

INTRODUCTION

The Floridan aquifer system consists of the Upper and Lower Floridan aquifers separated by a middle confining unit. The middle confining unit and the Lower Floridan aquifer generally contain highly mineralized water in west-central Florida. In most reports on the hydrology of west-central Florida, the term "Floridan aquifer" has been applied to the water-bearing units herein referred to as the Upper Floridan aquifer. The Upper Floridan aquifer is a highly productive aquifer and supplies more than 10 times the amount of water pumped from either the surficial aquifer system or the intermediate aquifer system in most of the study area (Duerr and others, 1988).

This map report shows the potentiometric surface of the Upper Floridan aquifer in west-central Florida measured in September 2001. The potentiometric surface represents the level to which water will rise in tightly-cased wells that tap a confined aquifer system. The surface is mapped by measuring the altitude of water levels in a network of wells and is represented on maps by contours that connect points of equal water-level altitude. This map represents water-level conditions near the end of the wet season, when ground-water levels usually are at an annual high and withdrawals for agricultural use typically are low. The cumulative average rainfall of 51.28 inches for west-central Florida (from October 2000 through September 2001) was 1.7 inches below the historical mean of 52.98 inches (Southwest Florida Water Management District, September 2001).

This report, prepared by the U.S. Geological Survey in cooperation with the Southwest Florida Water Management District, is part of a semi-annual series of Upper Floridan aquifer potentiometric-surface maps of west-central Florida. Potentiometric-surface maps have been prepared for January 1964, May 1969, May 1971, May 1973, May 1974, and for each May and September since 1975. Water-level data are collected in May and September each year to show the approximate annual low and high water-level conditions, respectively. Most of the water-level data for this map were collected by the U.S. Geological Survey during the period September 24-28, 2001. Supplemental water-level data were collected by other agencies and companies. A potentiometric-surface map was prepared for areas east and north of the Southwest Florida Water Management District boundary by the U.S. Geological Survey office in Altamonte Springs, Florida. Because most water-level measurements were made during a 5-day period, measurements may not represent a "snapshot" of conditions at a specific time, nor do they necessarily coincide with the seasonal high water-level condition.

WATER-LEVEL CHANGES FROM SEPTEMBER 2000 TO SEPTEMBER 2001

Water levels in about 87 percent of the wells measured in September 2001 were higher than the September 2000 water levels (Duerr, 2001b). In 417 wells with previous measurements, the September 2001 levels ranged from about 6 feet below to about 14 feet above the September 2000 levels (fig. 1). The largest decrease in water levels was in the Starkey well field in southwestern Pasco County. The largest increase in water levels was in northeastern Manatee County. Other areas where water levels increased more than 10 feet included the "four corners" area of southeastern Hillsborough, southwestern Polk, northeastern Manatee, and northwestern Hardee Counties.

WATER-LEVEL CHANGES FROM MAY 2001 TO SEPTEMBER 2001

Water levels in about 99 percent of the wells measured in September 2001 were higher than the May 2001 water levels (Duerr, 2001c). In 423 wells with previous measurements, the September 2001 levels ranged from about 2 feet below to about 46 feet above the May 2001 levels. The largest decrease in water levels was in the Cross Barr Ranch well field in north-central Pasco County and the largest increase in water levels in northeastern Manatee County.

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EXPLANATION

Areas where potentiometric surface changed, in feet

- Greater than 10
- 5 to 10
- 0 to 5
- 5 to 0
- 10 to -5

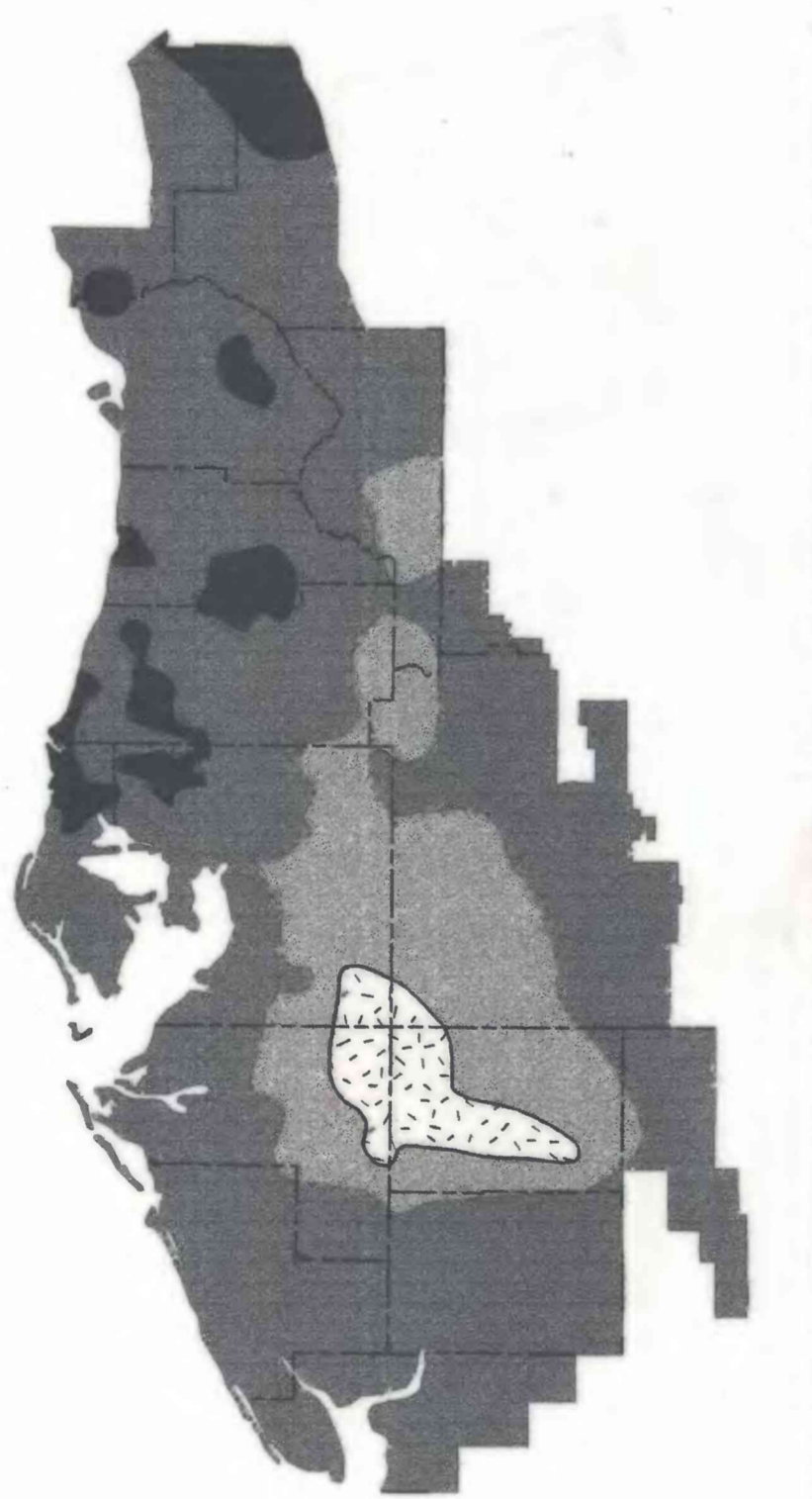


Figure 1. Change in potentiometric surface of the Upper Floridan aquifer from September 2000 to September 2001 in west-central Florida

EXPLANATION

- MUNICIPAL WELL FIELD
- POTENTIOMETRIC CONTOUR - Shows altitude at which water would have stood in tightly-cased wells. Contour interval is 10 feet. National Geodetic Vertical Datum (NGVD) of 1929. Hachures indicate depressions. Dashed where approximately located.
- BOUNDARY OF SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT
- OBSERVATION WELL - Number is altitude of water level in feet above or below NGVD of 1929.
- SPRING
- CITY OR TOWN

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

SCALE 1:500,000

