

Upper Floridan Aquifer

Southern Coastal area

Water levels in six wells were used to define groundwater conditions in the Upper Floridan aquifer in the southern coastal area of Georgia during 2001 (map and table, facing page). In this area, water in the Upper Floridan aquifer is confined and influenced mostly by pumping in the St Marys, Georgia–Fernandina Beach, Florida, area to the east, and by climatic effects and pumping to the west. The water level in one well in Camden County was within the normal range, and water levels in the remaining five wells were below normal.

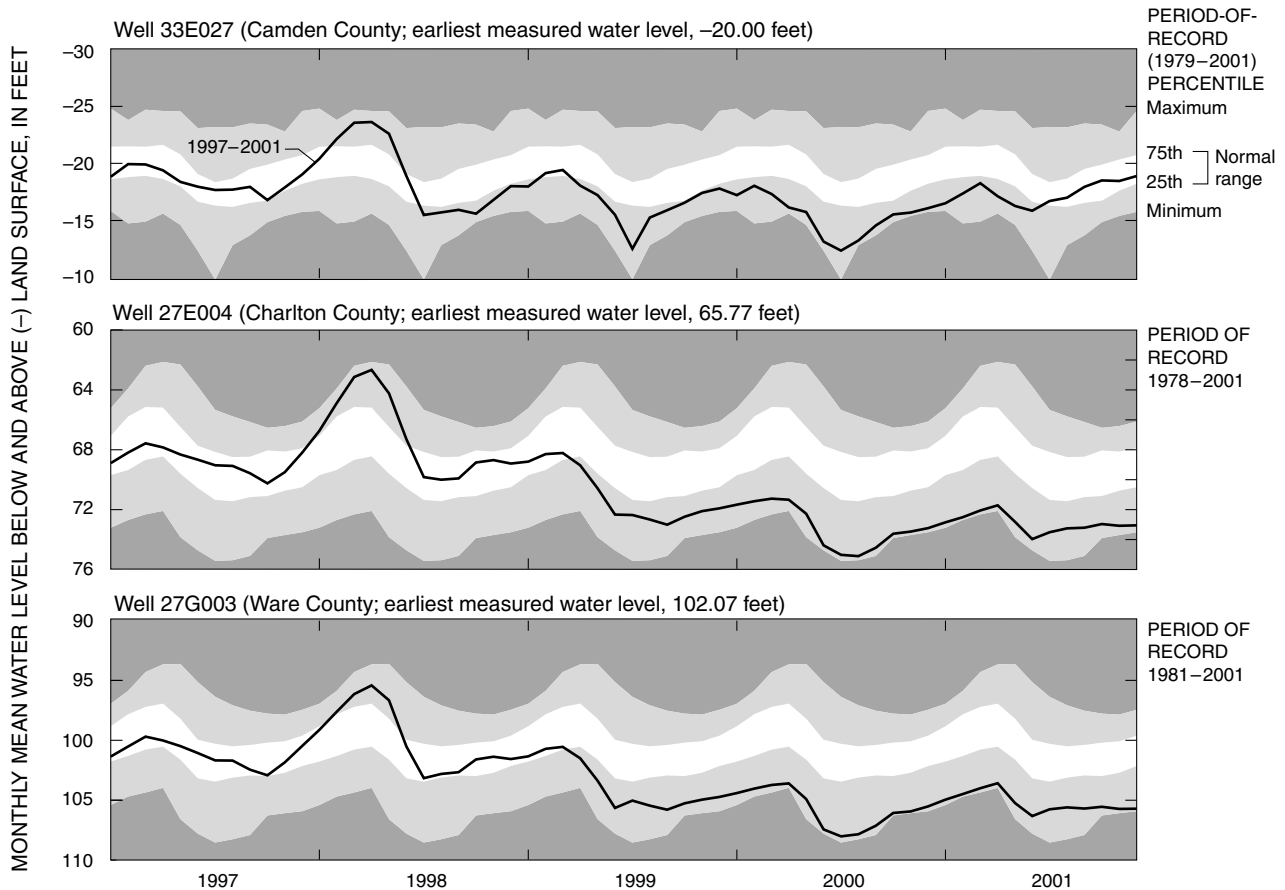
Water-level hydrographs for three Upper Floridan aquifer wells in the central coastal area (shown below) were chosen to illustrate monthly mean water levels during 1997–2001 and period-of-record water-level statistics. Water-level declines are apparent in these three wells beginning in mid-1998 and continuing to early 2001. The water level in well 33E027 in Camden County was at or above normal during 1997–98, but dropped below normal for most of 1999 and early 2000. During 2001, the water level recovered to normal after the first few months of the year. The water level in well 27E004 in Charlton County was above normal until early 1999

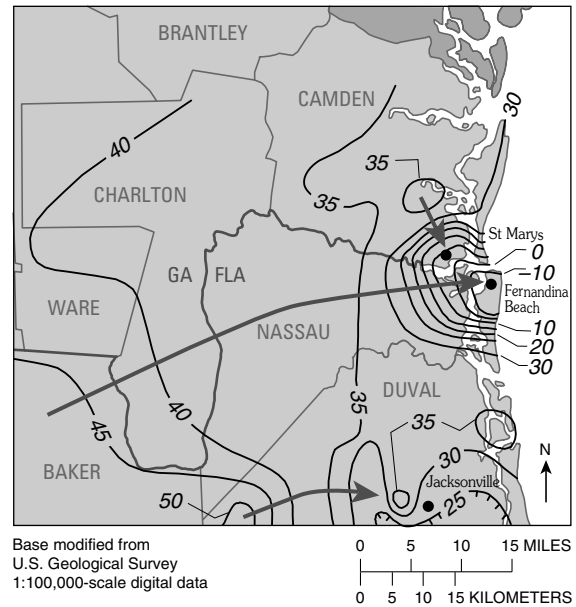
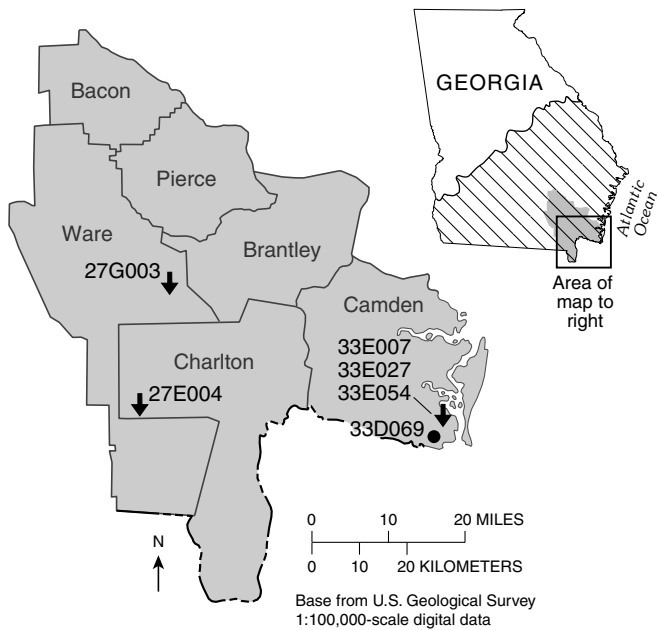
when the water level dropped below normal; by late 2000, the water level in the well was at or near a record low. A hydrograph for well 27G003 in Ware County shows an almost identical pattern to that of well 27E004.

In addition to continuous water-level monitoring, synoptic water-level measurements are taken periodically, in cooperation with the St. Johns River Water Management District, in wells in and around the southern coastal area of Georgia and adjacent parts of Florida. During September 12–15, 2001, water levels were measured in 52 wells and subsequently used to construct a potentiometric-surface map of the Upper Floridan aquifer. The map (inset, facing page) shows that water generally flowed from west to east, toward the Atlantic Ocean, and pumping centers at St Marys, Georgia–Fernandina Beach, Florida, and Jacksonville, Florida.

Reference Cited

Knowles, Leel, Jr., and Kinnaman, S.L., 2002, Potentiometric surface of the Upper Floridan aquifer in the St. Johns River Water Management District and vicinity, Florida, September 2001: U.S. Geological Survey Open-File Report 02-182, 1 sheet.





EXPLANATION

- Upper Floridan aquifer**
- Southern coastal area**

Observation well, site name, and comparison of monthly mean water level during 2001 to period-of-record water level

- 33D069 ● Normal—Between 25th and 75th percentile water levels for period of record
- 33E054 ↓ Below normal—Below 25th percentile water level for period of record

EXPLANATION

- 45 — **Potentiometric contour**—Shows altitude at which water level would have stood in tightly cased wells during September 2001. Hachures indicate depressions. Contour intervals 5 and 10 feet. Datum is NAVD 88. (Modified from Knowles and Kinnaman, 2002)
- Direction of ground-water flow**

Site name	County	Other identifier
33D069	Camden	U.S. National Park Service, Cumberland Island National Seashore
33E007	Camden	Huntly-Jiffy
33E027	Camden	U.S. Navy, Kings Bay, test well 1
33E054	Camden	Rayland Company No. 1
27E004	Charlton	U.S. Geological Survey, test well OK-9
27G003 ¹	Ware	U.S. Geological Survey, test well 1

¹ Well completed in both Upper and Lower Floridan aquifers, with most contribution from the Upper Floridan aquifer