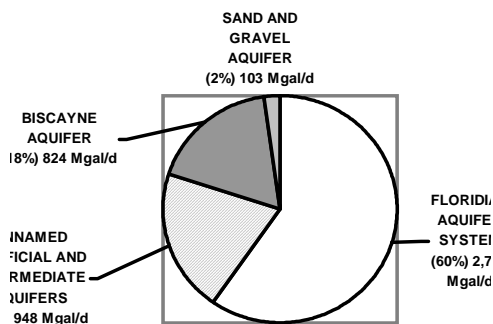


FLORIDA GROUND WATER CONDITIONS

Ground Water Importance: More than half of all water needs in Florida, including agricultural, industrial, mining, and electric power generation, is supplied by ground water resources. High quality, potable ground water supplies more than 90 percent of Florida's 16 million residents with drinking water. Florida has approximately 7,000 ground-water-dependent public water systems and more than 3 million private potable water wells. Ground water also has a direct relationship to many surface water features, such as rivers and springs, throughout much of Florida.

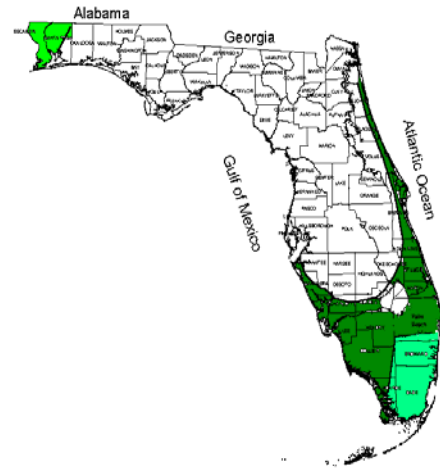


What is it? Florida is blanketed by surficial sands and underlain by a thick sequence of bedded limestone and dolomite (carbonates). The sands and carbonates form a ground water reservoir that provides proportionately larger quantities of ground water than in any other state. (McGuiness, 1963).

Florida primarily relies on three aquifer systems as drinking water sources. The unconfined Biscayne Aquifer supplies virtually all the water needs for over 5 million residents of Dade, Broward, Palm Beach and Monroe Counties. The Sand-and-Gravel Aquifer is the major source of water supply in the western part of the Florida Panhandle. The Floridan Aquifer system is the major water supply throughout much of Florida. Many municipalities, including Jacksonville, Orlando, and the Tampa-St. Petersburg area, tap the Floridan for potable water. Unnamed surficial and intermediate aquifers supply the water needs to perhaps 10 percent of the population, especially in rural locations.

Surface Water-Ground Water Interaction: A significant number of watersheds depend upon ground water inflow as the base flow of surface streams. Florida also contains 27 of the 78 first-

magnitude springs in the United States, an indication of the significant ground and surface water interchange Florida experiences. Thus, integrating ground and surface water protection efforts is necessary to safeguard both resources.



The Division of Water Resources, within the Department of Environmental Protection is developing surface water basin reports for the state's watersheds. The Watershed Management program will include a Ground Water Quality report to accompany the surface water basin reports. The ground water setting, water quality, protection programs, and local basin issues for each watershed in Florida will be considered in conjunction with surface water issues.

EPA has approved funding to Florida's Ground Water program to help quantify ground water and surface water interaction. In order to document the present conditions of many springs in the state, the State Legislature, through the Springs Initiative, has also provided funds for monitoring and research, landowner assistance and education.

How Good Is The Water? Though threatened by a growing population and attendant development, an expanding business community, and a productive agricultural industry, Florida maintains potable-quality ground water across the state. Many public water systems and private water wells are used without any extensive treatment. This result is a tribute to efforts and state assets dedicated to protect these water resources.

As with other states in the country, there are many contamination sites in Florida. The vast majority of these sites were caused by activities

that pre-date the existing regulations and the use of sufficient protection practices. Florida continues to assess and remediate these sites while taking measures to reduce or eliminate continued ground water contamination. Such measures include delineation of brownfields, greater industrial standards for underground storage tanks and distribution systems, and development of best management plans for forestry and agriculture.

The Florida Source Water Assessment and Protection Program is a major effort to identify potential threats to Florida's potable water supplies. Through this program, local communities can identify potential pollutant sources and develop strategies to reduce their threat of contamination to ground water.

Costs of Contamination: Millions of dollars of federal and state funds have been directed into cleanup programs to remediate site-specific ground waters. Programs have been implemented to address federally designated sites through the RCRA and CERCLA programs and state priorities such as brownfields, dry cleaner and petroleum contamination, historic landfills, and other contaminated sites.

Efforts to Protect Ground Water: Florida has a high water table, a porous sandy land cover, and a karst topography that allows the rapid transport of surface inputs into ground water. These features make ground water very vulnerable to contaminants from surface activities. It is essential that Florida protect its water resources for the valuable uses they support. Florida implements a sophisticated ground water protection program using a strategy of ground water quality standards, classifications, and monitoring regulations. Potential pollutant sources are permitted and regulated for compliance to water quality standards through permit reviews, compliance inspections and compliance reports. These regulated facilities include landfills, industrial and domestic wastewater facilities, and power plants. Non-point sources are being addressed through development of best management practices. Natural impacts, such as drought and saltwater intrusion also affect Florida's ground water resource. As a result of one of the worst droughts in Florida's history, several government agencies collaborated to provide 51 priority recommendations for improving water use efficiency. Many of these recommendations are

currently being implemented through coordinated efforts of several groups and agencies.

As a result of saltwater intrusion into the Floridan Aquifer the Southwest Florida Water Management District is developing management actions to stabilize the long-term ground water level declines and slow or abate saltwater intrusion. Since 1990, there has been no increase in ground water withdrawals from the Upper Floridan Aquifer over a large area of southwest Florida.

Regional water management districts implement a water withdrawal regulatory permitting and evaluation program that balances the water needs with the available resources. Water supply plans are developed to meet the year 2020 demands while sustaining natural resources.

Local governments are required to coordinate water supply planning with land use planning, project water needs for at least a 10-year period, and prioritize water supply facilities and resources to meet those needs.

What Else is Needed? The level of funding for ground water cleanup activities in the 1980s was eleven times that provided for protection programs. Surface water programs are currently receiving focused attention at the federal and state levels. Ground water protection and assessment programs need an equal level of support. It is imperative that high quality ground water be preserved to replenish surface waters, support ecological needs, and continue to be available as a drinking water source for Florida's growing population. The emerging issues associated with the conversion of land from agricultural or industrial use to an urban or residential use requires new protective strategies. Ground and surface water quality standards must be designed to address the interactions between these water resources. A public discussion and significant educational effort are needed to confront these issues.