

Collection of Water Withdrawal Data by the U.S. Geological Survey in Arizona

The U.S. Geological Survey (USGS), in cooperation with the Arizona Department of Water Resources (ADWR), collects and compiles ground-water withdrawal data

for most areas in Arizona, and the USGS also compiles ground-water and surface-water withdrawal data in Arizona by county as part of a national program. The data are published in a series of reports and are used in various hydrologic studies throughout the State.

Ground-water withdrawal data represent the amount of water pumped out of the ground for various uses and have been published in annual reports since 1955. For the 1975 report, annual withdrawals for some areas were estimated for as far back as 1915. Annual reports from 1955 to 1969 were published by the Arizona State Land Department. The Arizona Water Commission (precursor of the ADWR) published annual reports from 1970 to 1974, and the USGS published the reports from 1975 to 1990. Estimates of the distribution of annual ground-water withdrawals in Arizona by use category were published only from 1975 to 1990. Withdrawals were estimated for irrigation, municipal, industrial, and livestock use, and for drainage of agricultural lands. Data for 1991 to 2000 are being compiled for publication. Ground-water withdrawals in Arizona from 1915 to 1990 are shown in figure 1 (Anning, 1994). The withdrawal data and periodic water-level measurements are used in diverse studies of Arizona's ground-water resources. Since 1939 the USGS and State of Arizona agencies have conducted joint studies to define the quantity, chemistry, and areal distribution of the resources and to monitor the effects of large-scale ground-water withdrawals.

Water in Arizona is dominated primarily by agriculture and secondarily by rapidly growing urban populations. The amount of water withdrawn, shown here, may not equal the amount of water used owing to water transfers or to the recirculation or recycling of water.

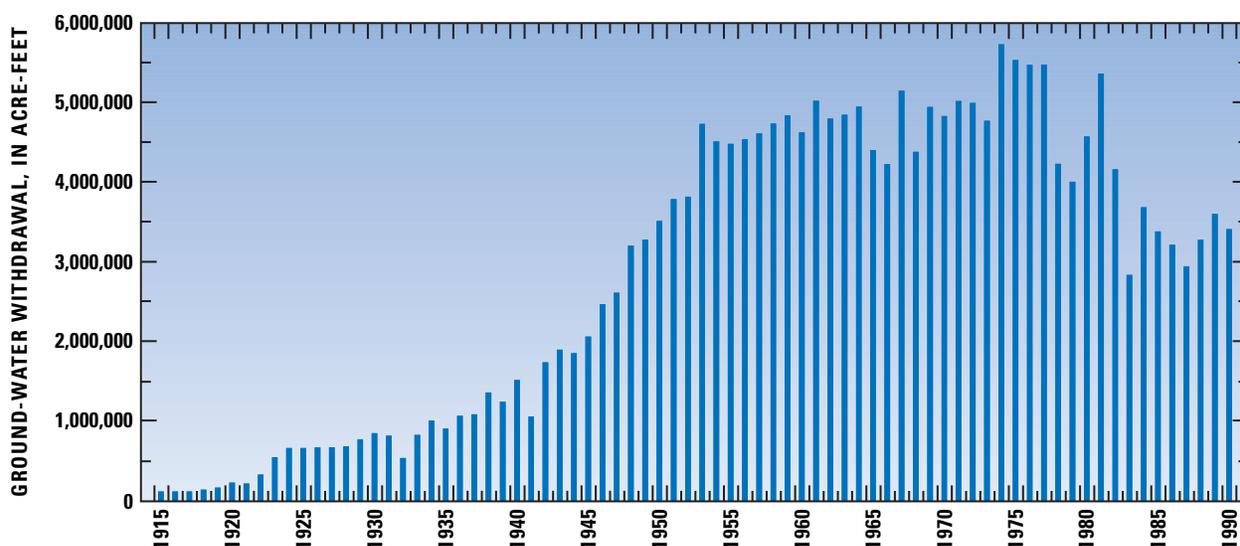


Figure 1. Estimated annual ground-water withdrawal in Arizona, 1915–2000

In addition to the cooperative program with the ADWR, the USGS has collected and compiled ground-water and surface-water withdrawal data, and estimated withdrawals from related data, for Arizona since 1950 and publishes the data every 5 years as part of a national water-use program. The primary use categories are irrigation, public supply, domestic, commercial, industrial, mining, and thermoelectric; however, withdrawal data for two or more categories were combined in some years and were published under separate categories in other years. Summaries of estimated withdrawals from 1950 to 2000 are available from the USGS Circular report series entitled "Estimated use of water in the United States." Total ground-water and surface-water withdrawals for irrigation in Arizona since 1950 are shown in figure 2.

For more information about the USGS water-use program in Arizona, please visit
<http://az.water.usgs.gov/projects/az007.html>, or contact Saeid Tadayon at (520) 670-6671 x254
or stadayon@usgs.gov

For more information about the USGS national water-use program in Arizona, please visit
<http://water.usgs.gov/watuse/>

For more information about general water-resource activities of the USGS in Arizona, please visit
<http://az.water.usgs.gov>, or contact the Arizona District Chief at (520) 670-6671 or
GS-W-AZ_Webmaster@usgs.gov

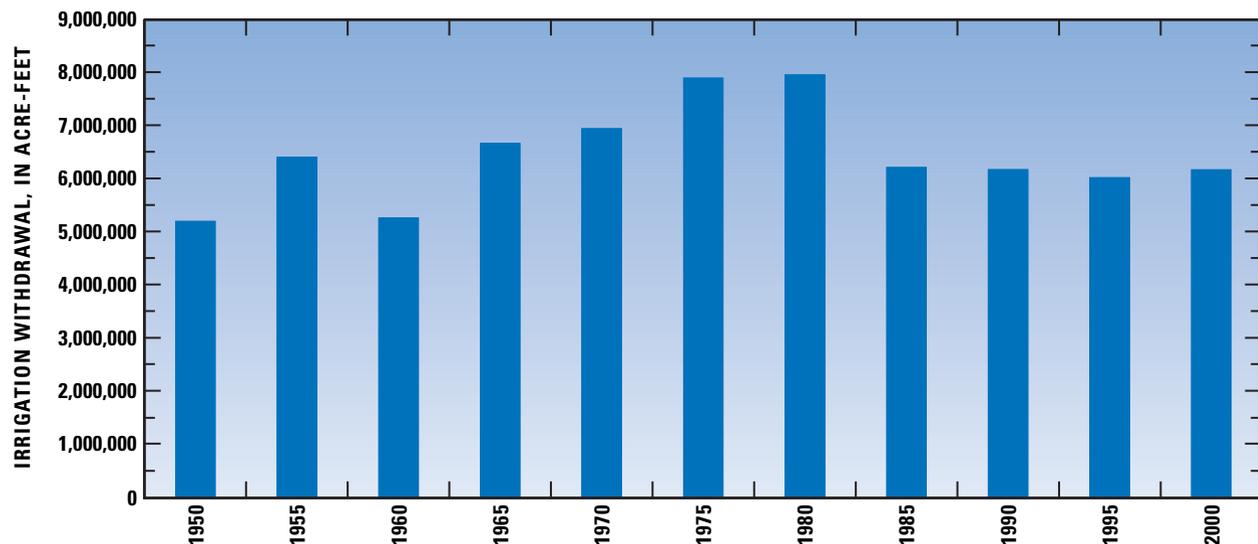


Figure 2. Estimated ground-water and surface-water withdrawals for irrigation in Arizona, 1950–2000

References

Anning, D.W., and Duet, N.R., 1994, Summary of ground-water conditions in Arizona, 1987-90: U.S. Geological Survey Open-File Report 94-476, 2 sheets.

Huston, S.S., Barber, N.L., Kenny, J.F., Linsey, K.S., Lumina, S.L., Maupin, M.A., 2004, Estimated use of water in the United States in 2000: U.S. Geological Survey Circular 1268, accessed April 8, 2004, at URL: <http://water.usgs.gov/pubs/circ/2004/circ1268/>.