

A WATERSHED PLANNING APPROACH TO MINIMIZE CUMULATIVE IMPACTS TO WATER RESOURCES

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Abstract. This paper reviews Georgia's population growth, existing water resources problems, available US Army Corps of Engineers water and related land resources programs, and the Corps' strategic plan for the future of water planning.

INTRODUCTION

The two fastest coastal population growth areas in the Nation from 1990 to 2010 are the Southeast States, with a 27 % increase, and the Gulf States, with a 22 % increase (Collodion). The US Census Bureau's 2000 data indicates that Georgia's 2000 population of 8.2 million persons is almost doubled that from 1970. As seen in Figure 1, Georgia's 2000 population is a 26.4 percent increase from 1990, and is the state with the highest 1990 - 2000 population increase of the 8 states in the SE region, outgrowing Florida, with its 23.5% increase over the same time period. Metro Atlanta added more people than 44 states during the last decade (1.2 million).

The Corps has seen a corresponding increase in Georgia's needs for traditional Corps programs, such as regulatory, navigation, flood control, shore protection and ecosystem restoration. It also mirrors a national trend for the need for new water programs, such as water supply and watershed studies.

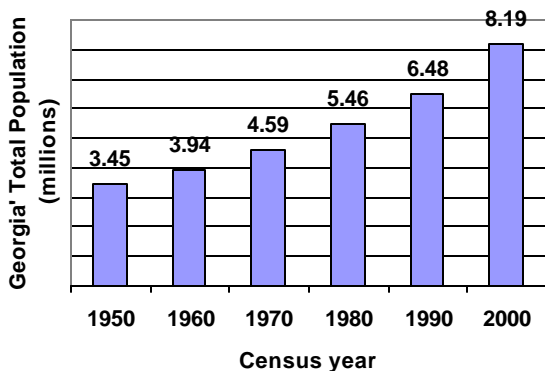


Figure 1. Georgia Census Data 1950 to 2000.

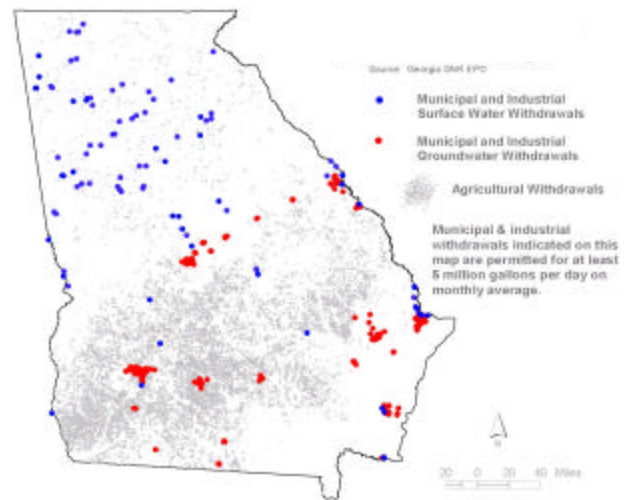


Figure 2. Major Industrial, Agricultural and Municipal Water Withdrawals in Georgia.

GEORGIA'S WATER PROBLEMS

Water Stresses

Water stresses in Georgia include saltwater intrusion in SE Georgia, agricultural irrigation in SW Georgia, intense use of water during driest years, decreased surface flows which stress aquatic life, increased pumping from groundwater wells that may reduce stream flows and cause private wells to run dry, and the latest drought. In 1960, there were virtually no irrigated farms in Georgia. In 2000, there were 21,400 permitted irrigation systems on 2.2 million acres.

Corps Water Supply Permits

Since 1989, the Savannah District of the US Army Corps of Engineers has issued 20 water supply reservoir permits ranging in size from 100 to 1,100 acres. More water reservoir permit applications are pending. There is no consistent way of: determining impact of water withdrawals and cumulative impacts,

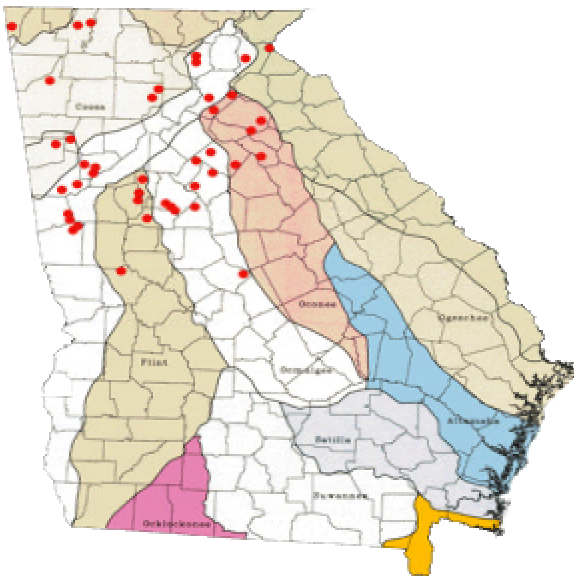


Figure 3. Reservoir Permits Issued by the Savannah District in Georgia Since 1989.

evaluating alternatives, or solving conflicts over shared water resources. Florida and Alabama, states downstream of Georgia, are concerned with impacts of existing and future water demands in Georgia. Competing water needs create conflict over management of federal reservoirs. Interstate agreements will restrict future water allocations in portions of Georgia.

Future Population Stress

In 30 years or so, Georgia will have 16 million people, like Florida does now, and both states have similar land mass areas and average annual rainfall amounts. Florida and many states with less water than Georgia manage water more intensively than Georgia. We are a big state, and getting bigger. Water is finite; people are not. The water resources problems facing Georgia are real, serious and expensive to solve. We must manage water more effectively, and use it more efficiently.

CURRENT CORPS WATER PROGRAMS

Federal interest in water resources development is established by law. Within the larger Federal interest in water resource development, the Corps of Engineers is authorized to carry out projects in seven mission areas: navigation, flood damage reduction, ecosystem restoration, hurricane and storm damage reduction, water supply, hydroelectric power generation and recreation. Ecosystem restoration projects improve ecosystem structure and function. Wherever possible

and subject to budgetary policy, projects shall combine these purposes to formulate multiple purpose projects. In carrying out studies to address problems and take advantage of opportunities within these mission areas, every effort should be made to formulate alternative plans that reasonably maximize the economic and environmental value of watershed resources, including urban watershed resources. In addition, every effort shall be made to be responsive to National, State and local concerns by considering the full range of programs available to provide solutions in a timely and cost-effective manner. Such programs may include Congressionally authorized projects, continuing authorities projects, planning assistance to states, flood plain management services and emergency authorities.

Comprehensive Studies.

A comprehensive study characterizes, measures, and evaluates a particular water resources problem or opportunity across a broad area or region. Typically, the focus of comprehensive studies is water resources problems related to the Corps' main mission areas (flood damage reduction, ecosystem restoration or navigation). Non-Federal entities with interests common to the Corps mission area(s) identified should be encouraged to participate in the study investigations: the general public should not only be informed about The study but also be canvassed for information related to needs, opportunities and constraints. Based on evaluation that considers existing and without-project conditions, the study will determine the need for further Corps studies and projects.

The Savannah River Basin Comprehensive Basin, which is the focus of several other sessions of the conference, is a working example of this type of approach.

Watershed Studies.

Watershed studies are planning initiatives that have a multi-purpose and multi-objective scope and that accommodate flexibility and collaboration in the formulation and evaluation process. Possible areas of investigation for a watershed study include water supply, natural resource preservation, ecosystem restoration, environmental infrastructure, recreation, navigation, flood management activities, and regional economic development. This multi-purpose approach is recommended since numerous entities within the boundaries of any watershed must agree with and support watershed improvement and management initiatives in order to successfully implement effective system-wide solutions. The outcome of a watershed

study will generally be a watershed resources management plan which identifies the combination of recommended actions to be undertaken by various partners and stakeholders in order to achieve the needs and opportunities identified in the study. The watershed resources management plan may or may not identify further Corps studies or implementation projects.

Continuing Authorities Program

The above-described studies require specific authorization by the Congress in the form of a Study Resolution or language in a Water Resources Development Act. However for study areas that are small in scope, Congress has provided the Corps several continuing authorities under which work may be done without the specific direction of Congress. This collection of nine authorities is often referred to the Continuing Authorities Program. Of these nine, two are adaptable to watershed efforts:

Section 206 of Water Resources Development Act of 1996, as amended, for aquatic ecosystem restoration, and,

Section 1135 of Water Resources Development Act of 1986, as amended, for project modifications for improvement of the environment.

Planning Assistance to States (PAS).

The PAS Program is carried out in accordance with the provisions of Section 22 of the WRDA of 1974 as amended. This law authorizes the Chief of Engineers to cooperate with states, the District of Columbia, the Commonwealth of Puerto Rico, the US Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, and Federally recognized Native American (Indian) Nations in preparing plans for the development, utilization, and conservation of water and related land resources of drainage basins, watersheds or ecosystems located within the boundaries of the State or Indian lands. Assistance is provided on the basis of specific requests rather than through Congressional study authorization. Savannah District is actively partnering with the state of Georgia to develop several studies to look at watershed based actions for several Atlantic Basins.

THE CORP'S STRATEGIC PLAN

The Context for Federal Involvement

Historically, water resources management has and should continue to be centered on state and local control. The Federal Government heretofore has mainly been involved in issues of national or multi-

state significance. However, a 21st Century approach to water resources management requires decision makers to integrate a complex array of public values and institutional policies, regulatory frameworks (permits, licenses, and monitoring), planning criteria, operations, maintenance and design standards, public participation, private sector business partnerships, and interstate and intergovernmental priorities, all within a process that fosters transparency and trust. The scope, technical complexity, magnitude of water issues, and extent of desired participation lend themselves to Federal involvement.

Federal Agency Roles

Given the likely direction of future water management, Federal agencies will need to adopt the following roles and responsibilities:

1. Promote ecosystem health;
2. Provide facilitation and support where non-Federal entities are in conflict or require special resources;
3. Support public infrastructure system reliability;
4. Provide national-level information;
5. Encourage the highest levels of science and research, and
6. Promote solutions through partnerships – both public and private sector.

Modernizing Water Resources Management

In 2000, the Corps held a series of “listening sessions” around the Nation to hear what Americans thought were the major water challenges for the 21st Century. In September 2002, the Corps, along with nine other Federal agencies co-sponsored a National Water Resources Policy Dialogue, conducted under the auspices of the American Water Resources Association. The development of a national water policy will require collaboration of many entities, at all levels. General Flowers offered his assurance that the Corps stands ready to assist the Congress and the Administration in any effort to develop such a policy.

General Flowers in his March 5, 2003 comments to the Senate Appropriations Committee, Energy and Water Development Subcommittee hearing on Fiscal Year 2004 Corps of Engineers Civil Works Budget indicated that in his opinion, “water will become to the 21st century what oil was to the 20th century.”

SUMMARY

Taking a watershed view is the key to reforming America's water development, protection and restoration. The Corps watershed approach is based on: seeking sustainable water resources management, integrating water and related land management, considering future water demands, coordinating planning and management, promoting cooperation among government agencies at all levels, encouraging public participation, establishing interdisciplinary teams, and applying adaptive management as changing conditions or objectives warrant.

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