



WATER-LEVEL CHANGES

Water-level changes within the Chicot aquifer system in southwestern Louisiana (fig. 4 to 7) ranged from a decline of 4 feet just south of Lake Charles, to a recovery of 13 feet just north of Lake Charles. The water-level change maps (figs. 4 and 5) were constructed by comparing the potentiometric-surface maps and calculating the difference between water levels measured in 1985 and 1991. Lines of equal water-level change were then plotted. The regional water-level changes in the upper sand unit during 1985-91 are shown in figure 4, and changes in the "500-foot" sand during 1985-91 are shown in figure 5.

Water-level changes within the Chicot aquifer system south of the recharge area are due primarily to industrial withdrawals and rice irrigation. Water-level trends for selected observation wells over an extended period of time are shown in figures 6 and 7. As indicated by the hydrograph of well Ac-326, located near the center of the rice farming area (fig. 6), large seasonal fluctuations in water levels are caused by pumping for rice irrigation. Since 1985, water-level changes in the upper sand unit have been small, except in two local areas of recovery in northern Jefferson Davis and northern Allen Parishes (fig. 4). Both of these areas of recovery probably are due to local decreases in withdrawals. Water-level changes in the "200-foot" sand of the Lake Charles area reflect changes in the underlying "500-foot" sand because of leakage between the two (figs. 4 and 5).

Water-level changes in the "500-foot" sand in the Lake Charles area are due primarily to changes in industrial withdrawals. Two main areas of water-level changes in the area are indicated in an area of recovery in the northern part of Lake Charles, and a small area of decline near the center of the cone of depression in the industrial district near Lake Charles (fig. 5). The hydrograph of well Cu-445 (fig. 7) in this area shows that this slight decline occurred between 1985 and 1991 at the rate of about 1 foot per year. It also shows that a recovery of about 50 feet occurred between 1981 and 1983. This significant recovery was caused by large reductions in industrial withdrawals from the aquifer (Lovelace, 1991, p. 31).

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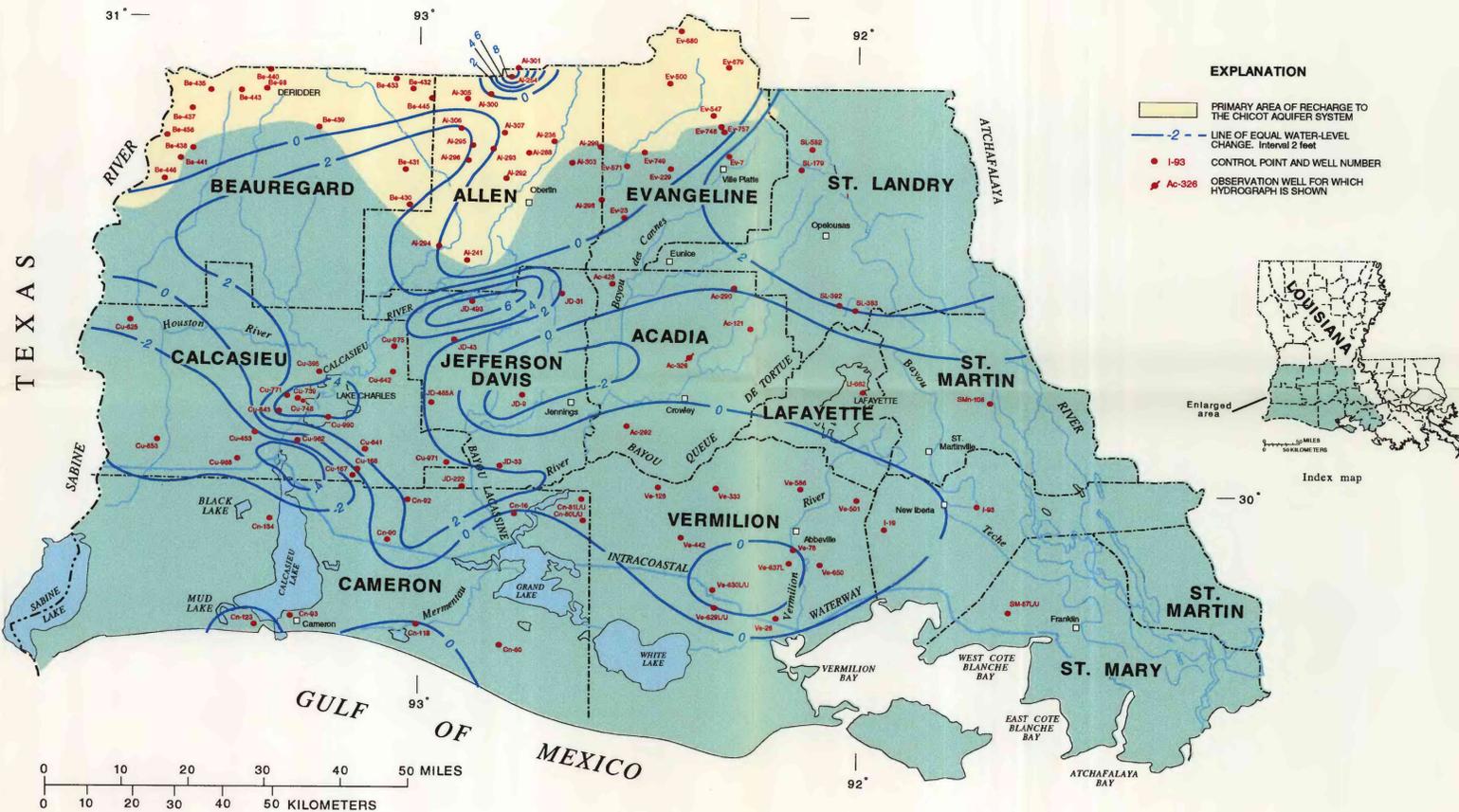


Figure 4. Water-level changes in the upper sand unit of the Chicot aquifer system, 1985-91.

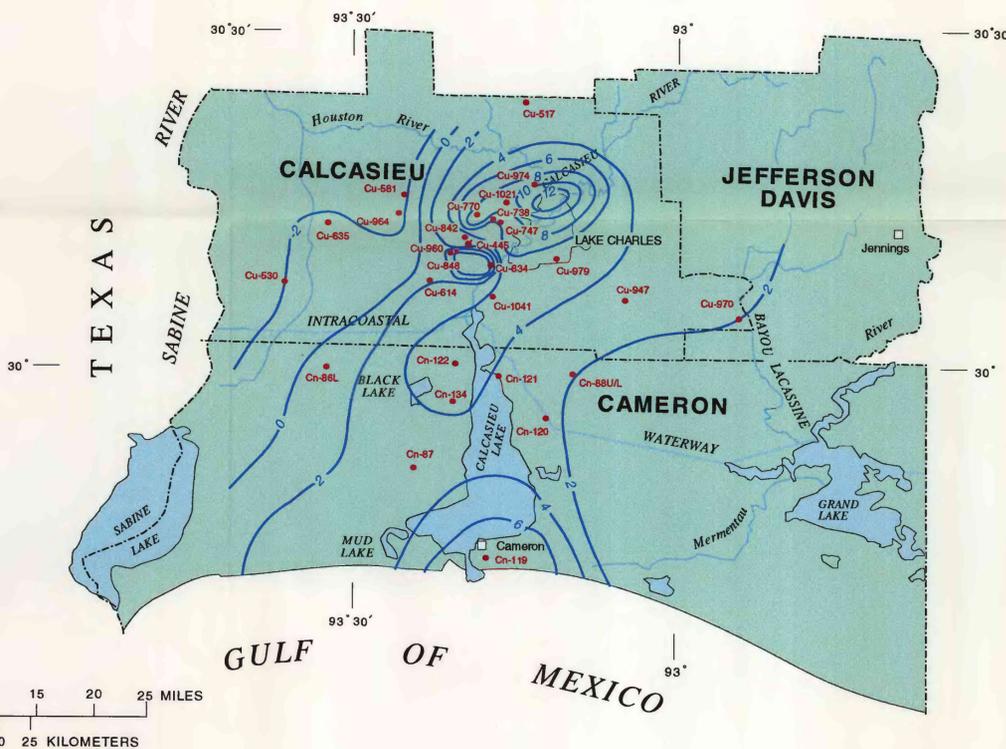


Figure 5. Water-level change in the "500-foot" sand of the Chicot aquifer system, 1985-91.

LOUISIANA GROUND-WATER MAP NO. 10:
WATER-LEVEL CHANGES, 1985-91, OF THE CHICOT AQUIFER SYSTEM
IN SOUTHWESTERN LOUISIANA

By
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1996

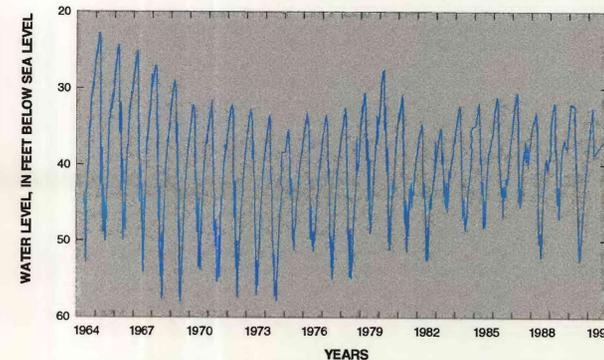


Figure 6. Water level in well Ac-326 completed in the upper sand unit of the Chicot aquifer system, Acadia Parish.

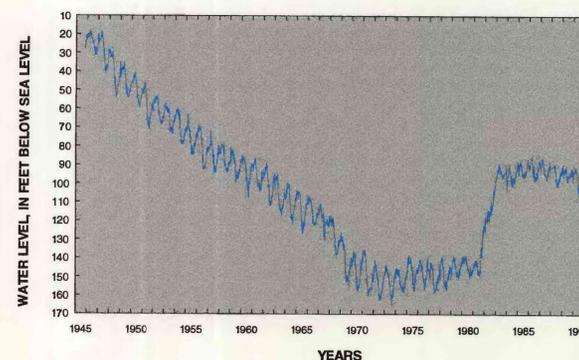


Figure 7. Water level in well Cu-445 completed in the "500-foot" sand of the Chicot aquifer system, Calcasieu Parish.