

# Historical groundwater use in Texas

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## Background

Groundwater in Texas has been a source of water supply ever since the earliest inhabitants of the region camped and settled near springs. In otherwise arid parts of the state, springs provided an essential source of water. Later on, hand-drilled wells and windmills allowed early ranchers and farmers to venture from springs and streams. Since the 1940s, extensive development and use of groundwater supplies has been essential to the economic expansion, population growth, and cultural changes that the state has experienced.

Considering the importance of groundwater to the history of Texas, a general overview of total groundwater use in the state over the last 70 years is in order.

## Sources of water use estimates

The Texas Water Development Board is the primary source of information on groundwater use throughout the state. In addition, the U.S. Geological Survey provides estimates of water use for all states in the United States.

The Texas Water Development Board has been collecting information on water use in Texas through its annual Water User Survey since 1937. The survey asks all Texas water suppliers about the quantity of water they supplied for themselves and for other users during the past year and the source of that water. These surveys are used to estimate the total quantity of water withdrawn from each stream and aquifer in the state for municipal and industrial users. Other methods are used to estimate agricultural use.

The U.S. Geological Survey has published water use estimates for five-year intervals since 1950. It cooperates with agencies in each state to find the most accurate information for these estimates. In 1978, the U.S. Geological Survey National Water Use Information Program was created to coordinate the work of the U.S. Geological Survey and state and local agencies (Hutson and others, 2004). The U.S. Geological Survey estimates for water use in Texas are based primarily on raw data from the Texas Water Development Board for the year prior to the year for which water use is being estimated (D. Lurry, written communication, 2005).

## An overview of changes in groundwater use

Figure 1 shows total groundwater use in Texas as estimated by the Texas Water Development Board and U.S. Geological Survey reports. Economic, technological, climatic, and demographic

changes throughout the state have all affected groundwater use trends over the years. However, when looking at these totals, it is important to be aware that the main use of groundwater in the state is for irrigated agriculture and that most irrigation occurs in the High Plains region of north Texas. For this reason, changes in statewide groundwater use over the last 70 years largely reflect changes in pumping for irrigation.

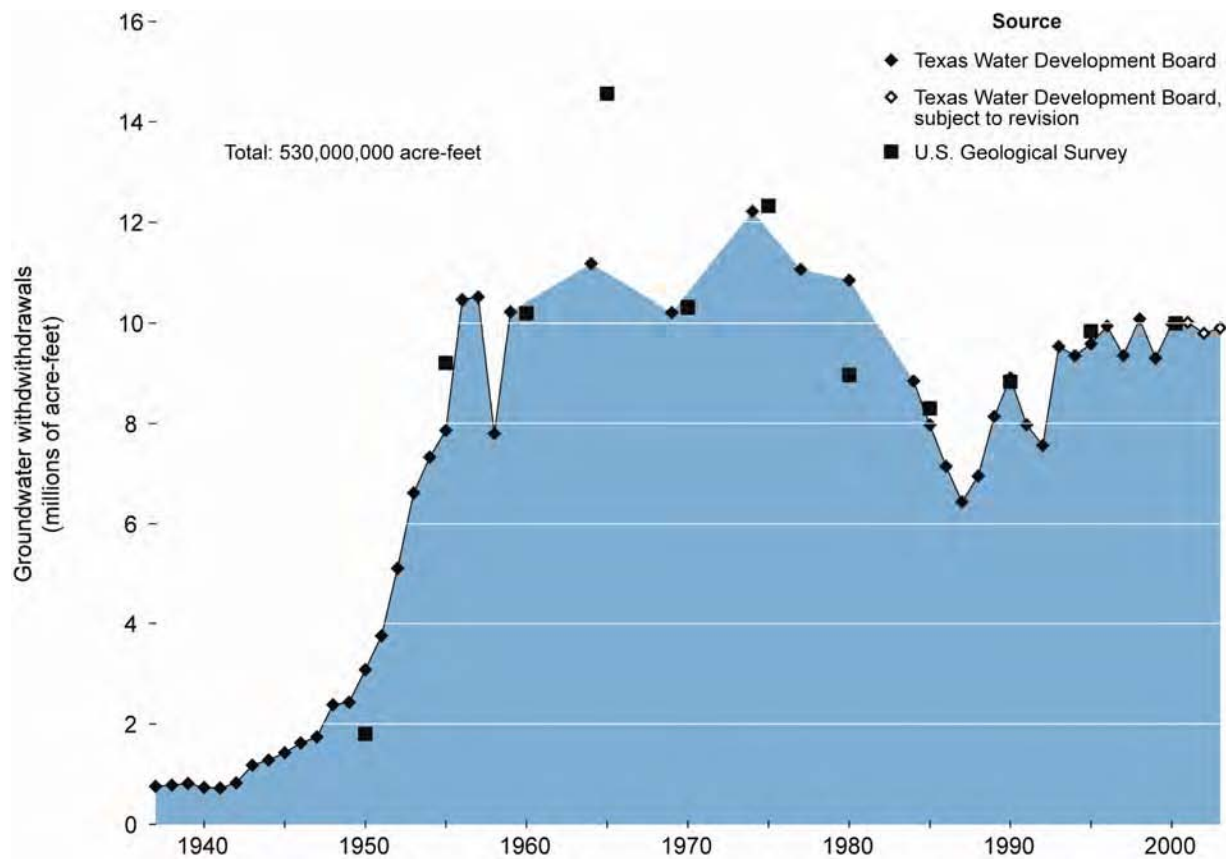


Figure 1. Total annual groundwater use in Texas, 1937–2003.

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