

Water Supply and Subsidence in the Greater Houston Area

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Abstract

The Greater Houston Metropolitan Area, encompasses an area that would rank 25th in population, amongst the fifty states in the United States. Historically, much of the water demands of the area were met with groundwater from the Gulf Coast Aquifer System. In 1975 the Texas State Legislature created the Harris-Galveston Coastal Subsidence District, due to subsidence caused by the overwhelming amount of water being pumped from underground. The Fort Bend Subsidence District was created thereafter, in 1989. In the year 2000, the three counties in the upper Gulf Coast area regulated by the two districts, had an average total water demand over 1.1 billion gallons per day. Due to rules and regulations by the two Subsidence Districts, groundwater made up only about one-third of the total water supplied.

The area has long been flood prone, due mainly to the low elevations and lack of rainfall run-off. Subsidence has only compounded the flooding problems. In the greater Houston area, from the early 1900's to the beginning of the 21st Century, subsidence totaled as much as ten feet, with many of the critically economic areas being hardest hit.

The Harris-Galveston Coastal Subsidence District has adopted regulations that address when, where, and how much groundwater can be withdrawn, in order to prevent future subsidence. Much of the area has now found alternative supplies of water, however to complete the solution, nearly \$3 billion will be spent on new infrastructure in the next thirty years.