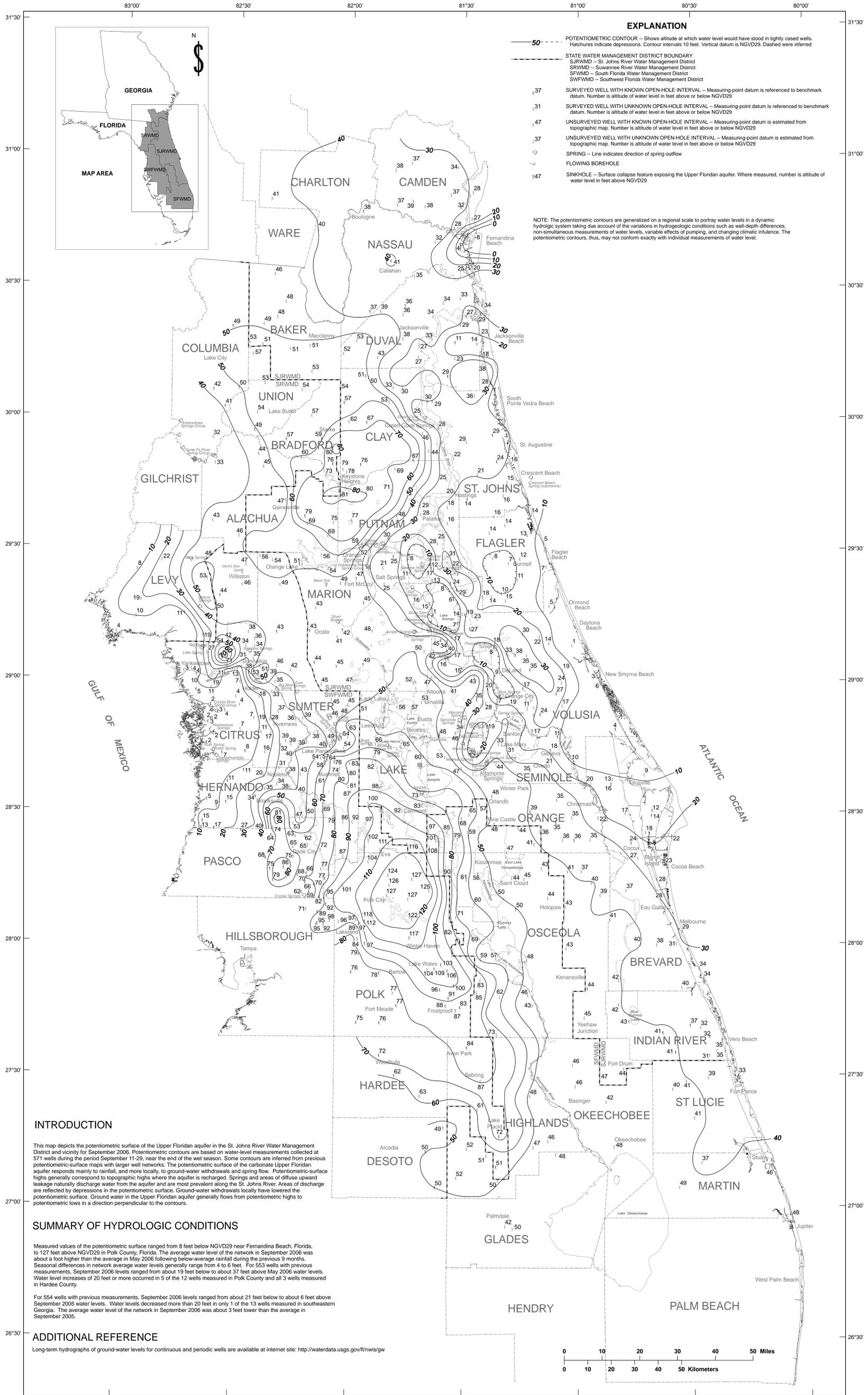


Prepared in cooperation with
ST. JOHNS RIVER WATER MANAGEMENT DISTRICT
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U.S. DEPARTMENT OF THE INTERIOR
 U.S. GEOLOGICAL SURVEY

Sandra L. Kinnaman and Joann F. Dixon, 2006. Potentiometric surface of the Upper Floridan aquifer in the St. Johns River Water Management District and vicinity, Florida, September 2006



EXPLANATION

- 50 --- POTENTIOMETRIC CONTOUR -- Shows altitude at which water level would have stood in tightly cased wells. Hatchures indicate depressions. Contour intervals 10 feet. Vertical datum is NGVD29. Dashed were inferred
- STATE WATER MANAGEMENT DISTRICT BOUNDARY
- SJRWMD -- St. Johns River Water Management District
- SRWMD -- Suwannee River Water Management District
- SFWMD -- South Florida Water Management District
- SWFWMD -- Southwest Florida Water Management District
- 37 SURVEYED WELL WITH KNOWN OPEN-HOLE INTERVAL -- Measuring-point datum is referenced to benchmark datum. Number is altitude of water level in feet above or below NGVD29
- 31 SURVEYED WELL WITH UNKNOWN OPEN-HOLE INTERVAL -- Measuring-point datum is referenced to benchmark datum. Number is altitude of water level in feet above or below NGVD29
- 47 UNSURVEYED WELL WITH KNOWN OPEN-HOLE INTERVAL -- Measuring-point datum is estimated from topographic map. Number is altitude of water level in feet above or below NGVD29
- 37 UNSURVEYED WELL WITH UNKNOWN OPEN-HOLE INTERVAL -- Measuring-point datum is estimated from topographic map. Number is altitude of water level in feet above or below NGVD29
- ~ SPRING -- Line indicates direction of spring outflow
- FLOWING BOREHOLE
- ∩ SINKHOLE -- Surface collapse feature exposing the Upper Floridan aquifer. Where measured, number is altitude of water level in feet above NGVD29

NOTE: The potentiometric contours are generalized on a regional scale to portray water levels in a dynamic hydrologic system taking due account of the variations in hydrogeologic conditions such as well-depth differences, 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.

INTRODUCTION

This map depicts the potentiometric surface of the Upper Floridan aquifer in the St. Johns River Water Management District and vicinity for September 2006. Potentiometric contours are based on water-level measurements collected at 571 wells during the period September 11-29, near the end of the wet season. Some contours are inferred from previous potentiometric-surface maps with larger well networks. The potentiometric surface of the carbonate Upper Floridan aquifer responds mainly to rainfall, and more locally, to ground-water withdrawals and spring flow. Potentiometric-surface highs generally correspond to topographic highs where the aquifer is recharged. Springs and areas of diffuse upward leakage naturally discharge water from the aquifer and are most prevalent along the St. Johns River. Areas of discharge are reflected by depressions in the potentiometric surface. Ground-water withdrawals locally have lowered the potentiometric surface. Ground water in the Upper Floridan aquifer generally flows from potentiometric highs to potentiometric lows in a direction perpendicular to the contours.

SUMMARY OF HYDROLOGIC CONDITIONS

Measured values of the potentiometric surface ranged from 8 feet below NGVD29 near Fernandina Beach, Florida, to 127 feet above NGVD29 in Polk County, Florida. The average water level of the network in September 2006 was about a foot higher than the average in May 2006 following below-average rainfall during the previous 9 months. Seasonal differences in network average water levels generally range from 4 to 6 feet. For 553 wells with previous measurements, September 2006 levels ranged from about 19 feet below to about 37 feet above May 2006 water levels. Water level increases of 20 feet or more occurred in 5 of the 12 wells measured in Polk County and all 3 wells measured in Hardee County.

For 554 wells with previous measurements, September 2006 levels ranged from about 21 feet below to about 6 feet above September 2005 water levels. Water levels decreased more than 20 feet in only 1 of the 13 wells measured in southeastern Georgia. The average water level of the network in September 2006 was about 3 feet lower than the average in September 2005.

ADDITIONAL REFERENCE

Long-term hydrographs of ground-water levels for continuous and periodic wells are available at internet site: <http://waterdata.usgs.gov/fl/nwis/gw>

Base from U.S. Geological Survey digital data, 1:100,000, 1983
 Universal Transverse Mercator projection,
 Zone 17

POTENTIOMETRIC SURFACE OF THE UPPER FLORIDAN AQUIFER IN THE ST. JOHNS RIVER WATER MANAGEMENT DISTRICT AND VICINITY, FLORIDA, SEPTEMBER 2006

By
 Sandra L. Kinnaman and Joann F. Dixon
 2007

Copies of this map can be purchased from
 U.S. Geological Survey
 Branch of Information Services
 Box 25286
 Denver Federal Center
 Denver, Colorado 80225-0286