GEOHYDROLOGIC DATA FROM PORT ROYAL SOUND, BEAUFORT COUNTY, SOUTH CAROLINA

U.S. GEOLOGICAL SURVEY
Open-File Report 86-497

Prepared in cooperation with
SOUTH CAROLINA WATER RESOURCES COMMISSION

CONVERSION FACTORS

This report uses inch-pound units as the primary system of measurements. Metric units are used for water chemistry measurements. To convert inch-pound units to equivalent metric units, mulitply by the following factors:

Multiply	By	To Obtain
Foot (ft)	0.3048	meter (m)
Inch (in.)	25.4	millimeter (mm)

Temperature in degrees Celsius (°C) can be converted to degrees Fahrenheit (°F) as follows:

$$°C = 0.556\ (°F-32)$$

Sea level: In this report "sea level" refers to the National Geodetic Vertical Datum of 1929 (NGVD of 1929)--a geodetic datum derived from a general adjustment of the first-order level nets of both the United States and Canada, formerly called "Mean Sea Level of 1929."

GEOHYDROLOGIC DATA FROM PORT ROYAL SOUND, BEAUFORT COUNTY SOUTH CAROLINA

By Ronald A. Burt, Donna L. Belval, Michael Crouch, and W. Brian Hughes

ABSTRACT

Nine offshore wells were drilled through overlying sediments into the Upper Floridan aquifer in Port Royal Sound, South Carolina and the adjacent Atlantic Ocean, to obtain geologic, hydrologic, and water-quality data.

The Upper Floridan aquifer consists predominantly of light-gray, poorly consolidated, fossiliferous limestone. In the Port Royal Sound area, the Upper Floridan is overlain by olive-gray, medium to coarse sand and silty sand. Falling-head permeameter tests on these overlying clastic sediments indicate hydraulic conductivities of 4.2×10^{-4} to 3.1 feet per day. Other geologic and hydrologic data, including geophysical logs, sieve analyses, and detailed core descriptions were obtained, along with continuous water level records of the wells, tidal records, and barometric pressure records.

Water collected from the Upper Floridan aquifer beneath Port Royal Sound and the ocean ranged in concentration of chloride from 54 to 12,000 milligrams per liter. Measured pH ranged from 6.8 to 8.4, and alkalinity ranged from 122 to 368 milligrams per liter as $CaCO_3$. Other water quality data obtained include temperature, specific conductance, carbon-13, carbon-14, tritium, deuterium, oxygen-18, dissolved oxygen, dissolved solids, nitrogen species, phosphorus, organic carbon, cyanide, sulfide, calcium, magnesium, sodium, potassium, sulfate, fluoride, silica, bromide, iodide, and selected trace metals.

INTRODUCTION

An initial collection of geologic, hydrologic, and water quality data has been compiled for the Beaufort-Jasper Counties Regional Ground Water Study, a cooperative project funded by the South Carolina Water Resources Commission and the U.S. Geological Survey. The study was designed to describe the water quality and hydrogeologic characteristics of the Upper Floridan aquifer and its overlying confining bed in Beaufort and Jasper Counties, South Carolina, with particular emphasis on the saltwater-freshwater zone of mixing in the vicinity of Port Royal Sound.

This report is restricted to information obtained during the drilling of nine offshore wells in Port Royal Sound and the adjacent Atlantic Ocean. The data were collected between July 16 and October 5, 1984. All reported times refer to Eastern Standard Time. This report will be supplemented by subsequent publications presenting data and interpretations from onshore wells near Port Royal Sound.

The study area is located in the coastal region of southern South Carolina (fig. 1) and consists of barrier islands and salt marshlands surrounding Port Royal Sound, the Broad River, the Beaufort River, and several creeks. The area includes the resort community of Hilton Head Island, the towns of Beaufort and Port Royal, and the Parris Island Marine Corps Depot, as well as a number of less populated areas.

The Beaufort-Jasper Counties Regional Ground Water Study was initiated because of concern for the future of the ground-water resources of the Upper Floridan aquifer. This high-yield aquifer currently supplies nearly all the potable water used by the resort community of Hilton Head Island. Previous studies showed that saline water stored in the Upper Floridan aquifer beneath Port Royal Sound may move toward the ground-water production areas of Hilton Head Island (Hayes, 1979; Counts and Donsky, 1963).

Several prior studies pertained to the ground-water resources and geology of the study area. Published reports were by Back and others (1970), Callahan (1964), Colquhoun and others (1969), Comer (1973), Cooke (1936), Cooke and MacNeil (1952), Counts and Donsky (1963), Counts (1958), Duncan (1972), Hayes (1979), Hazen and Sawyer (1956), Hazen and Sawyer (1957), McCollum and Counts (1964), Mundorff (1944), Nuzman (1970 and 1972), Siple (1956), Siple (1960), Siple (1967), Stringfield (1966), and Warren (1944). (The tables follow the text and references).

DRILLING AND DATA COLLECTION

Nine wells were drilled offshore in Port Royal Sound and the adjacent Atlantic Ocean (fig. 2) by the U.S. Army Corps of Engineers "Seahorse" drilling ship. The Seahorse is a self-propelled, jack-up rotary drilling rig that is supported above the water surface during drilling operations by three legs.

Test well locations were surveyed with a Miniranger III Automated Positioning System (Motorola*) or with a theodolite to obtain latitude and longitude. Altitudes of test wells and tide gages were surveyed to an accuracy ± 0.16 foot by the South Carolina Geodetic Survey. Test well altitudes and locations are given in table 1, along with well construction data.

Test wells are identified by county labels, according to an established convention in South Carolina, which consist of a three-letter prefix followed by a number. The prefix is an abbreviation of the name of the county in which a well is located. All offshore test wells referred to in this report are labeled as Beaufort County wells with the prefix BFT followed by numbers 1672 through 1680 assigned consecutively to the wells in the order in which they were drilled.

*The use of the brand names, Motorola, Leopold and Stevens, Soiltest and Orion, in this report is for the purpose of identification only and does not constitute endorsement by the U.S. Geological Survey or the South Carolina Water Resources Commission.

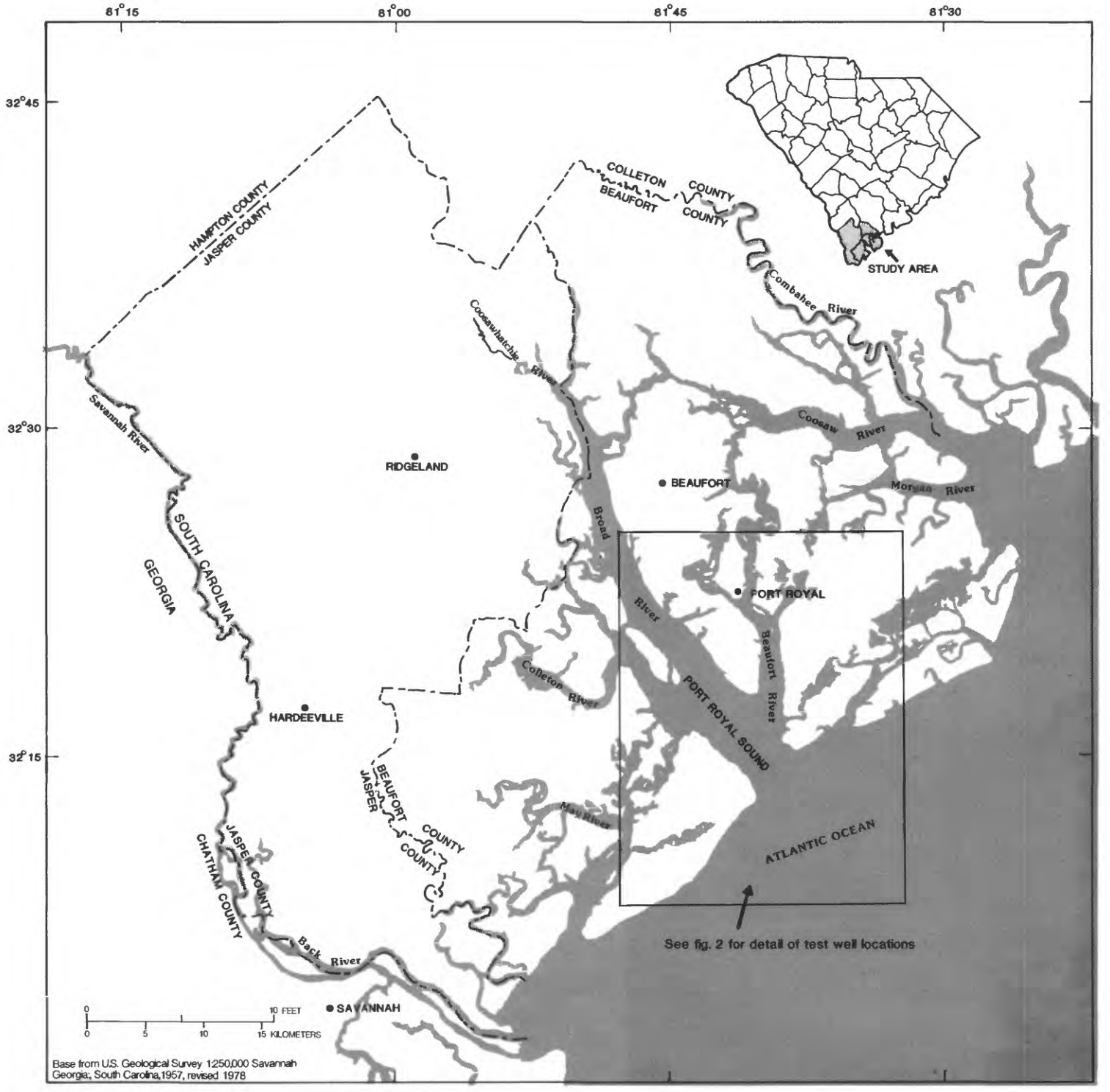

Figure 1.--Beaufort-Jasper Counties Regional Ground Water Study area.

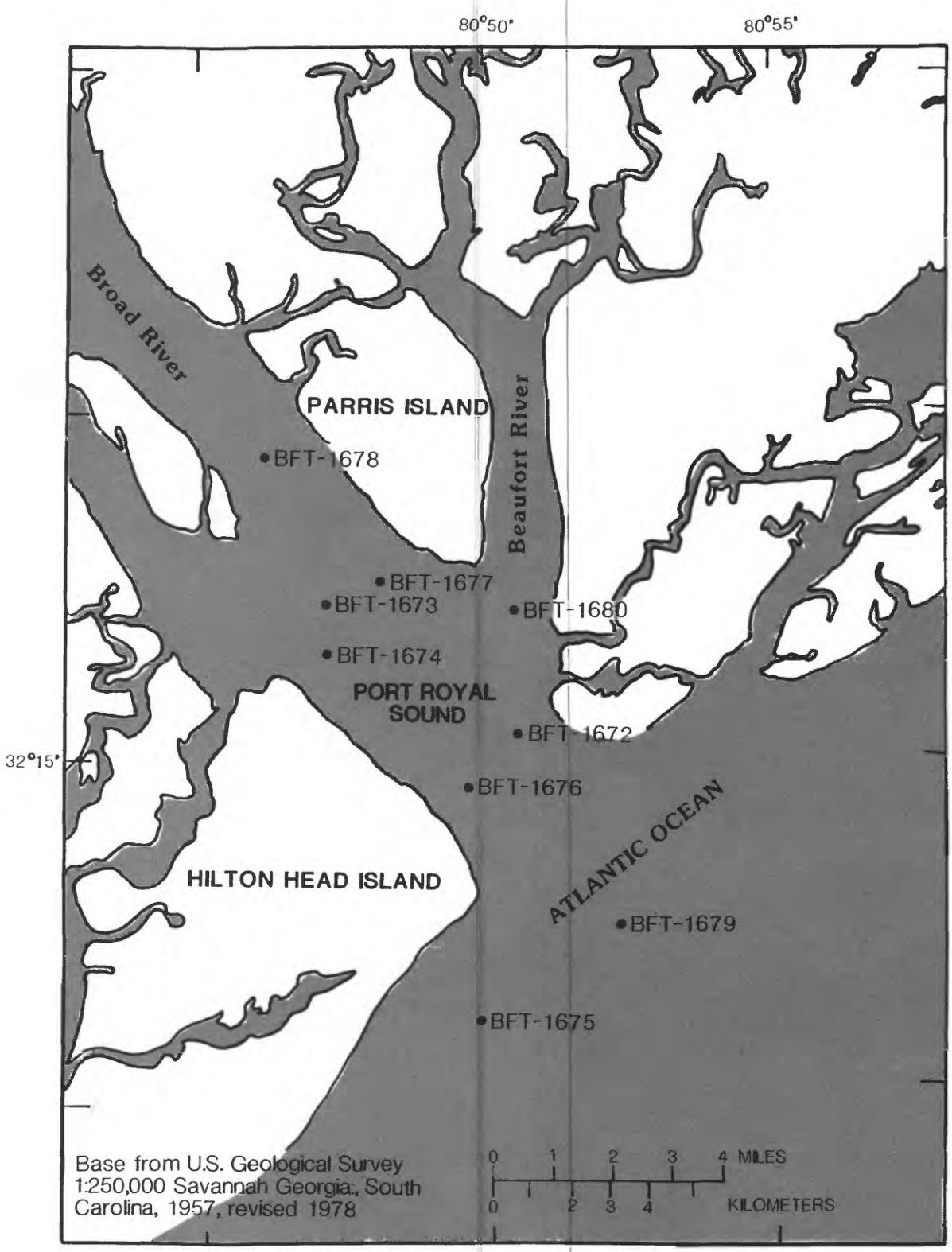

Figure 2.--Locations of Port Royal Sound test wells.

Each well was cased and grouted through the overlying confining bed and a few feet into the Upper Floridan aquifer to restrict the well to that aquifer prior to deeper drilling. The portion of each well in the Upper Floridan was of open-hole construction. At the conclusion of data collection, each well was filled from its bottom to the lower end of the casing with sand and gravel, and then plugged with grout. The casing was then cut off at the floor of the Sound. Well construction diagrams are presented in plates 1-9.

Geologic and water samples were collected and hydrologic measurements made during the drilling of the wells. Cores and drill cuttings were retrieved while drilling, and geophysical logs were obtained at the completion of each well. Water level fluctuations in the wells and tidal fluctuations in Port Royal Sound were simultaneously recorded. Water samples for chemical analysis were collected at various depths during and after the drilling of each well. The details and results of these procedures follow.

Geologic Data

Geologic data were obtained from sediment and rock samples collected during the well drilling process and by geophysical logging of the boreholes.

Sediment and rock samples were obtained by three methods:

(1) conventional-rotary coring,
(2) split-spoon sampling, and
(3) collection of drill cuttings as they emerged at the wellhead.

A total of 410 feet of conventional core was obtained with a 10-foot, $4\frac{1}{2}$-inch diameter core barrel. Approximately 10 additional feet of core were recovered from BFT-1672 and BFT-1673 by driving a 7-foot long, 4-inch diameter split-spoon sampler into the formation. All cores were sealed in plastic to retard drying. Where cores were not taken, a sieve was used to catch cuttings at the wellhead during drilling.

Sediment and rock samples were described while still wet, using a binocular microscope. Rock names used in the lithologic descriptions in table 2 are after Travis (1955). Textures were estimated by using Wentworth's grade scale (1922). Colors and color identification codes are from the Rock-Color Chart (1980). Twenty-two sections of core were sieved to determine the grain-size distributions. U.S. standard sieves No. 40 (0.42mm), No. 60 (0.25mm), No. 100 (0.149mm), No. 200 (0.074mm), and a pan were used to separate the different size grades. The sieve analyses were made in the Civil Engineering Department laboratory at the University of South Carolina. The results of these analyses are given in Table 3 and graphically illustrated in figure 3-10.

Geophysical logs were made of each of the wells. Gamma-ray, spontaneous-potential, resistance, fluid resistivity, caliper, and temperature logs are presented in plates 1-9. Although several fluid-resistivity logs were made on some wells, only the last one made after completion of each well is shown.

Hydrologic Data

Hydrologic data were collected at all of the offshore wells. Water levels were measured at 6-minute intervals over the duration of at least one complete tidal cycle in each of the wells using Leupold and Stevens Analog to Digital Recorders. Tidal fluctuations of water level in the Sound or Ocean were measured simultaneously with well water level measurements using a recorder installed on a gaging station attached to the Seahorse. A permanent tide level station located on the Beaufort River near the city of Beaufort was also monitored. Continuously recorded water level data from wells and tide gages are presented in hydrograph form in figures 11-19.

Barometric-pressure measurements, corresponding to the times of water level records, were obtained from the National Weather Service at the U. S. Marine Corps Air Station in Beaufort. These are presented in table 4.

Permeameter tests were made on selected cores. The tests were of the falling head type (ASTM D2434-65T), using Soiltest Model K-605 permeameters. The effective porosities of these cores were determined gravimetrically. The results of the permeameter tests and porosity determinations are shown in table 5.

Water Quality Data

Water quality measurements were made and water samples for chemical and isotopic analyses were collected at each of the wells. The samples were collected from discrete depth intervals in the aquifer by isolating the interval of interest in the well and withdrawing water from that interval with a submersible pump. Conductivity, pH, temperature, and concentration of dissolved oxygen in the sample stream were monitored at the wellhead until they became constant, indicating that the retrieved sample was representative of water from the aquifer in the isolated interval. With the exception of BFT-1679, two samples were collected in this manner from each of the wells; one sample was collected from an interval between 10 and 20 feet below the top of the Upper Floridan aquifer, and the other was collected from an interval between 50 and 100 feet below the top of the Upper Floridan aquifer. Only the upper interval was sampled in BFT-1679. The results of all measurements, chemical analyses, and isotope analyses are presented in table 6.

During drilling through the limestone of the Upper Floridan aquifer, the natural flow of ground water from the aquifer into the borehole was used to flush drill cuttings from the well. The ground water, along with the drill cuttings, was air-lifted from the bottom of the hole, up through the annulus of the well, and discharged at the wellhead. Samples of this discharge water were collected at 5-foot or 10-foot depth intervals for analysis of chloride concentration. These analyses are presented in table 7.

Several hours after the completion of drilling each well, water samples from the wellbore were collected with a Kemmerer-type point sampler. These samples were obtained from several depths determined by evaluation of down-hole fluid-resistivity logs. The fluid-resistivity logs record variations in water quality along the wellbore. Sample depths were chosen to effectively describe these variations. The wellbore samples were analyzed for concentration of chloride. The results of these analyses are presented in table 8.

Specific conductance was measured in situ in the wellbores of BFT-1678 and BFT-1679. These data are presented in table 9.

Inorganic and organic constituent analyses were performed by the laboratory of the U.S. Geological Survey in Doraville, Ga. and by the laboratory of the South Carolina Water Resources Commission in Columbia, S.C. The U.S. Geological Survey laboratory measured some constituents not measured by the South Carolina Water Resources Commission laboratory; these included nitrate, nitrite, ammonia, total dissolved phosphate, orthophosphate, dissolved organic carbon, and most of the trace constituents.

Samples were processed, preserved, and analyzed for chemical constituents by established procedures (Skougstad and others, 1979). Concentrations of sulfide were determined by the South Carolina Water Resources Commission laboratory, using a sulfide-ion electrode, (ORION Research, Inc., Model 94-16). Values for pH, temperature, specific conductance, dissolved oxygen, alkalinity, bicarbonate and carbonate were obtained in the field (Wood, 1976). Alkalinity analyses by the U.S. Geological Survey followed an incremental titration method (Barnes, 1964), while those done by the South Carolina Water Resources Commission followed a fixed-endpoint (pH 4.5) titration method.

Samples for deuterium, oxygen-18, tritium, carbon-13, and carbon-14 were collected and processed according to established procedures (Busby and others, 1983). These isotope analyses were made by Isotope Lab in Waterloo, Ontario, Canada. Selected carbon-14 and carbon-13 analyses were repeated by Tritium Laboratory in Miami, Florida using an alternative method of carbon extraction. Samples analyzed for carbon-14 and carbon-13 by Isotope Lab were processed in the field by precipitating the inorganic carbon species as strontium carbonate directly from the water sample (Busby and others, 1983). The strontium carbonate was prepared and analyzed for carbon-14 and carbon-13 at the laboratory. In contrast, unprocessed water samples were provided to Tritium Laboratory where a gas-stripping technique was employed for extraction of the inorganic carbon species prior to analysis (Miami Radiocarbon/Tritium Laboratory, 1973). A comparison of these results is presented in table 10.

The analytical values for the chemical constituents are reported as milligrams per liter (mg/L) or micrograms per liter (ug/L) except as noted here. Specific conductance is reported as microsiemens per cm at 25°C. In most cases the sample pH was measured to ±0.02 pH units and, therefore, is reported to two decimal places. Carbon-13, deuterium, and oxygen-18 are

reported as a δ-value and expressed in parts per thousand (per mil) relative to an internationally accepted standard. These values are calculated from the equation,

$$\delta_x = \frac{R_x}{R_{std}} - 1000 \quad \text{(Fritz and Fontes, 1980),}$$

where R_x is the sample isotopic ratio ($^{13}C/^{12}C$, $^{2}H/^{1}H$, $^{18}O/^{16}O$)

R_{std} (Deuterium, Oxygen-18) is the Vienna Standard Mean Ocean Water (V-SMOW) standard

R_{std} (Carbon-13) is the Pee Dee Belemnite (PDB) standard

Carbon-14 is expressed as the percentage of modern atmospheric carbon-14 based on the National Bureau of Standards oxalic acid standard. Tritium is reported in terms of Tritium Units (T.U.). One T.U. corresponds to one in 10^{18} hydrogen atoms.

REFERENCES

Miami Radiocarbon/Tritium Laboratory, 1973, Miami Radiocarbon/Tritium Laboratory CO_2 Extraction System Manual.

Back, William, Hanshaw, B.B., and Rubin, M., 1970, Carbon-14 ages related to occurrence of salt water: American Society of Civil Engineers Proceedings, Journal of the Hydraulics Division, No. 1970.

Barnes, Ivan, 1964, Field measurement of alkalinity and pH: U.S. Geological Survey Water-Supply Paper 1535-H, p. 17.

Busby, J. F., Lee, R. W., and Hanshaw, B. B., 1983, Major geochemical processes related to the hydrology of the Madison Aquifer System and associated rocks in parts of Montana, South Dakota, and Wyoming: U.S. Geological Survey Open-File Report 83-4093.

Callahan, J.T., 1964, The yield of sedimentary aquifers of the coastal plain southeast river basins: U.S. Geological Survey Water-Supply Paper 1669-W, 56 p.

Colquhoun, D.J., Heron, S.D., Jr., Johnson, H.S., Jr., Pooser, W.K., and Siple, G.E., 1969, Up-dip Paleocene-Eocene stratigraphy of South Carolina reviewed: Columbia, S.C., South Carolina Geological Survey, Geologic Notes, v. 13, no. 1, p. 1-25.

Comer, C.D., 1973, Upper Tertiary stratigraphy of the lower coastal plain of South Carolina: University South Carolina, Department of Geology, M.S. Thesis, 19 p.

Cooke, C.W., 1936, Geology of the coastal plain of South Carolina: U.S. Geological Survey Bulletin 867, 196 p.

Cooke, C.W., and MacNeil, F.S., 1952, Tertiary stratigraphy of South Carolina: U.S. Geological Survey Professional Paper 243-B, p. 19-29.

Counts, H.B., 1958, The quality of ground water in the Hilton Head Island area, Beaufort County, South Carolina: Atlanta, Ga., Georgia Department of Mines, Mining and Geology, Georgia Mineral Newsletter, v. 11, no. 2, p. 50-51.

Counts, H.B., and Donsky, Ellis, 1963, Salt-Water encroachment geology and ground-water resources of Savannah Area, Georgia and South Carolina: U.S. Geological Survey Water-Supply Paper 1611.

Duncan, D.A., 1972, High resolution seismic study, in Port Royal Sound Environmental Study: South Carolina Water Resources Commission, p. 85-106.

Fritz, P., and Fontes, J.C., 1980, Handbook of environmental isotope geochemistry: Amsterdam, The Netherlands, Elsevier Scientific Publishing Company, 545 p.

Hayes, L.R., 1979, The ground-water resources of Beaufort, Colleton, Hampton and Jasper Counties, South Carolina: South Carolina Water Resources Commission Report Number 9.

Hazen, Richard, and Sawyer, A.W., 1956, Water supply in the vicinity of Beaufort, South Carolina: Engineering report to the Bureau of Yards and Docks, Department of the Navy, contract NBY-4440, 40 p.

----- 1957, Supplementary report on water supply in the vicinity of Beaufort, South Carolina: Engineering report to the Bureau of Yards and Docks, Department of the Navy, contract NBY-4440, 32 p.

McCollum, M.J., Counts, H.B., 1964, Relations of saltwater encroachment to the major aquifer zones, Savannah area, Georgia and South Carolina: U.S. Geological Survey Water-Supply Paper 1613-D, 26 p.

Mundorff, M.J., 1944, Ground water in the Beaufort area, South Carolina: U.S. Geological Survey, Report to the U.S. Navy Department.

Nuzman, C.E., 1970, BASF Corporation aquifer test Port Victoria, South Carolina: Kansas City, Mo., Layne-Western Company, Inc., Engineering report, 71 p.

----- 1972, Water-supply study Hilton Head Isalnd, South Carolina: Kansas City, Mo., Layne-Western Company, Inc., Engineering Report, 40 p.

Rock-Color Chart Committee, 1980, Rock-color chart: Netherlands, Huyskes-Enschede.

Siple, George E., 1956, Memorandum on the geology and ground-water resources of the Parris Island area, South Carolina: U.S. Geological Survey Open-File Report, 29 p.

----- 1960, Geology and ground-water conditions in the Beaufort area, South Carolina: U.S. Geological Survey Open-File Report, 124 p.

----- 1967, Salt-water encroachment in coastal South Carolina: Columbia, S.C., South Carolina Geological Survey, Geologic Notes, v. 11, no. 2, p. 21-36.

Skougstand, M.W., Fishman, M.J., Friedman, L.C., Erdmann, D.E., and Duncan, S.S., 1979, Methods for the analyses of inorganic substances in water and fluvial sediment: Techniques of Water-Resources Investigations of the U.S. Geological Survey, book 5, chap A, 626 p.

Stringfield, V.T., 1966, Artesian water in Tertiary limestone in the southeastern states: U.S. Geological Survey Professional Paper 517, 226 p.

Travis, R.B., 1955, Classification of rocks: Quarterly of the Colorado School of Mines, v. 50, no. 1, 98 p.

Warren, M.S., 1944, Artesian water in southeastern Georgia, with special reference to the coastal area: Atlanta, Ga., Georgia Geological Survey Bulletin 49, 40 p.

Wentworth, C.K., 1922, A scale of grade and class terms for clastic sediments: Journal of Geology, v. 30, p. 377-392.

White, W.B., 1969, Conceptual models for carbonate aquifers: Ground Water, v. 7, no. 3.

Wood, W.W., 1976, Guidelines for collection and field analysis of ground-water samples for selected unstable constituents: U.S. Geological Survey Techniques of Water-Resources Investigations, book 1, chap. D2, 24 p.

Woollard, G.P., Bonini, W.E., and Meyer, R.P., 1957, A seismic refraction study of the subsurface geology of the Atlantic Coastal Plain and Continental Shelf between Virginia and Florida: Madison, Wis., University of Wisconsin, Department of Geology, 128 p.

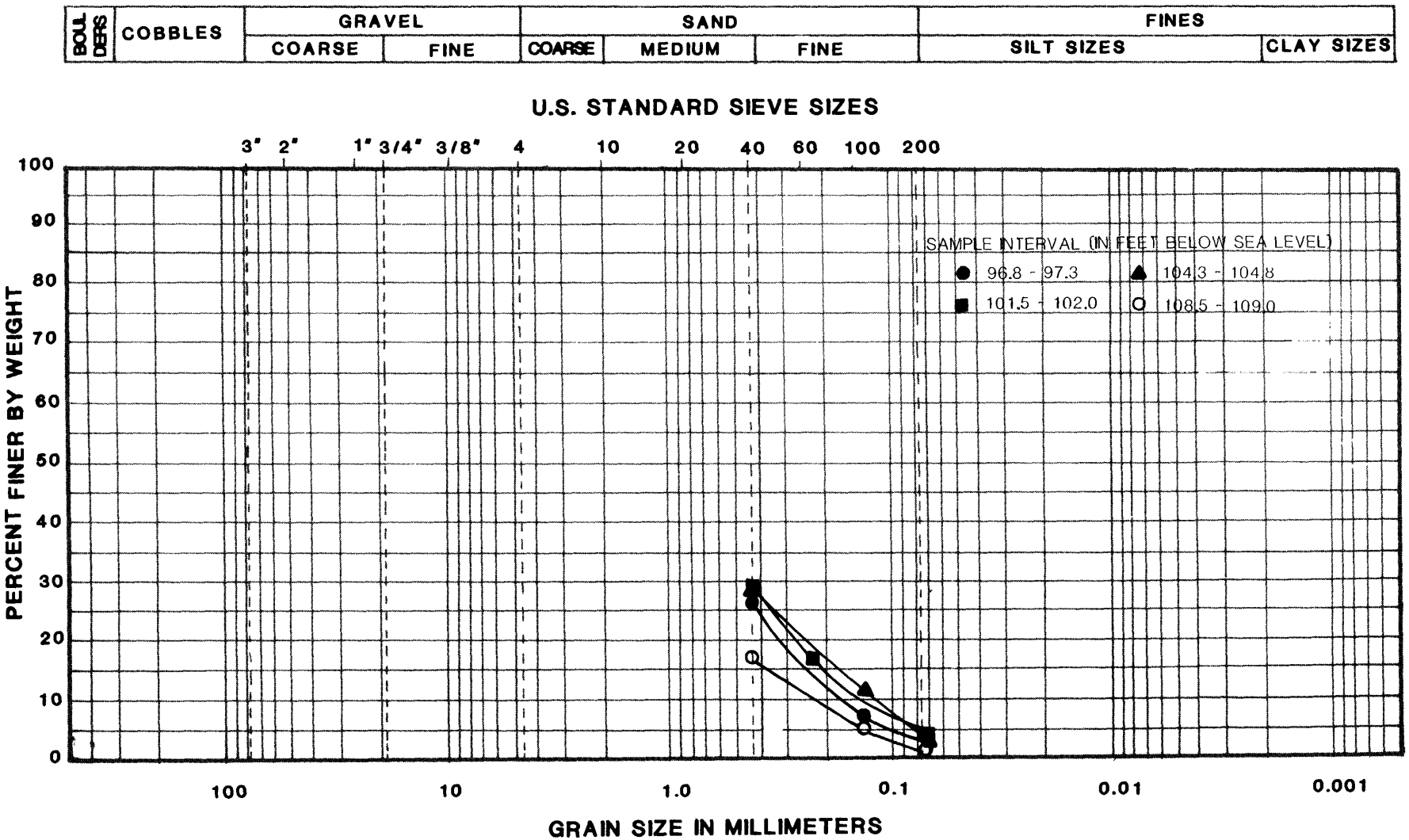

Figure 3.--Grain size distributions of disaggregated core samples from well Number BFT-1672.

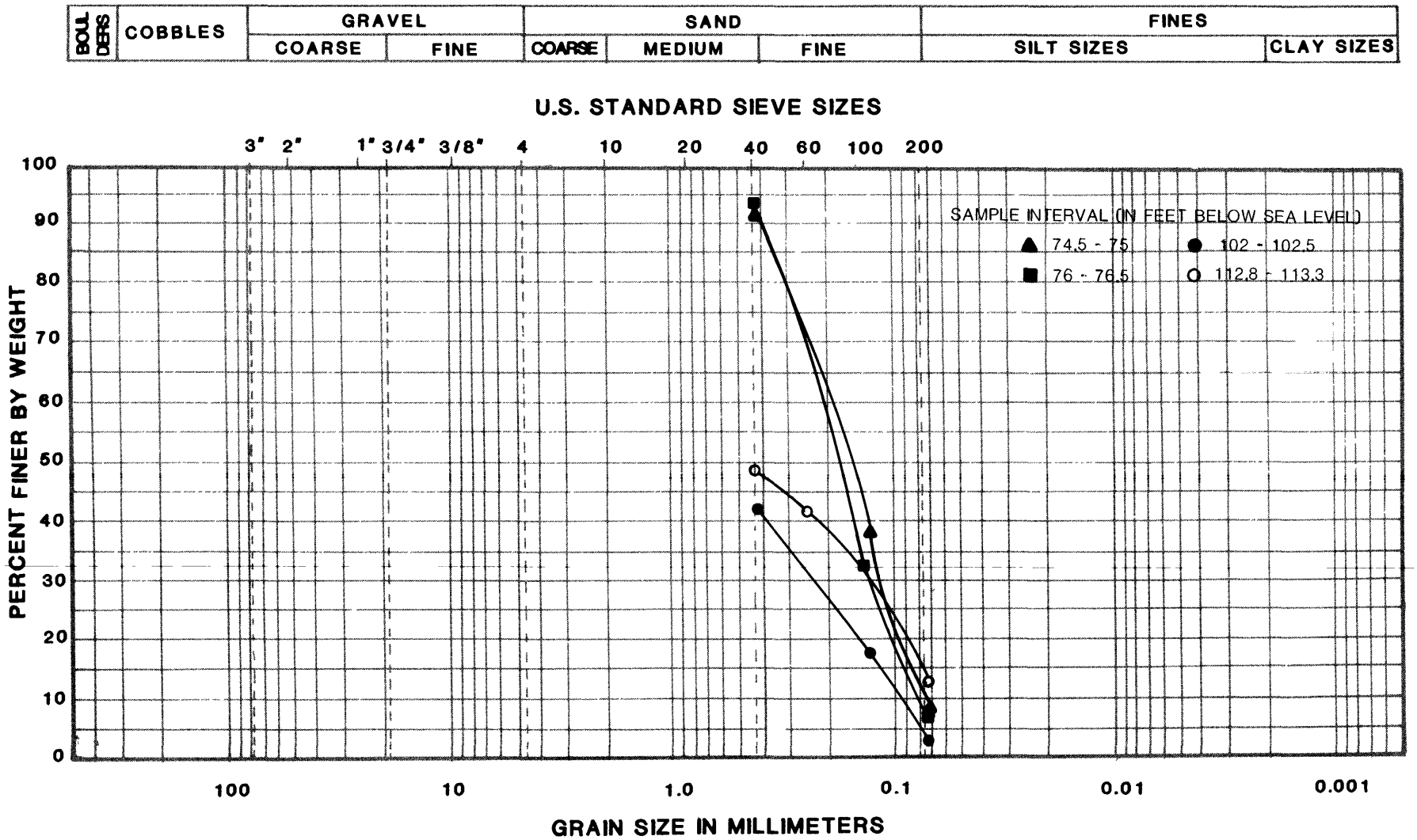

Figure 4.--Grain size distributions of disaggregated core samples from well Number BFT-1674.

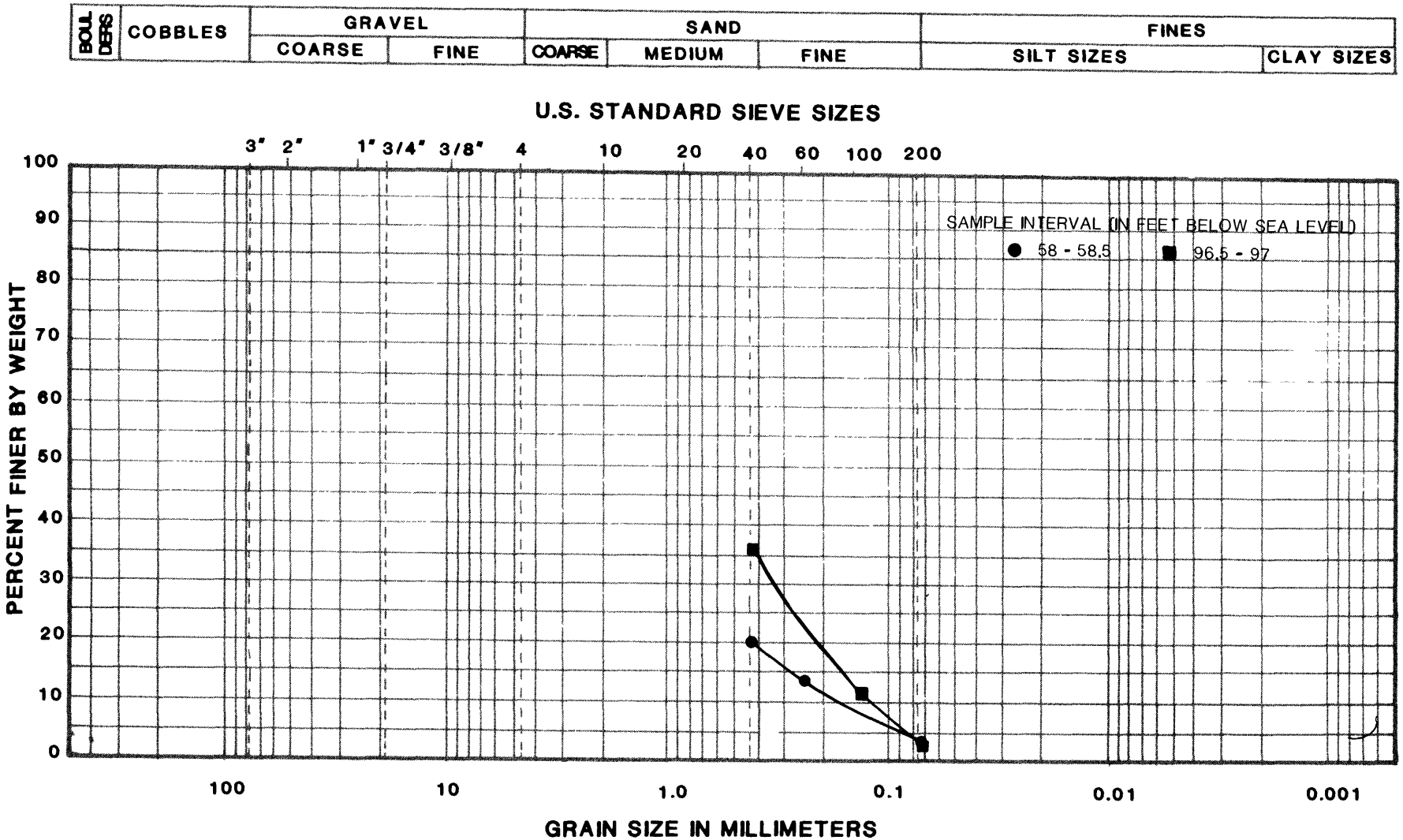

Figure 5.--Grain size distributions of disaggregated core samples from well Number BFT-1675.

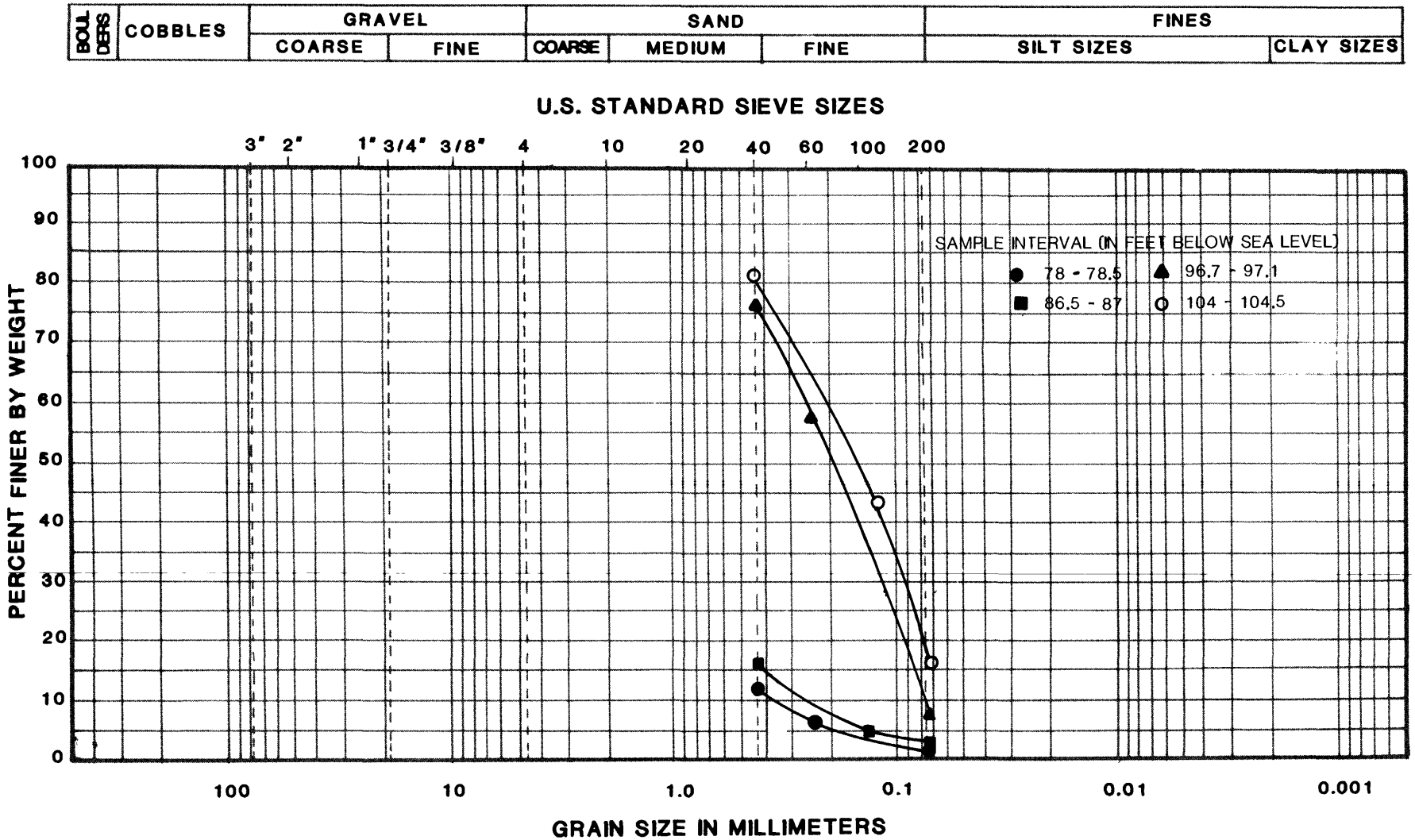

Figure 6.--Grain size distributions of disaggregated core samples from well Number BFT-1676.

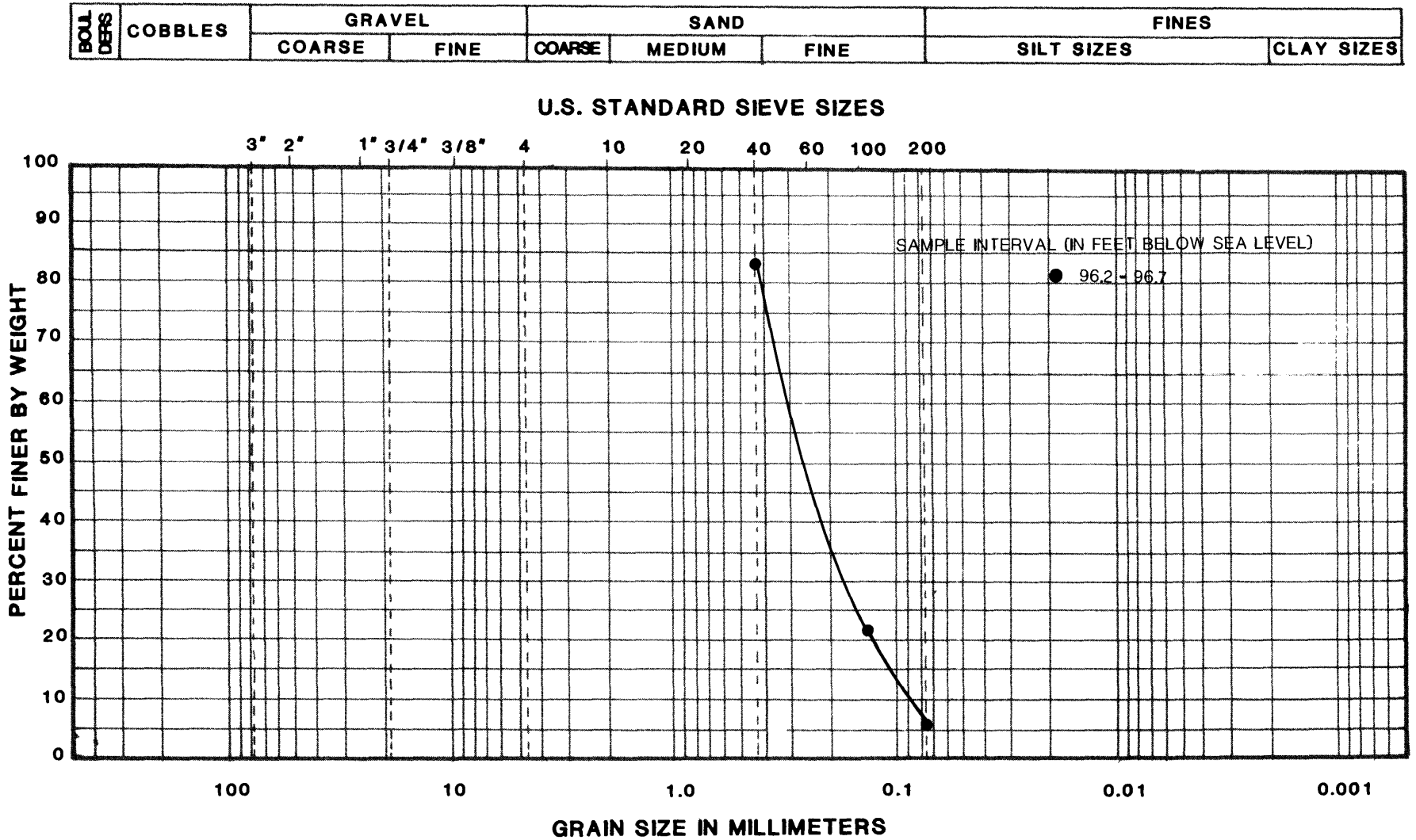

Figure 7.--Grain size distributions of disaggregated core samples from well Number BFT-1677.

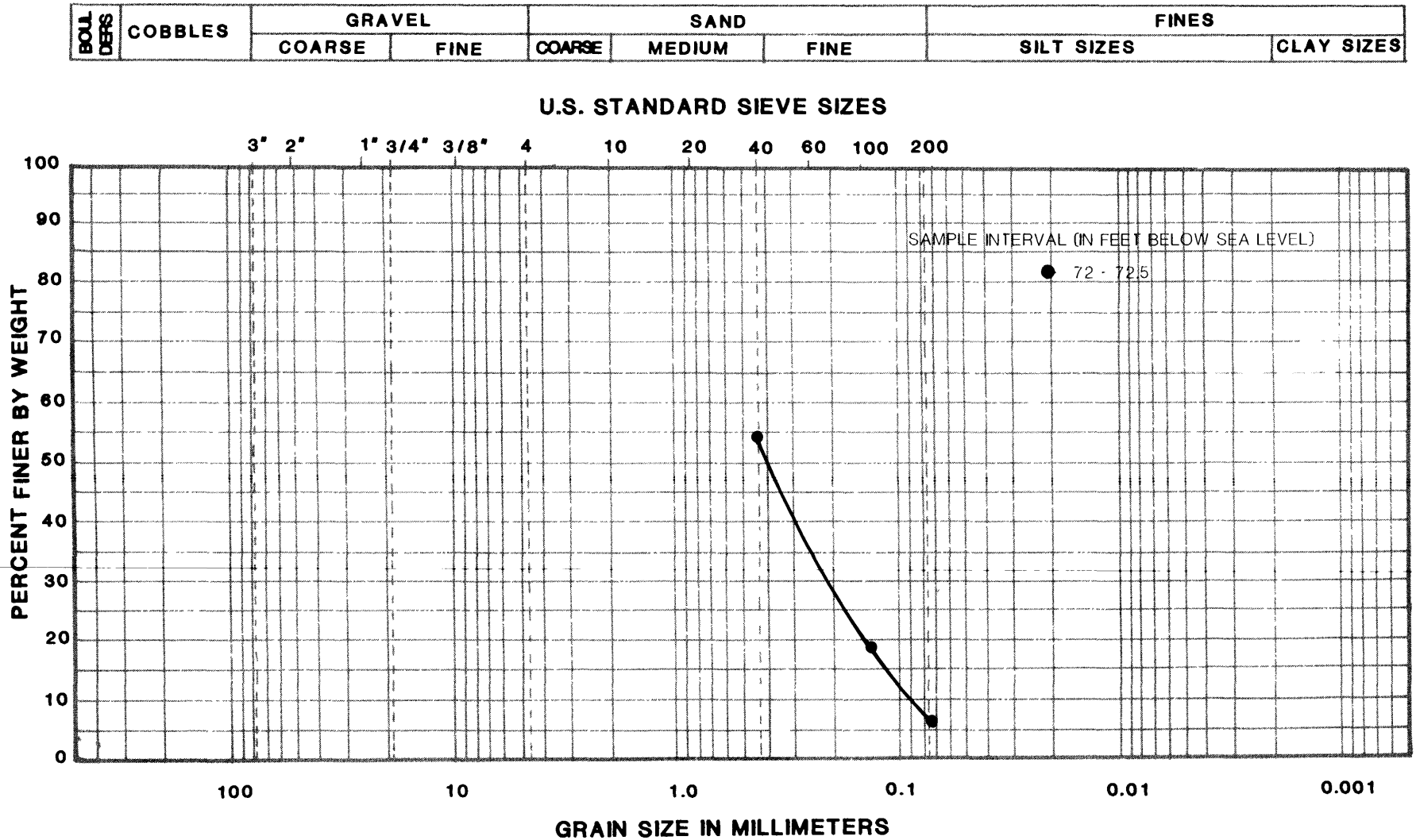

Figure 8.--Grain size distributions of disaggregated core samples from well Number BFT-1678.

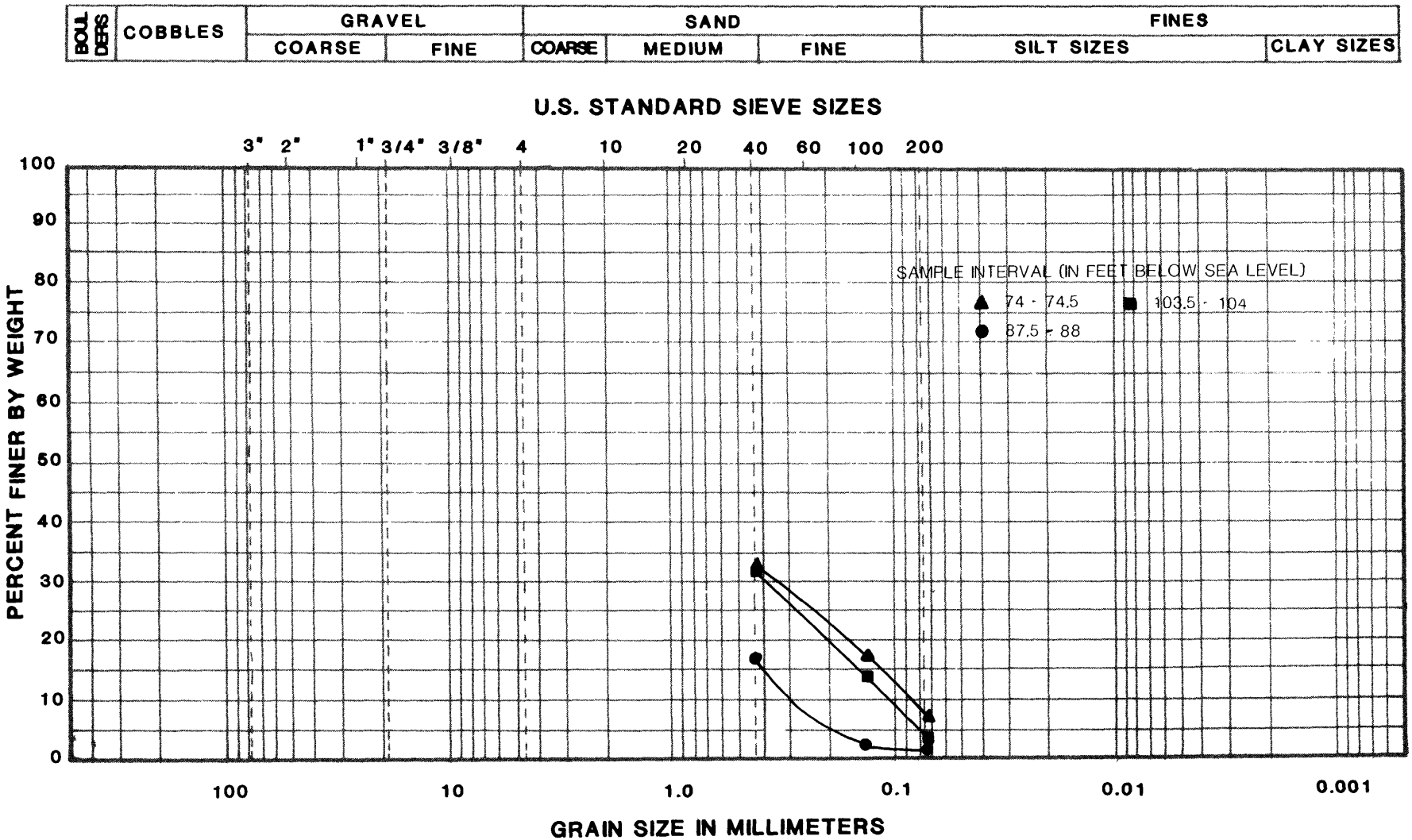

Figure 9.--Grain size distributions of disaggregated core samples from well Number BFT-1679.

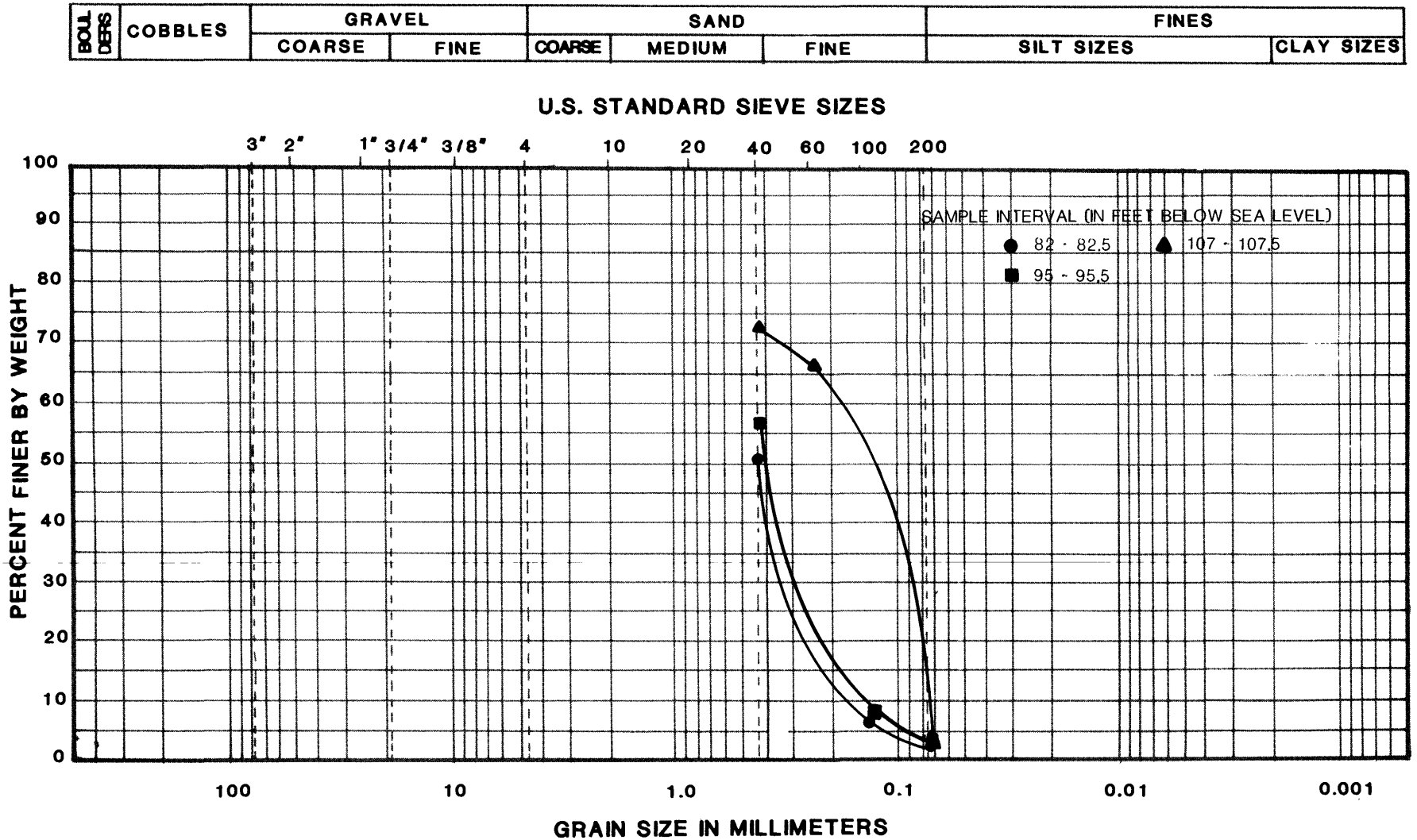

Figure 10.--Grain size distributions of disaggregated core samples from well Number BFT-1680.

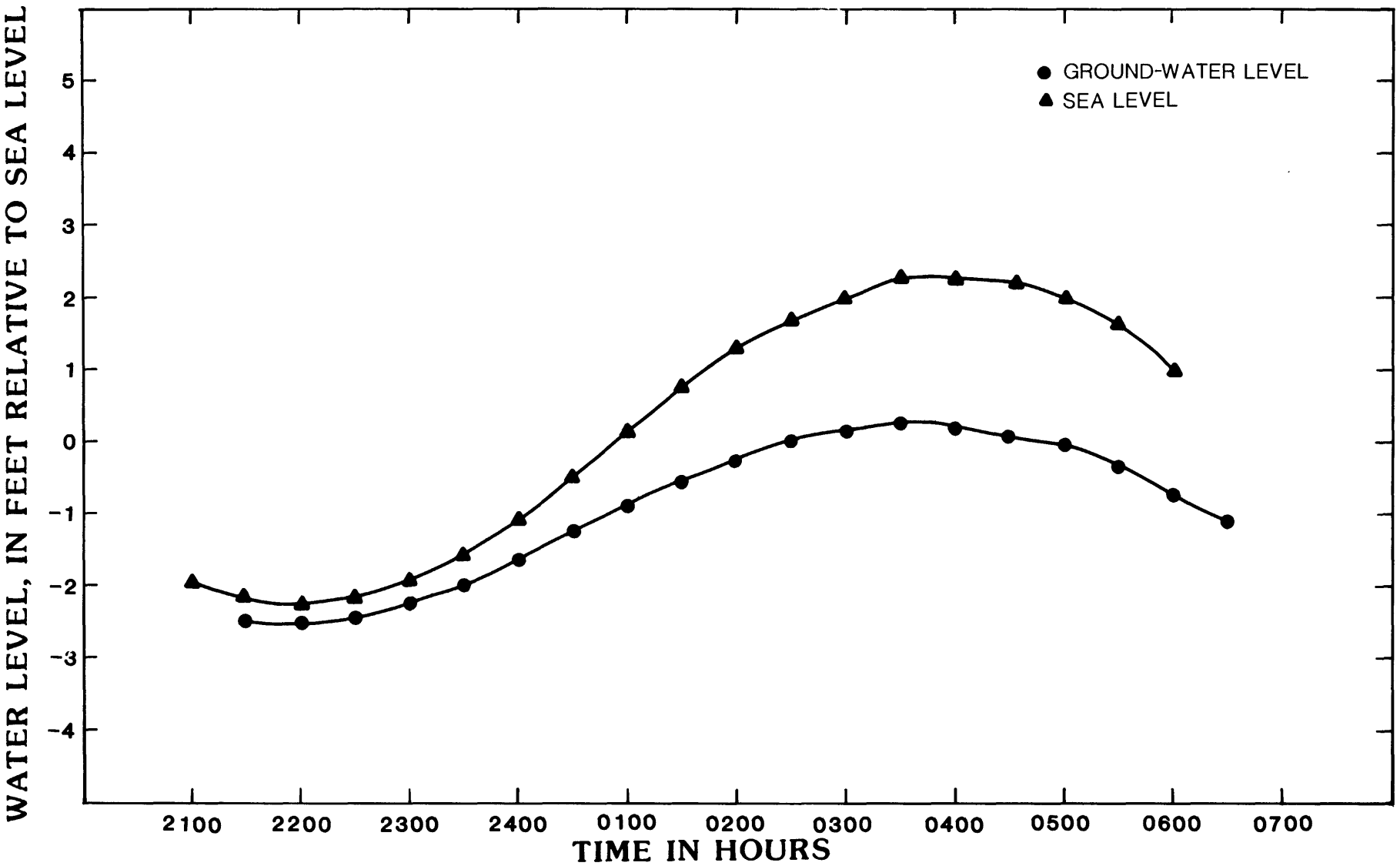

Figure 11.--Water level hydrographs recorded simultaneously from the Port Royal Sound tide gage and test well BFT-1672.

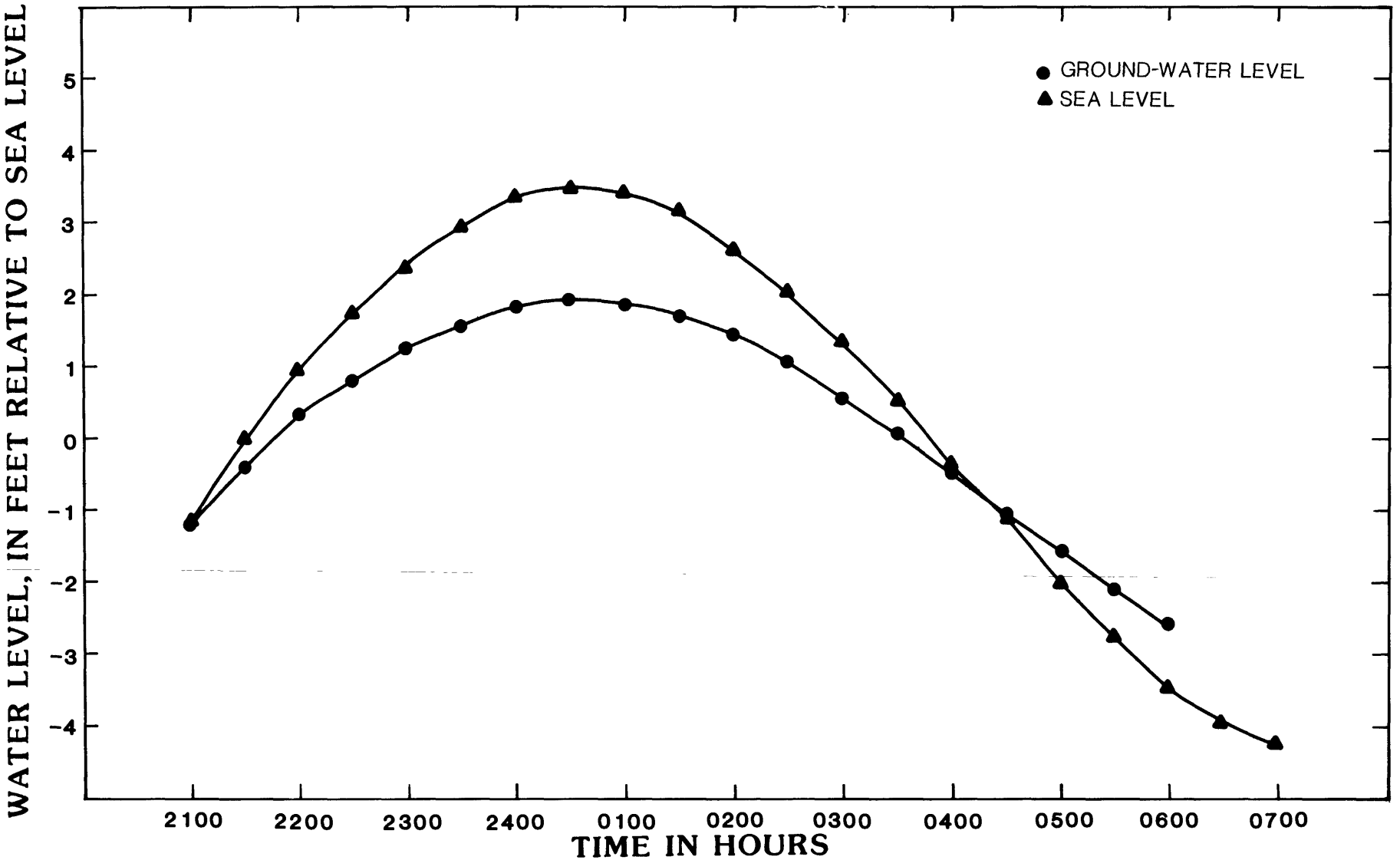

Figure 12.--Water level hydrographs recorded simultaneously from the Port Royal Sound tide gage and test well BFT-1673.

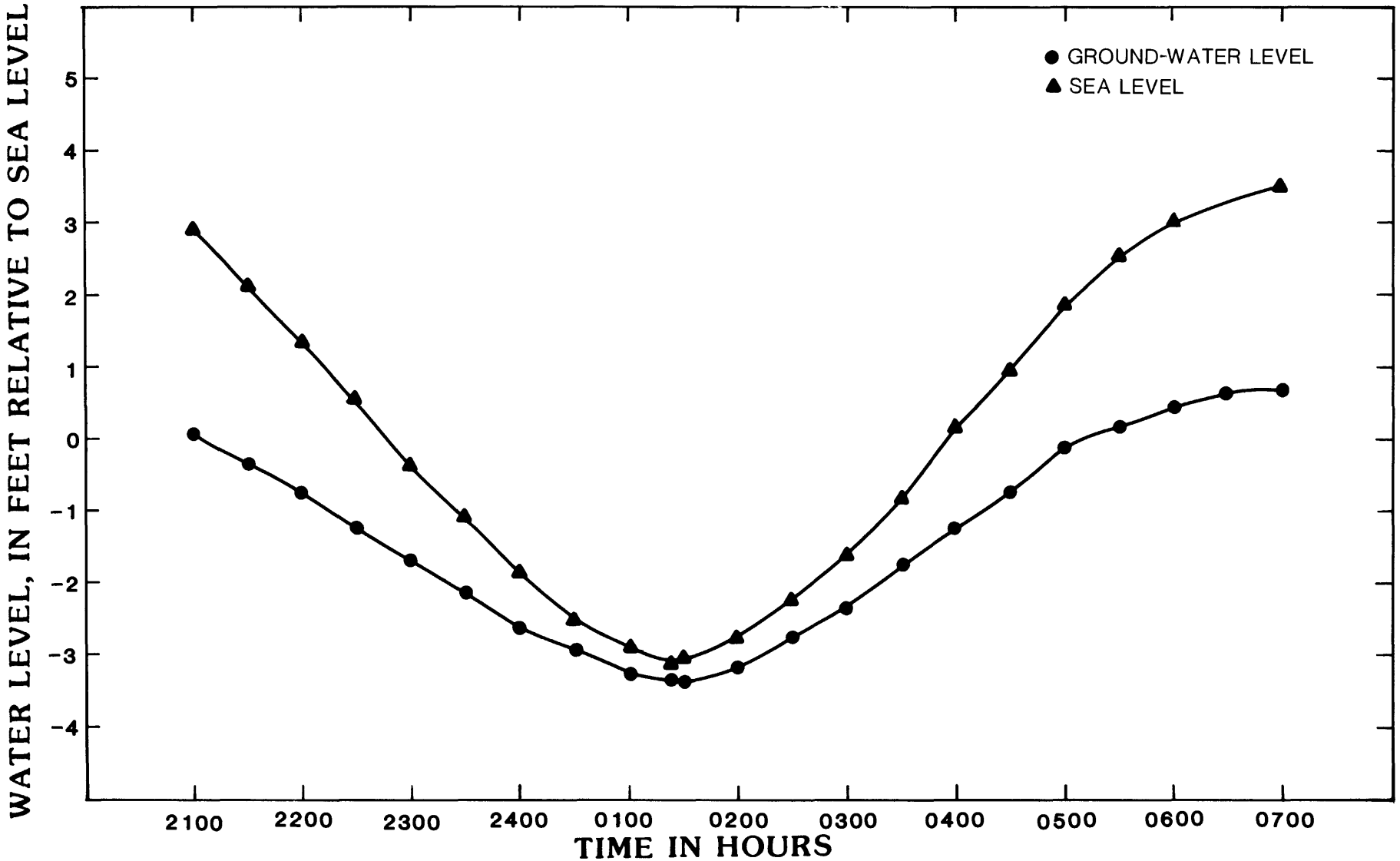

Figure 13.--Water level hydrographs recorded simultaneously from the Port Royal Sound tide gage and test well BFT-1674.

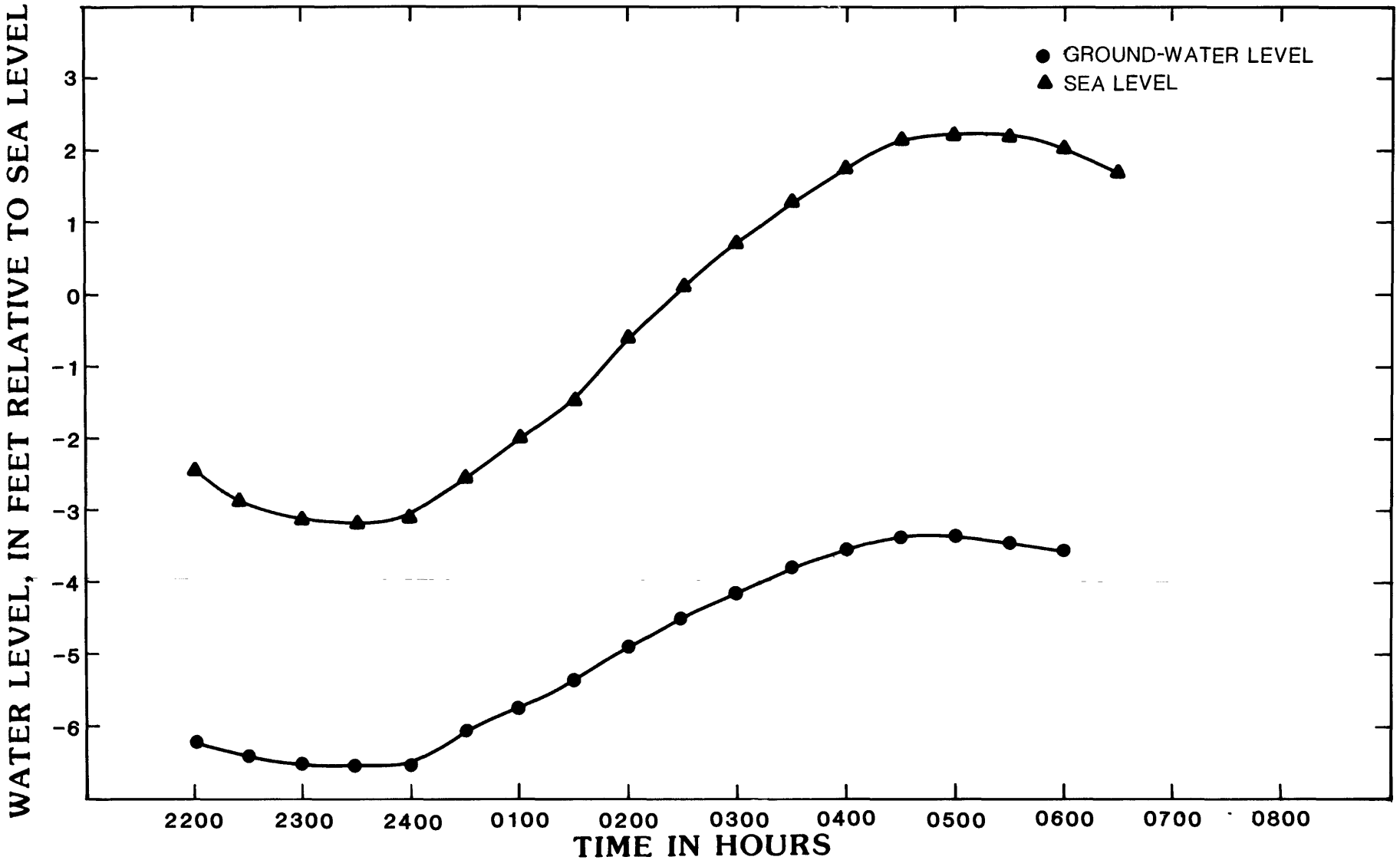

Figure 14.--Water level hydrographs recorded simultaneously from the Port Royal Sound tide gage and test well BFT-1675.

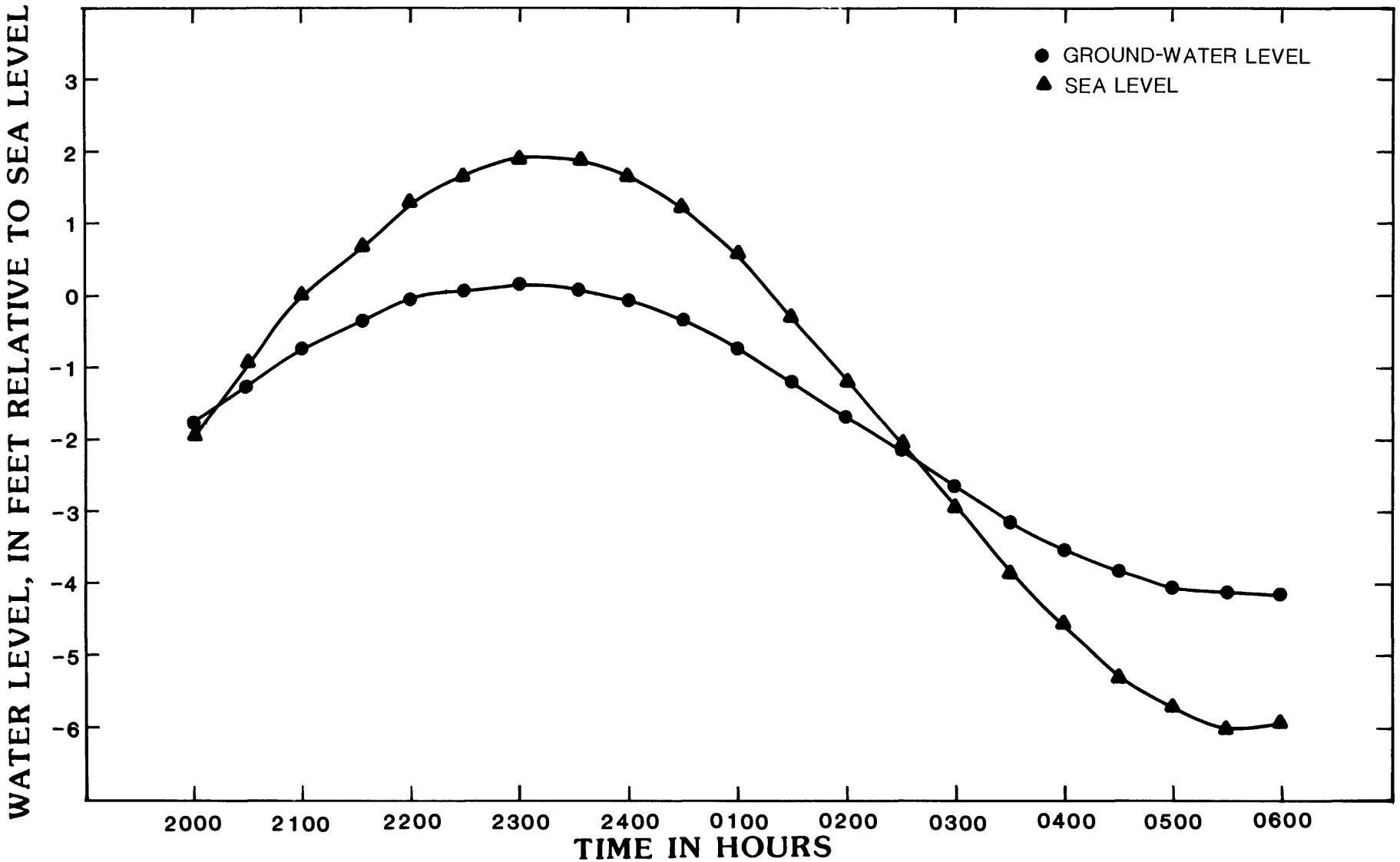

Figure 15.--Water level hydrographs recorded simultaneously from the Port Royal Sound tide gage and test well BFT-1676.

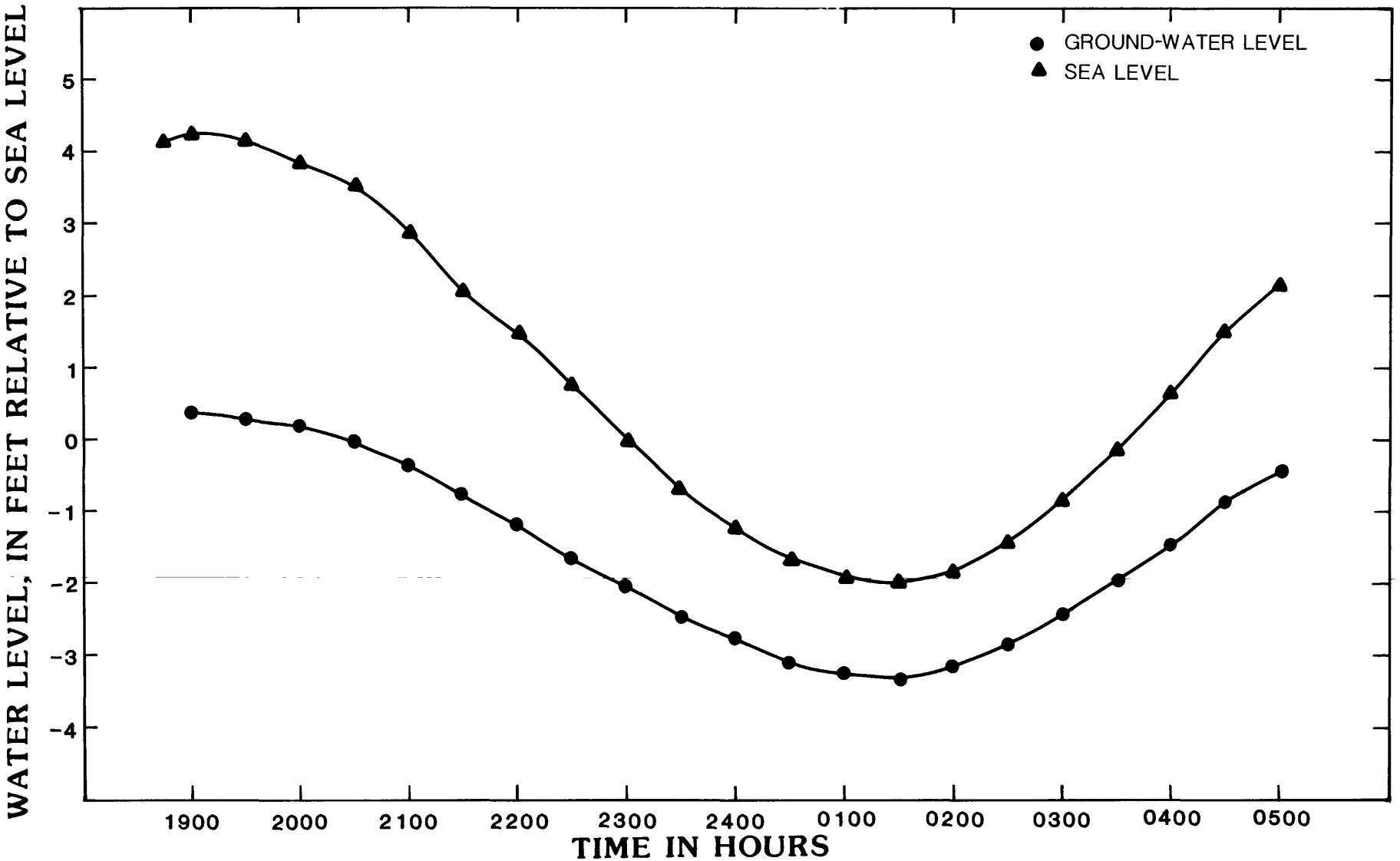

Figure 16.--Water level hydrographs recorded simultaneously from the Port Royal Sound tide gage and test well BFT-1677.

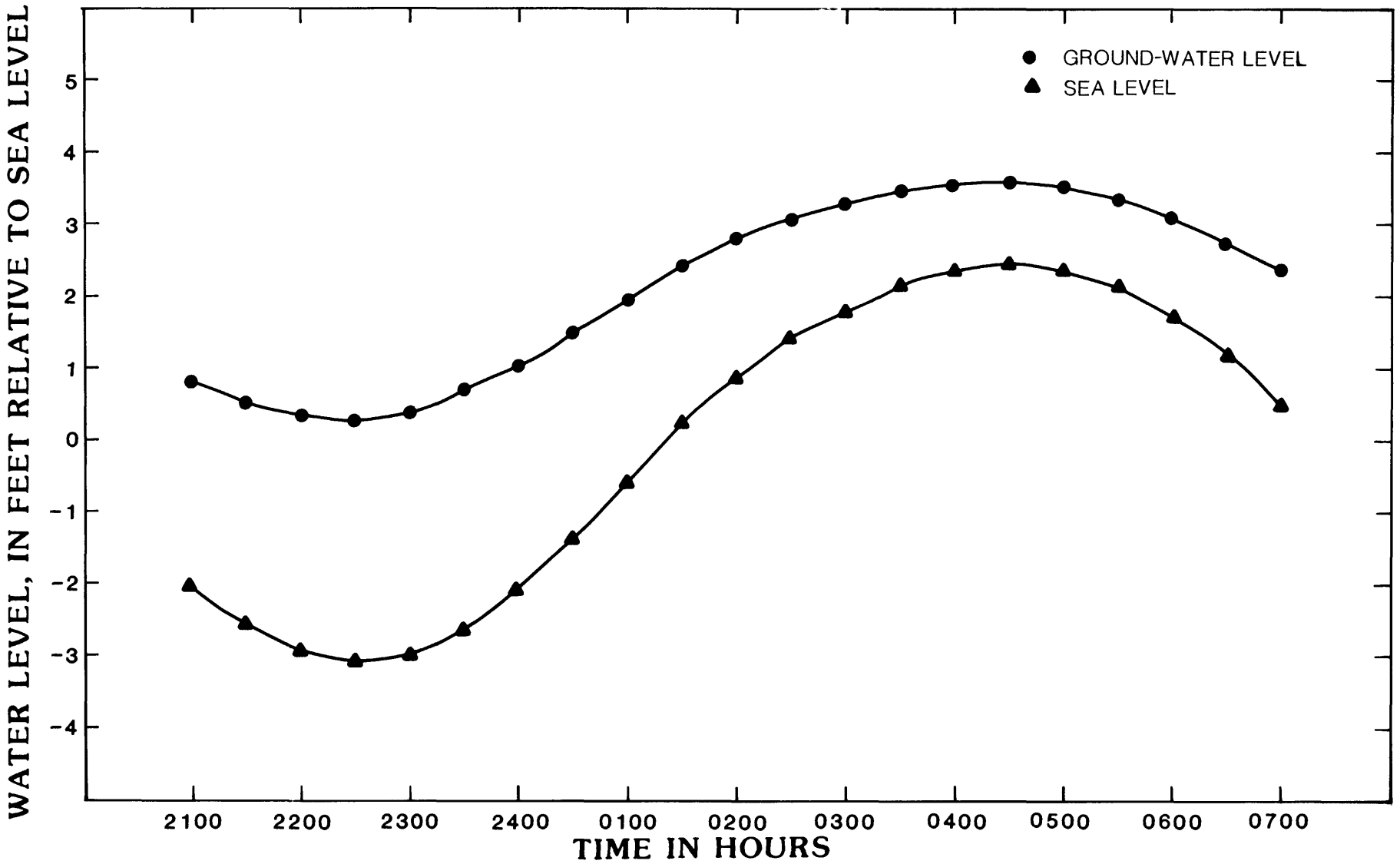

Figure 17.--Water level hydrographs recorded simultaneously from the Port Royal Sound tide gage and test well BFT-1678.

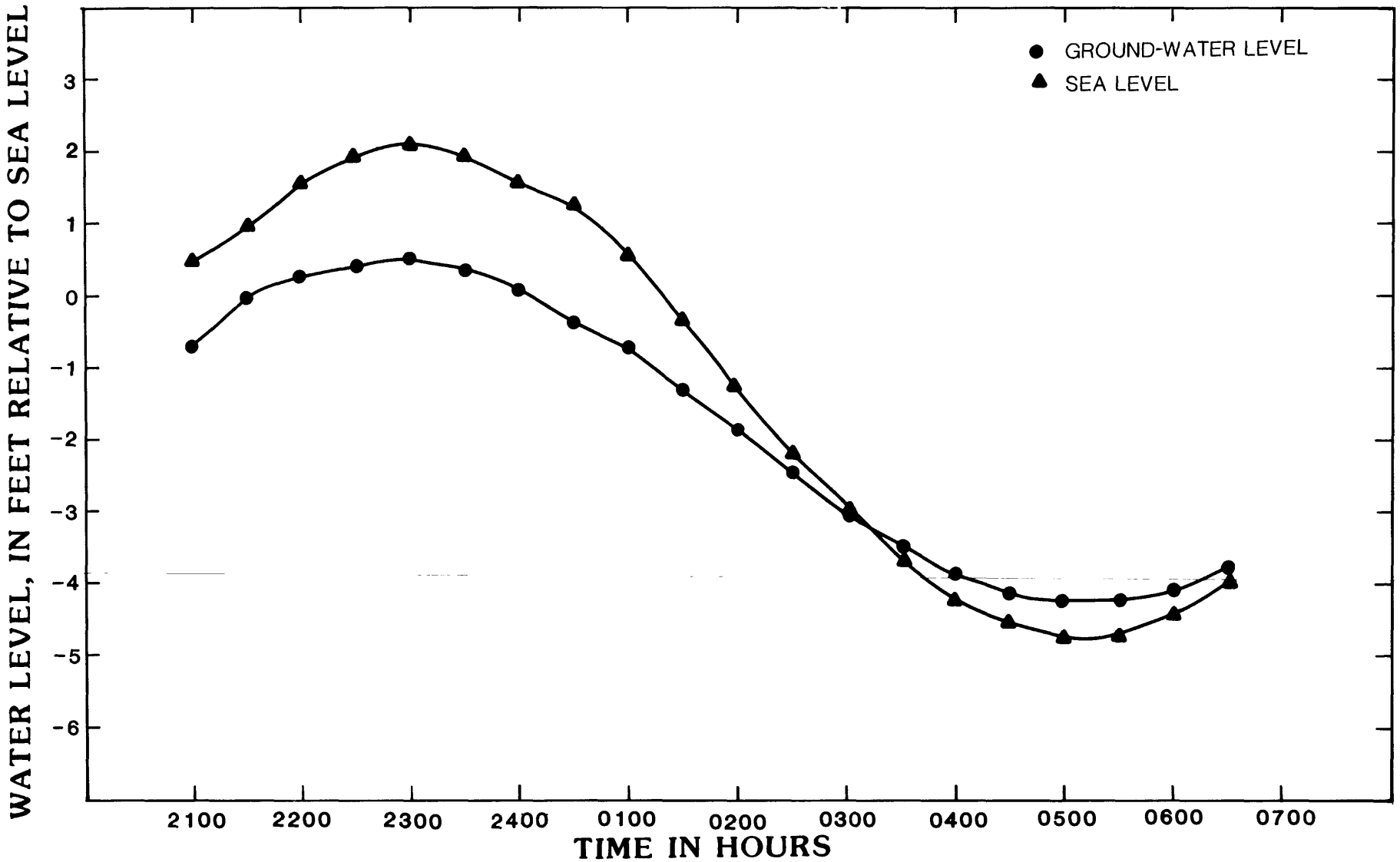

Figure 18.--Water level hydrographs recorded simultaneously from the Port Royal Sound tide gage and test well BFT-1679.

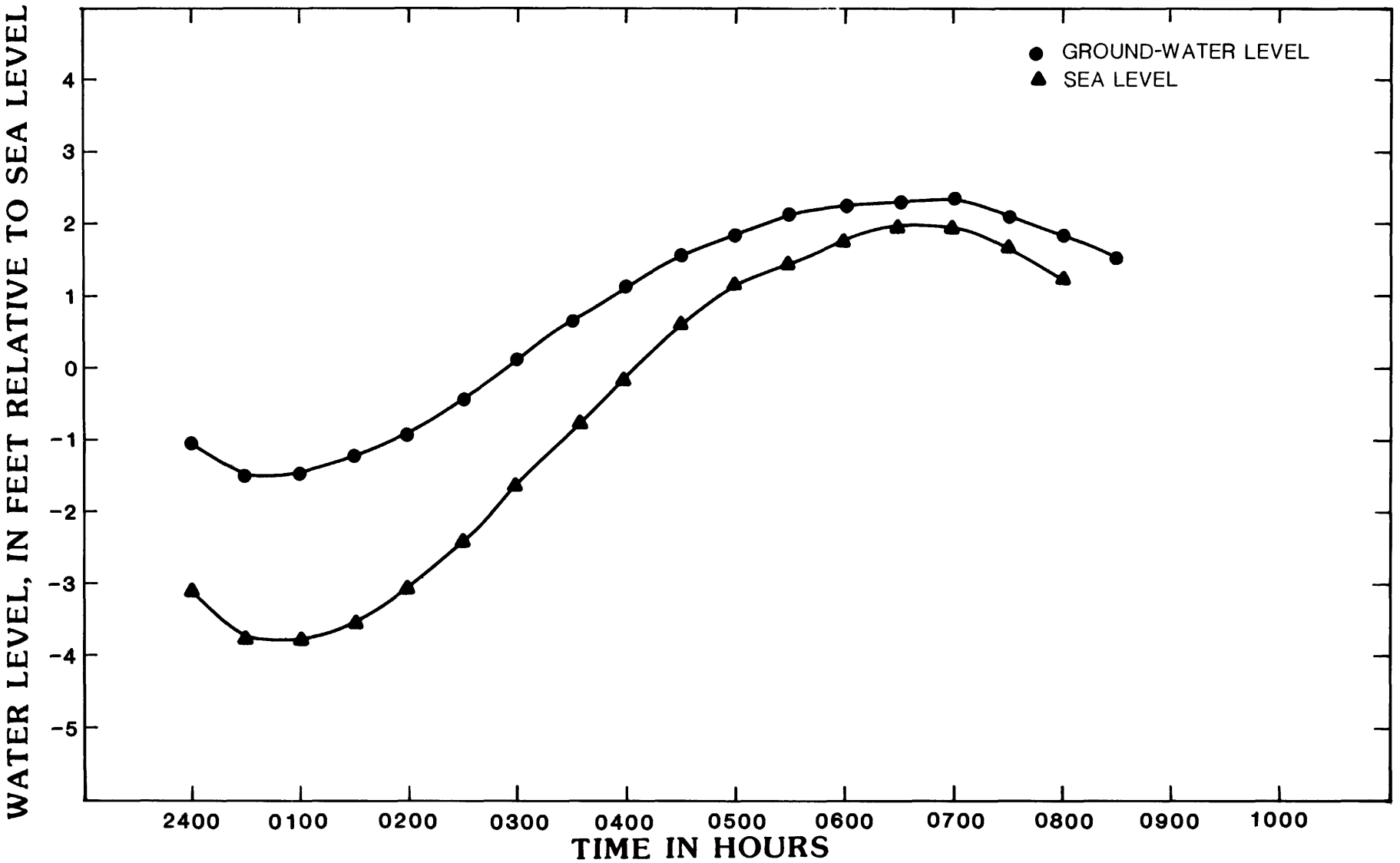

Figure 19.--Water level hydrographs recorded simultaneously from the Port Royal Sound tide gage and test well BFT-1680.

Table 1.--Well construction data

Well	North Latitude	West Longitude	Altitude of top of casing (ft above sea level) ± 0.16	Altitude of bottom of casing (ft below sea level)	Altitude of bottom of well (ft below sea level)
BFT-1672	32°15'30"	80°39'34"	10.76	97.90	211.44
BFT-1673	32°17'19"	80°43'00"	11.67	83.93	208.60
BFT-1674	32°16'36"	80°42'46"	15.45	102.15	174.30
BFT-1675	32°11'15"	80°40'16"	10.26	91.34	212.10
BFT-1676	32°14'40"	80°40'25"	13.25	97.15	211.00
BFT-1677	32°17'38"	80°42'03"	13.06	91.84	175.80
BFT-1678	32°19'26"	80°43'57"	11.16	76.74	191.70
BFT-1679	32°12'42"	80°37'40"	12.77	102.35	210.40
BFT-1680	32°17'16"	80°39'49"	14.28	103.12	217.50

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells

Well	Sample interval (ft below sea level)	
		Cuttings
BFT-1672	45.7 - 46.7	Sand, quartz, subangular to subrounded, coarse, yellow-gray (5Y 7/2), shell fragments minor.
	46.7 - 48.7	Sand, quartz, angular to sub-angular, medium, light olive-gray (5Y 5/2), shell fragments minor, phosphate minor.
	48.7 - 49.7	Sand, quartz, subangular, coarse, medium light gray (N6), 30 percent shell fragments.
	49.7 - 55.7	Sand, quartz, rounded to subrounded, medium light gray (N6), contains abundant mica flakes, wood fragments common, glauconitic, shell fragments minor.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Core
BFT-1672 (Continued)	55.7 - 56.7	Sand, quartz, subrounded, fine, medium gray (N5), shell fragments minor, glauconitic.
	56.7 - 58.7	As above, but sand is coarse.
	58.7 - 59.7	Sand, quartz, subrounded, coarse to very coarse, greenish-gray (5GY 6/1), few shell fragments, abundant phosphate.
	59.7 - 60.7	As above, but contains minor silt.
	60.7 - 61.7	Sand, quartz, subrounded, coarse, olive gray (5Y 4/1), few shell fragments.
	61.7 - 63.2	Sand and pebbles quartz subangular, very coarse, grayish-yellow green (5GY 7/2), abundant shell fragments, abundant very fine sand and silt, phosphate nodules.
	63.2 - 65.7	Sand, quartz, subrounded, coarse, olive gray (5Y 3/2), clay minor.
	65.7 - 68.7	As above, but contains shell fragments and pebbles.
	68.7 - 70	Sand, quartz, subangular, coarse, grayish-olive (10Y 4/2), clay minor.
	70 - 71.7	Silt and clay, olive gray (5Y 3/2).
	71.7 - 73.7	Mixed layers of sand, quartz, subangular, grayish-olive (10Y 4/2) and silty clay, olive gray (5Y 3/2).
	73.7 - 76.7	As above, but dominantly silty clay.
	76.7 - 80.3	As above, but clay and sand are present in equal amounts.
	80.3 - 81.3	Silty clay with minor sand lenses, angular, coarse grayish-olive (10Y 4/2), calcareous.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Core
BFT-1672 (Continued)	81.3 - 84.1	Sand, quartz, subrounded, coarse and medium, and clay mixed, grayish-olive (10Y 4/2), calcareous.
	84.1 - 86.2	Silt and very fine sand, olive gray (5Y 3/2); abundant sand, quartz, coarse, calcareous.
	86.2 - 87.9	As above, but more silt and clay.
	87.9 - 98.1	Clay and silt, olive gray (5Y 3/2) and moderate sand, quartz, subrounded, medium, in some lenses sand exceeds clay in abundance.
	98.1 - 99.2	Sand, quartz, rounded, fine, light gray (N7), in calcareous mud.
	99.2 - 101.1	Limestone, fossiliferous, light gray (N7), abundant bryozoan fragments; minor sand, quartz, subangular fine.
	101.1 - 102.8	Limestone, fossiliferous, pinkish-gray (5YK 8/1), dominantly bryozoans cemented with crystalline calcite, minor phosphate.
	102.8 - 106	Limestone, fossiliferous, light gray (N7) bryozoans and pelecypods common, moderately well consolidated.
	106 - 106.4	Limestone, fossiliferous, white (N9), composed of bryozoans and calcite crystals in calcareous mud.
	106.4 - 119	Limestone, fossiliferous, light gray (N7), composed of calcite-cemented bryozoan fragments.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Cuttings
BFT-1672 (Continued)	119 - 142.3	Limestone, fossiliferous, light gray (N7); predominantly fragments of bryozoans and pelecypods, minor calcite crystals.
	142.3 - 157.3	As above, but bryozoans have larger pores and color is very light gray (N8).
	157.3 - 171.4	Limestone, fossiliferous, very light gray (N8), almost completely composed of bryozoan fragments and few pelecypod fragments, contains "cap-shaped" bryozoan.
	171.4 - 177.3	As above, but light gray (N7).
	177.3 - 192.3	As above, but slightly phosphatic.
	192.3 - 215.4	Limestone, fossiliferous, light gray (N7), mostly bryozoans and some gastropod fragments, moderately glauconitic.
	215.4 - 215.7	Silty clay, greenish-gray (5GY 6/1), calcareous.
BFT-1673	35 - 41	Sand, quartz, subangular, medium, greenish-gray (5GY 6/1), moderately phosphatic.
	41 - 45	Sand, quartz, angular, medium, olive gray (5Y 4/1), abundant phosphate.
	45 - 51	As above, but contains minor shell fragments, calcareous.
	51 - 55	Sand, quartz, subangular, coarse, light olive gray (5Y 6/1), abundant phosphate, minor glauconite and shell fragments, calcareous.
	55 - 61	As above, but less phosphate.
	61 - 65	Sand, quartz, angular, very coarse, light gray (N7), minor glauconite and shell fragments, abundant coarse phosphate, calcareous.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Cuttings
BFT-1673 (Continued)	65 - 71	As above, but contains minor silt, greenish-gray (5GY 6/1); pebble layer at 70.3'.
	71 - 71.9	Sand, quartz, subangular, very coarse, olive gray (5Y 4/1), minor silt, phosphate, contains fragments of bryozoans, calcareous.
	71.9 - 84.9	As above, but approximately 50 percent of sample composed of bryozoan fragments.
		Core
	84.9 - 87.2	Limestone fossiliferous, light gray (N7), very poorly consolidated, composed entirely of bryozoan fragments; at top large phosphate nodules up to 25 mm in long axis.
	87.2 - 87.4	Marl, fragments of bryozoans in calcareous silt and clay matrix, light gray (N7).
	87.4 - 93.9	Limestone fossiliferous, very light grey (N8), loosely consolidated, primarily composed of bryozoans but contains common pelecypods; breaks along planes of weaker material into layers $\frac{1}{2}$ in. to 2 in. thick.
	93.9 - 95.4	As above, but all poorly consolidated.
	95.4 - 95.8	Limestone, fossiliferous, light gray (N7), large round bryozoans and branching bryozoans, well consolidated.
	95.8 - 100.8	As above, but unconsolidated.
	100.8 - 105.8	Limestone fossiliferous, very light gray (N8), well consolidated; composed of bryozoans and pelecypods cemented with calcite.
	105.8 - 110.8	As above, but very light gray (N8) and poorly consolidated.
	110.8 - 111.3	Limestone, fossiliferous, light gray (N7), composed of very large (20-30 mm) bryozoan fragments with common pelecypod shells, well consolidated.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Core
BFT-1673 (Continued)	111.3 - 119.8	As above, but fossils are primarily branching bryozoans and poorly consolidated.
	119.8 - 122.3	Limestone, fossiliferous, light gray (N7), loosely consolidated, mostly bryozoans with few gastropods; breaks in thin plates (20 mm thick).
	122.3 - 124.3	As above, but poorly consolidated.
	124.3 - 125.8	Limestone, fossiliferous, light gray (N7) and light bluish gray (5 B 7/1), dominantly pelecypods, well cemented with calcite.
		Cuttings
	125.8 - 141.1	Limestone, fossiliferous, light gray (N7), 50 percent bryozoans, remainder composed of pelecypods and gastropods with some crystalline calcite.
	141.1 - 151.1	Limestone, fossiliferous, very light gray (N8), dominantly bryozoans, gastropods common, crystalline calcite minor.
	151.1 - 161.1	As above.
	161.1 - 171.1	Limestone, fossiliferous, light gray (N7), dominantly bryozoans, few gastropods and pelecypods, moderately glauconitic, better consolidated than above.
	171.1 - 181.1	As above.
	181.1 - 191.1	Limestone, fossiliferous, light gray (N7), fossils as above, less glauconite than above.
	191.1 - 201.1	As above.
		Core
	201.1 - 208.6	Limestone, sandy, very fine, silty, greenish-gray (5G 6/1), moderately galuconitic and phosphatic, few shell fragments.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Cuttings
BFT-1674	23.2 - 24.3	Sand, quartz, subrounded, medium, yellowish-gray (SY 7/2), moderately phosphatic, muscovite minor.
	24.3 - 29.3	Sand, quartz, subrounded, fine, light olive gray (5Y 6/1), moderately phosphatic, muscovite minor, calcareous.
	29.3 - 44.3	As above, but greenish-gray (5GY 6/1).
	44.3 - 46.3	Sand, quartz, subangular, medium, greenish-gray (5GY 6/1), few phosphate nodules, few wood fragments, calcareous.
	46.3 - 48.8	Sand, quartz, subangular, coarse, olive gray (5Y 4/1), minor silt, moderately phosphatic.
	48.8 - 56.3	Sand, quartz, subangular, medium olive gray (5Y 4/1), moderately phosphatic, minor silt, few shell fragments.
	56.3 - 59.5	Sand, quartz, angular, fine, and clay (30 percent), olive gray (5Y 4/1), moderately phosphatic, muscovite minor, abundant 15mm phosphate nodules at 58.1 ft, calcareous.
	59.5 - 60.3	As above, but clay is 50 percent.
	60.3 - 61.8	Same as 56.3 - 59.5.
		Core
	61.8 - 68.3	Sand, quartz, subrounded, fine, olive gray (5Y 3/2), moderate clay (30 percent), phosphate minor, muscovite minor, calcareous.
	68.3 - 69	Sand, quartz, rounded, medium, light gray (N7) in matrix of poorly cemented calcite, phosphate minor.
	69 - 69.2	Pebbles, quartz, angular, common clay and silt; sand quartz, angular, medium, olive gray (5Y 4/1), common pebble-size phosphate nodules.
	69.2 - 69.9	Sand, quartz, subangular, medium, olive gray (5Y 4/1) and olive black (5Y 2/1), minor clay and silt, phosphate minor.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (fT below sea level)	
		Core
BFT-1674 (Continued)	149.3 - 154.3	Limestone, fossiliferous, light gray (N7), mostly bryozoans but pelecypods are common.
		Cuttings
	154.3 - 159.3	As above, but slightly glauconitic.
	159.3 - 166.3	Limestone, fossiliferous, very light gray (N8), contains 50 percent bryozoans with remainder composed of gastropods and pelecypods, minor glauconite and phosphate.
	166.3 - 174.3	As above, but rock is more cohesive.
		Core
	69.9 - 73.8	Sand, quartz, subangular, medium, light olive gray (5Y 6/1), weakly cemented with calcite, moderately phosphate.
	73.8 - 74.3	As above, unconsolidated.
	74.3 - 79.3	Sand, quartz, subrounded, very fine and medium, olive gray (5Y 4/1), weakly consolidated, moderately phosphatic, calcareous.
	79.3 - 89.3	Sand, quartz, subangular, medium, olive black (5Y 2/1), abundant clay (50 percent), phosphate minor.
	89.3 - 91.3	As above, but clay dominates (70 percent).
	91.3 - 91.8	As above, but contains blocks of sand, quartz, subangular, medium, light gray (N7), in calcareous matrix.
	91.8 - 95.3	Sand, quartz, subrounded, very fine, olive gray (5Y 4/1), moderately consolidated with calcite.
	95.3 - 98.3	Clay, olive gray (5Y 4/1), and minor sand quartz, sub-angular, fine.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Cuttings
BFT-1674 (Continued)	98.3 - 113.3	Limestone, fossiliferous, light gray (N7), dominantly composed of bryozoan fragments.
	113.3 - 123.3	As above, but contains pelecypod fragments.
	123.3 - 133.3	As above, but color is pinkish-gray (5YR 8/1) to very light gray (N8).
	133.3 - 143.3	Limestone, fossiliferous, light gray (N7), composed primarily of bryozoans but few foraminifera and ostracoda.
	143.3 - 149.3	As above, but pinkish-gray (5YR 8/1).
		Cuttings
BFT-1675	10.7 - 17.2	Sand, quartz, angular, medium, medium gray (N5), abundant phosphate, common shell fragments, micaceous (muscovite), calcareous.
	17.2 - 30.7	As above, but contains coarse sand and abundant shell fragments.
	30.7 - 35.7	Sand, quartz, angular, coarse, dark greenish-gray (5GY 4/1), common phosphate, abundant shell fragments, common clay, calcareous.
	35.7 - 41.7	As above, but clay is abundant.
		Core
	41.7 - 42.8	Clay, olive gray (5Y 4/1), breaks into angular blocks, minor phosphate.
	42.8 - 47.1	Sand, quartz, subangular, very coarse, greenish-gray (5GY 6/1), minor clay, minor phosphate, minor shell fragments.
	47.1 - 49.1	Clay, olive gray (5Y 4/1), breaks into angular blocks.
	49.1 - 49.6	Phosphate rock, black (N1), very well consolidated, few gastropod fossils.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Core
BFT-1675 (Continued)	49.6 - 52.5	Marl, clay, very light gray (N8); sand, quartz rounded, coarse, medium gray (N5), abundant phosphate pebbles, calcareous.
	52.5 - 55.3	Sandstone, calcareous; sand, quartz, subangular, medium, cemented with crystalline calcite, very light gray (N8), well consolidated, minor phosphate.
	55.3 - 57.1	Marl; sand, quartz, subrounded, medium, olive gray (5Y 4/1); clay, olive gray (5Y 4/1), calcareous.
	57.1 - 63.1	As 52.5 - 55.3.
	63.1 - 66.6	Sandstone, calcareous; sand, quartz, rounded, medium; matrix is crystalline calcite, very light gray (N8), well consolidated, moderate phosphate.
	66.6 - 67.1	As above, but calcite is not well cemented.
	67.1 - 75.1	Sand, quartz, subangular, coarse, olive gray (5Y 4/1), minor silt, minor phosphate.
	75.1 - 77.1	As above, but contains common clay.
	77.1 - 83.1	Sand, quartz, subangular, fine, dark greenish-gray (5GY 4/1), clay moderate (30 percent), minor phosphate.
	83.1 - 87.1	Sand, quartz, subangular, medium, dark greenish-gray (5GY 4/1), moderate clay (25 percent), calcareous.
	87.1 - 87.7	Clay, dark greenish-gray (5GY 4/1), large phosphate nodules (5 to 50 mm).
	87.7 - 87.8	Phosphate rock, black (N1), well consolidated.
	87.8 - 88.5	Limestone, fossiliferous, very light gray (N8) and pale greenish-yellow (10Y 8/2), contains large fenestrate bryozoans, very hard and well consolidated.
	88.5 - 95	Marl, branching bryozoan fragments and sand quartz subrounded, fine, in a matrix of calcareous mud, yellowish gray (5Y 7/2).

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Core
BFT-1675 (Continued)	95 - 97.1	Silty clay and calcite, white (N9), few sand grains, subangular, medium.
		Cuttings
	97.1 - 102.1	Limestone, fossiliferous, very light gray (N8), composed of bryozoans and some crystalline calcite, few phosphate nodules.
	102.1 - 112.1	Limestone, fossiliferous, white (N9), contains fenestrate and branching bryozoans, and few cap-shaped bryozoans.
	112.1 - 122.1	As above, but no cap-shaped bryozoans, and contains few coarse calcite sand grains.
	122.1 - 132.1	Limestone, fossiliferous, very light gray (N8) dominantly composed of branching bryozoans, few pelecypods and fenestrates.
	132.1 - 142.1	As above, but contains some gastropods.
	142.1 - 152.1	Limestone, fossiliferous, white (N9), mostly composed of branching bryozoans, few foraminifera.
	152.1 - 162.1	As above, but no foraminifera.
	162.1 - 172.1	Limestone, fossiliferous, very light gray (N8), composed of branching bryozoans and some fenestrate forms, few foraminifera, pyrite minor.
	172.1 - 182.1	Limestone, fossiliferous, white (N9), composed of branching and fenestrate bryozoans, few pelecypod fragments.
	182.1 - 192.1	As above, but contains minor pyrite.
	192.1 - 202.1	As above, but slightly glauconitic and phosphate.
	202.1 - 212.1	Limestone, fossiliferous, very light gray (N8), contains fenestrate and branching bryozoans, and up to 40 percent pelecypods, minor glauconite, phosphate, and pyrite.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Cuttings
BFT-1676	49.7 - 50.7	Sand, quartz, subrounded, coarse, dark gray (N3); angular fragments of chert, coarse, brownish-gray (5YR 4/1); limestone, crystalline, white (N9); abundant coarse angular phosphate, some pyrite coatings on phosphate grains.
	50.7 - 51.2	As above, but contains very fine calcite sand and few fragments of rose quartz, angular, fine, pale pink (5RP 8/2).
	51.2 - 56.7	Sand, quartz, subrounded, coarse, light gray (N7); chert fragments, few, angular, brownish-gray (5YR 4/1), minor limestone, crystalline, white (N9); abundant medium subrounded phosphate.
	56.7 - 57.7	As above, but no chert and phosphate grains are rounded.
	57.7 - 59.7	Sand, quartz, coarse and fine, subrounded, olive gray (5Y 4/1); clay, minor, olive gray (5Y 4/1); phosphate minor.
	59.7 - 62.7	As above, but contains no fine sand.
		Core
	62.7 - 67.7	Sand, quartz, subangular, coarse, olive gray (5Y 4/1); clay common; phosphate common.
	67.7 - 71.7	Sand, quartz, subangular, coarse, greenish-gray (5GY 6/1), in matrix of calcareous silt and clay, phosphate common.
	71.7 - 73.7	Sand, quartz, subrounded coarse, grayish-olive (10Y 4/2), moderate clay (30 percent), phosphate minor.
	73.7 - 74.1	Sand, quartz, subrounded, medium, very light gray (N8); calcite sand, very fine, white (N9).
	74.1 - 82.1	Sand, quartz, subangular, fine, olive gray (5Y 4/1); moderate clay (20 percent), phosphate minor.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Core
BFT-1676 (Continued)	82.1 - 90.2	As above, but clay is slightly more abundant (25-30 percent).
	90.2 - 91.7	Sand, quartz, subangular, fine, olive gray (5Y 4/1), clay abundant (50 percent), moderate phosphate.
	91.7 - 92.4	As above, but contains up to 60 percent of clay.
	92.4 - 93.8	Sand, quartz, subangular, fine, and clay, olive gray (5Y 4/1); calcite mud, fossiliferous, contains foraminifera and bryozoans in upper part sand dominates in lower part calcite mud dominates.
	93.8 - 94.2	Large phosphate nodules (10mm).
	94.2 - 95.2	Limestone, crystalline, white (N9), very well consolidated, non-porous, contains few bryozoans.
	95.2 - 108.5	Limestone, fossiliferous, very light gray (N8), composed of small fragments of branching bryozoans, phosphate minor.
		Cuttings
	108.5 - 117.7	Limestone, fossiliferous, pinkish-gray (5YR 8/1), composed of branching bryozoans with few fenestrate forms, few foraminifera.
	117.7 - 129.7	As above, but color is light gray (N7).
	129.7 - 139.7	Limestone, fossiliferous, very light gray (N8), bryozoans, many slender branching forms and fenestrate, pelecypod fragments common.
	139.7 - 149.7	As above.
	149.7 - 159.7	Limestone, fossiliferous, very light gray (N8), branching and few fenestrate bryozoans, few pelecypods, phosphate minor, pyrite minor.
	159.7 - 169.7	As above, but is dominantly composed of branching bryozoans and contains no pelecypods.
	169.7 - 179.7	Limestone, fossiliferous, light gray (N7), composed of branching bryozoans and few pelecypods, pyrite minor.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Cuttings
BFT-1676 (Continued)	179.7 - 189.7	As above, but contains common pelecypods, few gastropods.
	189.7 - 200	As above, but contains minor glauconite.
		Core
	200 - 201	Limestone, fossiliferous, white (N9), casts and molds of pelecypods and gastropods in crystalline calcite matrix, very well consolidated.
		Cuttings
	201 - 211	Limestone, fossiliferous, light gray (N7), composed of branching bryozoans with few fenestrate forms, polecypod fragments common, glauconite common.
		Cuttings
BFT-1677	98.1 - 108.1	Limestone, fossiliferous, very light gray (N8), mostly branching bryozoans and few pelecypod fragments.
	108.1 - 118.1	As above, but has minor pyrite.
	118.1 - 128.1	Limestone, fossiliferous, light gray (N7), contains branching and fenestrate bryozoans, few gastropods, few foraminifera, pyrite minor.
	128.1 - 138.1	As above, but pelecypod fragments are common.
	138.1 - 148.1	Limestone, fossiliferous, light gray (N7), bryozoans branching and fenestrate, pelecypods common, pyrite common.
	148.1 - 158.1	As above, but contains minor crystalline calcite and minor galuconite.
	158.1 - 168.1	As above, but more glauconitic and phosphatic.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Core
BFT-1677 (Continued)	168.1 - 171.8	Limestone, soFT, clayey, pale blue green (5BG 7/2) fossiliferous, bryozoans and pelecypods few, abundantly glauconitic and phosphatic.
	171.8 - 175.8	Limestone, fossiliferous, soFT, clayey, very light gray (N8), contains bryozoan fragments, abundant glauconite and phosphate.
		Cuttings
BFT-1677	46.6 - 51.6	Sand, quartz, subangular medium, light gray (N7); crystalline calcite, white (N9); chert minor, angular, fine, grayish-red (10R 4/2), phosphate common.
	51.6 - 56.6	As above, but contains some shell fragments and less calcite.
	56.6 - 66.6	Sand, quartz, subrounded, coarse, medium gray (N5), minor crystalline calcite, white (N9), chert minor, subrounded, fine, grayish-red (10R 4/2), phosphate common.
	66.6 - 68.6	As above, but contains minor muscovite.
	68.6 - 78.6	Sand, quartz, subangular, coarse, olive gray (5Y 4/1), chert minor, rounded, fine, light brown (5YR 5/6), phosphate minor, calcareous.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Core
BFT-1677 (Continued)	78.6 - 82.8	Sand, quartz, subrounded, coarse, light olive gray (5Y 6/1), clay (25 percent), light gray (N7), calcareous, chert minor, rounded, fine, light brown (5YR 5/6); moderately phosphatic.
	82.8 - 89.1	Sand, quartz, angular, medium, olive black (5Y 2/1); clay (30 percent) olive black (5Y 2/1), chert minor rounded, fine, light brown (5YR 5/6), moderate phosphate.
	89.1 - 93.4	Limestone, fossiliferous, light gray (N7), contains fenestrate and branching bryozoans, pyrite minor.
	93.4 - 94.1	As above, but contains common pelecypods.
		Cuttings
	94.1 - 98.1	Limestone, fossiliferous, light gray (N7); dominantly branching bryozoans and few fenestrates.
BFT-1678	40.6 - 50.6	Sand, quartz, subangular, coarse, olive gray (5Y 4/1), limestone minor, crystalline, white (N9), phosphate common.
	50.6 - 62.6	Sand, quartz, subangular, coarse, medium dark gray N4), calcite-cemented sandstone minor, and angular medium, very light gray (N8), phosphate minor.
		Core
	62.6 - 62.7	Gravel, rounded quartz, chert, and phosphate.
	62.7 - 63.2	Clay, dark greenish-gray (5GY 4/1), sand, fine, minor.

Table 2.-- Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells (Continued)

Well	Sample interval (ft below sea level)	
		Core
BFT-1678 (Continued)	63.2 - 67.6	Sand, quartz, angular, fine, dark greenish-gray (5GY 4/1), moderate clay, minor chert, rounded, fine, light brown (5YR 5/6), weakly consolidated, calcareous.
	67.6 - 70.1	Limestone, soft, sandy, light gray (N7), sand, very fine, abundant, chert, fine, rounded, light brown (5YR 5/6), minor.
	70.1 - 70.6	As above, but color is olive gray (5Y 4/1).
	70.6 - 72.1	Sand, quartz, subangular, fine and coarse, clay, abundant, olive gray (5Y 4/1), moderate phosphate, coarse, rounded, calcareous.
	72.1 - 76.4	Crystalline limestone, light gray (N7), fossiliferous, contains pelecypods and bryozoans; top 0.5 FT is phosphatic, well consolidated.
		Cuttings
	76.4 - 78.6	As above.
	78.6 - 86.4	Limestone, fossiliferous, very light gray (N8), composed of bryozoans, branching and fenestrate.
	86.4 - 96.4	As above, but color ranges to pinkish-gray (5YR 8/1), branching bryozoans dominant.
	96.4 - 101.7	Limestone, fossiliferous, white (N9), composed of fenestrate bryozoans, well cemented, pyrite minor.
	101.7 - 111.7	Limestone, fossiliferous, very light gray (N8), contains abundant bryozoans, pelecypods and gastropod casts; fossils are coated and cemented with fine crystalline calcite, phosphate minor.
	111.7 - 116.7	Limestone, fossiliferous, light gray (N7), abundant bryozoan and pelecypod fragments, moderately well cemented.

Table 2.-- Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells (Continued)

Well	Sample interval (ft below sea level)	
		Core
BFT-1678 (Continued)	116.7 - 123.9	As above.
	123.9 - 126.4	Limestone, fossiliferous, very light gray (N8), fossils are dominantly pelecypods with abundant gastropod fragments and shells, well consolidated.
		Cuttings
	126.4 - 141.7	Limestone, fossiliferous, light gray (N7), contains branching and fenestrate bryozoans, glauconite and phosphate minor.
	141.7 - 151.7	As above, but glauconite is abundant.
	151.7 - 161.7	Limestone, fossiliferous, light gray (N7), dominantly branching bryozoans and few fenestrates, few pelecypods, moderate glauconite.
	161.7 - 171.7	Limestone, fossiliferous, very light gray (N8), branching and fenestrate bryozoans, pelecypods, and gastropods common, glauconite minor.
	171.7 - 181.7	As above.
	181.7 - 191.7	Limestone, fossiliferous, very light gray (N8), dominantly composed of branching bryozoans, few pelecypods and fenestrate bryozoans, pyrite minor, moderate glauconite.
		Cuttings
BFT-1679	38.8 - 42.3	Sand, quartz, angular, coarse, very light gray (N8); abundant pelecypod shells and shell fragments, few bryozoans; moderate phosphate, mica (muscovite) minor.
	42.3 - 52.3	As above, but contains abundant clay (30 percent), medium bluish gray (5B 5/1), phosphate abundant.
	52.3 - 56.0	Sand, quartz, angular, coarse, light gray (N7), common shell fragments, phosphate abundant.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Core
BFT-1679	56.0 - 60.0	Clay, olive gray (5Y 3/2); sand, quartz, fine (30 percent), phosphate abundant.
	60.0 - 64.8	Clay, olive black (5Y 2/1); sand, quartz, very fine; chert, fine, rounded, light brown (5 YR 6/4); phosphate abundant.
	64.8 - 65.8	As above.
	65.8 - 66.8	Clay, olive gray (5Y 3/2), minor sand (10 percent), quartz, very fine, abundant phosphate, chert minor, fine, rounded, light brown (5YR 6/4).
	66.8 - 68.3	Clay, olive gray (5Y 3/2); sand, quartz, fine subangular; chert, fine, rounded, light brown (5YR 6/4), phosphate abundant, calcareous.
	68.3 - 69.6	Sandstone, sand, quartz, subangular, medium in matrix of well-cemented, fine, calcareous sand, medium light gray (N6).
	69.6 - 74.3	As above, but calcite sand is weakly cemented.
	74.3 - 78.3	Sand, quartz, subangular, fine, clay, olive black (5Y 2/1), phosphate minor.
	78.3 - 84.8	Sand, quartz, subangular coarse greenish-gray (5GY 6/1), clay minor, phosphate minor, some layers of material like (69.3 - 74.3) mixed in.
	84.8 - 92.3	As above, but contains more clay.
	92.3 - 99.8	Sand, quartz, subangular coarse and medium, clay (30 percent), olive gray (5Y 4/1), phosphate minor.
	99.8 - 105.7	As above.
	105.7 - 110.8	Limestone, fossiliferous, very light gray (N8), contains abundant pelecypods and fenestrate bryozoans, well consolidated.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Cuttings
BFT-1679 (Continued)	110.8 - 120.4	Limestone, fossiliferous, very light gray (N8), composed of branching bryozoan fragments and few fenestrate bryozoans.
	120.4 - 130.4	As above, but color ranges to pinkish gray (5YR 8/1).
	130.4 - 140.4	Limestone, fossiliferous, light gray (N7), contains large fragments of fenestrate bryozoans, few branching bryozoans, moderately consolidated.
	140.4 - 150.4	Limestone, fossiliferous, white (N9), composed of fenestrate and branching bryozoans.
	150.4 - 160.4	Limestone, fossiliferous, light gray (N7), contains large fragments of fenestrate bryozoans, few pelecypods and branching bryozoans.
	160.4 - 170.4	Limestone, fossiliferous, very light gray (N8), dominantly fenestrate and branching bryozoans, few gastropods and pelecypods, pyrite minor.
	170.4 - 180.4	As above, but gastropods are absent.
	180.4 - 190.4	Limestone, fossiliferous, very light gray (N8), composed of well-cemented bryozoans and pelecypods, few "cap-shaped" bryozoans, pyrite minor.
	190.4 - 200.4	As above, but has minor glauconite and phosphate.
	200.4 - 210.4	Limestone fossiliferous, light gray (N7), contains fenestrate bryozoans, few pelecypods, gastropods, and branching bryozoans; galuconite and phosphate abundant.
		Cuttings
BFT-1680	15.7 - 25.7	Sand, quartz, subangular, coarse, light olive gray (5Y 6/1), shell fragments abundant; phosphate minor.
	25.7 - 30.7	Sand, quartz, angular, coarse, medium light gray (N6), abundant shell fragments and wood fragments, mica flakes (muscovite) common, phosphate minor.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Cuttings
BFT-1680 (Continued)	30.7 - 45.9	Sand, quartz, subangular, medium, light gray (5Y 4/1), phosphate minor.
	45.9 - 53.5	Sand, quartz, subrounded, coarse, olive gray (5Y 4/1), phosphate minor.
		Core
	53.5 - 56.7	Sand, quartz, subangular, coarse and very fine, light olive gray (5Y 6/1); phosphate minor, few gastropods.
	56.7 - 60.0	As above, but contains 30 percent clay.
	60.0 - 62.2	Sand, quartz, angular, coarse, light gray (N7), minor chert, rounded, medium, light brown (5YR 5/6).
	62.2 - 63.4	As above, but sand is in a matrix of calcareous clay, very light gray (N8).
	63.4 - 64.4	Pebbles and sand, quartz, rounded, very coarse, greenish-gray (5GY 6/1), minor chert, rounded, fine, light brown (5YR 5/6), calcareous.
	64.4 - 65.4	Sand, quartz, subrounded, coarse, olive gray (5Y 4/1), moderate chert, rounded, fine, light brown (5YR 5/6), moderate calcareous clay, very light gray (N8).
	65.4 - 73.3	As above, but lacks calcareous matrix.
	73.3 - 80.7	Sand, quartz, subangular, medium, clay (40 percent), olive gray (5Y 4/1), moderate fine sand, minor chert as above.
	80.7 - 89.0	Sand, quartz, subangular, medium, clay (30 percent), olive gray (5Y 4/1), phosphate minor.
	89.0 - 92.7	As above.
	92.7 - 95.7	Sand, quartz, subangular, fine and clay (50 percent), olive gray (5Y 4/1), phosphate moderate.
	95.7 - 97.7	As above.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Core
BFT-1680 (Continued)	97.7 - 99.7	Limestone, soft, sandy, fine, very light gray (N8).
	99.7 - 106.9	Limestone, fossiliferous, very light gray (N8), clayey (10 percent), composed of slender branching bryozoans, few very coarse quartz grains (cave in).
	106.9 - 117.1	Limestone, fossiliferous, very light gray (N8), composed of fenestrate bryozoans and pelecypods.
		Cuttings
	117.1 - 127.8	Limestone, fossiliferous, very light gray (N8), contains fenestrate and branching bryozoans, few pelecypods; pyrite minor.
	127.8 - 137.8	As above, but contains few "cap-shaped" bryozoans.
	137.8 - 147.8	Limestone, fossiliferous, very light gray (N8), branching and fenestrate bryozoans, pyrite minor.
	147.8 - 157.8	Limestone, fossiliferous, light gray (N7), abundant pelecypod shells, bryozoans, minor glauconite.
	157.8 - 167.8	As above, but contains gastropod casts.
	167.8 - 177.8	Limestone, fossiliferous, very light gray (N8), composed of branching and fenestrate bryozoans, few pelecypod fragments, moderate glauconite, phosphate minor.
	177.8 - 187.8	As above, but glauconite coats almost all grains and few gastropods.

Table 2.--Lithologic descriptions of cores and cuttings from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	
		Core
BFT-1680 (Continued)	187.8 - 197.8	As above, but light gray (N7).
	197.8 - 207.8	Limestone, fossiliferous, light gray (N9), contains bryozoans (branching and fenestrate), few pelecypod fragments, phosphate minor, glauconite minor.
		Core
	207.8 - 208.3	Limestone, soft, sandy, clayey; light olive gray (5Y 6/1), fossiliferous, contains branching bryozoans and pelecypods, abundantly phosphatic and glauconitic.
	208.3 - 217.5	Sand, calcite, subrounded, medium greenish-gray (5GY 6/1), moderately phosphatic and glaucontic.

Table 3.--Sieve analyses of core samples from the Port Royal Sound test wells

Well	Sample interval (ft below sea level)	Sieve number	Sieve size (mm)	Weight retained (gm)	Percent weight retained	Cumulative percent retained	Percent finer
BFT-1672	86.0 - 86.5	40	0.42	385	74.2	74.2	25.8
		100	0.149	99	19.1	93.3	6.7
		200	0.074	22	4.2	97.5	2.5
		pan	0	13	2.5	100	0
	90.7 - 91.2	40	0.42	345	71.0	71.0	29.0
		60	0.25	59	12.1	83.1	16.9
		200	0.074	58	11.9	95.1	4.9
		pan	0	24	4.9	100	0
	93.5 - 94.0	40	0.42	323	68.3	68.3	31.7
		100	0.149	93	19.7	87.9	12.1
		200	0.074	41	8.7	96.6	3.4
		pan	0	16	3.4	100	0
	97.7 - 98.2	40	0.42	435	82.1	82.1	17.9
		100	0.149	62	11.7	93.8	6.2
		200	0.074	23	4.3	98.1	1.9
		pan	0	10	1.9	100	0
BFT-1674	59.1 - 59.6	40	0.42	32	7.1	7.1	92.9
		100	0.149	247	54.9	62.0	38.0
		200	0.074	134	29.8	91.8	8.2
		pan	0	37	8.2	100	0

Table 3.--Sieve analyses of core samples from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	Sieve number	Sieve size (mm)	Weight retained (gm)	Percent weight retained	Cumulative percent retained	Percent finer
	60.6- 61.1	40	0.42	30	6.6	6.6	93.4
		100	0.149	274	60.2	66.8	33.2
		200	0.074	119	26.2	93.0	7.0
		pan	0	32	7.0	100	0
	86.6- 87.1	40	0.42	107	57.5	57.5	42.5
		100	0.149	47	25.3	82.8	17.2
		200	0.074	26	14.0	96.8	3.2
		pan	0	6	3.2	100	0
	97.4- 97.9	40	0.42	141	51.1	51.1	48.9
		60	0.25	24	8.7	59.8	40.2
		200	0.074	80	29.0	88.8	11.2
		pan	0	31	11.2	100	0
BFT-1675	47.7- 48.2	40	0.42	119	79.9	79.9	20.1
		100	0.25	9	6.0	85.9	14.1
		200	0.074	14	9.4	95.3	4.7
		pan	0	7	4.7	100	0
	86.2- 86.7	40	0.42	372	64.1	64.1	35.9
		100	0.149	133	22.9	87.1	12.9
		200	0.074	53	9.1	96.2	3.8
		pan	0	22	3.8	100	0

Table 3.--Sieve analyses of core samples from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	Sieve number	Sieve size (mm)	Weight retained (gm)	Percent weight retained	Cumulative percent retained	Percent finer
BFT-1676	64.8- 65.3	40	0.42	409	87.6	87.6	12.4
		60	0.25	28	6.0	93.6	6.4
		200	0.074	23	4.9	98.5	1.5
		pan	0	7	1.5	100	0
	73.3- 73.8	40	0.42	383	84.0	84.0	16.0
		100	0.149	50	11.0	95.0	5.0
		200	0.074	14	3.1	98.0	2.0
		pan	0	9	2.0	100	0
	83.5- 83.9	40	0.42	56	18.1	18.1	81.9
		100	0.149	117	37.9	56.0	44.0
		200	0.074	86	27.8	83.8	16.2
		pan	0	50	16.2	100	0
	90.8- 91.3	40	0.42	103	24.3	24.3	75.7
		60	0.25	77	18.2	42.5	57.5
		200	0.074	214	50.5	92.9	7.1
		pan	0	30	7.1	100	0
BFT-1677	83.1- 83.6	40	0.42	71	17.0	17.0	83.0
		100	0.149	255	61.0	78.0	22.0
		200	0.074	68	16.3	94.3	5.7
		pan	0	24	5.7	100	0
BFT-1678	60.8- 61.3	40	0.42	172	45.7	45.7	54.3
		100	0.149	129	34.3	80.1	19.9
		200	0.074	56	14.9	94.9	5.1
		pan	0	19	5.1	100	0

Table 3.--Sieve analyses of core samples from the Port Royal Sound test wells--Continued

Well	Sample interval (ft below sea level)	Sieve number	Sieve size (mm)	Weight retained (gm)	Percent weight retained	Cumulative percent retained	Percent finer
BFT-1679	61.2- 61.7	40	0.42	190	68.3	68.3	31.7
		100	0.149	39	14.0	82.4	17.6
		200	0.074	29	10.4	92.8	7.2
		pan	0	20	7.2	100	0
	74.7- 75.2	40	0.42	356	83.2	83.2	16.8
		100	0.149	60	14.0	97.2	2.8
		200	0.074	7	1.6	98.8	1.2
		pan	0	5	1.2	100	0
	90.7- 91.2	40	0.42	340	69.2	69.2	70.8
		100	0.149	82	16.7	85.9	14.1
		200	0.074	48	9.8	95.7	4.3
		pan	0	21	4.3	100	0
BFT-1680	67.7- 68.2	40	0.42	229	49.9	49.9	50.1
		100	0.149	199	43.4	93.2	6.8
		200	0.074	17	3.7	96.9	3.1
		pan	0	14	3.1	100	0
	80.7- 81.2	40	0.42	184	43.0	43.0	57.0
		100	0.149	214	50.0	93.0	7.0
		200	0.074	15	3.5	96.5	3.5
		pan	0	15	3.5	100	0
	92.7- 93.2	40	0.42	114	26.3	26.3	73.7
		60	0.25	75	17.3	33.5	66.5
		200	0.074	230	53.0	96.5	3.5
		pan	0	15	3.5	100	0

Table 4.--Barometric pressure (inches of mercury) measured at the U.S. Marine Corps Air Station, Beaufort, S. C., Latitude 32°39', Longitude 80°43'

Date	Time											
	0200	0400	0600	0800	1000	1200	1400	1600	1800	2000	2200	2400
08-02-84			30.155	30.130	30.130	30.155	30.175	30.180	30.185	30.170	30.180	30.145
08-03-84	30.175	30.190	30.145	30.125	30.125	30.155	30.160	30.135	30.110	30.065	30.055	30.050
08-09-84			29.910	29.910	29.910	29.930	29.945	29.935	29.930	29.895	29.880	29.885
08-10-84	29.915	29.925	29.910	29.890	29.905	29.915	29.925	29.915	29.900	29.850	29.830	29.835
08-23-84			29.930	29.910	29.885	29.910	29.915	29.915	29.885	29.845	29.805	29.835
08-24-84	29.875	29.880	29.870	29.840	29.865	29.910	29.930	29.955	29.955	29.915	29.900	29.930
08-30-84			30.015	30.000	29.995	30.015	30.010	30.000	29.990	29.945	29.945	29.925
08-31-84	29.935	29.955	29.945	29.915	29.925	29.925	29.930	29.935	29.930	29.900	29.895	29.900
09-07-84			30.175	30.150	30.180	30.210	30.225	30.240	30.225	30.220	30.220	30.225
09-08-84	30.225	30.225	30.225	30.225	30.225	30.230	30.255	30.260	30.240	30.185	30.170	30.155
09-20-84			29.970	29.955	29.960	29.985	29.995	29.990	29.955	29.895	29.885	29.885
09-21-84	29.905	29.920	29.920	29.910	29.910	29.960	29.990	29.990	29.975	29.955	29.965	29.995
09-27-84			30.000	30.015	30.035	30.075	30.105	30.110	30.075	30.050	30.055	30.060
09-28-84	30.065	30.065	30.030	30.010	29.980	30.000	30.000	29.990	29.925	29.880	29.840	29.820
10-06-84			32.210	30.210	30.220	30.245	30.270	30.280	30.255	30.230	30.225	30.250

Table 5.--Falling head permeameter test results and gravimetric porosity data for selected cores from the Port Royal Sound test wells

Well	Sample interval (feet below sea level)	Hydraulic conductivity (ft per day)	Porosity (percent)
BFT-1672	86.0-86.5	5.7×10^{-3}	41
	90.7-91.2	5.7×10^{-3}	39
	93.5-94.0	1.4×10^{-2}	--
	98.7-99.2	7.1×10^{-2}	--
BFT-1674	59.1-59.6	1.1×10^{-2}	44
	60.6-61.1	8.5×10^{-3}	43
	86.6-87.1	2.3×10^{-1}	38
	97.4-97.9	5.7×10^{-4}	64
BFT-1675	47.7-48.2	2.8×10^{-3}	72
	86.2-86.7	5.7×10^{-3}	47
BFT-1676	64.8-65.3	2.8×10^{-3}	45
	73.3-73.8	3.1	41
	83.5-83.9	3.4×10^{-2}	48
	90.8-91.3	5.7×10^{-3}	66
BFT-1677	83.1-83.6	8.5×10^{-3}	45
BFT-1678	60.8-61.3	1.2×10^{-3}	--
BFT-1679	61.2-61.7	4.2×10^{-4}	--
	74.7-75.2	4.2×10^{-1}	50
	90.7-91.2	6.2×10^{-2}	44
BFT-1680	55.2-55.7	2.8×10^{-3}	--
	67.7-68.2	8.5×10^{-2}	45
	80.2-80.7	2.0×10^{-1}	44
	90.7-93.2	2.0×10^{-1}	35

Table 6.--Chemical and isotopic analyses of water samples from isolated sections of the Upper Floridan aquifer in the Port Royal Sound test wells

	STATION NUMBER	DATE OF SAMPLE	TIME	AGENCY COL-LECTING SAMPLE	AGENCY ANA-LYZING SAMPLE	SURFACE DATUM (FT. ABOVE SEA LEVEL	DEPTH OF WELL, TOTAL (FEET)	DEPTH OF TOP OF SAMPLE INTER-VAL (FT)	DEPTH TO BOT-TOM OF SAMPLE INTER-VAL (FT)	TEMPER-ATURE (DEG C)	SPE-CIFIC CON-DUC-TANCE (US/CM)	OXYGEN, DIS-SOLVED (MG/L)
BFT-1672	321530080393400	07-23-84	2010	USGS	USGS	0.00	117	95	107	20.8	1080	.0
		07-23-84	2015	SCWRC	SCWRC	0.00	117	95	107	--	--	.0
		07-25-84	1700	USGS	USGS	0.00	211	174	211	22.1	24400	.1
		07-25-84	1715	SCWRC	SCWRC	0.00	211	174	211	--	23500	.1
BFT-1673	321719080430000	08-02-84	1056	SCWRC	SCWRC	0.00	101	85	101	--	652	2.5
		08-02-84	1100	USGS	USGS	0.00	101	85	101	21.5	652	2.5
		08-03-84	1206	SCWRC	SCWRC	0.00	208	170	208	--	20000	.1
		08-03-84	1210	USGS	USGS	0.00	208	170	208	22.5	20900	.1
BFT-1674	321636080424600	08-09-84	1445	SCWRC	SCWRC	0.00	113	101	113	--	660	.0
		08-09-84	1500	USGS	USGS	0.00	113	101	113	23.0	705	.0
		08-10-84	1440	USGS	USGS	0.00	174	170	174	21.9	27800	.1
		08-10-84	1441	SCWRC	SCWRC	0.00	174	170	174	--	27100	.1
BFT-1675	321115080401600	08-23-84	1518	USGS	USGS	0.00	103	89	103	21.0	544	.0
		08-23-84	1519	USGS	SCWRC	0.00	103	89	103	21.0	526	.0
		08-24-84	1136	USGS	USGS	0.00	212	186	212	22.3	871	.0
		08-24-84	1137	USGS	SCWRC	0.00	212	186	212	22.3	838	.0
BFT-1676	321440080402500	08-30-84	1408	USGS	USGS	0.00	110	97	110	21.3	380	.0
		08-30-84	1410	USGS	SCWRC	0.00	110	97	110	21.3	354	.0
		08-31-84	1345	USGS	SCWRC	0.00	211	178	182	22.0	1610	.9
		08-31-84	1346	USGS	USGS	0.00	211	178	182	22.0	1890	.9
BFT-1677	321738080420300	09-07-84	1340	USGS	SCWRC	0.00	99	92	99	21.0	4420	.1
		09-07-84	1341	USGS	USGS	0.00	99	92	99	21.0	4190	.1
		09-08-84	1445	USGS	SCWRC	0.00	176	159	176	21.7	19100	.5
		09-08-84	1530	USGS	USGS	0.00	176	159	176	21.7	19600	.5
BFT-1678	321926080435700	09-20-84	1130	USGS	SCWRC	0.00	87	76	86	20.8	757	.0
		09-20-84	1148	USGS	USGS	0.00	87	76	86	20.8	789	.0
		09-21-84	1542	USGS	USGS	0.00	192	151	155	22.0	1050	.0
		09-21-84	1543	USGS	SCWRC	0.00	192	151	155	22.0	1030	.0
BFT-1679	321242080374000	09-27-84	1300	USGS	SCWRC	0.00	120	108	120	21.0	1450	.0
		09-27-84	1435	USGS	USGS	0.00	120	108	120	21.0	1450	.0
BFT-1680	321716080394900	10-05-84	1425	USGS	USGS	0.00	117	103	117	20.9	20600	.0
		10-05-84	1430	USGS	SCWRC	0.00	117	103	117	20.9	19900	.0
		10-05-84	2200	USGS	USGS	0.00	218	173	218	21.7	25300	.2
		10-05-84	2201	USGS	SCWRC	0.00	218	173	218	21.7	24900	.2

Table 6.--Chemical and isotopic analyses of water samples from isolated sections of the Upper Floridan aquifer in the Port Royal Sound test wells--Continued

	VANADIUM, DISSOLVED (UG/L AS V)	ZINC, DISSOLVED (UG/L AS ZN)	ANTIMONY, DISSOLVED (UG/L AS SB)	ALUMINUM, DISSOLVED (UG/L AS AL)	LITHIUM DISSOLVED (UG/L AS LI)	SELENIUM, DISSOLVED (UG/L AS SE)	MERCURY DISSOLVED (UG/L AS HG)	DENSITY (GM/ML AT 20 C)	TRITIUM TOTAL (TU)	H-2/H-1/ STABLE ISOTOPE RATIO PER MILL	O-18/O-16 STABLE ISOTOPE RATIO PER MIL	C-13/C-12 STABLE ISOTOPE RATIO PER MIL	CARBON 14 PERCENT MODERN
BFT-1672	4	9	<1	20	14	<1	.1	--	<2.0	-21.6	-3.8	-8.9	10.5
	--	--	--	--	--	--	--	--	--	--	--	--	--
	--	20	<1	20	100	<1	.9	--	<2.0	-11.3	-2.3	-7.8	7.5
	--	--	--	--	--	--	--	--	--	--	--	--	--
BFT-1673	--	--	--	--	--	--	--	--	--	--	--	--	--
	10	7	16	100	20	<1	.9	--	13	-20.7	-3.9	-7.4	10.6
	--	--	--	--	--	--	--	--	--	--	--	--	--
	<6	30	<1	30	100	<1	.3	--	<2.0	-10.6	-2.0	-6.4	10.1
BFT-1674	--	--	--	--	--	--	--	--	--	--	--	--	--
	--	9	1	10	20	<1	<.1	--	<2.0	-20.1	-3.6	-12.0	15.0
	--	20	<1	20	100	<1	.8	--	14	.9	0.5	-9.0	13.3
	--	--	--	--	--	--	--	--	--	--	--	--	--
BFT-1675	2	27	<1	30	13	<1	1.2	.999	<2.0	-21.6	-4.0	-7.7	--
	--	--	--	--	--	--	--	--	--	--	--	--	--
	2	85	<1	50	20	<1	.2	.999	4.0	-21.5	-3.7	-3.7	2.3
	--	--	--	--	--	--	--	--	--	--	--	--	--
BFT-1676	<1	<10	1	<10	10	<1	.2	1.005	9.0	-22.5	-3.9	-10.9	7.0
	--	--	--	--	--	--	--	--	--	--	--	--	--
	--	--	--	--	--	--	--	--	--	--	--	-8.8	11.8
	13	10	6	10	20	<1	.6	.999	7.0	-19.8	-3.5	--	--
BFT-1677	--	--	--	--	--	--	--	--	--	-19.0	-3.2	-7.5	5.0
	19	10	<1	20	40	<1	--	1.001	<2.0	--	--	--	--
	--	--	--	--	--	--	--	--	--	--	--	--	--
	58	30	3	10	90	<1	1.4	1.008	<2.0	-13.3	-2.0	-8.3	6.9
BFT-1678	--	--	--	--	--	--	--	--	--	--	--	--	--
	2	3	<1	30	12	<1	<.1	1.000	<2.0	-21.1	-3.7	-3.1	--
	<1	9	<1	40	12	<1	<.1	1.001	6.0	-21.5	-3.7	-2.8	14.2
	--	--	--	--	--	--	--	--	--	--	--	--	--
BFT-1679	--	--	--	--	--	--	--	--	--	--	--	--	--
	4	<3	<1	20	16	<1	.3	1.000	<2.0	-22.7	-3.8	-6.6	--
BFT-1680	<6	40	<1	<10	50	<1	1.8	1.010	3.0	-13.9	-2.2	-11.6	6.0
	--	--	--	--	--	--	--	--	--	--	--	--	--
	<6	40	<1	<10	60	<1	.4	1.012	<2.0	-12.5	-1.9	-10.1	20.0
	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 6.--Chemical and isotopic analyses of water samples from isolated sections of the Upper Floridan aquifer in the Port Royal Sound test wells--Continued

	PH (STANDARD UNITS)	ALKALINITY FIELD (MG/L AS CACO3)	BICARBONATE IT-FLD (MG/L AS HCO3)	SOLIDS, RESIDUE AT 105 DEG. C, DISSOLVED (MG/L)	SOLIDS, RESIDUE AT 180 DEG. C, DISSOLVED (MG/L)	NITROGEN, AMMONIA DISSOLVED (MG/L AS N)	NITROGEN, NITRITE DISSOLVED (MG/L AS N)	NITROGEN, NO2+NO3 DISSOLVED (MG/L AS N)	PHOSPHORUS, DISSOLVED (MG/L AS P)	PHOSPHORUS, ORTHO, DISSOLVED (MG/L AS P)	CARBON, ORGANIC DISSOLVED (MG/L AS C)	CYANIDE DISSOLVED (MG/L AS CN)
BFT-1672	7.74	146	178	--	--	.359	<.010	<.01	<.010	.020	2.1	<.01
	7.7	146	--	681	--	--	--	--	--	--	--	--
	7.01	362	441	--	19800	2.60	.020	<.09	.050	.030	4.8	<.01
	7.0	350	--	--	--	--	--	--	--	--	--	--
BFT-1673	7.4	163	--	401	--	--	--	--	--	--	--	--
	7.43	157	191	--	577	.338	<.010	<.01	.010	.050	2.0	<.01
	7.5	174	--	16000	--	--	--	--	--	--	--	--
	7.46	176	215	--	16900	1.60	<.010	<.01	.010	.040	3.0	<.01
BFT-1674	7.5	208	--	388	--	--	--	--	--	--	--	--
	7.33	210	256	--	472	.335	<.010	<.01	.050	.070	2.3	<.01
	7.21	160	195	--	22500	1.00	<.010	<.01	.070	.090	3.0	<.01
	7.4	160	--	28400	--	--	--	--	--	--	--	--
BFT-1675	7.71	123	150	--	458	.187	<.010	<.01	<.010	.010	3.3	<.01
	7.71	124	--	463	--	--	--	--	--	--	--	--
	7.76	133	162	--	732	.298	<.010	<.01	<.010	<.010	1.8	<.01
	7.76	--	--	724	--	--	--	--	--	--	--	--
BFT-1676	7.47	174	212	--	312	.499	<.010	<.01	.020	.020	3.0	<.01
	7.47	174	--	319	--	--	--	--	--	--	--	--
	7.32	126	--	1170	--	--	--	--	--	--	--	--
	7.32	123	150	--	1780	.714	<.010	<.01	<.010	<.010	1.6	<.01
BFT-1677	7.40	155	206	2000	--	--	--	--	--	--	--	--
	7.40	169	--	--	2900	.989	<.010	<.01	.040	.040	1.9	<.01
	7.11	251	--	13400	--	--	--	--	--	--	--	--
	7.11	248	302	--	13200	2.00	<.010	<.01	.070	.060	4.0	<.01
BFT-1678	7.54	125	--	557	--	--	--	--	--	--	--	--
	7.54	131	160	--	458	.154	<.010	<.01	.030	.040	1.1	<.01
	8.34	167	204	--	526	.030	<.010	<.02	.030	.030	1.3	<.01
	8.34	162	--	482	--	--	--	--	--	--	--	--
BFT-1679	7.69	--	--	879	--	--	--	--	--	--	--	--
	7.69	136	166	--	864	.311	<.010	<.01	.020	.010	2.2	<.01
BFT-1680	6.99	274	334	--	14000	2.10	<.010	<.01	.060	.070	5.2	<.01
	6.99	265	--	14200	--	--	--	--	--	--	--	--
	6.92	288	351	--	16400	2.10	<.010	<.01	.050	.070	5.0	<.01
	6.92	283	--	16500	--	--	--	--	--	--	--	--

Table 6.--Chemical and isotopic analyses of water samples from isolated sections of the Upper Floridan aquifer in the Port Royal Sound test wells--Continued

	SULFIDE DIS-SOLVED (MG/L AS S)	CALCIUM DIS-SOLVED (MG/L AS CA)	MAGNE-SIUM, DIS-SOLVED (MG/L AS MG)	SODIUM, DIS-SOLVED (MG/L AS NA)	POTAS-SIUM, DIS-SOLVED (MG/L AS K)	CHLO-RIDE, DIS-SOLVED (MG/L AS CL)	SULFATE DIS-SOLVED (MG/L AS SO4)	FLUO-RIDE, DIS-SOLVED (MG/L AS F)	IODIDE, DIS-SOLVED (MG/L AS I)	BROMIDE DIS-SOLVED (MG/L AS BR)	SILICA, DIS-SOLVED (MG/L AS SIO2)	ARSENIC DIS-SOLVED (UG/L AS AS)	BARIUM, DIS-SOLVED (UG/L AS BA)
BFT-1672	--	48	14	180	6.3	260	87	.70	.027	.88	29	1	9
	.2	61	13	180	5.2	300	71	.59	--	--	32	--	--
	--	340	640	4700	140	9800	1300	.50	.110	33	26	4	100
	--	--	--	--	--	8200	1000	.58	--	--	--	--	--
BFT-1673	.4	58	25	86	11	190	25	.31	--	--	37	--	--
	--	56	25	82	10	180	41	.50	.021	.89	34	1	15
	.9	310	560	4100	150	6400	760	.40	--	--	35	--	--
	--	--	--	--	110	8200	1100	.40	.063	30	29	1	200
BFT-1674	.1	73	11	83	4.9	150	11	.24	--	--	40	--	--
	--	70	10	64	4.1	98	15	.30	.075	.37	39	1	12
	--	380	820	6500	210	12000	1600	.30	.067	44	23	1	200
	.3	240	850	6400	280	11000	1300	.46	--	--	24	--	--
BFT-1675	--	36	10	90	4.7	110	73	.70	.020	.40	35	<1	8
	.1	38	11	110	8.0	100	68	.49	--	--	--	--	--
	--	42	32	120	9.2	160	210	1.1	.048	.65	28	<1	14
	.0	50	35	160	11	300	190	.83	--	--	30	--	--
BFT-1676	--	57	6.4	40	2.0	--	1.9	.40	.020	.20	43	2	<100
	.0	58	7.3	34	3.0	54	3.4	.38	--	--	46	--	--
	.0	170	45	300	11	720	43	.33	--	--	34	--	--
	--	160	32	260	8.1	760	49	.40	.050	2.5	31	2	<100
BFT-1677	.4	120	67	680	54	1400	110	.68	--	--	28	--	--
	--	130	74	630	38	1400	110	1.0	.060	3.8	25	1	<100
	1.1	260	430	3200	140	6700	820	.56	--	--	33	--	--
	--	330	430	3900	110	7400	720	.60	.094	25	27	7	100
BFT-1678	.0	41	15	120	7.8	170	13	.61	--	--	32	--	--
	--	42	6.0	100	5.8	150	16	.70	.014	.60	28	2	8
	--	10	7.5	150	10	150	45	1.8	.032	.53	19	<1	7
	.0	13	9.4	170	13	140	41	1.7	--	--	22	--	--
BFT-1679	.4	62	21	240	20	260	190	.75	--	--	27	--	--
	--	57	22	190	12	260	200	.90	.044	.96	26	<1	4
BFT-1680	--	490	450	3700	91	8100	800	<.10	.054	18	19	1	200
	1.3	320	460	3500	120	6900	730	.19	--	--	22	--	--
	--	260	410	4400	100	9500	1000	<.10	.066	24	21	<1	200
	.9	370	540	4400	150	8300	930	.19	--	--	24	--	--

Table 6.--Chemical and isotopic analyses of water samples from isolated sections of the Upper Floridan aquifer in the Port Royal Sound test wells--Continued

	BERYLLIUM, DISSOLVED (UG/L AS BE)	BORON, DISSOLVED (UG/L AS B)	CADMIUM DISSOLVED (UG/L AS CD)	CHROMIUM, DISSOLVED (UG/L AS CR)	COBALT, DISSOLVED (UG/L AS CO)	COPPER, DISSOLVED (UG/L AS CU)	IRON, DISSOLVED (UG/L AS FE)	LEAD, DISSOLVED (UG/L AS PB)	MANGANESE, DISSOLVED (UG/L AS MN)	MOLYBDENUM, DISSOLVED (UG/L AS MO)	NICKEL, DISSOLVED (UG/L AS NI)	SILVER, DISSOLVED (UG/L AS AG)	STRONTIUM, DISSOLVED (UG/L AS SR)
BFT-1672	.0	200	<1	<1	1	<1	44	<5	1	1	<1	1	420
	--	--	--	--	--	--	47	--	4	--	--	--	--
	<10	2100	1	<1	3	<1	240	<5	20	5	3	<1	4500
	--	--	--	--	--	--	--	--	--	--	--	--	--
BFT-1673	--	--	--	--	--	--	60	--	22	--	--	--	--
	.0	170	<1	3	1	<1	82	<5	12	600	32	<1	1000
	--	--	--	--	--	--	140	--	36	--	--	--	--
	<10	1600	1	4	1	<1	200	<5	30	14	1	<1	5300
BFT-1674	--	--	--	--	--	--	110	--	11	--	--	--	--
	.0	130	<1	1	2	<1	110	<5	11	3	<1	1	430
	<10	2600	1	1	3	1	150	<5	50	6	2	<1	4300
	--	--	--	--	--	--	170	--	62	--	--	--	--
BFT-1675	1.0	160	<1	2	1	<1	47	<5	1	1	<1	<1	450
	--	--	--	--	--	--	41	--	1	--	--	--	--
	1.0	250	1	2	1	<1	26	<5	1	1	<1	<1	2500
	--	--	--	--	--	--	19	--	0	--	--	--	--
BFT-1676	<10	60	1	1	1	<1	20	<5	<10	4	<1	<1	450
	--	--	--	--	--	--	30	--	1	--	--	--	--
	--	--	--	--	--	--	46	--	11	--	--	--	--
	<10	210	1	1	1	<1	30	<5	10	220	9	<1	1500
BFT-1677	--	--	--	--	--	--	93	--	57	--	--	--	--
	<10	610	1	--	1	1	60	<5	40	9	1	<1	940
	--	--	--	--	--	--	160	--	98	--	--	--	--
	<10	1500	<1	1	5	<1	150	<5	120	100	15	<1	2800
BFT-1678	--	--	--	--	--	--	8	--	32	--	--	--	--
	.0	120	<1	<1	<1	1	12	<5	19	3	<1	<1	430
	.0	350	<1	<1	<1	1	9	<5	4	5	<1	<1	300
	--	--	--	--	--	--	18	--	15	--	--	--	--
BFT-1679	--	--	--	--	--	--	41	--	4	--	--	--	--
	.0	250	<1	4	1	<1	25	<5	<1	<1	<1	<1	760
BFT-1680	<10	1100	<1	<1	<1	1	290	<5	130	1	3	<1	3700
	--	--	--	--	--	--	230	--	130	--	--	--	--
	<10	1300	<1	<1	<1	1	90	<5	110	7	3	<1	4600
	--	--	--	--	--	--	92	--	110	--	--	--	--

Table 7.--Concentration of chloride in water samples collected from the annulus at the wellhead during drilling

Well	Date	Time	Altitude at bottom of well (ft below sea level)	Chloride (mg/L)
BFT-1672	07-23-84	1645	106	310
		1747	117	270
	07-24-84	1600	133	320
		1613	143	600
		1625	153	2,700
		1640	163	3,800
		1645	168	5,500
		1700	173	6,900
		1710	177	8,200
		1713	183	8,800
		1730	193	9,300
		1800	198	9,700
		1820	203	6,400
		1845	211	3,900
BFT-1673	08-01-84	1330	99	240
		1500	101	240
BFT-1673	08-02-84	1209	106	190
		1315	109	160
		1328	116	190
		1405	126	270
		1514	136	240
		1542	141	270
		1550	151	640
		1606	161	1,500
		1619	171	3,700
		1633	181	4,600
		1644	191	4,100
		1702	201	4,900
BFT-1674	08-09-84	1631	123	48
		1643	133	32
		1700	143	40
		1730	149	45
		1905	159	220
		1918	169	5,400
		1940	174	8,600

Table 7.--Concentration of chloride in water samples collected from the annulus at the wellhead during drilling--Continued

Well	Date	Time	Altitude at bottom of well (ft below sea level)	Chloride (mg/L)
BFT-1675	08-23-84	1315	97	270
		1623	113	110
		1631	123	110
		1637	133	130
		1638	143	110
		1639	153	110
		1708	163	120
		1712	173	130
		1725	183	130
		1734	193	130
		1745	203	140
		1813	213	290
BFT-1676	08-30-84	1510	120	50
		1520	130	52
		1525	140	65
		1545	150	58
		1550	160	64
		1605	170	67
		1615	180	84
		1630	190	170
		1700	200	550
		1907	210	830
BFT-1677	09-07-84	1438	109	1,500
		1445	119	1,700
		1455	129	2,100
		1522	139	3,000
		1536	149	4,100
		1550	159	5,400
		1605	169	6,400

Table 7.--Concentration of chloride in water samples collected from the annulus at the wellhead during drilling--Continued

Well	Date	Time	Altitude at bottom of well (ft below sea level)	Chloride (mg/L)
BFT-1678	09-20-84	1304	92	240
		1324	97	240
		1350	102	160
		1414	112	160
		1455	118	150
		1604	127	150
		1720	137	160
		1757	142	160
		1808	152	150
		1834	162	140
		1846	172	140
		1906	182	100
		1920	192	87
BFT-1679	09-27-84	1549	130	260
		1556	140	250
		1610	150	230
		1617	160	230
		1624	170	220
		1630	180	240
		1654	190	240
		1707	200	260
		1730	210	270
BFT-1680	10-05-84	1500	128	7,000
		1515	138	7,200
		1545	148	7,500
		1600	158	7,400
		1615	168	8,000
		1630	178	8,100
		1640	188	8,000
		1652	198	8,100
		1700	208	8,100
		1800	218	8,000