U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

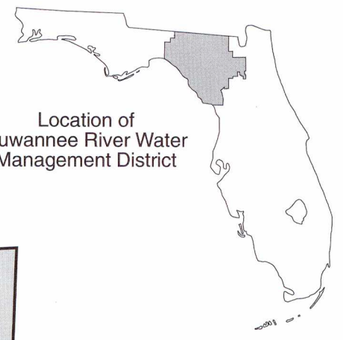
PREPARED IN COOPERATION WITH THE
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION

OPEN-FILE REPORT 96-617
Mahon, G.L., and others, 1996, Potentiometric Surface of the Upper Floridan Aquifer in the Suwannee River Water Management District, Florida, May and June 1995

84°00′ 83°30′ 83°00′ 82°30′ 82°00′

30°30′ 30°00′ 29°30′ 29°00′

GEORGIA
FLORIDA
HAMILTON
MADISON
JEFFERSON
COLUMBIA
SUWANNEE
BAKER
TAYLOR
UNION
LAFAYETTE
BRADFORD
MARION
GILCHRIST
DIXIE
LEVY
GULF OF MEXICO



This map depicts the May-June 1995 potentiometric surface of the Upper Floridan aquifer, the principal source of fresh water in the Suwannee River Water Management District (SRWMD). The potentiometric surface map is based on water levels measured in more than 230 wells in the SRWMD and adjacent areas during the period of the year when levels are typically low. Throughout most of peninsular Florida, water levels in wells typically are at their lowest levels in late spring.

Water levels fluctuate in response to rainfall and pumpage from the aquifer. Monthly fluctuations of up to 4 feet are common in certain areas of the SRWMD (Ron Ceryak, SRWMD, oral commun., 1996). Rainfall varies from year to year and across the SRWMD. For example, rainfall in Lake City was 10.55 inches below normal in 1989 and was 7.85 inches below normal in the first part of 1990 preceding the measurements made in May 1990. In contrast, cumulative rainfall in Lake City was 2.71 inches below normal in 1994 and 2.97 inches below normal prior to the measurements in 1995. Low rainfall periods usually result in lowered water levels which are further exacerbated by heavier pumping, especially irrigation pumping for agriculture, which generally accompanies low rainfall periods.

Overall, water levels were higher in most wells in May-June 1995 compared to measurements made in May 1990. The greatest rises in water levels occur in Columbia, Hamilton, and Suwannee Counties where levels were about 4 feet higher in 1995; scattered areas experienced declining levels of about 1 to 2 feet. Water levels in coastal areas were slightly higher compared to May 1990.

The U.S. Geological Survey wishes to thank the Suwannee River Water Management District for their collection and compilation of water-level data used in constructing the potentiometric surface map. A special thanks is given to Ron Ceryak, SRWMD, for providing timely review to the data and report.

EXPLANATION

—50— POTENTIOMETRIC CONTOUR—Shows altitude at which water level would have stood in tightly cased wells. Contour interval 10 feet. Datum is sea level (National Geodetic Vertical Datum of 1929)

• OBSERVATION WELL

NOTE: The potentiometric contours are generalized to portray synoptically the head in a dynamic hydrologic system, taking due account of the variations in hydrogeologic conditions, such as differing depths of wells, non-simultaneous measurements of water levels, variable effects of pumping, and changing climatic influence. The potentiometric contours thus may not conform exactly with individual measurements of water level

0 5 10 15 20 MILES
0 5 10 15 20 KILOMETERS

Base from U.S. Geological Survey digital data, 1:2,000,000, 1995
Albers Equal-Area Conic projection
Standard parallels 29°30′ and 45°30′, central meridian 83°

POTENTIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER IN THE SUWANNEE RIVER WATER MANAGEMENT DISTRICT, FLORIDA, MAY AND JUNE 1995

By
Gary L. Mahon, Anne F. Choquette, and Agustin A. Sepulveda

1997