

Monitoring Saltwater Contamination in the Upper Floridian Aquifer, Brunswick GA

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Abstract. Saltwater intrusion in Brunswick, GA has impacted the Upper Floridian aquifer (UFA) in an approximately 2-square mile area limiting future groundwater use. Since the late-1950's the U.S. Geological Survey (USGS) in cooperation with local government has performed annual sampling of wells in and near the affected area. Previous studies and sampling results indicate saltwater has migrated upward from deep saline zones in the Fernandina permeable zone of the Lower Floridian aquifer. This migration occurs through breaches in confining units as a result of groundwater pumping that has reduced hydraulic head in water-bearing zones of the UFA. During 2014, 52 wells were sampled for chloride in the Brunswick/Glynn County area. Data from 31 of those wells was used to construct a map delineating the chloride plume in the UFA near downtown Brunswick. Currently, the USGS South Atlantic Water Science Center, in cooperation the Georgia Department of Natural Resources, Environmental Protection Division and the Brunswick-Glynn County Joint Water and Sewer Commission continuously monitor specific conductance in 5 wells equipped with satellite telemetry. Data are recorded and transmitted hourly and are available at <http://ga.water.usgs.gov/projects/intrusion/brunswick.html>. The specific conductance is used as a surrogate for chloride concentrations. The continuous data collected from the Brunswick Villa well (34H134) indicates a steady rise in specific conductance from near 500 microsiemens per centimeter at 25 degrees Celsius during late-2009 to values above 700 by the end of 2014.