WATER RESOURCES DATA FOR SOUTH CAROLINA 2000 – 2001

By

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STATE OF SOUTH CAROLINA

DEPARTMENT OF NATURAL RESOURCES

LAND, WATER AND
CONSERVATION DIVISION
WATER RESOURCES REPORT 31

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State of South Carolina

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ABSTRACT

Ground-water levels observed in 2000 and 2001 reflect a drought that began in June 1998 and continued through 2002. Seasonal water-level fluctuations typically were superimposed upon a 2-year decline of 2 to 3 feet in most of South Carolina, and, at many observation wells, the lowest water levels for the period of record were observed during 2001.

The greatest declines were seen near outcrop areas and near areas of ground-water use. Declines exceeded 3 ft in 6 of 11 Middendorf aquifer-system wells, mainly near the system's outcrop area between Lexington and Dillon Counties. About 3 ft of decline occurred at Hilton Head Island after the area's first Middendorf production well went on line. Declines of 1.4 to 4 ft were measured in the Black Creek aquifer system wells, with the greatest changes observed in Allendale County. Water-level declines in the Tertiary-sand and Floridan aquifer systems averaged 2.7 ft, with 3- to 7-ft declines observed in Allendale and Berkeley Counties and with declines generally less than 2.5 ft in the lower Coastal Plain. Crystalline-rock aquifers in the Piedmont and Blue Ridge provinces showed 2- to 3-ft declines, except where influenced by surface-water levels.

Deep aquifers, where not subject to pumping interference, were little affected by drought. Crystalline-rock aquifer system well CTF-81, at Cheraw State Park, declined about 1 ft—roughly equal to its seasonal water-level range. Cape Fear system wells near Allendale and at Calabash, N.C., declined less than 0.5 ft. Levels observed in the lower part of the Middendorf declined about 1.5 ft at Jackson, in Aiken County, and less than 1 ft at Calabash, N.C.

Floridan aquifer well BFT-101, at Hilton Head Island, recovered 1 ft as withdrawals from the aquifer there were supplemented, in part, by water from the Savannah River, the Middendorf aquifer system, and effluent reuse. A recovery to near predrought levels, Statewide, is likely to require several years of normal rainfall.

INTRODUCTION

The South Carolina Department of Natural Resources (DNR) gathers ground-water level, stream-stage, water-quality, and climate data for water-resources assessment and management. These data are used to identify long-term changes in ground-water levels and storage; to correlate climate conditions, streamflows, and ground-water levels; and to determine relationships between saltwater intrusion and water levels or stream stage. Ground-water data are collected through a network of DNR-maintained water-level and specific-conductance observation sites and through U.S. Geological Survey (USGS) maintained sites that are cooperatively funded by DNR or other agencies. Most stream-stage monitoring is carried out by the USGS with cooperative funding. DNR also operates several stream- and climate-monitoring sites in support of education programs and for departmental research projects.

The base DNR network includes 56 wells measured hourly or bimonthly to provide data for annual hydrographs. An additional 600 wells are measured at 5-year intervals for construction of potentiometric maps of the three principal aquifer systems in South Carolina's Coastal Plain. Two well sites are equipped with fluid-conductivity sensors for long-term saltwater intrusion monitoring. Three stations on the North Santee and South Santee Rivers monitor stage and seawater intrusion. Most monitoring stations have been installed since 1999, although a number of stations have been in operation since 1995.

PURPOSE AND SCOPE OF REPORT

This report is the first in an annual series of water-data summaries prepared by the Land, Water and Conservation Division of the DNR. It is complementary to DNR's potentiometric-map series for the principal aquifer systems of the South Carolina Coastal Plain. It is supplementary to the Water-Data Report series published annually by the USGS and partially funded by DNR.

Selected ground-water level and water-quality data are presented for calendar years 2000 and 2001. Ground-water hydrographs have been constructed from average daily recorded water levels and periodic manual measurements of 56 Piedmont and Coastal Plain wells. Hydrographs and specific-conductance graphs are included for two Floridan aquifer system wells at Edisto Island. Specific-conductance graphs also are presented for miles 6.7 and 7.9 on the South Santee River and mile 3.6 on the North Santee River.

Ground-water data are organized by physiographic province, by aquifer system (in ascending order), and by county well number (in alphanumeric order). The hydrogeologic-unit designations used in the report are the crystalline-rock, Cape Fear, Middendorf, Black Creek, Tertiary-sand, Floridan, and shallow aquifer systems. The nature and distribution of each aquifer system are discussed with their respective data sets. Aquifer-system delineations for the Coastal Plain province are based on the hydrogeologic framework of Aucott and others (1987); fractured-rock aquifers of the Blue Ridge province, the Piedmont province, and Coastal Plain province at the Fall Line are designated as the crystalline-rock aquifer system; and the water-yielding saprolite and alluvium of the Piedmont and the unconsolidated water-table aquifers of the Coastal Plain are designated as units of the shallow aquifer system. Figure 1 shows the distribution of surface-water and ground-water monitoring stations. Table 1 cross-references DNR observation sites by county and includes county well numbers, DNR grid numbers, and aquifer-system names. Surface-water observations of the Santee River delta follow the ground-water data section.

PREVIOUS WATER-DATA REPORTS

The USGS has published water-resources data for South Carolina since 1940 (Table 2). Data between 1940 and 1973 were published as Water-Supply Papers entitled "Water levels and artesian pressures in observation wells in the United States in (year) – Part 2. Southeastern states." The earliest publications included water-level data for calendar year intervals; the Water-Supply Paper series after 1955 included yearly data published every fifth year. The newest publication series, referred to as Water-Data Reports and entitled "Water resources data – South Carolina, water year xxxx," began in 1971. Water-Data Reports present extensive information on ground-water levels and surface-water stage, flow, and quality for each water year (October 1 to September 31). The report of T. W. Cooney and others (2002) is the most recent in the series.

DNR has published a water-level and potentiometric map series for the major Coastal Plain aquifer systems. Potentiometric levels for the Middendorf aquifer system in 1996 and 2001 were presented by Hockensmith and Waters (1998) and Hockensmith (2003a), respectively. Potentiometric levels for the Black Creek aquifer system in 1995 and 2001 were presented

by Hockensmith (1997) and Hockensmith (2003b), respectively. Floridan aquifer system levels for 1998 were published by Hockensmith (2001). The South Carolina Department of Health and Environmental Control (DHEC) monitors water levels in the upper Floridan aquifer in Beaufort, Jasper, Hampton, and Colleton Counties and also has published a 1997 potentiometric map for those counties (Ransom and others, 2000).

Intermittent and periodic water-level measurements of 16 Piedmont province wells and 266 Coastal Plain province wells were published by Waters (2003). The report presents 282 hydrographs and is the most extensive compilation of historical South Carolina ground-water level data to date. Hydrograph records range from 6 to 50 years, and about one-third of the record sets span periods greater than 20 years.

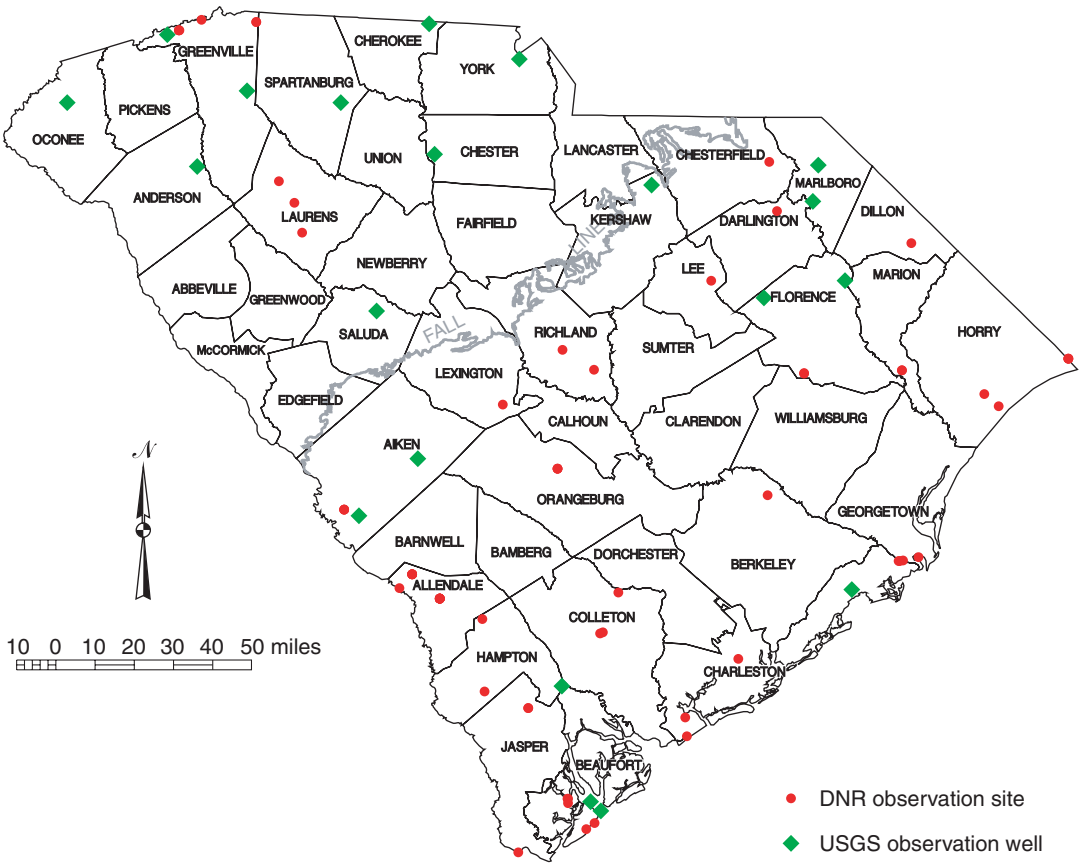


Figure 1. Locations of DNR ground-water and surface-water observation sites and USGS observation wells.

Table 1. South Carolina Department of Natural Resources observation wells: 2000 – 2001

County	County number	Grid number	Owner/location/use	Aquifer system	Page number
Aiken	AIK-2378	40W-q2	DNR well cluster at Jackson	Black Creek	44
Aiken	AIK-2379	40W-q3	DNR well cluster at Jackson	Black Creek	45
Aiken	AIK-2380	40W-q4	DNR well cluster at Jackson	Middendorf	29
Allendale	ALL-347	35AA-q2	DNR well cluster at Appleton	Middendorf	30
Allendale	ALL-348	35AA-q3	DNR well cluster at Appleton	Cape Fear	26
Allendale	ALL-358	37Z-t3	DNR well cluster at Martin	Middendorf	31
Allendale	ALL-363	37Z-t4	DNR well cluster at Martin	Floridan	61
Allendale	ALL-364	37Z-t5	DNR well cluster at Martin	Floridan	62
Allendale	ALL-366	37Z-t7	DNR well cluster at Martin	Tertiary-sand	63
Allendale	ALL-367	37Z-t8	DNR well cluster at Martin	Black Creek	46
Allendale	ALL-371	35AA-q4	DNR well cluster at Appleton	Floridan	64
Allendale	ALL-372	35AA-q5	DNR well cluster at Appleton	Shallow	55
Allendale	ALL-373	35AA-q6	DNR well cluster at Appleton	Floridan	65
Allendale	ALL-375	35AA-q8	DNR well cluster at Appleton	Tertiary-sand	56
Allendale	ALL-376	35AA-q9	DNR well cluster at Appleton	Black Creek	47
Allendale	ALL-377	35AA-q10	DNR well cluster at Appleton	Middendorf	32
Beaufort	BFT-101	27KK-y1	USGS test well at Hilton Head Island	Floridan	66
Beaufort	BFT-429	28JJ-y1	Victoria Bluff Wildlife Mgmt. Area, Bluffton	Floridan	67
Beaufort	BFT-1845	28JJ-p6	Lower Floridan well at Waddell Center	Floridan	68
Beaufort	BFT-2055	27KK-r14	Town of Hilton Head Island test well	Middendorf	33
Berkeley	BRK-644	18W-b2	DNR test well at St. Stephen Middle School	Floridan	69
Brunswick, N. C.	BRW-1863	2Q-j4	N.C. Dept. of Envir. and Nat. Res. - Calabash	Black Creek	48
Brunswick, N. C.	BRW-1865	2Q-j6	N.C. Dept. of Envir. and Nat. Res. - Calabash	Middendorf	34
Brunswick, N. C.	BRW-1878	2Q-j2	N.C. Dept. of Envir. and Nat. Res. - Calabash	Cape Fear	26
Charleston	CHN-44	19DD-o1	U.S. Dept. of Agriculture, U.S. 17 south	Floridan	70
Charleston	CHN-484	22GG-d1	Salinity monitor at Blue House Plantation	Floridan	71
Charleston	CHN-803	11Z-b1	DNR test well at Santee Coastal Reserve	Floridan	72
Chesterfield	CTF-81	17H-f1	DNR test well at Cheraw State Park	Crystalline-rock	12
Colleton	COL-16	26CC-f1	City of Walterboro - unused municipal well	Floridan	73
Colleton	COL-30	27CC-j1	City of Walterboro - unused municipal well	Black Creek	49

Table 1. South Carolina Department of Natural Resources observation wells: 2000 – 2001 (cont.)

County	County number	Grid number	Owner/location/use	Aquifer system	Page number
Colleton	COL-97	26AA-k1	DNR test well at Canadys	Floridan	74
Colleton	COL-301	22GG-w4	Salinity monitor at Edisto Beach State Park	Floridan	75
Darlington	DAR-228	17J-m1	DNR test well at Lake Darpo	Middendorf	35
Dillon	DIL-121	10L-c2	DNR test well at Little Pee Dee State Park	Middendorf	36
Florence	FLO-274	16Q-s1	USGS well at Lake City Airport	Middendorf	37
Florence	FLO-276	16Q-s2	USGS well at Lake City Airport	Black Creek	50
Greenville	GRV-2543	49B-o2	Former public supply for Jones Gap State Park	Crystalline-rock	13
Greenville	GRV-3333	48B-d3	Observation well near Gap Creek Road	Crystalline-rock	14
Greenville	GRV-3335	49B-o4	Former public supply for Jones Gap State Park	Crystalline-rock	15
Greenville	GRV-3336	49B-o5	Former public supply for Jones Gap State Park	Shallow	20
Greenville	GRV-3341	45B-d1	Observation well at Oak Grove Road Fire Station	Shallow	21
Greenville	GRV-3342	45B-d2	Observation well at Oak Grove Road Fire Station	Crystalline-rock	16
Hampton	HAM-50	33EE-v1	Private well (former Southern R.R.) – Furman	Tertiary-sand	57
Hampton	HAM-228	33BB-s1	Former domestic supply – Brunson	Floridan	76
Horry	HOR-309	6R-q3	DNR test well near Perry Road, Conway	Black Creek	51
Jasper	JAS-425	30FF-o1	DNR well pair – Gillisonville	Floridan	77
Laurens	LRN-1705	43J-c2	Well/weather station at Adair Outdoor Ed. Center	Shallow	22
Laurens	LRN-1706	44I-b1	Unused domestic well at Big Knob Fire Tower	Crystalline-rock	17
Laurens	LRN-1707	43K-k1	Unused domestic well - Mountville	Crystalline-rock	18
Lee	LEE-75	21M-k1	DNR test well at Lee State Park	Middendorf	38
Lexington	LEX-844	32S-b4	DNR test-well cluster at Swansee Primary School	Middendorf	39
Orangeburg	ORG-393	29U-v1	Well/weather station – Clark Middle School	Black Creek	53
Orangeburg	ORG-430	29U-v2	Well/weather station – Clark Middle School	Tertiary-sand	58
Orangeburg	ORG-431	29U-v3	Well/weather station – Clark Middle School	Floridan	78
Richland	RIC-543	27Q-m1	DNR test well at Webber School	Middendorf	40
Richland	RIC-585	29P-t4	DNR test well at Horrell Hill Elementary School	Middendorf	41

Table 2. U.S. Geological Survey periodic water-data reports for South Carolina

Data period	Report Number	Author(s)	Year published
1940	WSP-907	Fishel, V.C., in Meinzer, O.E., and Wenzel, L.K.	1942
1941	WSP-937	Meinzer, O.E., and Wenzel, L.K.	1943
1942	WSP-945	Warren, M.A., and Ireland, D.M. in Meinzer, O.E., and Wenzel, L.K.	1944
1943	WSP-987	Warren, M.A., in Meinzer, O.E., and Wenzel, L.K.	1945
1944	WSP-1017	Sayer, A.N., and others (No S.C. section)	1947
1945	WSP-1024	Paulsen, C.G. (ed.) (No S.C. section)	1948
1946	WSP-1072	Siple, G.E., in Paulsen, C.G. (ed.)	1950
1947	WSP-1097	Siple, G.E., in Paulsen, C.G. (ed.)	1951
1948	WSP-1127	Siple, G.E., in Paulsen, C.G. (ed.)	1951
1949	WSP-1157	Siple, G.E., in Paulsen, C.G. (ed.)	1952
1950	WSP-1166	Siple, G.E., in Paulsen, C.G (ed.)	1953
1951	WSP-1192	Siple, G.E., in Sayer, A.N. (ed.)	1954
1952	WSP-1222	Siple, G.E., in Sayer, A.N. (ed.)	1955
1953	WSP-1266	Siple, G.E., in Sayer, A.N. (ed.)	1956
1954	WSP-1322	Siple, G.E., in Sayer, A.N. (ed.)	1956
1955	WSP-1405	Siple, G.E., in Sayer, A.N. (ed.)	1957
1956-1958	WSP-1538	Siple, G.E., in Hackett, O.M. (ed.)	1962
1959-1963	WSP-1803	Siple, G.E., in Hackett, O.M. (ed.)	1965
1964-1968	WSP-1978	U.S. Geological Survey	1971
1969-1973	WSP-2171	U.S. Geological Survey	1975
1971	SC-71-1	USGS-WRD-SC	1972
1972	SC-72-1	USGS-WRD-SC	1973
1973	SC-73-1	USGS-WRD-SC	1974
1974	SC-74-1	USGS-WRD-SC	1975
1975	SC-75-1	USGS-WRD-SC	1976
1976	SC-76-1	USGS-WRD-SC	1977
1977	SC-77-1	USGS-WRD-SC	1978
1978	SC-78-1	USGS-WRD-SC	1979
1979	SC-79-1	USGS-WRD-SC	1980
1980	SC-80-1	USGS-WRD-SC	1981
1981	SC-81-1	USGS-WRD-SC	1982
1982	SC-82-1	Bennett, C.S., and others	1983
1983	SC-83-1	Bennett, C.S., and others	1984
1984	SC-84-1	Bennett, C.S., and others	1985
1985	SC-85-1	Bennett, C.S., and others	1986
1986	SC-86-1	Bennett, C.S., and others	1987
1987	SC-87-1	Bennett, C.S., and others	1988
1988	SC-88-1	Bennett, C.S., and others	1989

WSP, Water-Supply Paper
SC-XX-X, Water-Data Report

Table 2. U.S. Geological Survey periodic water-data reports for South Carolina (cont.)

Data period	Report Number	Author(s)	Year published
1989	SC-89-1	Bennett, C.S., and others	1990
1990	SC-90-1	Bennett, C.S., and others	1991
1991	SC-91-1	Bennett, C.S., and others	1992
1992	SC-92-1	Bennett, C.S., and others	1993
1993	SC-93-1	Bennett, C.S., and others	1994
1994	SC-94-1	Cooney, T.W., and others	1995
1995	SC-95-1	Cooney, T.W., and others	1996
1996	SC-96-1	Cooney, T.W., and others	1997
1997	SC-97-1	Cooney, T.W., and others	1998
1998	SC-98-1	Cooney, T.W., and others	1999
1999	SC-99-1	Cooney, T.W., and others	2000
2000	SC-00-1	Cooney, T.W., and others	2001
2001	SC-01-1	Cooney, T.W., and others	2002

WELL-NUMBERING SYSTEMS

Wells are identified by a county well number and also by a location-grid number. The county well number consists of a county-name abbreviation and a sequential number that is assigned by, or in coordination with, the USGS. For example, HAM-50 represents the fiftieth well inventoried by the USGS, DNR, or DHEC in Hampton County.

Well files also are assigned a South Carolina Grid System number. Wells are located to the nearest minute of latitude and longitude and assigned a sequential number within that 1-minute grid. Thus, HAM-50 has grid number 33EE-v1, which places it in southwestern Hampton County (Fig. 2.)

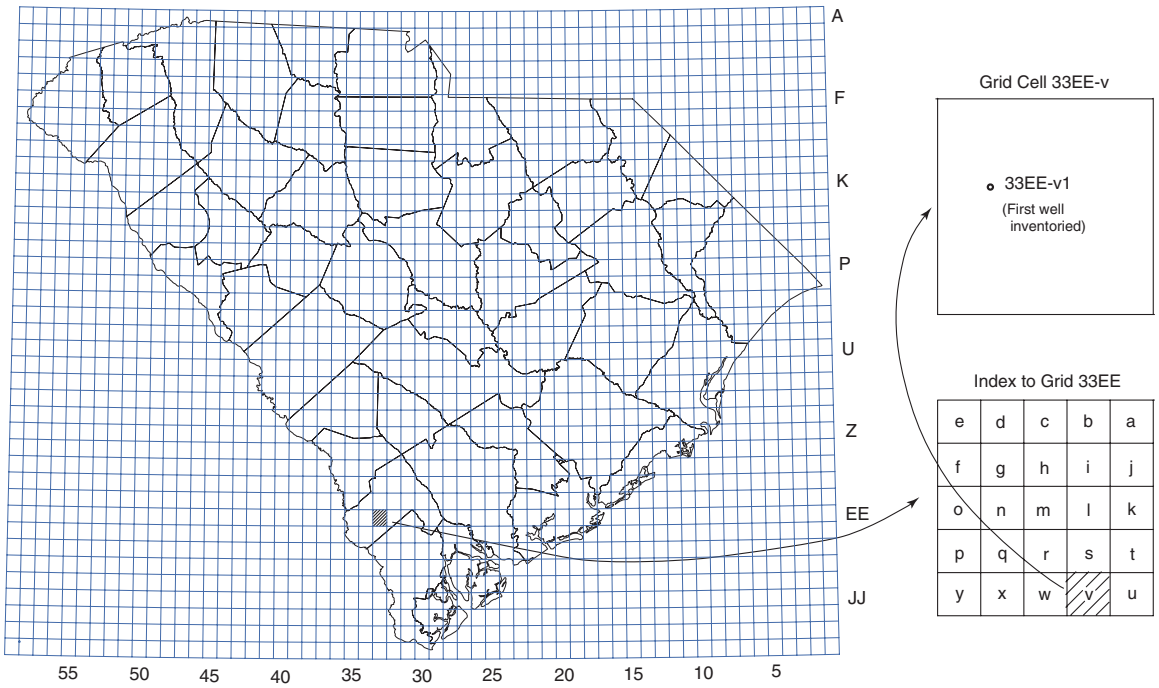


Figure 2. Illustration of the DNR well-numbering system.

DATA COLLECTION

Ground-water level data are presented in feet above or below land surface. Measurements and sensor settings are made relative to a specified measurement point, and the methods used generally follow those of USGS Stand Alone Procedure Documents (Table 3) and the Department of Natural Resources procedures manual. Land-surface and measuring-point elevations are surveyed from USGS or South Carolina Geodetic Survey benchmarks at 28 well sites and are reported to the nearest tenth or hundredth of a foot. Elevations at the remaining sites are taken from USGS topographic quadrangles, are estimated to the nearest foot, and are considered accurate to one-half the map contour interval. Station locations are fixed by GPS (Global Positioning Satellite) measurements.

Manual Measurements

Flowing artesian wells are manually measured with 0–30, 0–60, and 0–100 psi (pounds per square inch) range Bourdon-type test gages. The gages are calibrated annually by a commercial testing laboratory and are rated to ¼ percent of their respective measurement ranges. In practice, accuracy will be diminished by errors from gage-zero adjustment, parallax, readings near the extremes of gage range, and mechanical degradation subsequent to calibration. Table 4 summarizes the manufacturer-rated accuracies and the authors' assumptions for measurement accuracies under field conditions.

Tape measurements typically are made with electric tapes, and tape readings periodically are compared to a master tape. Both steel and electric tapes are capable of 0.01-ft accuracy, but visibility, thermal expansion and contraction, and tape sinuosity diminish measurement accuracy in field conditions. Their accuracies, therefore, are assumed to be no better than 0.05 ft in practice: less accuracy is likely where depth to water is greater than 100 ft.

Automated Measurements

The water-level sensors used for automated monitoring stations include shaft encoders and pressure transducers whose readings are calibrated to manual measurements. Shaft encoders measure depth to water and consist of a pulley that is optically read or that controls a potentiometer, and a cable, float, and counterweight assembly. They have a rated accuracy and resolution of 0.01 ft. The sensor reading is set in reference to a manual tape measurement; however well plumb, casing joints, and cable disturbances can affect subsequent readings. Measurements within 0.10 ft of a concurrent manual measurement are accepted, along with the corresponding records. The records are excluded if successive sensor and manual measurements differ by more than 0.10 ft and if there is no clear means to adjust the record for cable slip, float snags, or other error. Corrections, if applied, are noted in the remarks that accompany the hydrograph.

Table 3. USGS Stand Alone Documents applied to the DNR monitoring program

Document number	Title
GWPD-1	Water-level measurement using graduated steel tape
GWPD-3	Establishing a permanent measuring point
GWPD-4	Water-level measurement using an electric tape
GWPD-5	Locating a well
GWPD-12	Water-level measurement in a flowing well

Table 4. Ranges and accuracies of ¼-percent precision test gages used by DNR

Gage range, in psi	Rated gage accuracy, in psi	Rated gage accuracy, in feet	Measurement accuracy, in feet
0 – 30	0.075	0.17	0.4
0 – 60	0.150	0.34	0.5
0 – 100	0.250	0.57	0.8

Pressure transducers measure the height of water above a semiconductor strain gage: electrical resistance to an input voltage, and therefore voltage output, change as varying water pressure deforms the crystalline lattice of the gage's silicon diaphragm (piezoresistive effect). There is a near-linear correlation between the sensor's pressure range and output-voltage range, and water depth is computed from the voltage measurement. The transducers used by DNR have 0 – 5 meter (0 – 16.2 ft) and 0 – 10 meter (0 – 32.4 ft) ranges, and accuracy and resolution are 1 percent of full scale and 0.1 percent of full scale, respectively. The sums of the transducer measurement (depth above probe) and corresponding taped measurement (depth to water) recorded at each site visit are compared to determine transducer performance. Where the sum of measurements is found to differ by more than 2 percent of range (0.32 and 0.64 ft) from previous measurements, a potential instrument fault may exist, but no record correction is applied. Where the specifications are exceeded repeatedly, instrument failure is confirmed, the transducer is replaced, and the associated records are excluded from the hydrograph.

Water-Quality Measurements

Two physical characteristics of water, specific conductance and temperature, are monitored at a number of Lower Coastal Plain stations. Specific-conductance measurements are used to calculate salinity, total dissolved-solids concentrations, and chloride concentrations. Conductance sensors include the induction type and graphite-electrode type. Induction-based sensors measure the electrical current generated as water passes through an encased wire coil and have an accuracy of 20 µS/cm (microSiemens/centimeter). The graphite-electrode type measures current between pairs of immersed electrodes, with accuracies of 0.5 or 1 percent. The induction-type sensors are bulky, but they exhibit good signal stability and are unaffected by biological growth. Electrode sensors are compact and suited for use in small-diameter observation and stilling wells. By convention, specific conductance is the electrical conductance adjusted to the standard temperature of 25° C. The algorithms used to calculate specific conductance vary with the instrument manufacturer, but the differences in results are insignificant for most purposes.

Temperature data, provided by thermistor-equipped conductivity sensors, are logged at salinity-monitoring stations and are used to calculate specific conductance. They are additionally useful as an indication of water mixing where saltwater intrusion occurs. The pressure probes used for ground-water monitoring also can provide temperature measurements. These data are useful in assessing transducer performance and for fault identification; however, ground-water temperature varies little, and the continual data have small utility with respect to resource assessment – thus ground-water temperature data are not stored permanently. Surface-water temperature data are not reported here but are permanently stored by DNR.

Data Storage and Quality

Logged measurements are stored in both raw-data and processed-data tables. The raw-data table reflects the readings of various sensor types and the performance of monitoring hardware as they were originally stored in data loggers. Raw data are stored mainly "as is" and are archive-preserved for insight into hardware conditions and for quality assurance. Processed-data tables are winnowed of measurement anomalies and logged hardware failures. The winnowed data principally consist of spikes and dropouts caused by lightning and electromagnetic interference and of measurements characteristic of hardware faults. The data that remain, and are used for the preparation of hydrographs, reflect the less accurate of the tape, gage, or sensor used.

STATISTICAL DATA

The statistical data presented for each observation site include graphs of average-daily measurements and the corresponding tables of monthly and yearly minimums, maximums, and means. Average daily water level and specific conductance are calculated and plotted for each day having 17 or more hourly measurements. Monthly minimums, maximums, and means are calculated for each month having 5 or fewer days of missing record, and the yearly statistics include the minimum, maximum, and mean for each calendar year having 10 or more months of record.

PIEDMONT WATER LEVELS

CRYSTALLINE-ROCK AQUIFER SYSTEM

The crystalline-rock aquifer system consists of intrusive-igneous and metamorphic rock that transmits ground water through fractures and faults. It is exposed or thinly covered in the Piedmont and Blue Ridge physiographic provinces, where it is the principal source of ground water. It also extends beneath the Coastal Plain, but rarely is used there owing to greater permeability and water availability in the overlying sedimentary rock. The principal crystalline-rock units of the Piedmont include those of the Inner Piedmont terrane, Laurens thrust stack, Charlotte and Eastern Charlotte terranes, and Carolina Slate Belt. The rocks of the Chauga Belt and Blue Ridge terrane are the main units in the Blue Ridge province (Fig. 3).

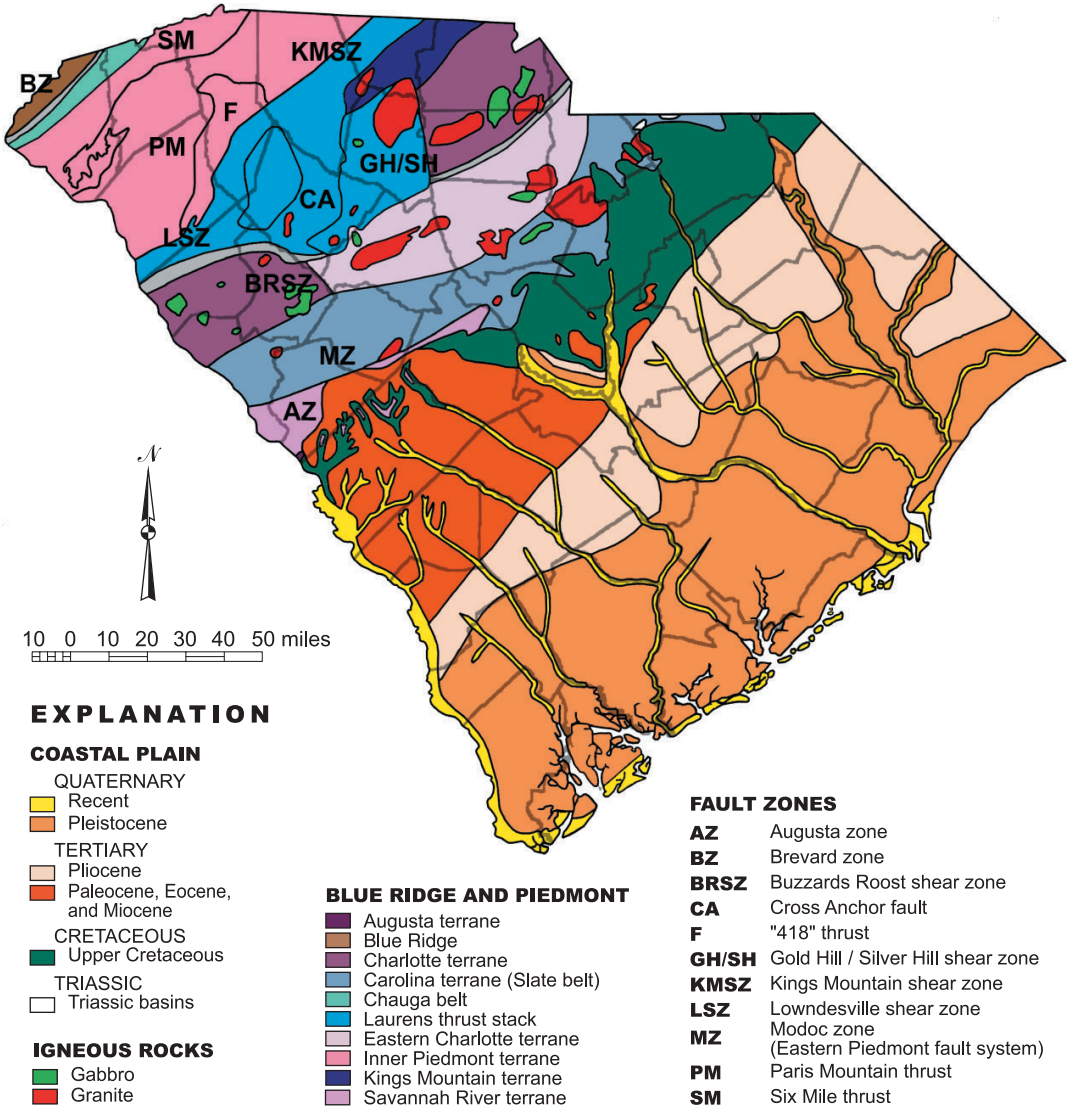


Figure 3. Geologic map of South Carolina (South Carolina Geological Survey, 1997).

The crystalline rock is complex lithologically and structurally. It includes rocks formed deep in the earth's crust through numerous mountain-building events. They are cut by fracture systems formed not only by pressure during mountain building but by later tension during the formation of the Atlantic Ocean and by release of pressure as overlying rocks were eroded. The result is a complex network of fractures, sparse in some areas and dense in others, especially along fault zones. The size, number, and extent of fractures diminish with increasing depth, and most crystalline-rock wells are less than 400 feet deep. Over 70 percent of reported well yields are less than 20 gpm (gallons per minute), and almost half are less than 10 gpm. Contractors rarely guarantee well yield, owing to the chance of drilling a dry hole. Nonetheless, yields greater than 100 gpm have been reported, and the probability of obtaining such yields increases where well-site selection is guided by geologic and geophysical investigation.

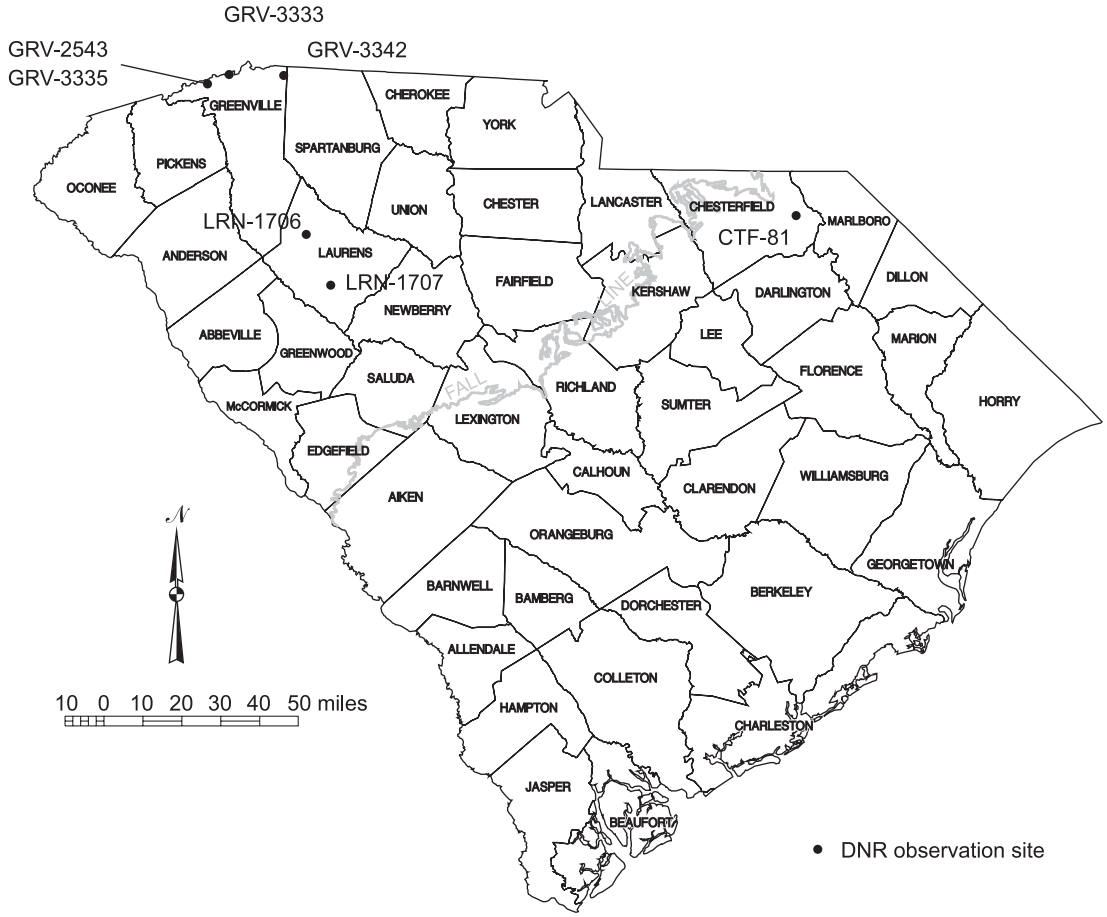
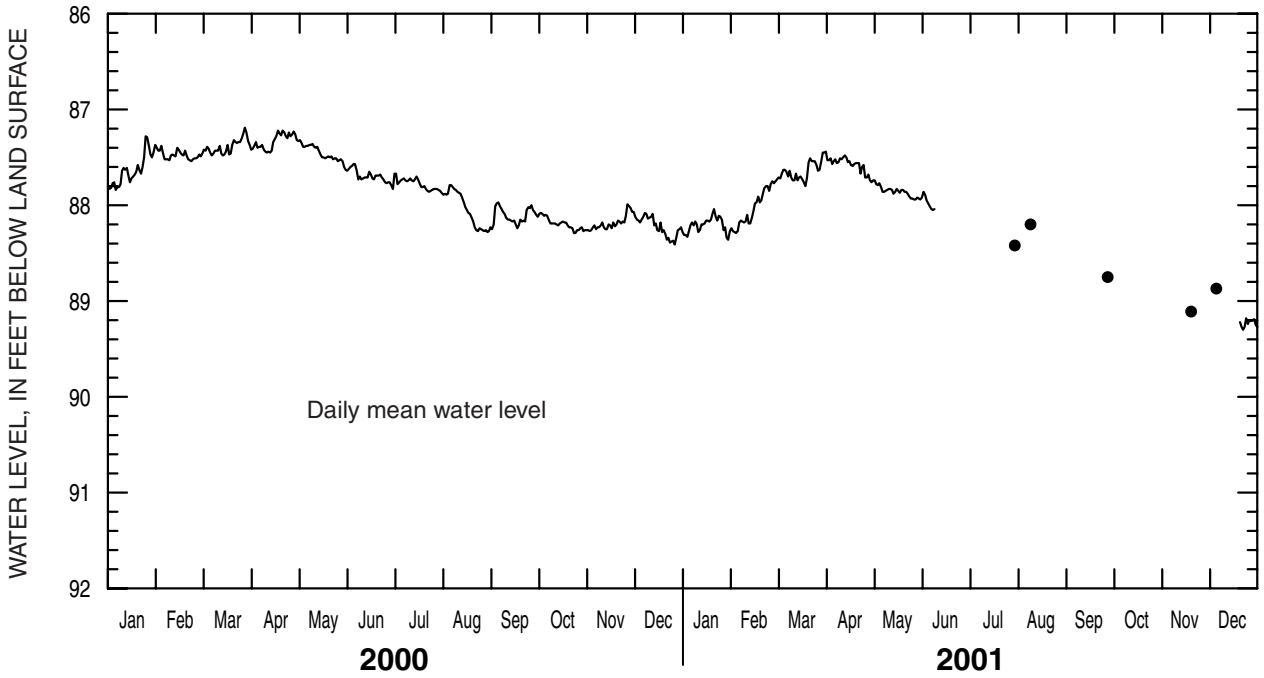


Figure 4. Locations of crystalline-rock aquifer system observation wells.

CHESTERFIELD COUNTY

WELL NUMBER: CTF-81 GRID NUMBER: 17H-f1
LATITUDE: 34°38'35" LONGITUDE: 79°54'41"
LOCATION: Cheraw State Park, Cheraw.
AQUIFER: Slate.
WELL CHARACTERISTICS: 2-inch diameter observation well. Depth: 244 ft. Screened from 231 to 244 ft.
DATUM: Land surface is 190 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 1.80 ft above land surface datum.
PERIOD OF RECORD: October 1999 to current year.
EXTREMES: Highest water level: 87.19 ft below land surface, March 28, 2000.
Lowest water level: 89.30 ft below land surface, December 22, 2001.
REMARKS: Drilled and cored for DNR/USGS aquifer delineation project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	87.28	87.38	87.19	87.22	87.32	87.57	87.67	87.79	87.97	88.08	87.99	88.08
MEAN	87.63	87.48	87.39	87.33	87.46	87.70	87.78	88.05	88.11	88.20	88.18	88.23
LOW	87.84	87.54	87.48	87.45	87.63	87.83	87.87	88.28	88.25	88.29	88.27	88.41

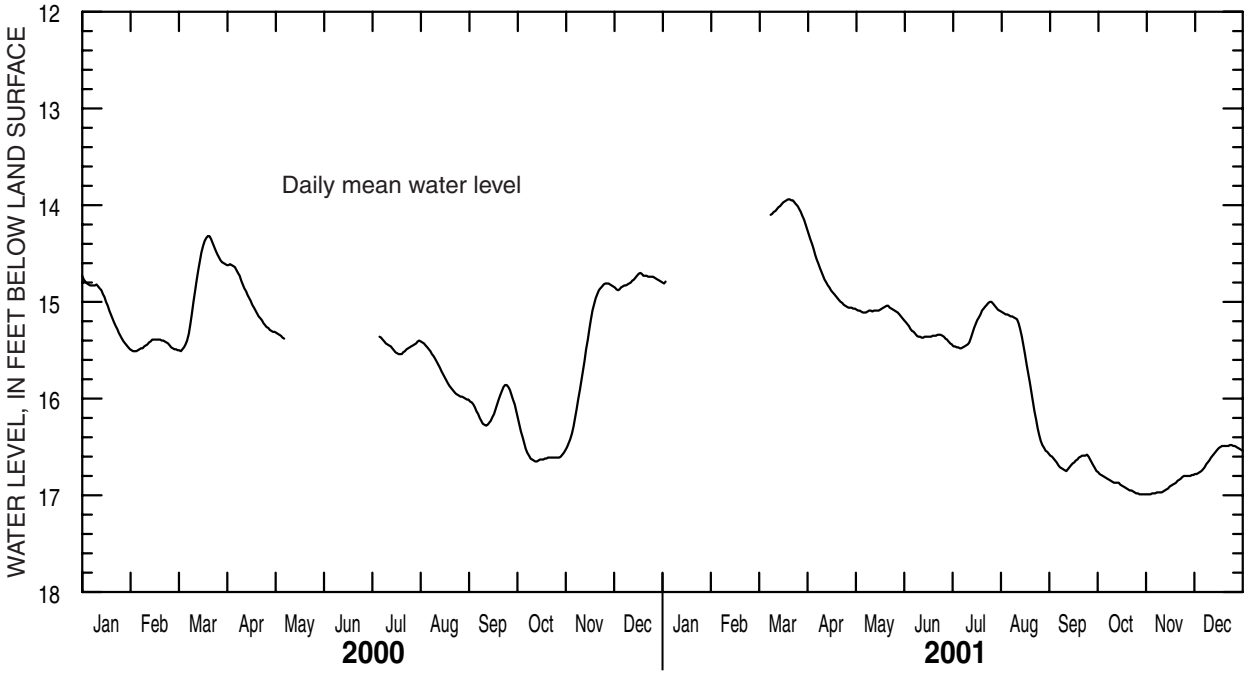
SUMMARY FOR 2000 HIGH 87.19 (Mar.1, 2000) MEAN 87.80 LOW 88.41 (Dec. 26, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	88.04	87.75	87.45	87.44	87.74	87.86	--	--	--	--	--	89.18
MEAN	88.21	88.02	87.65	87.57	87.86	--	--	--	--	--	--	--
LOW	88.36	88.29	87.80	87.76	87.94	88.05	--	--	--	--	--	89.30

SUMMARY FOR 2001 HIGH 87.44 (Apr.1, 2001) MEAN -- LOW 89.30 (Dec. 22, 2001)

GREENVILLE COUNTY

WELL NUMBER: GRV-2543 GRID NUMBER: 49B-o2
LATITUDE: 35°07'34" LONGITUDE: 82°34'17"
LOCATION: N of Middle Saluda River in Jones Gap State Park, at head of Hospital Rock Trail.
AQUIFER: Metamorphic rock and/or transition zone.
WELL CHARACTERISTICS: 6-inch diameter unused well. Depth: 40 ft. Open interval unknown.
DATUM: Land surface is 1,328.7 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Instrument platform, 1.32 ft above land surface datum.
PERIOD OF RECORD: October 1997 to current year.
EXTREMES: Highest water level: 12.19 ft below land surface, March 11, 1998.
Lowest water level: 17.07 ft below land surface, September 26, 1999.
REMARKS: Former fish hatchery well. Near present park public supply well, and shows minor pumping effects. Located at the foot of a major cliff, the Blue Ridge Escarpment.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	14.73	15.39	14.32	14.61	15.31	--	15.36	15.41	15.86	16.20	14.81	14.70
MEAN	15.06	15.45	14.81	14.96	15.35	--	15.46	15.75	16.08	15.56	15.43	14.78
LOW	15.49	15.51	15.51	15.31	15.38	--	15.54	16.01	16.28	16.65	16.50	14.88

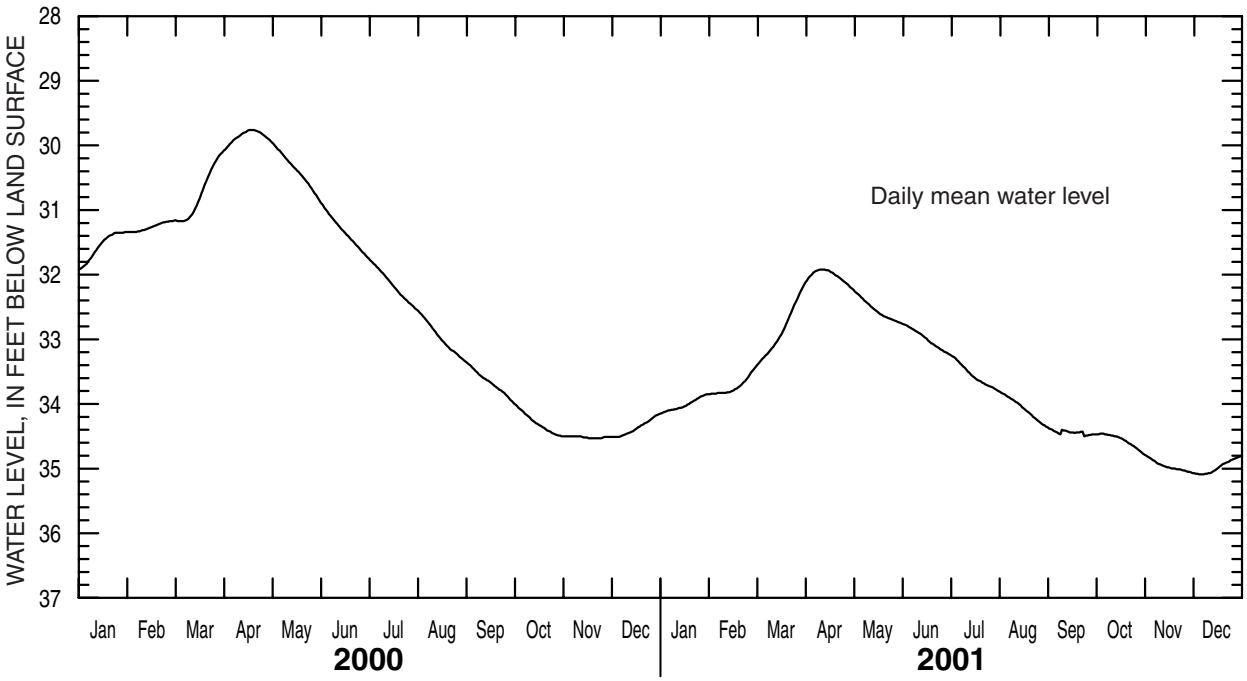
SUMMARY FOR 2000 HIGH 14.32 (Mar. 20, 2000) MEAN 15.43 LOW 16.65 (Oct. 12, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	14.77	--	13.94	14.25	15.04	15.19	15.00	15.10	16.58	16.76	16.79	16.48
MEAN	14.79	--	14.03	14.79	15.09	15.34	15.25	15.70	16.66	16.90	16.90	16.58
LOW	14.81	--	14.20	15.07	15.17	15.43	15.48	16.57	16.75	16.99	16.99	16.78

SUMMARY FOR 2001 HIGH 13.94 (Mar. 20, 2001) MEAN 15.76 LOW 16.99 (Oct. 27, 2001)

GREENVILLE COUNTY

WELL NUMBER: GRV-3333 GRID NUMBER: 48B-d3
LATITUDE: 35°09'57" LONGITUDE: 82°28'17"
LOCATION: Intersection of Gap Creek Road and US Highway 25, ½ mile south of North Carolina line.
AQUIFER: Metamorphic rock.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 260 ft. Open hole below 58 ft.
DATUM: Land surface is 1,868.6 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 1.24 ft below land surface datum.
PERIOD OF RECORD: August 1997 to current year.
EXTREMES: Highest water level: 26.18 ft below land surface, May 8, 1998.
Lowest water level: 35.09 ft below land surface, December 12, 2001.
REMARKS: 6-inch steel casing from 1 to 20 feet below land surface; 4-inch PVC casing from 1 to 58 feet below land surface datum; K-packer at 58 feet. Large fracture at 50 ft apparently captured all cuttings from below that level. No significant fractures below 58 feet; low water production.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	31.34	31.17	30.11	29.76	29.95	30.89	31.75	32.56	33.37	34.01	34.50	34.15
MEAN	31.56	31.26	30.77	29.86	30.37	31.33	32.15	32.99	33.67	34.30	34.51	34.36
LOW	31.92	31.34	31.17	30.08	30.85	31.73	32.54	33.35	33.99	34.50	34.53	34.51

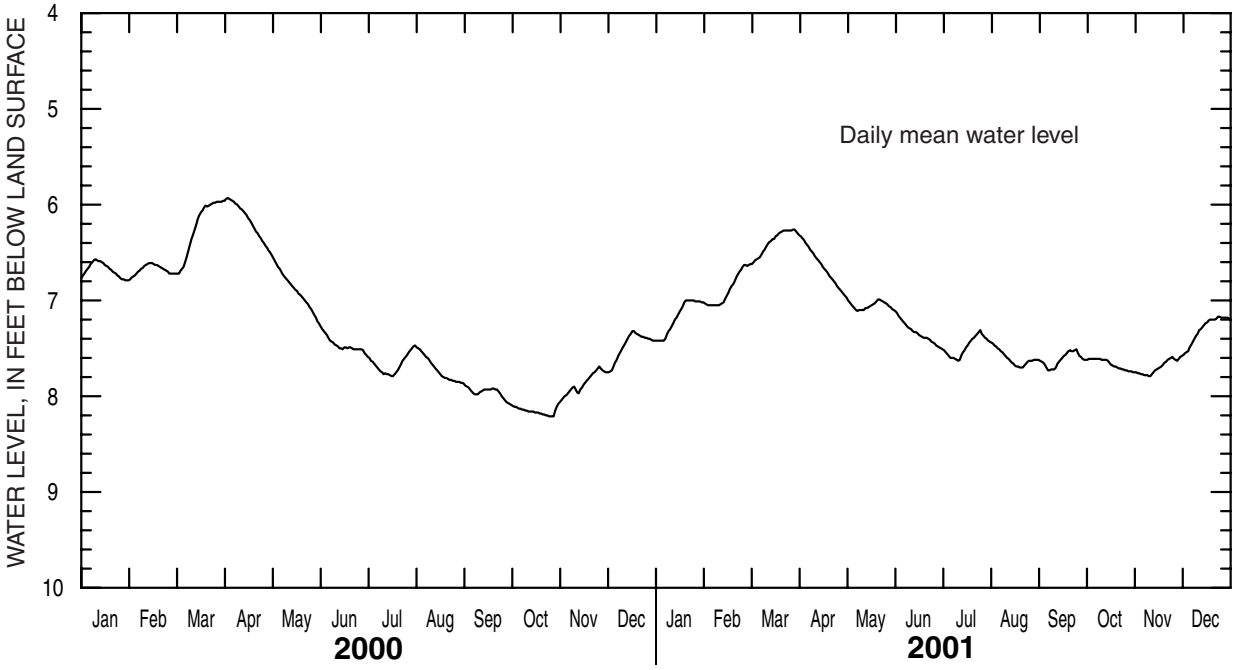
SUMMARY FOR 2000 HIGH 29.76 (Apr. 17, 2000) MEAN 32.27 LOW 34.53 (Nov. 16, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	33.85	33.45	32.16	31.92	32.23	32.76	33.24	33.81	34.38	34.46	34.80	34.81
MEAN	34.00	33.74	32.88	32.02	32.54	32.99	33.55	34.08	34.44	34.57	34.97	34.97
LOW	34.14	33.84	33.42	32.21	32.75	33.23	33.80	34.36	34.50	34.79	35.07	35.09

SUMMARY FOR 2001 HIGH 31.92 (Apr. 10, 2001) MEAN 33.73 LOW 35.09 (Dec. 4, 2001)

GREENVILLE COUNTY

WELL NUMBER: GRV-3335 GRID NUMBER: 49B-o4
LATITUDE: 35°07'30" LONGITUDE: 82°34'26"
LOCATION: South bank of the Middle Saluda River in Jones Gap State Park.
AQUIFER: Metamorphic bedrock.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 110 ft. Cased to 62 ft. Open hole.
DATUM: Land surface is 1,351.6 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Sanitary seal, 1.06 ft above land surface datum.
PERIOD OF RECORD: August 1997 to current year.
EXTREMES: Highest water level: 4.49 ft below land surface, January 7, 1998.
Lowest water level: 8.97 ft below land surface, September 24, 1999.
REMARKS: Fractures at 96 ft and 104 ft; the latter separates granitic gneiss from amphibolite gneiss, suggesting a significant fault displacement.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	6.57	6.61	5.96	5.93	6.53	7.27	7.47	7.49	7.89	8.06	7.69	7.32
MEAN	6.68	6.68	6.25	6.16	6.89	7.46	7.67	7.72	7.97	8.16	7.86	7.46
LOW	6.79	6.78	6.72	6.50	7.24	7.57	7.79	7.87	8.09	8.21	8.04	7.75

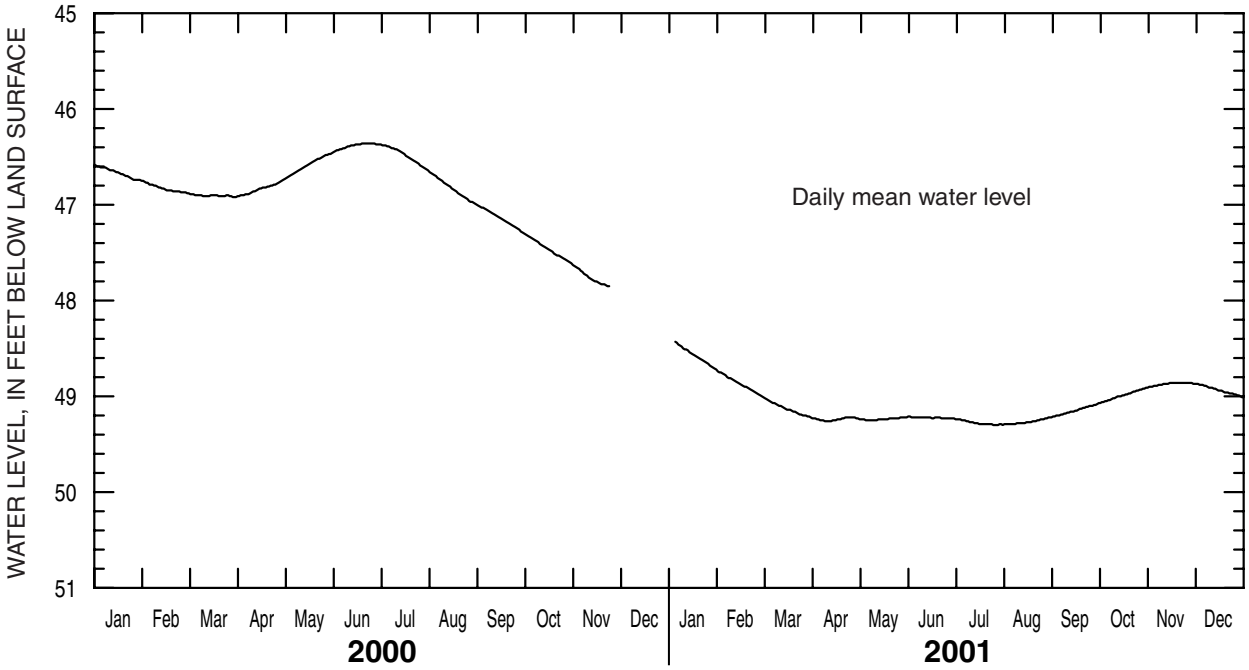
SUMMARY FOR 2000 HIGH 5.93 (Apr. 3, 2000) MEAN 7.25 LOW 8.21 (Oct. 24, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	7.00	6.63	6.26	6.32	6.97	7.11	7.31	7.44	7.51	7.61	7.58	7.17
MEAN	7.16	6.89	6.39	6.63	7.05	7.33	7.48	7.60	7.62	7.67	7.69	7.29
LOW	7.42	7.05	6.62	6.95	7.11	7.50	7.63	7.70	7.73	7.75	7.79	7.57

SUMMARY FOR 2001 HIGH 6.26 (Mar. 28, 2001) MEAN 7.24 LOW 7.79 (Oct. 9, 2001)

GREENVILLE COUNTY

WELL NUMBER: GRV-3342 GRID NUMBER: 45B-d2
LATITUDE: 35°09'38" LONGITUDE: 82°13'29"
LOCATION: Oak Grove Road Fire Station of Glassy Mountain Fire District, 8 ft north of GRV-3341.
AQUIFER: Metamorphic rock.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 334 ft. Open interval 132 to 334 ft.
DATUM: Land surface is 1,029.6 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: North edge of outer security box, 2.69 ft above land surface datum.
PERIOD OF RECORD: May 1998 to current year.
EXTREMES: Highest water level: 40.08 ft below land surface, June 30, 1998.
Lowest water level: 49.30 ft below land surface, July 25, 2001.
REMARKS: No obvious fractures encountered during drilling. Water production less than 1 gpm.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	46.58	46.75	46.88	46.74	46.46	46.36	46.37	46.66	47.01	47.31	47.64	--
MEAN	46.67	46.83	46.90	46.84	46.58	46.39	46.49	46.84	47.15	47.47	47.77	--
LOW	46.75	46.88	46.92	46.91	46.73	46.45	46.64	47.00	47.30	47.63	47.86	--

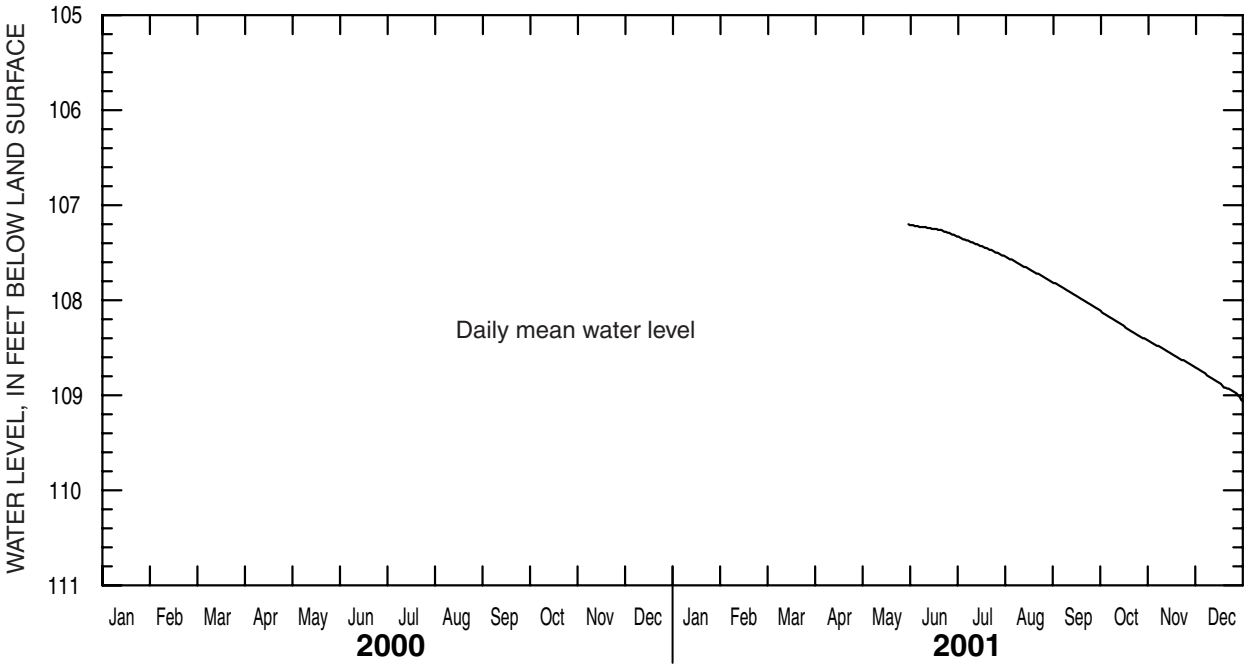
SUMMARY FOR 2000 HIGH 46.36 (June 19, 2000) MEAN 46.88 LOW 47.86 (Nov. 24, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	48.43	48.75	49.01	49.22	49.22	49.21	49.24	49.22	49.07	48.91	48.86	48.87
MEAN	48.58	48.87	49.13	49.24	49.24	49.22	49.28	49.26	49.15	48.99	48.87	48.94
LOW	48.74	49.00	49.22	49.26	49.25	49.23	49.30	49.29	49.21	49.07	48.90	49.01

SUMMARY FOR 2001 HIGH 48.43 (Jan. 4, 2001) MEAN 49.07 LOW 49.30 (July 25, 2001)

LAURENS COUNTY

WELL NUMBER: LRN-1706 GRID NUMBER: 44I-b1
LATITUDE: 34°34'14" LONGITUDE: 82°06'50"
LOCATION: Big Knob Fire Tower, west of Gray Court.
AQUIFER: Metamorphic rock.
WELL CHARACTERISTICS: 6-inch diameter unused domestic well. Depth: 168 ft. Open interval unknown.
DATUM: Land surface is 840 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Sanitary seal, flush with concrete pad at land surface datum.
PERIOD OF RECORD: October 2000 to current year.
EXTREMES: Highest water level: 104.51 ft below land surface, October 13, 2000.
Lowest water level: 109.06 ft below land surface, December 31, 2001.
REMARKS: On the side of a prominent hill on a major fault zone (see Laurens North geologic quadrangle).

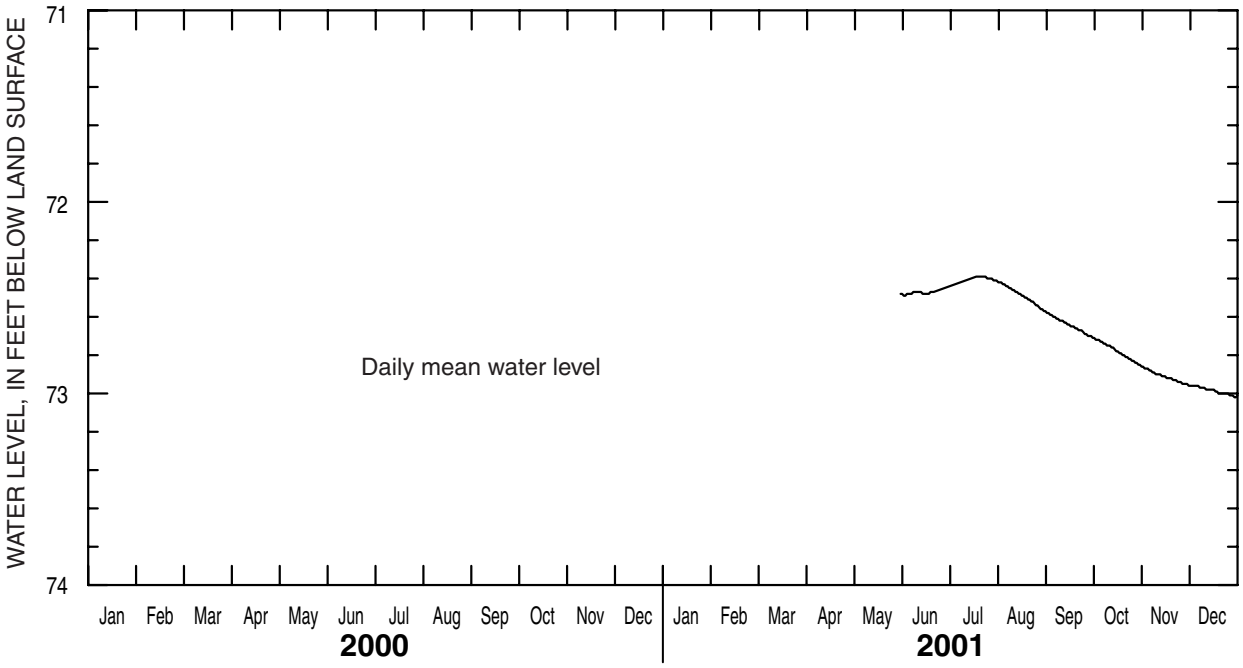


2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	--	--	107.20	107.21	107.33	107.54	107.82	108.11	108.43	108.71
MEAN	--	--	--	--	107.20	107.25	107.43	107.67	107.96	108.27	108.56	108.87
LOW	--	--	--	--	107.20	107.32	107.53	107.81	108.10	108.42	108.70	109.06

SUMMARY FOR 2001 HIGH 107.20 (May 31, 2001) MEAN -- LOW 109.06 (Dec. 31, 2001)

LAURENS COUNTY

WELL NUMBER: LRN-1707 GRID NUMBER: 43K-k1
LATITUDE: 34°22'52" LONGITUDE: 82°00'23"
LOCATION: Site of former Mountville Fire Tower, NW of Mountville.
AQUIFER: Metamorphic rock.
WELL CHARACTERISTICS: 6-inch diameter unused domestic well. Depth: 223 ft. Open interval unknown.
DATUM: Land surface is 660 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Sanitary seal, flush with concrete pad, 0.75 ft above land surface datum.
PERIOD OF RECORD: May 2001 to current year.
EXTREMES: Highest water level: 72.39 ft below land surface, July 18, 2001.
Lowest water level: 73.02 ft below land surface, December 29, 2001.
REMARKS: Topography flat.



2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	--	--	72.48	72.47	72.39	72.42	72.58	72.71	72.86	72.96
MEAN	--	--	--	--	72.48	72.48	72.40	72.49	72.64	72.78	72.91	72.99
LOW	--	--	--	--	72.48	72.49	72.41	72.57	72.71	72.86	72.96	73.02

SUMMARY FOR 2001 HIGH 72.39 (July 18, 2001) MEAN -- LOW 73.02 (Dec. 29, 2001)

SHALLOW AQUIFER SYSTEM

"Shallow aquifer system" is a term of convenience applied to the complex of materials between land surface and the major aquifer systems of the Blue Ridge, Piedmont, and Coastal Plain. Northwest of the Fall Line, the system comprises saprolite and scattered alluvial deposits: there the lithologic and hydrologic contrast between bedrock and overlying formations simplifies distinction of the shallow aquifer system.

The shallow aquifer system in the Blue Ridge and Piedmont consists of porous materials overlying the fractured crystalline-rock aquifer system. Saprolite, the residual material from the weathering of bedrock, forms the most geographically extensive shallow unit above the Fall Line. The saprolite typically is 35 to 100 ft thick, but is thin to absent in some mountainous areas and well over 100 ft in some lower areas. It is usually rich in clay, except where the parent rock is mainly quartz. It is a source of water to bored wells—augered or dug wells that must be constructed with large diameters owing to low permeability and the consequent need to store large volumes of water. Such wells may yield ground water from the clay-rich saprolite, from relict bedrock fractures and intrusive rock, and from the transition zone, a zone of fractured but relatively unweathered rock debris just above the unaltered parent rock. Sustained yields typically are no more than a few gallons per minute; however, the saprolite is the main source of groundwater storage in the region and the main source of ground water in the underlying crystalline-rock aquifer system. Where the saprolite is thick, water levels usually respond slowly to precipitation because the low permeability of clay inhibits recharge. Water levels also respond slowly to drought because clay will store large volumes of water and release it slowly.

Shallow aquifers above the Fall Line also include modern and relict alluvial deposits. These alluvial aquifers commonly are unconfined, widely dispersed, and small in areal extent. Because of the energy of their source streams, Blue Ridge and Piedmont alluvial aquifers tend to be coarser but less isotropic than their Coastal Plain counterparts. Consequently, well yields can vary widely, even within distances of a few hundred feet.

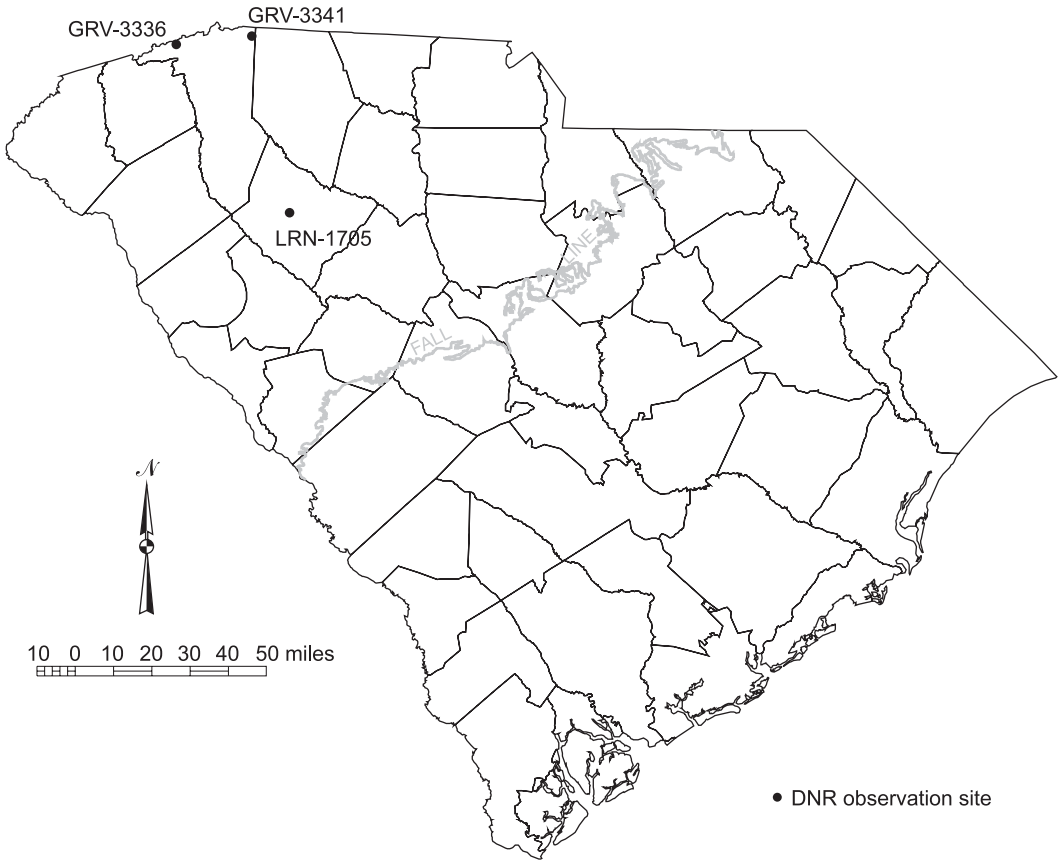
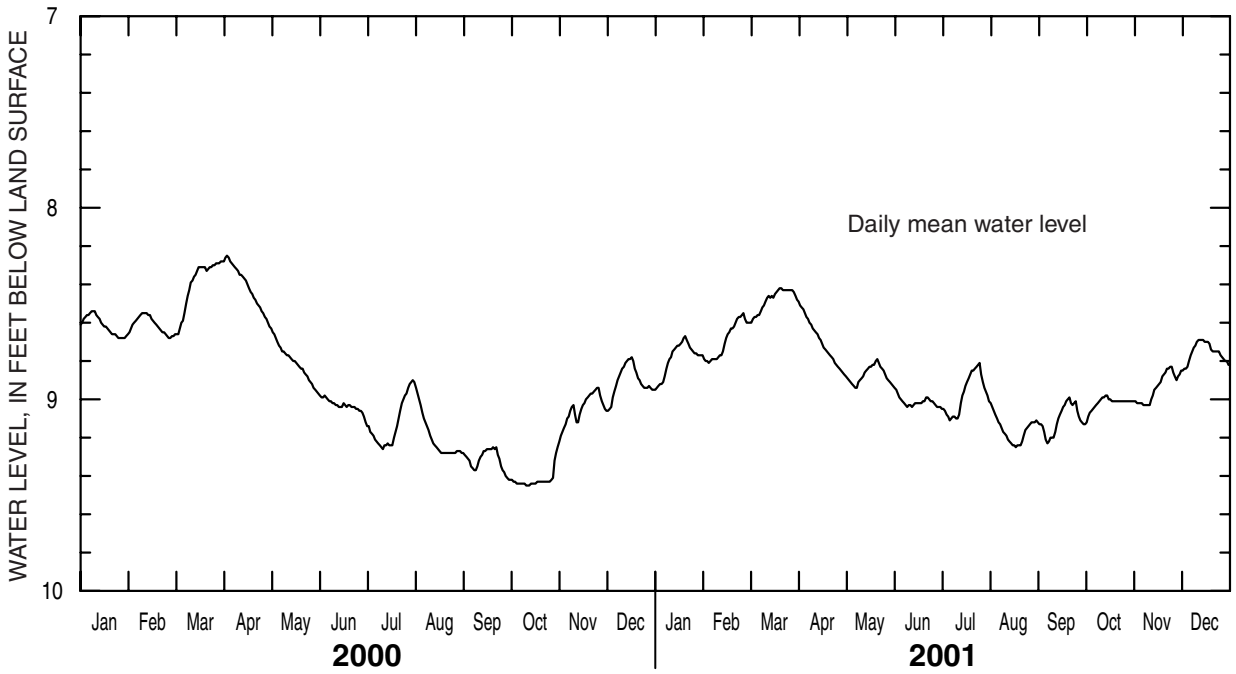


Figure 5. Locations of shallow aquifer system observation wells in the Piedmont province.

GREENVILLE COUNTY

WELL NUMBER: GRV-3336 GRID NUMBER: 49B-o5
LATITUDE: 35°07'30" LONGITUDE: 82°34'26"
LOCATION: South bank of the Middle Saluda River in Jones Gap State Park, 9 ft east of GRV-3335.
AQUIFER: Saprolite.
WELL CHARACTERISTICS: 4-inch diameter observation well. Depth: 19 ft. Open interval, 4-in PVC screen, 14 to 19 ft, with filter sand, 12 to 19 ft.
DATUM: Land surface is 1351.4 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Sanitary seal, 2.08 ft above land surface datum.
PERIOD OF RECORD: August 1997 to current year.
EXTREMES: Highest water level: 6.31 ft below land surface, January 7, 1998.
Lowest water level: 10.04 ft below land surface, September 17, 1999.
REMARKS: The saprolite in which the well is screened underlies blocks of granitic gneiss, probably placed during the construction of the adjacent roadbed.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	8.54	8.55	8.28	8.25	8.63	8.98	8.90	8.94	9.25	9.22	8.94	8.78
MEAN	8.62	8.61	8.40	8.41	8.81	9.03	9.13	9.20	9.32	9.41	9.04	8.90
LOW	8.68	8.68	8.66	8.62	8.97	9.12	9.26	9.28	9.42	9.45	9.19	9.06

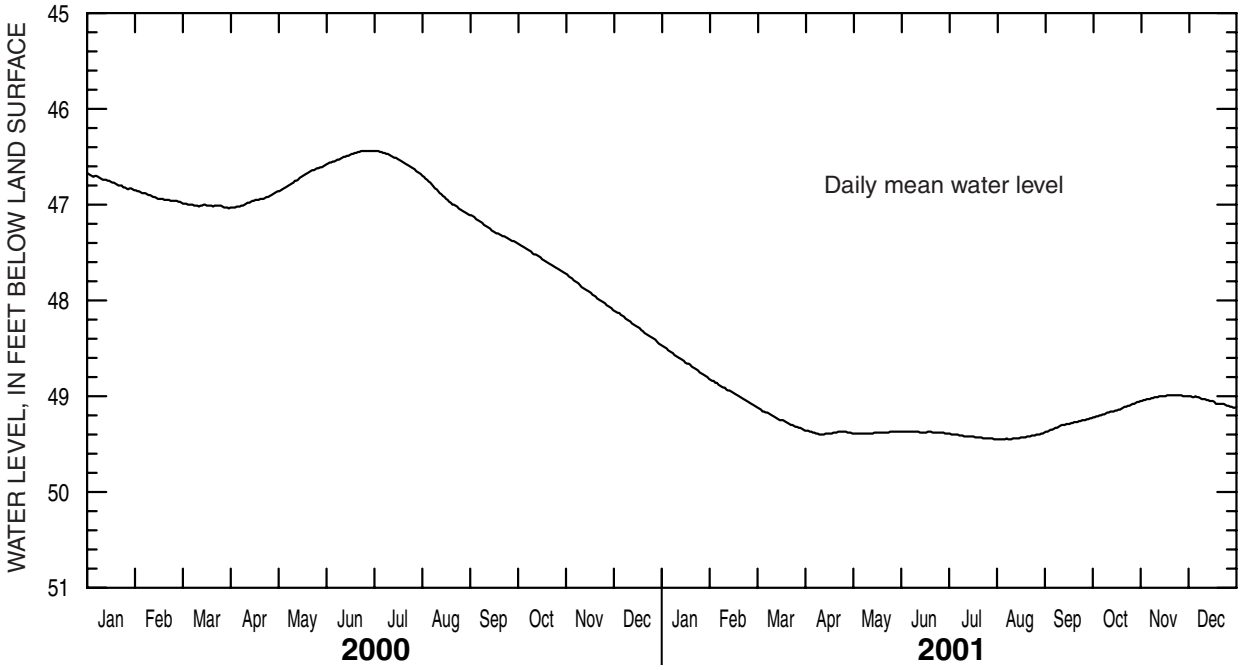
SUMMARY FOR 2000 HIGH 8.25 (Apr. 3, 2000) MEAN 8.91 LOW 9.45 (Oct. 10, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	8.67	8.55	8.42	8.49	8.79	8.94	8.81	9.02	8.99	8.98	8.83	8.69
MEAN	8.78	8.69	8.48	8.69	8.87	9.01	8.98	9.16	9.11	9.02	8.94	8.76
LOW	8.94	8.81	8.60	8.87	8.94	9.04	9.11	9.25	9.23	9.12	9.03	8.85

SUMMARY FOR 2001 HIGH 8.42 (Mar. 20, 2001) MEAN 8.87 LOW 9.25 (Aug. 17, 2001)

GREENVILLE COUNTY

WELL NUMBER: GRV-3341 GRID NUMBER: 45B-d1
LATITUDE: 35°09'38" LONGITUDE: 82°13'29"
LOCATION: Oak Grove Road Fire Station of Glassy Mountain Fire District.
AQUIFER: Saprolite.
WELL CHARACTERISTICS: 4-inch diameter observation well. Depth: 80 ft. Open interval 70 to 80 ft PVC screen, with filter sand 50 to 80 feet.
DATUM: Land surface is 1,029.6 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Sanitary seal, 2.72 ft above land surface datum.
PERIOD OF RECORD: May 1998 to current year.
EXTREMES: Highest water level: 40.02 ft below land surface, June 30, 1998.
Lowest water level: 49.45 ft below land surface, July 30, 2001.
REMARKS: Total saprolite thickness 132 ft.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	46.67	46.85	46.98	46.87	46.59	46.44	46.44	46.70	47.11	47.41	47.73	48.11
MEAN	46.76	46.92	47.01	46.96	46.72	46.49	46.53	46.92	47.27	47.57	47.92	48.28
LOW	46.85	46.97	47.04	47.03	46.86	46.58	46.68	47.11	47.40	47.72	48.10	48.47

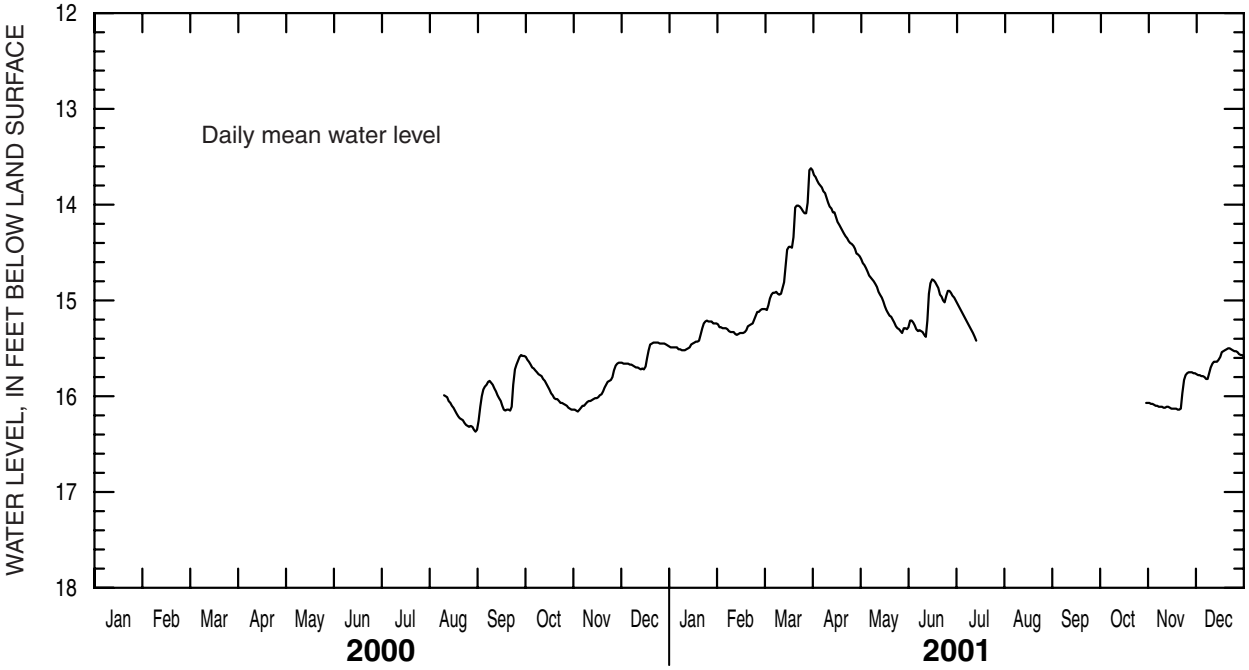
SUMMARY FOR 2000 HIGH 46.44 (June 23, 2000) MEAN 47.11 LOW 48.47 (Dec. 31, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	48.48	48.84	49.11	49.36	49.37	49.37	49.39	49.38	49.23	49.05	48.99	49.00
MEAN	48.65	48.97	49.24	49.38	49.38	49.38	49.42	49.43	49.29	49.14	49.01	49.06
LOW	48.83	49.10	49.35	49.40	49.39	49.39	49.45	49.45	49.37	49.22	49.05	49.12

SUMMARY FOR 2001 HIGH 48.48 (Jan. 1, 2001) MEAN 49.20 LOW 49.45 (July 30, 2001)

LAURENS COUNTY

WELL NUMBER: LRN-1705 GRID NUMBER: 43J-c2
LATITUDE: 34°29'26" LONGITUDE: 82°02'35"
LOCATION: Joe R. Adair Outdoor Education Center, Laurens.
AQUIFER: Quaternary alluvium.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 39 ft. Open interval 29 to 39 feet, 6-inch PVC screen.
DATUM: Land surface is 641 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Instrument platform, 2.82 ft above land surface datum.
PERIOD OF RECORD: August 2000 to current year.
EXTREMES: Highest water level: 13.62 ft below land surface, March 31, 2001.
Lowest water level: 16.37 ft below land surface, August 30, 2000.
REMARKS: In body of well-sorted sand, at least 40 feet deep, of unknown extent.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	--	--	--	--	--	15.99	15.57	15.59	15.65	15.44
MEAN	--	--	--	--	--	--	--	16.21	15.92	15.91	15.96	15.58
LOW	--	--	--	--	--	--	--	16.37	16.26	16.14	16.16	15.72

SUMMARY FOR 2000 HIGH 15.44 (Dec. 21, 2000) MEAN -- LOW 16.37 (Aug. 30, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	15.21	15.09	13.62	16.64	14.54	14.78	15.25	--	--	--	15.75	15.50
MEAN	15.39	15.27	14.51	14.11	14.99	15.07	15.35	--	--	--	16.02	15.63
LOW	15.52	15.36	15.10	14.52	15.34	15.38	15.45	--	--	--	16.14	15.82

SUMMARY FOR 2001 HIGH 13.62 (Mar. 31, 2001) MEAN -- LOW 16.14 (Nov. 19, 2001)

COASTAL PLAIN WATER LEVELS

CAPE FEAR AQUIFER SYSTEM

The Cape Fear aquifer system consists principally of the Cape Fear Formation and is the basal aquifer system of the South Carolina Coastal Plain formations. It generally consists of sand and gravel beds separated by thick sections of silt and clay. It is thought to occur mainly in the Lower Coastal Plain and eastern part of the Upper Coastal Plain. The type locality of the Cape Fear Formation is in North Carolina, and no part of the formation crops out in South Carolina. Structure contours on the top of the aquifer system are shown in Figure 6.

Few wells penetrate the system, hence hydraulic and water-quality data are scarce. In general, the system is thought to be much less permeable and productive than the overlying Middendorf aquifer system, and it is likely to contain more highly mineralized water.

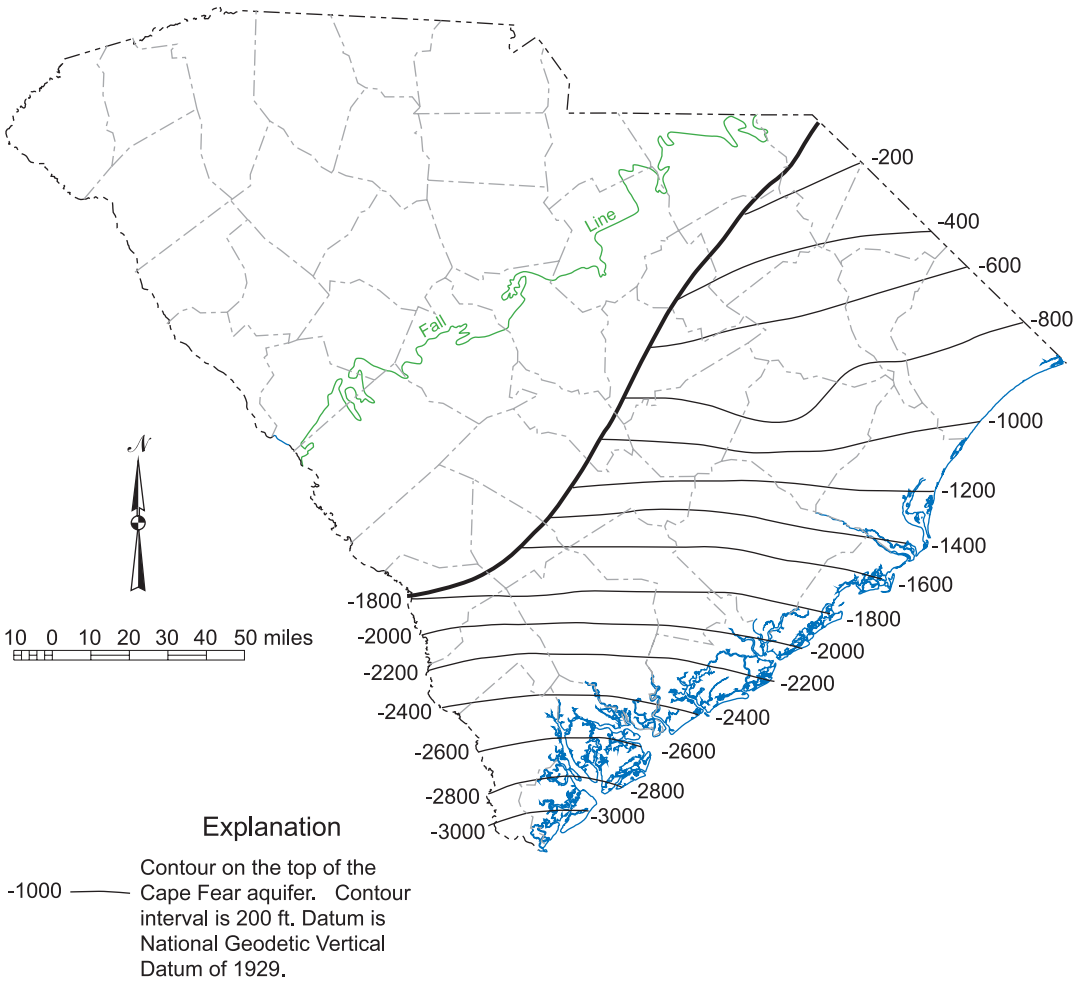


Figure 6. Contours on top of the Cape Fear aquifer system (from Aucott and others, 1987).

ALL-348 and BRN-1878 are the only observation wells known to be completed solely in the Cape Fear (Fig.7). Owing to its great depth and to lack of development by water users, the Cape Fear system experiences only small seasonal water-level fluctuations and shows little response to drought. Well BFT-2055, at Hilton Head Island, is screened in both the Cape Fear and Middendorf systems, and measurements therefore reflect composite water levels. They are presumed to more closely reflect Middendorf water levels, owing to that system's greater thickness and hydraulic conductivity. Consequently, BFT-2055 measurements are presented with Middendorf aquifer system data.

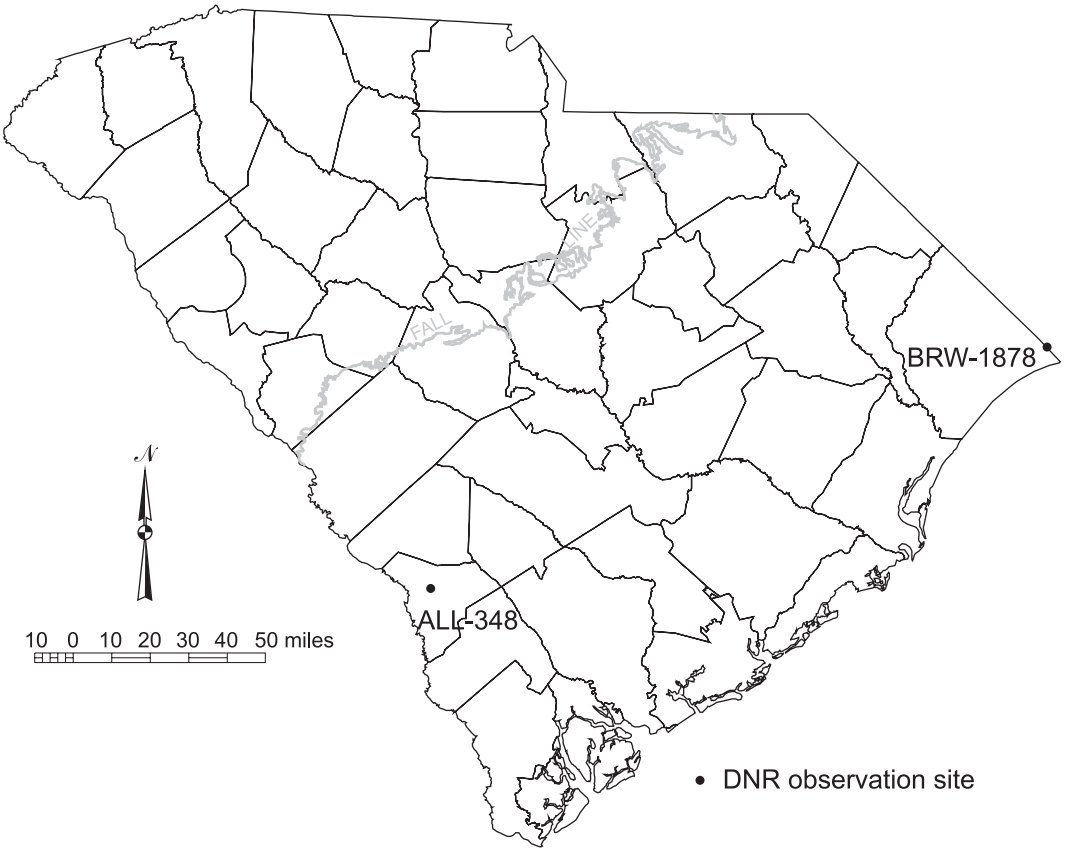
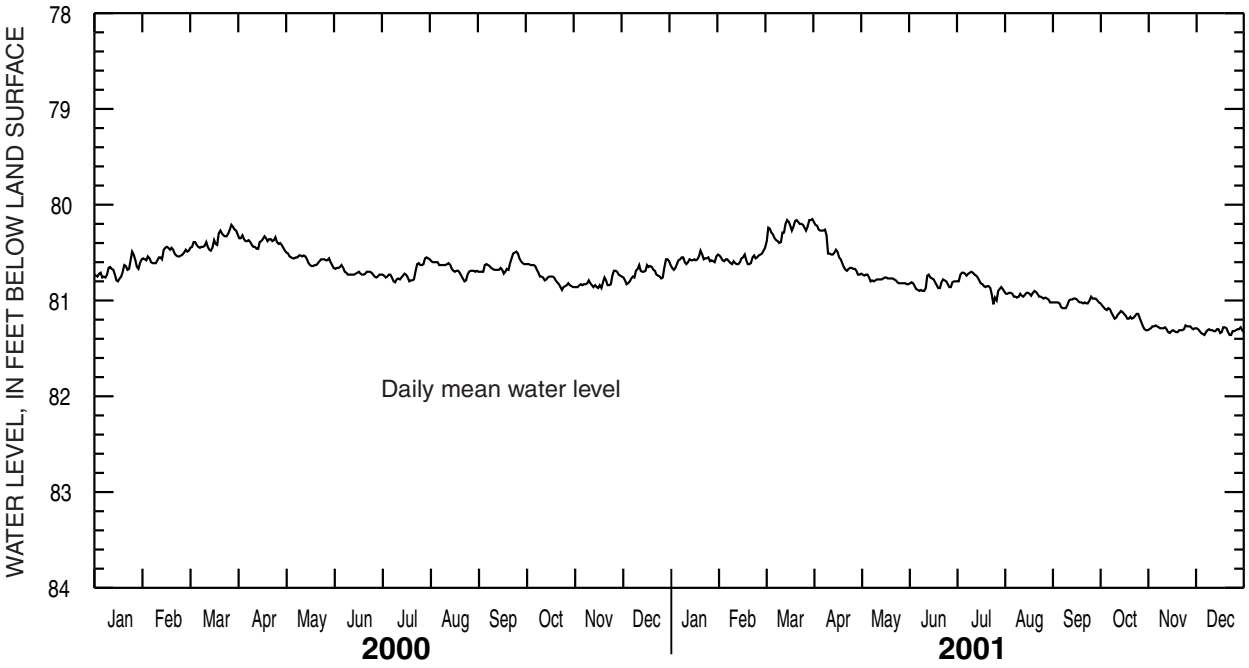


Figure 7. Locations of Cape Fear aquifer system observation wells.

ALLENDALE COUNTY

WELL NUMBER: ALL-348 GRID NUMBER: 35AA-q3
LATITUDE: 33°01'29" LONGITUDE: 81°23'05"
LOCATION: Appleton Fire Tower.
AQUIFER: Cape Fear.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 1,600 ft. Screened from 1,575 to 1,600 ft.
DATUM: Land surface is 280.50 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 2.80 ft above land surface datum.
PERIOD OF RECORD: October 1996 to current year.
EXTREMES: Highest water level: 79.05 ft below land surface, February 5, 1998.
Lowest water level: 81.36 ft below land surface, December 6, 2001.
REMARKS: One of nine wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	80.49	80.44	80.21	80.31	80.48	80.63	80.55	80.57	80.49	80.62	80.69	80.57
MEAN	80.68	80.53	80.37	80.38	80.57	80.71	80.72	80.67	80.63	80.76	80.81	80.71
LOW	80.80	80.61	80.48	80.46	80.64	80.76	80.81	80.80	80.72	80.89	80.87	80.83

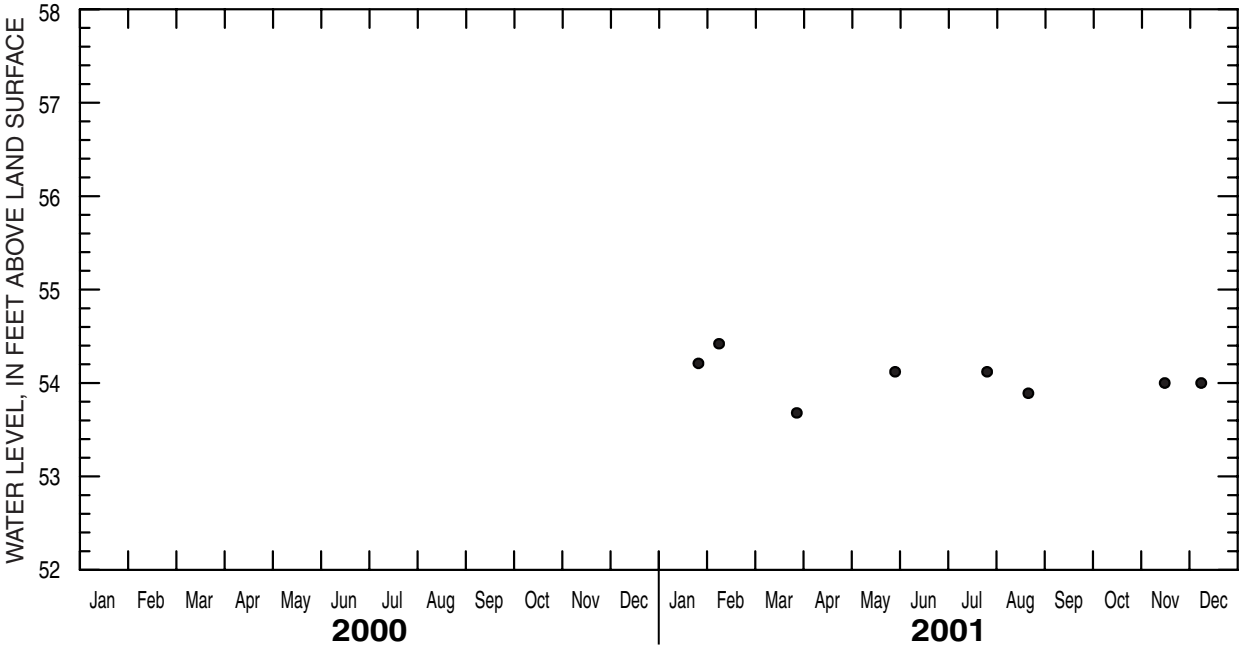
SUMMARY FOR 2000 HIGH 80.21 (Mar. 28, 2000) MEAN 80.63 LOW 80.89 (Oct. 24, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	80.48	80.51	80.16	80.15	80.72	80.73	80.70	80.90	80.96	81.03	81.26	81.28
MEAN	80.58	80.57	80.27	80.48	80.78	80.83	80.81	80.95	81.01	81.16	81.29	81.32
LOW	80.68	80.62	80.48	80.73	80.83	80.90	81.04	81.02	81.08	81.31	81.34	81.36

SUMMARY FOR 2001 HIGH 80.15 (Apr. 1, 2001) MEAN 80.84 LOW 81.36 (Dec. 6, 2001)

BRUNSWICK COUNTY, N. C.

WELL NUMBER: BRW-1878 GRID NUMBER: 2Q-j2
LATITUDE: 33°53'35" LONGITUDE: 78°35'20"
LOCATION: N. C. Department of Environment and Natural Resources well cluster, Calabash.
AQUIFER: Cape Fear.
WELL CHARACTERISTICS: 4-inch diameter observation well. Depth: 1,140 ft. Screened from 1,042 to 1,052 ft.
DATUM: Land surface is 48.27 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 2.30 ft above land surface datum.
PERIOD OF RECORD: January 2001 to current year.
EXTREMES: Highest water level: 54.4 ft above land surface, February 7, 2001.
Lowest water level: 53.7 ft above land surface, March 28, 2001.
REMARKS: Flowing well.



MIDDENDORF AQUIFER SYSTEM

The Middendorf aquifer system is composed mostly of Middendorf Formation sediments, but locally it includes parts of adjacent formations. In the updip areas, the aquifer is interbedded sand and clay lenses that were deposited in an upper delta plain environment. Near the coast, the system encompasses thin- to thick-bedded sand and clay deposited in marginal marine or lower delta plain environments. In general, the Middendorf aquifer has coarser sand and less clay in the western part of the Coastal Plain than in the eastern part.

The Middendorf crops out along the Fall Line from Chesterfield County to Edgefield County, except for some areas of Aiken County where it not exposed (Fig. 8). Its outcrop is narrowest in southwestern Edgefield County and widest in Chesterfield County. The aquifer dips southeastward near the Fall Line and southward along the coast. The top of the aquifer is at elevation 100, -700, and -1,700 ft msl (mean sea level) at Aiken, Little River, and Charleston, respectively. Thickness ranges from 0 at the Fall Line to more than 300 ft in Dorchester County.

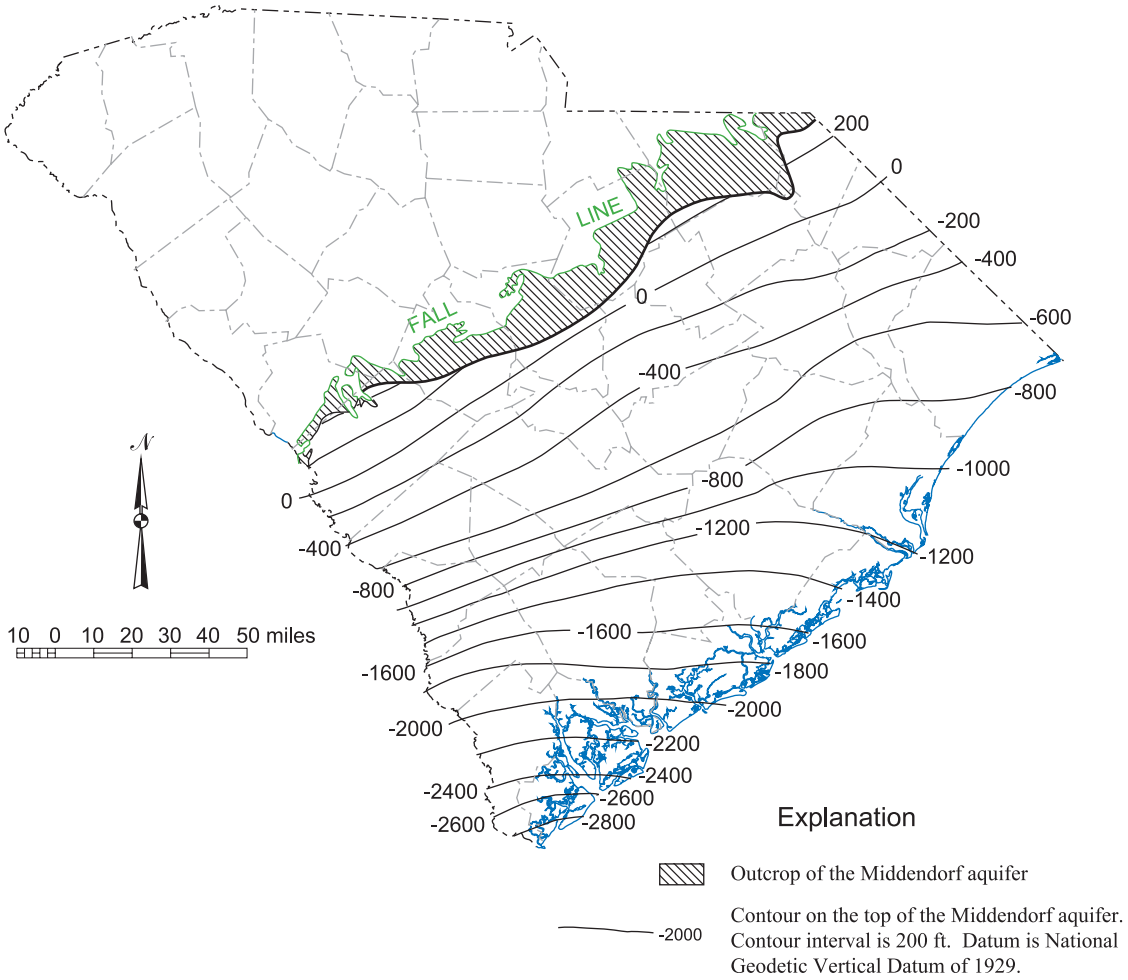


Figure 8. Contours on top of the Middendorf aquifer system (from Aucott and others, 1987).

Wells that tap the Middendorf system can be found in nearly all of South Carolina's Coastal Plain counties, and it is the State's most widely used artesian system. Well depths range from a few tens of feet in its outcrop and subcrop areas, where locally it is unconfined, to more than 2,700 ft in Beaufort County. Individual well yields that locally exceed 2,000 gpm and commonly exceed 500 gpm were reported by Newcome (2000). He reported transmissivities of up to 400,000 gpd/ft, (gallons per day per foot) and specific capacities as great as 75 gpm/ft (gallons per minute per foot of drawdown). Coarse sand and gravel formations occur in the system in its subcrop area and, where incised by stream erosion, substantially contribute to the base flow of both Upper Coastal Plain and through-flowing streams.

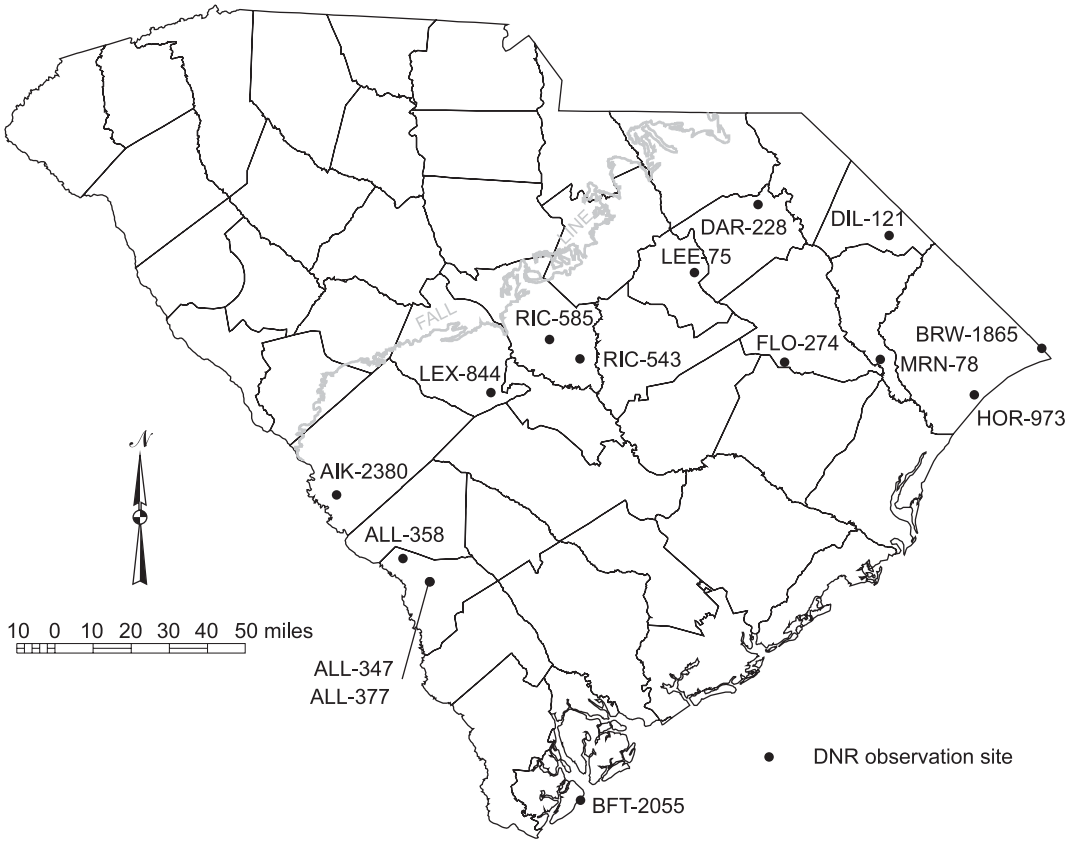
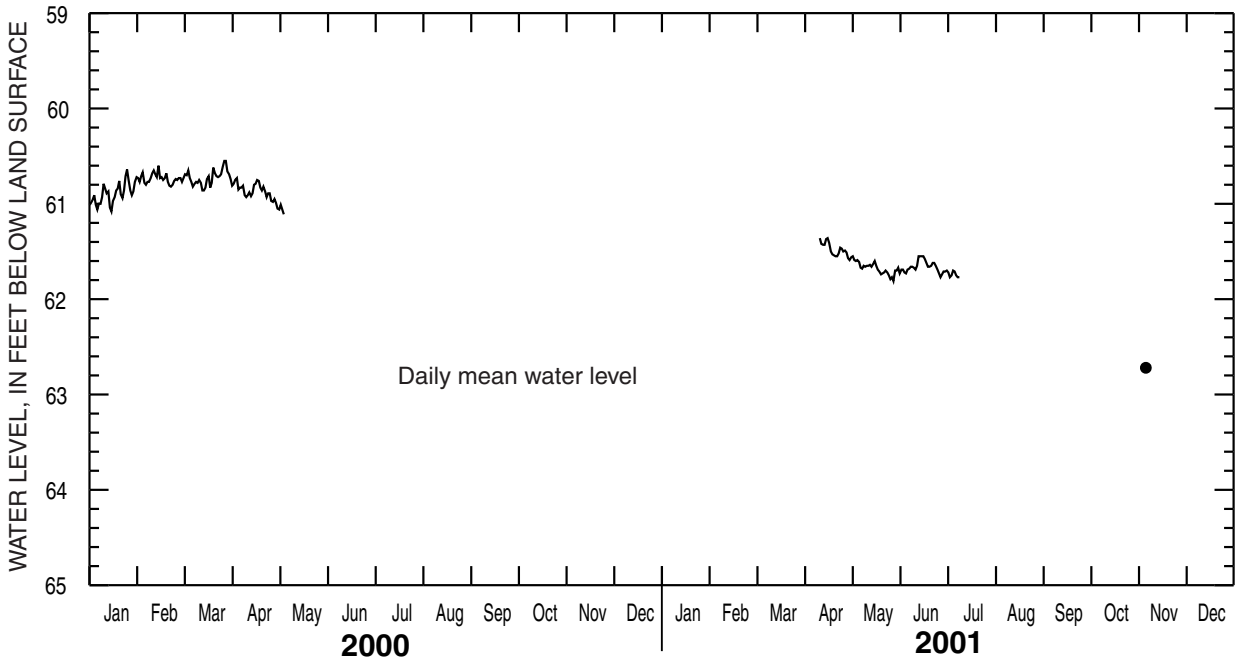


Figure 9. Locations of Middendorf aquifer system observation wells.

AIKEN COUNTY

WELL NUMBER: AIK-2380 GRID NUMBER: 40W-q4
LATITUDE: 33°21'12" LONGITUDE: 81°48'32"
LOCATION: 1.0 mile north of Jackson.
AQUIFER: Middendorf.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 385 ft. Screened from 370 to 380 ft.
DATUM: Land surface is 228.25 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of tee, 2.68 ft above land surface datum.
PERIOD OF RECORD: December 1995 to July 2001.
EXTREMES: Highest water level: 59.08 ft below land surface, April 2, 1996.
Lowest water level: 62.75 ft below land surface, November 5, 2001.
REMARKS: One of four wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	60.64	60.60	60.55	60.73	61.01	--	--	--	--	--	--	--
MEAN	60.89	60.74	60.73	60.87	--	--	--	--	--	--	--	--
LOW	61.08	60.82	60.86	61.05	61.12	--	--	--	--	--	--	--

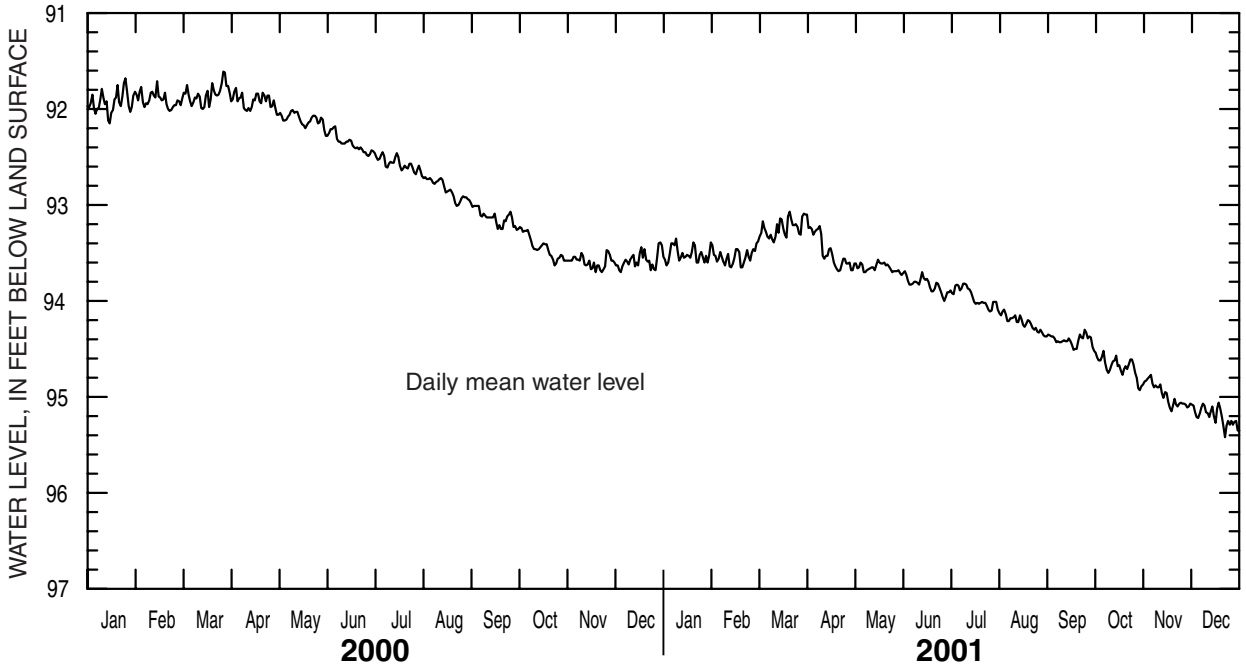
SUMMARY FOR 2000 HIGH 60.55 (Mar. 27, 2000) MEAN -- LOW 61.12 (May 5, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	--	61.31	61.55	61.55	61.70	--	--	--	--	--
	--	--	--	--	61.67	61.66	--	--	--	--	--	--
LOW	--	--	--	61.59	61.81	61.77	61.77	--	--	--	--	--

SUMMARY FOR 2001 HIGH 61.31 (Apr. 10, 2001) MEAN -- LOW 62.75 (Nov. 5, 2001)

ALLENDALE COUNTY

WELL NUMBER: ALL-347 GRID NUMBER: 35AA-q2
LATITUDE: 33°01'29" LONGITUDE: 81°23'03"
LOCATION: Appleton Fire Tower.
AQUIFER: Middendorf.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 1,423 ft. Screened from 1,408 to 1,418 ft.
DATUM: Land surface is 281.64 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 2.25 ft above land surface datum.
PERIOD OF RECORD: October 1996 to current year.
EXTREMES: Highest water level: 88.16 ft below land surface, March 14, 1997.
Lowest water level: 95.42 ft below land surface, December 22, 2001.
REMARKS: One of nine wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	91.68	91.71	91.61	91.78	92.01	92.18	92.45	92.71	93.01	93.23	93.47	93.39
MEAN	91.93	91.90	91.85	91.92	92.11	92.36	92.57	92.84	93.14	93.44	93.59	93.57
LOW	92.15	92.02	92.00	92.06	92.28	92.49	92.70	93.01	93.26	93.63	93.70	93.70

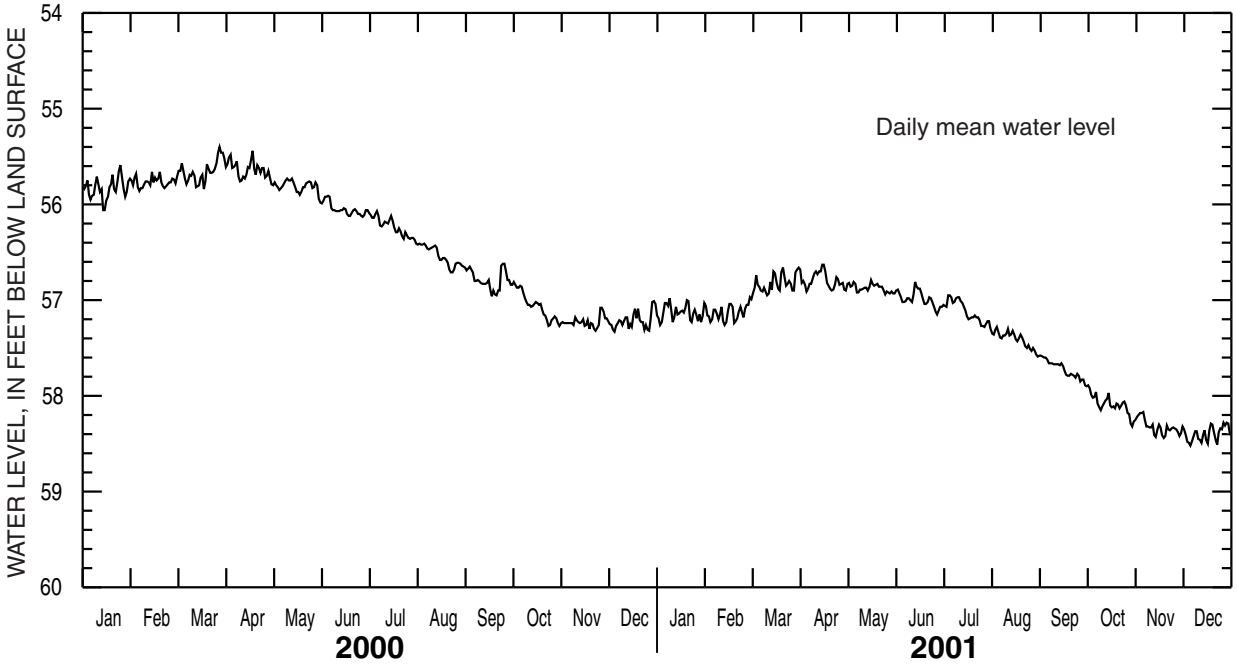
SUMMARY FOR 2000 HIGH 91.57 (Mar. 27, 2000) MEAN 92.60 LOW 93.70 (Nov. 22, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	93.35	93.40	93.07	93.10	93.57	93.69	93.82	94.09	94.30	94.52	94.77	95.06
MEAN	93.51	93.54	93.24	93.47	93.65	93.83	93.96	94.23	94.41	94.69	94.98	95.20
LOW	93.63	93.65	93.39	93.69	93.73	94.00	94.11	94.37	94.52	94.93	95.15	95.42

SUMMARY FOR 2001 HIGH 54.69 (Apr. 10, 2001) MEAN 94.06 LOW 95.42 (Dec. 22, 2001)

ALLENDALE COUNTY

WELL NUMBER: ALL-358 GRID NUMBER: 37Z-t3
LATITUDE: 33°06'47" LONGITUDE: 81°30'22"
LOCATION: Rolling Hills Road, Millet.
AQUIFER: Middendorf.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 1,123 ft. Screened from 1,108 to 1,118 ft.
DATUM: Land surface is 243.12 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 2.67 ft above land surface datum.
PERIOD OF RECORD: November 1995 to current year.
EXTREMES: Highest water level: 52.57 ft below land surface, March 19, 1996.
Lowest water level: 58.52 ft below land surface, December 5, 2001.
REMARKS: One of nine wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	55.59	55.66	55.40	55.44	55.73	55.91	56.07	56.41	56.62	56.81	57.08	57.01
MEAN	55.83	55.77	55.66	55.64	55.81	56.05	56.24	56.54	56.79	57.07	57.23	57.21
LOW	56.06	55.86	55.84	55.79	55.98	56.13	56.41	56.71	56.96	57.27	57.32	57.33

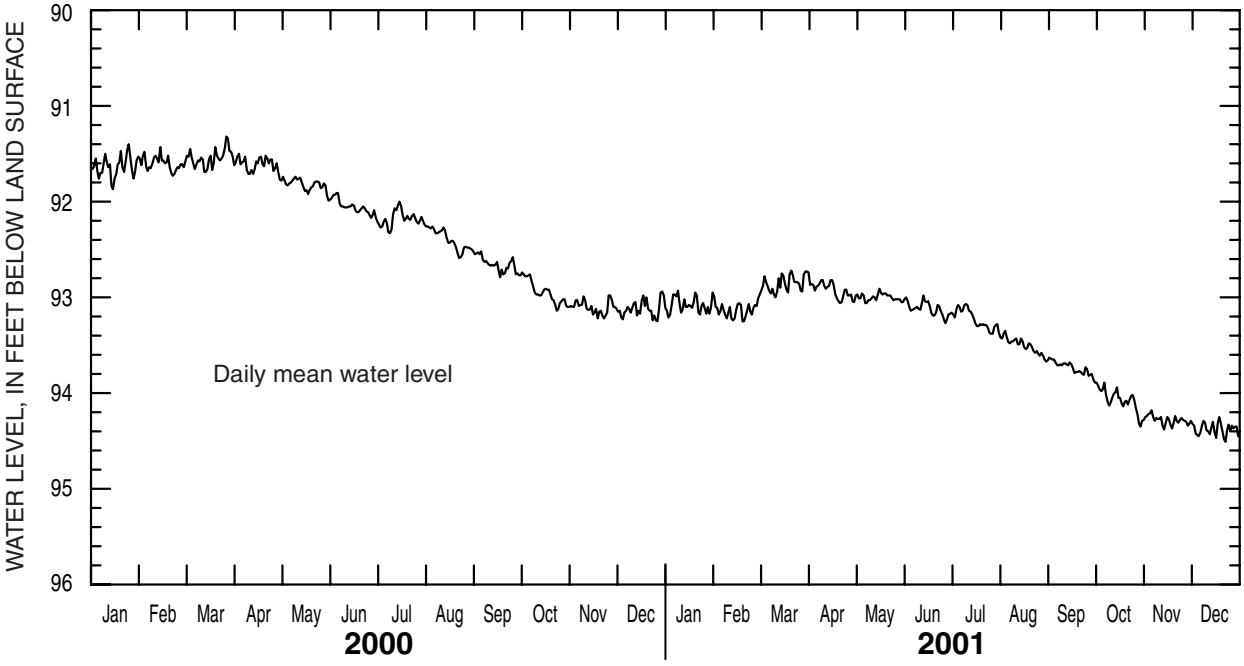
SUMMARY FOR 2000 HIGH 55.40 (Mar. 28, 2000) MEAN 56.32 LOW 57.33 (Dec. 4, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	56.98	56.97	56.66	56.63	56.79	56.81	56.95	57.28	57.58	57.89	58.17	58.28
MEAN	57.13	57.14	56.83	56.80	56.87	56.99	57.12	57.42	57.73	58.10	58.33	58.40
LOW	57.26	57.26	56.99	56.91	56.94	57.15	57.30	57.59	57.90	58.32	58.44	58.52

SUMMARY FOR 2001 HIGH 56.63 (Apr. 15, 2001) MEAN 57.40 LOW 58.52 (Dec. 5, 2001)

ALLENDALE COUNTY

WELL NUMBER: ALL-377 GRID NUMBER: 35AA-q10
LATITUDE: 33°01'28" LONGITUDE: 81°23'04"
LOCATION: Appleton Fire Tower.
AQUIFER: Middendorf.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 1,199 ft. Screened from 1,174 to 1,194 ft.
DATUM: Land surface is 281.52 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 3.52 ft above land surface datum.
PERIOD OF RECORD: October 1996 to current year.
EXTREMES: Highest water level: 88.12 ft below land surface, March 14, 1997.
Lowest water level: 94.51 ft below land surface, December 22, 2001.
REMARKS: One of nine wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	91.40	91.43	91.32	91.50	91.74	91.91	92.00	92.26	92.52	92.74	92.98	92.94
MEAN	91.63	91.60	91.54	91.61	91.82	92.05	92.18	92.40	92.66	92.95	93.10	93.12
LOW	91.87	91.73	91.69	91.77	91.99	92.17	92.33	92.59	92.79	93.14	93.22	93.25

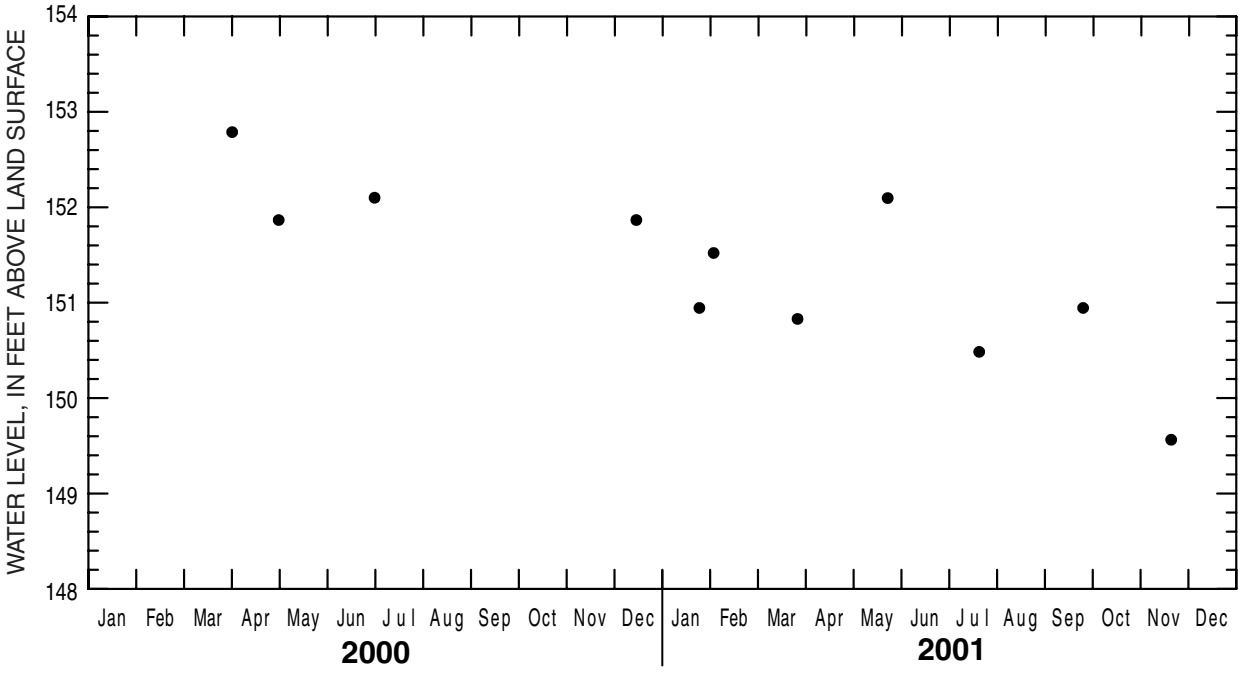
SUMMARY FOR 2000 HIGH 91.32 (Mar. 27, 2000) MEAN 92.23 LOW 93.25 (Dec. 26, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	92.93	93.01	92.72	92.74	92.91	92.98	93.07	93.35	93.63	93.89	94.18	94.25
MEAN	93.08	93.14	92.86	92.92	93.00	93.12	93.23	93.51	93.74	94.08	94.28	94.38
LOW	93.21	93.25	93.00	93.06	93.06	93.27	93.38	93.67	93.89	94.35	94.38	94.51

SUMMARY FOR 2001 HIGH 92.72 (Mar. 21, 2001) MEAN 93.45 LOW 94.51 (Dec. 22, 2001)

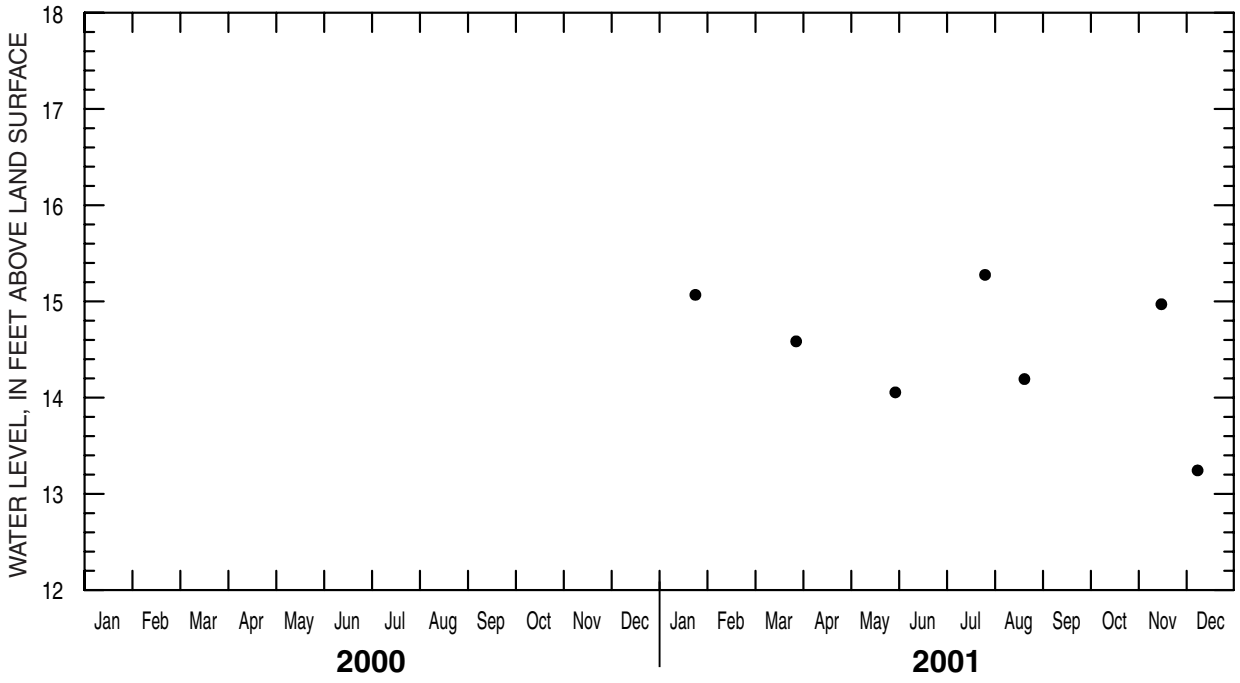
BEAUFORT COUNTY

WELL NUMBER: BFT-2055 GRID NUMBER: 27KK-r14
LATITUDE: 32°11'29" LONGITUDE: 80°42'14"
LOCATION: Near Singleton Beach, Hilton Head Island.
AQUIFER: Middendorf and Cape Fear.
WELL CHARACTERISTICS: 8-inch diameter test well. Depth: 3,700 ft. Screened from 2,782 to 3,688 ft.
DATUM: Land surface is 12 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of 8-inch blind flange, 3.90 ft above concrete pad at land surface datum.
PERIOD OF RECORD: April 2000 to current year.
EXTREMES: Highest water level: 152.6 ft above land surface, April 1, 2000.
Lowest water level: 149.4 ft below land surface, November 19, 2001.
REMARKS: Flowing well measured with 0 –100 psi gage. Water levels are tide influenced. May and July 2000 readings estimated from data-logger record.



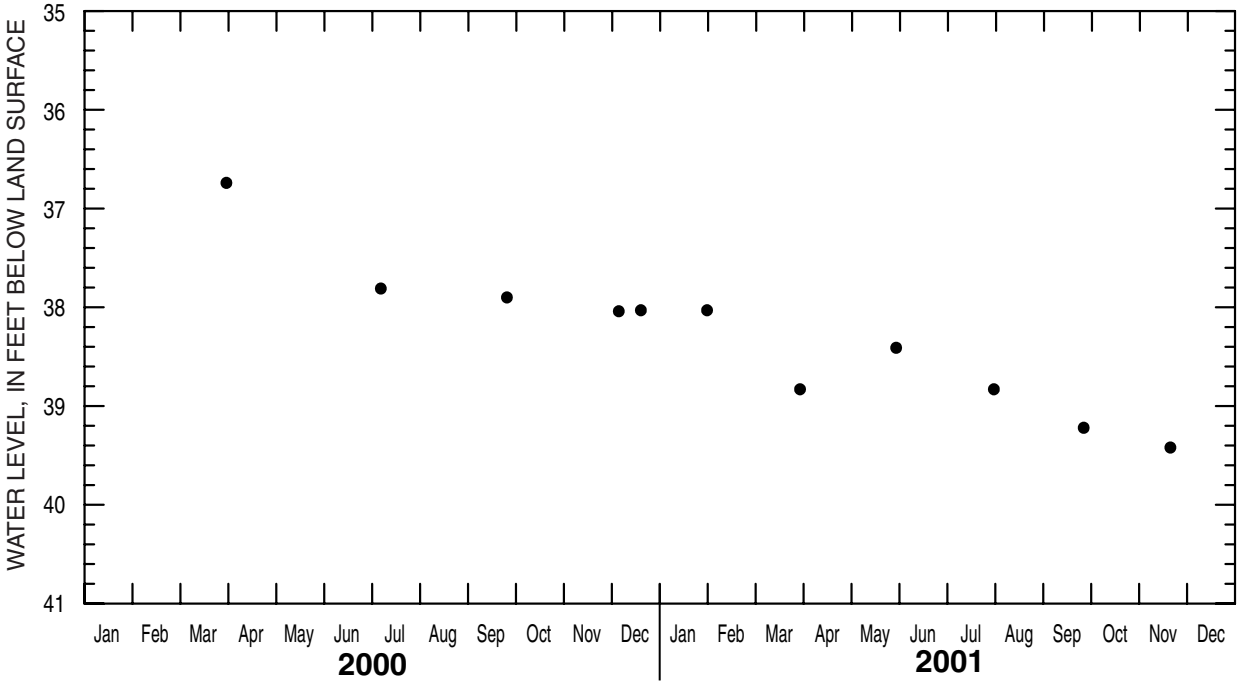
BRUNSWICK COUNTY, N. C.

WELL NUMBER: BRW-1865 GRID NUMBER: 2Q-j6
LATITUDE: 33°53'33" LONGITUDE: 78°35'23"
LOCATION: N.C. Department of Environment and Natural Resources well cluster, Calabash.
AQUIFER: Middendorf.
WELL CHARACTERISTICS: 4-inch diameter observation well. Depth: 904 ft. Screened from 810 to 820 ft.
DATUM: Land surface is 47.56 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 2.88 ft above land surface datum.
PERIOD OF RECORD: January 2001 to current year.
EXTREMES: Highest water level: 15.3 ft above land surface, July 26, 2001.
Lowest water level: 13.2 ft above land surface, December 7, 2001.
REMARKS: Flowing well.



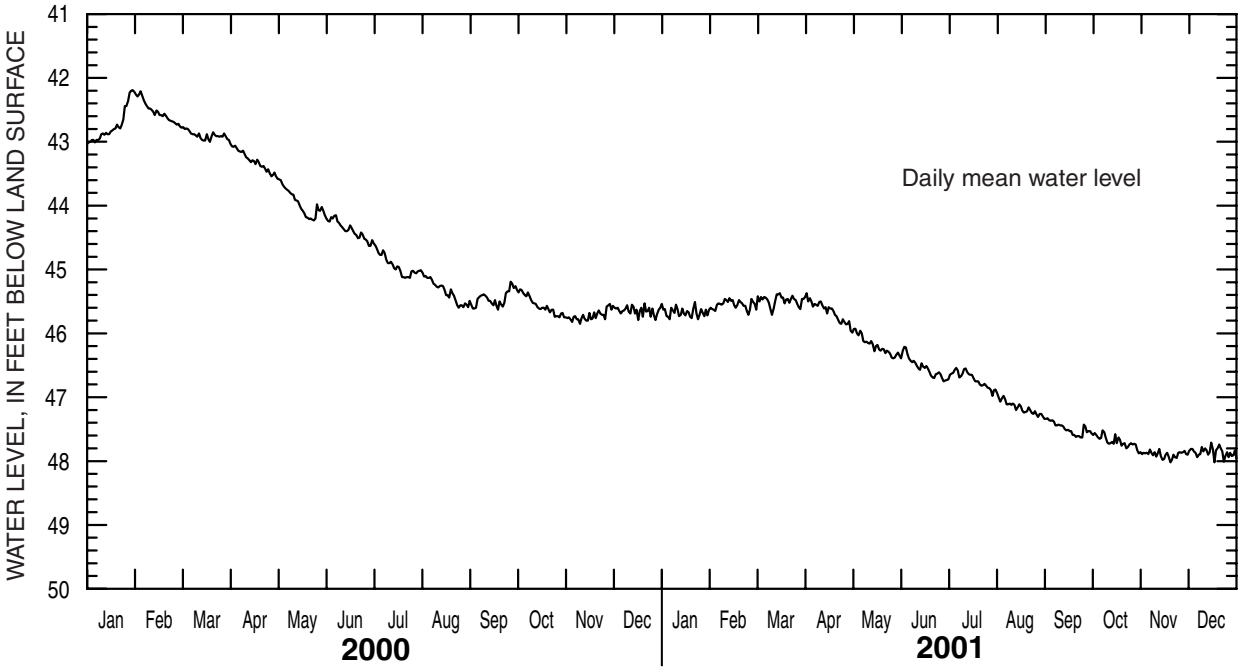
DARLINGTON COUNTY

WELL NUMBER: DAR-228 GRID NUMBER: 17J-m1
LATITUDE: 34°27'32" LONGITUDE: 79°52'48"
LOCATION: Lake Darpo, near Society Hill.
AQUIFER: Middendorf.
WELL CHARACTERISTICS: 2-inch diameter observation well. Depth: 186 ft. Screened from 175 to 185 ft.
DATUM: Land surface is 170 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 1.64 ft above land surface datum.
PERIOD OF RECORD: October 1999 to current year.
EXTREMES: Highest water level: 36.74 ft below land surface, March 30, 2000.
Lowest water level: 39.42 ft below land surface, November 19, 2001.
REMARKS: Drilled and cored for DNR/USGS aquifer delineation project.



DILLON COUNTY

WELL NUMBER: DIL-121 GRID NUMBER: 10L-c2
LATITUDE: 34°19'58" LONGITUDE: 79°16'48"
LOCATION: Little Pee Dee State Park, near Dillon.
AQUIFER: Middendorf.
WELL CHARACTERISTICS: 2-inch diameter observation well. Depth: 294 ft. Screened from 269 to 284 ft.
DATUM: Land surface is 95 ft (map estimate)above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 2.98 ft above land surface datum.
PERIOD OF RECORD: December 1999 to current year.
EXTREMES: Highest water level: 42.19 ft below land surface, January 30, 2000.
Lowest water level: 48.02 ft below land surface, November 11, 2001.
REMARKS: Drilled and cored for DNR/USGS aquifer delineation project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	42.19	42.21	42.77	43.03	43.58	44.15	44.59	45.05	45.19	45.31	45.54	45.53
MEAN	42.75	42.53	42.90	43.29	43.96	44.38	44.93	45.35	45.45	45.57	45.72	45.64
LOW	43.03	42.76	43.00	43.54	44.23	44.63	45.13	45.60	45.63	45.75	45.85	45.79

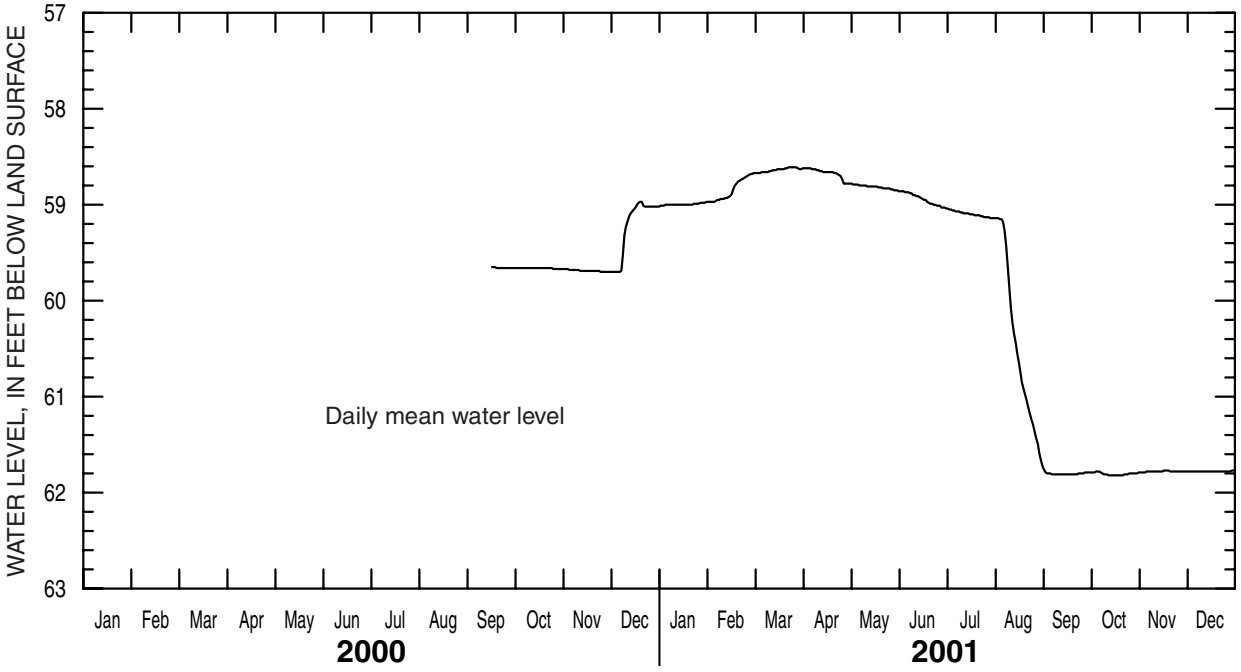
SUMMARY FOR 2000 HIGH 42.19 (Jan. 30, 2000) MEAN 44.38 LOW 45.85 (Nov. 9, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	45.51	45.45	45.37	45.37	45.93	46.21	46.54	46.94	47.33	47.52	47.81	47.71
MEAN	45.67	45.55	45.49	45.65	46.19	46.53	46.72	47.16	47.49	47.70	47.90	47.86
LOW	45.78	45.71	45.71	45.96	46.39	46.75	46.98	47.34	47.63	47.88	48.02	48.02

SUMMARY FOR 2001 HIGH 45.37 (Mar. 16, 2001) MEAN 46.66 LOW 48.02 (Nov. 19, 2001)

FLORENCE COUNTY

WELL NUMBER: FLO-274 GRID NUMBER: 16Q-s1
LATITUDE: 33°51'20" LONGITUDE: 79°45'59"
LOCATION: Lake City Airport.
AQUIFER: Middendorf.
WELL CHARACTERISTICS: 4-inch diameter observation well. Depth: 1,090 ft. Screened from 540 to 560 ft.
DATUM: Land surface is 78.53 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 1.34 ft above land surface datum.
PERIOD OF RECORD: September 2000 to current year.
EXTREMES: Highest water level: 58.61 ft below land surface, March 23, 2001.
Lowest water level: 61.82 ft below land surface, October 12, 2001.
REMARKS: Drilled and cored for USGS Regional Aquifer System Analysis project. Possible collapsed well screen.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	--	--	--	--	--	--	59.65	59.66	59.67	58.97
MEAN	--	--	--	--	--	--	--	--	59.66	59.66	59.69	59.21
LOW	--	--	--	--	--	--	--	--	59.66	59.67	59.70	59.70

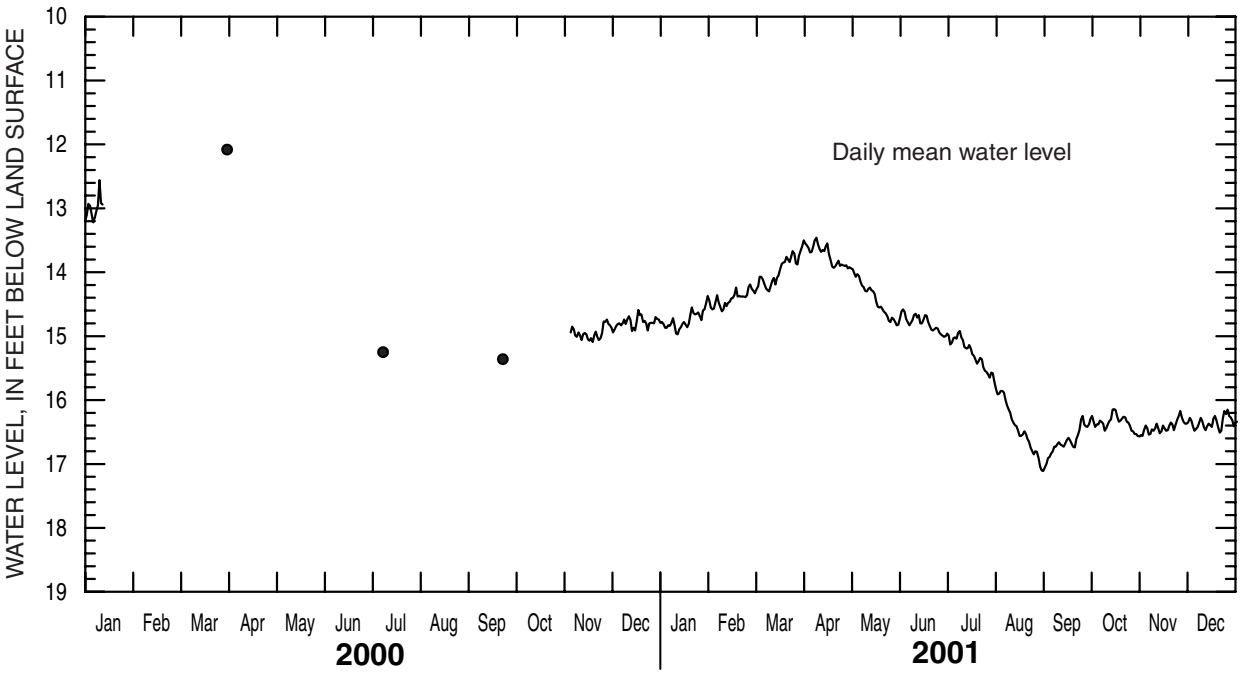
SUMMARY FOR 2000 HIGH 58.97 (Dec. 19. 2000) MEAN -- LOW 59.70 (Nov. 24, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	58.97	58.68	58.61	58.62	58.78	58.86	59.04	59.14	61.76	61.78	61.77	61.77
MEAN	59.00	58.85	58.64	58.67	58.81	58.94	59.09	60.45	61.80	61.80	61.78	61.78
LOW	59.01	58.97	58.67	58.78	58.85	59.03	59.14	61.72	61.81	61.82	61.79	61.78

SUMMARY FOR 2001 HIGH 58.61 (Mar. 23, 2001) MEAN 59.97 LOW 61.82 (Oct. 12, 2001)

LEE COUNTY

WELL NUMBER: LEE-75 GRID NUMBER: 21M-k1
LATITUDE: 34°12'08" LONGITUDE: 80°10'30"
LOCATION: Lee State Park, near Bishopville.
AQUIFER: Middendorf.
WELL CHARACTERISTICS: 2-inch diameter observation well. Depth: 356 ft. Screened from 306 to 356 ft.
DATUM: Land surface is 195 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 3.55 ft above land surface datum.
PERIOD OF RECORD: December 1999 to current year.
EXTREMES: Highest water level: 12.08 ft below land surface, March 30, 2000.
Lowest water level: 17.11 ft below land surface, August 31, 2001.
REMARKS: Drilled and cored for DNR/USGS aquifer delineation project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	12.56	--	--	--	--	--	--	--	--	--	14.74	14.59
MEAN	--	--	--	--	--	--	--	--	--	--	14.95	14.79
LOW	13.22	--	--	--	--	--	--	--	--	--	15.09	14.94

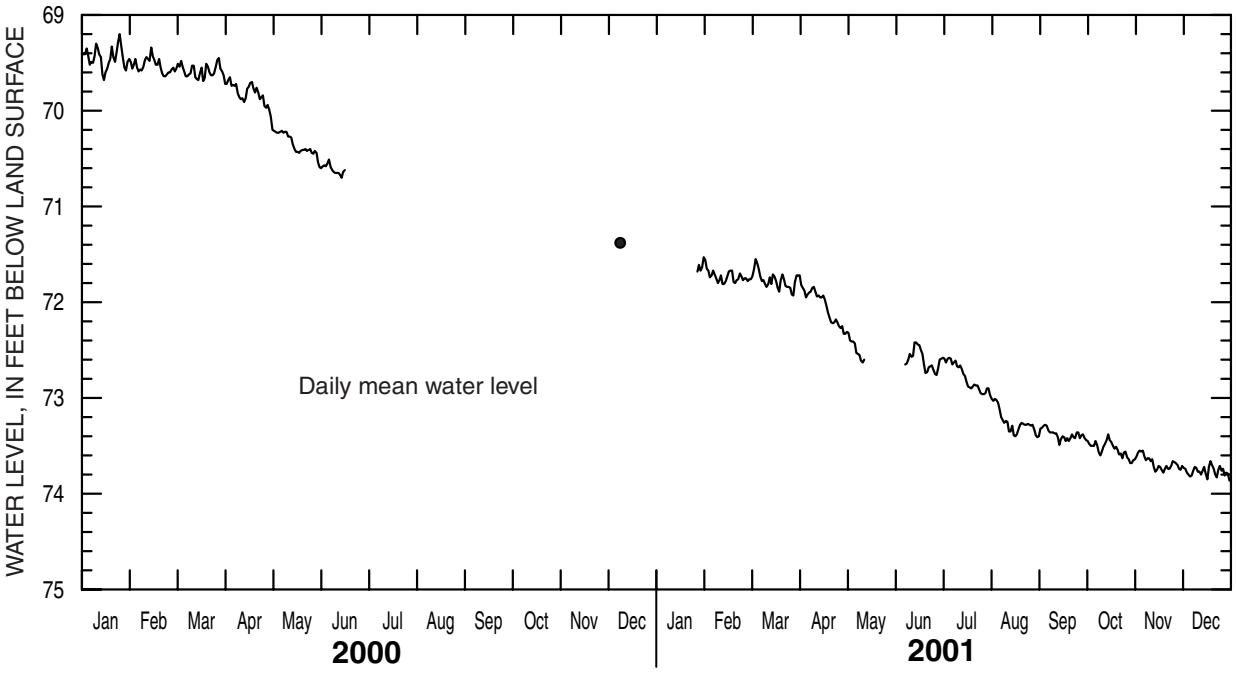
SUMMARY FOR 2000 HIGH 12.08 (Mar. 30, 2000) MEAN -- LOW 15.36 (Sept. 22, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	14.37	14.19	13.59	13.46	13.94	14.58	14.92	15.83	16.25	16.14	16.17	16.15
MEAN	14.74	14.42	13.99	13.73	14.41	14.79	15.27	16.44	16.64	16.36	16.42	16.35
LOW	14.97	14.61	14.33	13.94	14.83	15.01	15.71	17.11	17.06	16.57	16.56	16.51

SUMMARY FOR 2001 HIGH 13.46 (Apr. 9, 2001) MEAN 15.30 LOW 17.11 (Aug. 31, 2001)

LEXINGTON COUNTY

WELL NUMBER: LEX-844 GRID NUMBER: 32S-b4
LATITUDE: 33°44'45" LONGITUDE: 81°06'27"
LOCATION: Swansea Primary School, Swansea.
AQUIFER: Middendorf.
WELL CHARACTERISTICS: 2-inch diameter observation well. Depth: 522 ft. Screened from 392 to 502 ft.
DATUM: Land surface is 360 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 3.35 ft above land surface datum.
PERIOD OF RECORD: October 1999 to current year.
EXTREMES: Highest water level: 68.89 ft below land surface, October 27, 1999.
Lowest water level: 73.87 ft below land surface, December 31, 2001.
REMARKS: Drilled and cored for DNR/USGS aquifer delineation project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	69.20	69.34	69.45	69.65	70.20	70.51	--	--	--	--	--	--
MEAN	69.45	69.53	69.58	69.82	70.35	70.62	--	--	--	--	--	--
LOW	69.68	69.64	69.69	70.06	70.59	70.70	--	--	--	--	--	--

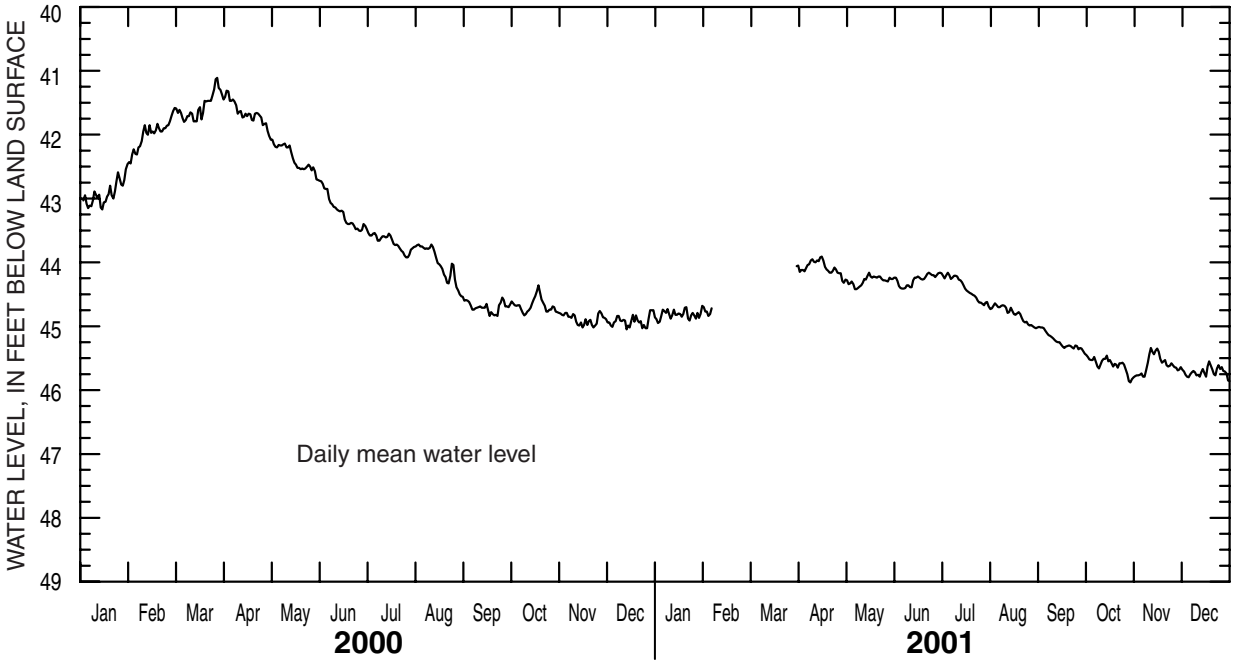
SUMMARY FOR 2000 HIGH 69.20 (Jan. 25, 2000) MEAN -- LOW 71.38 (Dec. 8, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	71.53	71.65	71.55	71.72	72.31	72.42	72.58	73.01	73.28	73.38	73.55	73.66
MEAN	71.62	71.74	71.77	72.03	72.48	72.61	72.78	73.26	73.38	73.54	73.68	73.77
LOW	71.68	71.81	71.93	72.33	72.63	72.76	72.97	73.41	73.49	73.68	73.78	73.87

SUMMARY FOR 2001 HIGH 71.53 (Jan. 30, 2001) MEAN 72.83 LOW 73.87 (Dec. 31, 2001)

RICHLAND COUNTY

WELL NUMBER: RIC-543 GRID NUMBER: 27Q-m1
LATITUDE: 33°52'30" LONGITUDE: 80°42'08"
LOCATION: Webber School, Eastover.
AQUIFER: Middendorf.
WELL CHARACTERISTICS: 2-inch diameter observation well. Depth: 420 ft. Screened from 370 to 410 ft.
DATUM: Land surface is 183.82 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 3.44 ft above land surface datum.
PERIOD OF RECORD: October 1996 to current year.
EXTREMES: Highest water level: 41.11 ft below land surface, March 28, 2000.
Lowest water level: 45.88 ft below land surface, October 29, 2001.
REMARKS: Drilled and cored for DNR/USGS aquifer delineation project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	42.46	41.63	41.11	41.31	42.08	42.72	43.48	43.72	44.55	44.36	44.76	44.75
MEAN	42.92	42.01	41.56	41.65	42.36	43.20	43.68	44.03	44.70	44.68	44.89	44.92
LOW	43.17	42.45	41.80	42.02	42.71	43.51	43.92	44.54	44.84	44.83	45.02	45.05

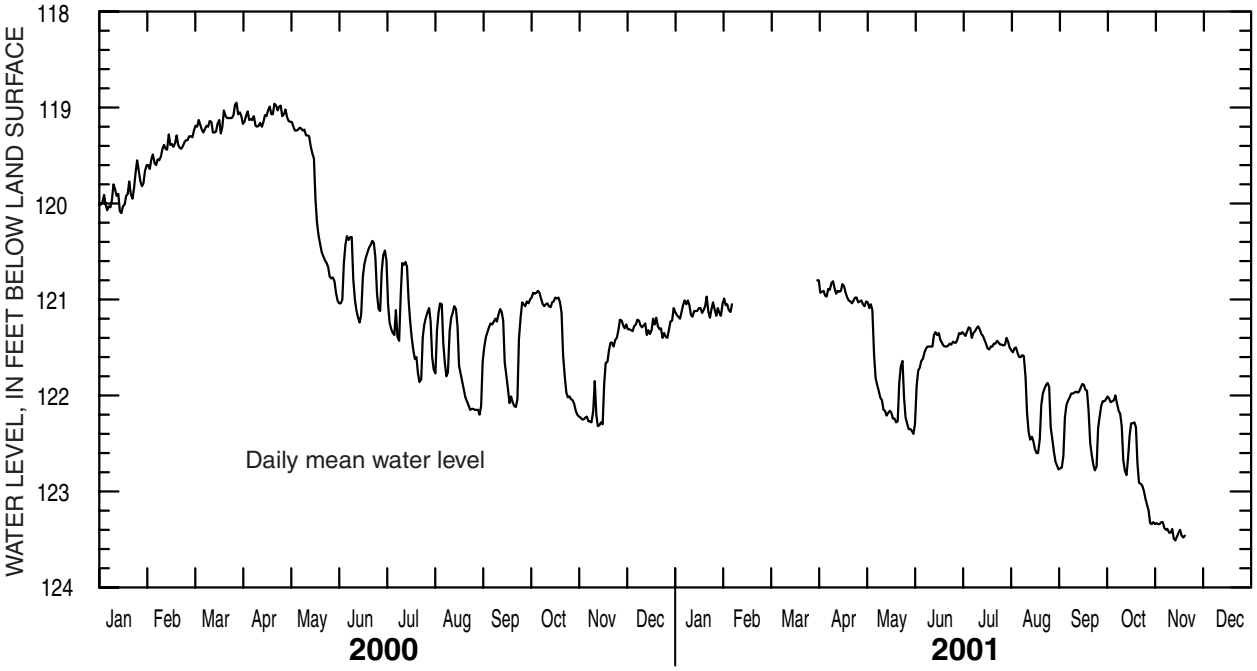
SUMMARY FOR 2000 HIGH 41.11 (Mar. 28, 2000) MEAN 43.39 LOW 45.05 (Dec. 13, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	44.68	44.72	--	43.91	44.16	44.16	44.16	44.64	45.01	45.45	45.34	45.55
MEAN	44.81	--	--	44.08	44.28	44.40	44.40	44.82	45.24	45.60	45.60	45.72
LOW	44.95	44.84	--	44.32	44.42	44.69	44.69	45.03	45.43	45.88	45.79	45.86

SUMMARY FOR 2001 HIGH 43.91 (Apr. 16, 2001) MEAN 44.88 LOW 45.88 (Oct. 29, 2001)

RICHLAND COUNTY

WELL NUMBER: RIC-585 GRID NUMBER: 29P-t4
LATITUDE: 33°56'56" LONGITUDE: 80°50'27"
LOCATION: Horrell Hill Elementary School, Horrell Hill.
AQUIFER: Middendorf.
WELL CHARACTERISTICS: 2-inch diameter observation well. Depth: 403 ft. Screened from 263 to 293 ft.
DATUM: Land surface is 328.04 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 4.50 ft above land surface datum.
PERIOD OF RECORD: September 1997 to current year.
EXTREMES: Highest water level: 115.45 ft below land surface, May 8, 1998.
Lowest water level: 123.51 ft below land surface, November 13, 2001.
REMARKS: Drilled and cored for DNR/USGS aquifer delineation project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	119.55	119.28	118.95	118.96	119.15	120.34	120.60	121.04	121.00	120.91	121.21	121.09
MEAN	119.89	119.43	119.15	119.09	119.91	120.72	121.25	121.69	121.43	121.36	121.83	121.28
LOW	120.10	119.64	119.27	119.20	121.01	121.24	121.86	122.20	122.12	122.22	122.32	121.40

SUMMARY FOR 2000 HIGH 118.95 (Mar. 28, 2000) MEAN 120.59 LOW 122.32 (Nov. 12, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	120.97	121.05	--	120.80	121.02	121.34	121.28	121.50	121.88	122.00	123.32	--
MEAN	121.10	--	--	120.94	121.93	121.52	121.41	122.10	122.21	122.60	--	--
LOW	121.20	121.13	--	121.07	122.40	122.30	121.52	122.77	122.78	123.34	123.51	--

SUMMARY FOR 2001 HIGH 120.80 (Mar. 31, 2001) MEAN -- LOW 123.51 (Nov. 13, 2001)

BLACK CREEK AQUIFER SYSTEM

Aucott, Davis, and Speiran (1987) delineated the Black Creek aquifer system on the basis of geologic data (primarily geophysical well logs), water-level data, water-chemistry data, and previous investigations. The Black Creek is the youngest of the Cretaceous aquifer systems in the region. It is composed mostly of permeable sediments of the Black Creek Formation but locally includes sediments of underlying Tertiary-age formations and the overlying Peedee Formation. The aquifer encompasses thin- to thick-bedded sand and clay beds that were deposited in marginal marine or delta plain environments. The coarsest sand and least clay content are found in the western part of the Coastal Plain.

The aquifer crops out in the eastern Coastal Plain along a narrow band extending from Lexington County to Sumter County, thence along a wider area from Sumter County to Dillon County. It dips southeastward toward the coast. The top of the aquifer is at elevation 300, -250, and -1,000 ft msl at Aiken, Little River, and Charleston, respectively. Thickness ranges from about 100 ft near Aiken to more than 400 ft at the coast. Its subcrop area and its structure, contoured in feet above msl, are delineated in Figure 10.

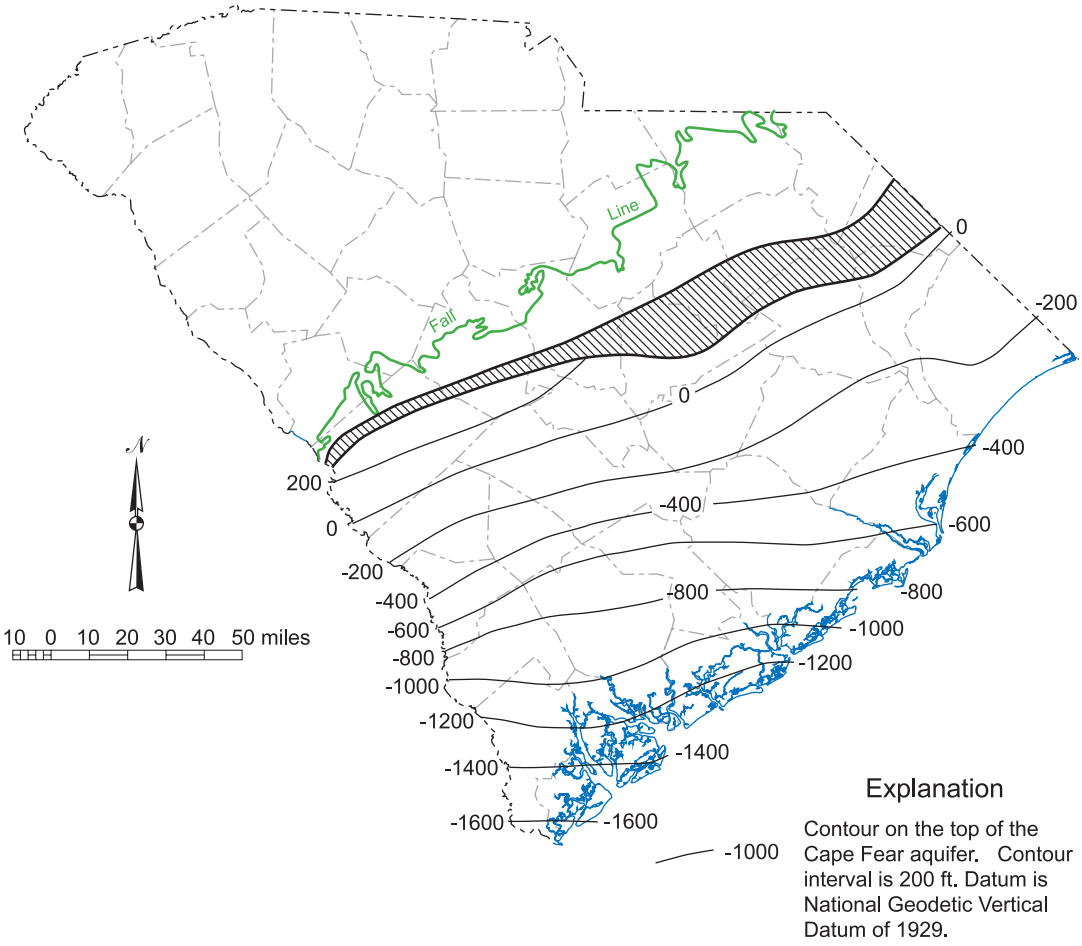


Figure 10. Contours on top of the Black Creek aquifer system (from Aucott and others, 1987).

The Black Creek aquifer system is an important source of water supply. Well yields are greatest in the counties of the Upper and Middle Coastal Plain and are least in the coastal counties of Charleston and Beaufort. Where the highest possible well yields are desired, the Black Creek system is screened in conjunction with the underlying Middendorf aquifer system. These multi-aquifer wells are commonly used by major industrial and public-supply systems in Sumter, Florence, Horry, and Georgetown Counties. The locations of Black Creek system wells are shown in Figure 11.

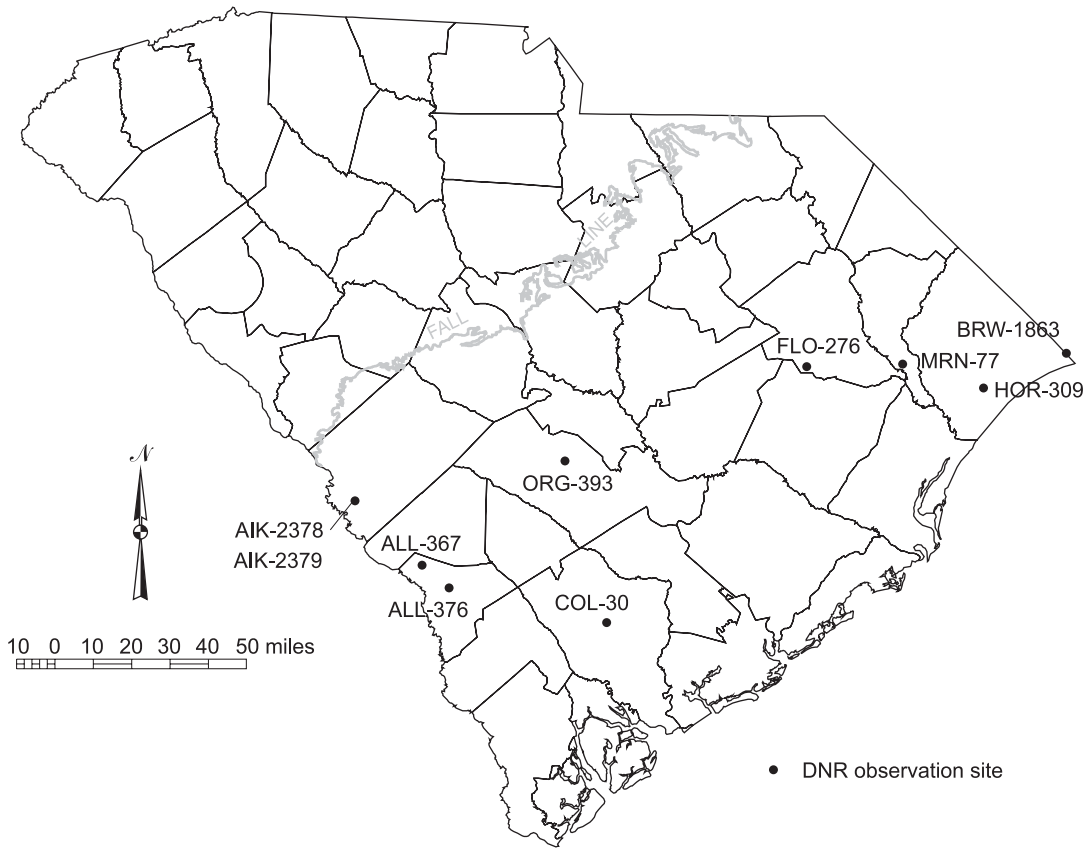
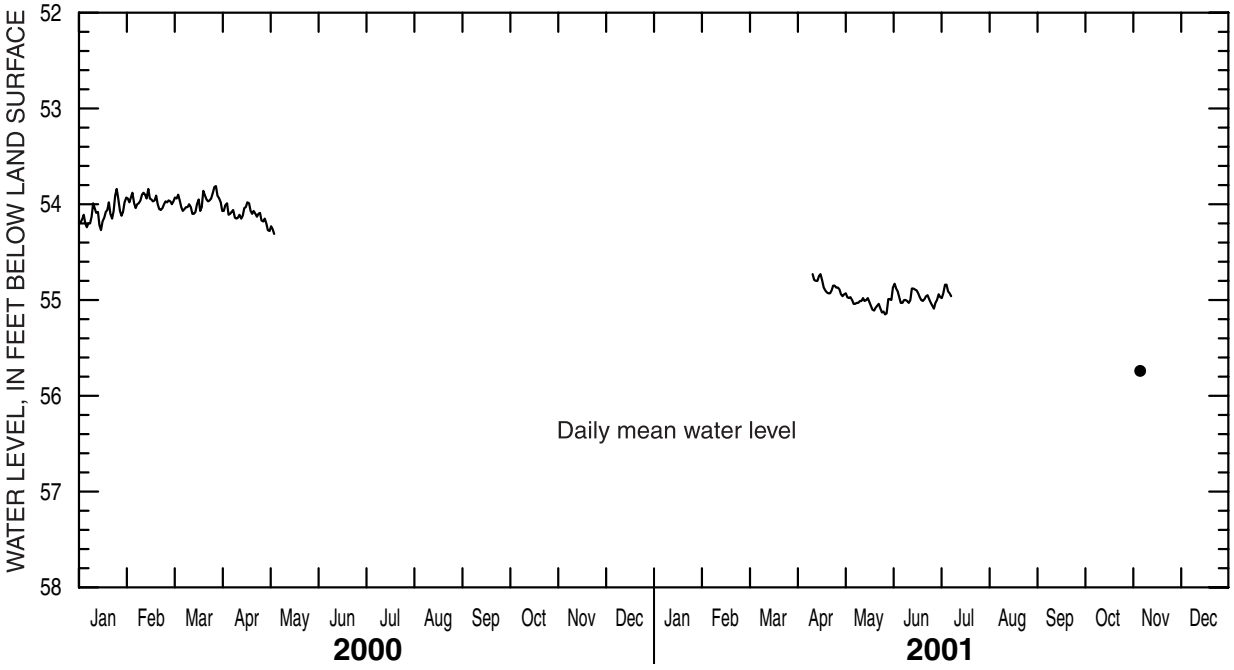


Figure 11. Locations of Black Creek aquifer system observation wells.

AIKEN COUNTY

WELL NUMBER: AIK-2378 GRID NUMBER: 40W-q2
LATITUDE: 33°21'11" LONGITUDE: 81°48'32"
LOCATION: 1.0 mile north of Jackson.
AQUIFER: Black Creek.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 185 ft. Screened from 170 to 180 ft.
DATUM: Land surface is 220.25 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of tee, 1.93 ft above land surface datum.
PERIOD OF RECORD: December 1995 to July 2001.
EXTREMES: Highest water level: 52.24 ft below land surface, March 19, 1996.
Lowest water level: 55.74 ft below land surface, November 5, 2001.
REMARKS: One of four wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	53.84	53.84	53.81	53.98	--	--	--	--	--	--	--	--
MEAN	54.09	53.96	53.97	--	--	--	--	--	--	--	--	--
LOW	54.19	54.06	54.10	54.27	--	--	--	--	--	--	--	--

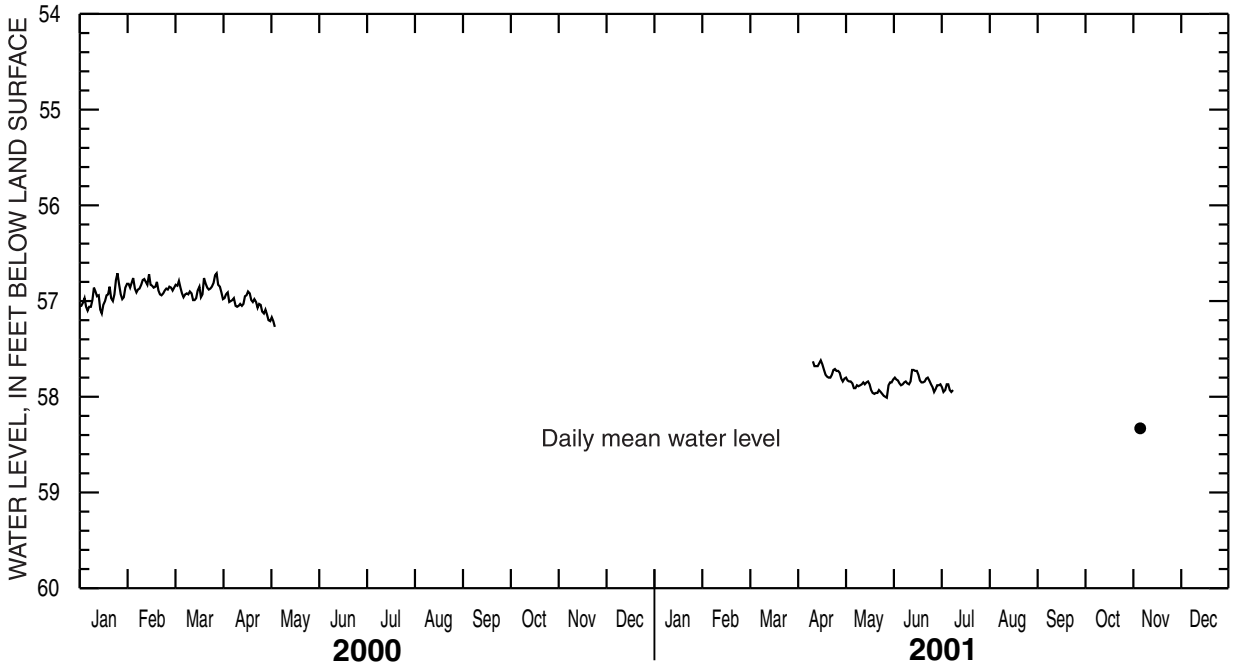
SUMMARY FOR 2000 HIGH 53.81 (Mar. 28, 2000) MEAN -- LOW 54.27 (Apr. 30, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	--	54.69	54.93	54.83	54.78	--	--	--	--	--
MEAN	--	--	--	--	55.03	54.97	--	--	--	--	--	--
LOW	--	--	--	54.96	55.15	55.09	54.98	--	--	--	--	--

SUMMARY FOR 2001 HIGH 54.69 (Apr. 10, 2001) MEAN -- LOW 55.74 (Nov. 5, 2001)

AIKEN COUNTY

WELL NUMBER: AIK-2379 GRID NUMBER: 40W-q3
LATITUDE: 33°21'12" LONGITUDE: 81°48'32"
LOCATION: 1.0 mile north of Jackson.
AQUIFER: Black Creek.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 266 ft. Screened from 251 to 261 ft.
DATUM: Land surface is 223.68 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of tee, 2.83 ft above land surface datum.
PERIOD OF RECORD: December 1995 to July 2001.
EXTREMES: Highest water level: 55.07 ft below land surface, April 2, 1996.
Lowest water level: 58.33 ft below land surface, November 5, 2001.
REMARKS: One of four wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	56.71	56.72	56.71	56.90	57.17	--	--	--	--	--	--	--
MEAN	56.96	56.85	56.87	57.02	--	--	--	--	--	--	--	--
LOW	57.13	56.94	56.99	57.20	57.31	--	--	--	--	--	--	--

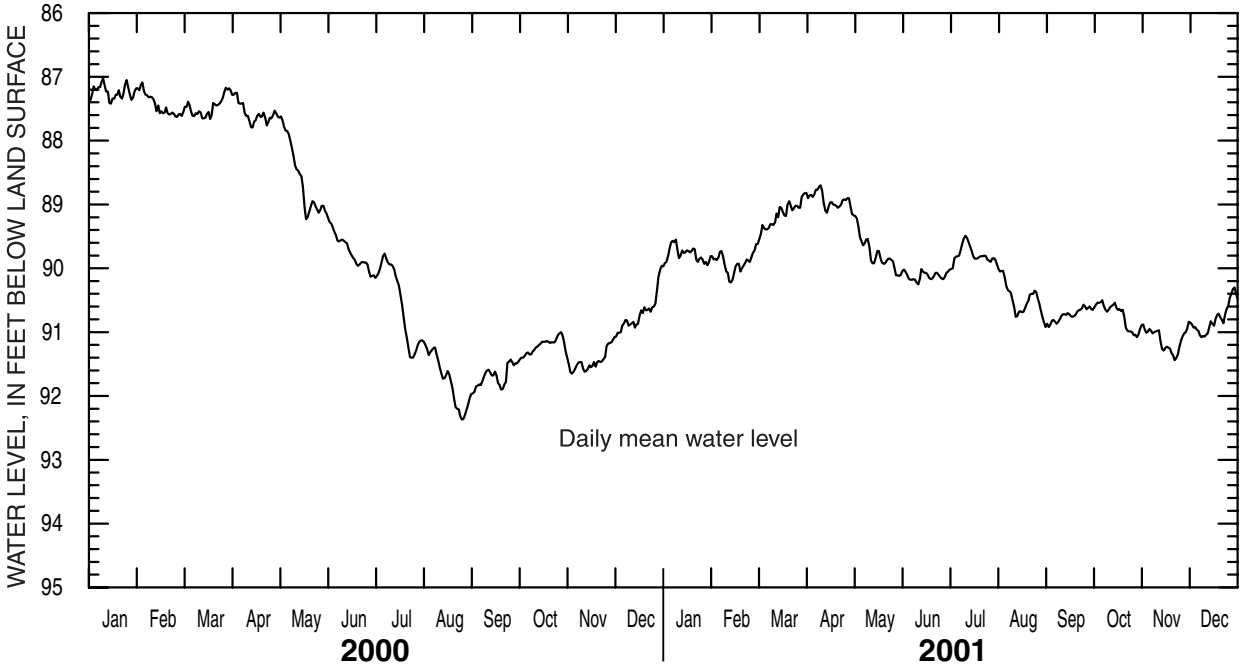
SUMMARY FOR 2000 HIGH 56.71 (Jan. 25, 2000) MEAN -- LOW 57.31 (May 5, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	--	57.60	57.80	57.72	57.87	--	--	--	--	--
MEAN	--	--	--	--	57.90	57.84	--	--	--	--	--	--
LOW	--	--	--	57.84	58.01	57.95	57.95	--	--	--	--	--

SUMMARY FOR 2001 HIGH 57.60 (Apr. 10, 2001) MEAN -- LOW 58.33 (Nov. 5, 2001)

ALLENDALE COUNTY

WELL NUMBER: ALL-367 GRID NUMBER: 37Z-t8
LATITUDE: 33°06'47" LONGITUDE: 81°30'22"
LOCATION: Rolling Hills Road, Millet.
AQUIFER: Black Creek.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 566 ft. Screened from 551 to 561 ft.
DATUM: Land surface is 245.74 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 3.44 ft above land surface datum.
PERIOD OF RECORD: November 1995 to current year.
EXTREMES: Highest water level: 81.75 ft below land surface, May 8, 1998.
Lowest water level: 92.37 ft below land surface, August 25, 2000.
REMARKS: One of nine wells drilled on site for Department of Energy project



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	87.02	87.09	87.17	87.25	87.62	89.21	89.77	91.16	91.43	91.00	91.08	89.96
MEAN	87.24	87.44	87.47	87.56	88.58	89.73	90.53	91.76	91.69	91.22	91.45	90.68
LOW	87.42	87.63	87.66	87.79	89.23	90.13	91.40	92.37	91.96	91.42	91.65	91.07

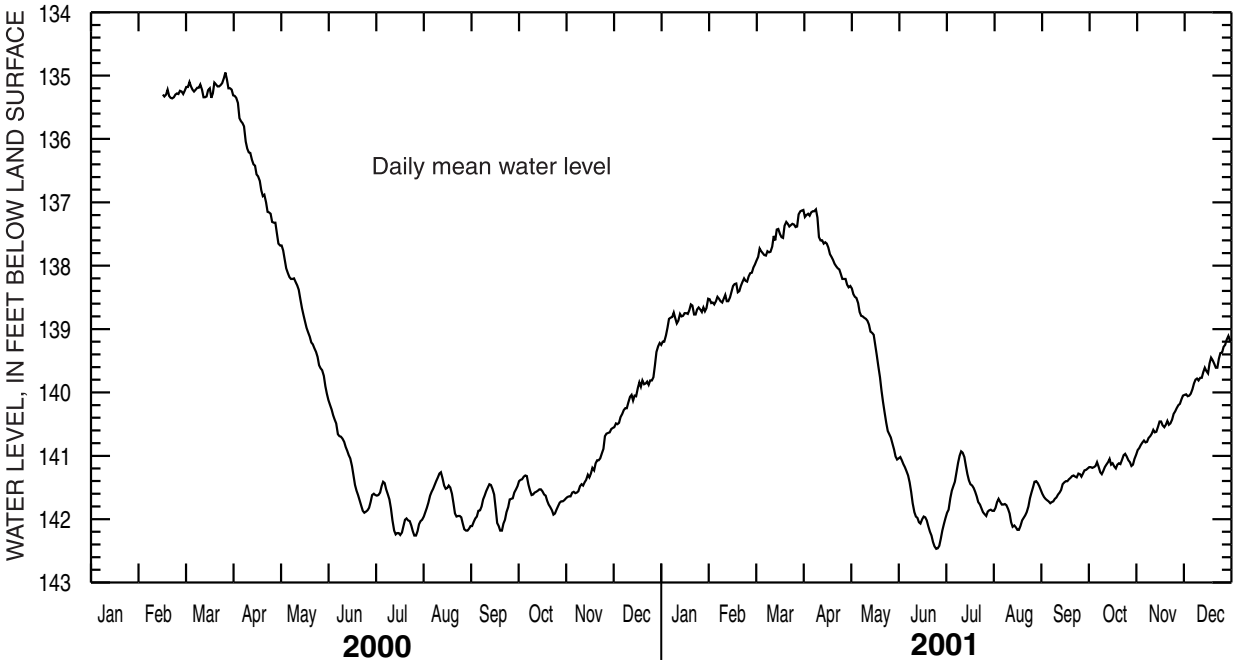
SUMMARY FOR 2000 HIGH 87.02 (Jan. 10, 2000) MEAN 89.92 LOW 92.37 Aug. 25, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	89.55	89.62	88.82	88.70	89.17	90.01	89.49	90.01	90.57	90.50	90.84	90.30
MEAN	89.78	89.92	89.17	88.93	89.75	90.12	89.80	90.48	90.73	90.74	91.12	90.78
LOW	89.95	90.22	89.62	89.15	90.12	90.25	90.02	90.92	90.92	91.08	91.44	91.08

SUMMARY FOR 2001 HIGH 88.70 (April 10, 2001) MEAN 90.11 LOW 91.44 (Nov. 21, 2001)

ALLENDALE COUNTY

WELL NUMBER: ALL-376 GRID NUMBER: 35AA-q9
LATITUDE: 33°01'28" LONGITUDE: 81°23'05"
LOCATION: Appleton Fire Tower.
AQUIFER: Black Creek.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 994 ft. Screened from 784 to 989 ft.
DATUM: Land surface is 282.23 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 3.33 ft above land surface datum.
PERIOD OF RECORD: August 1996 to current year.
EXTREMES: Highest water level: 129.61 ft below land surface, May 8, 1998.
Lowest water level: 142.47 ft below land surface, June 25, 2001.
REMARKS: One of nine wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	135.22	134.95	135.31	137.68	140.12	141.41	141.26	141.45	141.31	140.56	139.22
MEAN	--	135.30	135.19	136.47	138.77	141.14	141.94	141.73	141.79	141.62	141.21	139.97
LOW	--	135.36	135.35	137.65	140.02	141.90	142.26	142.18	142.18	141.93	141.65	140.55

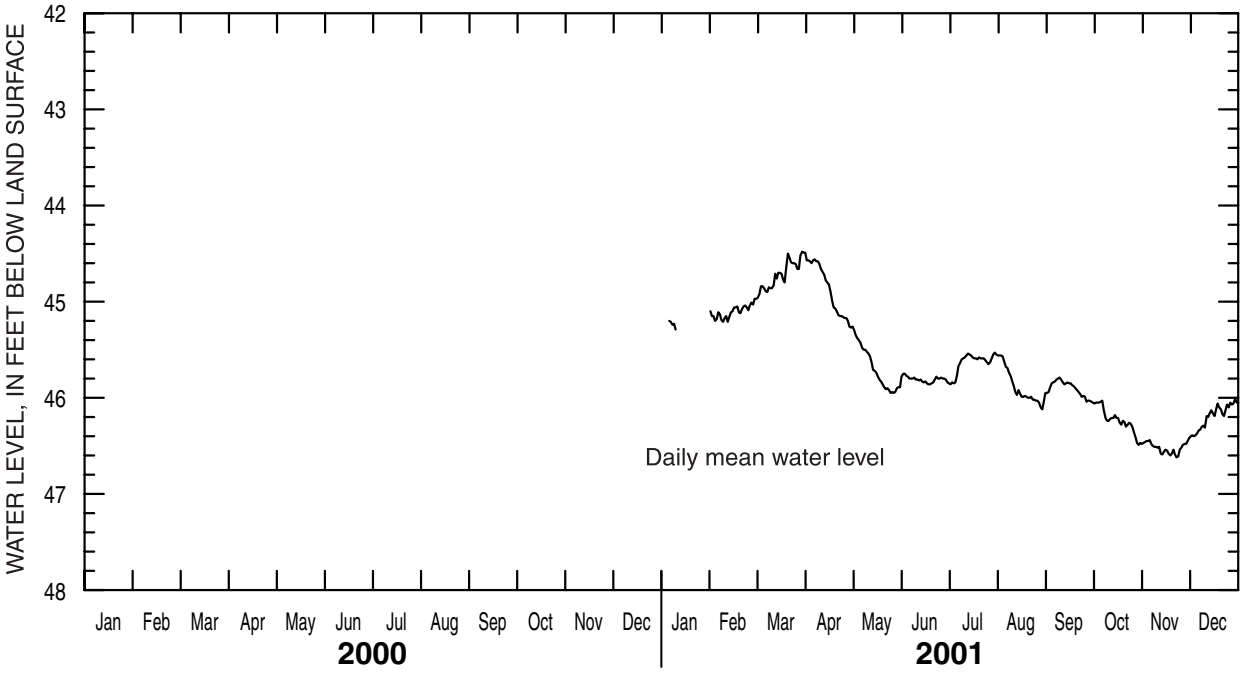
SUMMARY FOR 2000 HIGH 134.95 (Mar. 27, 2000) MEAN 139.76 LOW 142.26 (July 26, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	138.52	138.03	137.13	137.11	138.32	141.02	140.93	141.40	141.20	140.97	140.05	139.11
MEAN	138.78	138.39	137.55	137.67	139.50	141.86	141.55	141.81	141.47	141.13	140.53	139.62
LOW	139.20	138.61	137.98	138.34	141.06	142.47	141.98	142.17	141.75	141.29	140.91	140.06

SUMMARY FOR 2001 HIGH 137.11 (Apr. 9, 2001) MEAN 140.00 LOW 142.47 (June 25, 2001)

BRUNSWICK COUNTY, N. C.

WELL NUMBER: BRW-1863 GRID NUMBER: 2Q-j4
LATITUDE: 33°53'33" LONGITUDE: 78°35'2"
LOCATION: N.C. Department of Environment and Natural Resources well cluster, Calabash.
AQUIFER: Black Creek.
WELL CHARACTERISTICS: 4-inch diameter observation well. Depth: 516 ft. Screened from 496 to 506 ft.
DATUM: Land surface is 47.73 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 2.42 ft above land surface datum.
PERIOD OF RECORD: January 2001 to current year.
EXTREMES: Highest water level: 44.48 ft below land surface, March 30, 2001.
Lowest water level: 46.62 ft below land surface, November 22, 2001.
REMARKS: None.

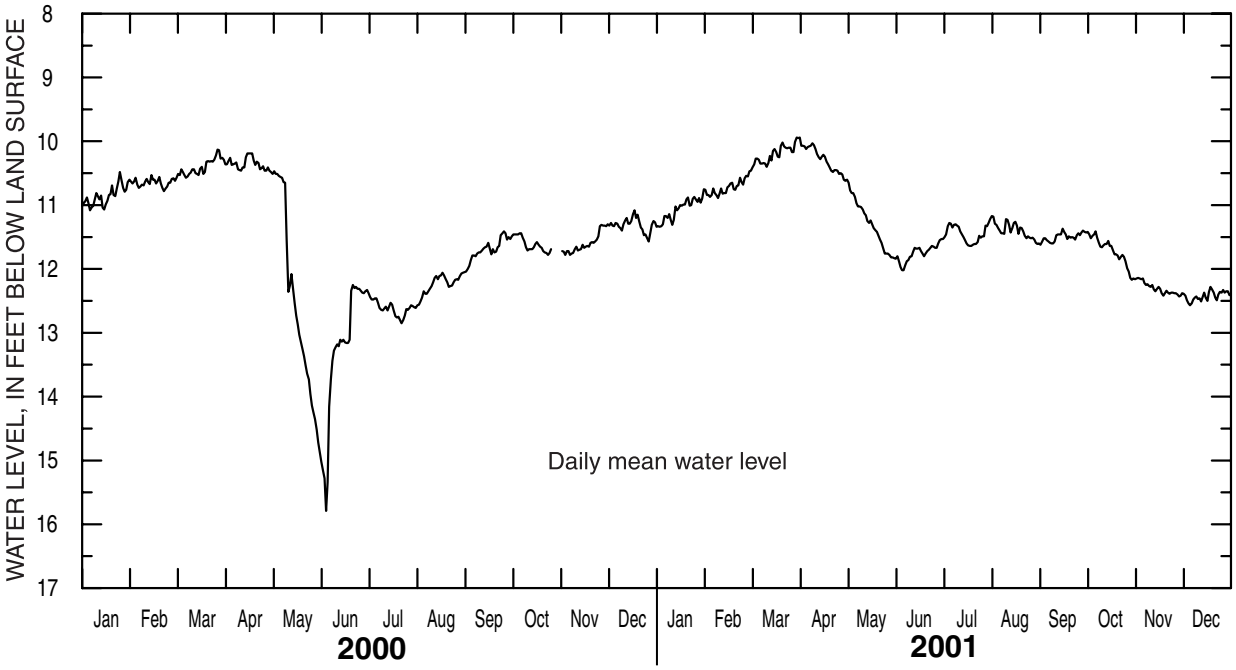


2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	44.97	44.48	44.49	45.26	45.75	45.53	45.56	45.79	46.03	46.42	46.01
MEAN	--	45.11	44.73	44.86	45.69	45.81	45.64	45.89	45.91	46.24	46.52	46.19
LOW	--	45.21	44.97	45.27	45.95	45.86	45.86	46.12	46.05	46.49	46.62	46.40

SUMMARY FOR 2001 HIGH 44.48 (Mar. 30, 2001) MEAN 45.68 LOW 46.62 (Nov. 22, 2001)

COLLETON COUNTY

WELL NUMBER: COL-30 GRID NUMBER: 27CC-j1
LATITUDE: 32°53'45" LONGITUDE: 80°40'40"
LOCATION: Kline Street, Walterboro.
AQUIFER: Black Creek.
WELL CHARACTERISTICS: 6-inch diameter unused public-supply well. Depth: 1,340 ft. Unknown open interval.
DATUM: Land surface is 61.30 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of sanitary seal, 0.30 ft above land surface datum.
PERIOD OF RECORD: November 1995 to current year.
EXTREMES: Highest water level: 8.52 ft below land surface, May 8, 1998.
Lowest water level: 15.79 ft below land surface, June 4, 2000.
REMARKS: None.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	10.48	10.53	10.13	10.19	10.47	12.25	12.38	12.05	11.41	11.44	11.30	11.08
MEAN	10.85	10.65	10.41	10.36	12.52	13.28	12.61	12.24	11.68	11.62	11.60	11.31
LOW	11.08	10.78	10.57	10.48	14.87	15.79	12.85	12.57	12.04	11.78	11.78	11.57

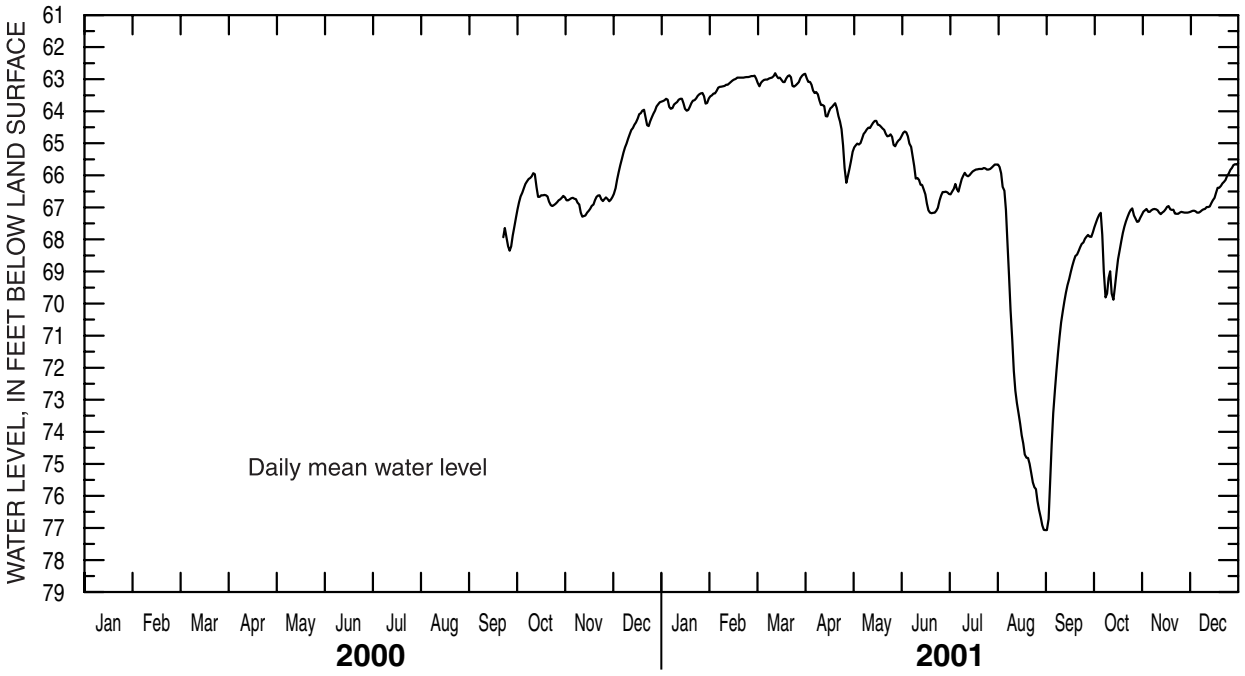
SUMMARY FOR 2000 HIGH 10.13 (Mar. 27, 2000) MEAN 11.60 LOW 15.79 (June 4, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	10.75	10.47	9.94	9.94	10.60	11.53	11.22	11.17	11.37	11.41	12.14	12.28
MEAN	11.05	10.73	10.21	10.28	11.29	11.76	11.45	11.40	11.50	11.73	12.31	12.42
LOW	11.34	10.89	10.46	10.62	11.83	12.02	11.64	11.61	11.62	12.17	12.43	12.57

SUMMARY FOR 2001 HIGH 9.94 (Mar. 30, 2001) MEAN 11.35 LOW 12.57 (Dec. 5, 2001)

FLORENCE COUNTY

WELL NUMBER: FLO-276 GRID NUMBER: 16Q-s2
LATITUDE: 33°51'22" LONGITUDE: 79°46'00"
LOCATION: Lake City Airport.
AQUIFER: Black Creek.
WELL CHARACTERISTICS: 4-inch diameter observation well. Depth: 250 ft. Screened from 230 to 250 ft.
DATUM: Land surface is 79.00 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 1.31 ft above land surface datum.
PERIOD OF RECORD: September 2000 to current year.
EXTREMES: Highest water level: 62.81 ft below land surface, March 13, 2001.
Lowest water level: 77.07 ft below land surface, August 31, 2001.
REMARKS: Drilled and cored for DNR/USGS aquifer delineation project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	--	--	--	--	--	--	67.32	65.93	66.62	63.70
MEAN	--	--	--	--	--	--	--	--	--	66.57	66.86	64.65
LOW	--	--	--	--	--	--	--	--	68.35	67.06	67.29	66.58

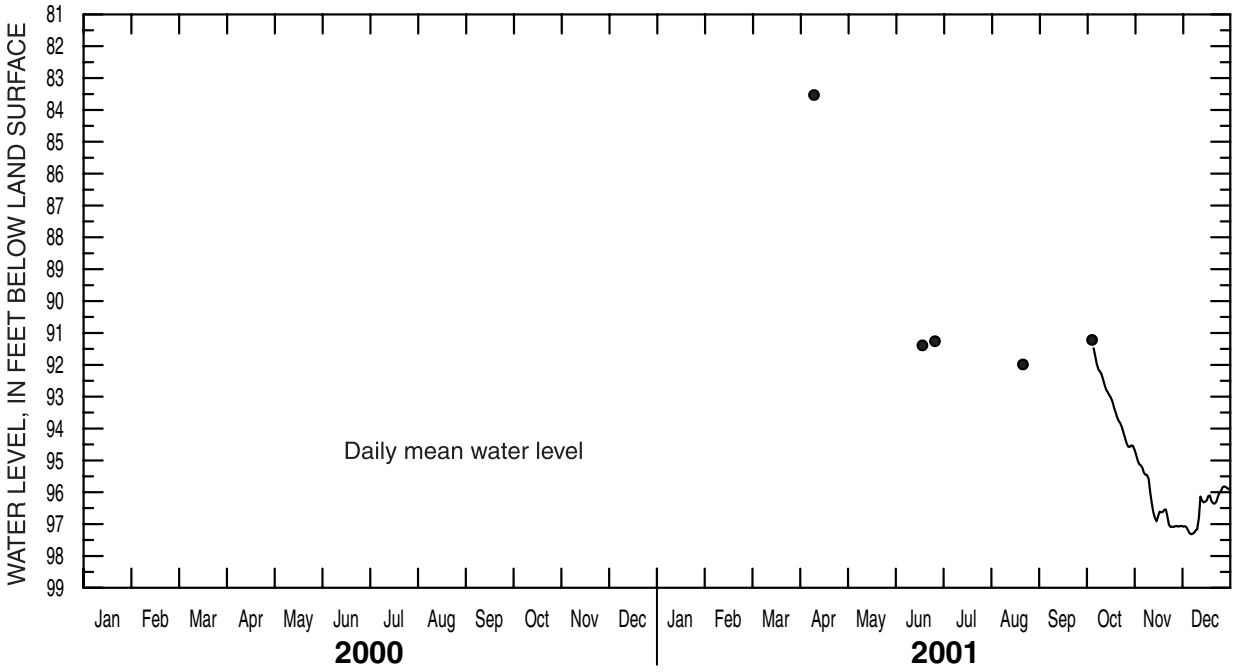
SUMMARY FOR 2000 HIGH 63.70 (Dec. 31, 2000 MEAN -- LOW 68.35 (Sept. 26, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	63.43	62.89	62.81	62.83	64.30	64.63	65.66	65.66	67.78	67.03	66.96	65.62
MEAN	63.69	63.10	63.01	64.10	64.74	66.16	66.01	72.63	70.24	68.06	67.11	66.54
LOW	63.98	63.50	63.23	66.23	65.26	67.18	66.59	77.07	77.07	69.88	67.21	67.16

SUMMARY FOR 2001 HIGH 62.81 (Mar. 13, 2001) MEAN 66.30 LOW 77.07 (Aug. 31, 2001)

HORRY COUNTY

WELL NUMBER: HOR-309 GRID NUMBER: 6R-q3
LATITUDE: 33°46'05" LONGITUDE: 78°57'59"
LOCATION: US Highway 501, near Conway.
AQUIFER: Black Creek.
WELL CHARACTERISTICS: 4-inch diameter observation well. Depth: 375 ft. Screened from 360 to 375 ft.
DATUM: Land surface is 42.84 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 4.00 ft above land surface datum.
PERIOD OF RECORD: April 2001 to current year.
EXTREMES: Highest water level: 83.53 ft below land surface, April 10, 2001.
Lowest water level: 97.32 ft below land surface, December 6, 2001.
REMARKS: None.

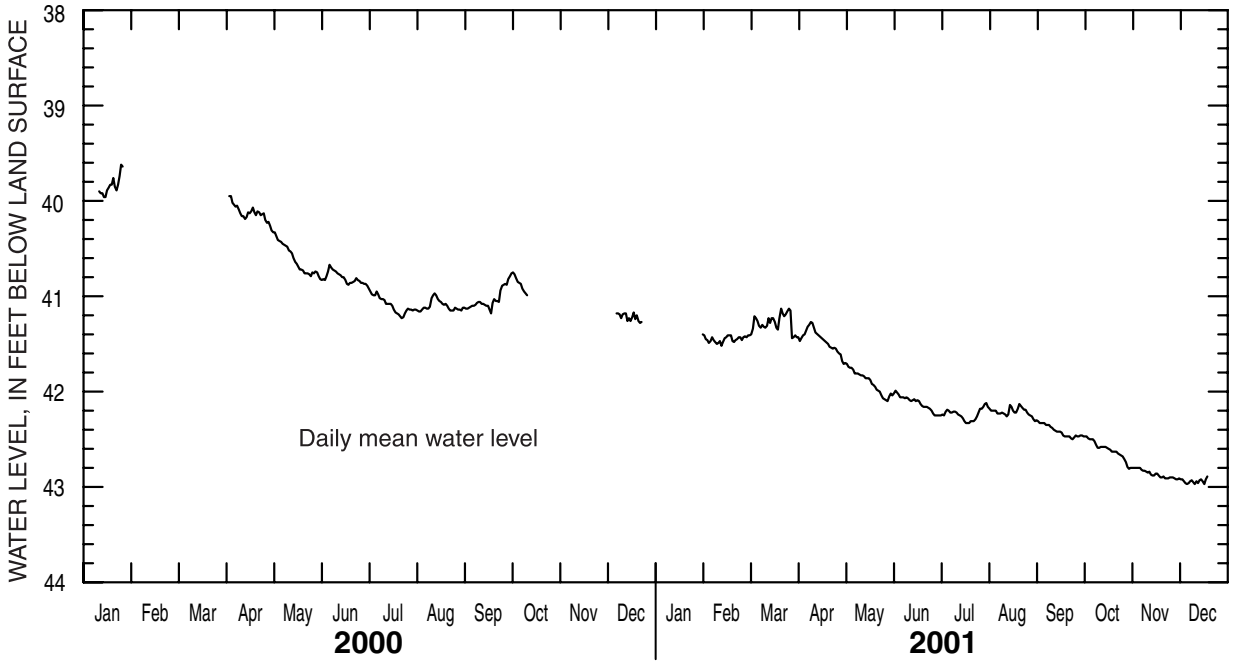


2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	--	--	--	--	--	--	--	91.26	94.82	95.82
MEAN	--	--	--	--	--	--	--	--	--	93.24	96.33	96.48
LOW	--	--	--	--	--	--	--	--	--	94.66	97.09	97.32

SUMMARY FOR 2001 HIGH 83.53 (Apr. 10, 2001) MEAN -- LOW 97.32 (Dec. 6, 2001)

MARION COUNTY

WELL NUMBER: MRN-77 GRID NUMBER: 10Q-p1
LATITUDE: 33°51'42" LONGITUDE: 79°19'50"
LOCATION: Brittons Neck fire tower, US Highway 378.
AQUIFER: Black Creek.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 356 ft. Screened from 325 to 355 ft.
DATUM: Land surface is 30 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 2.15 ft above land surface datum.
PERIOD OF RECORD: August 1982 to current year.
EXTREMES: Highest water level: 10.88 ft below land surface, March 28, 1983.
Lowest water level: 42.97 ft below land surface, December 5, 2001.
REMARKS: Monitored continually by USGS until December 2001.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	39.62	--	--	39.95	40.33	40.67	40.92	40.97	40.76	40.75	--	41.17
MEAN	--	--	--	40.13	40.61	40.81	41.09	41.10	41.03	--	--	--
LOW	39.96	--	--	40.31	40.82	40.89	41.23	41.16	41.18	41.00	--	41.32

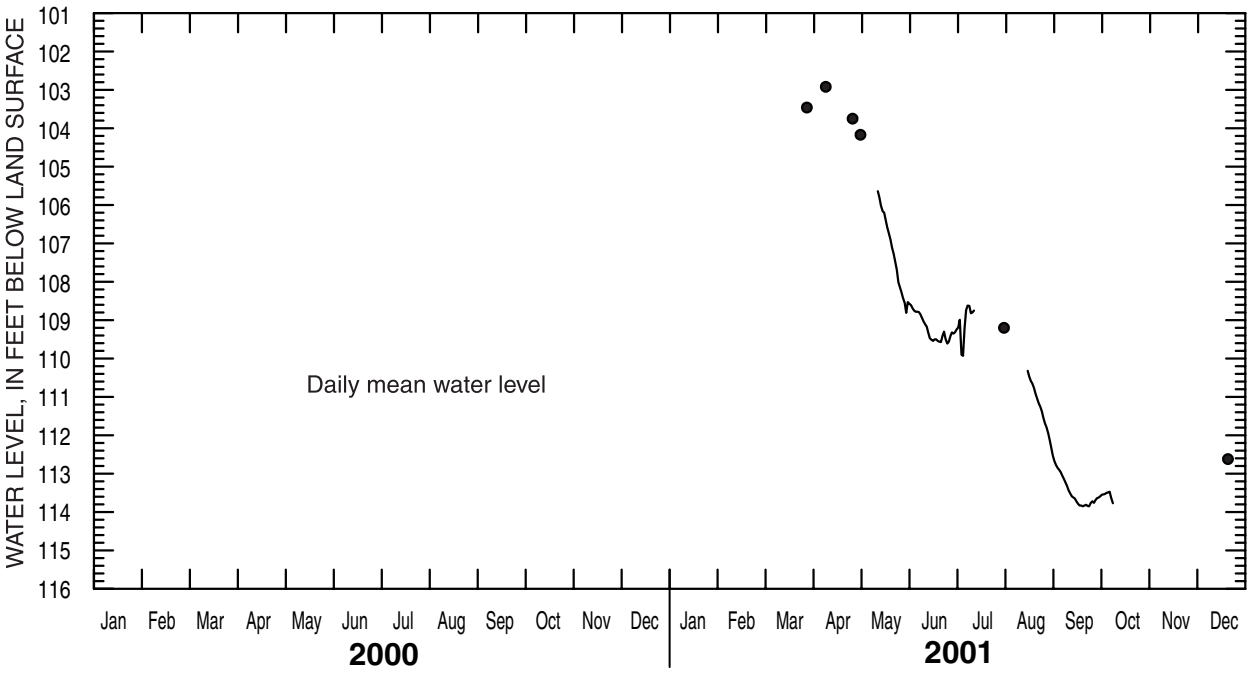
SUMMARY FOR 2000 HIGH 39.62 (Jan. 25, 2000) MEAN -- LOW 41.32 (Dec. 23, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	41.40	41.41	41.13	41.27	41.70	41.99	42.12	42.13	42.31	42.47	42.80	42.89
MEAN	--	41.45	41.28	41.47	41.90	42.12	42.24	42.22	42.42	42.62	42.87	42.94
LOW	41.41	41.52	41.44	41.71	42.10	42.25	42.33	42.31	42.50	42.81	42.92	42.97

SUMMARY FOR 2001 HIGH 41.13 (Mar. 21, 2001) MEAN 42.08 LOW 42.97 (Dec. 5, 2001)

ORANGEBURG COUNTY

WELL NUMBER: ORG-393 GRID NUMBER: 29U-v1
LATITUDE: 33°30'29" LONGITUDE: 80°51'53"
LOCATION: Clark Middle School, Orangeburg.
AQUIFER: Black Creek.
WELL CHARACTERISTICS: 5-inch diameter observation well. Depth: 463 ft. Screened from 423 to 463 ft.
DATUM: Land surface is 256 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of 2-inch extension casing, 3.51 ft above land surface datum.
PERIOD OF RECORD: March 2001 to current year.
EXTREMES: Highest water level: 102.92 ft below land surface, April 9, 2001.
Lowest water level: 113.85 ft below land surface, September 19, 2001.
REMARKS: Drilled and cored for DNR/USGS aquifer delineation project.



2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	--	--	105.54	108.57	108.62	110.19	112.67	113.47	--	--
MEAN	--	--	--	--	--	109.21	--	--	113.50	--	--	--
LOW	--	--	--	--	108.81	109.61	109.93	112.53	113.85	113.84	--	--

SUMMARY FOR 2001 HIGH 102.92 (Apr. 9, 2001) MEAN -- LOW 113.85 (Sept. 19, 2001)

TERTIARY-SAND AQUIFER SYSTEM

Aucott, Davis and Speiran (1987) divided the Tertiary-sand aquifer system into two parts. The upper part consists of fine- to coarse-grained sand of the Barnwell Group, McBean Formation, and Congaree Formation. They are the sand-facies equivalent of the Floridan aquifer system and extend from the vicinity of the Fall Line to the updip limit of the Floridan aquifer system. In Allendale, Bamberg, Barnwell, and Aiken Counties the Congaree Formation is the principal water-bearing unit, and the Barnwell Group and McBean Formation tend to be poorly productive and more significant as confining units. Logan and Euler (1989) reported individual wells completed in the Congaree yield up to 660 gpm and have specific capacities of about 10 gpm/ft.

The lower part of the Tertiary-sand system underlies all of the Floridan aquifer system, extends westward into the middle Coastal Plain, and consists principally of the Paleocene-age Black Mingo Formation. The upper 50 to 100 ft of the formation consists of interbedded fine- to medium-grained sand and silty sand, carbonaceous and silty clay, sandstone, and sandy limestone. The section is the only significant water-bearing unit in the Tertiary-sand aquifer system east of its outcrop area. In conjunction with the overlying Floridan aquifer system, this unit is widely used in Berkeley, Charleston, Dorchester, Colleton, and eastern Hampton Counties. Open-hole Floridan/Tertiary-sand wells there commonly yield several hundred gallons per minute and locally may produce more than 500 gpm. Wells open only to the Black Mingo Formation are rare and usually produce less than 300 gpm. Because its transmissivity is low, that formation is used mainly where the overlying Floridan aquifer system is poorly productive.

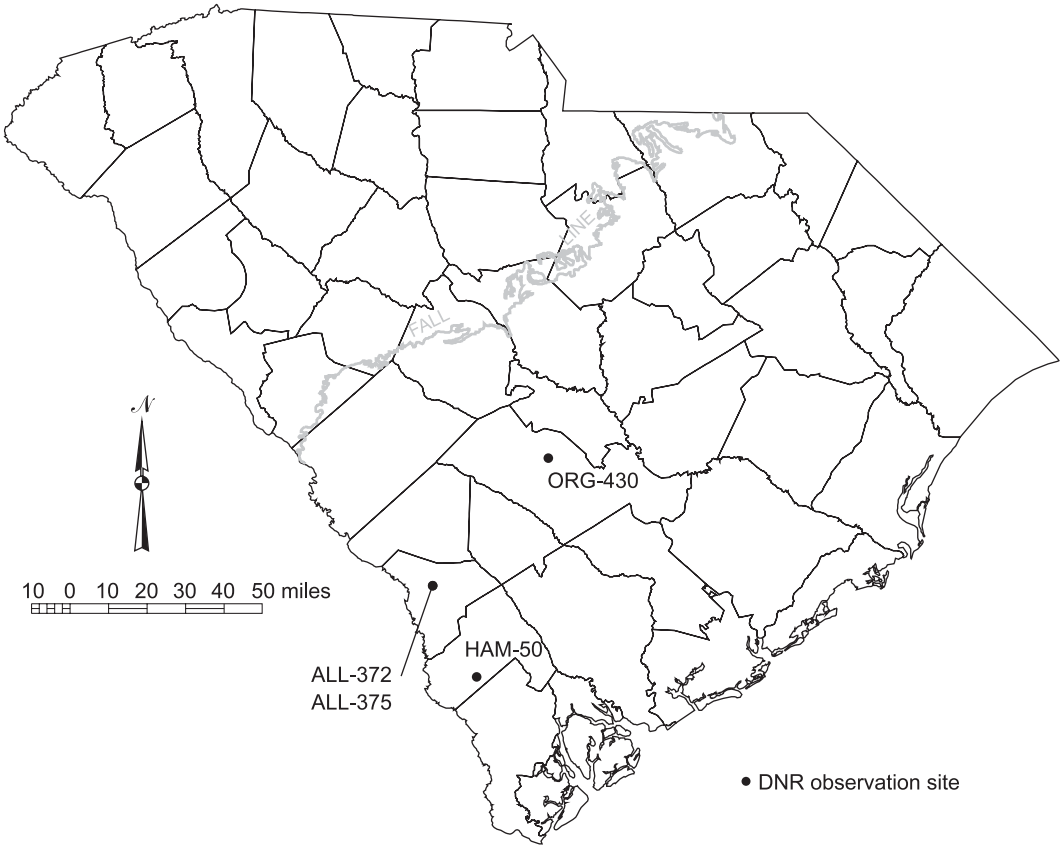
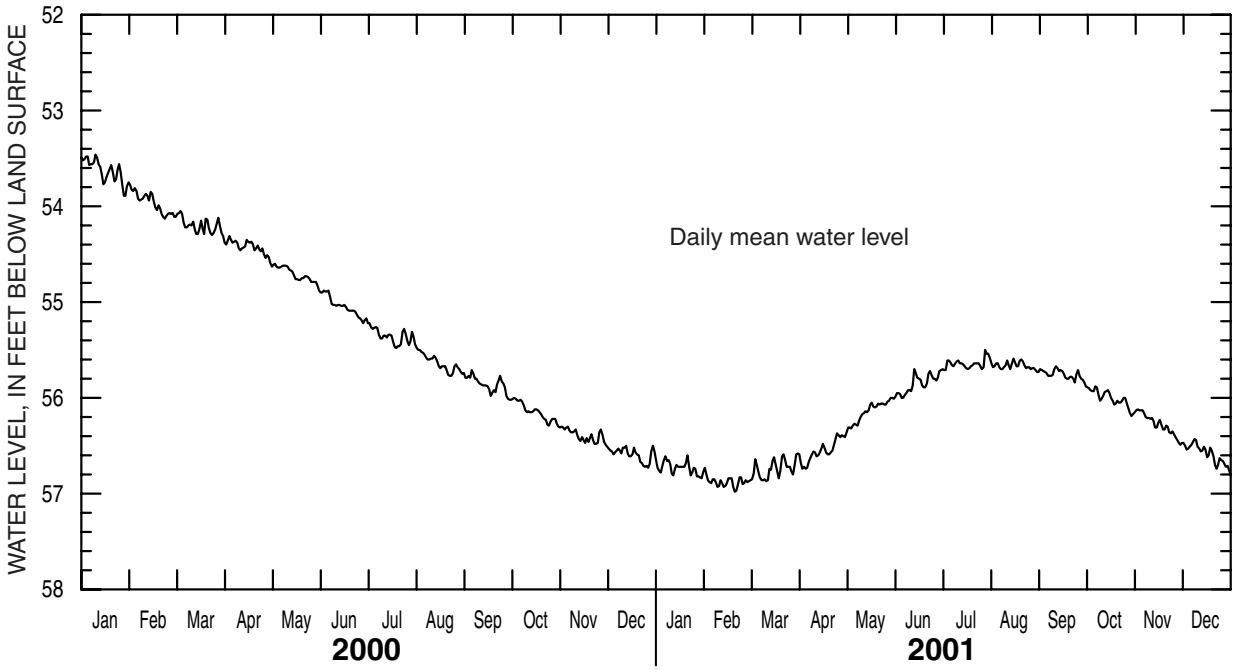


Figure 12. Locations of Tertiary-sand aquifer system observation wells.

ALLENDALE COUNTY

WELL NUMBER: ALL-372 GRID NUMBER: 35AA-q5
LATITUDE: 33°01'28" LONGITUDE: 81°23'04"
LOCATION: Appleton Fire Tower.
AQUIFER: Tertiary sand.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 155 ft. Screened from 140 to 150 ft.
DATUM: Land surface is 282.04 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 2.96 ft above land surface datum.
PERIOD OF RECORD: October 1996 to current year.
EXTREMES: Highest water level: 38.14 ft below land surface, June 3, 1998.
Lowest water level: 56.98 ft below land surface, February 19, 2001.
REMARKS: One of nine wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	53.46	53.78	54.05	54.31	54.60	54.88	55.22	55.48	55.71	56.00	56.30	56.50
MEAN	53.63	53.96	54.20	54.42	54.71	55.05	55.35	55.64	55.87	56.15	56.40	56.59
LOW	53.89	54.13	54.31	54.59	54.88	55.22	55.48	55.77	56.02	56.31	56.51	56.73

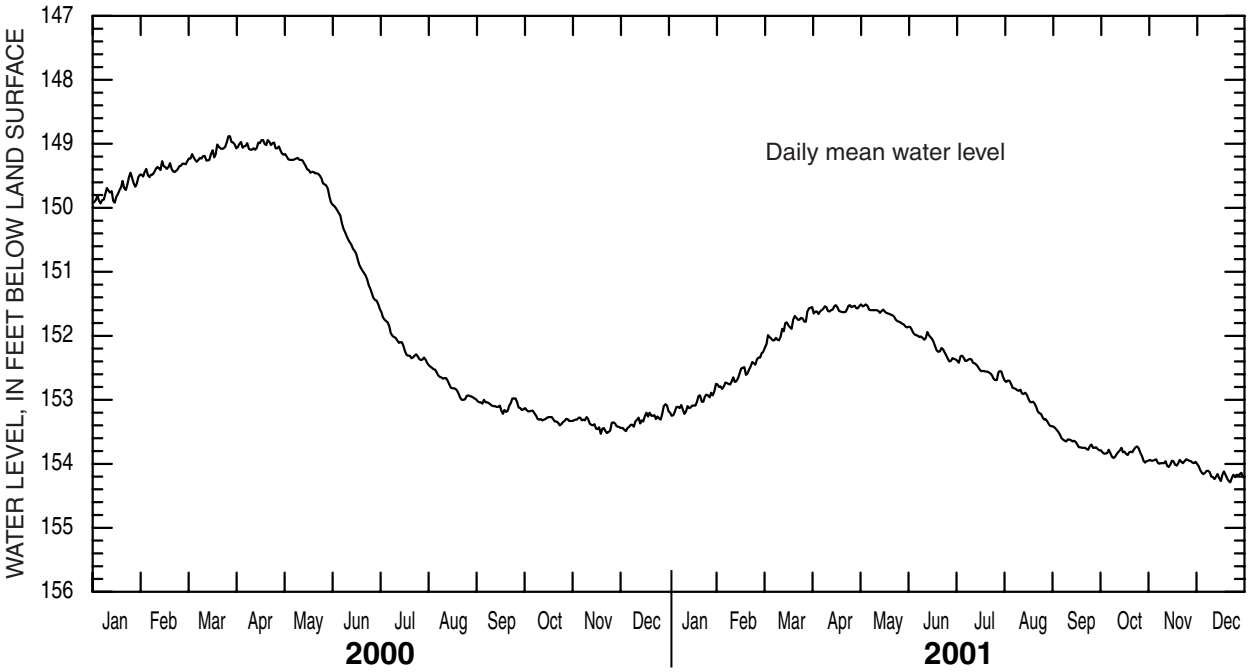
SUMMARY FOR 2000 HIGH 53.46 (Jan. 10, 2000) MEAN 55.17 LOW 56.73 (Dec. 26, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	56.60	56.80	56.58	56.37	56.00	55.70	55.50	55.59	55.67	55.88	56.12	56.43
MEAN	56.73	56.88	56.74	56.56	56.14	55.85	55.64	55.67	55.76	56.01	56.28	56.59
LOW	56.84	56.98	56.87	56.74	56.36	56.00	55.71	55.73	55.88	56.19	56.49	56.80

SUMMARY FOR 2001 HIGH 55.50 (July 28, 2001) MEAN 56.23 LOW 56.98 (Feb. 19, 2001)

ALLENDALE COUNTY

WELL NUMBER: ALL-375 GRID NUMBER: 35AA-q8
LATITUDE: 33°01'28" LONGITUDE: 81°23'06"
LOCATION: Appleton Fire Tower.
AQUIFER: Tertiary sand.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 583 ft. Screened from 453 to 578 ft.
DATUM: Land surface is 282.89 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 3.46 ft above land surface datum.
PERIOD OF RECORD: October 1996 to current year.
EXTREMES: Highest water level: 145.98 ft below land surface, May 8, 1998.
Lowest water level: 154.29 ft below land surface, December 22, 2001.
REMARKS: One of nine wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	149.45	149.27	148.88	148.94	149.16	149.95	151.58	152.46	152.98	153.13	153.27	153.07
MEAN	149.73	149.40	149.13	149.03	149.40	150.72	152.12	152.78	153.09	153.28	153.39	153.30
LOW	149.93	149.52	149.28	149.15	149.91	151.51	152.42	153.00	153.22	153.40	153.53	153.49

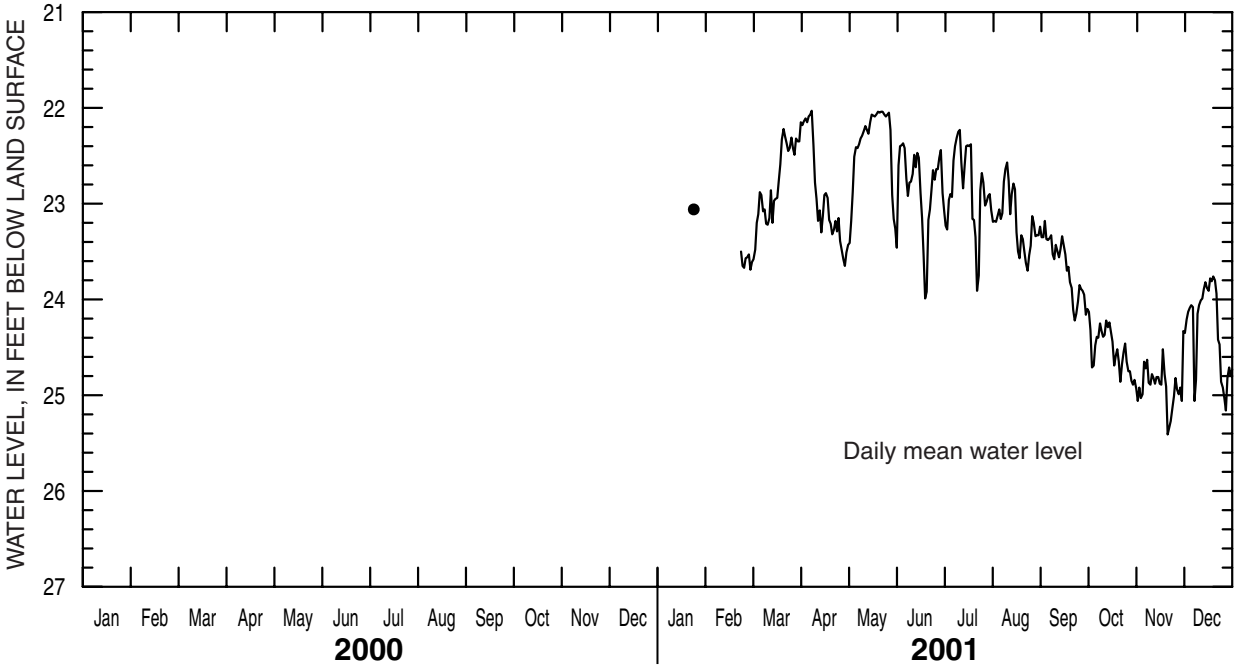
SUMMARY FOR 2000 HIGH 148.88 (Mar. 27, 2000) MEAN 151.29 LOW 153.53 (Nov.18, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	152.75	152.27	151.56	151.58	151.51	151.86	152.31	152.70	153.42	153.73	153.93	154.00
MEAN	153.05	152.59	151.88	151.58	151.65	152.12	152.49	153.02	153.66	153.84	153.97	154.17
LOW	153.25	152.83	152.25	151.66	151.87	152.40	152.69	153.41	153.79	153.98	154.05	154.29

SUMMARY FOR 2001 HIGH 151.51 (May 2, 2001) MEAN 152.84 LOW 154.29 (Dec. 22, 2001)

HAMPTON COUNTY

WELL NUMBER: HAM-50 GRID NUMBER: 33EE-v1
LATITUDE: 32°40'47" LONGITUDE: 80°11'13"
LOCATION: US Highway 601, Furman.
AQUIFER: Tertiary sand.
WELL CHARACTERISTICS: 8-inch diameter unused public supply well. Depth: 986 ft. Open interval unknown.
DATUM: Land surface is 115 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of 4-inch casing, 2.41 ft above land surface datum.
PERIOD OF RECORD: February 2001 to current year.
EXTREMES: Highest water level: 22.03 ft below land surface, April 8, 2001.
Lowest water level: 25.41 ft below land surface, November 20, 2001.
REMARKS: None.

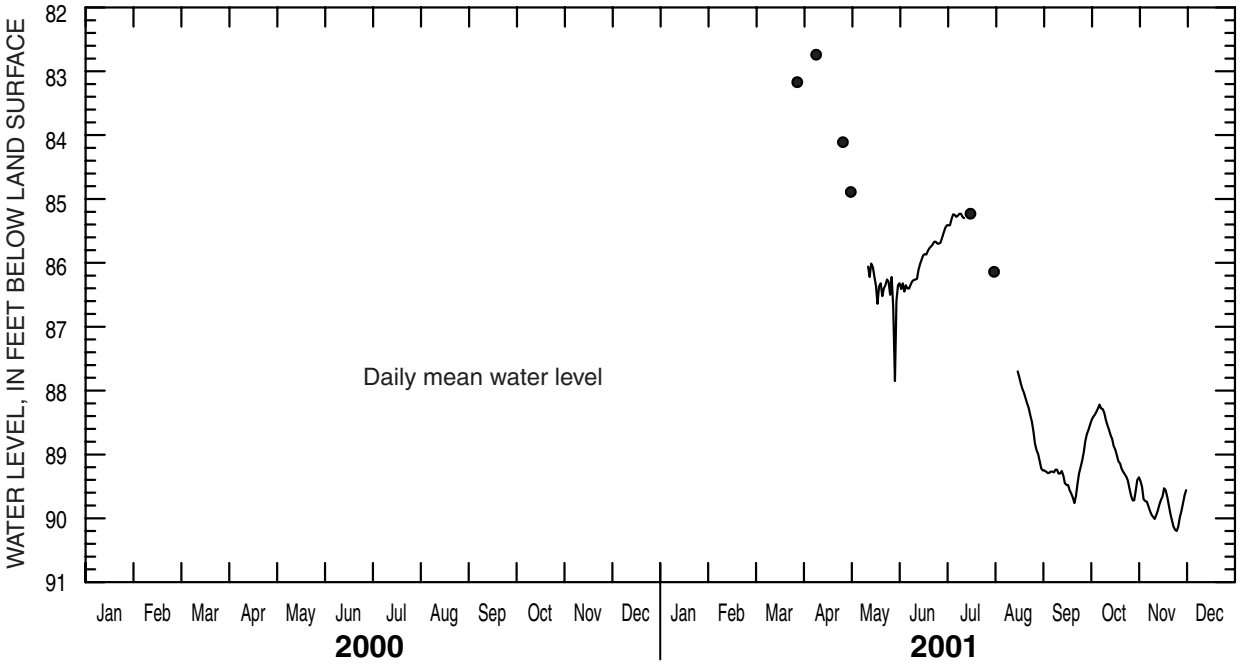


2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	23.50	22.22	22.03	22.04	22.37	22.23	22.57	23.18	24.13	24.33	23.76
MEAN	--	--	22.81	22.89	22.41	22.82	22.85	23.19	23.67	24.54	24.90	24.31
LOW	--	23.70	23.61	23.65	23.43	23.99	23.91	23.70	24.22	24.93	25.41	25.16

SUMMARY FOR 2001 HIGH 22.03 (Apr. 8, 2001) MEAN 23.44 LOW 25.41 (Nov. 20, 2001)

ORANGEBURG COUNTY

WELL NUMBER: ORG-430 GRID NUMBER: 29U-v2
LATITUDE: 33°30'29" LONGITUDE: 80°51'53"
LOCATION: Clark Middle School, Orangeburg.
AQUIFER: Tertiary sand.
WELL CHARACTERISTICS: 2-inch diameter observation well. Depth: 275 ft. Screened from 205 to 265 ft.
DATUM: Land surface is 256 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 3.25 ft above land surface datum.
PERIOD OF RECORD: March 2001 to current year.
EXTREMES: Highest water level: 82.74 ft below land surface, April 9, 2001.
Lowest water level: 90.20 ft below land surface, November 24, 2001.
REMARKS: Drilled and cored for DNR/USGS aquifer delineation project.



2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	--	--	86.01	85.45	85.23	87.65	88.53	88.22	89.42	--
MEAN	--	--	--	--	--	85.99	--	--	89.26	88.92	89.82	--
LOW	--	--	--	--	87.85	86.45	85.41	89.25	89.76	89.72	90.20	--

SUMMARY FOR 2001 HIGH 82.74 (Apr. 9, 2001) MEAN -- LOW 90.20 (Nov. 24, 2001)

FLORIDAN AQUIFER SYSTEM

The Floridan aquifer system in South Carolina is the northernmost part of one of the most extensive and prolific ground-water sources in North America. It primarily consists of the Middle Eocene Santee Limestone and, in southern and southwestern South Carolina, the Upper Eocene Ocala Limestone. It also encompasses, and is confined by, the Oligocene Cooper Formation in Charleston, Berkeley, Dorchester, and Colleton Counties. The top of the system occurs within 100 ft of land surface, except in southernmost Beaufort and Jasper Counties. Typically, more than 80 percent of the Floridan's thickness is relatively impermeable owing to the widespread occurrence of impure, clayey to sandy limestone and of limestone having interstitial-calcite precipitate; however, sections of clean, permeable, bioclastic limestone are found throughout the Floridan's range of occurrence. These permeable sections almost everywhere yield adequate water for domestic use, small public-supply systems, and light industry, and, locally, they can yield 1 to 3 million gallons per day to individual wells.

The Floridan aquifer system outcrops along the Santee River and Wateree River valleys and from eastern Orangeburg County through western Allendale County. The limestone there commonly exceeds 95-percent calcium carbonate, has enlarged secondary porosity owing to dissolution, and locally exhibits cavern and sinkhole formation. The surface of the Santee Limestone and Ocala Limestone components, and the permeable units associated with them, dip gently southeastward from 100 ft msl to -200 ft msl. The low-permeability, arenaceous limestone of the Oligocene Cooper Formation overlies the Santee in most of Charleston, Berkeley, and Dorchester Counties, grades into the Ocala Limestone to the southeast, and thickens to more than 250 ft in southern Charleston County. Owing to this geologic complexity, four important and distinct permeable zones occur in the Floridan aquifer system.

Limestone in the outcrop area forms the inlandmost permeable zone and is a major avenue for recharge: there, meteoric water has circulated through the pure limestone at shallow depth, secondary porosity is common and well developed, hydraulic conductivity is high, and water-table to poorly confined conditions predominate. The limestone downdip of the subcrop region becomes increasingly arenaceous and confining, and ground water typically is obtained from two thin and well-separated permeable zones.

The northern zone, underlying Charleston, Berkeley, Dorchester, Colleton, and eastern Hampton Counties, occurs near the base of the Santee Limestone at 50 to -500 ft msl: it typically is 5 to 20 ft thick, is moderately permeable, and, in conjunction with underlying sand of the Tertiary-sand system, yields 100 to 400 gpm to individual wells. The southern zone, underlying Jasper County, western Hampton County, and southern Beaufort County, occurs at the top of the Santee Limestone at 0 to -500 ft msl: it typically is 20 to 40 ft thick, has transmissivities as great as 200,000 gpd/ft, and can provide up to 1,000 gpm to individual wells. The geographic distribution of the southern zone roughly coincides with the upper permeable zone of the Ocala Limestone.

The upper permeable zone is the principal source of ground-water supply in Beaufort, Jasper, Hampton, and Allendale Counties. It occurs within the upper 100 ft of the Ocala Limestone, and the top of the unit ranges from -20 ft msl at Beaufort to -250 ft msl near Savannah, Ga. It is as much as 100 ft thick in southern Jasper County and has transmissivities up to 450,000 gpd/ft. Yields as great as 3,000 gpm are reported, and those exceeding 500 gpm are common.

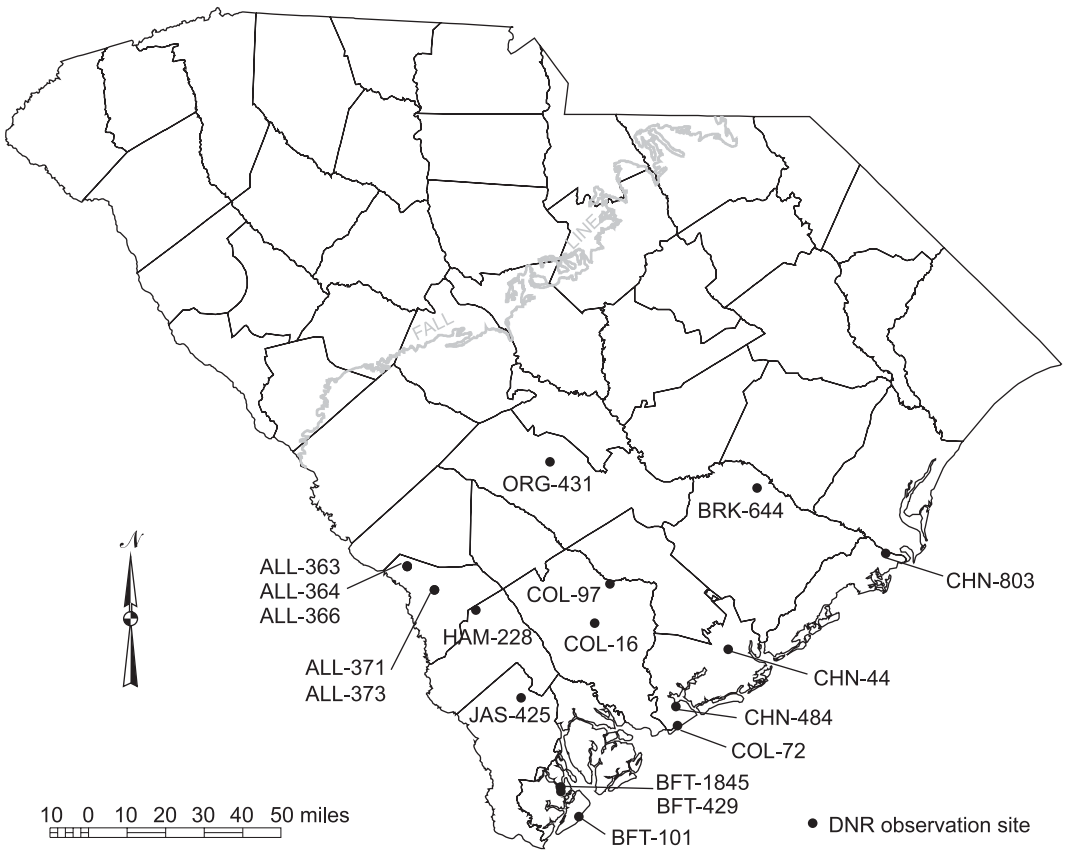
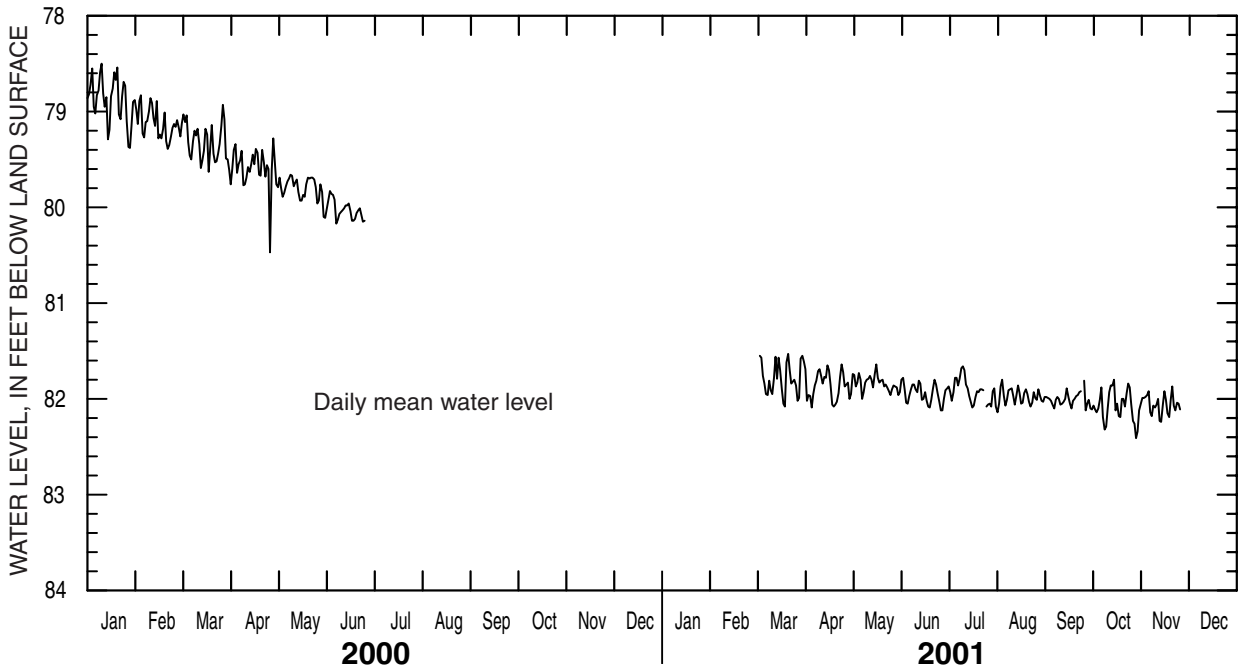


Figure 13. Locations of Floridan aquifer system observation wells.

ALLENDALE COUNTY

WELL NUMBER: ALL-363 GRID NUMBER: 37Z-t4
LATITUDE: 33°06'48" LONGITUDE: 81°30'22"
LOCATION: Rolling Hills Road, Millet.
AQUIFER: Floridan.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 105 ft. Screened from 90 to 100 ft.
DATUM: Land surface is 246.13 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 2.96 ft above land surface datum.
PERIOD OF RECORD: November 1995 to current year.
EXTREMES: Highest water level: 68.34 ft below land surface, June 14, 1998.
Lowest water level: 82.41 ft below land surface, December 21, 2001.
REMARKS: One of nine wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	78.50	78.83	78.93	79.28	79.66	79.83	--	--	--	--	--	--
MEAN	78.88	79.13	79.32	79.59	79.81	80.08	--	--	--	--	--	--
LOW	79.38	79.39	79.63	80.47	80.11	80.17	--	--	--	--	--	--

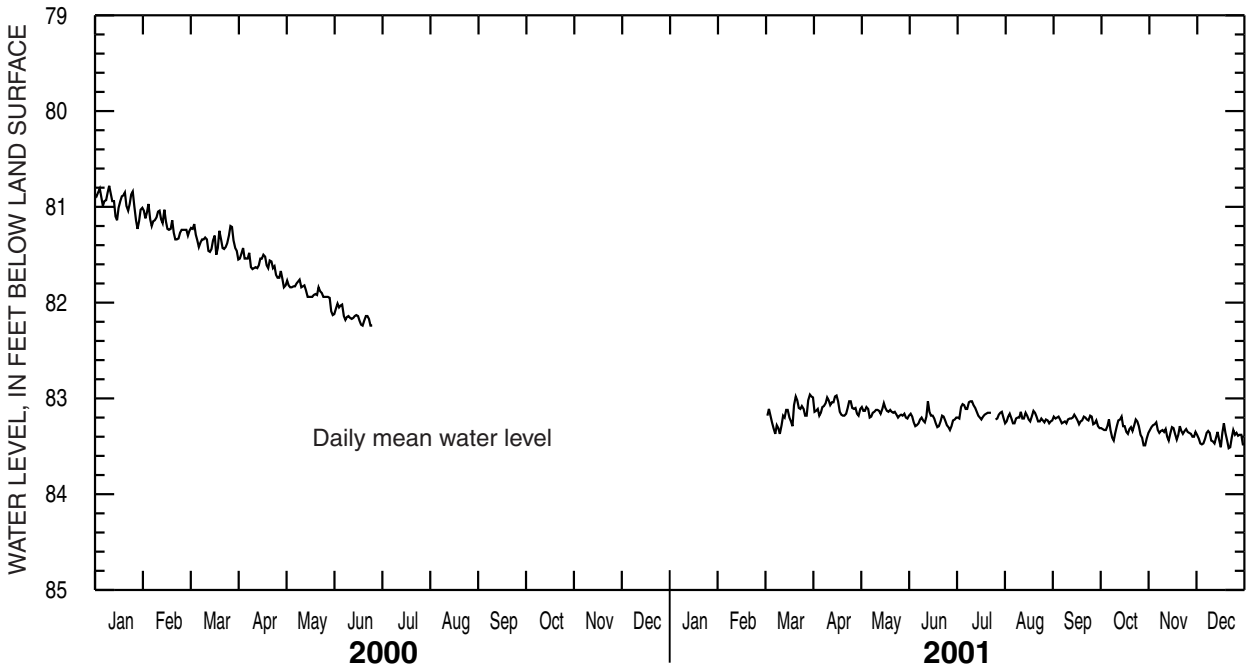
SUMMARY FOR 2000 HIGH 78.50 (Jan. 10, 2000) MEAN -- LOW 80.47 (Apr. 26, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	81.45	81.64	81.64	81.78	81.66	81.8	81.81	81.8	81.87	--
MEAN	--	--	81.77	81.86	81.84	81.94	81.92	81.98	82.01	82.08	82.06	--
LOW	--	--	82.08	82.09	82.00	82.12	82.09	82.14	82.12	82.41	82.24	--

SUMMARY FOR 2001 HIGH 81.45 (Mar. 2, 2001) MEAN -- LOW 82.41 (Oct. 28, 2001)

ALLENDALE COUNTY

WELL NUMBER: ALL-364 GRID NUMBER: 37Z-t5
LATITUDE: 33°06'48" LONGITUDE: 81°30'22"
LOCATION: Rolling Hills Road, Millet.
AQUIFER: Floridan.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 225 ft. Screened from 210 to 220 ft.
DATUM: Land surface is 245.17 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 3.22 ft above land surface datum.
PERIOD OF RECORD: November 1995 to current year.
EXTREMES: Highest water level: 71.90 ft below land surface, May 8, 1998.
Lowest water level: 83.52 ft below land surface, December 21, 2001.
REMARKS: One of nine wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	80.78	80.97	81.18	81.43	81.76	82.01	--	--	--	--	--	--
MEAN	80.95	81.18	81.35	81.60	81.89	82.15	--	--	--	--	--	--
LOW	81.23	81.34	81.50	81.84	82.13	82.24	--	--	--	--	--	--

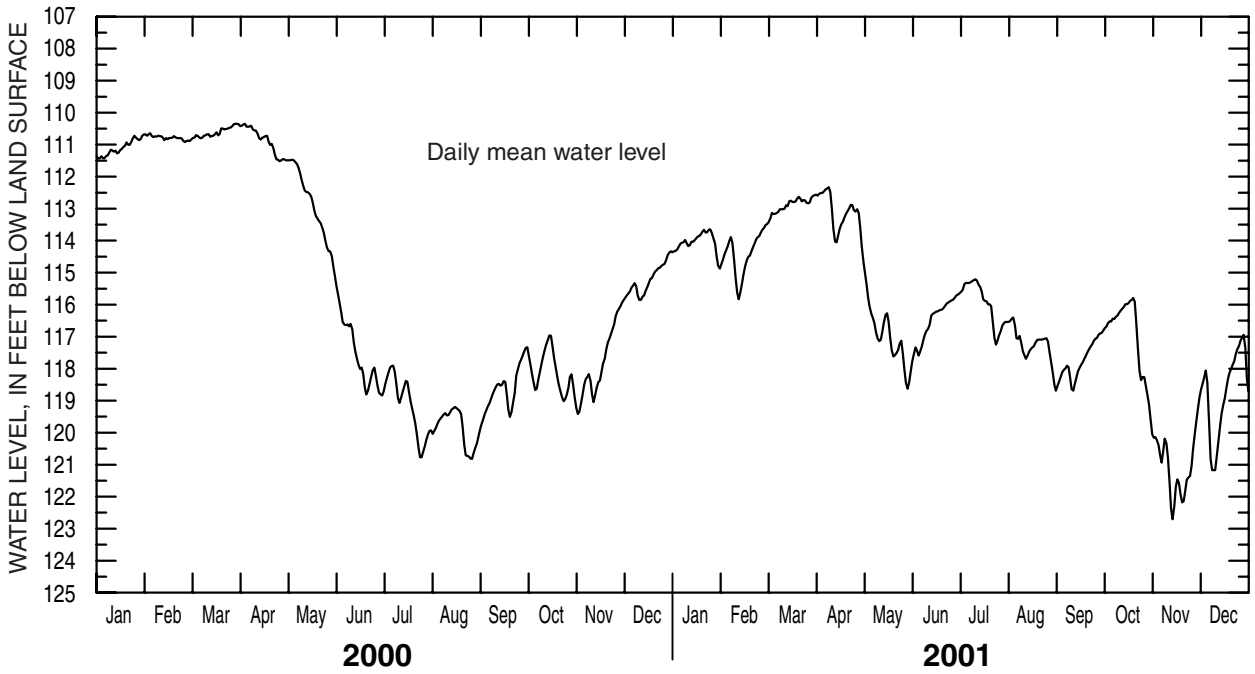
SUMMARY FOR 2000 HIGH 80.78 (Jan. 10, 2000) MEAN -- LOW 82.24 (June 19, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	82.96	82.97	83.05	83.03	83.03	83.13	83.17	83.19	83.25	83.26
MEAN	--	--	83.17	83.09	83.14	83.23	83.14	83.21	83.23	83.32	83.35	83.41
LOW	--	--	83.37	83.18	83.21	83.33	83.22	83.26	83.31	83.49	83.44	83.52

SUMMARY FOR 2001 HIGH 82.96 (Mar. 30, 2001) MEAN -- LOW 83.52 (Dec. 21, 2001)

ALLENDALE COUNTY

WELL NUMBER: ALL-366 GRID NUMBER: 37Z-t7
LATITUDE: 33°06'47" LONGITUDE: 81°30'22"
LOCATION: Rolling Hills Road, Millet.
AQUIFER: Floridan.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 400 ft. Screened from 385 to 395 ft.
DATUM: Land surface is 243.50 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 3.16 ft above land surface datum.
PERIOD OF RECORD: November 1995 to current year.
EXTREMES: Highest water level: 108.34 ft below land surface, May 8, 1998.
Lowest water level: 122.71 ft below land surface, November 13, 2001.
REMARKS: One of nine wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	110.68	110.64	110.35	110.35	111.47	115.40	117.91	119.20	117.33	116.96	115.86	114.33
MEAN	111.10	110.78	110.62	110.86	112.87	117.54	119.17	119.87	118.61	118.15	117.75	115.19
LOW	111.43	110.92	110.84	111.52	115.09	118.84	120.77	120.82	119.74	119.23	119.42	115.85

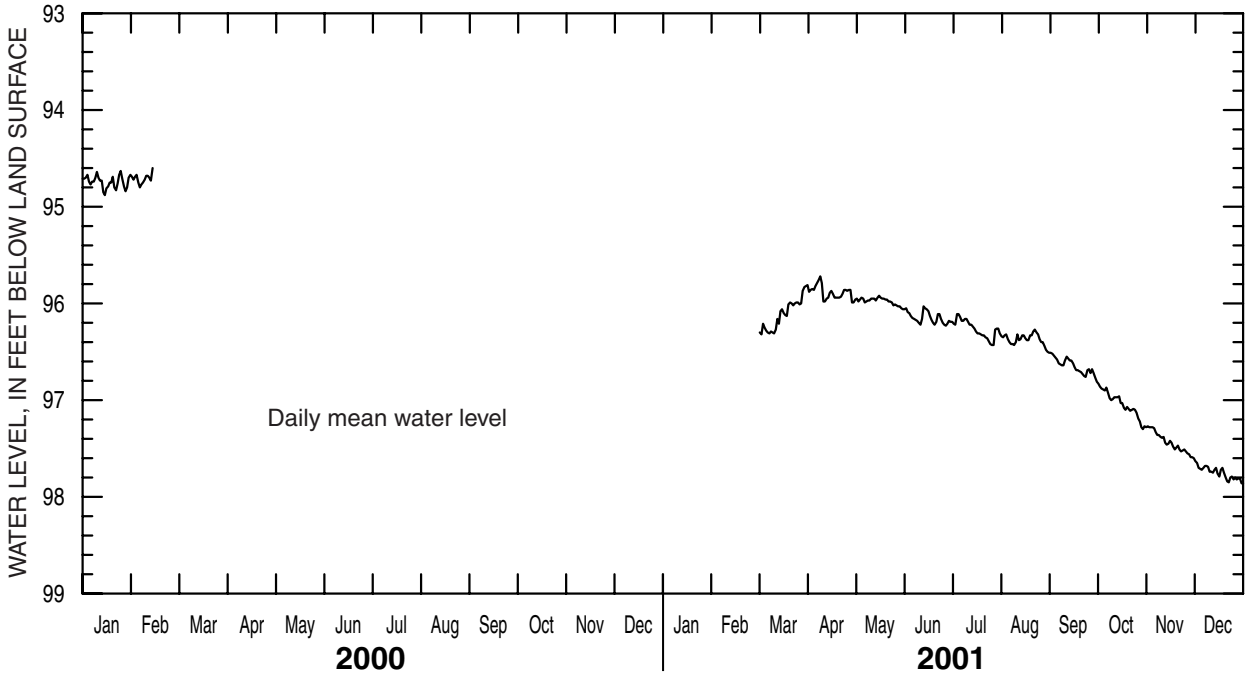
SUMMARY FOR 2000 HIGH 110.35 (Mar. 29, 2000) MEAN 115.22 LOW 120.82 (Aug. 26, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	113.65	113.51	112.58	112.33	114.67	115.68	115.21	116.40	116.81	115.79	118.91	116.94
MEAN	114.07	114.43	112.91	113.07	116.93	116.51	115.95	117.26	117.76	117.02	120.99	118.73
LOW	114.87	115.83	113.48	114.19	118.63	117.77	117.25	118.69	118.69	120.05	122.71	121.17

SUMMARY FOR 2001 HIGH 112.33 (Apr. 9, 2001) MEAN 116.31 LOW 122.71 (Nov. 13, 2001)

ALLENDALE COUNTY

WELL NUMBER: ALL-371 GRID NUMBER: 35AA-q4
LATITUDE: 33°01'28" LONGITUDE: 81°23'05"
LOCATION: Appleton fire tower.
AQUIFER: Floridan.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 217 ft. Screened from 192 to 212 ft.
DATUM: Land surface is 282.23 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 3.00 ft above land surface datum.
PERIOD OF RECORD: August 1996 to current year.
EXTREMES: Highest water level: 85.46 ft below land surface, May 10, 1998.
Lowest water level: 97.86 ft below land surface, December 30, 2001.
REMARKS: One of nine wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	94.63	94.60	--	--	--	--	--	--	--	--	--	--
MEAN	94.74	--	--	--	--	--	--	--	--	--	--	--
LOW	94.88	94.80	--	--	--	--	--	--	--	--	--	--

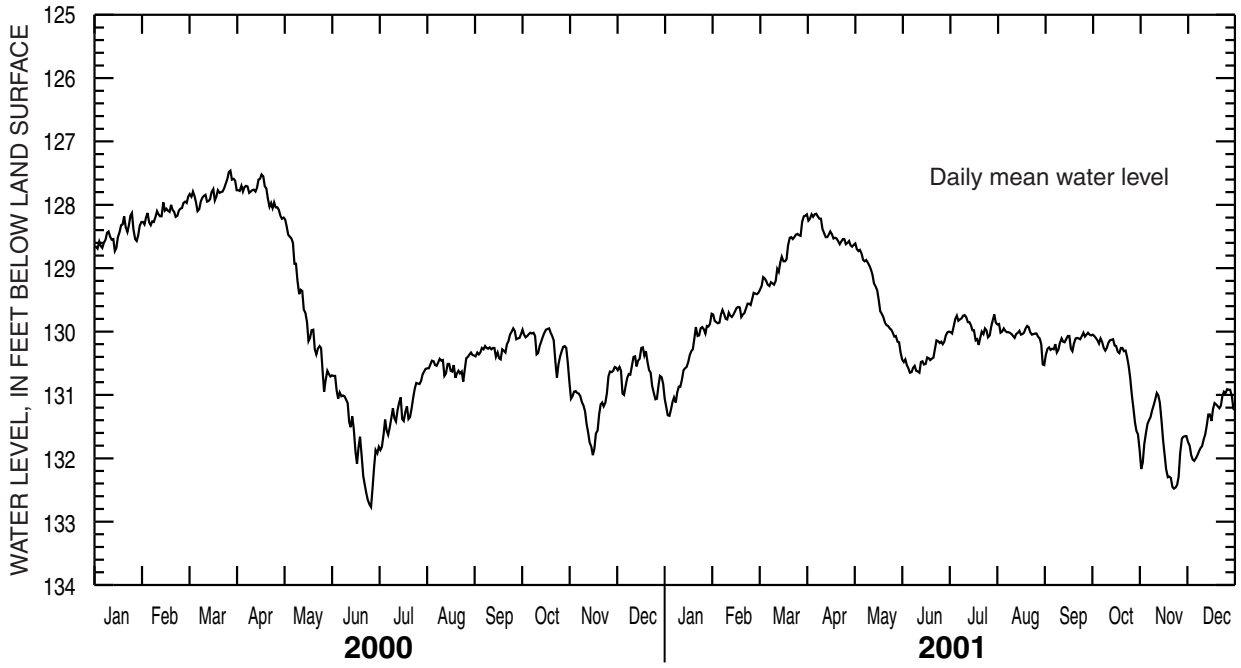
SUMMARY FOR 2000 HIGH 94.60 (Feb. 14, 2000) MEAN -- LOW 94.88 (Jan. 15, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	95.82	95.72	95.92	96.03	96.11	96.27	96.51	96.83	97.27	97.63
MEAN	--	--	--	95.88	95.98	96.15	96.26	96.37	96.65	97.05	97.44	97.75
LOW	--	--	96.32	95.99	96.06	96.23	96.43	96.51	96.81	97.30	97.60	97.86

SUMMARY FOR 2001 HIGH 95.72 (Apr. 9, 2001) MEAN -- LOW 97.86 (Dec. 30, 2001)

ALLENDALE COUNTY

WELL NUMBER: ALL-373 GRID NUMBER: 35AA-q6
LATITUDE: 33°01'28" LONGITUDE: 81°23'03"
LOCATION: Appleton fire tower.
AQUIFER: Floridan.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 372 ft. Screened from 327 to 367 ft.
DATUM: Land surface is 279.67 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 2.74 ft above land surface datum.
PERIOD OF RECORD: August 1996 to current year.
EXTREMES: Highest water level: 119.71 ft below land surface, May 8, 1998.
Lowest water level: 132.77 ft below land surface, June 26, 2000.
REMARKS: One of nine wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	128.13	127.95	127.46	127.52	128.20	130.69	130.59	130.33	129.95	129.95	130.56	130.25
MEAN	128.47	128.13	127.80	127.82	129.65	131.64	131.23	130.54	130.23	130.20	131.15	130.66
LOW	128.73	128.32	128.10	128.22	130.95	132.77	131.87	130.79	130.44	130.81	131.95	131.07

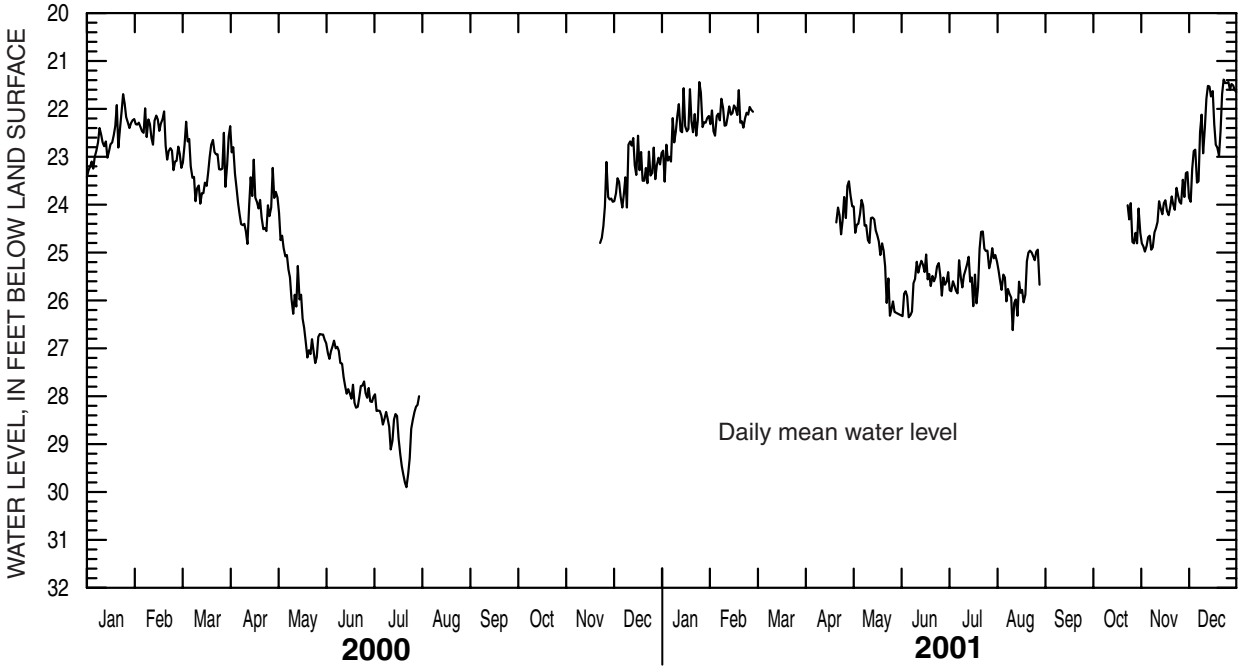
SUMMARY FOR 2000 HIGH 127.46 (Mar. 28, 2000) MEAN 129.80 LOW 132.77 (June 26, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	129.72	129.39	128.17	128.14	128.61	130.01	129.73	129.88	130.02	130.05	130.97	130.91
MEAN	130.46	129.67	128.86	128.42	129.41	130.41	129.93	130.05	130.17	130.48	131.77	131.42
LOW	131.33	129.87	129.39	128.66	130.33	130.65	130.21	130.53	130.37	131.88	132.48	132.04

SUMMARY FOR 2001 HIGH 128.14 (Apr. 7, 2001) MEAN 130.09 LOW 132.48 (Nov. 22, 2001)

BEAUFORT COUNTY

WELL NUMBER: BFT-101 GRID NUMBER: 27KK-y1
LATITUDE: 32°10'05" LONGITUDE: 80°44'26"
LOCATION: US Highway 278, Hilton Head Island.
AQUIFER: Upper Floridan.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 745 ft. Open hole from 129 to 470 ft.
DATUM: Land surface is 14.31 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of 1-1/2-inch casing, 1.80 ft above land surface datum.
PERIOD OF RECORD: January 1955 to current year.
EXTREMES: Highest water level: 12.29 ft above land surface, July 5, 1961.
Lowest water level: 30.42 ft below land surface, July 11, 1990.
REMARKS: Monitored continuously by USGS until September 2001.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	21.69	21.99	22.27	22.36	23.85	26.84	27.96	--	--	--	23.11	22.56
MEAN	22.60	22.55	23.19	23.90	26.06	27.62	28.68	--	--	--	--	23.29
LOW	23.43	23.28	23.98	24.82	27.31	28.24	29.90	--	--	--	24.80	24.06

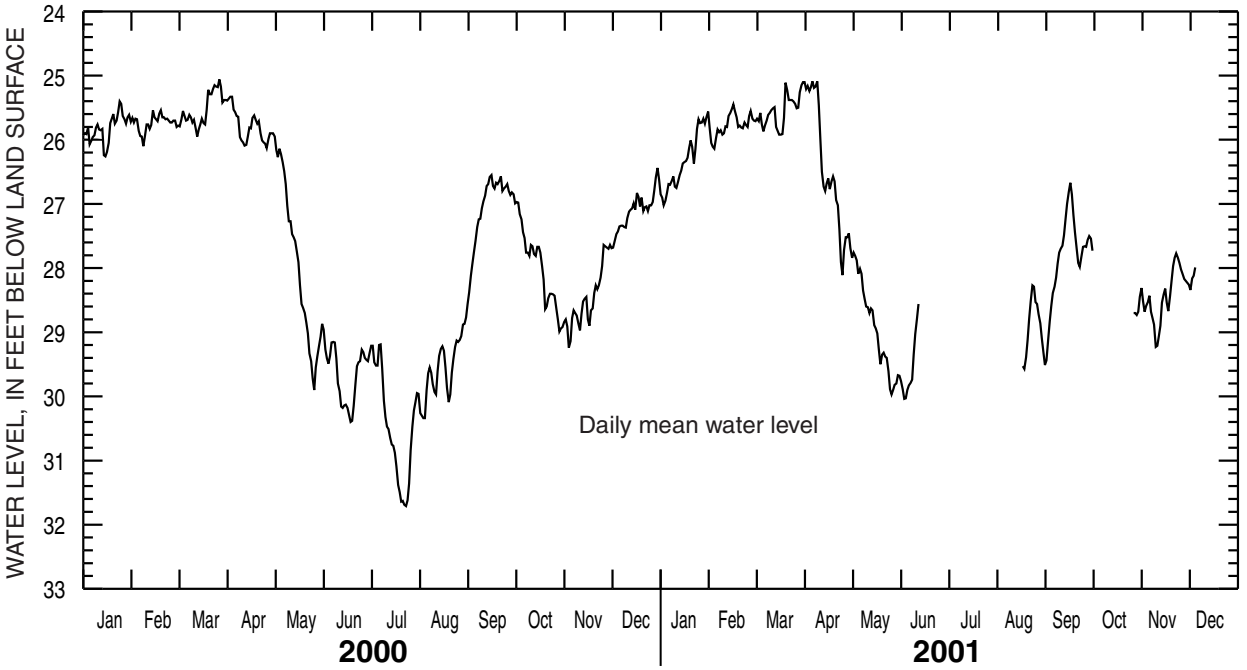
SUMMARY FOR 2000 HIGH 21.69 (Jan. 24, 2000) MEAN -- LOW 29.90 (July 22, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	21.44	21.61	--	23.51	23.90	25.04	24.56	24.94	--	23.23	23.32	21.39
MEAN	22.37	22.12	--	--	24.83	25.61	25.37	25.59	--	--	24.20	22.28
LOW	23.52	22.56	--	24.62	26.32	26.35	26.12	26.62	--	24.81	24.98	23.94

SUMMARY FOR 2001 HIGH 21.44 (Jan. 24, 2001) MEAN -- LOW 26.62 (Aug. 11, 2001)

BEAUFORT COUNTY

WELL NUMBER: BFT-429 GRID NUMBER: 28JJ-y1
LATITUDE: 32°15'50" LONGITUDE: 80°49'11"
LOCATION: Victoria Bluff Wildlife Management Area, Bluffton.
AQUIFER: Upper Floridan.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 300 ft. Cased to 119 ft. Open hole.
DATUM: Land surface is 21.56 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of plywood platform, 1.85 ft above land surface datum.
PERIOD OF RECORD: August 1970 to current year.
EXTREMES: Highest water level: 21.71 ft below land surface, September 10, 1971.
Lowest water level: 31.71 ft below land surface, July 23, 2000.
REMARKS: Monitored continuously by USGS until September 2001.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	25.40	25.54	25.06	25.33	25.95	28.96	29.19	28.56	26.55	26.97	27.64	26.44
MEAN	25.82	25.74	25.53	25.79	27.95	29.65	30.47	29.54	27.01	28.04	28.45	27.09
LOW	26.26	26.10	25.95	26.13	29.90	30.40	31.71	30.34	28.38	28.99	29.24	27.68

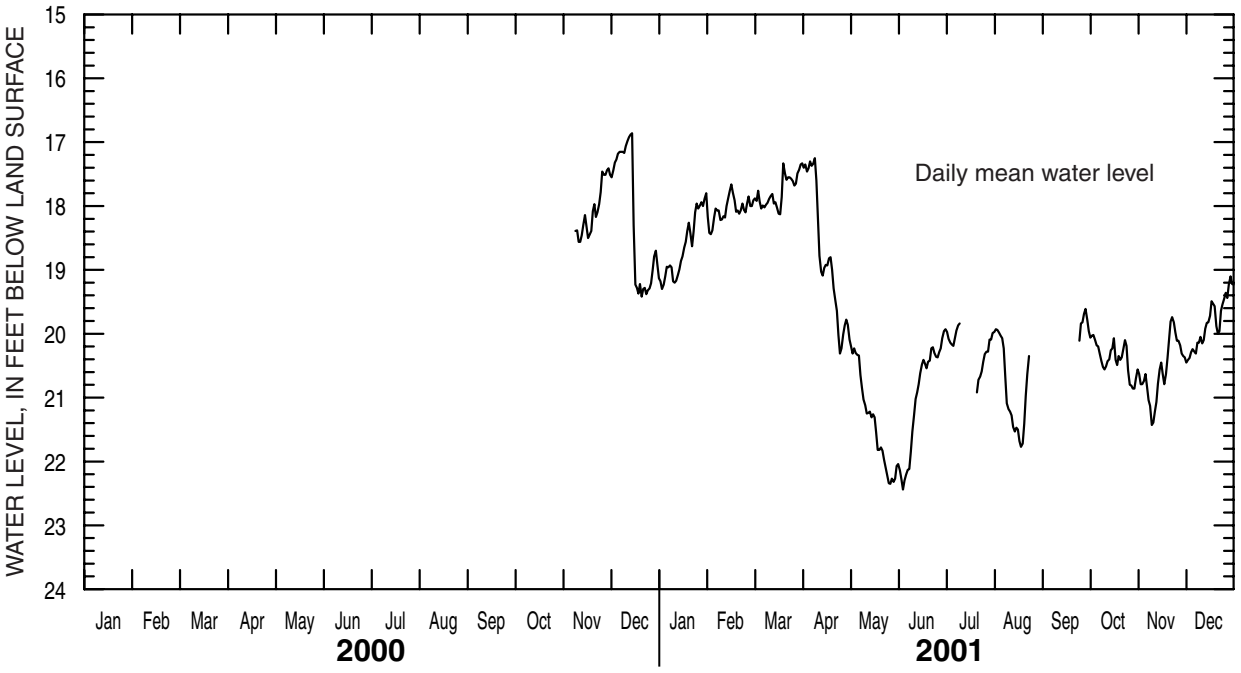
SUMMARY FOR 2000 HIGH 25.06 (Mar. 27, 2000) MEAN 27.60 LOW 31.71 (July 23, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	25.56	25.45	25.10	25.09	27.76	28.51	--	28.27	26.67	28.08	27.77	27.99
MEAN	26.29	25.77	25.56	26.44	28.93	--	--	--	27.78	--	28.43	--
LOW	27.02	26.14	25.92	28.11	29.97	30.04	--	29.57	29.44	28.73	29.23	28.34

SUMMARY FOR 2001 HIGH 25.09 (Apr. 6, 2001) MEAN -- LOW 30.04 (June 3, 2001)

BEAUFORT COUNTY

WELL NUMBER: BFT-1845 GRID NUMBER: 28JJ-p5
LATITUDE: 32°16'49" LONGITUDE: 80°49'17"
LOCATION: Waddell Mariculture Center, Bluffton.
AQUIFER: Middle Floridan.
WELL CHARACTERISTICS: 8-inch diameter observation well. Depth: 600 ft. Cased to 320 ft. Open hole.
DATUM: Land surface is 12.27 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 1.48 ft above land surface datum.
PERIOD OF RECORD: March 1994 to March 1998 and September 2000 to current year.
EXTREMES: Highest water level: 15.97 ft below land surface, February 4, 1998.
Lowest water level: 22.44 ft below land surface, June 4, 2001.
REMARKS: Water levels are tide influenced.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	--	--	--	--	--	--	--	--	17.41	16.86
MEAN	--	--	--	--	--	--	--	--	--	--	18.07	18.23
LOW	--	--	--	--	--	--	--	--	--	--	18.56	19.42

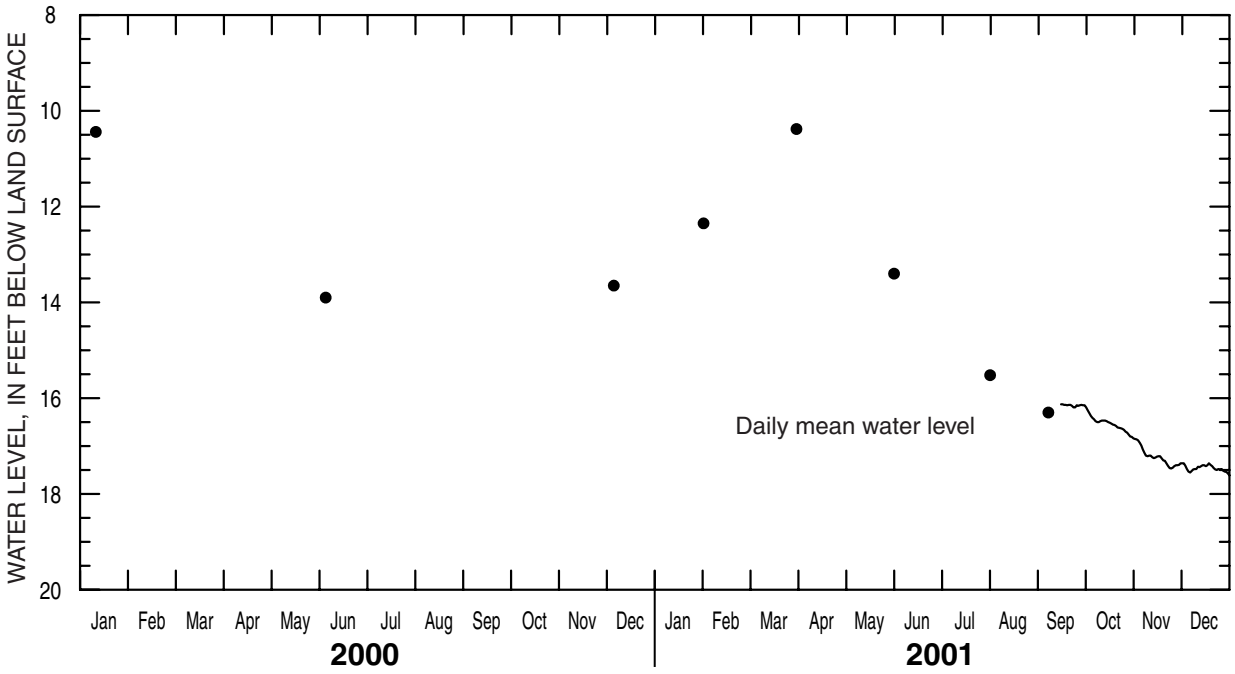
SUMMARY FOR 2000 HIGH 16.86 (Dec. 14, 2000) MEAN -- LOW 19.42 (Dec. 20, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	17.80	17.66	17.33	17.25	20.09	19.96	19.84	19.93	19.61	20.02	19.74	19.10
MEAN	18.62	18.06	17.78	18.69	21.32	21.01	--	--	--	20.39	20.56	19.83
LOW	19.30	18.44	18.13	20.31	22.35	22.44	21.05	21.77	20.26	20.86	21.43	20.45

SUMMARY FOR 2001 HIGH 17.25 (Apr. 9, 2001) MEAN 19.78 LOW 22.44 (June 4, 2001)

BERKELEY COUNTY

WELL NUMBER: BRK-644 GRID NUMBER: 18W-b2
LATITUDE: 33°24'16" LONGITUDE: 79°56'03"
LOCATION: St. Stephen Middle School, St. Stephen.
AQUIFER: Floridan.
WELL CHARACTERISTICS: 4-inch diameter observation well. Depth: 93 ft. Screened from 53 to 93 ft.
DATUM: Land surface is 75 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 2.92 ft above land surface datum.
PERIOD OF RECORD: January 2000 to current year.
EXTREMES: Highest water level: 10.38 ft below land surface, March 30, 2001.
Lowest water level: 17.61 ft below land surface, December 31, 2001.
REMARKS: Drilled and cored for DNR/USGS aquifer delineation project.

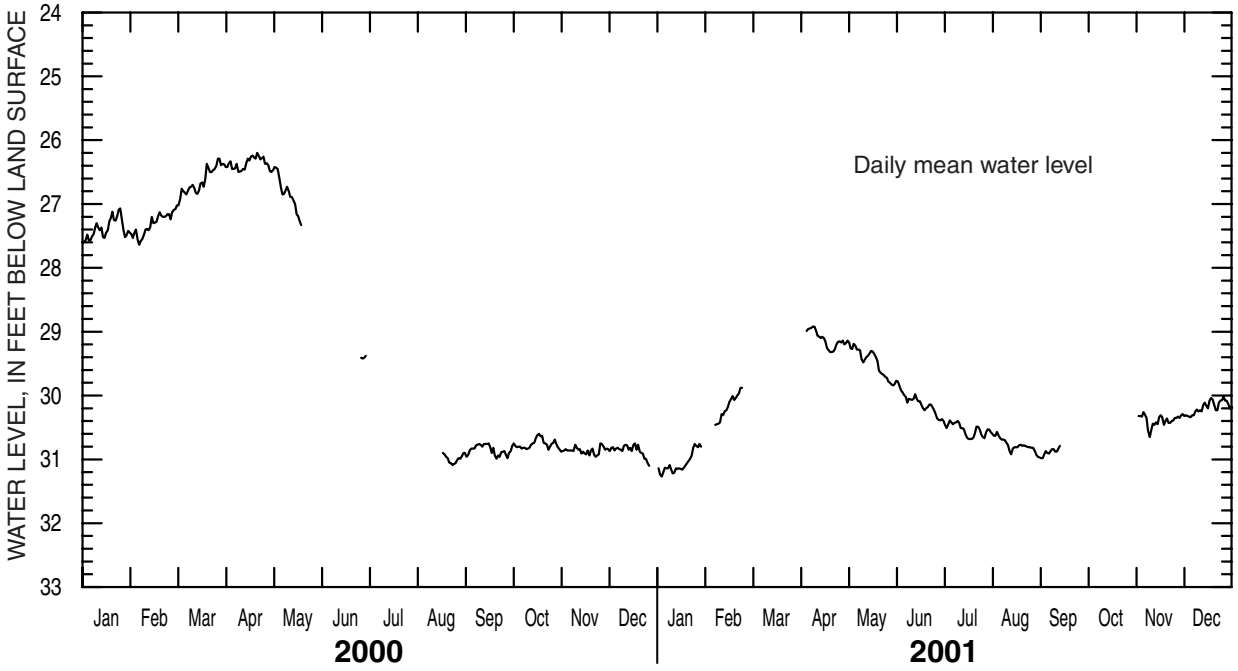


2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	--	--	--	--	--	--	16.13	16.19	16.85	17.36
MEAN	--	--	--	--	--	--	--	--	--	16.54	17.23	17.46
LOW	--	--	--	--	--	--	--	--	16.19	16.84	17.47	17.61

SUMMARY FOR 2001 HIGH 10.38 (Mar. 30, 2001) MEAN -- LOW 17.61 (Dec. 31, 2001)

CHARLESTON COUNTY

WELL NUMBER: CHN-44 GRID NUMBER: 19DD-o1
LATITUDE: 33°47'47" LONGITUDE: 80°04'12"
LOCATION: US Department of Agriculture site, US Highway 17.
AQUIFER: Floridan.
WELL CHARACTERISTICS: 8-inch diameter observation well. Depth: 434 ft. Cased to 180 ft. Open hole.
DATUM: Land surface is 9.4 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of plywood platform, 0.65 ft above land surface datum.
PERIOD OF RECORD: October 1980 to current year.
EXTREMES: Highest water level: 13.54 ft below land surface, March 18, 1983.
Lowest water level: 31.27 ft below land surface, January 3, 2001.
REMARKS: Monitored continuously by USGS until November 2001.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	27.07	27.08	26.29	26.20	26.42	--	--	30.90	30.75	30.60	30.75	30.75
MEAN	27.39	27.32	26.64	26.37	--	--	--	--	30.85	30.77	30.86	30.86
LOW	27.59	27.64	27.02	26.50	27.87	--	--	31.09	30.99	30.88	30.96	31.10

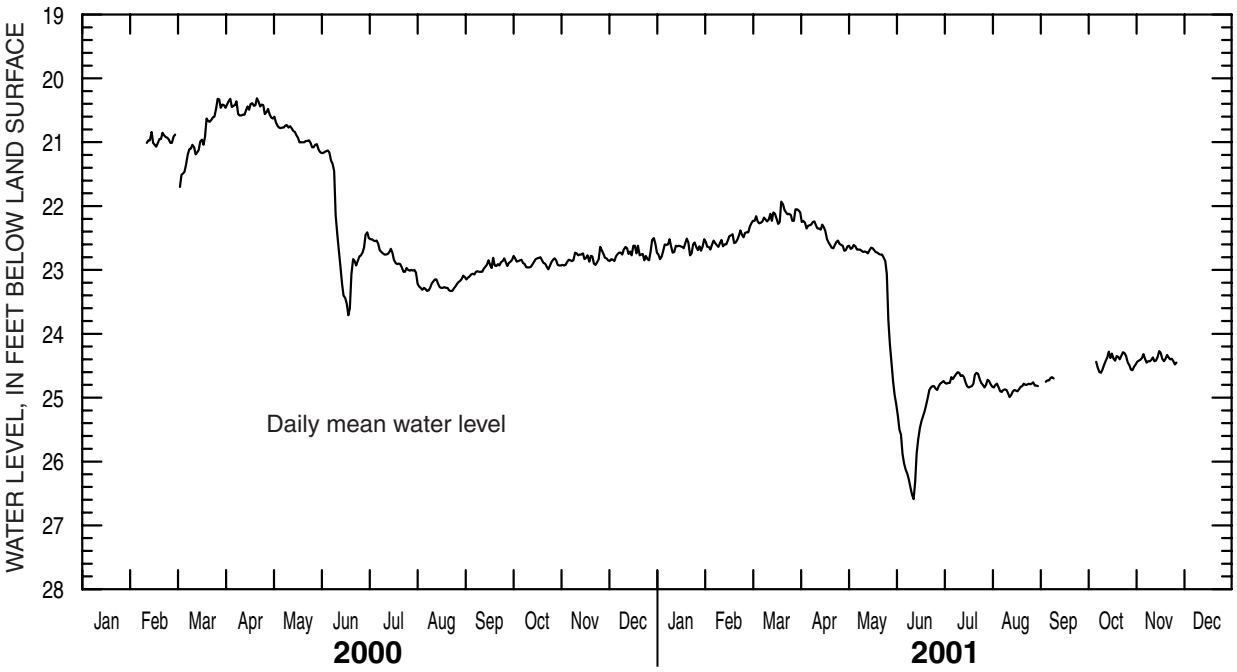
SUMMARY FOR 2000 HIGH 26.20 (Apr. 21, 2000) MEAN -- LOW 31.10 (Dec. 26, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	30.76	29.88	--	28.92	29.14	29.77	30.39	30.57	30.79	--	30.26	30.02
MEAN	31.06	--	--	29.12	29.47	30.11	30.53	30.78	--	--	30.39	30.19
LOW	31.27	30.46	--	29.32	29.84	30.39	30.68	30.97	30.98	--	30.65	30.34

SUMMARY FOR 2001 HIGH 28.92 (Apr. 9, 2001) MEAN -- LOW 31.27 (Jan. 3, 2001)

CHARLESTON COUNTY

WELL NUMBER: CHN-484 GRID NUMBER: 22GG-d1
LATITUDE: 32°34'55" LONGITUDE: 80°18'22"
LOCATION: Blue House Plantation, Edisto Island.
AQUIFER: Floridan.
WELL CHARACTERISTICS: 12-inch diameter unused domestic well. Depth: 560 ft. Cased to 280 ft. Open hole.
DATUM: Land surface is 14.45 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of 6-inch casing extension, 2.07 ft above land surface datum.
PERIOD OF RECORD: February 2000 to current year.
EXTREMES: Highest water level: 20.31 ft below land surface, April 21, 2000.
Lowest water level: 26.59 ft below land surface, June 12, 2001.
REMARKS: Water levels are tide influenced. Specific conductance is also measured at this site.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	20.84	20.32	20.31	20.60	21.13	22.50	23.09	22.81	22.78	22.64	22.50
MEAN	--	--	20.95	20.46	20.89	22.42	22.80	23.24	22.96	22.88	22.82	22.73
LOW	--	21.10	21.96	20.61	21.15	23.71	23.04	23.33	23.15	22.99	22.93	22.86

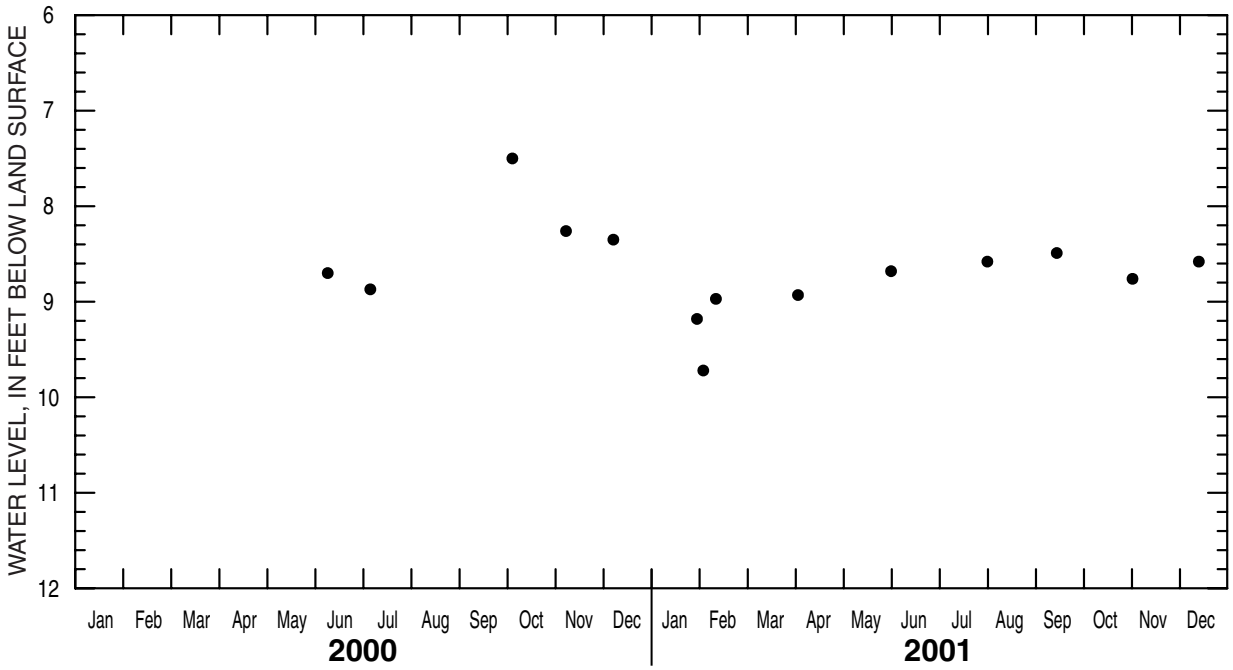
SUMMARY FOR 2000 HIGH 20.31 (Apr. 21, 2000) MEAN 22.14 LOW 23.71 (June 18, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	22.51	22.32	21.93	22.10	22.61	24.76	24.60	24.76	24.68	24.28	24.27	--
MEAN	22.65	22.53	22.16	22.43	22.99	25.48	24.73	24.85	--	24.44	24.40	--
LOW	22.83	22.68	22.28	22.70	24.96	26.59	24.84	24.99	24.93	24.61	24.48	--

SUMMARY FOR 2001 HIGH 21.93 (Mar. 20, 2001) MEAN 23.69 LOW 26.59 (June 12, 2001)

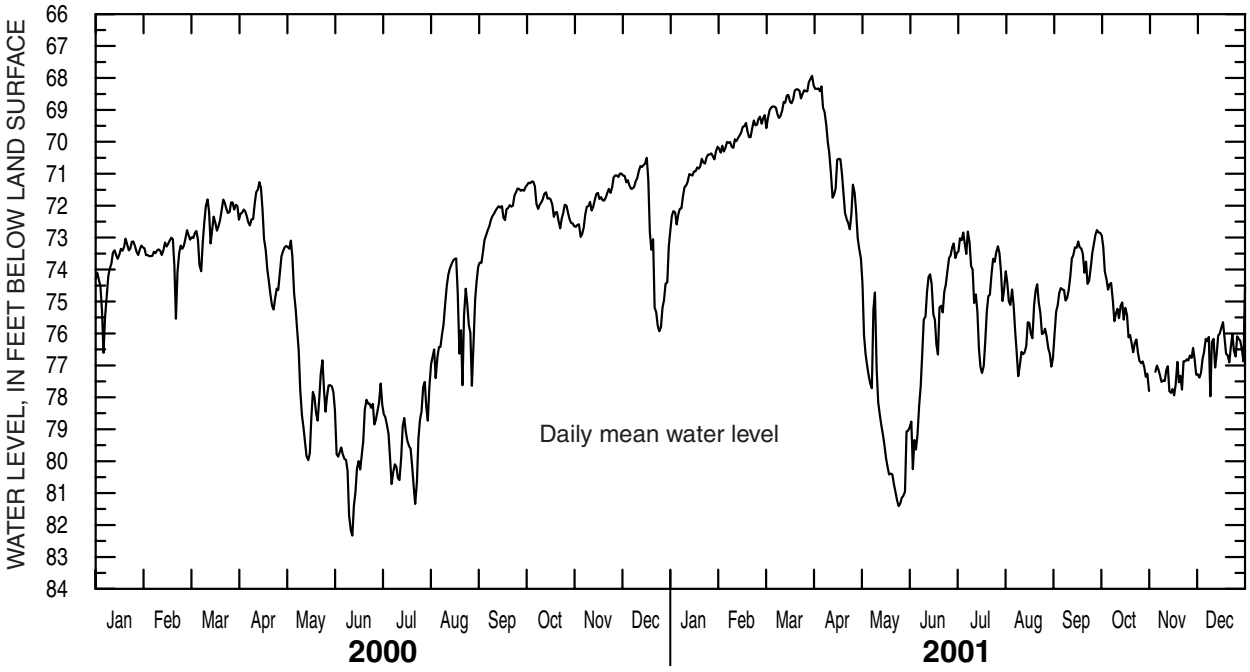
CHARLESTON COUNTY

WELL NUMBER: CHN-803 GRID NUMBER: 11Z-b1
LATITUDE: 33°09'10" LONGITUDE: 79°21'30"
LOCATION: Santee Coastal Reserve, South Santee River.
AQUIFER: Santee/Floridan.
WELL CHARACTERISTICS: 5-inch diameter observation well. Depth: 113 ft. Screened from 48 to 113 ft.
DATUM: Land surface is 10.89 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 2.46 ft above land surface datum.
PERIOD OF RECORD: June 2000 to current year.
EXTREMES: Highest water level: 7.50 ft below land surface, October 3, 2000.
Lowest water level: 9.72 ft below land surface, February 2, 2001.
REMARKS: Drilled and cored for DNR/USGS aquifer delineation project. Tide influenced.



COLLETON COUNTY

WELL NUMBER: COL-16 GRID NUMBER: 26CC-f1
LATITUDE: 32°53'55" LONGITUDE: 80°39'57"
LOCATION: Water plant, Walterboro.
AQUIFER: Floridan.
WELL CHARACTERISTICS: 6-inch diameter unused public supply well. Depth: 528 ft. Cased to 68 ft. Open hole.
DATUM: Land surface is 61.50 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of sanitary seal, 1.61 ft above land surface datum.
PERIOD OF RECORD: February 1996 to current year.
EXTREMES: Highest water level: 64.42 ft below land surface, February 16, 1996.
Lowest water level: 82.33 ft below land surface, June 12, 2000.
REMARKS: Multiple screens in Tertiary-sand and Floridan systems.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	73.03	72.77	71.80	71.26	73.09	77.57	77.52	73.65	71.42	71.24	70.99	70.50
MEAN	73.82	73.43	72.53	73.06	77.16	79.56	79.36	75.49	72.23	71.97	71.84	72.60
LOW	76.61	75.54	74.05	75.25	79.97	82.33	81.34	77.64	73.79	72.71	72.98	75.93

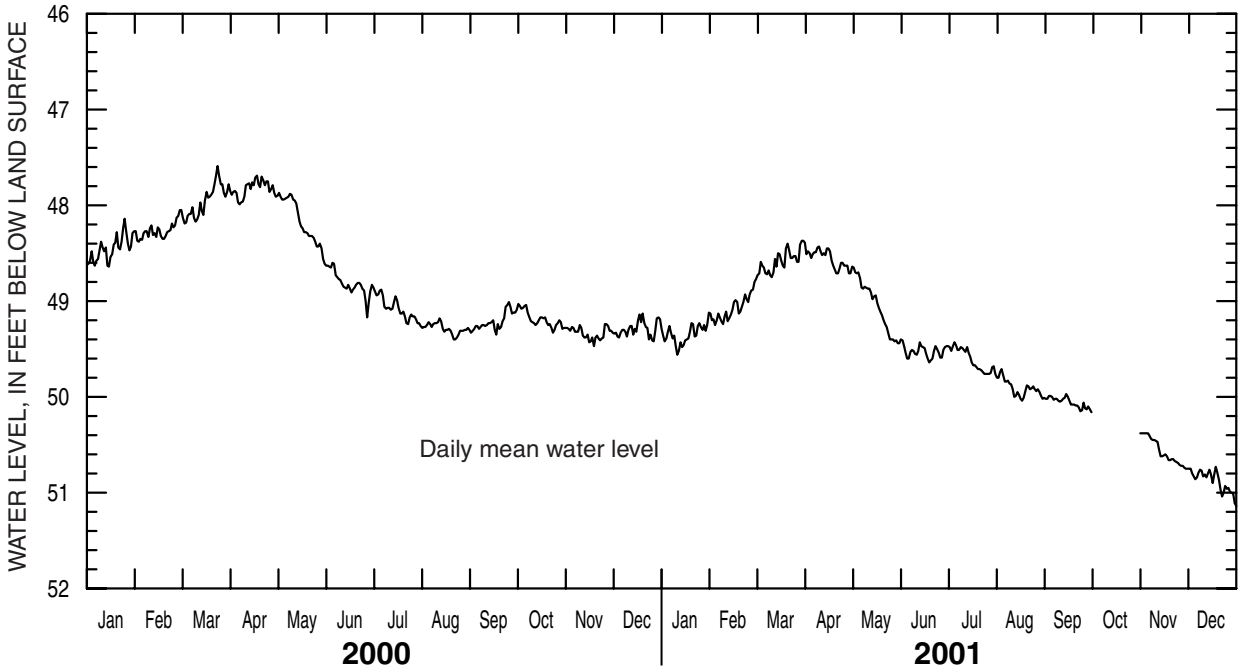
SUMMARY FOR 2000 HIGH 70.50 (Dec. 16, 2000) MEAN 74.43 LOW 82.33 (June 12, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	70.15	69.21	67.93	68.23	73.66	73.18	72.81	74.05	72.76	72.93	76.45	74.56
MEAN	71.10	69.77	68.71	70.72	78.71	75.91	74.39	75.82	73.98	75.66	77.27	76.45
LOW	72.59	70.34	69.57	73.35	81.41	80.25	77.24	77.34	76.08	77.80	78.10	77.97

SUMMARY FOR 2001 HIGH 67.93 (Mar. 31, 2001) MEAN 74.06 LOW 81.41 (May 25, 2001)

COLLETON COUNTY

WELL NUMBER: COL-97 GRID NUMBER: 26AA-k1
LATITUDE: 33°02'51" LONGITUDE: 80°35'51"
LOCATION: SC Highway 61, near Canadys.
AQUIFER: Floridan.
WELL CHARACTERISTICS: 4-inch diameter observation well. Depth: 342 ft. Cased to 134 ft. Open hole.
DATUM: Land surface is 84 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of plywood platform, 1.67 ft above land surface datum.
PERIOD OF RECORD: August 1977 to current year.
EXTREMES: Highest water level: 36.79 ft below land surface, January 25, 1978.
Lowest water level: 51.14 ft below land surface, December 31, 2001.
REMARKS: Monitored continuously by USGS until November 2001.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	48.14	48.05	47.59	47.69	47.87	48.60	48.86	49.18	49.01	49.03	49.24	49.13
MEAN	48.45	48.27	47.96	47.83	48.16	48.82	49.08	49.29	49.21	49.19	49.34	49.29
LOW	48.64	48.38	48.19	47.99	48.61	49.17	49.26	49.40	49.35	49.33	49.47	49.42

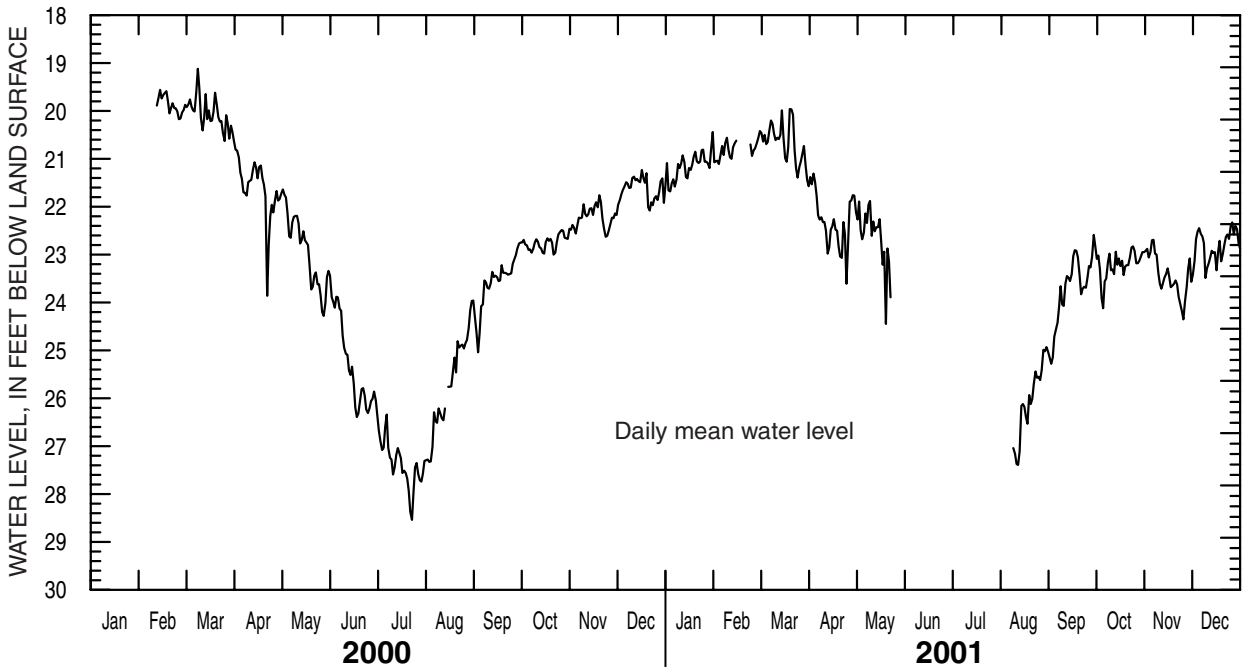
SUMMARY FOR 2000 HIGH 47.59 (Mar. 24, 2000) MEAN 48.74 LOW 49.47 (Nov. 18, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	49.12	48.80	48.37	48.39	48.64	49.40	49.43	49.71	49.97	--	50.38	50.73
MEAN	49.34	49.08	48.59	48.56	49.05	49.53	49.61	49.91	50.06	--	50.57	50.88
LOW	49.56	49.25	48.77	48.71	49.44	49.64	49.76	50.04	50.16	--	50.75	51.14

SUMMARY FOR 2001 HIGH 48.37 (Mar. 30, 2001) MEAN 49.57 LOW 51.14 (Dec. 31, 2001)

COLLETON COUNTY

WELL NUMBER: COL-301 GRID NUMBER: 22GG-w4
LATITUDE: 32°30'42" LONGITUDE: 80°17'58"
LOCATION: Edisto Beach State Park, Edisto Beach.
AQUIFER: Floridan.
WELL CHARACTERISTICS: 6-inch diameter unused public supply well. Depth: 545 ft. Screened from 516 to 545 ft.
DATUM: Land surface is 9.96 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of 6-inch casing, 2.61 ft above land surface datum.
PERIOD OF RECORD: February 2000 to current year.
EXTREMES: Highest water level: 19.12 ft below land surface, March 9, 2000.
Lowest water level: 28.54 ft below land surface, July 23, 2000.
REMARKS: Water levels are tide influenced. Specific conductance is also measured at this site.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	19.56	19.12	20.64	21.64	23.44	26.34	23.96	22.75	22.46	21.76	21.23
MEAN	--	--	20.04	21.59	22.89	25.28	27.35	25.72	23.57	22.75	22.23	21.63
LOW	--	20.17	20.63	23.86	24.28	26.39	28.54	27.33	25.04	23.00	22.63	22.08

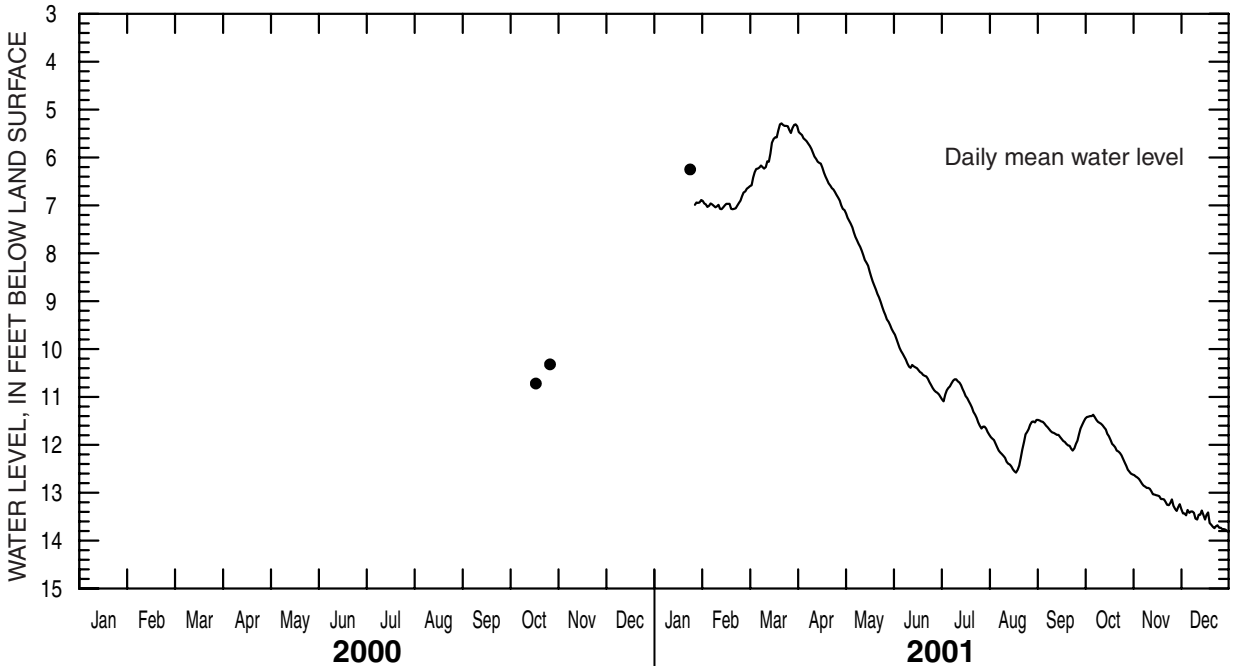
SUMMARY FOR 2000 HIGH 19.12 (Mar. 9, 2000) MEAN 23.11 LOW 28.54 (July 23, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	20.44	20.42	19.96	21.31	21.88	--	--	24.93	22.59	22.83	22.69	22.33
MEAN	21.14	--	20.65	22.28	--	--	--	--	23.71	23.21	23.44	22.83
LOW	21.68	21.11	21.45	23.61	24.45	--	--	27.39	25.28	24.12	24.35	23.49

SUMMARY FOR 2001 HIGH 19.96 (Mar. 20, 2001) MEAN -- LOW 27.39 (Aug. 12, 2001)

HAMPTON COUNTY

WELL NUMBER: HAM-228 GRID NUMBER: 33BB-s1
LATITUDE: 32°56'52" LONGITUDE: 80°11'50"
LOCATION: McMillan Road, near Brunson.
AQUIFER: Upper Floridan.
WELL CHARACTERISTICS: 4-inch diameter unused domestic well. Depth: 85 ft.
Open interval unknown.
DATUM: Land surface is 128 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 0.98 ft above land surface datum.
PERIOD OF RECORD: January 2001 to current year.
EXTREMES: Highest water level: 5.29 ft below land surface, March 22, 2001.
Lowest water level: 13.82 ft below land surface, December 31, 2001.
REMARKS: None.

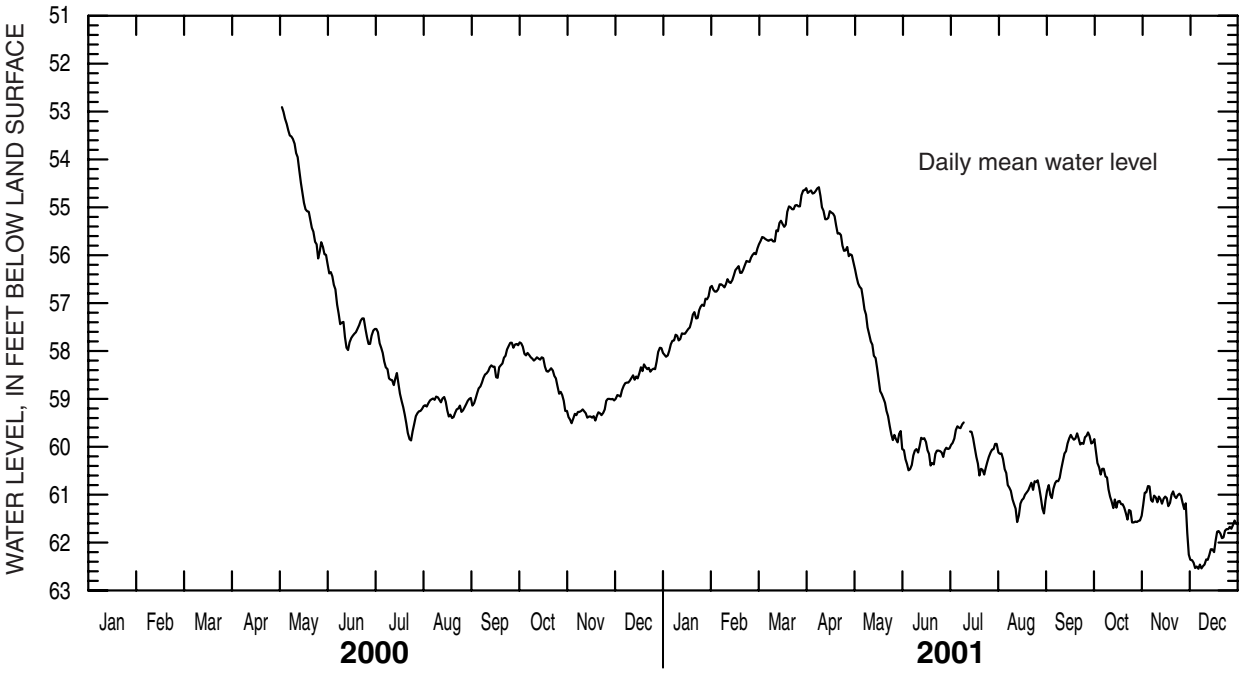


2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	6.89	6.65	5.29	5.35	7.10	9.64	10.63	11.48	11.48	11.37	12.63	13.34
MEAN	--	6.97	5.84	6.18	8.33	10.39	11.10	12.06	11.78	11.89	13.03	13.56
LOW	6.99	7.08	6.63	7.07	9.58	10.95	11.73	12.58	12.12	12.62	13.38	13.82

SUMMARY FOR 2001 HIGH 5.29 (Mar. 22, 2001) MEAN 10.07 LOW 13.82 (Dec. 31, 2001)

JASPER COUNTY

WELL NUMBER: JAS-425 GRID NUMBER: 30FF-o1
LATITUDE: 32°37'03" LONGITUDE: 80°59'44"
LOCATION: US Highway 278, Gillisonville.
AQUIFER: Upper Floridan.
WELL CHARACTERISTICS: 6-inch diameter observation well. Depth: 225 ft. Cased to 150 ft. Open hole.
DATUM: Land surface is 65.24 ft above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of casing, 2.02 ft above land surface datum.
PERIOD OF RECORD: April 2000 to current year.
EXTREMES: Highest water level: 52.91 ft below land surface, May 3, 2000.
Lowest water level: 62.55 ft below land surface, December 6, 2001.
REMARKS: One of two wells drilled on site for Department of Energy project.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	--	--	52.68	56.18	57.54	58.95	57.83	57.82	59.00	57.93
MEAN	--	--	--	--	54.57	57.35	58.79	59.13	58.36	58.38	59.27	58.48
LOW	--	--	--	--	56.07	57.98	59.87	59.40	59.14	59.25	59.51	59.00

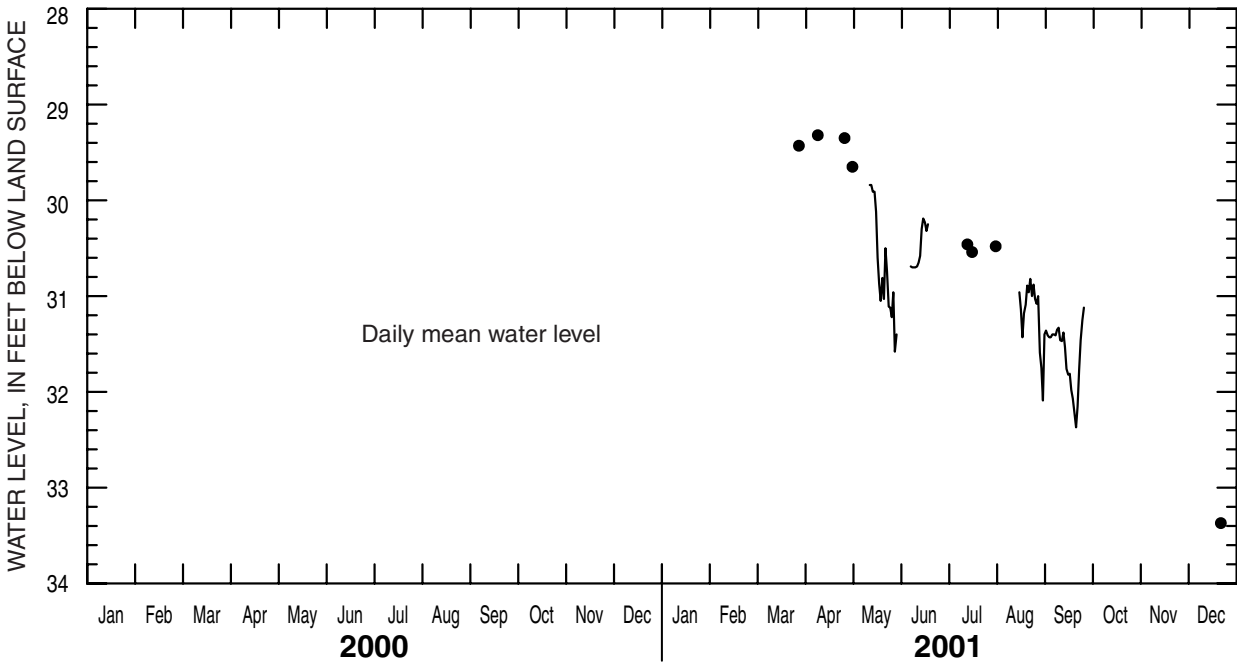
SUMMARY FOR 2000 HIGH 52.91 (May 3, 2000) MEAN -- LOW 59.87 (July 24, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	56.64	55.95	54.65	54.58	56.16	59.81	59.49	60.12	59.70	59.84	60.82	61.54
MEAN	57.45	56.40	55.33	55.21	58.28	60.13	59.98	60.89	60.19	61.05	61.13	62.07
LOW	58.12	56.76	55.86	56.02	59.91	60.49	60.60	61.57	61.07	61.58	62.25	62.55

SUMMARY FOR 2001 HIGH 54.58 (Apr. 9, 2001) MEAN 59.03 LOW 62.55 (Dec. 6, 2001)

ORANGEBURG COUNTY

WELL NUMBER: ORG-431 GRID NUMBER: 29U-v3
LATITUDE: 33°30'29" LONGITUDE: 80°51'53"
LOCATION: Clark Middle School, Orangeburg.
AQUIFER: Middle Floridan.
WELL CHARACTERISTICS: 2-inch diameter observation well. Depth: 93 ft. Screened from 83 to 88 ft.
DATUM: Land surface is 256 ft (map estimate) above National Geodetic Vertical Datum of 1929.
MEASURING POINT: Top of 2-inch casing, 3.13 ft above land surface datum.
PERIOD OF RECORD: March 2001 to current year.
EXTREMES: Highest water level: 29.32 ft below land surface, April 9, 2001.
Lowest water level: 33.37 ft below land surface, December 20, 2001.
REMARKS: Drilled and cored for DNR/USGS aquifer delineation project.



2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
HIGH	--	--	--	--	29.84	30.19	--	30.82	31.25	--	--	--
MEAN	--	--	--	--	--	--	--	--	31.62	--	--	--
LOW	--	--	--	--	31.58	30.70	--	32.09	32.37	--	--	--

SUMMARY FOR 2001 HIGH 29.32 (Apr. 9, 2001) MEAN -- LOW 33.37 (Dec. 20, 2001)

SALTWATER-INTRUSION MONITORING

Ground Water

DNR designed a network to observe ground-water quality changes caused by saltwater intrusion. Conditions that lead to this form of ground-water contamination are common in South Carolina's Lower Coastal Plain, and the most common mechanism is the capture of subsurface brackish water and saltwater by wells. The area of most immediate concern is in southern Beaufort County where pumping from the Floridan aquifer system there and at Savannah, Ga., has induced the southward migration of saltwater at rates that locally exceed 100 ft per year. Contamination there also occurs by the downward migration of modern seawater where confining material above the Floridan system is thin or absent. USGS operates a DNR-funded, real-time water-level and fluid-conductivity monitoring site at the northwest end of Hilton Head Island, and DHEC runs an extensive network of project-related monitoring sites throughout southern Beaufort County.

Along the coast of Charleston County, lateral intrusion occurs where pumping from the Middendorf aquifer system captures the brackish water that lies in that system offshore. Intrusion is a less severe problem there because of the system's low hydraulic conductivity and because of the broad, diffuse nature of the brackish-water front. Slow, lateral intrusion also is likely in part of the Floridan aquifer system at Charleston, where a shallow cone of depression has existed for many years.

Saltwater upconing is a potential problem in southern Charleston County, and DNR operates water-level and specific-conductance monitoring stations at Blue House Plantation (CHN-484) and Edisto Beach State Park (COL-301), see figure 14. Most of the water used in the area is pumped from a 10- to 40-ft permeable zone in the Floridan aquifer system, and brackish water in the underlying rock may be moving upward as heads in shallower aquifers decline. Data from the Blue House Plantation and Edisto Beach stations are included in this section.

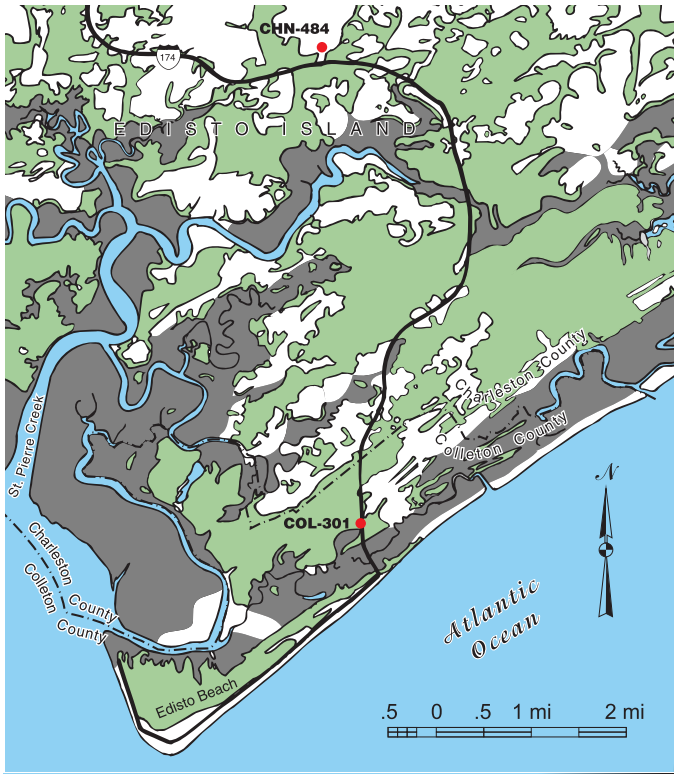
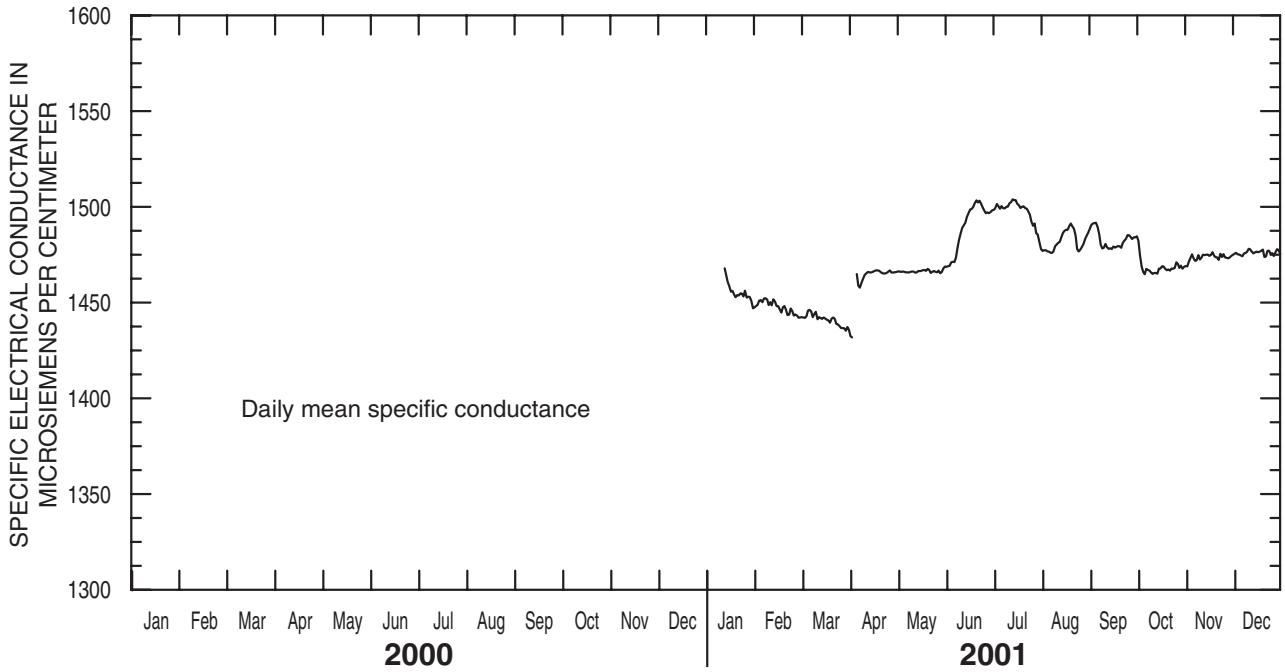


Figure 14. Locations of saltwater-intrusion monitoring wells at Edisto Island, Charleston County.

CHARLESTON COUNTY

WELL NUMBER: CHN-484 GRID NUMBER: 22GG-d1
LATITUDE: 32°34'55" LONGITUDE: 80°18'22"
LOCATION: Blue House Plantation, Edisto Island.
INSTRUMENTATION: Unidata four electrode conductivity instrument.
PERIOD OF RECORD: January 2001 to current year.
EXTREMES: Maximum specific conductance: 1430 microsiemens per centimeter, April 3, 2001.
Minimum specific conductance: 1500 microsiemens per centimeter, June 16, 2001.
REMARKS: This is a ground-water monitoring well. Water levels are also measured at this site.

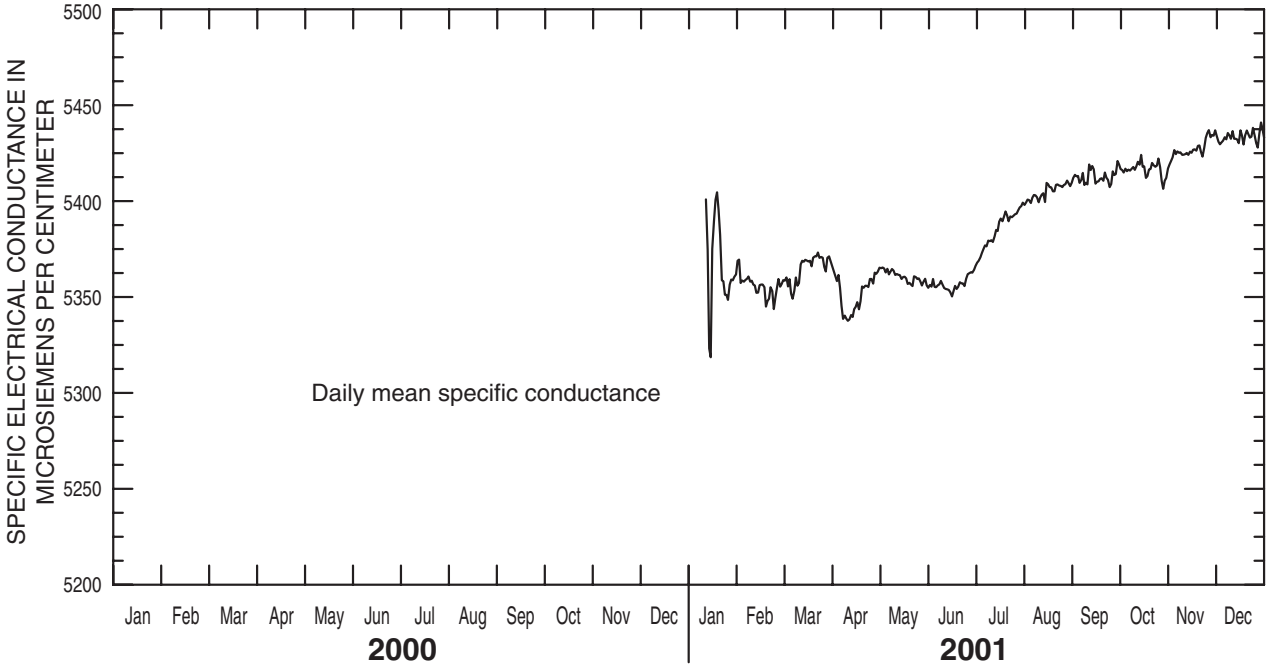


2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
MAX	1480	1450	1450	1470	1470	1500	1500	1490	1490	1480	1480	1480
MEAN	--	1450	1440	1460	1470	1490	1500	1480	1480	1470	1470	1480
MIN	1450	1440	1440	1430	1470	1470	1480	1480	1480	1460	1470	1470

SUMMARY FOR 2001 MAX 1500 (June 16, 2001) MEAN 1470 MIN 1430 (Apr.3, 2001)

COLLETON COUNTY

WELL NUMBER: COL-301 GRID NUMBER: 22GG-w4
LATITUDE: 32°30'42" LONGITUDE: 80°17'58"
LOCATION: Edisto Beach State Park, Edisto Island.
INSTRUMENTATION: Unidata four electrode conductivity instrument.
PERIOD OF RECORD: January 2001 to current year.
EXTREMES: Maximum specific conductance: 5440 microsiemens per centimeter, November 25, 2001.
Minimum specific conductance: 5320 microsiemens per centimeter, January 13, 2001.
REMARKS: This is a ground-water monitoring well. Water levels are also measured at this site.



2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
MAX	5410	5370	5370	5360	5370	5360	5400	5410	5420	5420	5440	5440
MEAN	--	5360	5360	5350	5360	5360	5380	5400	5410	5420	5430	5430
MIN	5320	5340	5350	5340	5360	5350	5370	5400	5410	5410	5420	5430

SUMMARY FOR 2001 MAX 5440 (Nov. 25, 2001) MEAN 5390 MIN 5320 (Jan. 13, 2001)

Surface Water

DNR also has initiated a surface-water network to observe salinity changes, critical in the health of flora and fauna, caused by variations in streamflow and tides. The boundary between saltwater and freshwater moves upstream and downstream with high and low tides, respectively, in coastal rivers and estuaries. Low streamflows resulting from drought conditions cause this boundary to move much farther upstream than is the case under normal conditions. Conversely, high-streamflow conditions cause the saltwater-freshwater interface to move downstream. Streamflow in most coastal rivers is influenced by water releases from hydroelectric dams, which further complicates the salinity regime of these rivers.

Salinity changes in coastal waterways have a direct impact on water users. Public water supplies may be endangered by saltwater intrusion during low-streamflow conditions. Commercial and recreational uses of the river are influenced by its salinity, and the habitats for plant and animal species are highly dependent upon salinity conditions.

Surface-water conditions are monitored at three stations on the North and South Santee Rivers. The monitoring stations collect hourly and half-hourly measurements of stream stage, specific conductance, and water temperature.

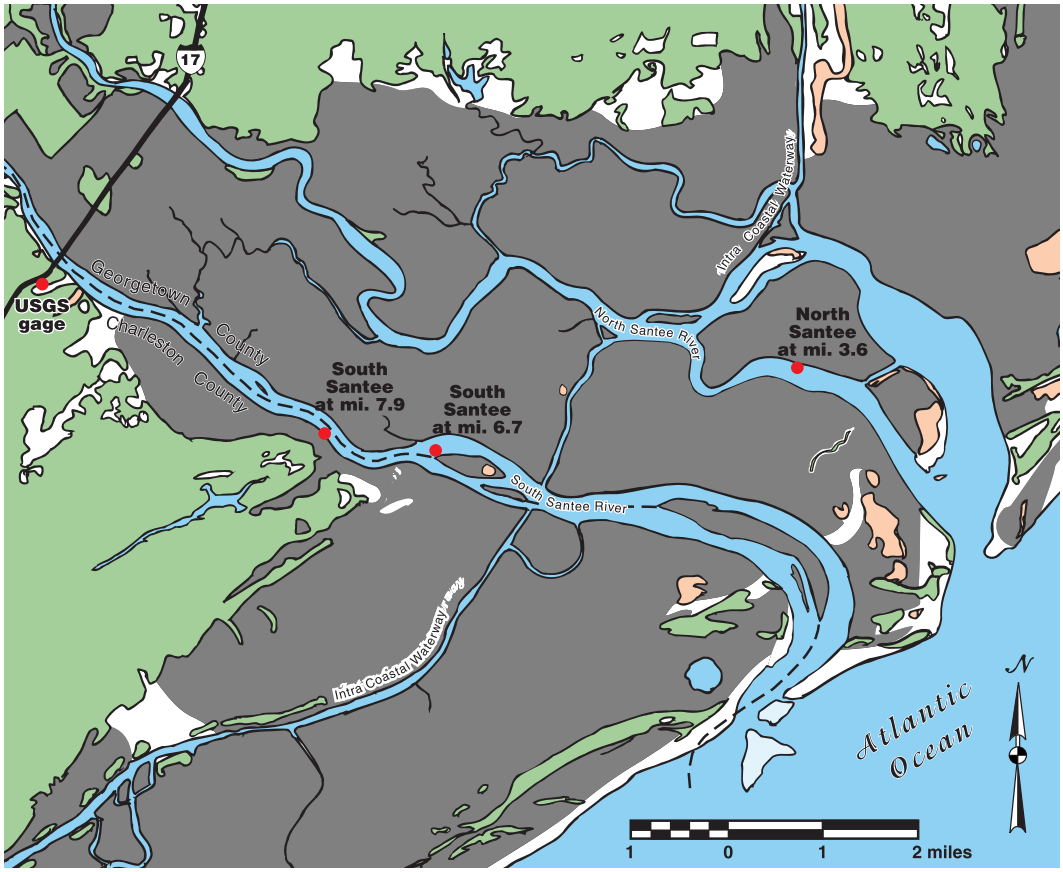
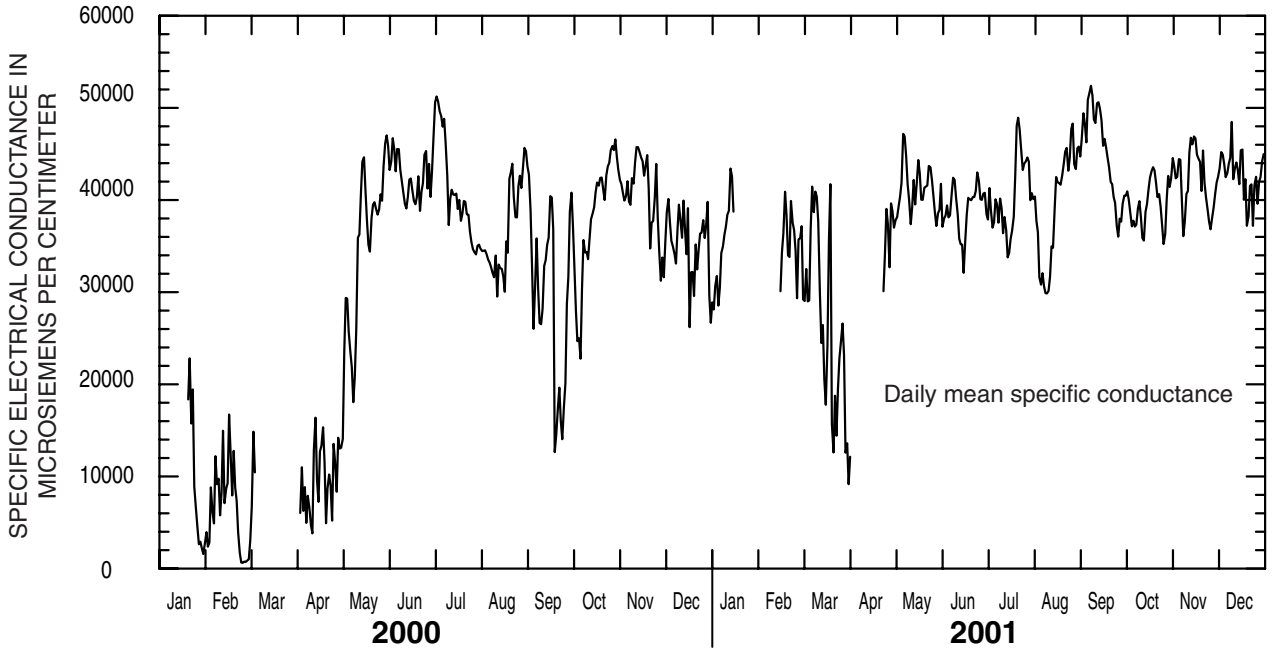


Figure 15. Locations of stage and specific-conductance monitoring stations in the Santee River delta.

NORTH SANTEE RIVER

LATITUDE: 33°10'00" LONGITUDE: 79°16'15"
LOCATION: North bank of North Santee River, at river mile 3.6, south of Crow Island.
INSTRUMENTATION: Hydrolab Minisonde Water Quality Multiprobe.
PERIOD OF RECORD: December 1997 to current year.
EXTREMES: Maximum specific conductance: 52,390 microsiemens per centimeter, September 8, 2001.
Minimum specific conductance: 80 microsiemens per centimeter, March 22, 1998.
REMARKS: None.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
MAX	22810	16720	14850	16390	47010	46720	51250	45650	43660	46580	45750	40110
MEAN	--	6840	--	9550	33750	42440	41340	36590	29620	38130	40530	35220
MIN	1570	620	1020	3820	13130	38820	34090	29510	12630	22780	31250	26210

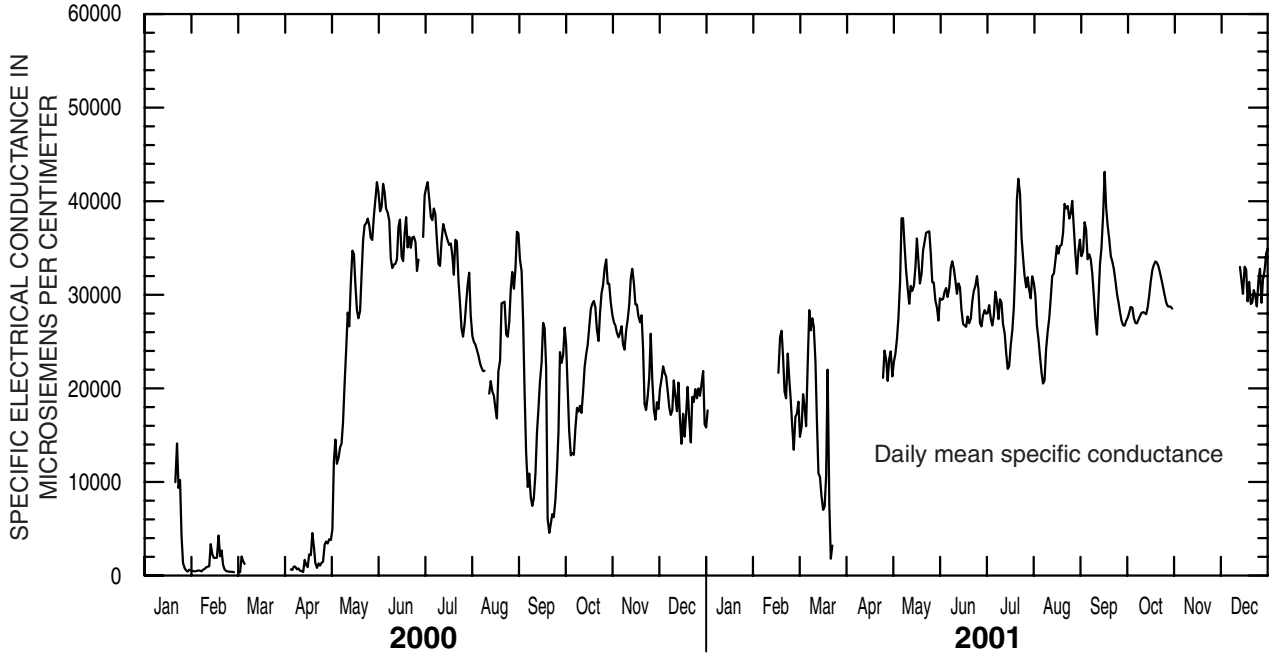
SUMMARY FOR 2000 MAX 51250 (July 3, 2000) MEAN 30640 MIN 620 (Feb. 26, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
MAX	43410	40890	41710	39630	47180	43000	48940	48300	52390	43570	46890	48480
MEAN	--	--	27330	--	--	39200	40350	39300	45250	39590	42140	42700
MIN	28120	29340	12570	9160	37000	32110	33780	29870	36020	35230	36080	37200

SUMMARY FOR 2001 MAX 52390 (Sept. 8, 2001) MEAN 38840 MIN 9160 (Apr. 1, 2001)

SOUTH SANTEE RIVER

LATITUDE: 33°09'22" LONGITUDE: 79°20'20"
LOCATION: North bank of South Santee River, at river mile 6.7, east of Pleasant Creek and north of Brown Island.
INSTRUMENTATION: Hydrolab Minisonde Water Quality Multiprobe.
PERIOD OF RECORD: December 1997 to current year.
EXTREMES: Maximum specific conductance: 43,150 microsiemens per centimeter, September 16, 2001.
Minimum specific conductance: 70 microsiemens per centimeter, February 17, 1998.
REMARKS: None.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
MAX	14120	4280	2050	4530	42050	41860	42040	36750	33820	33770	32780	22350
MEAN	--	1150	--	1620	26780	36240	34560	--	16480	24020	24780	18640
MIN	420	350	320	370	3790	32530	25520	16780	4560	12840	16660	14070

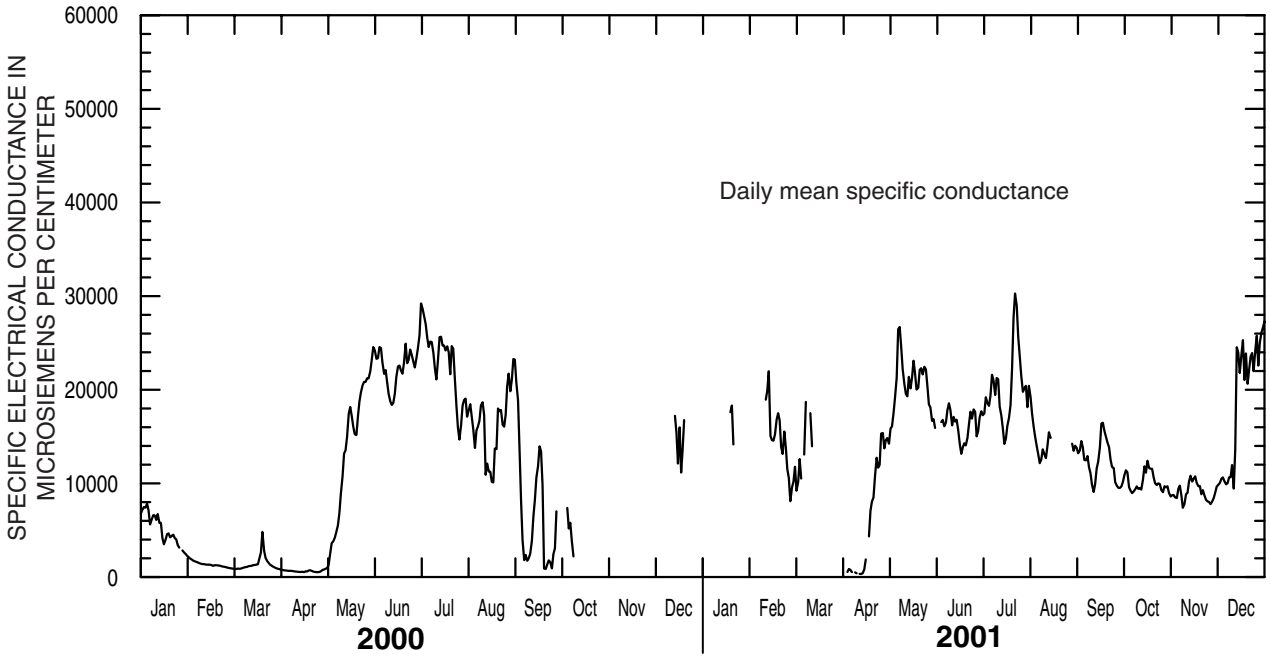
SUMMARY FOR 2000 MAX 42050 (May 31, 2000) MEAN 20270 MIN 320 (Mar. 1, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
MAX	18410	26170	28360	24040	38180	33580	42410	40030	43150	33550	--	34890
MEAN	--	--	--	--	31520	29560	29890	31980	32690	29510	--	31440
MIN	10860	13450	1800	19100	21280	26570	22080	20520	25740	26940	--	28750

SUMMARY FOR 2001 MAX 43150 (Sept. 16, 2001) MEAN 28220 MIN 1800 (Mar. 22, 2001)

SOUTH SANTEE RIVER

LATITUDE: 33°09'16" LONGITUDE: 79°21'17"
LOCATION: South bank of South Santee River, at river mile 7.9, on public dock at Santee Coastal Reserve.
INSTRUMENTATION: Unidata Water Conductivity Instrument (Model 6518-1).
PERIOD OF RECORD: October 1996 to current year.
EXTREMES: Maximum specific conductance: 33,750 microsiemens per centimeter, September 3, 1999.
Minimum specific conductance: 60 microsiemens per centimeter, February 18, 1998.
REMARKS: None.



2000	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
MAX	7840	2110	4810	880	24570	25830	29230	23280	20760	10890	--	17220
MEAN	5000	1360	1390	640	13680	22440	22820	16500	6470	--	--	--
MIN	2260	920	830	510	970	18380	14680	10100	870	2190	--	8350

SUMMARY FOR 2000 MAX 29230 (July 1, 2000) MEAN 10150 MIN 510 (Apr. 24, 2000)

2001	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
MAX	--	21990	21520	15390	26710	18550	30270	19210	16490	12420	10820	27270
MEAN	--	--	--	5380	20270	16260	20170	14470	12300	10110	9050	18770
MIN	--	8100	580	210	14230	13160	14230	12170	9080	8610	7400	9440

SUMMARY FOR 2001 MAX 30270 (July 23, 2001) MEAN 14190 MIN 210 (Apr. 1, 2001)

REFERENCES

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