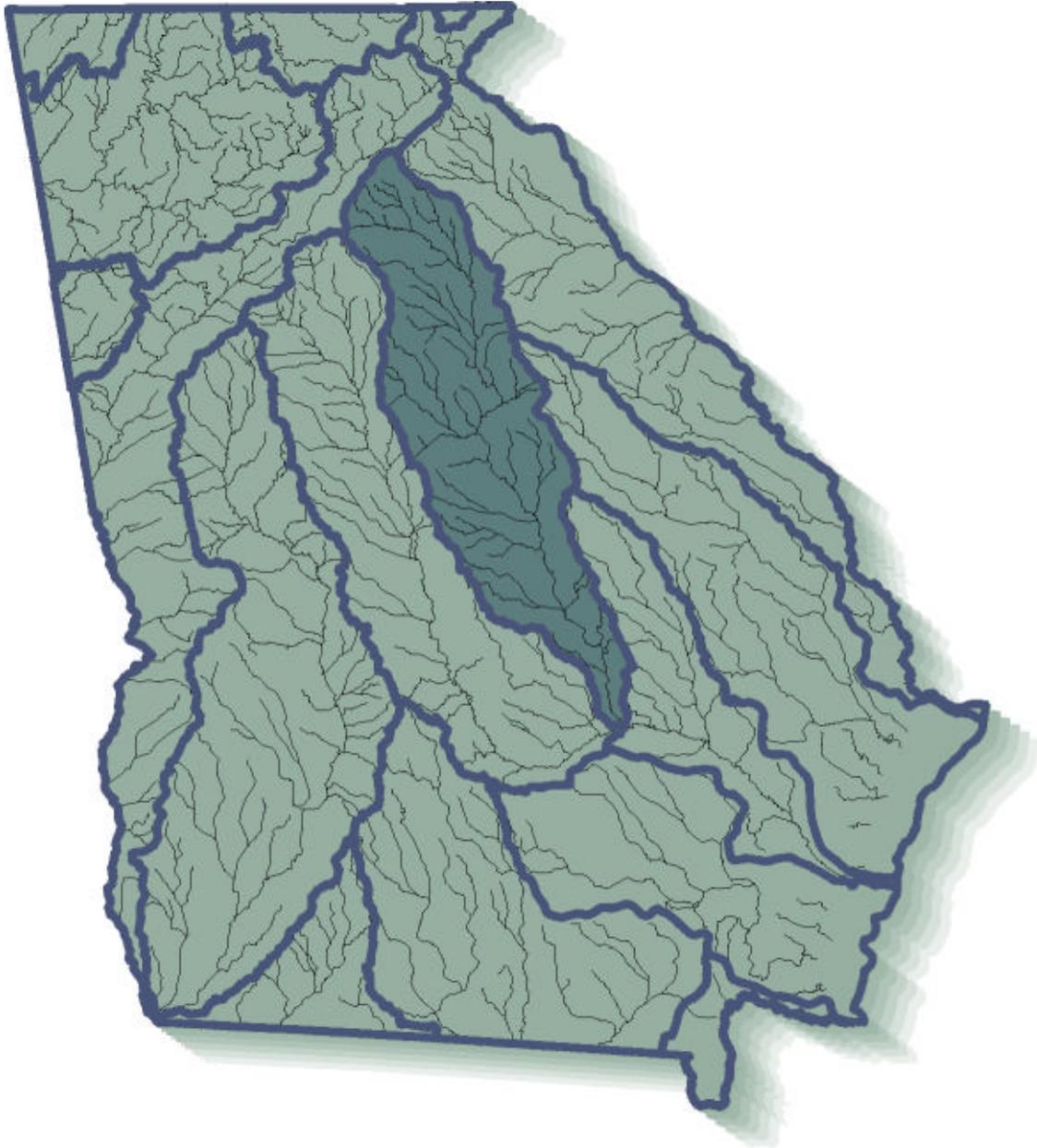


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# Oconee River Basin Management Plan 1998



Georgia Department of Natural Resources  
Environmental Protection Division

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# Georgia River Basin Management Planning Vision, Mission, and Goals

## What is the **VISION** for the Georgia RBMP Approach?

Clean water to drink, clean water for aquatic life, and clean water for recreation, in adequate amounts to support all these uses in all river basins in the state of Georgia.

## What is the **RBMP MISSION**?

To develop and implement a river basin planning program to protect, enhance, and restore the waters of the State of Georgia, that will provide for effective monitoring, allocation, use, regulation, and management of water resources.

[Established January 1994 by a joint basin advisory committee workgroup.]

## What are the **GOALS** to Guide **RBMP**?

- 1) To meet or exceed local, state, and federal laws, rules, and regulations. And be consistent with other applicable plans.
- 2) To identify existing and future water quality issues, emphasizing nonpoint sources of pollution.
- 3) To propose water quality improvement practices encouraging local involvement to reduce pollution, and monitor and protect water quality.
- 4) To involve all interested citizens and appropriate organizations in plan development and implementation.
- 5) To coordinate with other river plans and regional planning.
- 6) To facilitate local, state, and federal activities to monitor and protect water quality.
- 7) To identify existing and potential water availability problems and to coordinate development of alternatives.
- 8) To provide for education of the general public on matters involving the environment and ecological concerns specific to each river basin.
- 9) To provide for improving aquatic habitat and exploring the feasibility of re-establishing native species of fish.
- 10) To provide for restoring and protecting wildlife habitat.
- 11) To provide for recreational benefits.
- 12) To identify and protect flood prone areas within each river basin, and encourage local and state compliance with federal flood plain management guidelines.

[Established January 1994 by a joint basin advisory committee workgroup.]

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# Oconee River Basin Management Plan 1998

## **Preface**

This report was prepared by the Environmental Protection Division (EPD), Georgia Department Natural Resources (EPD), as required by O.C.G.A. 12-5-520 and as a public information document. It represents a synoptic extraction of the EPD files and, in certain cases, information has been presented in summary form from those files. The reader is therefore advised to use this condensed information with the knowledge that it is a summary document and more detailed information is available in the EPD files.

Comments or questions related to the content of this report are invited and should be addressed to:

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# List of Acronyms and Abbreviations

Ac	acre
Ac-ft	acre-feet
ACF	Apalachicola-Chattahoochee-Flint Basin
ACT/ACF	Alabama-Coosa-Tallapoosa/Apalachicola-Chattahoochee Flint Basin
ADEM	Alabama Department of Environmental Management
ARC	Atlanta Regional Commission
ARS	USDA Agricultural Research Service
BMPs	best management practices
BOD	biochemical oxygen demand
CAES	University of Georgia College of Agricultural and Environmental Sciences
Cd	cadmium
CFR	Code of Federal Regulations
COE	U.S. Army Corps of Engineers
CPUE	catch per unit effort (fishing)
CRMP	Chattahoochee River Modeling Project
CRP	Conservation Reserve Program
CSGWPP	Comprehensive State Ground Water Protection Plan
CSMTF	Community Stream Management Task Force
CSO	Combined Sewer Overflow
Cu	copper
CWA	U.S. Clean Water Act
DCA	Georgia Department of Community Affairs
DNR	Georgia Department of Natural Resources
DO	dissolved oxygen
EPA	U.S. Environmental Protection Agency
EPD	Georgia Environmental Protection Division
EQIP	Environmental Quality Incentives Program
E&SC	Erosion and Sedimentation Control Act
FEMA	Federal Emergency Management Agency
FFY	Federal fiscal year
FIP	Forestry Incentives Program
FSA	Farm Service Agency
ft	feet
ft <sup>2</sup> /d	square feet per day
ft <sup>3</sup> /s	cubic feet per second
gal/m	gallons per minute

GDA	Georgia Department of Agriculture
GEMA	Georgia Emergency Management Agency
GFA	Georgia Forestry Association
GFC	Georgia Forestry Commission
GPC	Georgia Power Company
GPD	gallons per day
GSWCC	Georgia Soil and Water Conservation Commission
Hg	mercury
HUC	Hydrologic unit code (USGS)
IBI	Index of Biotic Integrity
kg	kilogram
km <sup>2</sup>	square kilometer
kW	kilowatt
LAS	land application system for wastewater
LUST	leaking underground storage tank
MCL	Maximum Contaminant Level for drinking water
meq/l	milliequivalent
mg/l	milligrams per liter
MG	million gallons
MGD	million gallons per day
mi <sup>2</sup>	square miles
ml	milliliter
MLMP	Major Lakes Monitoring Project
MOU	memorandum of understanding
MPN	most probable number (for quantification of fecal coliform bacteria)
MS4	municipal separate stormwater system
M&I	municipal and industrial
NFIP	National Flood Insurance Program
NOI	notice of intent
NPDES	National Pollution Discharge Elimination System
NPS	nonpoint source
NRCS	Natural Resources Conservation Service of USDA
NURE	National Uranium Resource Evaluation
NWI	National Wetlands Inventory (USF&WS)
Pb	lead
PCB	polychlorinated biphenyl
ppm	parts per million; equivalent to mg/l
RBMP	River Basin Management Planning
RBP	Rapid Bioassessment Protocol
RC&D	Resource Conservation and Development Council
RDC	Regional Development Center
RM	river mile
SCS	Soil Conservation Service (now NRCS)
SOCs	Synthetic Organic Chemicals

STATSGO	State Soil Geographic Database (USDA)
SWCD	Soil and Water Conservation District
TMDL	Total Maximum Daily Load, as specified in the CWA
TTSI	Georgia combined lake trophic state index
UGA	University of Georgia
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USF&WS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WET	whole effluent toxicity
WHIP	Wildlife Habitat Incentives Program
WPCP	water pollution control plant
WRD	Georgia Wildlife Resources Division
WRP	Wetland Reserve Program
WWTP	wastewater treatment plant
Zn	zinc
µg/l	micrograms per liter
7Q10	7-day average low flow with a once-in-ten-year recurrence interval

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# Executive Summary

This document presents Georgia's management plan for the Oconee River basin, which is being produced as a part of Georgia's River Basin Management Planning (RBMP) approach. The Georgia Environmental Protection Division (EPD) has developed this plan in cooperation with several other agency partners including the USDA Natural Resources Conservation Commission, Georgia Soil and Water Conservation Commission, Georgia Forestry Commission, U.S. Geological Survey, and Georgia Wildlife Resources Division. The RBMP approach provides the framework for identifying, assessing, and prioritizing water resources issues, developing management strategies, and providing opportunities for targeted, cooperative actions to reduce pollution, enhance aquatic habitat, and provide a dependable water supply.

## Purpose of the Basin Plan

The purpose of this plan is to provide relevant information on the characteristics of the Oconee River basin, describe the status of water quality and quantity in the Oconee River basin, identify present and future water resource demands, present and facilitate the implementation of water quality protection efforts, and enhance stakeholder understanding and involvement in basin planning.

This Oconee River Basin Management Plan includes strategies to address a number of different basinwide objectives. These include:

- Protecting water quality in lakes, rivers and streams through attainment of water quality standards and support for designated uses;
- Providing adequate, high quality water supply for municipal, agricultural, industrial, environmental, and other human activities;
- Preserving habitat suitable for the support of healthy aquatic and riparian ecosystems;
- Protecting human health and welfare through prevention of water-borne disease; minimization of risk from contaminated fish tissue, and reduction of risks from flooding; and
- Ensuring opportunities for economic growth, development, and recreation in the region.

Achieving these objectives is the responsibility of a variety of state and federal agencies, local governments, business, industry, and individual citizens. Coordination among these many partners can be challenging, and impacts of actions in one locale by one partner on conditions elsewhere in the basin are not always understood or considered. River Basin Management Planning is an attempt to bring together stakeholders in the basin to increase coordination and to provide a mechanism for communication and consideration of actions on a broad scale to support water resource objectives for the entire basin. RBMP provides the framework to begin to understand the consequences of local decisions on basinwide water resources.

This river basin plan will serve as the road map for managing the water resources in the Oconee River basin over the next five years. It contains useful information on the health of the Oconee River basin and recommended strategies to protect the basin now and into the future.



## **Oconee River Basin Characteristics**

The Oconee River basin extends from central northern Georgia, northeast of Atlanta, to central southern Georgia, occupying an area of 5,330 square miles. The Oconee River basin contains parts of the Piedmont and Coastal Plain physiographic provinces, which extend throughout the southeastern United States. The Oconee River joins the Ocmulgee River to form the Altamaha River, which drains to the Atlantic Ocean.

## **Water Resources**

The surface water resources of the basin include several major rivers, including the North Oconee and Middle Oconee Rivers, the Oconee River mainstem, and the Apalachee River. There are also two major reservoirs: Lake Sinclair and Lake Oconee.

## **Biological Resources**

The basin encompasses parts of three major land resource areas (Southern Piedmont, Southern Coastal Plain, and Carolina and Georgia Sand Hills), providing different ecosystem types. These ecosystems provide habitat for diverse species of aquatic and terrestrial wildlife including at least 74 species of fish, 37 species of amphibians, and 19 species of reptiles strongly associated with freshwater habitats. Several of these species are currently threatened or endangered.

## **Population and Land Use Characteristics**

More than 400,000 people live in the Oconee basin. The major population centers include bedroom communities of Atlanta, as well as Athens, Milledgeville, and Dublin. The heaviest concentration of the population resides in the upper end of the basin in Clarke, Barrow, Jackson, and portions of Hall and Walton counties (approximately 50 percent of the total basin population). The number of basin residents is expected to grow to a population of about 500,000 by the year 2020, growing to more than 700,000 by the year 2050.

More than 65 percent of the basin is covered by forests, and forestry-related activities account for a major part of the basin's economy. Agriculture is also a significant land use activity supporting a variety of animal operations and commodity production. Although the total farmland in the basin is declining, livestock and poultry production is strong.

## **Local Governments and Planning Authorities**

The local governments in the basin consist of counties and incorporated municipalities. The Oconee basin includes part or all of 27 Georgia counties. These counties are members of six different Regional Development Centers. There are also 105 incorporated municipalities in the basin.

## **Water Quantity Conditions**

Surface water supplies in the basin include water in rivers, ponds, and reservoirs. Surface water is the primary water source in the Piedmont province, while within the Coastal Plain province, aquifer yields are higher and ground water withdrawals are an important part of the total water budget. The Oconee River basin provides drinking water for over 280,000 people in the state of Georgia by municipal or privately owned public water systems. Georgia's Drinking Water Program oversees 285 active and permitted public water systems in the Oconee River basin.

The primary demands for water supply in the basin include municipal and industrial use, agricultural use, power generation, and recreation. Drinking water demands for surface and ground water located in the basin are expected to increase due to the growth in the Athens, Lake Oconee, and Lake Sinclair area. A regional drinking water reservoir on Bear Creek for Clarke, Oconee, Jackson, and Barrow Counties is being built and expected to be finished in the year 2000. Water supplies in the basin are expected to be adequate to meet demands.

## **Water Quality Conditions**

The major environmental stressors that impair or threaten water quality in the Oconee River basin include traditional chemical stressors, such as metals and bacterial contamination, as well as less traditional stressors, such as stream channel modifications and alteration of physical habitat.

Significant potential sources of environmental stressors in the basin include point source discharges such as municipal and industrial wastewater, and storm sewers; and nonpoint sources that result from diffuse runoff from urban and rural land uses. Based on EPD's 1996-1997 water quality assessment report, urban runoff and rural nonpoint sources are now the major sources of failure to support designated uses of water bodies in the Oconee basin.

## Point Sources

Point sources are defined as the permitted discharges of treated wastewater to river and tributaries that are regulated under the National Pollutant Discharge Elimination System (NPDES). These permits are issued by EPD for wastewater discharges and storm water discharges.

**Municipal discharges.** There are currently 6 permitted major municipal wastewater discharges with flows greater than 1 MGD in the Oconee River basin. There are also 28 minor public discharges. EPD monitors compliance of these permits and takes appropriate enforcement action for violations. As of the 1996-1997 water quality assessment, 10 stream segments (totaling 53 miles) were identified in which municipal discharges contributed to a failure to support designated uses. Water quality standards violations in these segments are being addressed through the NPDES permitting process.

**Industrial discharges.** There are relatively few industrial wastewater dischargers in the basin including 4 major facilities. EPD identified 1 stream segment (3 miles) where permitted industrial discharges contributed to a failure to support designated uses. This segment is currently being addressed through the NPDES permitting process.

**Permitted storm water discharges.** Urban storm water runoff in the Oconee basin has been identified as a major source of water quality impairment. Urban runoff which is collected by storm sewers is now subject to NPDES permitting and control. EPD has issued 2 municipal separate storm system (MS4) permits in the Oconee basin.

## Nonpoint Sources

Nonpoint sources of pollution include a variety of pollutants that are carried across the ground with rainwater or snowmelt and are deposited in water bodies. The alteration of habitat and the channelization of streams also are considered forms of nonpoint source pollution. The 1996-1997 water quality assessment results for the Oconee basin indicate that urban and rural nonpoint sources contribute significantly to failure to support designated uses of water bodies. The major categories of nonpoint source pollution in the basin include the following:

- Urban, industrial, and residential sources, which may contribute storm water runoff, unauthorized discharges, oxygen-demanding waste, oil and grease, nutrients, metals, bacteria, and sediments.
- Agricultural sources, which may contribute nutrients from animal wastes and fertilizers, sediment, herbicides/pesticides, and bacteria and pathogens.
- Forestry activities, which may contribute sediments and herbicides/pesticides.

## Support of Designated Uses

Under Georgia regulations, designated uses and associated water quality standards provide goals for water quality protection. Most of the water bodies assessed in the Oconee River basin support or partially support their designated uses. EPD assessed the streams and major lakes in the Oconee basin and reported the results in *Water Quality in Georgia, 1996-1997*. This assessment indicated that 71 out of 160 stream segments (369 miles) fully supported uses, and 54 out of 160 (326 miles) partially supported uses, while 35 out of 160 (198 miles) did not support designated uses. Lake Sinclair and Lake Oconee were found to be partially supporting designated uses.

## Key Environmental Stressors

The major threats to water quality in the Oconee River basin are summarized below.

**Fecal coliform bacteria.** The 1996-1997 water quality assessments indicate that violations of water quality standards for fecal coliform bacteria were the most commonly listed cause of failure to support designated uses. Fecal coliform bacteria concentrations contributed to lack of full support on 345 miles, constituting 51 stream segments. Fecal coliform bacteria may arise from point and nonpoint sources, such as wastewater treatment plants, agricultural nonpoint sources, leaking septic systems, and storm water runoff. As point sources have been brought under control, nonpoint sources have become increasingly important as potential sources of fecal coliform bacteria.

**Metals.** The 1996-1997 water quality assessments indicate that violations of water quality standards for metals (e.g., lead, copper, zinc, cadmium, mercury) were a commonly listed cause of failure to support designated uses. Metals concentrations contributed to lack of full support on 66 miles, constituting 19 stream segments. In most cases, these metals are attributed to nonpoint urban runoff and storm water.

**Nutrient loading.** Nutrient loading is an important issue for Lake Oconee and Lake Sinclair. Excess nutrient loads can promote undesirable growth of algae and degradation of water quality. A lake receives nutrients from the entire watershed upstream. The major sources of nutrient loading in the Oconee basin are agricultural runoff, urban runoff, storm water, and wastewater treatment facilities.

**Fish tissue contamination.** Fish consumption guidelines for individual fish species are in effect for 2 stream segments (25 miles). Guidelines for reduced consumption are also in place for largemouth bass on Lake Oconee and Lake Bennett (in the Charlie Elliott Wildlife Center). All of these consumption guidelines are due to elevated levels of mercury found in tissues of individual fish species in these stream and lake segments. Most of the mercury load is believed to be of natural and atmospheric origin.

**Sediment Loading and Habitat Degradation.** A healthy aquatic ecosystem requires a healthy physical habitat. The major cause of disturbance to stream habitats is erosion and sedimentation. As sediment is carried into the stream, it changes the stream bottom, and smothers sensitive organisms. Turbidity associated with sediment loading also impairs recreational and drinking water uses. Sediment loading is of greatest concern in developing areas and major transportation corridors. The rural areas of the basin are of lesser concern with the exception of rural unpaved road systems, areas where cultivated cropland exceeds 20 percent of the total land cover, and areas in which foresters are not following appropriate management practices.

## Strategies for Water Supply

At this time, water quantity appears to be adequate for demand from all current uses within the Oconee basin. However, one of the major water quantity concerns in the Oconee River basin is the fairly rapid growth being experienced in the counties in the headwater region on the basin (i.e., Hall, Barrow, Clarke, and Oconee counties), and the additional storage or additional conservation and reuse efforts that will be needed to cope with this growth. This growth is expected to accelerate somewhat as the metropolitan Athens and metropolitan Atlanta regions begin to have more of a synergistic effect on each other.

As a result of anticipated growth in this area, a 52 million gallon per day water supply reservoir project is being cooperatively developed by Jackson, Barrow, Clarke, and Oconee counties. This project, named the Bear Creek Reservoir, will begin supplying

water in 2001 and is expected to satisfy water needs for the four-county region through 2050. This joint project is a model of the sort of regional cooperation which is effective in addressing water supply concerns in water-limited areas. Another project currently under investigation is a regional project being lead by Walton County which would conceivably supply some quantity of water to Walton, Gwinnett, and Oconee counties.

Water resources within the political boundaries of individual counties in the region may not be sufficient to meet longer-term “in-county” needs; therefore, regional cooperation to develop water supply options will become ever more important to support growth in the region. Interbasin diversion of water to meet the growing needs in the region is another option that will likely get more attention.

Growth in agricultural production (including turf production) in the central and southern regions of the basin are expected to increase the demand for both surface water and groundwater supplies during the growing season of each year. During normal years this should not present a concern, but the impact on stream flows during dryer years could become an issue of some concern. As more information becomes available on the impact of such withdrawals on stream flows, decisions will have to be made regarding limiting such future withdrawals.

In cases where there is competition for water across water use categories (i.e., water held in lakes for recreation vs. withdrawal for potable uses), Georgia law requires that priority be given to water for human consumption. However, it is far more likely that the competition will not be across water use categories as much as there will be competition for scarce water between adjoining jurisdictions. In such instances, EPD presently does (and will continue to) encourage cooperative efforts to develop and effectively utilize limited water resources. While cooperative intergovernmental approaches are much preferred in addressing such competition, the fact that the Director of EPD has the statutory authority to make final decisions regarding water withdrawal applications means that EPD will assist in resolving such matters if other efforts fail.

## **Strategies for Water Quality**

Water quality in the Oconee River basin is generally good at this time, although problems remain to be addressed and proactive planning is needed to protect water quality into the future. Many actions have already been taken to protect water quality. Programs implemented by federal, state, and local governments, farmers, foresters, and other individuals have greatly helped to protect and improve water quality in the basin over the past twenty years.

The primary source of pollution that continues to affect waters of the Oconee River basin results from nonpoint sources. These problems result from the cumulative effect of activities of many individual landowners or managers. Population is growing every year, increasing the potential risks from nonpoint source pollution. Growth is essential to the economic health of the Oconee River basin, yet growth without proper land use planning and implementation of best management practices to protect streams and rivers can create harmful impacts on the environment.

Because there are many small sources of nonpoint loading spread throughout the watershed, nonpoint sources of pollution cannot effectively be controlled by state agency permitting and enforcement, even where regulatory authority exists. Rather, control of nonpoint loading will require the cooperative efforts of many partners, including state and federal agencies, individual landowners, agricultural and forestry interests, local county and municipal governments, and Regional Development Centers. A combination of regulatory and voluntary land management practices will be necessary to maintain and improve the water quality of rivers, streams, and lakes in the Oconee River basin.

**Key Actions by EPD.** The Georgia EPD Water Protection Branch has responsibility for establishing water quality standards, monitoring water quality, river basin planning, water quality modeling, permitting and enforcement of point source NPDES permits, and developing Total Maximum Daily Loads (TMDLs) where ongoing actions are not sufficient to achieve water quality standards. Much of this work is regulatory. EPD is also one of several agencies responsible for facilitating, planning, and educating the public about management of nonpoint source pollution. Nonpoint source programs implemented by Georgia and by other states across the nation are voluntary in nature. The Georgia EPD Water Resources Branch regulates the use of Georgia's surface and ground water resources for municipal and agricultural uses, which includes source water assessment and protection activities in compliance with the Safe Drinking Water Act.

Actions being taken by EPD at the state level to address water quality problems in the Oconee River basin include the following:

- **Watershed Assessments and Watershed Protection Implementation Plans.** When local governments propose to expand an existing wastewater facility, or propose a new facility, EPD requires a comprehensive watershed assessment and development of a watershed protection implementation plan.
- **Total Maximum Daily Loads (TMDLs).** Where water quality sampling has documented standards violations and ongoing actions are not sufficient to achieve water quality standards, a TMDL will be established for a specific pollutant on the specific stream segment in accordance with EPA guidance.
- **Source Water Protection.** Most of the public water supply in the Oconee basin is drawn from surface water. To provide for the protection of public water supplies, Georgia EPD is developing a Source Water Assessment Program in alignment with the 1996 amendments to the Safe Drinking Water Act and corresponding recent EPA initiatives.
- **Fish Consumption Guidelines.** EPD and the Wildlife Resources Division work to protect public health by testing fish tissue and issuing fish consumption guidelines as needed, indicating the recommended rates of consumption of fish from specific waters. The guidelines are based on conservative assumptions and provide the public with factual information for use in making rational decisions regarding fish consumption.

**Key Actions by Resource Management Agencies.** Nonpoint source pollution from agriculture and forestry activities in Georgia is managed and controlled with a statewide non-regulatory approach. This approach is based on cooperative partnerships with various agencies and a variety of programs.

Agriculture in the Oconee River basin is a mixture of livestock and poultry operations and commodity production. About 21 percent of the basin land area is in agricultural use. Key partners for controlling agricultural nonpoint source pollution are the Soil and Water Conservation Districts, Georgia Soil and Water Conservation Commission, and the USDA Natural Resources Conservation Service. These partners promote the use of environmentally-sound Best Management Practices (BMPs) through education, demonstration projects, and financial assistance.

Forestry is a major part of the economy in the Oconee basin and commercial forest lands represent about 69 percent of the total basin land area. The Georgia Forestry Commission (GFC) is the lead agency for controlling silvicultural nonpoint source pollution. The GFC develops forestry practice guidelines, encourages BMP implementation, conducts education, investigates and mediates complaints involving forestry operations, and conducts BMP compliance surveys.

**Key Actions by Local Governments.** Addressing water quality problems resulting from nonpoint source pollution will primarily depend on actions taken at the local level. Particularly for nonpoint sources associated with urban and residential development, it is only at the local level that regulatory authority exists for zoning and land use planning, control of erosion and sedimentation from construction activities, and regulation of septic systems.

Local governments are increasingly focusing on water resource issues. In many cases, the existence of high quality water has not been recognized and managed as an economic resource by local governments. That situation is now changing due to a variety of factors, including increased public awareness, high levels of population growth in many areas resulting in a need for comprehensive planning, recognition that high quality water supplies are limited, and new state-level actions and requirements. The latter include:

- Requirements for Watershed Assessments and Watershed Protection Implementation Plans when permits for expanded or new municipal wastewater discharges are requested;
- Development of Source Water Protection Plans to protect public drinking water supplies;
- Requirements for local comprehensive planning, including protection of natural and water resources, as promulgated by the Georgia Department of Community Affairs.

In sum, it is the responsibility of local governments to implement planning for future development which takes into account management and protection of the water quality of rivers, streams, and lakes within their jurisdiction. One of the most important actions that local governments should take to ensure recognition of local needs while protecting water resources is to participate in the basin planning process, either directly or through Regional Development Centers.

## **Continuing RBMP in the Oconee River Basin**

This basin plan represents one step in managing the water resources in the Oconee basin. EPD, its resource management agency partners, local governments, and basin stakeholders will need to work together to implement the plan in the coming months and years. Additionally, the basin planning cycle provides the opportunity to update management priorities and strategies every five years. The Oconee River basin team and local advisory committee will both be reorganized in July to September of 1998 to initiate the next iteration of the cycle. Agencies and organizations with technical expertise, available resources, and potential implementation responsibilities are encouraged to become part of the basin team. Other stakeholders can stay involved through working with the local advisory committee, and participating in locally initiated watershed planning and management activities. The next scheduled update of the Oconee River basin plan is planned for mid-summer 2002.