

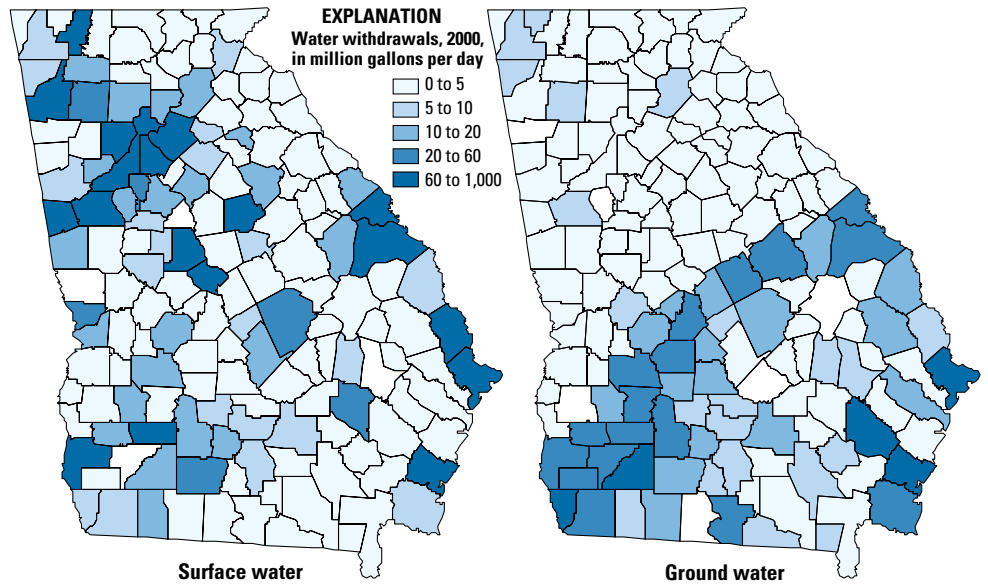
Georgia Water-Use Program, 2006

Georgia's Water Resources

Georgia possesses abundant water resources and has developed and used those resources extensively. Surface water is the principal source in northern Georgia; obtaining ground water from the underlying fractured crystalline rock in this area is difficult because of the complex geology of the area. In southern Georgia, ground water provides most of the freshwater supply.

Freshwater sources in Georgia have come under increasing demand with the growth of population and agriculture. Between 1980 and 2000, total water use in northern Georgia increased from 3,970 to 4,230 million gallons per day (Mgal/d), concurrent with the area's increasing population (Martin and others, 2005). During the same period, agricultural withdrawal, mostly in southern Georgia, increased from 580 to 1,090 Mgal/d.

The future health and economic welfare of the State is dependent on a continuing supply of fresh uncontaminated water. Many existing sources of water are being stressed by withdrawals to meet offstream needs along with increasing instreamflow requirements to meet



Georgia Water-Use Program—A cooperative program between the U.S. Geological Survey and Georgia Environmental Protection Division. The USGS compiles data for permitted and nonpermitted users in each of Georgia's 159 counties from a variety of sources and stores the data in a central database. Since 1980, data have been published every 5 years as part of a national compilation.

human and environmental needs. Recent drought has accentuated the need to balance water demand with available supply.

Water-Use Program

The Georgia Water-Use Program was initiated during 1979, as a cooperative effort between the U.S. Geological Survey (USGS) and the Georgia Environmental Protection Division (GaEPD). This ongoing program focuses on collecting, compiling, and disseminating water-use information for the State (Fanning, 2003). These data are stored in a central database, which is maintained by the USGS. Every 5 years, data are aggregated at the county, State, and national level and are published in State and national circulars. Goals of the Water-Use Program are to:

- Analyze the source, use, and disposition of water resources,
- Provide water-use information to scientists, water managers, and the public, and
- Document trends in water use.

Water-use data are obtained from GaEPD data files and a variety of Federal, State, and local sources. Data are derived from both permitted and nonpermitted users. Georgia law requires any city, industry, or other water user that withdraws more than 100,000 gallons per day (gal/d) to obtain a withdrawal permit and to report monthly withdrawals to the GaEPD each year (Fanning, 2003). Power-plant managers supply data for instream hydroelectric-power generation.

Water-use estimates for nonpermitted use are determined using other data sources and various estimation techniques. The Georgia Cooperative Extension Service provides irrigation estimates, which are compiled from a biennial irrigation survey of permitted irrigation users. Livestock and domestic estimates are calculated using animal-census data and an estimate of per-capita water use. The Georgia Soil and Water Conservation Commission is currently conducting a Statewide effort to equip permitted irrigation systems with water meters.



Public-supply water tank in Fulton County, Ga. Photograph by Alan M. Cressler, USGS.

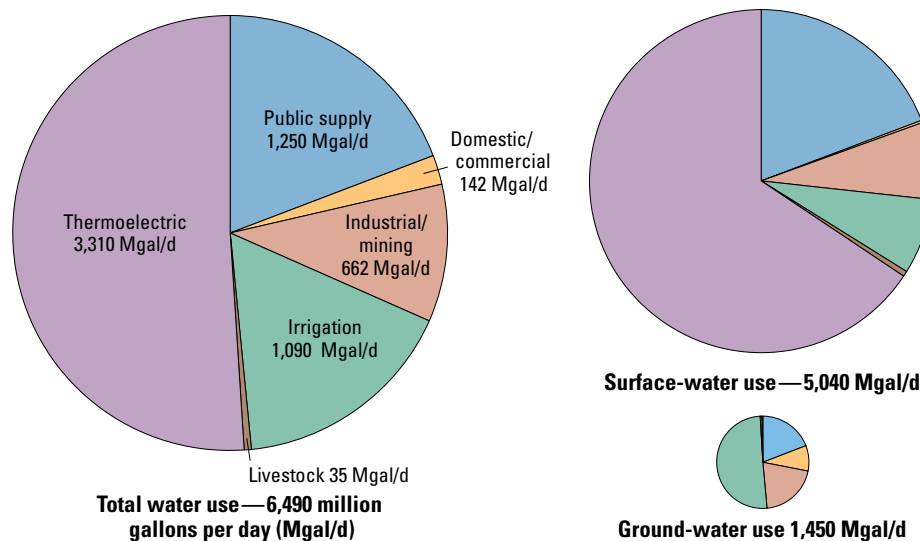
Water Use

Water managers have the problem of managing and providing adequate water supplies to their users (Fanning, 2003). By examining historical water-use patterns and current water-use practices, water managers can make more realistic projections of future water needs. Water-use data also are critical for the development of ground-water models that are used as a basis for many of the water-management decisions made by GaEPD.

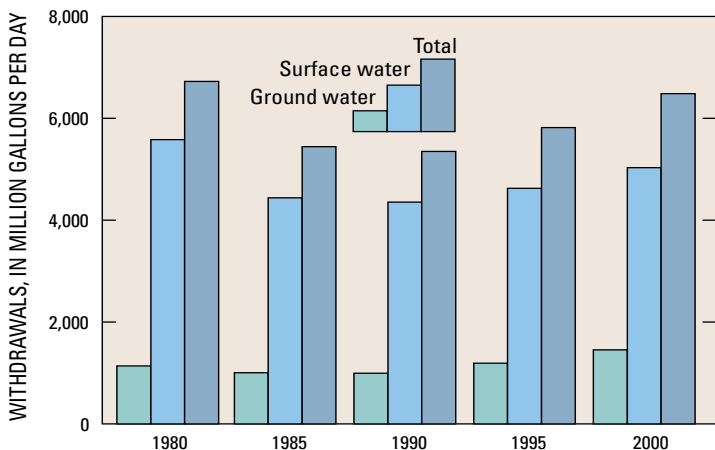
Water-use data are subdivided according to offstream and instream use. Offstream use is defined as water withdrawn or diverted from a ground- or surface-water

source, and transported to the place of use (Fanning, 2003). Offstream water-use categories include public supply, domestic, commercial, industrial, mining, irrigation, livestock, and thermoelectric power. Instream use occurs within a stream channel for such purposes as hydroelectric-power generation, navigation, water-quality improvement, fish propagation, and recreation. In Georgia, the only instream use for which data are compiled is hydroelectric-power generation.

Since 1980, the Georgia Water-Use Program has compiled and published, at 5-year intervals, water-use estimates for Georgia.



Water use in Georgia during 2000. Surface water provides most of the total withdrawal in the State, with most of these withdrawals occurring in northern Georgia (Fanning, 2003).



Water-use trends in Georgia, 1980-2000. By examining historical water-use patterns and current water-use practices, water managers can make more realistic projections of future water needs in the State.

Outlook

The Georgia Water-Use Program is operated by the USGS and funded through the Cooperative Water Program—a joint funding mechanism between the USGS and GaEPD. Funding for this program is renewable on an annual basis and, thus, is subject to economic conditions and changes in Federal and State appropriations. Stable funding sources are essential to ensure continuity of data collection.

As Georgia's population grows and water resources are increasingly used, continued monitoring of water use in the State will enable proper management of water resources. Potential enhancements to the Georgia Water-Use Program for the reporting and estimation of water use in Georgia include:

- Development of an Internet-based system capable of online interactive updating and reporting of water withdrawal by permitted users, and
- Incorporation of irrigation water-meter data into the USGS database.

References Cited

- Fanning, J.L., 2003, Water Use in Georgia by county for 2000 and water-use trends for 1980–2000: Georgia Geologic Survey Information Circular 106, 176 p.
- Martin, E.H., Clarke, J.S., and McCallum, B.E., 2005, U.S. Geological Science Plan for Georgia, 2005: U.S. Geological Survey Open-File Report 2005-1074, 31 p.

For more information on the Georgia Water-Use Program

Visit the USGS Georgia Water Science Center Web site at <http://ga.water.usgs.gov/> or contact the Director, USGS Georgia Water Science Center 3039 Amwiler Road Peachtree Business Center, Suite 130 Atlanta, Georgia 30360-2824 Phone: 770-903-9100

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