



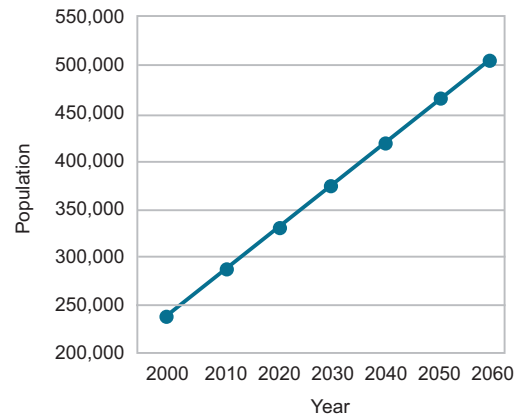
BCGCD

Addresses County Groundwater Issues

Groundwater is one of Brazoria County's most precious resources. In fact, it is the most widely used source of water for municipal purposes, and is an important supply for agriculture and industry as well. As the county's population grows, so does the demand for this valuable resource. It is important to protect both the quantity and quality of groundwater that is available to residential, agricultural, municipal, and industrial water users.

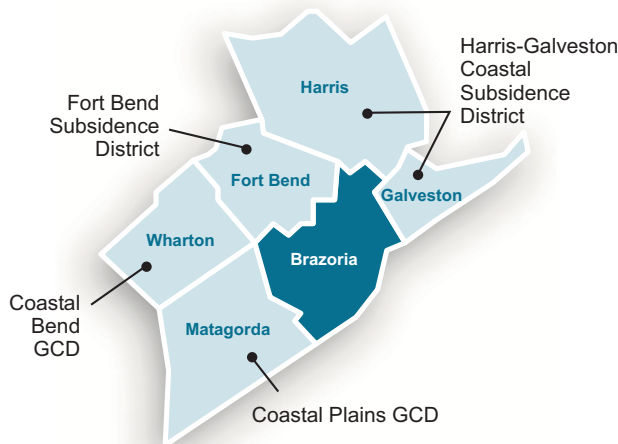
Why a Groundwater Conservation District?

A groundwater conservation district is a district created by Texas law for the conservation, preservation, protection, recharging, and prevention of waste of groundwater, and for the control of subsidence. To implement this broad charge,



Source: Texas Water Development Board
2006 Regional Water Plan Projections Data

Brazoria County's population will continue to grow rapidly through 2060.

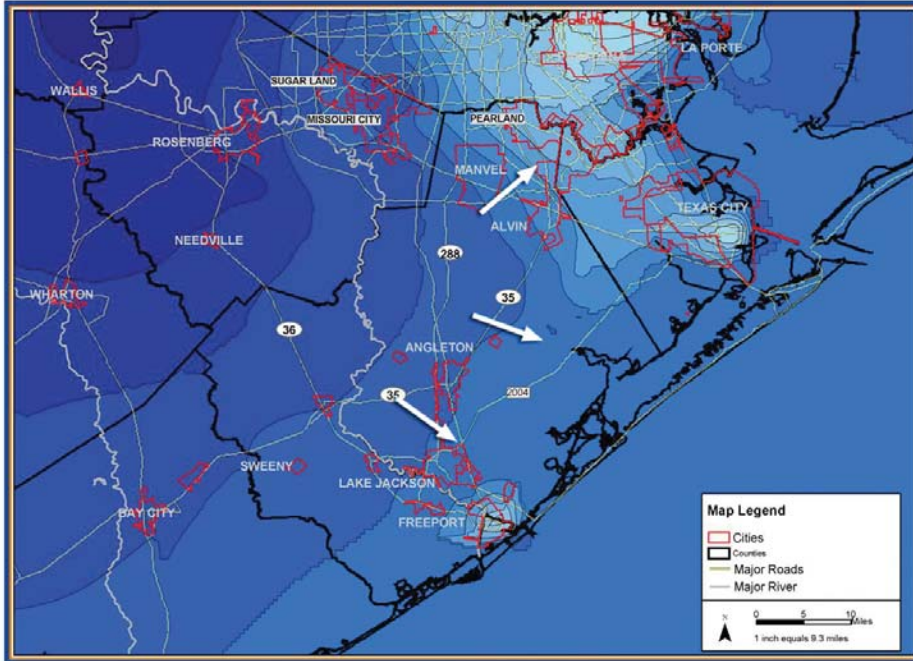


The counties surrounding Brazoria County already have established groundwater conservation districts to manage the quality and quantity of their groundwater resources.

each district must prepare a groundwater management plan that describes its groundwater management goals for the next 10 years.

Maintaining the quality and availability of groundwater for current users and future generations is the mission of the Brazoria County Groundwater Conservation District (BCGCD). Without a groundwater conservation district in place to protect groundwater, an individual or organization could pump water without regard to its impact on other users, including transporting unrestricted amounts of groundwater to locations outside Brazoria County.

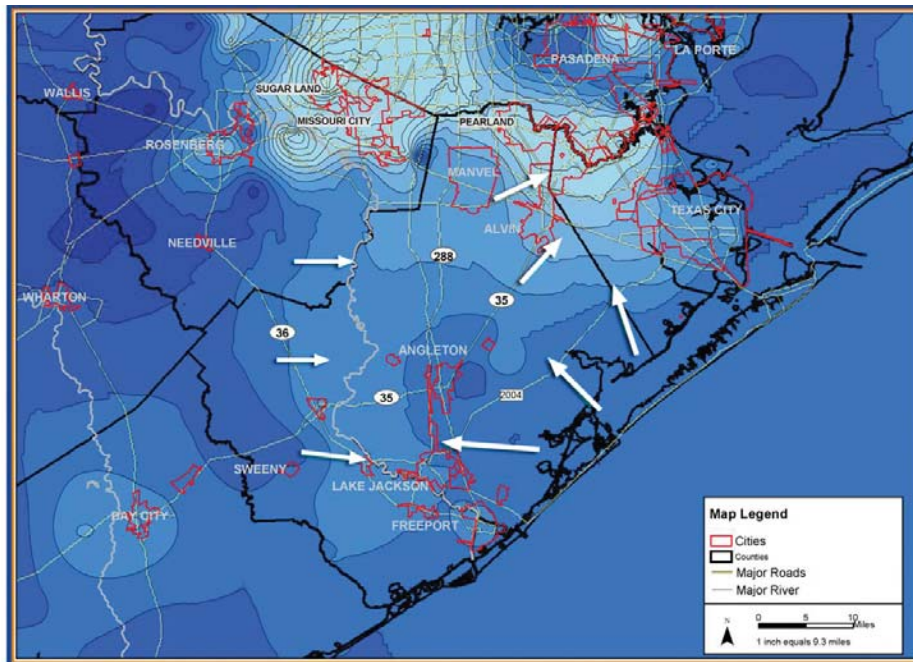
The BCGCD, directed by a five-member board to be elected by the voters of Brazoria County, is proactively addressing groundwater issues by working with groundwater users to manage and plan for groundwater use. In this way, the BCGCD is working to ensure that municipal, industrial, agricultural, and residential users all are treated fairly and equitably. A proactive approach



Source: Texas Water Development Board
Analysis: URS

20 ft. Contour Interval

Groundwater flows in Brazoria County and nearby counties in 1950



Source: Texas Water Development Board
Analysis: URS

20 ft. Contour Interval

Groundwater flows in Brazoria County and nearby counties in 2000

From 1950 to 2000, pumping of groundwater in Brazoria, Harris, and Galveston counties has affected the direction of groundwater flow in Brazoria County, drawing the flow northward across half of Brazoria County. This change in direction increases the likelihood that saltwater from the Gulf of Mexico will be drawn inland, leading to contamination of groundwater.

Arrows indicate the direction of groundwater flow. Groundwater flows from the dark blue areas to the lighter blue areas.

to managing groundwater issues is more cost effective than waiting to solve problems in the future.

Because it represents the entire county, the BCGCD can address the big picture of groundwater use in Brazoria County, thus creating an opportunity for local municipalities and others to coordinate analyses and solutions. In this way, local interests will be considered without the burden of each having to fund its own analysis of the situation. Strategies would be implemented in a manner that is fair to other groundwater users.

The BCGCD at Work

In carrying out its mission, the BCGCD provides several services. It conducts research in groundwater availability, quality, and use in Brazoria County, and develops approaches for addressing any identified issues before they become problems. The BCGCD also conducts public outreach activities to inform county residents about research findings, meetings, and generally to keep them up to date on BCGCD activities.

The BCGCD addresses issues in the following areas:

- The most efficient use of the groundwater resources of Brazoria County;
- Control and prevention of subsidence in the county;
- Control and prevention of waste of groundwater;
- Use of surface water and groundwater over the next 50 years;
- Natural resource issues that affect the use and availability of groundwater;
- Drought conditions; and
- Groundwater conservation.

Preliminary Findings

The BCGCD has collected and is analyzing historical information and projected future data on groundwater levels, land subsidence in Brazoria and adjacent counties (Harris, Galveston, and Ft. Bend), and groundwater quality. This information is needed for the district to proactively identify issues and develop strategies before serious problems arise.

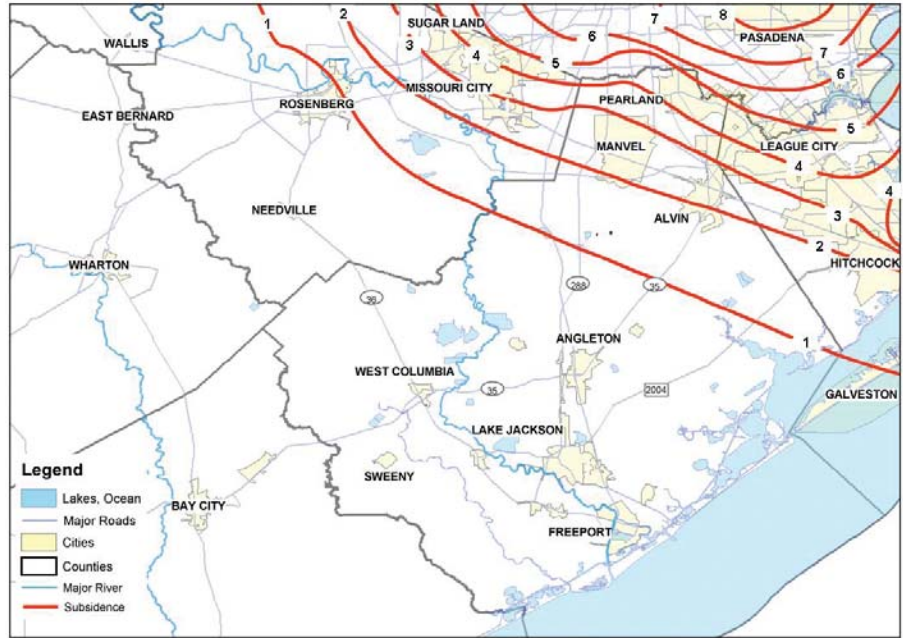
Groundwater Levels

During the last 50 years, historical pumping of groundwater has affected groundwater flow directions. As shown in the maps to the left, pumping in Brazoria, Harris, Galveston counties has drawn groundwater flow northward across half of Brazoria County. Groundwater throughout much of Brazoria County now moves in the opposite direction from the way it has historically flowed. This significant change in water flow direction increases the likelihood that saltwater from the Gulf will be drawn inland, leading to contamination of groundwater resources.

Groundwater levels in Brazoria County have decreased across nearly 60 percent of the county. The quantity of groundwater is affected by pumping in and outside Brazoria County. As shown in the figures, groundwater is now flowing out of the county. This situation could benefit from a groundwater management approach that addresses future pumping from within the district and works with outside entities to limit their withdrawals from Brazoria County.

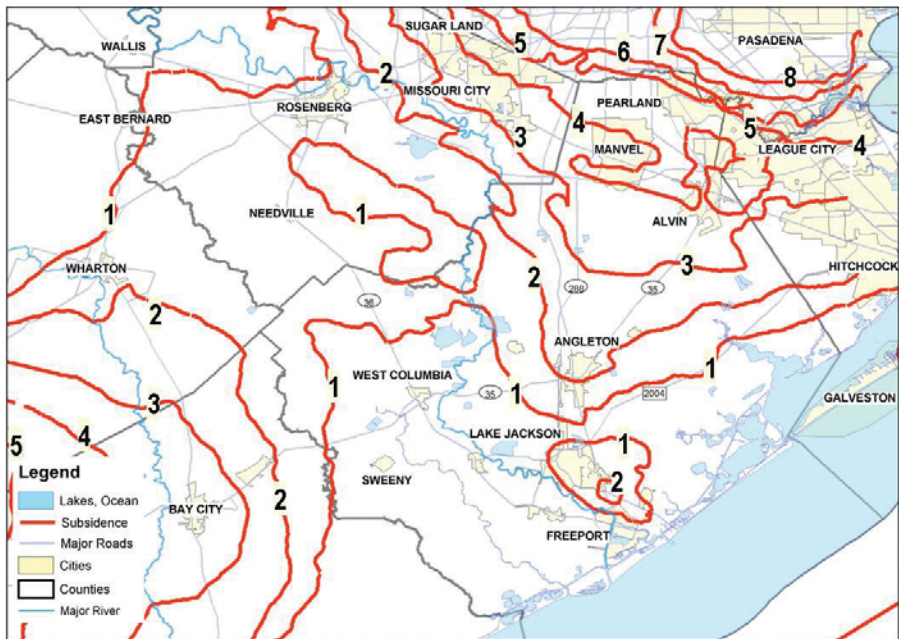
Subsidence

Subsidence, the sinking of the land surface caused by groundwater pumping, is now a major issue in Harris, Galveston, and Ft. Bend counties and has major implications



Source: National Geodetic Survey Contour Interpretations

Actual Subsidence in Feet: 1906 - 2000 (as recorded by the Harris-Galveston Coastal Subsidence District)



Source: Northern Gulf Coast Groundwater Availability Model developed by USGS and 2002 RWPG Pumping Estimates by Regional Water Planning Groups and TWDB.

Projected Subsidence in Feet: 1906 - 2050 (based on preliminary data)

for Brazoria County. As Brazoria County becomes more and more developed, an increasing amount of groundwater will be pumped (drawn down), resulting in increased subsidence. Without a groundwater man-

agement strategy in place, this subsidence will continue unabated.

The maps above illustrate the subsidence that has occurred from 1906 to 2000 and the predicted future subsidence in the next half century.

Subsidence already has caused significant damage in Harris and Galveston counties. Flooding has increased as a result of the lowered efficiency of storm drainage facilities. Coastal lowlands have been submerged and the amount of shoreline has been reduced. Subsidence has caused the loss of wetlands and sub-aquatic vegetation, and has reduced the production capabilities of fisheries. Subsidence also can result in structural damage to buildings, roadways, and well casings.

With this type of information in mind, the BCGCD is working to assess historical and future subsidence impacts in Brazoria County by region within the county. Groundwater withdrawal outside the county is affecting Brazoria County and subsidence could increase without proper management of pumping inside or outside the county.

Groundwater Quality

The BCGCD has already collected information on 665 groundwater wells sampled in Brazoria County. Of the wells sampled, only 3 percent did not meet Primary Drinking Water Standards, which are legally enforceable water quality standards designed to protect human health. While this indicates that water quality generally is good—and demonstrates the importance of protecting the resource—groundwater quality is potentially threatened by saltwater intrusion and surface contamination. Preventing future water quality problems such as these is a more cost-effective response than fixing the problem after it occurs.

The BCGCD's Authority

According to Texas statute, the BCGCD is a governmental agency created to benefit the public. The BCGCD is allowed to charge a small fee to certain groundwater users—only industry and others who obtain groundwater from public water systems (e.g., municipalities). For the average residential user, this will likely amount to less than the cost of buying one small bottled water at the grocery store every two months.

The BCGCD **may not tax, collect any kind of fee, or require a meter on private water wells** used for agricultural or personal use in Brazoria County. However, it may impose additional fees on groundwater exported from the county.

Furthermore, the BCGCD:

- **May not** impose a property tax,
- **May not** exercise the right of eminent domain,
- **May not** acquire land,
- **May not** issue or sell bonds, or
- **May not** purchase, sell, transport, or distribute surface water or groundwater.

The BCGCD is made up of five members who represent the voters of Brazoria County. The temporary board of directors consists of Dennis Davenport (presiding officer) and four members appointed by the Brazoria County Commissioners Court—Raymond Felder, John Pyburn, Mike O'Day, and Leo Mikeska.

The BCGCD must be confirmed by county voters in an election that will take place in 2005. During this same election, five initial directors will be selected—one director from the entire county and one director from each county commissioner's precinct. Following this initial election, directors will be chosen for staggered terms during November elections.

For More Information

For more information about the BCGCD and its work, go to the district's web site at <http://www.bcggroundwater.org>