

**Assessment of Surficial and Brunswick Aquifer Systems, Coastal Georgia**

Study Chief     Sherlyn Priest  
 Cooperators    Georgia Department of Natural Resources  
                     Environmental Protection Division  
                     Camden County  
                     Glynn County  
                     Liberty County Development Authority  
                     McIntosh County  
                     City of Ludowici  
 Year Started    2002

**Problem**

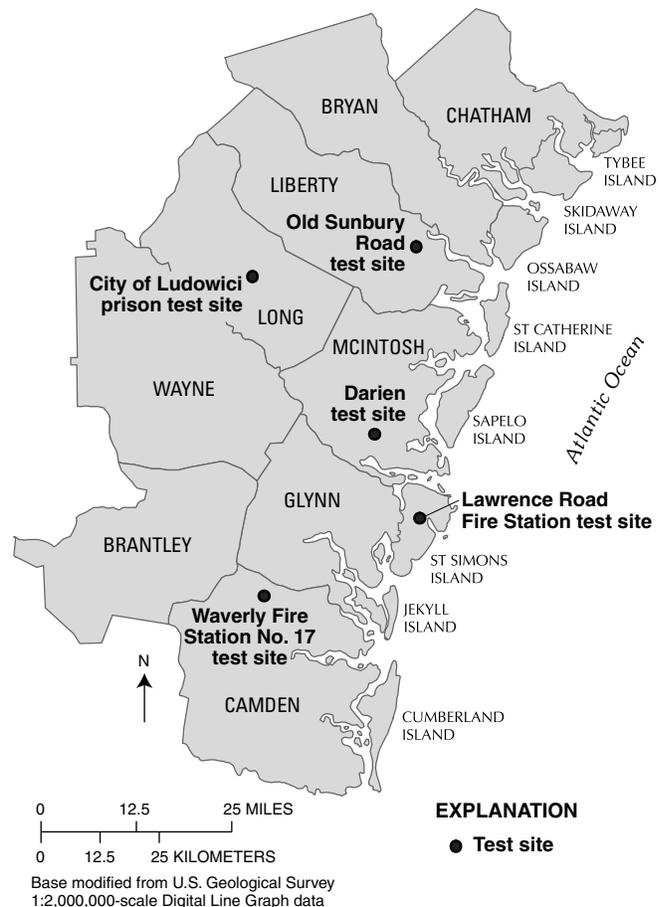
The Upper Floridan aquifer is the primary source of water in the coastal area of Georgia. Declining water levels and localized occurrences of saltwater contamination in the Upper Floridan aquifer have resulted in the Georgia Environmental Protection Division capping permitted withdrawals at 1997 rates from the Upper Floridan aquifer in parts of the coastal area. These restrictions have prompted interest in developing supplemental sources of ground water, including the surficial and Brunswick aquifer systems. The surficial aquifer system includes the water table and semiconfined zones; the Brunswick aquifer system includes the upper and lower Brunswick aquifers (Clarke, 2003).

**Objectives**

- Characterize the geologic and water-bearing properties of the surficial and Brunswick aquifer systems.
- Characterize the water quality of the surficial and Brunswick aquifer systems.
- Develop monitoring network for management of the surficial and Brunswick aquifer systems.

**Progress and Significant Results, 2002–03**

- *Old Sunbury Road site, Liberty County.* Completed six test wells, conducted a 24-hour aquifer test in the semiconfined zone of the surficial aquifer and a 48-hour aquifer test in the lower Brunswick aquifer.
- *City of Ludowici Prison site, Long County.* Completed two test wells and completed 24-hour aquifer tests in wells completed in the semiconfined zone of the surficial aquifer and in the upper and lower Brunswick aquifers, combined.
- *Waverly Fire Station No. 17 site, Camden County.* Completed three test wells and completed 24-hour aquifer tests in wells completed in the semiconfined zone of the surficial aquifer and the upper Brunswick aquifer.
- *Lawrence Road Fire Station site, St. Simons, Glynn County.* Completed wells in the semiconfined zone of the surficial aquifer and in the lower Brunswick aquifer.

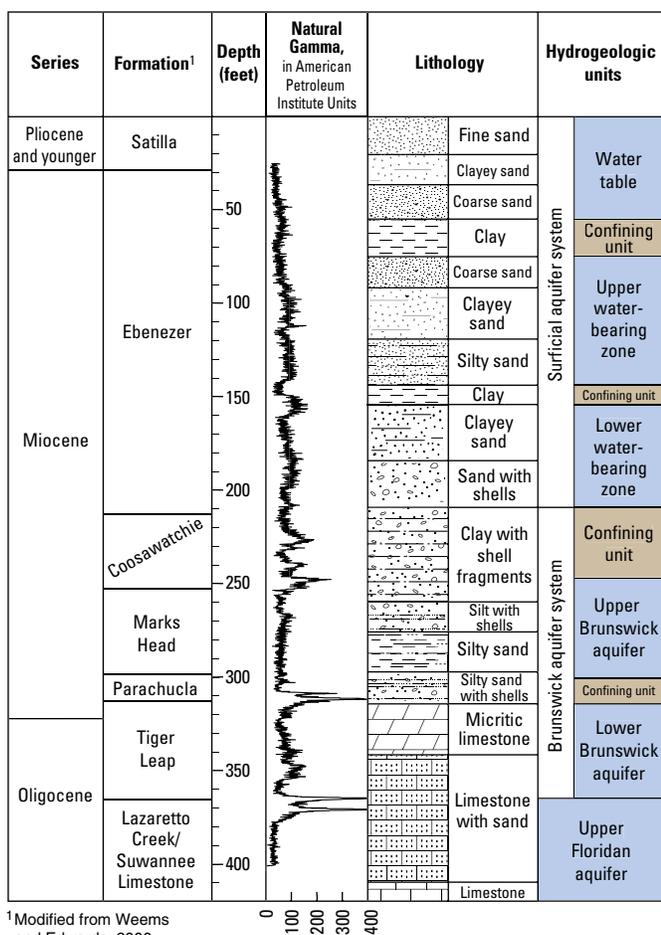


*Location of test sites in coastal Georgia.*

- *Darien site, McIntosh County.* Completed test wells in the surficial aquifer, semiconfined zone of the surficial aquifer, and lower Brunswick aquifer.

**References Cited**

- Clarke, J.S., 2003, The surficial and Brunswick aquifer systems-alternative ground-water resources for Coastal Georgia, in Proceedings of the 2003 Georgia Water Resources Conference held April 23–23, 2003, at The University of Georgia, Kathryn J. Hatcher, ed, Institute of Ecology, The University of Georgia, Athens, Georgia, CD-ROM.
- Weems, R.E., and Edwards, L.E., 2000, Geology of Oligocene, Miocene, and younger deposits in the coastal area of Georgia: Georgia Geologic Survey Bulletin 131, 124 p.



<sup>1</sup> Modified from Weems and Edwards, 2000

Generalized lithologic, geologic, and hydro-logic descriptions of the surficial and Brunswick aquifer systems at the Old Sunbury Road test site, Liberty County, Georgia (at left).



A USGS hydrologist and drilling contractor taking water-level measurements during aquifer test of the lower Brunswick aquifer at Old Sunbury Road, Liberty County, Georgia, January 2002. The test is being conducted to better define the hydraulic properties of the surficial and Brunswick aquifer systems and to determine the usefulness of these aquifers as secondary sources of ground water. Photo by Sherlyn Priest, USGS.

Location and construction data for wells used in the study (gal/min/ft, gallons per minute per feet; —, no data; do., ditto).

Site name	Other identifier <sup>1</sup>	Water-bearing unit <sup>2</sup>	Altitude <sup>3</sup> (feet)			Casing diameter (inches)	Test dates during 2003	Draw-down (feet)	Yield (gal/min)	Specific capacity (gal/min/ft)
			Land surface	Top of screen or open interval	Bottom of screen or open interval					
<b>Liberty County</b>										
35N076	Old Sunbury Rd OW-4	WT	10	-5	-8	2	—	—	—	—
35N075	Old Sunbury Rd OW-3	CU	10	-42	-43	4	—	—	—	—
35N072	Old Sunbury Rd PW-2	SS	10	-50	-140	6	February 5–7	29	40	1.38
35N074	Old Sunbury Rd OW-2	SS	10	-50	-55	4	—	—	—	—
35N071	Old Sunbury Rd PW-1	LB	10	-305	-355	6	January 14–17	50	78.5	1.57
35N073	Old Sunbury Rd OW-1	LB	10	-307	-312	4	—	—	—	—
<b>Camden County</b>										
32G046	Waverly Fire Station	LB	20	-340	-425	6	—	—	—	—
32G047	Waverly Fire Station PW-1	UB	20	-230	-270	6	October 9–11	98	12	0.12
32G048	Waverly Fire Station PW-2	SS	20	-80	-170	6	December 9–11	31	47.5	1.53
<b>Long County</b>										
32M017	City of Ludowici Prison #1	UB	65	-165	-205	10	July 8–10	59	600	10.2
do.	do.	LB	do.	-275	-355	10	do.	do.	do.	do.
32M018	City of Ludowici Prison #2	SS	65	-60	-140	10	July 29–30	7.5	825	110
<b>McIntosh County</b>										
34K102	Darien #1	S	30	10	-10	6	—	—	—	—
34K103	Darien #2	SS	30	-130	-230	6	—	—	—	—
34K104	Darien #3	LB	30	-458	-548	6	—	—	—	—
<b>Glynn County</b>										
35H075	Lawrence Rd Fire Station #1	LB	20	-425	-505	6	—	—	—	—
35H076	Lawrence Rd Fire Station #2	SS	20	-90	-150	6	—	—	—	—

<sup>1</sup> OW, observation well; PW, pumping well

<sup>2</sup> CU, confining unit; LB, lower Brunswick aquifer; S, surficial aquifer; SS, semiconfined surficial aquifer; UB, upper Brunswick aquifer; WT, water table

<sup>3</sup> Negative value denotes below NAVD 88