

Ground water provided about 321 million gallons per day (Mgal/d) of public water supplies in Tennessee during 2000. A total of 256 public water-supply systems provided these supplies to 72 of Tennessee's 95 counties...

Public Water-Supply Systems A total of 256 public water-supply systems provided ground water for drinking water and other purposes to residents in 72 of the 95 Tennessee counties in 2000 (fig. 1).

Ground-Water Resources in Tennessee Ground water provided 36 percent of Tennessee's public water supplies in 2000 (fig. 2). Ground water was withdrawn from drilled wells and natural springs that flow from aquifer outcrops or exposed rock fractures at land surface...

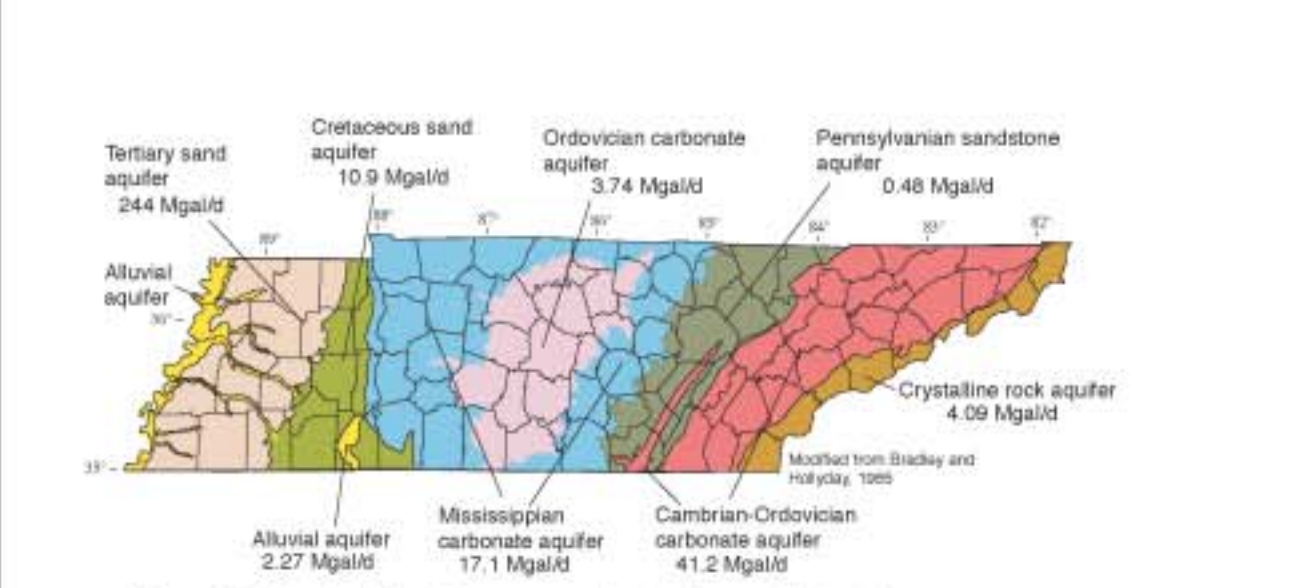


Figure 3. Principal aquifers in Tennessee and rate of water withdrawal, in million gallons per day, 2000.

West Tennessee In West Tennessee, ground-water supplies are produced from the thick (greater than 2,500 feet) sequence of unconsolidated sands, gravels, and clays of Quaternary alluvium deposits, the Tertiary sand aquifer that includes the Cockfield and Cook Mountain Formations...

Approximately 244 Mgal/d were produced from the Tertiary sand aquifer in 15 counties of West Tennessee in 2000. This quantity represents approximately 75 percent of the total public supply ground-water withdrawals from all aquifers in the State (fig. 4).

Middle and East Tennessee Ground-water withdrawals in Middle and East Tennessee are primarily from natural springs or from wells drilled into Precambrian, Cambrian, Ordovician, Mississippian, and Pennsylvanian-age rocks.

In Middle Tennessee, ground water generally is withdrawn from solution cavities of the Ordovician and Mississippian carbonate aquifers. Well depths commonly range from less than 50 to about 200 feet.

In East Tennessee, ground water is present in interconnected fractures and openings of the Pennsylvanian sandstone aquifer of the Cumberland Plateau, in fractures and solution openings in the Cambrian-Ordovician carbonate aquifer and in the fractured crystalline rock aquifer...

Drilled wells range from less than 50 to 350 feet deep (Brahama, Macy, and others, 1986), and well yields ranged from 5 gal/min to about 50 gal/min in the Pennsylvanian sandstone and crystalline rock aquifers, and to about 200 gal/min in the Cambrian-Ordovician carbonate aquifer.

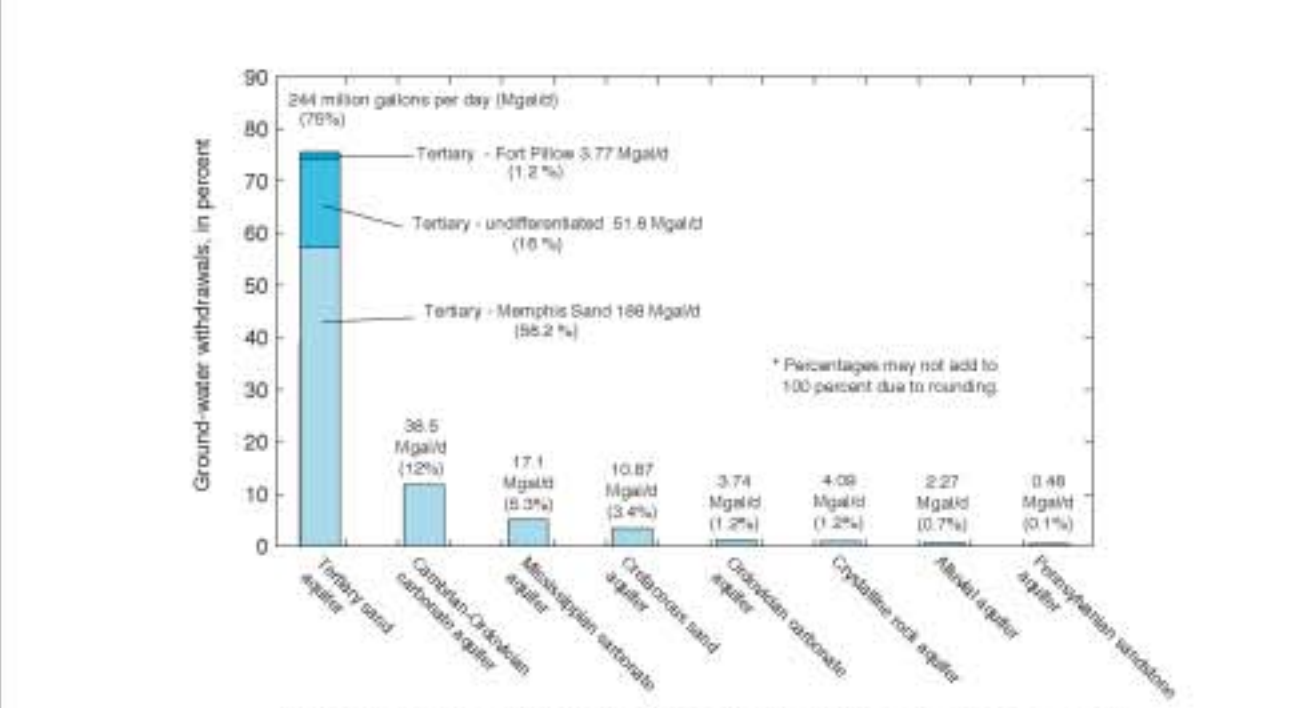


Figure 4. Ground-water withdrawals from principal aquifers in Tennessee, 2000.

Springs as Public Water Supplies

Springs were used as water sources by 46 public water-supply systems in 28 counties of Middle and East Tennessee during 2000 (fig. 1). The springs provided about 40 Mgal/d, approximately 12 percent of the total ground-water withdrawals for Tennessee in 2000 (fig. 1).

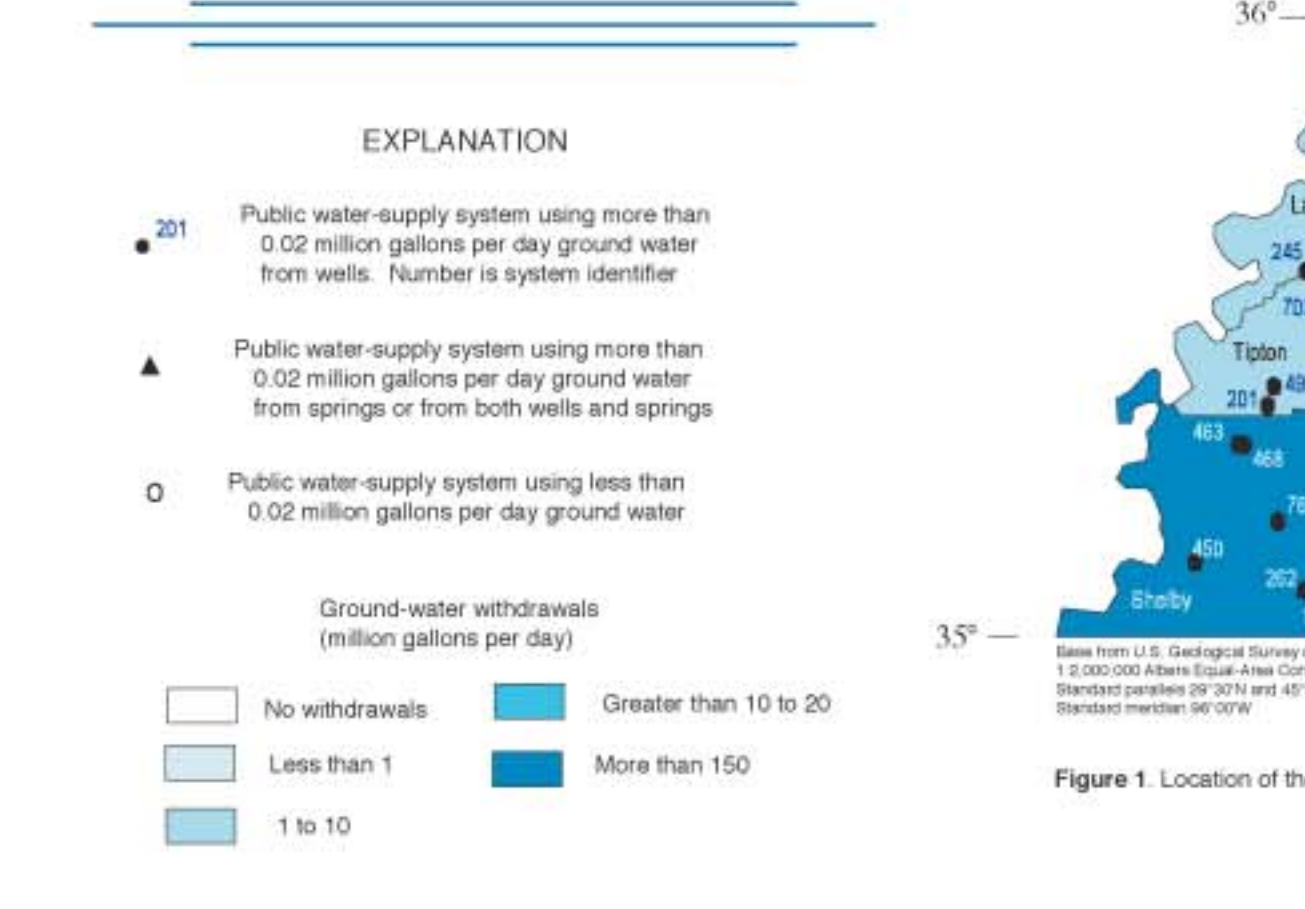


Figure 1. Location of the principal public water-supply systems in Tennessee that withdrew ground water, 2000.

Table 1. Public water-supply systems withdrawing at least 0.02 million gallons of ground water per day in Tennessee, 2000

Table with multiple columns: County, PWSID, Public water-supply system, Source, Principal aquifer, Annual average ground-water withdrawal (Mgal/d).

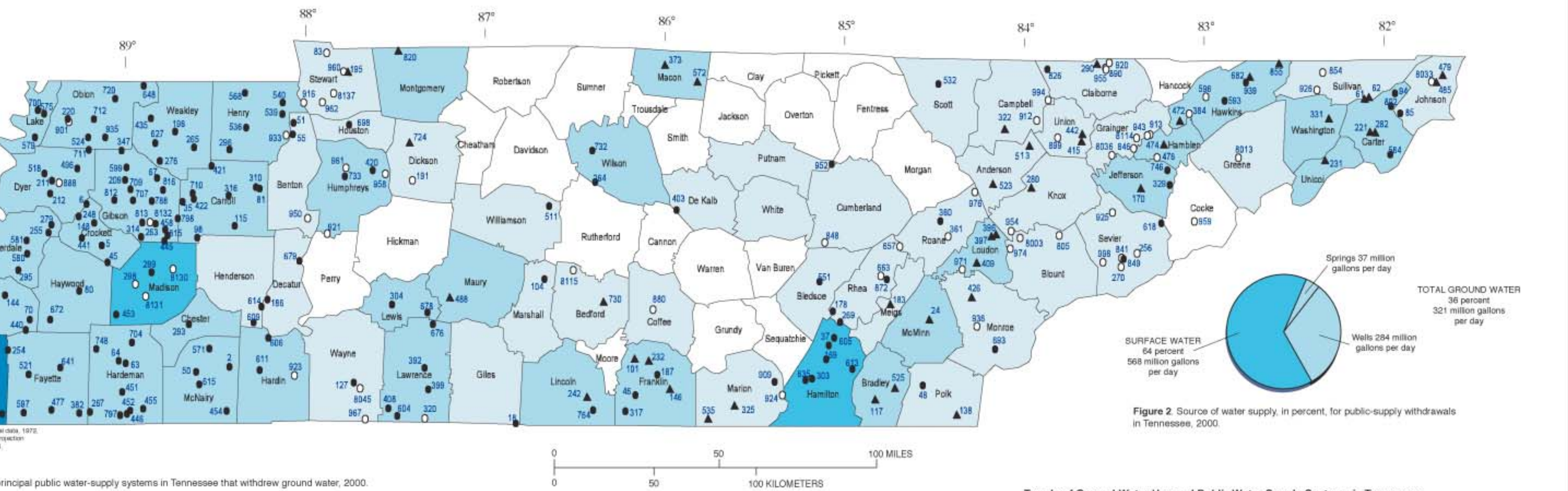


Figure 2. Source of water supply, in percent, for public-supply withdrawals in Tennessee, 2000.

Trends of Ground-Water Use and Public Water-Supply Systems in Tennessee The population of Tennessee increased from 3.29 million in 1950 to 5.68 million in 2000 (U.S. Census Bureau, 2002). In 1950, ground-water withdrawals for public water supply in Tennessee were 85 Mgal/d (MacKichan, 1957), and by 1980 withdrawals had reached 210 Mgal/d (fig. 5).

Table with multiple columns: County, PWSID, Public water-supply system, Source, Principal aquifer, Annual average ground-water withdrawal (Mgal/d).



Figure 5. Trends in public water-supply withdrawals by source of supply in Tennessee, 1950-2000.

Selected References

Bradley, M.W., and Holliday, E.F., 1985. Tennessee ground-water resources. In National Water Summary 1984--Hydrologic events, selected water-quality trends, and ground-water resources: U.S. Geological Survey Water-Supply Paper 2275, p. 391-396.

Conversion Factors and Datum table with columns: Multiply, By, To obtain.

For additional information write to: District Chief, U.S. Geological Survey, 840 Grassmere Park, Suite 100, Box 252268, Nashville, Tennessee 37211.