

City of Albany area

The Upper Floridan aquifer is shallow in southwest Georgia where agricultural land use is prevalent, making the ground water susceptible to contamination from nitrates and other chemicals. Monitoring may serve as an early warning sign of potential contamination of water supplies. Nitrate levels greater than 10 milligrams per liter (mg/L) (the maximum contaminant level for nitrate set by the U.S. Environmental Protection Agency, 2000) have been detected in the area.

Samples were collected during November 13–16, 2001, from 11 wells southwest of Albany and analyzed for nitrate concentrations. Of those samples, one had a concentration greater than 10 mg/L, seven had concentrations ranging between 3 and 10, and three had concentrations less than 3 mg/L (map, facing page).

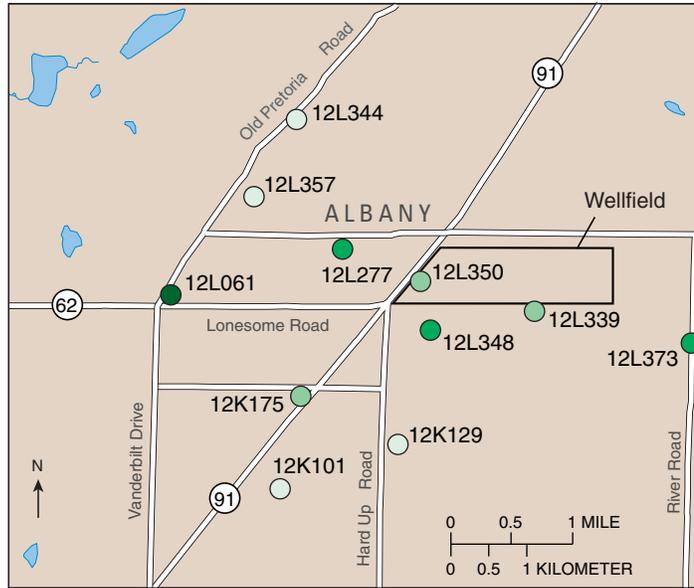
Since 1998, samples from four of the wells have shown an increase in nitrate concentration, samples from two of the wells have remained about the same, and samples from three of the wells have shown a decrease in nitrate concentration (table, facing page).

References Cited

- Hippe, D.J., Wangness, D.J., Frick, E.A., and Garrett, J.W., 1994, Water quality of the Apalachicola–Chattahoochee–Flint and Ocmulgee River Basins related to flooding from Tropical Storm Alberto; Pesticides in urban and agricultural watersheds; and nitrate and pesticides in ground water, Georgia, Alabama, and Florida: U.S. Geological Survey Water-Resources Investigations Report 94-4183, 36 p.
- U.S. Environmental Protection Agency, 2000, Maximum contaminant levels (Part 143, National Secondary Drinking Water Regulations): U.S. Code of Federal Regulations, Title 40, Parts 100–149, revised as of July 1, 2000, p. 612–614.



The USGS collects ground-water samples for nitrate analysis on an annual basis in the Albany area. The upper photo shows calibration of a flow-through chamber with multiple electrodes (Hydrolab II™) in preparation for sampling. The lower photo shows sample collection. Photos by Debbie Warner, USGS.



EXPLANATION

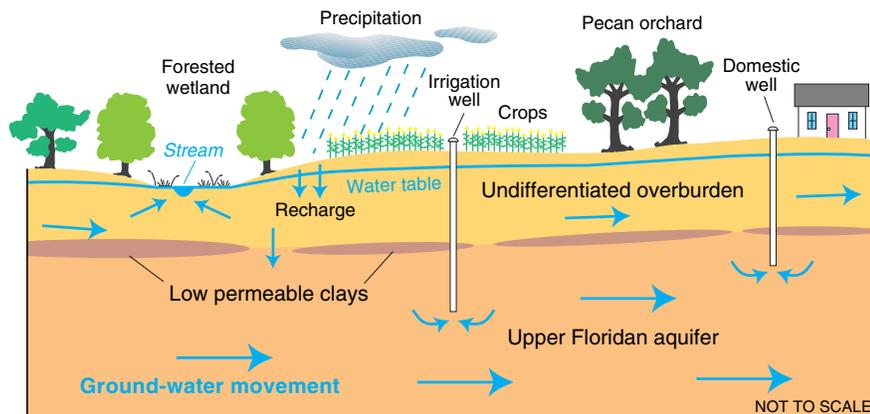
Well and NO_3 as N concentration, in mg/L, November 2001

- Less than 4
- 4.0 to 6.0
- 6.0 to 10
- Greater than 10

Base from U.S. Geological Survey 1:100,000-scale digital data

Site name	September 1998 NO_3 -N, in mg/L	April 1999 NO_3 -N, in mg/L	April 2001 $NO_2 + NO_3$ as N, in mg/L	November 2001 Dissolved NO_2+NO_3 as N, in mg/L
12K101	1.8	1.9	—	2.2
12K129	—	—	—	3.1
12K175	3.8	5.7	5.0	5.9
12L061	11	12	12	12
12L277	7.5	6.9	6.5	8.0
12L339	5.9	5.4	—	5.0
12L344	6.0	5.1	2.7	1.6
12L348	—	6.5	6.4	7.1
12L350	3.0	2.9	—	4.8
12L357	5.9	3.1	—	2.0
12L373	—	—	—	7.2

NO_3 -N, nitrate as nitrogen; $NO_2 + NO_3$ as N, nitrite plus nitrate as nitrogen; mg/L, milligrams per liter; —, no data



This schematic diagram shows the ground-water flow system in the Upper Floridan aquifer, Albany area, Georgia. Water from the land surface enters the undifferentiated overburden through recharge areas. Water may then travel into the Upper Floridan aquifer through breaks in the low-permeability clays (modified from Hippe and others, 1994).