



WATER FACT SHEET

U.S. GEOLOGICAL SURVEY, DEPARTMENT OF THE INTERIOR

NATIONAL WATER-QUALITY ASSESSMENT PROGRAM—The Georgia-Florida Coastal Plain

BACKGROUND

In 1991, the U.S. Geological Survey (USGS) began to implement a full-scale National Water-Quality Assessment (NAWQA) program. The overall goals of the NAWQA program are to describe the status and trends in the quality of a large, representative part of the Nation's surface- and ground-water resources and to provide a sound, scientific understanding of the natural and human factors affecting the quality of these resources. In meeting these goals, the program will produce water-quality information that will be useful to policy makers and managers at the national, State, and local levels.

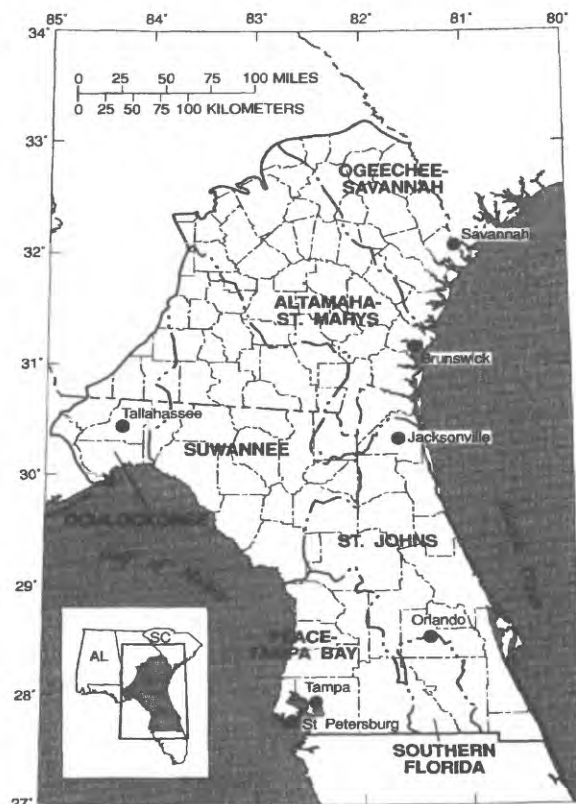
The NAWQA program is designed so that water-quality information at different areal scales can be integrated. A major component of the program is the study unit, which comprises the principal building blocks of the program on which national-level assessment activities are based. The 60 study units that make up the program are hydrologic systems that include parts of most major river basins and aquifer systems. These study units cover areas of 1,200 to more than 65,000 square miles and incorporate about 60 to 70 percent of the Nation's water use and population served by public water supply. In 1991, the Georgia-Florida Coastal Plain was among the first 20 NAWQA study units selected for study under the full-scale implementation plan.

DESCRIPTION OF THE GEORGIA-FLORIDA COASTAL PLAIN STUDY UNIT

The Georgia-Florida Coastal Plain study unit, an area of about 54,000 square miles, is approximately coincident with the area of outcrop and the principal area of public water-supply use of the Floridan aquifer system. The aquifer system consists of a sequence of carbonate (limestone and dolomite) rocks that include units of high permeability (aquifers) as well as units of low permeability (confining beds). The rocks comprising the aquifer system thicken toward the south and east from a featheredge along the northern boundary of the study unit to more than 3,000 feet along parts of the southern boundary. Adjacent to the northern boundary and over most of the Florida part of the study unit, the Floridan aquifer system is at or close to land surface; elsewhere it is covered by confining beds. In the Brunswick, Ga.-Jacksonville, Fla. area, the top of the aquifer system is more than 500 feet below land surface. The Floridan aquifer system is highly productive and is one of the major sources of ground-water supply in the Nation.

Although not extensively used for water supply, surface-water resources within the study unit are also abundant. All or part

of seven major drainage basins are found: the Altamaha-St. Marys, Ochlockonee, Ogeechee-Savannah, Peace-Tampa Bay, Southern Florida, St. Johns, and Suwannee drainage basins. Water withdrawn in the study unit consists of about 2,700 million gallons per day of ground water (more than 80 percent of which is withdrawn in Florida), and about 1,350 million gallons per day of surface water (55 percent of which is withdrawn in Georgia).



Major population centers in the study unit include Savannah, Ga., and Jacksonville, Orlando, St. Petersburg, Tallahassee, and Tampa, Fla. A population of more than 7 million people relies mostly on ground water for public and domestic water supply. Savannah and Tampa use both ground and surface water for public supply; the other large cities, as well as virtually all other communities and the rural population, are supplied by ground water.

The land surface of the study unit has only slight relief, consisting of irregular plains in most of Georgia and northern

(panhandle) Florida, and smooth plains in the coastal areas of both States and all of peninsular Florida. The topography, long growing season, and more than 50 inches of rainfall annually, make the area highly suitable for agriculture. Field crops are the most common form of agriculture in Georgia and in most of Florida. In the southern part of the study unit, citrus is the predominant crop, although it is becoming less so because of repeated adverse weather conditions. Most crops are fertilized and treated with pesticides; supplemental irrigation is commonly practiced. Silviculture predominates in those areas where soils are generally wet or less suitable for farming, and most of southeastern Georgia and northern Florida is forested.

Manufacturing and industrial activities in the study unit are limited largely to the metropolitan areas of Savannah, Jacksonville, Orlando, and Tampa-St. Petersburg. These areas are important transportation centers and also are centers for the processing of agricultural products, including pulp and timber. Some pulp and timber processing sites also are located at rural sites throughout the forested areas of southeastern Georgia and northern Florida. Mining of phosphate-rich deposits occurs in the extreme southwestern part of the study unit where processing and shipment of phosphate fertilizer is an important economic activity. Phosphate ore also is mined and processed in the Suwannee River basin in northern Florida.

Tourism and retirement communities are a vital part of the economy of the study unit, particularly in the southern half of the Florida part. Concern for the preservation and protection of lakes, wetlands, rivers, estuaries, and coastal areas is important from both an environmental and an economic standpoint. Because of the heavy reliance on ground water as a source of supply, protection and preservation of the quality of ground water within the study unit is important.

WATER-QUALITY ISSUES

Although water in the study unit generally is of good quality for most uses, quality has been impaired in some areas as the result of agricultural practices, mining, waste disposal, storage and use of toxic chemicals, stormwater disposal, and water withdrawals. Naturally occurring constituents and properties also have affected the usability of water locally, and saltwater in coastal areas has intruded into freshwater aquifers and rivers as these resources are developed for water supply. Examples of water-quality issues in the study unit are:

- Ground water that has been contaminated by pesticides used to protect peanuts and citrus from nematodes;
- Ground- and surface-water quality that are threatened by runoff from dairy and livestock farms, particularly in the central part of the Suwannee River basin in Florida;
- Ground water that has been contaminated by industrial wastes and by fuel leaks in localized areas throughout the study unit;
- Ground-water quality that is threatened by direct disposal of

urban runoff into drainage wells in parts of the Suwannee River basin and in the Orlando area;

- Ground water that, in localized areas of Georgia, contains excessive levels of natural radioactivity that render the water unsuitable for public supply;
- Saltwater intrusion into heavily pumped coastal aquifers that is a concern in the Savannah, Brunswick, Jacksonville, and Tampa-St. Petersburg areas;
- Lakes and streams that throughout the study unit have been locally contaminated by runoff from agricultural and urban areas;
- Streams in phosphate-mining areas that have received excessive input of nutrients from mining and fertilizer-production activities; and
- Decreased dissolved-oxygen concentrations and increased nutrient and bacteria concentrations that occur downstream from wastewater-treatment facilities in many urban areas.

COMMUNICATION AND COORDINATION

Communication and coordination between USGS personnel and other interested scientists and water-management organizations are critical components of the NAWQA program. Each of the study units will have a liaison committee consisting of representatives from Federal, State, and local agencies who have water-resources responsibilities. Specific activities of each liaison committee will include exchange of information about water-quality issues of regional and local interest; identification of sources of data and information; assistance in the design and scope of project products; and review of project planning documents and reports. The liaison committee for the Georgia-Florida Coastal Plain study unit will be formed in 1991. Groups represented on the liaison committee will include but are not limited to:

Georgia Department of Natural Resources
Florida Department of Environmental Regulation
Florida Department of Natural Resources
Florida Water Management Districts
U.S. Army Corps of Engineers
U.S. Environmental Protection Agency
U.S. Fish and Wildlife Service
U.S. Department of Agriculture
Water Resources Research Institutes

Information on technical reports and hydrologic data related to the NAWQA program can be obtained from:

District Chief, Water Resources Division
U.S. Geological Survey
Suite 3015
227 North Bronough Street
Tallahassee, Florida 32301

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