

Managing Water Resources

Lessons from Florida and Georgia

Water management is by and large a state responsibility. How a state has met this responsibility depends on a variety of factors such as the availability of water, demands placed on the water resource, types of water problems, state bureaucratic structure, and the political environment in which decisions are made. Each state has thus developed its own mechanisms for managing water resources. At the same time, however, common stimuli such as federal water quality mandates, federal funding for water projects, and new insights obtained from research have resulted in states addressing similar problems in similar ways.

Prior to the 1970's, only limited action had been taken by the southeastern states toward managing their water resources. Most of these actions related only to flood control, municipal water supply, primary wastewater treatment, and other basic public health functions. The reason for this dearth of water activities relates to the abundance of water and limited demands on the resource.

Federal Involvement

With the passage of the Federal Water Pollution Control Act of 1972, all southeastern states were placed under common water quality mandates. This law made it a national goal to reach "fishable and swimmable" water quality standards by 1983. To do this it provided funds to establish the National Pollution Discharge Elimination System (NPDES) to regulate municipal and industrial point waste discharges, construct

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wastewater treatment facilities, classify streams, monitor water quality conditions, regulate dredge and fill operations, and determine the nature and extent of nonpoint sources of pollution. Authority to implement this law was assigned to the United States Environmental Protection Agency (EPA), which in turn could delegate implementation authority to states with demonstrated ability to fulfill the mandates of the law. All southeastern states have received partial or full implementation authority from EPA, with the exception of Section 404 permits which deal with dredge and fill, no southeastern state has been delegated authority for these.

Water Allocation

Unlike water quality, water allocation is a state authority -- no federal mandate exists. As a result, states differ in the steps taken to divvy up the resource between competing water users. Although all of the southeastern states originally depended on the courts to settle disputes over water rights, most have taken legislative action to clear up ambiguities associated with the common law approach. As shown in Figure 1, the only two southeastern states that have not passed water allocation laws are Alabama and Tennessee.

Most southeastern states have applied the concept of capacity use area in their water management approach. Mississippi, North Carolina,

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South Carolina, and Virginia all include this concept. Originally Georgia, which patterned its water allocation approach after North Carolina, required the creation of capacity use areas but in 1973 amended its law to remove this requirement.

A capacity use area is simply an area in which the demands on the water have reached the capacity of the resource to meet that demand. Once this occurs, the area is designated as a capacity use area and a moratorium is placed on new water uses. The basic problem with this approach is that it is reactive. The state takes no action until all the decisions which could be made to optimize the use of the water resources have been rendered unusable. David J. Howells, in the summary report of The Southeast Conference on Ground Water Management (Chapel Hill: Water Resources Research Institute, University of North Carolina, 1980) concluded that the capacity use area approach had not proved "notably successful." The reason states have had problems with this approach varies from the difficulty of creating a capacity use area, to vague agency directives on what to do once one is created, to the exemption of too many water users. This

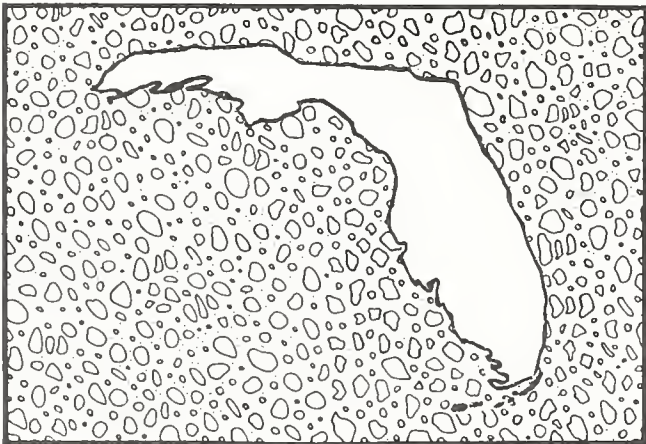
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does not mean that such an approach cannot work but there are some inherent problems with it.

Comprehensive Water Management in Florida

The two southeastern states which have developed similarly comprehensive water management programs are Florida and Georgia. Florida was a pioneer in southeastern water management when, in 1949, it created the predecessor to the South Florida Water Management District, primarily for flood control purposes. This regional approach has been maintained in Florida, with the state now divided into five water management districts. Although these districts are under the umbrella of the state Department of Environmental Regulation (DER), they are nearly autonomous. The major reason for this independence lies in its taxing authority. Districts have the authority to levy ad valorem taxes and thus have greater flexibility in funding programs than the DER.

The two-tiered approach adopted by Florida was patterned after the Model Water Code (or possibly vice versa). As conceptualized, a state would have regional water management agencies whose operations were overseen and coordinated by the state regulatory agency. Although this is somewhat the case in Florida, it appears that the tail may be wagging the dog. The independent funding of the districts makes them powerful fiefdoms which are not dependent on state appropriations nor require state agency oversight.



The crux of the problem is evident in integrating water quality control with water quantity management. Water management districts are the primary allocation agency. They have the authority to permit water withdrawals. Water quality control authority, however, has largely been withheld from the water management districts. In an attempt to coordinate quality and quantity efforts, regional offices of DER are now co-housed, wherever possible, with the water management districts. Although this may resolve some problems, both DER and the districts make

water quantity and water quality decisions without requiring coordination and communication between the two.

The magnitude of this problem is exemplified by the fact that Florida is the only southeastern state which has not been delegated authority from EPA to run the NPDES program, the principal water quality program in the state. According to James E. Kundell and Vicki A. Bremen in Regional and Statewide Water Management - Alternatives (Athens: Institute of Government, University of Georgia, 1982), although the state legislature has grappled with this problem for several years, it is yet to be resolved.

This does not mean, however, that Florida does not have an effective water management program. It must by necessity. Florida is confronted with the greatest pressure on its water resources while having the most vulnerable water resources of any southeastern state. It is

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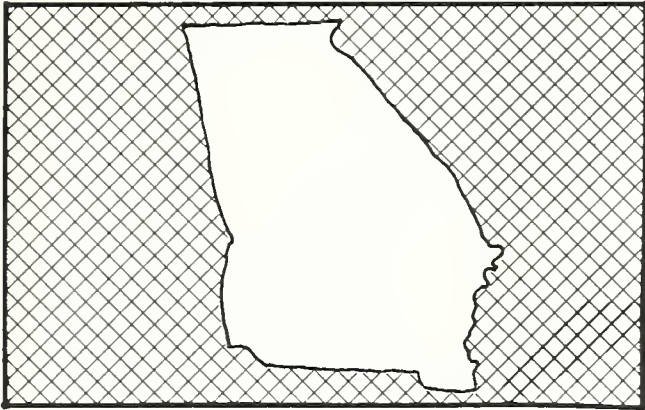
faced with too much and too little water simultaneously. Threats to water quality from agricultural and industrial and municipal waste are insidious. This very complex situation requires a sophisticated bureaucracy to address the problems. Florida has developed a more detailed data base, water resources modeling capacity, and water resource decision-making capability than any other southeastern state. However, it still needs to address the organizational coordinating mechanisms which currently impede management efforts.

Integrated Water Management in Georgia

Georgia's water management approach differs from that of Florida's in three major ways:

1. Georgia has instituted a statewide rather than a regional water management program. As previously mentioned, the capacity use area requirement originally in Georgia's allocation law was removed in 1973. This led to the statewide approach in which the Environmental Protection Division (EPD) of the Georgia Department of Natural Resources issues permits throughout the state for withdrawals of both surface and groundwater in excess of 100,000 gallons per day.
2. Georgia has a centralized rather than dispersed water management organization. Whereas Florida conducts most of its business on the regional level through the regional offices of DER and the water man-

agement districts, Georgia's EPD conducts most of its major activities in the central state office. Regional offices are primarily used for inspection and monitoring purposes while the state office carries out most of the other responsibilities such as issuing NPDES and water withdrawal permits.



3. Whereas Florida has separate agencies responsible for water quality (state DER, federal EPA), and water allocation (water management districts), Georgia's EPD has been assigned all water quantity and water quality authority possible under state and federal laws. As a result, the integration of water quality and water quantity with surface and groundwater decisions rests with the single state agency.

The southeastern states are ideally suited to water management. The comparatively abundant water of the humid southeast enables greater flexibility to water management agencies in reaching water supply and water quality goals. Major impediments relate to the legal and organizational barriers that negate coordination and integration of decisions. This occurs in the organizational structure of Florida and the legal foundation of most other southeastern states. If a state has not provided the water

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agency with allocation authority or has limited this authority to a capacity use area in which the resources are already overextended, few management alternatives are available. Water quality decisions primarily related to the issuance of NPDES permits for industrial and municipal waste discharges are made throughout the state, yet in the southeast are usually not.

Since water quality is generally a function of water quantity (the amount of water available to assimilate waste), the lack of authority to

address water withdrawals limits the agency's ability to reach its water quality standards. According to Hatcher and Kundell in Institutional Arrangements for Integrated Water Management in the Southeast (Athens: Institute for Natural Resources, University of Georgia, 1983), by providing a single state agency (EPD) with the legal authority to issue surface and groundwater withdrawal permits plus the NPDES waste discharge permits, the Georgia General Assembly has not created any legal or organizational barriers to integrating the water quality control functions with the water quantity management activities.

Of course, implementing an integrated water management program is more difficult than developing one. Georgia did not consciously begin implementing its integrated water management program until 1980. At that time, EPD created the Water Resources Management Branch and assigned it the responsibility of developing the water management strategy. Efforts have focused on improving the water resources data base, instituting data management procedures, and developing regional river basin appraisals. The idea is to manage water on a river basin basis enabling local priorities and resource characteristics to guide EPD's water management activities. Only one river basin appraisal, for the Coosa River in northwest Georgia, has been completed thus far.

Although Georgia has been able to avoid organizational problems evident in Florida, Florida has developed a tighter water management program. A key difference between the programs relates to agricultural water use. In Florida, agricultural water users come under the same requirements as other major water users. In Georgia, however, agriculture is exempted from the water management program. This preferential treatment is not unusual for rural southeastern states such as South Carolina and Mississippi which, like Georgia, are faced with increasing

continued on page 29



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STRUCTURING OF SOUTHERN STATE WATER MANAGEMENT PROGRAMS

State	General Approach	State Structure	Type of Region	Number of Regions	Complete State Coverage	Regional Structure	
						Basin of Boundaries	Governing Body Composition
Florida	State/Regional	Single Agency	Water Management Districts (WMD); regional offices of state agency (DER)	5 WMDs and 5 DER regional offices	Yes	Watershed boundaries	Unpaid Board of Directors appointed by the Governor; not applicable to DER offices
Georgia	Statewide	Single Agency	N/A	N/A	N/A	N/A	N/A
North Carolina	Capacity Use Area	Single Agency	Capacity Use Area (CUA)	1 CUA	No	"Area Affected" (basically underlying aquifer) follows county, natural, and highway boundaries	EMC (state committee) appointed by the Governor to administer CUA
South Carolina	Capacity Use Area	Multiple Agencies	Capacity Use Area (CUA)	2 CUAs	No	"Area Affected" follows natural boundaries, county lines, and highways (local initiative)	Water Resources Commission appointed by governor.
Virginia	Capacity Use Area	Multiple Agencies	Groundwater Management Areas	2 GMAs	No	"Aquifer Affected" boundaries set by state	Legislation allows for advisory committee composed of residents of GMA (not created)

1. State structure encompasses both quality and quantity based on agency authority to issue NPDES permits and withdrawal permits.
 2. There are 37 Watershed Districts, which do not cover the state. Primary function of these WMDs is soil and water conservation. However, they are empowered to issue water quantity permits stricter than those issued by the state; apparently none do so.

agricultural use of water but whose farmers are not generally receptive to water management efforts. The political power of rural interests in these states makes it difficult to address this problem. Even Florida is experiencing this problem in the northwestern part of the state where the water management district has not fully addressed agricultural water use.

When Georgia's first water use law was passed in 1972, concern centered on the unrestricted industrial and municipal use of groundwater in the coastal area threatening the region with intrusions of salt water from the Atlantic. The intent was to create capacity use areas in the coastal region. Since agricultural water use was not great there nor statewide, the law was amended on the floor of the House of Representatives to exempt agriculture from the program. What was not foreseen was the substantial increase in irrigation that occurred in the late 1970's and early 1980's. Irrigation increased from being a minor user of water in 1970 to the major consumer of water in Georgia by 1980. According to Robert R. Pierce and Nancy L. Barber in *Water Use in Georgia, 1980* (Atlanta: Georgia Department of Natural Resources, 1982), current installed pump capacity for irrigation systems in the state is nearing 50% of the water used for all other purposes on a daily basis. Obviously the exemption of such a major water user from the water management program undermines the

program and jeopardizes the resources for all water users.

In 1982 the General Assembly passed legislation to require major irrigators to report annually to their Cooperative Extension agent the amount of water used on a monthly basis. Although this provides information on water usage, it does not provide irrigators with the legal rights to use water nor does it provide EPD with the necessary authority to fully manage the state's water resources. Thus a mechanism for including agricultural water use in the state's water management program will have to be implemented in order to improve the effectiveness of Georgia's program.

Conclusions

Although water management in the southeastern states is a fairly new concept, the region is ideally suited for this approach. As sunbelt growth increases demands on the water resources, states will become increasingly interested in instituting mechanisms that will accommodate development while protecting their water resources. It is important that as state legislators struggle with water resource issues they avoid creating legal and organizational barriers which prevent the effective management of the water resources.

