	31	212
Dissolved Oxygen	531	726
Thermal-Modification	0	9
Pathogens	2,767	1,496
Biota Impacted	1,156	463
Other Inorganics	0	0
Cause Category	Lakes/Reservoirs (acres) Contribution to Impairment[1]	
	Major[2]	Moderate/Minor[3]
Fish Guidance	96,044	650
Toxicity	0	0
Pesticides	0	0
Priority Organics	950	0
Metals	0	0
PH	0	0
Dissolved Oxygen	0	0
Thermal-Modification	650	0
Pathogens		
Chlorophyll	65,626	0
Cause Category	Estuaries (square miles) Contribution to Impairment[1]	
	Major[2]	Moderate/Minor[3]
Priority Organics	0	2
Metals	0	2
Dissolved Oxygen	70	19
Pathogens	0	0
Fish Guidance	2	21

1 A water body may be affected by several different causes or sources and its size is counted in each relevant cause category. Thus totals will be significantly larger and will not sum to totals in Table 3-9 or Appendix A.

2 Major Contribution - A cause or source makes a major contribution to impairment if it is the only one responsible for less than full use support, or if it predominates over others.

3 Moderate/Minor - A cause or source makes a moderate/minor contribution to impairment if it is one of multiple causes responsible for less than full use support.

TABLE 11. Potential Sources of Nonsupport of Designated Uses By Waterbody Type 2004-2005

Cause Cateogry	Rivers/Streams (miles) Contribution to Impairment[1]	
	Major[2]	Moderate/Minor[3]
Industrial Point	0	42
Industrial Nonpoint	40	159
Municipal Point	53	147
Municipal Nonpoint	0	0
Combined Sewer/ Overflows	0	93
Urban Runoff/ Stormwater	1,651	321
Hydropower/Habitat/ (Dam Release)	11	2
Thermal Modification	0	0
Nonpoint Source	4,666	318
Agriculture	0	0
Silviculture	0	0
Resource Extraction	0	0
Land Disposal	0	0
Natural Sources	0	0
Cause Category	Lakes/Reservoirs (acres) Contribution to Impairment[1]	
	Major[2]	Moderate/Minor[3]
Industrial Point	650	0
Industrial Nonpoint	55,950	0
Municipal Point	0	0
Municipal Nonpoint	0	0
Urban Runoff/ Stormwater	194	93,309
Nonpoint Sources	13,061	93,309
Cause Category	Estuaries (square miles) Contribution to Impairment[1]	
	Major[2]	Moderate/Minor[3]
Industrial Point	0	92
Industrial Nonpoint	1	4
Municipal Point	0	88
Urban Runoff/ Stormwater	0	70
Nonpoint Sources	0	67
Marina	0	0

These stream segments have been assigned priority one. This is evidenced by the “1" noted in the far right column titled priority on the listing.

Second priority was allocated to segments with multiple data points which showed metals or other toxic substance concentrations in excess of water quality standards and to segments in which dissolved oxygen concentration was an issue.

Third priority was assigned to waters where air deposition, urban runoff or general nonpoint sources caused fish consumption guideline listings, or poor fish communities, or fecal coliform bacteria, pH or temperature standards violations. Waters added to the Georgia 303(d) list by EPA were also assigned to third priority.

Several issues helped forge the rationale for priorities. First, strategies are currently in place to address many of the significant water quality problems across the state and significant resources will be required to ensure that these actions are completed. Second, a large percentage of waters for which no control strategy is currently in place are listed due to fish consumption guidelines or as a result of exceedence of criteria of fecal coliform bacteria due to urban runoff or nonpoint sources or atmospheric deposition. At the present time, the efficacy of the fecal coliform bacteria standard is in question in the scientific community. The primary cause for mercury contamination of fish tissue is air deposition. Steps are being taken at the national level to reduce air deposition of mercury.

The rotating basin approach process provides the framework for the long-term schedule for developing TMDLs for 303(d) listed segments. TMDLs were proposed for 303(d) listed waters in the Savannah and Ogeechee River Basins in 2004 and for 303(d) listed waters in the Ochlockonee, Suwannee, Satilla and Savannah River Basins in 2005. The TMDLS for the Savannah and Ogeechee were approved by the USEPA in early 2005 and the TMDLS for the Ochlockonee, Suwannee, Satilla and Savannah were approved in early 2006.

The lists in Appendix A and B will continue to reflect the segments where water quality data indicate compliance with or problems with achieving compliance with water quality standards. These segments will be removed when the actions have been taken and compliance attained. The list will grow and shrink based on these considerations and any new standard or approaches implemented in the future. This will also affect the 303(d) list as these entries will undergo changes along with the 305(b) list.