

INTRODUCTION

The water table in the surficial aquifer and the configuration of the potentiometric surface of the Floridan aquifer, in parts of west-central Florida in the vicinity of well fields used for public supply, are shown on sheets 1 and 2, respectively. The area maps encompass land areas of about 1,200 mi² and include parts of Hernando, Hillsborough, Manatee, Pinellas, and Pasco Counties. The maps are prepared jointly by the U.S. Geological Survey in cooperation with the Southwest Florida Water Management District and local agencies. Water levels generally are lowest in May and highest in September; in contrast, pumping is normally greatest in May and least in September.

Water levels at 14 well-field areas are mapped: Brandon, Clearwater-Dunedin-Belleair, Come, Cross Bar Ranch, Cypress Creek, East Lake Road, Eldridge-Wilde, Morris Bridge, Pasco County, Riverview, Section 21, Starkey, Sun City, and Verna. The well fields supply water to the urban and suburban areas of Hillsborough, Pasco, Pinellas, and Sarasota Counties.

The surficial aquifer generally consists of unconsolidated, fine-grained sediment as much as 80 feet thick. In most areas, the surficial aquifer is underlain by clay that forms a leaky confining layer separating the surficial aquifer from the underlying limestone of the Floridan aquifer. In southern Hillsborough County and at the Verna well field in Sarasota County, confining beds separate the Floridan aquifer from overlying artesian aquifers. The Floridan aquifer consists of limestone and dolomite beds about 1,000 feet thick.

SUMMARY OF CONDITIONS

Rainfall in the area was below the 1941-70 normal in June, July, August, and September and greater than normal in May (table 1). On September 15, 1980, the total pumping from the well fields was 141.8 Mgal—1.8 Mgal more than that recorded on September 16, 1979 (table 2). Most well fields supplied more water on the measurement day in 1980 than in 1979, exceptions being Eldridge-Wilde, Section 21, Brandon, and Riverview well fields. Daily pumping from these well fields averaged 2.8 Mgal less on September 15, 1980, than on September 16, 1979.

Seasonal and year-to-year fluctuations of water levels in the surficial and Floridan aquifers for selected wells are shown by hydrographs (sheet 2). The September 1980 water table in the surficial aquifer was generally higher than in May 1980, but lower than in September 1979. The annual change of water levels ranged from a decrease of 3 feet at Section 21 well field to no change at Sun City well field. Water levels were about 0 to 3 feet higher in September 1980 than in May 1980, exceptions being Cross Bar Ranch and Pasco County well fields. Water levels of these well fields were about 1 to 2 feet lower in September 1980 than in May 1980.

Potentiometric levels were about 1 to 4 feet higher in September 1980 than in May 1980, exceptions being Sun City, Riverview, and Verna well fields. Levels at these well fields were about 11 feet higher in September 1980 than in May 1980. Potentiometric levels in September 1980 were generally lower than in September 1979. The annual change of potentiometric levels ranged from a decrease of 4 feet at Morris Bridge well field to an increase of 2 feet at Eldridge-Wilde well field.

SELECTED REFERENCES

Yobbi, D. K., Mills, L. R., and Woodham, W. M., 1979, Ground-water levels in selected well fields and in west-central Florida, September 1979: U.S. Geological Survey Open-File Report 80-210.

1980, Ground-water levels in selected well fields and in west-central Florida, May 1980: U.S. Geological Survey Open-File Report 80-100A.

Table 1.—Monthly rainfall totals, in inches, for September 1980 and normal, 1941-70, at selected stations in west-central Florida.

Station	Normal	September 1980											
		1	2	3	4	5	6	7	8	9	10	11	12
Brandon	4.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cypress Creek	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
East Lake Road	3.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eldridge-Wilde	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Morris Bridge	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Riverview	2.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Section 21	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Sun City	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Verna	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Mean	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 2.—Pumping and water-level data at Pasco County well fields in west-central Florida.

Well field	Operating agency	Number of wells	Number of wells pumped	Pumping (Mgal)	Potentiometric surface of the Floridan aquifer (feet below 1929)												Height of water table above or below potentiometric surface (feet)
					1979	1980	1979	1980	1979	1980	1979	1980	1979	1980	1979	1980	
Cross Bar Ranch (A)	West Coast Regional Authority	8	6	30.0	8.0	11.7	30.4	28.6	48.3	47.4	30.0	47.2	47.7	16.9	-2.4	-0.5	
Cypress Creek (B)	West Coast Regional Authority	10	10	36.6	29.1	31.8	103.6	51.6	31.1	52.5	103.6	47.1	64.4	16.7	9.3	13.5	
Starkey (C)	Pasco County	5	3	9.5	9.3	7.5	10	36.6	38.4	28.6	28.6	28.6	28.6	-0.2	0.0	0.0	
Section 21 (D)	St. Petersburg	8	11.8	19.5	12.0	10.4	47.0	42.7	43.2	103.6	103.6	56.3	35.8	11.8	13.6	12.4	
Eldridge-Wilde (E)	Pinellas County	58	18	27.4	29.5	20.7	135	15.6	15.5	18.1	116	20.6	18.7	17.1	3.0	0.8	
Come (F)	Clearwater-Dunedin-Belleair	37	30	10.0	16.1	11.1	165	10.7	8.2	5.4	36	10.7	—	—	—	—	
East Lake (G)	Pinellas County	4	0	0.0	0.0	0.0	96	18.4	14.4	14.8	36	18.3	15.8	-0.3	-0.1	1.0	
Come (H)	St. Petersburg	23	4	3.0	9.2	7.9	11	36.2	36.4	36.4	36.4	36.4	36.4	0.0	0.0	0.0	
Section 21 (I)	St. Petersburg	7	1	3.0	11.0	7.1	21-34	38.8	10.1	41.2	27-34	32.8	36.8	26.1	13.0	12.9	
Morris Bridge (J)	Tampa	20	7	12.1	15.0	16.7	196	35.8	36.3	36.5	366	36.8	33.0	3.4	6.7	7.3	
Brandon (K)	Hillsborough County	25	11	3.7	8.0	6.8	74	38.5	14.4	38.7	686	38.2	23.8	25.0	—	—	
Riverview (L)	Hillsborough County	7	2	1.7	1.9	1.3	36	19.7	—	32.9	36	18.6	16.5	31.0	42.9	44.1	
Sun City (M)	Hillsborough County	3	1	1.0	2.3	1.8	76	20.7	40.7	36.9	76	20.9	45.1	30.9	47.2	45.7	
Verna (N)	City of Sarasota	16	16	3.2	9.2	8.4	10-48	13.3	13.3	13.66	42.4	50.3	62.3	—	—		
Mean				17.7	19.4	14.8											

EXPLANATION

- 60 — WATER-TABLE CONTOUR— Shows altitude of water-table surface. Contour interval 2, 5, 10, and 20 feet. Dashed lines indicate depressions. Datum is National Geodetic Vertical Datum of 1929. Some contours are highly generalized in areas where water-table observations are not available and based on surface-drainage features.
- 33 @ 100 Echo @ Pumping MUNICIPAL SUPPLY WELLS— Shows location and number or name of well.
- OBSERVATION WELL— Shows location of well and water level in feet above or below NGVD. Well number, where shown, indicates hydrograph shown in this report.
- ▲ SURFACE-WATER GAGE— Shows location of surface-water gage.
- R= WATER-LEVEL RECORDER— Shows location of water-level recorder.
- WELL-FIELD BOUNDARY— Shows generalized boundary of well-field area.
- J Letter refers to hydrograph and corresponding well-field identification letter.

WATER TABLE IN THE SURFICIAL AQUIFER

