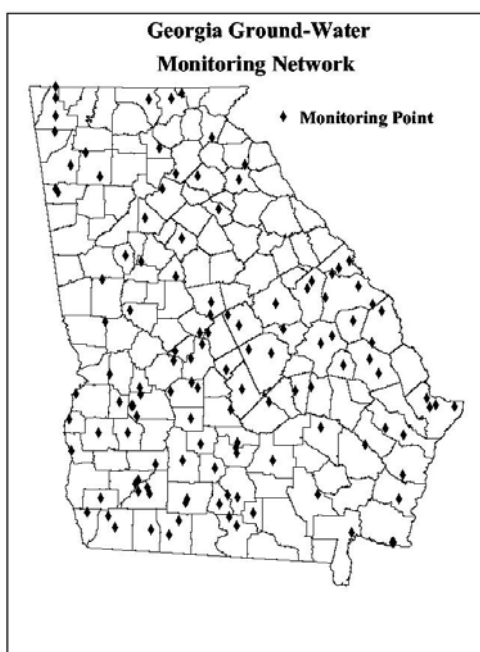


GEORGIA GROUND WATER CONDITIONS

Importance of Ground Water:

Ground Water provides drinking water to about one third of Georgia's eight million citizens. In 2000, ground water made up about 91 percent of the domestic/commercial water use, 22 percent of the public supply water use,



67 percent of the irrigation water use and 82 percent of the industrial/mining water use.

Availability and Use:

The three rock types - igneous, metamorphic and sedimentary - compose the geologic framework for the ground-water aquifers in Georgia. Ambient ground-water quality, as well as the quantity available for use, is related to the composition and character of the aquifers. Over the long term, the quality of ground water in major aquifers is monitored by chemical analysis of samples collected periodically from a statewide network of monitoring wells.

The basic mechanism that Georgia uses to manage its ground-water resources is EPD's environmental permit

system, enforcement capabilities, educational activities, local ordinances to comply with recharge area protection criteria (rules) promulgated under the Georgia Planning Act, wellhead protection and vulnerability assessments, licensing water well contractors and registering ground-water professionals. The total ground-water use in 2000 in Georgia was approximately 1.4 billion gallons per day, as follows: public supply (278 MGD), domestic and commercial (129 MGD), industry/mining (297 MGD), irrigation (732 MGD) and livestock (9 MGD).

Two major demand factors have been Georgia's population growth (over 26 percent growth through the 1990s) and a drought that began in 1998 and continued through 2002. A few municipalities and many residential well users had to deepen their wells during the drought. Statewide outdoor water bans were implemented to conserve water. To reduce permitted water withdrawals for agricultural irrigation, Georgia conducted an auction procedure in 2001 and 2002 that compensated agricultural users for volunteering to not irrigate.

Ground Water Protection: Georgia's Ground Water Management Plan has been reviewed and accepted by EPA as a Comprehensive State Ground Water Protection Plan. The Plan is being implemented through a policy of anti-degradation, with three principal elements: protection of ground-water quality, management of ground-water quantity, and monitoring of ground-water quality and quantity.

The Georgia Ground-Water Management Plan places emphasis on management activities to prevent pollution, establish priorities, protect aquifers, insure consistency, and coordinate the administrative functions within the Environmental Protection Division.

Major Ground Water Initiatives

On April 23, 1997, EPD issued its **"Interim Strategy for Managing Salt Water Intrusion in the Upper Floridan Aquifer of Southeast Georgia"**. The Interim Strategy, which applies to 24 coastal counties of Georgia and adjacent parts of South Carolina and Florida, specifically calls for EPD to: conduct expanded scientific and feasibility studies to determine with a high degree of certainty how to permanently stop the salt water intrusion moving towards Hilton Head Island, South Carolina and how to prevent the existing salt water intrusion at Brunswick, Georgia from worsening. The time for the Interim Strategy is from April 23, 1997 through December 21, 2005, when EPD will begin implementing its Final Strategy.

Issues relating to ground water pumpage from the Upper Floridan for irrigation needs in southwest GA and the quantities of flow in the Apalachicola River in Florida have emerged as critical in the negotiations for a water allocation agreement for the Apalachicola/Chattahoochee/Flint (ACF) Interstate Compact formed by Georgia, Florida and Alabama. The allocation agreement has yet to be determined. Modeling by the USGS and related studies are underway by State and Federal agencies. Both Florida and Georgia are using the information in support of proposals for water allocation formulas.

Other Ground Water Challenges

Karst areas, characterized by sinkholes, caves and cavitated limestone bedrock, occur in the northwestern and southwestern parts of Georgia. The shallow aquifer beneath these areas yields high capacity wells and springs, and is susceptible to rapid infiltration of potential pollutants from the ground surface. Occasionally, large plumes of polluted ground water can occur; one such plume of nitrate has been identified in southwestern Georgia as originating primarily from a confined animal feeding operation (CAFO) located within a karst area.

Radioactive minerals occur naturally in all three-rock types in Georgia and occasionally cause elevated radon gas concentrations and exceedances of radium in ground water. In the Coastal Plain and Valley and Ridge portions of the State, the radioactive minerals are found primarily within discrete layers and can be avoided by sealing well bores through such layers with grout. In the Piedmont and Blue Ridge areas, the radioactive minerals typically occur within scattered individual mineral particles within the bedrock and are more difficult to avoid or isolate in a well bore.

Releases of petroleum products can threaten all aquifers. Georgia's Underground Storage Tank (UST) Program addresses most releases with a trust fund established for USTs. Releases from pipelines and above ground storage tanks are addressed with funding as available from non-UST programs. Localized releases of volatile organic compounds, including dry-cleaning fluids, have impacted nearby public water supply wells at scattered locations.

Non-point source releases from agricultural operations are being evaluated statewide by a multi-year project to sample and test as many as 5000 domestic wells for the four major pesticides used in Georgia. A total of 2,054 wells were sampled and analyzed by the end of 2002 and showed minor impact; 99.3 percent of the wells had no pesticide detections.

In 2002, the Georgia EPD completed a multiple-year project of preparing a Wellhead Protection Plan for each of Georgia's 484 cities, counties and authorities that rely on ground water aquifers for supplying water to the public. The plans included 1586 wells and springs serving a population of 2.5 million people. The Plans will be updated as system permits are reissued. The U. S. EPA recognizes the Wellhead Protection Plans as Source Water Assessment Plans.