# BENEFITS OF LONG-TERM WATER-QUALITY MONITORING IN GEORGIA

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**Abstract.** Since 1972, the Georgia Water Science Center of the U.S. Geological Survey (USGS) has partnered with the Georgia Department of Natural Resources Environmental Protection Division (GAEPD) to provide a suite of surface-water-quality data necessary for watershed assessment and planning. The network provides readily available water-quality data to water-resource managers and the public for determining water-quality effects and trends resulting from watershed development and water-resources use. In addition, water-quality monitoring helps in determining sources of watershed impairments, and in planning for future uses of Georgia's water resources.

For nearly 40 years, data have been collected and maintained by the USGS for 838 stations located across the 14 major river basins of Georgia making it one of the larger statewide water-quality datasets maintained by the USGS. Each of these 838 stations has varying periods of record; however, 49 are long-term-trends monitoring stations, some of which have an uninterrupted period of record beginning in 1968 through the present (2011). Long-term water-quality data collection, laboratory analysis, and data archiving by the USGS provides GAEPD and the public data that are collected using consistent field and laboratory methodologies with documented quality control and quality assurance. All network data are archived in a publically accessible, Web-based, USGS database called the National Water Information System.

Each station in the network has been monitored under a wide range of hydrologic conditions for a broad range of constituents, including dissolved oxygen, fecal coliform, nutrients, and metals. These data are used to characterize water quality within each of Georgia's 11 Water Planning Regions and along political boundaries between Georgia and neighboring States. Data are used as input for watershed models to characterize water quality for regulatory programs.

Data from the network also serve GAEPD in meeting responsibilities under the Clean Water Act, including, (1) identifying the beneficial uses of surface waters within the State, (2) establishing water-quality standards to maintain the full beneficial uses of those waters, and (3) identifying water bodies where stream standards are not met and beneficial uses are impaired. On the basis of data provided by the network, surface-water bodies that do not have adequate water quality to support designated uses have been identified and listed in Section 305(b)/Section 303(d) reports submitted to U.S. Environmental Protection Agency. Continued water-quality data collection is needed to assess whether water-quality impairments still exist for these waters in order to support the 303(d) listing process and the 305(b) reporting process.



Figure 1. The current 49 long-term-trends monitoring and lake-standards inflow stations for the USGS–GAEPD water-quality monitoring program.
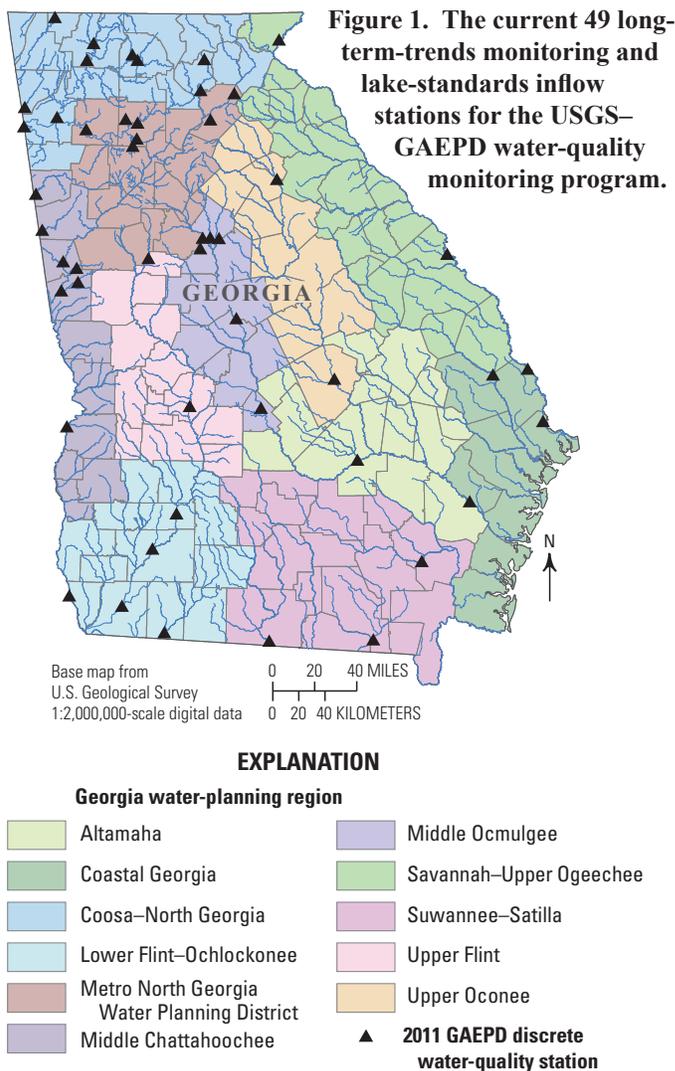
Water-quality data from the network are also needed to develop total maximum daily loads (TMDLs) to establish the maximum amount (mass) of a water-quality constituent that a stream can carry and still meet State and Federal water-quality standards. Data provide a basis to evaluate the effectiveness of the State Water Plan.

The current water-quality monitoring program consists of 49 statewide long-term-trends monitoring and lake-standards inflow stations and three continuous water-quality monitoring stations. Water-quality data for Georgia streams are available on a publically accessible Web site at *http://waterdata.usgs.gov/ga/nwis/qw/*.