This report depicts 2000–2004 water-level changes in the Chicot and Evangeline aquifers in the Houston-Galveston region. It includes maps showing approximate water-level changes in the Chicot and Evangeline aquifers in the Houston-Galveston region. The report was prepared in cooperation with the Harris-Galveston Coastal Subsidence District and the Fort Bend Subsidence District.

**GEOHYDROLOGY**

The Chicot aquifer (in Mississippi and Plaquemine-Quaternary sediment) and the Evangeline aquifer (in Pleistocene and Miocene sediments) are the two primary aquifers in the Houston-Galveston region and are part of the Gulf Coast Aquifer system. The hydrogeologic units are laterally discontinuous fluvial-deltaic deposits of gravel, sand, silt, and clay that dip and thicken from northwest to southeast. The aquifers crop out in bands inland from and approximately parallel to the coast and become progressively more deeply buried and confined toward the coast. The Chicot aquifer, which comprises the youngest sediment, in the absence of the aquifer system.

The Chicot aquifer can be differentiated from the geologically similar Evangeline aquifer by its higher hydraulic conductivity. 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). The water in the aquifers is fresh (less than 1,000 milligrams per liter dissolved solids concentration) in the region, but becomes more saline in the downdip and deeply buried parts of the aquifers near the coast. In the natural ground-water flow system, water exchanges the aquifers in the coastal updip areas, moves shoreward and seaward, and discharges vertically at dune uplands to the coast in the confined downdip areas.

**WATER-LEVEL MEASUREMENTS**

Water-level measurements used in the basis for these change maps were obtained by steel tape, airline, and from reports of well operators. Most wells were pumped once study, but none were pumped twice the study period. Monthly measurements were made when wells were not pumped. Change maps were plotted for each pumping station of nearby wells were not always known. Note: This change map was generated by contouring the differences between 2000 water-level data (Coplin and Santos, 2000) and 2004 water-level data (Kasmarek and Lanning-Rush, 2004).

**REFERENCES**


University of Texas, Bureau of Economic Geology, 1990, Geologic atlas of Texas, Bureau of Economic Geology, Austin, scale 1:2,000,000.