

# **EASTERN GEORGIA, SOUTH CAROLINA, AND SOUTHERN NORTH CAROLINA ATLANTIC COASTAL PLAIN GROUNDWATER AVAILABILITY MODEL**

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The Atlantic Coastal Plain aquifers and confining units of South Carolina are composed of crystalline carbonate rocks, sand, clay, silt, and gravel and contain large volumes of high-quality groundwater. The aquifers have a long history of use dating back to the earliest days of European settlement in the late 1600s. Although extensive areas of some of the aquifers have or currently (2016) are experiencing groundwater level declines from large-scale, concentrated pumping centers, large areas of the South Carolina (SC) Atlantic Coastal Plain contain substantial quantities of high-quality groundwater that currently are unused. Groundwater use from the Atlantic Coastal Plain aquifers in South Carolina has increased during the past 70 years as the population has increased along with demands for municipal, industrial, and agricultural water needs. While South Carolina works to increase development of water supplies in response to the rapid population growth, the State is facing a number of unanswered questions regarding availability of groundwater supplies and the best methods to manage these important supplies. Overall, groundwater use in the SC Coastal Plain from 2004-2013 has increased slightly from about 202 million gallons per day (Mgal/d) in 2004 to an average of 209 Mgal/d from 2005 to 2013. There has been a significant increase in irrigated agriculture in SC, with much of this new water demand met by groundwater use. In SC this trend is likely to continue. Potential adverse effects of the continued increase in groundwater withdrawals include groundwater level declines and reduced baseflow to streams and other surface-water bodies. The SC Agriculture Commission is actively recruiting industrial-scale farms to locate in the Coastal Plain counties of SC. These new farms will most likely use groundwater for their primary source of irrigation water and are likely to be clustered in areas with suitable soils, transportation, and labor. The South Carolina Water Plan, 2nd Edition states: "A comprehensive groundwater flow model of the Coastal Plain should be developed and used to predict the effects of future pumping and to determine optimal well spacing's". The update to the existing SC Coastal Plain groundwater-flow model will provide the model described in the SC Water Plan. An updated groundwater flow model of the South Carolina Coastal Plain will benefit the State by providing a tool that can be used by water-resource managers to estimate current available water resources and to assess the effects of future water-use development and climate variability on available water resources. The USGS is working cooperatively with the SC Department of Natural Resources, SC Department of Health and Environmental Control, and SC Department of Agriculture to develop an updated groundwater-flow model of the South Carolina Coastal Plain.

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