



INTRODUCTION

This report is one in an annual series of reports that depicts water-level altitudes and water-level changes since 1990 in the Chicot and Evangeline aquifers in Fort Bend County and adjacent areas, Texas. The report, prepared in cooperation with the Fort Bend Subsidence District, presents maps for the Chicot and Evangeline aquifers showing the approximate water-level altitudes in wells in 1996 (figs. 1, 4) and approximate water-level changes in wells from 1990 to 1996 and from 1995 to 1996 (figs. 2, 3, 5, 6). The most recent previously published water-level-altitude maps and water-level-change maps for the two aquifers are by Coplin and others (1995). The earliest water-level-altitude maps and water-level-change maps for the Chicot aquifer are by Wesselman (1972). The first maps of water-level altitudes and water-level changes for the Chicot and Evangeline aquifers are by Locke (1990).

GEOHYDROLOGY

The Chicot aquifer, of Holocene and Pleistocene age, and the underlying Evangeline aquifer, of Pliocene and Miocene age, are composed of discontinuous fluvial-deltaic deposits of sand, silt, and clay that thicken to the southeast (Wesselman, 1972). The Chicot aquifer is separated from the geologically similar Evangeline aquifer on the basis of differences in hydraulic conductivity. The differences in hydraulic conductivity, in part, cause differences in water levels in the two aquifers (Carr and others, 1985, p. 10); water levels in the Chicot aquifer are higher than water levels in the Evangeline aquifer. A weak hydraulic connection between land surface and the Chicot aquifer and between the Chicot and Evangeline aquifers allows vertical movement of water into and between the aquifers; the aquifer system thus is characterized as "leaky" (Gabrysch and Coplin, 1990, p. 2).

WATER-LEVEL MEASUREMENTS

Water-level measurements used to prepare this report were obtained by steel tape, airline, electronic sensor, and from reports by well operators. Most wells are pumped once daily, but some are pumped more frequently. Multiple measurements were made when wells were not being pumped. However, antecedent pumping conditions were not always known. Water-level measurements were made in January, the month when water levels usually are highest. The wells selected for water-level measurements had comparable depths and screened intervals. Some water-level measurements from wells outside the study area are obtained to increase water-level-contour control.

REFERENCES CITED

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VERTICAL DATUM

Sea level: In this report, "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)—a geodetic datum derived from a general adjustment of the first-order level nets of the United States and Canada, formerly called Sea Level Datum of 1929.

EXPLANATION

- 50 --- **Water-level contour**—Shows altitude at which water level would have stood in tightly cased well. Contour interval 50 feet. Datum is sea level
- **Boundary of study area**
- o **Data point**—Well in which water level measurement was made. One point can represent more than one well

Figure 1. Map showing approximate water-level altitudes in the Chicot aquifer, Fort Bend County and adjacent areas, Texas, January 1996.

WATER-LEVEL ALTITUDES 1996 AND WATER-LEVEL CHANGES 1990-96 AND 1995-96 IN THE CHICOT AND EVANGELINE AQUIFERS, FORT BEND COUNTY AND ADJACENT AREAS, TEXAS

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