UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

APPENDICES OF

ENVIRONMENTAL GEOLOGIC STUDIES ON THE

SOUTHEASTERN UNITED STATES ATLANTIC OUTER CONTINENTAL SHELF, 1977-1978

Edited by

Peter Popenoe

Final report submitted to the
U.S. BUREAU OF LAND MANAGEMENT
under Memorandum of Understanding
AA551-MU8-13

U.S. Geological Survey
Open-File Report 81-582-B

1981

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J. Robb

FAY 005

CRUISE REPORT

U.S. GEOLOGICAL SURVEY
OFFICE OF MARINE GEOLOGY
WOODS HOLE, MASSACHUSETTS 02543

SOUTHEAST GEORGIA EMBAYMENT AREA

RV H.J.W. FAY
CRUISE 05

OCTOBER 31, 1975 - NOVEMBER 7, 1975

FAY 005 00002

INTRODUCTION

A cruise aboard the RV H.J.W. FAY by the U.S. Geological Survey, Office of Marine Geology, Woods Hole, Massachusetts was conducted within the Southeast Georgia Embayment area from October 31, 1975 to November 7, 1975. The Southeast Georgia Embayment (Fig. 1) is a structural depression which underlies the continental shelf off the coasts of South Carolina, Georgia, and Florida; it is considered a likely area for petroleum exploration in the near future.

This cruise (05) of the FAY had three primary objectives. The first objective was to obtain long vibracores from transects across the shelf in order to deduce the characteristics and ages of the subbottom sediments. Second, short cores were to be collected in order that the relative amounts of Pb_{210} within these cores could be measured and, hence, the ages and accumulation rates of sediments for the past 100 years could be determined. Finally, high resolution seismic systems were to be used to define the shallow subbottom structure near the vibracore transects.

In addition to these primary objectives, two special studies were pursued as well. These studies were: (1) sampling of the suspended sediments near the sea floor and at the water surface, and (2) emplacement of pipes into the sea floor (by the vibracore rig) for use as reference points during subsequent submersible dives.

The cruise began at Woods Hole, Massachusetts at 0600, October 31, 1975 and ended at Charlestown, South Carolina at 0800 November 7, 1975. The ship's Captain was Laurence F. Buell.

In support of these topical studies, the following systems and equipment were used to collect the basic data and samples:

A. Acoustic Systems

1. 3.5 kHz system
2. Minisparker system

B. Sampling Equipment

1. Vibracore rig (20 feet)
2. Hydrostatically-damped gravity corer
3. Suspended-sediment filtering system

Automatic-tracking LORAN C receivers were used for navigational control throughout the cruise.

The 3.5 kHz and Minisparker systems usually functioned quite well throughout the cruise period. The Minisparker records were generally good, but the 3.5 kHz records often showed little or no subbottom penetration. The 3.5 kHz fish was towed at a depth of 7 m.

The coring operations also were quite successful. On one occasion, the vibracore hoses were fouled in the ship's rudder and screw, but only a small amount of time was lost. The vibracore crew headed by James Katsolis did a fine job.

An attempt was made to obtain at least one hydrostatically-damped gravity core at each vibracore station. At a few stations, however, the nature of the sediments (shelly) made recovery impossible.

SCIENTIFIC PERSONNEL

The scientific party during the cruise included the following personnel from the U.S.G.S. Woods Hole:

Harley J. Knebel	Chief Scientist
W. Mack Ferrebee	Watch Chief
Patricia Forrestel	Watch Chief and Specialist for Navigation and Suspended Sediments
Felicity Oram	Watch Chief
Michael Kerkmann	Specialist for Hydrostatic Gravity Cores
Franchot Scarver	Specialist for Electronics
John Dunlavey	
Prescott Heald	
Stanley Locker	

The following personnel from Alpine Geophysical Associates, Inc. collected the necessary vibracores and emplaced the reference pipes into the sea floor:

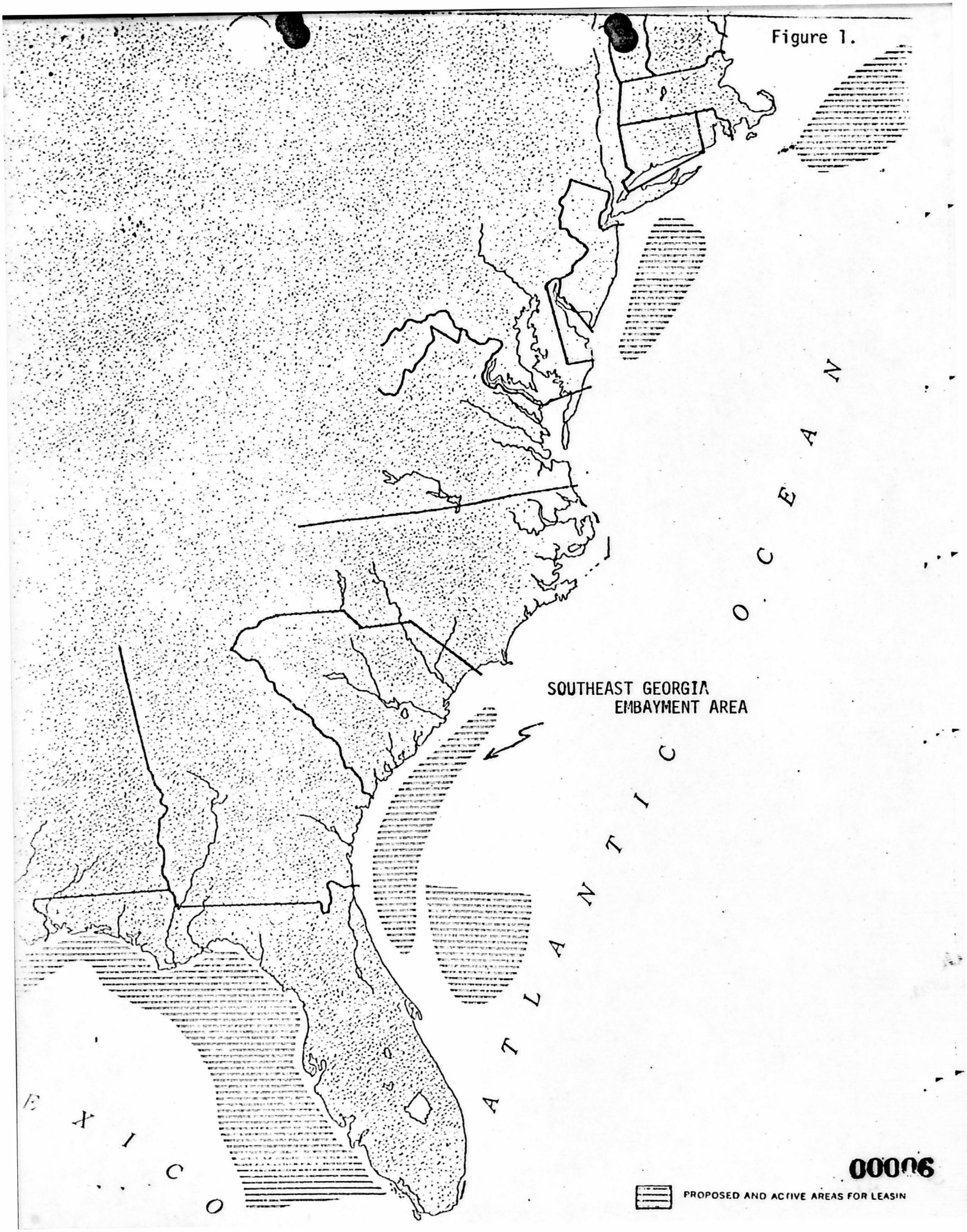
James Katsolis	Supervisor
John Eastlund	
Charles Gove	
John Ratkowitz	
Robert Reynolds	
John Ripp	

OPERATIONAL STATISTICS

1.	3.5 kHz Records	307 n. miles (568 km)
2.	Minisparker Records	307 n. miles (568 km)
3.	Sample Stations	22 (No. 4525 to 4546)
4.	Bottom Sediment Samples	43
	a. Vibracores	22
	b. Hydrostatically-damped Gravity Cores	21
5.	Suspended Sediment Samples	12
6.	Reference Pipes Emplaced in the Sea Floor	3

Figure 2 shows the locations of the sampling stations and the tracklines along which the 3.5 kHz and Minisparker records were obtained.

Figure 1.



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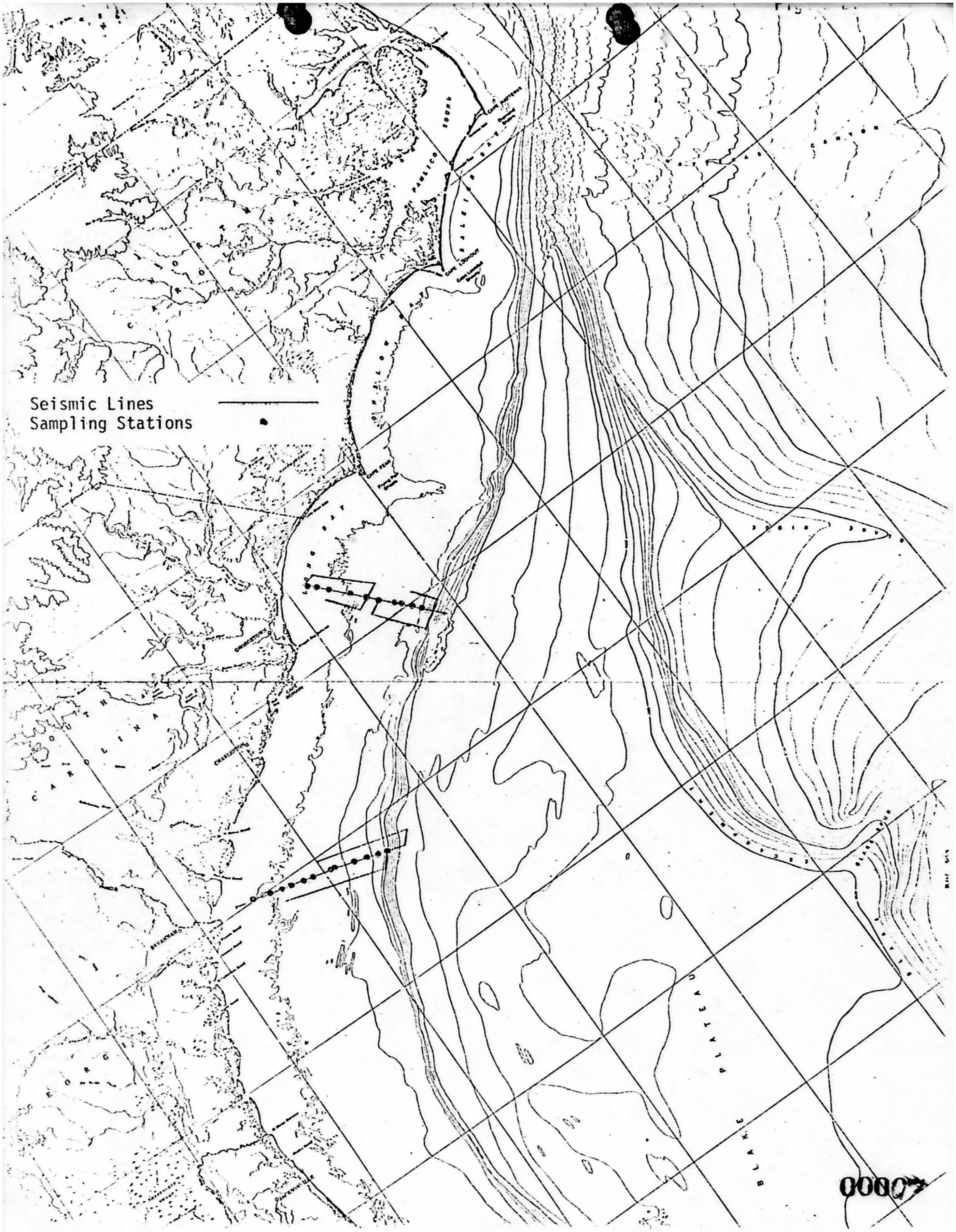


Seismic Lines
Sampling Stations
BLAKE PLATEAU

Cruise Report

R/V H.J.W. FAY 026

October 16, 1976 to October 25, 1976

ROSCOP prepared 22 NOV 76 JR

10 days at sea

23 V.C. & HGC STATIONS

18 V.C. RECOVERED

16 HGC RECOVERED

4 Ref Pipes Set

60 n.mi or 108 km sidescan sonar

Orrin H. Pilkey, USGS

Contents

Vessel: R/V H.J.W. FAY Master - Norman Halverson

Area: South Atlantic region - areas of high leasing interest

Ports: Woods Hole, MA to Charleston, S.C.

Dates: October 16 to October 25, 1976

Personnel:

USGS	Orrin H. Pilkey, Chief Scientist
	Sally Wood
	Peter Johnson
	Nick Lefteriou
	Dennis Edwards
	Barry Irwin
Skidaway	Robert Giles
	John Deery
Duke University	Bill Neal
	Jay Van Tassell
Klein Associates	Charles Finklestein
Alpine Geophysical	Charles Dill
	John Eastland
	Charles Gove
	Brian Harrington
	Roger Zaunere

Equipment: LORAN C Navigation - Vibracorer

-Hydrostatically damped gravity corer -

Side scan sonar

Cruise Objectives

Cruise objectives were as follows:

1. Obtain 10 vibracore stations each in the northern and southern areas of high leasing interest.
2. Emplace 3 reference pipes with buoys and pingers.
3. Obtain 10 hydrostatically damped gravity cores; 5 each in the 2 areas.
4. Run 3 sidescan sonar lines, 20 miles long and 700 meters apart in each area.

Activities Summary - See Chief Scientist's Log in Appendix for detailed summary.

18 October - Depart Woods Hole @ 0853

19 October - Arrive in northern lease area - Deployed sidescan sonar, but due to bad weather left the area to go to the southern lease tracts. First cores taken in P.M.

20 October - Sidescan most of today. Seas very rough, part of the day spent circling waiting for calmer seas. The rough seas are affecting the sidescan sonar record - some small details are lost.

21 October - Sidescan in the A.M. - All 3 lines are now completed - vibra and gravity coring begins, but 3 hour delay due to damage to corer. Weather still slowing operations. Original plan was to sample on a widely spaced grid over the entire southern lease area. Coring grid is tightened up and most cores are taken within 3 miles of the sidescan sonar lines. Coring continued for 20 hours straight.

22 October - Proceeded to northern area and began coring. At 2200 began sidescan sonar.

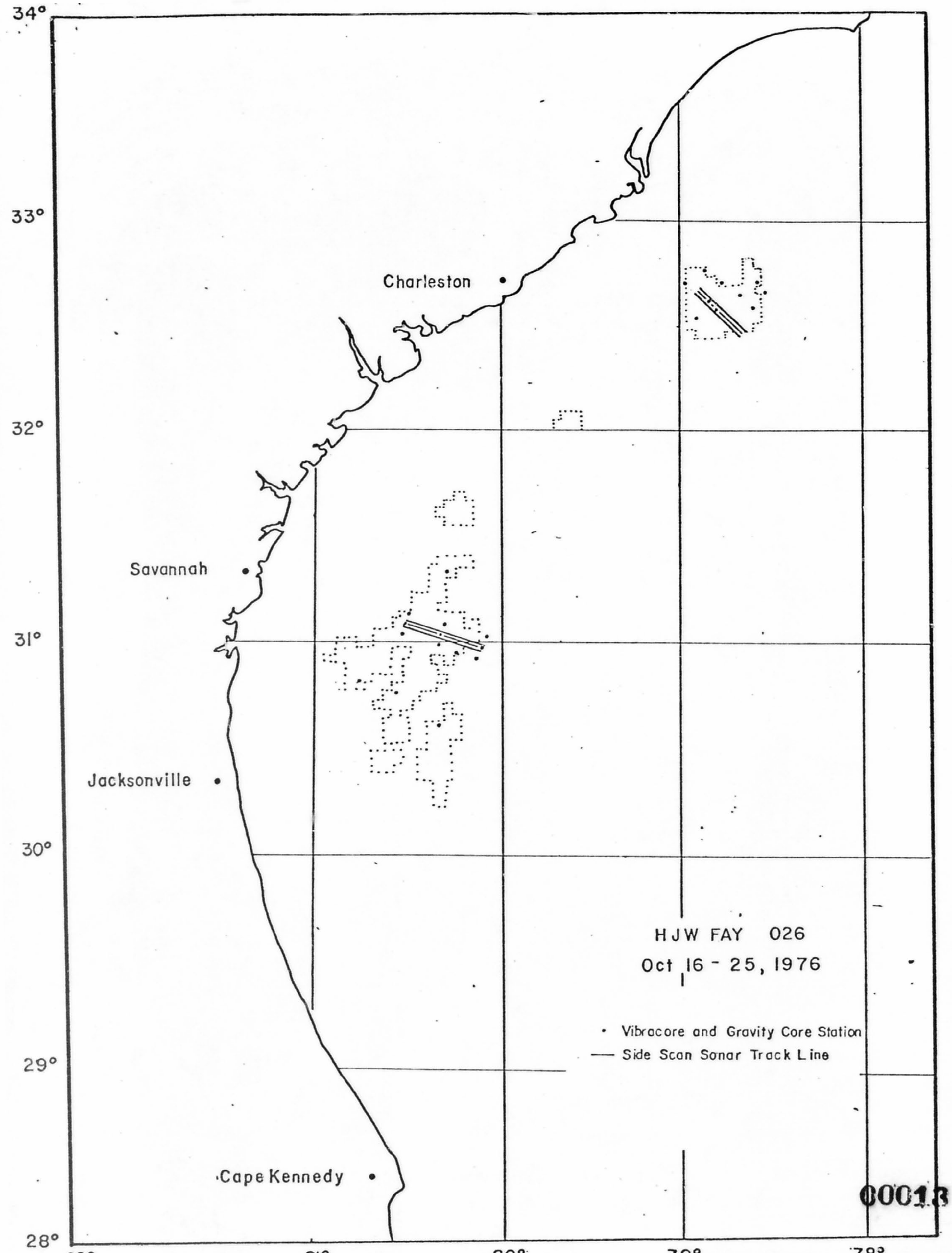
23 October - Sidescan sonar in the A.M. Had great difficulties in the Gulf Stream - lines are significantly off planned transects. Cored during daylight hours - emplaced pipe and buoy with pinger. Sidescanned during later afternoon - emplaced second pipe and buoy system at 2000 hour. Entangled line in rudder causing 2 hour delay. Charles Finklestein cut line free by diving.

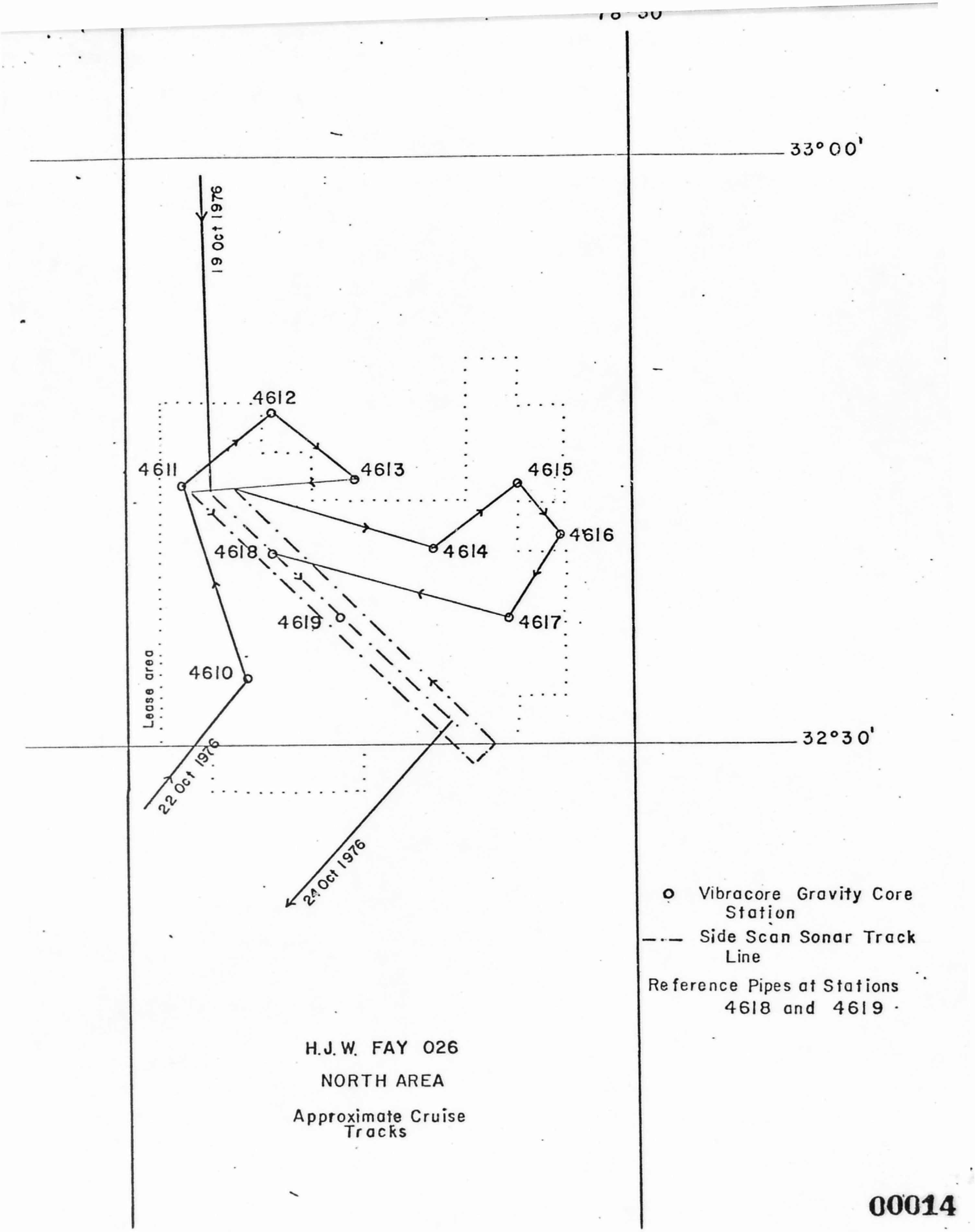
24 October - Due to dead calm weather, the northern area was quickly sampled. Proceeded back to the southern area to (1) obtain 3 vibracores in more widely scattered areas of the lease tracts, and (2) rerun one sidescan line under calm conditions, and (3) emplace 2 reference pipes. All objectives achieved.

25 October - Rerun sidescan sonar line until 0545 - proceed to Charleston. The rerun indicated that our first records taken under bad weather conditions were okay after all. Bottom has subdued features although strong grain size changes were observed.

Summary:
All cruise objectives attained. Only major shortcoming was inability to maintain planned sonar transects when in the Gulf Stream.

20
18
36
3
108 Km Side scan


34°
33°
32°
31°
30°
29°
28°
82°
81°
80°
79°
78°
Charleston
Savannah
Jacksonville
Cape Kennedy
HJW FAY 026
Oct 16 - 25, 1976
Vibracore and Gravity Core Station
Side Scan Sonar Track Line
00013

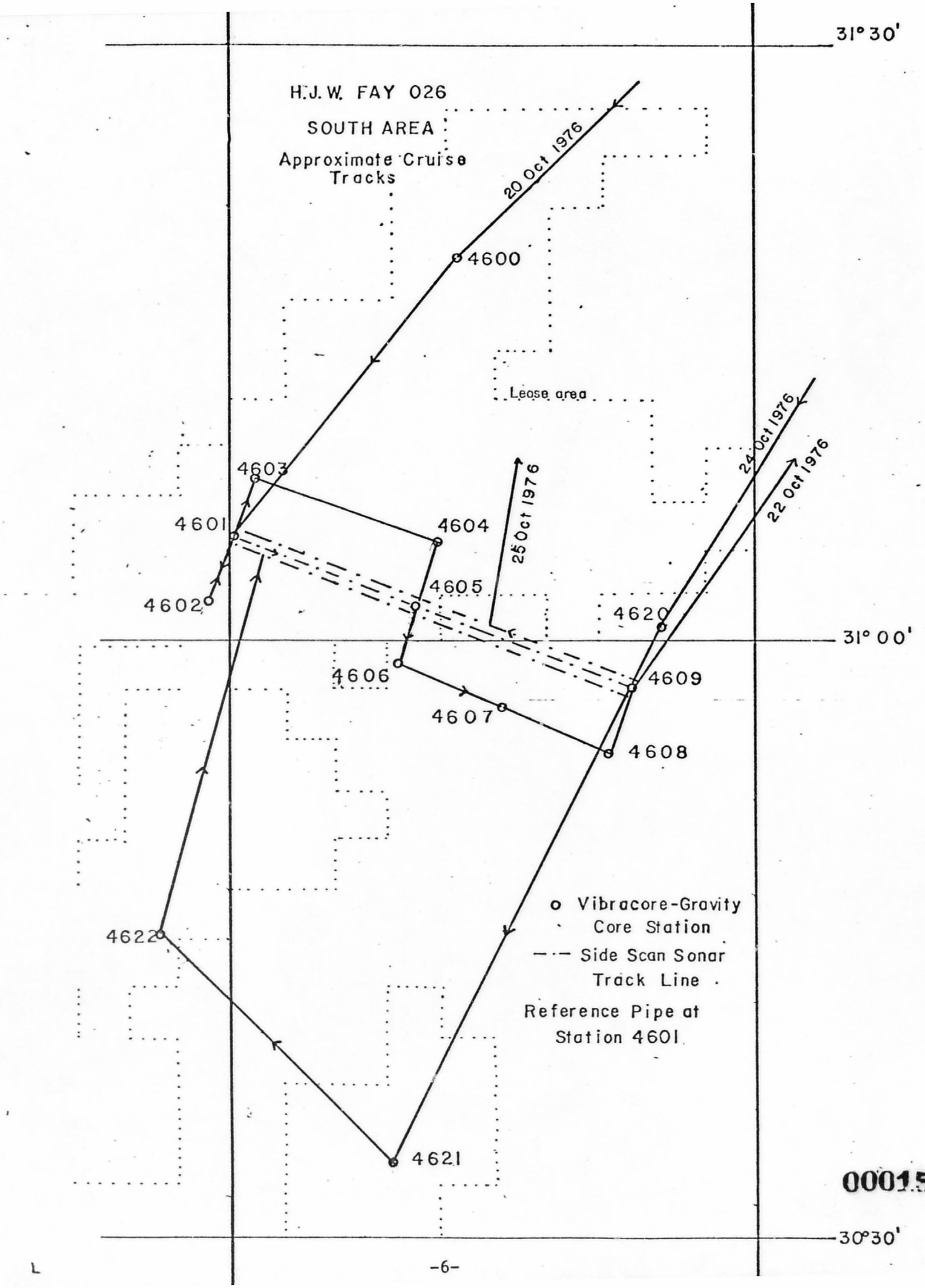


H.J.W. FAY 026

NORTH AREA

Approximate Cruise Tracks

00014


31° 30'
H.J.W. FAY 026
SOUTH AREA
Approximate Cruise Tracks
20 Oct 1976
4600
Lease area
24 Oct 1976
22 Oct 1976
25 Oct 1976
4603
4601
4604
4602
4605
4620
31° 00'
4606
4609
4607
4608
o Vibracore-Gravity Core Station
Side Scan Sonar Track Line
Reference Pipe at Station 4601
4622
4621
30°30'

00015.

Vibracore Summary

Date	Time	Sta. No.	Longitude	Latitude	Loran C Readings	(uncor- rected)	Pene- tration	Recovery	Remarks
19 Oct. 76	1926 1941	4600 4600	80°17.0'W	31°18'N	14028.4 14028.4	71133.4 71133.4	8 1/2'	None	No recovery on first attempt (rough sea). Second attempt; Malfunction in vibrator.
20 Oct. 76	0923				13815.1	71163.3			Rough seas-decision not to core
21 Oct. 76	0848	4601	80°29.2'W	31°5.2'N	13835.5	71076.5	12.6'	6'2"	Vibracorer damaged during recovery (leg bent) necessitating repairs; lower part of core lost due to malfunction; penetration was stopped by hard substrate
	1153	"	"	"	"	"			Vibracorer emplacement of marker pipe
21 Oct. 76	1253 1318	4602 "	80°29.6'W "	31°2.2'N "	13800.0 "	71074.9 "	14.9'	17'	Spot-weld repair of vibracorer Sediment expansion
21 Oct. 76	1446	4603	80°29.3'W	31°8.1'N	13865.4	71075.5	7.5'	None	Hard bottom
21 Oct. 76	1701 1811	4604 "	80°19.1'W "	31°4.6'N "	13855.3 "	71135.2 "	3.0' -	None -	A few shells in core catcher Second attempt, malfunction in compressor hose necessitating repairs
21 Oct. 76	1924	4605	80°17.3'W	31°4.4'N	13821.7	71137.0	14'7"	14'4"	Core barrel was bent. Core may have been disturbed by vibrator operating on way up. Core barrel replaced while underway.
21 Oct. 76	2125	4606	80°19.1'W	30°58.4'N	13785.9	71136.1	11'	11'4"	Jury-rigged broken cable to recover vibracorer

Vibracore Summary

Date	Time	Sta. No.	Longitude	Latitude	Loran C Readings	(uncor- rected)	Pene- tration	Recovery	Remarks
21 Oct. 76	2326	4607	80°13.7'W	30°56.6'N	13771.2	71165.6	9'	9'3"	
22 Oct. 76	0103	4608	80°8.3'W	30°54.5'N	13767.8	71195.5	11'	13'	Sediment expansion
22 Oct. 76	0237	4609	80°8.4'W	30°57.7'N	13806.0	71195.2	5'	14'9"	" "
22 Oct. 76	1606	4610	78°51.4'W	31°34.4'N	15160.0	71678.2	12'	16'3"	Hard layer at 4 1/2' according to penetrometer.
22 Oct. 76	1811	4611	78°55.9'W	32°44.5'N	15260.7	71658.0	6"	None	Rock bottom
22 Oct. 76	1941	4612	78°50.7'W	32°47.2'N	15312.9	71694.8	12'	11'6"	
22 Oct. 76	2107	4613	78°45.0'W	32°43.8'N	15293.0	71721.3	7.3'	6'10"	Lost 1' on penetrometer interpreted as rock.
23 Oct. 76	1043	4614	78°43.8'W	32°40.4'N	15258.5	71730.8	13'	9'5"	
23 Oct. 76	1153	4615	78°36.5'W	32°43.0'N	15310.0	71768.9	12'	7'10"	Coarse "soupy" sand, bottom of core lost due to flow.
23 Oct. 76	1303	4616	78°34.5'W	32°41.4'N	15290.8	71779.0	8'10"	9'6"	Shell-hash (coarse sand sized), some flowage?
23 Oct. 76	1417	4617	78°38.3'W	32°37.5'N	15234.5	71753.0	8'6"	8'10"	Same as previous core in terms of material.
23 Oct. 76	1616	4618	78°52.5'W	32°41.1'N	15232.8	71676.9	10'	5'10"	Rock in bottom of core, and lower part of core very solid, i.e., bottomed in rock substrate.
23 Oct. 76	1645	"	"	"	"	"	5' to 7'	-	Pipe emplaced by vibracorer.

Vibracore Summary

Date	Time	Sta. No.	Longitude	Latitude	Loran C Readings	(uncorrected)	Penetration	Recovery	Remarks
23 Oct. 76	1939	4619	78°47.4'W	32°36.7'N	15199.7	71702.5	7'	None	No recovery, probably due to loose, coarse sand that flowed from pipe.
	2021	"	"	"	"	" (.2)	8'	-	Pipe emplaced by vibracorer.
24 Oct. 76	1417	4620	80°7.9'W	31°0.5'N	13839.0	71198.0	18'	19'	Oolitic material in base of core.
24 Oct. 76	1758	4621	80°21.5'W	30°33.3'N	13499.6	71124.9	1.2'	6"	Recovered broken rock fragments and a few coarse shells with little sand, i.e., rock bottom.
24 Oct. 76	2032	4622	80°34.5'W	30°34.7'N	13602.9	71049.9	4'	2'	Hard substrate?
									18 Cores with significant recovery. Maximum Length: 19 feet Minimum Length: 2 feet 3 Cores with rock in base. 7 Cores interpreted as bottoming out in rock substrate. 3 Reference pipes set.

Hydrostatically Damped Gravity Core Summary

Date	Time	Sta. No.	Longitude	Latitude	Recovery	Remarks
19 Oct. 76	2106	4600	80°17.0'W	31°18.0'N	None	Seas too rough to keep corer on bottom.
20 Oct. 76	1016				None	Release rod jammed preventing coring. Rough seas. Core barrel became unattached.
21 Oct. 76	0902	4601	80°29.2'W	31°05.2'N	9"	Release rod adjusted. Calmer seas.
21 Oct. 76	1303	4602	80°29.6'W	31°02.2'N	12.75"	Corer ran smoothly.
21 Oct. 76	1431	4603	80°29.3'W	31°08.1'N	None	Check valve did not fall. Check valve rod bent. Rod straightened and valve functioning.
	1501	"	"	"	None	Corer worked correctly but without recovery.
21 Oct. 76	1646	4604	80°19.1'W	31°04.6'N	None	Check valve did not release. Greased valve.
	1717	"	"	"	11.5"	Corer ran smoothly.
21 Oct. 76	1916	4605	80°17.3'W	31°04.4'N	10.75"	Difficulty fitting bottom caplug on core barrel. Bottom section of sand slightly disturbed.
21 Oct. 76	2110	4606	80°19.1'W	30°58.4'N	9"	Corer ran smoothly.
21 Oct. 76	2305	4607	80°13.7'W	30°56.6'N	None	System did not trip. Greased release rod.
	2344	"	"	"	None	Corer tested on deck. Large piston and ball not releasing. Greased for next station.
22 Oct. 76	0049	4608	80°08.3'W	30°54.5'N	None	Corer did not stay on bottom. Reset.
	0117	"	"	"	16"	Faster winch speed used.

Hydrostatically Damped Gravity Core Summary

Date	Time	Sta. No.	Longitude	Latitude	Recovery	Remarks
22 Oct. 76	0226 0257 0309	4609 " "	80°08.4'W " "	30°57.7'N " "	None None 7.5"	Core barrel became unattached. Large piston and ball did not release. Corer dragged across bottom due to motion of the boat.
22 Oct. 76	1549	4610	78°51.4'W	31°34.7'N	11"	Corer ran smoothly.
22 Oct. 76	1803	4611	78°55.9'W	32°44.5'N	3"	Sample disturbed while capping.
22 Oct. 76	1932	4612	78°50.7'W	32°47.2'N	9"	Corer ran smoothly.
22 Oct. 76	2058	4613	78°45.0'W	32°43.8'N	11.75"	Bottom 2" of sample disturbed while capping.
23 Oct. 76	1051	4614	78°43.8'W	32°40.4'N	10"	Corer ran smoothly.
23 Oct. 76	1205	4615	78°36.5'W	32°43.0'N	None	Core Barrel became unattached.
23 Oct. 76	1254	4616	78°34.5'W	32°41.4'N	7"	Sample totally disturbed. Stored in short core.
23 Oct. 76	1359 1429	4617 "	78°40.2'W "	32°37.5'N "	None None	Core barrel came loose. Adjusted inner sealer for barrel. System did not trip.
23 Oct. 76	1609	4618	78°52.5'W	32°41.1'N	9.5"	Corer ran smoothly.
23 Oct. 76		4619	78°47.4'W	32°36.7'N		Did not core at this site.
24 Oct. 76	1407	4620	80°07.9'W	31°00.5'N	8.75"	After coring here removed valve from large piston.

Hydrostatically Damped Gravity Core Summary

Date	Time	Sta. No.	Longitude	Latitude	Recovery	Remarks
24 Oct. 76	1748	4621	80°21.5'W	30°33.3'N	None	System did not trip. Tested on deck and adjusted.
	1820	"	"	"	None	System did not trip.
24 Oct. 76	2024	4622	80°34.5'W	30°34.7'N	8"	Corer ran smoothly.

SAMPLE INVENTORY

Sta.	Date	Time	Location Lat.	Location Long.	Data	Custodian
	Oct. 20, 1976	2000	31°05.7'N	80°29.8'W	Sidescan	Georgia Univ.
	to Oct. 21, 1976	0015	30°51.4'N	80°07.5'W		
	Oct. 21, 1976	0045	30°51.6'N	80°09.0'W	Sidescan	Georgia Univ.
	to Oct. 21, 1976	0425	31°05.3'N	80°30.0'W		
4601	" "	0848	31°05.2'N	80°29.2'W	Vibracore	Skidaway Inst.
		0902	"	"	Gravity Core	USGS-Bothner
4602	" "	1303	31°02.2'N	80°29.6'W	Gravity Core	USGS-Bothner
		1318	"	"	Vibracore	Skidaway Inst.
4604	" "	1646	31°04.6'N	80°19.1'W	Gravity Core	USGS-Bothner
		1717	"	"	Vibracore	Skidaway Inst.
4605	" "	1915	31°04.4'N	80°17.3'W	Gravity Core	USGS-Bothner
		1924	"	"	Vibracore	Skidaway Inst.
4606	" "	2110	30°58.4'N	80°19.1'W	Gravity Core	USGS-Bothner
		2125	"	"	Vibracore	Skidaway Inst.
4607	" "	2326	30°56.6'N	80°13.7'W	Vibracore	Skidaway Inst.
4608	Oct. 21, 1976	0103	30°56.6'N	80°13.7'W	Vibracore	Skidaway Inst.
		0117	"	"	Gravity Core	USGS - Bothner
4609	" "	0237	30°57.7'N	80°08.4'W	Vibracore	Skidaway Inst.
		0309	"	"	Gravity Core	USGS-Bothner
4610	" "	1549	31°34.4'N	78°51.4'W	Gravity Core	USGS-Bothner
		1610	"	"	Vibracore	Skidaway Inst.
4611	" "	1803	32°44.5'N	78°55.9'W	Grab Sample	Skidaway Inst.
4612	" "	1933	32°47.2'N	78°50.7'W	Gravity Core	USGS-Bothner
		1944	"	"	Vibracore	Skidaway Inst.
4613	" "	2058	32°43.8'N	78°45.0'W	Gravity Core	USGS-Bothner
		2107	"	"	Vibracore	Skidaway Inst.
		2310	32°42.6'N	78°54.7'W	Sidescan	Georgia Univ.
	to Oct. 23, 1976	0405	32°30.4'N	78°30.2'W		
4614		1043	32°40.4'N	78°43.8'W	Vibracore	Skidaway Inst.
		1051	"	"	Gravity Core	USGS-Bothner
4615		1153	32°43.0'N	78°36.5'W	Vibracore	Skidaway Inst.
4616		1254	32°41.4'N	78°34.5'W	Gravity Core	USGS-Bothner
		1303	"	"	Vibracore	Skidaway Inst.
4617		1417	32°37.5'N	78°38.3'W	Vibracore	Skidaway Inst.

00022

Sta.	Date	Time	Location Lat.	Location Long.	Data	Custodian
4618		1609	32°41.1'N	78°52.5'W	Gravity Core	USGS-Bothner
		1616	"	"	Vibracore	Skidaway Inst.
		1800	32°40.3'N	78°51.4'W	Sidescan	Georgia Univ.
		to 1900	32°37.7'N	78°48.2'W		
		2240	32°35.6'N	78°46.1'W	Sidescan	Georgia Univ.
	to Oct. 24, 1976	0030	32°31.0'N	78°41.2'W		
4620		1407	31°0.5'N	80°07.9'W	Gravity Core	USGS-Bothner
		1417	"	"	Vibracore	Skidaway Inst.
4621		1758	30°33.3'N	80°21.5'W	Vibracore	Skidaway Inst.
4622		2024	30°34.7'N	80°34.5'W	Gravity Core	USGS-Bothner
		2032	"	"	Vibracore	Skidaway Inst.
	Oct. 25, 1976	0030	31°05.0'N	80°26.1'W	Sidescan	Georgia Univ.
		0510	31°1.5'N	80°17.2'W		

CRUISE REPORT

R/V EASTWARD
E-2E-78
April 2-13, 1978

by

Mark Ayers,
U.S.G.S.

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Vessel: R/V Eastward Master: R. Sandhoy

Area: Florida-Hatteras Slope and Inner Blake Plateau

Ports: Brunswick, Ga. to Beaufort, N.C.

Dates: April 2 - 13, 1978

Personnel:

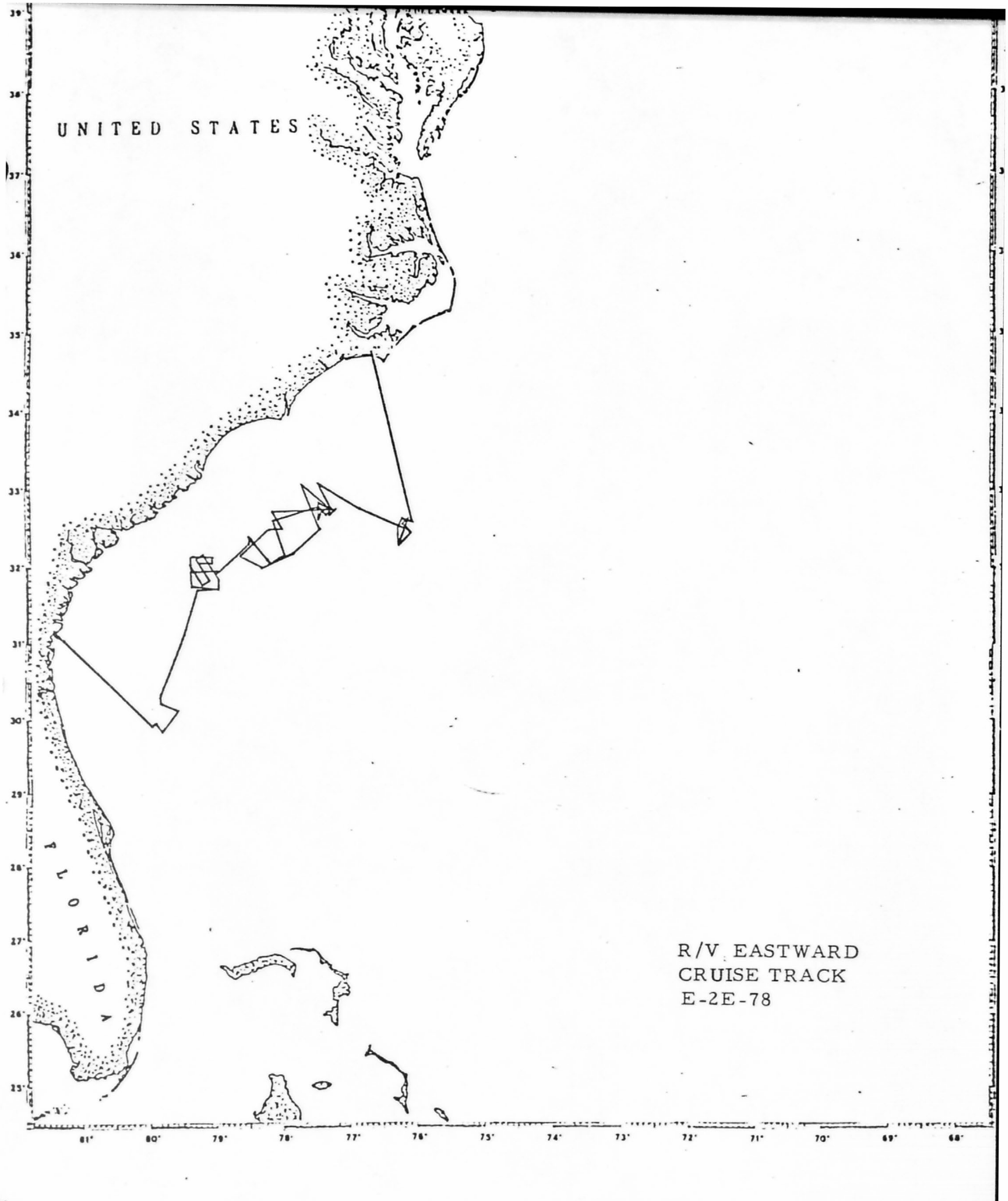
USGS	Mark Ayers, Chief Scientist Fred Keer David Schultz Dennis Ligon Doug Peeler
Duke University	Amy Jackson Mary Gates Carol Haney Susan Hutchison
UNC-Wilmington	Tosey Beddingfield Jim Weaver Jeff Woody Mark Venters
Brown University	Monica Kiper

Equipment:

Loran C and Satellite Navigation
Rock Dredge
Piston corer
Gravity corer
Box dredge
12 Khz bottom profiler
Seismic profiler with 5 cu. in. air gun

Objectives:

To obtain at least 30 piston cores from 21 preselected target areas.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FLORIDA
R/V EASTWARD
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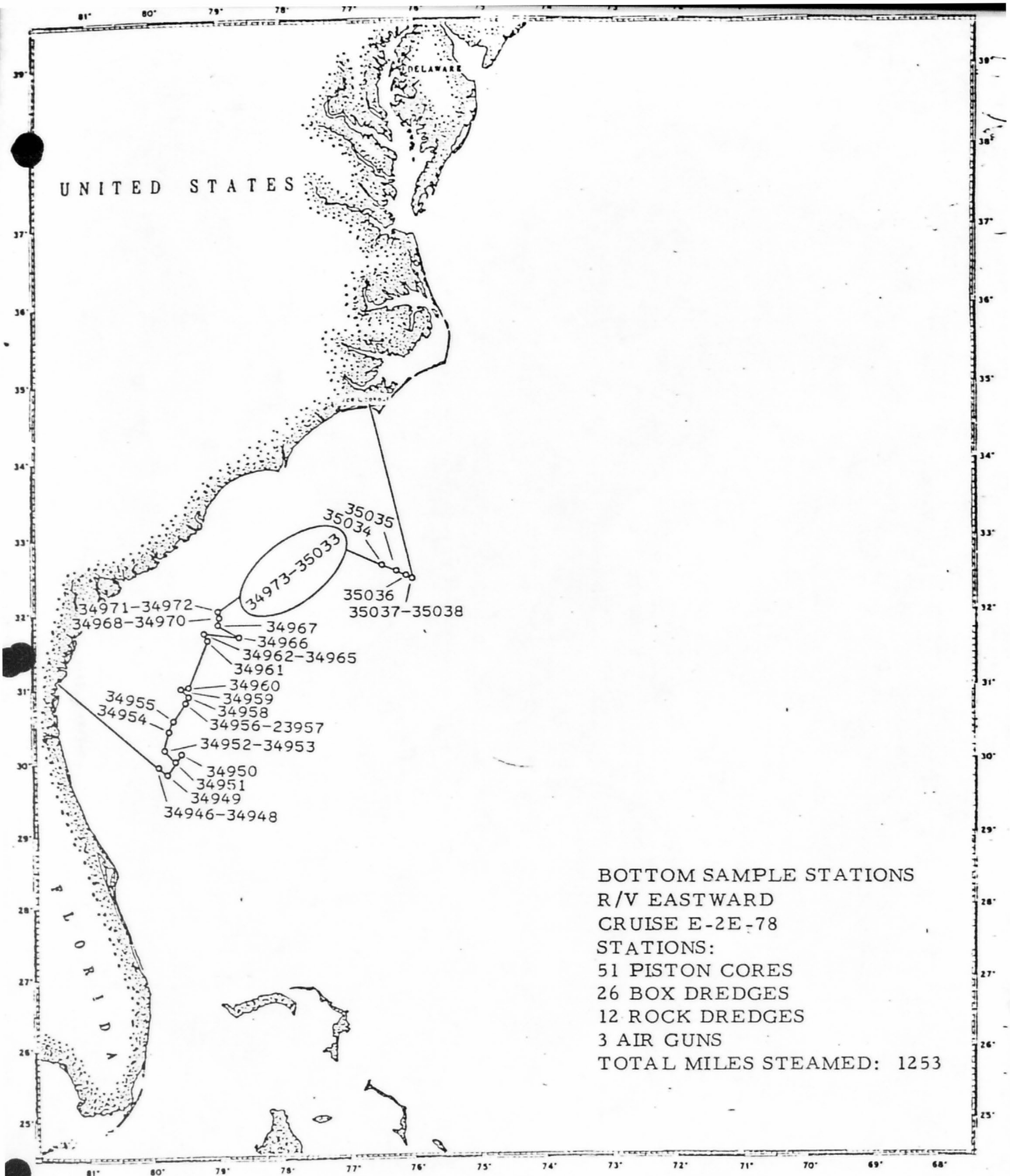
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35036
35037-35038
34971-34972
34968-34970
34967
34966
34962-34965
34961
34960
34959
34958
34955
34954
34956-23957
34952-34953
34950
34951
34949
34946-34948
BOTTOM SAMPLE STATIONS
R/V EASTWARD
CRUISE E-2E-78
STATIONS:
51 PISTON CORES
26 BOX DREDGES
12 ROCK DREDGES
3 AIR GUNS
TOTAL MILES STEAMED: 1253

R/V EASTWARD E-2E-78

Cruise Activities and Chief Scientists Log
April 2-13, 1978

April 2, 1978

0800 Departed from Brunswick, GA. Very good weather; ship making 9.8 knts.

2202 Stopped on first station 34946. Cored into mounded channel fill using a 20 foot lined core pipe. Recovered 5.5 meters of sediment.

2326 Underway to next station.

2350 Stopped on station 34947. Attempted to core channel fill. Core didn't trip properly. The gravity core was probably deflected by the current.

April 3, 1978

0120 Recored previous station 34947. This is station number 34948. Recovered 5.5 meters of sediment using an unlined 20 foot pipe.

0218 Underway to next station.

0415 Stopped on station 34949. Cored into an area characterized by rough bottom. Recovered 477 cm of sediment using a 20 foot unlined core pipe.

0505 Underway to next station.

0706 Stopped on station 34950. Attempted to core the east bank of a large (> 3 km wide) gully. Bent a 20 ft unlined pipe, and smashed both the core cutter head and gravity core pipe. Sediment was removed by cutting the pipe into sections and collecting the sample in cloth bags.

0857 Underway to next station. Retraced ship's track in order to core the thalweg of the gully which was crossed while on route to station 34950.

1023 Stopped on station 34951. Attempted to core the gully floor. Smashed cutter head and gravity core pipe. However, the 10 foot pipe was unbent. Recovered rock fragments in catcher.

1114 Underway to next station.

1307 Stopped on station 34952. Rock dredged bottom to verify the existence of living coral. Recovered dredge full of coral. Cored bottom at same position as previous station 34952. This station is number 34953. Used a 10 foot unlined pipe and recovered 200 cm of sediment.

1545 Underway to next station.

1657 Stopped on station 34954. Cored channel fill using a 20 ft unlined core pipe. Recovered 460 cm of sediment.

1755 Underway to next station.

1830 Stopped on station 34955. Cored into an area of coral to obtain samples for age dating. Used a 10 foot unlined pipe and recovered only 80 cm of sediment. Smashed cutter head and gravity core pipe.

1925 Underway to next station.

2047 Stopped on station 34956. Cored into southern portion of faulted area using a 20 foot lined pipe. Recovered 260 cm of sediment, bent the core pipe, and smashed the core cutter.

2239 Underway to next station.

2255 Stopped on station 34957. Cored into faulted area 3 miles north of previous station. Used a 10 foot lined core pipe. Recovered 240 cm of sediment.

April 4, 1978

0025 Underway to next station.

0043 Stopped on station 34958. Cored into northern part of faulted area. Used 10 foot lined core pipe and recovered 240 cm of sediment. However, implosion of liner prevented extrusion. The core had to be shaken out of pipe and stored in bags.

0315 Underway to next station. Weather conditions excellent for coring.

0438 Stopped on station 34959. Cored into a suspected deep coral locality. Used a 20 foot unlined pipe and recovered 560 cm of sediment.

0630 Underway to next station.

0652 Stopped on station 34960. Cored into an area suspected of being Paleocene in age. Used a 20 foot unlined core pipe and recovered 560 cm of sediment.

0810 Underway to next station.

1131 Stopped on station 34961. Cored into an area suspected of being Paleoncene in age. Bent a 20 foot unlined core pipe and smashed core cutter. Recovered gravel from catcher.

1240 Underway to next station.

1308 Stopped on statión 34962. Cored 2 miles southeast of slump mass. Recovered 73 cm of sediment in a 10 foot unlined core.

1412 Underway to next station.

1430 Stopped on station 34963. Cored into the toe of the slump mass. Used a 10 ft unlined core pipe. The core cutter was smashed and the sample was too fluid to be properly extruded. Sample was collected in cloth bags.

1515 Underway to next station.

1545 Stopped on station 34964. Cored into slump mass using a 10 foot unlined pipe. Recovered 155 cm of sediment and smashed gravity core pipe.

1700 Underway to next station. Retraced previous course in order to take a core 2 miles southeast of station 34962.

1755 Stopped on station 34965. Cored floor beneath slump mass. Bent 20 ft unlined pipe and smashed core cutter. Washed sediment from pipe into cloth bags.

1955 Underway to next station.

2252 Stopped on station 34966. Cored into sediments suspected of being Paleocene in age. Bent a 20 ft unlined pipe and smashed core cutter. Recovered gravel in the catcher.

April 5, 1978

0000 Underway to next station.

0445 Reached station 34967 and deployed air gun and hydrophone. Ran transects at 6 knts across the slump area to determine the extent of the slump mass.

0857 Problems developed with air gun, and it quit firing. Pulled it in for repairs.

1045 Redeployed air gun after repair; station number now 34968. Resumed planned transects across the slump mass at 6 knts.

1428 Retrieved hydrophone and air gun.

1437 Underway to first planned piston coring station in the slump mass.

1500 Stopped on stat ion 34969. Cored into middle of slump mass. Used a 20 foot lined pipe, smashed core cutter. Recovered a 1 ft plug of sediment and fragment manganese "rock" in catcher.

1637 Underway to next station.

1700 Stopped on station 34970. Cored the floor in front of the slump mass using a 10 foot unlined pipe. Recovered 260 cm of sediment and smashed the core cutter.

1730 Underway to next station.

1757 Stopped on station 34971. Cored upper portion of slump mass using a 10 foot lined core pipe. Core cutter smashed and core pipe warped (may still be reused). Pipe empty, traces of a calcareous muddy sand on core cutter.

1945 Underway. Decided to abandon other planned coring stations in the slump mass because of the small number of useable core pipes and cutters left, and the lack of success during the two previous attempts. Deployed air gun and hydrophone, station 34972, and traversed the slump at 6 knts.

April 6, 1978

0013 Retrieved air gun and hydrophone. Underway to next station.

0345 Changed course to traverse channel.

0413 Stopped on station 34973. Cored west bank of large channel. Used a 10 foot unlined core pipe and recovered 230 cm of sediment.

0605 Underway to next station.

0616 Stopped on station 34974. Cored center of the channel using a 10 foot unlined core pipe. Recovered 280 cm of sediment.

0815 Underway to next station.

0920 Stopped on station 34975. Cored buried channel in east bank of the present channel. Recovered 280 cm of sediment. Rigged rock dredge for next station.

0927 Lowered rock dredge in order to sample lower escarpment of an "erosional plateau." Station number 34976.

0935 Recovered rock dredge with full load of manganese pavement.

1024 Lowered rock dredge in order to sample upper escarpment of an "erosional plateau." Station number 34977.

1041 Recovered rock dredge with full load of manganese pavement.

1130 Underway to next station.

1422 Stopped on station 34978. Attempted to core sediments suspected to be Cretaceous in age. Bent 20 foot unlined core pipe and smashed core cutter. Recovered only a handful of rock fragments in catcher.

1542 Station 34979. Rock dredged site of previous piston coring station.

1556 Recovered a full rock dredge of manganese "rock."

1645 Station 34980. Box dredged site of previous station 34979. Attempting to recover sediment sample.

1707 Recovered empty box dredge. Underway to next station.

1804 Stopped on station 34981. Originally planned to piston core this site to confirm the age of the sediment. However, since core pipes and core cutter spares are running low, it was decided to rock dredge first to evaluate the bottom character. Lowered rock dredge.

1828 Recovered rock dredge full of managanese "rock." Decided to abandon plans to piston core this site.

1939 Underway to next station.

2220 Stopped on station 34982. Lowered rock dredge to determine if coring would be practical at this site.

2226 Recovered dredge with only a few small manganese "rocks." Decided to core.

2235 Station 34983. Cored into channel fill at center of channel. Recovered about 260 cm of sediment using an unlined 10 foot core pipe. Bent extruding pipe trying to extrude core. Had to wash the sample out of the core pipe.

April 7, 1978

0040 Underway to next station.

0439 Stopped on station 34984. Cored south of the accretionary wedge with a 10 ft unlined core pipe. Recovered 230 cm of sediment.

0530 Underway to next station.

0615 Stopped on station 34985. Cored the accretionary wedge using a 10 foot unlined core pipe. Recovered 260 cm of sediment.

0723 Underway to next station.

0750 Stopped on station 34986. Cored at a site near the toe of the wedge. Used a 10 ft unlined core pipe and recovered 240 cm of sediment. Smashed core cutter.

0905 Underway to next station.

0932 Stopped on station 34987. Cored northern part of accretionary wedge. Used a 10 ft unlined pipe and recovered approximately 260 cm of sediment. Core could not be extruded so it was washed into cloth bags.

1108 Underway. This concluded sampling of all the preselected target areas on the slope. Decided to try and trace a large channel (> 3 km wide) to determine its orientation.

1312 Crossed the channel and began a zig-zag course to determine the orientation of the channel axis.

1718 Stopped on station 34988. Traced channel 6 miles until the physiography became too complex to continue. Cored the channel floor with a 10 foot unlined core pipe. Recovered 257 cm of sediment.

1801 Underway to next station.

1846 Stopped on station 34989. Cored center of the channel 1 mile west of station 34988. Used a 10 ft lined core pipe and recovered 250 cm of sediment.

1917 Underway to next station.

2016 Stopped on station 34990. Cored northern bank of the channel 5 miles west of station 34988. Used a 10 ft unlined pipe and recovered only 40 cm of sediment. Smashed core cutter head.

2127 Underway to next station.

2145 Stopped on station 34991. Cored center of channel 6 miles west of station 34988. Used a 10 ft unlined core pipe and recovered 280 cm of sediment.

2248 Underway to next station.

2300 Stopped on station 34992. Cored into a plateau on the south side of the channel. Recovered 276 cm of sediment using a 10 ft unlined core pipe.

April 8, 1978

0100 Underway to next station.

0107 Stopped on station 34993. Attempted to recore station 34991. Core 34991 was unlined and might have had grease contamination. Since the core 34991 showed traces of butane gas it was decided that a lined core should be taken at the same site. A 10 foot lined core pipe was used. The core cutter was smashed and small manganese nodules filled the catcher allowing only a sediment-water flow to enter the core pipe. The previous coring attempt was repeated. The new station number 34994. Again the cutter head was smashed and no core was recovered.

0307 Underway to next station.

0326 Stopped on station 34995. Rock dredged interesting bottom features on south side of the channel.

0408 Recovered a full rock dredge of fist-sized manganese nodules.

0423 Underway to next station.

0500 Stopped on station 34996. Rock dredged interesting bottom projections.

0541 Recovered a full dredge of manganese "rock" and also fragments of a poorly indurated sand.

0603 Underway to next station.

0902 Changed course to traverse large canyon (> 3 km wide).

0948 Stopped on station 34997. Dredged bottom to determine if coring would be practical.

1007 Recovered rock dredge less than 1/10 full of small manganese rocks. Decide to core the site.

1020 Underway to next station.

1107 Stopped on station 34998. Rock dredged a steep escarpment on the south bank of the channel.

1132 Recovered rock dredge full of blocky manganese "rocks."

1208 Underway to next station.

1215 Stopped on station 34999. Cored channel fill using 10 ft lined core pipe. Recovered 200 cm of sediment.

1325 Underway to next station.

1519 Stopped on station 35000. Cored area of faulting primarily for hydrocarbon analysis. Recovered 240 cm of sediment using a 10 ft lined core pipe.

1619 Underway to next station.

1820 Stopped on station 35001. Cored into channel using a 10 ft unlined pipe. Bent pipe and smashed core cutter. Recovered 40 cm of sand and gravel.

1912 Underway to next station. Have decided to start taking frequent box dredges in order to begin developing a facies map of surficial sediments.

1929 Stopped on station 35002. Box dredged bottom.

2027 Recovered box dredge 1/2 full of sediment. Underway to next station.

2133 Stopped on station 35003. Box dredged bottom.

2149 Recovered empty box dredge. Lowered dredge again at same site. Second box dredge station number 35004.

2212 Recovered box dredge containing a handful of sediment. Underway to next station.

2317 Stopped on station 35005. Box dredged bottom.

2340 Recovered box dredge 1/2 full of sediment. Underway to next station.

April 9, 1978

0048 Stopped on station 35006. Box dredged bottom.

0140 Recovered box dredge containing only a handful of sediment. Underway to next station.

0339 Stopped on station 35007. Cored near an "unattached water column anomally." Using a 10 ft lined core pipe, recovered 90 cm of sediment. Warped the core pipe but it is still useable.

0440 Under way to next station.

0510 Stopped on station 35008. Box dredged bottom.

0600 Recovered box dredge containing only a handful of sediment. Underway to next station.

0620 Stopped on station 35009. Box dredged bottom. Lost dredge and 800 m of wire. Apparently a rocky bottom.

0725 Recovered empty box dredge. Underway to next station. Moved box dredge operation from starboard hydrographic winch to main winch.

0858 Stopped on station 35011. Cored into channel fill. Using an unlined 10 ft core pipe, recovered only a few inches of coarse sand. Smashed cutter and bent core pipe.

0946 Underway to next station.

1030 Stopped on station 35012. Rock dredged a steep escarpment west of the channel that was cored earlier at station 35011.

1045 Recovered rock dredge full of huge (3 ft. diameter and 4 inches thick) manganese slabs.

1108 Underway to next station.

1408 Stopped on station 35013. Box dredged bottom.

1426 Recovered box dredge 1/2 full of sediment. Underway to next station.

1500 Stopped on station 35014. Box dredged bottom.

1535 Recovered box dredge 1/2 full of sediment. Underway to next station.

1614 Stopped on station 35015. Box dredged bottom.

1651 Recovered box dredge containing only a handful of sediment. Underway to next station.

1725 Stopped on station 35016. Cored levee of channel using 10 ft lined core pipe. Bent pipe; no sediment recovered.

1845 Underway to next station.

1947 Stopped on station 35017. Rock dredged western wall of a deeply incised channel.

2015 Recovered rock dredge full of a poorly indurated calcareous sandstone.

2037 Underway to next station.

2105 Stopped on station 35018. Box dredged bottom.

2130 Recovered box dredge 1/2 full of sediment. Underway to next station.

2243 Stopped on station 35019. Box dredged bottom.

2323 Recovered box dredge 1/2 full of sediment. Underway to next station.

April 10, 1978

0020 Stopped on station 35020. Box dredged bottom.

0107 Recovered empty box dredge.

0225 Underway to next station.

0307 Stopped on station 35021. Cored at the site of a water column anomally that is also a faulted area. Recovered only 3 cm of manganese nodules in catcher. Used a 10 ft unlined pipe.

0420 Underway to next station.

0508 Stopped on station 35022. Box dredged bottom.

0554 Recovered box dredge 1/2 full of sediment. Underway to next station.

0645 Stopped on station 35023. Box dredged bottom.

0721 Recovered box dredge 1/2 full of sediment. Underway to next station.

0820 Stopped on station 35024. Box dredged bottom.

0848 Recovered box dredge 1/2 full of sediment. Underway to next station.

0952 Stopped on station 35025. Box dredged bottom.

1014 Recovered box dredge 1/2 full of sediment. Underway to next station.

1130 Stopped on station 35026. Box dredged bottom.

1154 Recovered box dredge 1/2 full of sediment. Underway to next station.

1305 Stopped on station 35027. Cored into an inter channel area using a 10 ft unlined core pipe. Recovered 230 cm of sediment.

1418 Underway to next station.

1547 Stopped on station 35028. Box dredged bottom.

1635 Recovered box dredge 1/2 full of sample. Underway to next station.

1800 Stopped on station 35029. Box dredged bottom.

1823 Recovered box dredge 1/2 full of sample. Underway to next station.

1957 Stopped on station 35030. Box dredged bottom.

2020 Recovered box dredge 1/2 full of sample. Underway to next station.

2120 Stopped on station 35031. Box dredged bottom.

2150 Recovered box dredge 1/2 full of sediment. Underway to next station.

2320 Stopped on station 35032. Box dredged bottom.

2348 Recovered box dredge 1/2 full of sediment. Underway to next station.

April 11, 1978

0055 Stopped on station 35033. Box dredged bottom.

0222 Recovered box dredge 1/2 full of sediment. Underway to next station. This was the last station on the slope before going to the rise to sample above the diapir.

0648 Stopped at station 35034. Cored west of the magnetic anomally on a planned transect line that crosses over the center of the diapir. Using a 20 foot lined pipe recovered 550 cm of sediment. Seas are beginning to get a little rough.

0825 Underway to next station.

0940 Stopped at station 35035. Cored on transect line west of diapir, in the zone of the magnetic anomally. Using a 20 ft lined pipe recovered 550 cm of sediment.

1140 Underway to next station.

1305 Stopped on station 35036. Cored above the center of the diapir. Using a 20 foot lined core pipe recovered 550 cm of sediment. Seas still getting rougher. Swells running about 5 feet.

1515 Underway to next station.

1637 Stopped on station 35037. Cored on transect line east of diapir. Using a 20 foot lined core pipe, recovered 580 cm of sediment. Seas still getting rougher. Swells now running about 7 feet.

1844 Underway to next station.

1945 Stopped on station 35038. Cored south of diapir. Used a 20 foot lined core pipe and recovered 580 cm of sediment. Seas very rough. Swells are running 8-10 feet.

2130 Underway to next station.

2330 Stopped on station 35039. Started to core. However, the rough seas made the operation too dangerous. Decided to abandon this station.

April 12, 1978

0004 Underway. Very rough seas with swells averaging 10 feet and often getting as high as 17 feet. Because of the weather have temporarily postponed planned coring operations. Decided to take 12 Khz bottom profiles across the diapir to see if there are any surface expressions. Will continue bottom profiling until weather moderates or it becomes time to depart from the study area.

0800 Seas still very rough with no sign of moderation. Since only 4 hours remain until we have to depart the study area I have decided to abandon the remaining 6 planned coring stations.

0820 Departed for Beaufort.

April 13, 1978

0745 Docked at Beaufort, NC

End of the R/V Eastward Cruise E-2E-78.

BOTTOM SAMPLE LOGS

R/V EASTWARD

E-2E-78

April 2 - April 13, 1978

LOG OF ROCK DREDGE STATIONS

	R/V Eastward			
	Station Number	34952	34976	34977
START	Date	April 3, 1978	April 6, 1978	April 6, 1978
	Time	1327	0927	1024
	Latitude	$30^{o}12.0'N$	$32^{o}22.0'N$	$32^{o}21.7'N$
	Longitude	$79^{o}50.1'W$	$78^{o}32.0'W$	$78^{o}31.8'W$
	Depth (in uncorrected meters)	610 m	320 m	203 m
FINISH	Date	April 3, 1978	April 6, 1978	April 6, 1978
	Time	1344	0935	1041
	Latitude	$30^{o}11.8'N$	$32^{o}22.1'N$	$32^{o}21.7'N$
	Longitude	$79^{o}49.7'W$	$78^{o}31.9'W$	$78^{o}31.4'W$
	Depth (in uncorrected meters)	600 m	300 m	250 m
	Sample Recovery	full	full	full
	Remarks	Branching coral recovered	slabs of Mn "rock"	slabs of Mn "rock"

LOG OF ROCK DREDGE STATIONS

	R/V Eastward Station Number	34979	34981	34982
START	Date	April 6, 1978	April 6, 1978	April 6, 1978
	Time	1542	1815	2226
	Latitude	32°05.5'N	32°13.4'N	32°38.3'N
	Longitude	78°12.4' W	78°02.2'W	78°07.4'W
	Depth (in uncorrected meters)	500	460	230
FINISH	Date	April 6, 1978	April 6, 1978	April 6, 1978
	Time	1556	1828	2235
	Latitude	32°05.1'N	32°14.0'N	32°38.4'N
	Longitude	78°11.6'W	78°00.9'W	78°07.4'W
	Depth (in uncorrected meters)	500	460	230
	Sample Recovery	full	full	1/10 full
	Remarks	rounded blocks of Mn "rock"	rounded blocks of Mn "rock"	rounded blocks of Mn "rock"

LOG OF ROCK DREDGE STATIONS

	R/V Eastward Station Number	34995	34996	34997
START	Date	April 8, 1978	April 8, 1978	April 8, 1978
	Time	0343	0509	0958
	Latitude	32°35.2'N	32°36.8'N	32°44.0'N
	Longitude	77°39.6'W	77°33.8'W	78°09.0'W
	Depth (in uncorrected meters)	400	410	160
FINISH	Date	April 8, 1978	April 8, 1978	April 8, 1978
	Time	0408	0541	1007
	Latitude	32°35.6'N	32°37.5'N	32°44.1'N
	Longitude	77°39.4'W	77°33.1'W	78°09.0'W
	Depth (in uncorrected meters)	400	400	170
	Sample Recovery	full	full	1/10
	Remarks	fist sized rounded Mn "rock"	blocky Mn "rock" and poorly indurated sandstone	3" diameter rounded Mn "rock"

R/V Eastward Station Number	34998	35012	35017
Date	April 8, 1978	April 9, 1978	April 9, 1978
Time	1122	1037	1956
Latitude	32°44.0'N	32°02.6'N	32°16.0'N
Longitude	78°03.6'W	78°20.1'W	77°46.5'W
Depth (in uncorrected meters)	220	420	550
Date	April 8, 1978	April 9, 1978	April 9, 1978
Time	1132	1045	2015
Latitude	32°44.0'N	32°02.6'N	32°16.0'N
Longitude	78°04.4'W	78°19.6'W	77°45.9'W
Depth (in uncorrected meters)	190	420	530
Sample Recovery	full	full	full
Remarks	blocky Mn "rocks"	large Mn slabs	large fragments of poorly indurated calcareous sandstone

LOG OF BOX DREDGE STATIONS

R/V Eastward Station Number	34980	35002	35003	35004
Date	April 6, 1978	April 8, 1978	April 8, 1978	April 8, 1978
Time of Sample	1645	2000	2149	2156
Depth (in uncorrected meters)	500 m	255 m	220 m	220 m
Latitude	32°05.7'N	32°31.1'N	32°26.0'N	32°26.0'N
Longitude	78°10.3'W	78°14.5'W	78°20.5'W	78°20.5'W
Sample Recovery	none	1/2 full	none	handful
Remarks	rocky bottom		rocky bottom	rocky bottom

LOG OF BOX DREDGE STATIONS

R/V Eastward Station Number	35005	35006	35008	35009
Date	April 8, 1978	April 9, 1978	April 9, 1978	April 9, 1978
Time of sample	2330	0120	0536	0635
Depth (in uncorrected meters)	270 m	490 m	450 m	280 m
Latitude	32°22.2'N	32°16.4'N	32°08.2'N	32°06.5'N
Longitude	78°26.4'W	78°31.6'W	78°34.9'W	78°28.7'W
Sample Recovery	1/2 full	handful	handful	none
Remarks				Lost box dredge and 800 m of hydrographic wire. Rocky bottom.

LOG OF BOX DREDGE STATIONS

R/V Eastward Station Number	35010	35013	35014	35015
Date	April 9, 1978	April 9, 1978	April 9, 1978	April 9, 1978
Time of Sample	0715	1408	1513	1621
Depth (in uncor-rected meters)	350 m	530 m	510 m	505 m
Latitude	32°07.2'N	32°03.5'N	32°06.4'N	32°09.2'N
Longitude	78°25.2'W	78°10.7. W	78°04.6'W	77°58.3'W
Sample Recovery	none	1/2 full	1/2 full	handful
Remarks	Now using main winch for box dredging			

LOG OF BOX DREDGE STATIONS

R/V Eastward Station Number	35018	35019	35020	35022
Date	April 9, 1978	April 9, 1978	April 10, 1978	April 10, 1978
Time of Sample	2111	2251	0107	0519
Depth (in uncorrected meters)	520 m	420 m	460 m	400 m
Latitude	$32^{\circ}18.0'N$	$32^{\circ}22.4'N$	$32^{\circ}29.5'N$	$32^{\circ}41.9'N$
Longitude	$77^{\circ}45.3'W$	$77^{\circ}39.2'W$	$77^{\circ}32.7'W$	$77^{\circ}31.4'W$
Sample Recovery	1/2 full	1/2 full	none	1/2 full
Remarks			Box dredge is being damaged by the rocky bottom	

LOG OF BOX DREDGE STATIONS

R/V Eastward Station Number	35023	35024	35025	35026
Date	April 10, 1978	April 10, 1978	April 10, 1978	April 10, 1978
Time of Sample	0651	0824	0955	1134
Depth (in uncorrected meters)	300 m	250 m	130 m	240 m
Latitude	32°48.5'N	32°55.7'N	33°04.0'N	32°58.4'N
Longitude	77°34.8'W	77°38.7'W	77°42.8'W	77°33.3'W
Sample Recovery	1/2 full	1/2 full	1/2 full	1/2 full
Remarks				

LOG OF BOX DREDGE STATIONS

R/V Eastward Station Number	35028	35029	35030	35031
Date	April 10, 1978	April 10, 1978	April 10, 1978	April 10, 1978
Time of Sample	1556	1806	2003	2125
Depth (in uncorrected meters)	440 m	305 m	150 m	240 m
Latitude	$32^{\circ}47.0'$N	$32^{\circ}57.5'$N	$33^{\circ}07.5'$N	$33^{\circ}03.4'$N
Longitude	$77^{\circ}15.3'$W	$77^{\circ}23.5'$W	$77^{\circ}31.5'$W	$77^{\circ}24.9'$W
Sample Recovery	1/2 full	1/2 full	1/2 full	1/2 full
Remarks				

LOG OF BOX DREDGE STATIONS

R/V Eastward Station Number	35032	35033
Date	April 10, 1978	April 11, 1978
Time of Sample	2328	0103
Depth (in uncorrected meters)	350 m	490 m
Latitude	$32^{o}56.5'N$	$32^{o}51.7'N$
Longitude	$77^{o}11.6'W$	$77^{o}04.5'W$
Sample Recovery	1/2 full	1/2 full
Remarks		

LOG OF PISTON CORING STATIONS

R/V Eastward Station Number	34946	34947	34948	34949
Date	April 2, 1978	April 3, 1978	April 3, 1978	April 3, 1978
Time of Hit	2223	0013	0140	0438
Depth (in uncorrected meters)	575m	610m	590m	840m
Latitude	29°57.3'N	29°59.8'N	29°59.8'N	29°53.1'N
Longitude	79°55.9'W	79°55.3'W	79°54.1'W	79°47.0'W
Lined or Unlined	Lined	unlined	unlined	unlined
Sample Recovery	550cm	none	550cm	477cm
Remarks	20 foot pipe	core did not trip	20 foot pipe	20 foot pipe

LOG OF PISTON CORING STATIONS

R/V Eastward Station Number	34950	34951	34953	34954
Date	April 3, 1978	April 3, 1978	April 3, 1978	April 3, 1978
Time of Hit	0725	1049	1521	1719
Depth (in uncorrected meters)	760m	930m	610m	620m
Latitude	30°09.8'N	30°02.9'N	30°14.2'N	30°26.4'N
Longitude	79°35.8'W	79°42.6'W	79°49.9'W	79°44.7'W
Lined or Unlined	unlined	unlined	unlined	unlined
Sample Recovery	200cm	rock fragments in catcher	200 cm	460cm
Remarks	Bent 20 foot pipe. Smash cutter head and gravity core pipe. Sediment removed by cutting pipe into short sections.	10 foot pipe. Smashed cutter head and gravity core pipe.	10 foot pipe	20 foot pipe

LOG OF PISTON CORING STATIONS

R/V Eastward Station Number	34955	34956	34957	34958
Date	April 3, 1978	April 3, 1978	April 3, 1978	April 4, 1978
Time of Hit	1847	2106	2319	0210
Depth (in uncorrected meters)	560 m	805 m	790m	755m
Latitude	30°34.7'N	30°48.7'N	30°50.7'N	30°54.1'N
Longitude	79°43.5'W	79°31.8'W	79°30.3'W	79°28.1'W
Lined or Unlined	unlined	lined	lined	lined
Sample Recovery	80cm	260cm	240cm	240cm
Remarks	10 foot pipe Smashed core cutter and gravity core pipe.	Bent 20 foot core pipe and smashed core cutter.	10 foot pipe	10 foot pipe Liner imploded an could not be extruded. Core shaken out of pipe

LOG OF PISTON CORING STATIONS

R/V Eastward Station Number	34959	34960	34961	34962
Date	April 4, 1978	April 4, 1978	April 4, 1978	April 4, 1978
Time of Hit	0454	0713	1143	1330
Depth (in uncorrected meters)	480m	680m	460m	600m
Latitude	30°59.9'N	31°04.0'N	31°38.5'N	31°44.2'N
Longitude	79°37.0'W	79°30.0'W	79°12.9'W	79°13.1'W
Lined or Unlined	unlined	unlined	unlined	unlined
Sample Recovery	560cm	560cm	gravel in catcher	73cm
Remarks	20 foot pipe	20 foot pipe	Bent 20 foot pipe and smashed core catcher.	10 foot pipe

R/V Eastward Station Number	34963	34964	34965	34966
Date	April 4, 1978	April 4, 1978	April 4, 1978	April 4, 1978
Time of Hit	1446	1604	1815	2312
Depth (in uncorrected meters)	512m	300m	550m	500m
Latitude	31°45.8'N	31°47.3'N	31°44.2'N	31°42.4'N
Longitude	79°14.0'W	79°16.0'W	79°12.3'W	78°42.0'W
Lined or Unlined	unlined	unlined	unlined	unlined
Sample Recovery	100cm	155cm	200cm	gravel in catcher
Remarks	10 foot pipe Core cutter smashed. Sample too fluid to be extruded and was collected in cloth bags.	10 foot pipe Smashed gravity corepipe.	Bent 20 foot pipe and smashed core cutter. Washed sediment from pipe.	Bent 20 foot pipe and smashed core cutter.

R/V Eastward Station Number	34969	34970	34971	34973
Date	April 5, 1978	April 5, 1978	April 5, 1978	April 6, 1978
Time of Hit	1517	1711	1853	0431
Depth (in uncor-rected meters)	421m	400m	420m	340m
Latitude	32°00.3'N	31°58.4'N	32°01.2'N	32°24.5'N
Longitude	79°00.3'W	79°00.5'W	79°02.7'W	78°34.2'W
Lined or Unlined	lined	unlined	lined	unlined
Sample Recovery	30cm	260cm	none	230cm
Remarks	20 foot pipe Smashed core cutter.	10 foot pipe Smashed core cutter.	Bent 10 foot pipe Smashed core cutter.	10 foot pipe

LOG OF PISTON CORING STATIONS

R/V Eastward Station Number	34974	34975	34978	34983
Date	April 6, 1978	April 6, 1978	April 6, 1978	April 6, 1978
Time of Hit	0628	0838	1444	2323
Depth (in uncor-rected meters)	360m	330m	500m	230m
Latitude	32°23.5'N	32°22.7'N	32°05.7'N	32°38.7'N
Longitude	78°33.0'W	78°32.3'W	78°10.3'W	78°07.4'W
Lined or Unlined	unlined	unlined	unlined	unlined
Sample Recovery	280cm	280cm	rock fragments in catcher	260cm
Remarks	10 foot pipe	10 foot pipe	Bent 20 foot pipe and smashed core cutter.	10 foot pipe. Could not extrude, bent extruding pipe. Had to wash sample out.

LOG OF PISTON CORING STATIONS

R/V Eastward Station Number	34984	34985	34986	34987
Date	April 7, 1978	April 7, 1978	April 7, 1978	April 7, 1978
Time of Hit	0453	0630	0802	0942
Depth (in uncor-rected meters)	430m	420m	460m	440m
Latitude	32°40.1'N	32°43.4'N	32°41.4'N	32°43.6'N
Longitude	77°25.4'W	77°23.0'W	77°23.8'W	77°21.0'W
Lined or Unlined	unlined	unlined	unlined	unlined
Sample Recovery	230cm	260cm	240cm	260cm
Remarks	10 foot pipe	10 foot pipe	10 foot pipe Smashed core cutter.	10 foot pipe Could not be extruded Washed core into bags.

R/V Eastward Station Number	34984	34985	34986	34987
Date	April 7, 1978	April 7, 1978	April 7, 1978	April 7, 1978
Time of Hit	0453	0630	0802	0942
Depth (in uncorrected meters)	430m	420m	460m	440m
Latitude	32°40.1'N	32°43.4'N	32°41.4'N	32°43.6'N
Longitude	77°25.4'W	77°23.0'W	77°23.8'W	77°21.0'W
Lined or Unlined	unlined	unlined	unlined	unlined
Sample Recovery	230cm	260cm	240cm	260cm
Remarks	10 foot pipe	10 foot pipe	10 foot pipe Smashed core cutter.	10 foot pipe Could not be extruded washed core into bags

R/V Eastward Station Number	34988	34989	34990	34991
Date	April 7, 1978	April 7, 1978	April 7, 1978	April 7, 1978
Time of Hit	1735	1858	2028	2153
Depth (in uncor-rected meters)	450m	420m	400m	390m
Latitude	32°35.6'N	32°35.0'N	32°37.6'N	32°36.5'N
Longitude	77°32.4'W	77°33.9'W	77°38.2'W	77°39.5'W
Lined or Unlined	unlined	lined	unlined	unlined
Sample Recovery	257cm	250cm	40cm	280cm
Remarks	10 foot pipe	10 foot pipe	10 foot pipe Smashed core cutter head	10 foot pipe

R/V Eastward Station Number	34992	34993	34994	34999
Date	April 7, 1978	April 8, 1978	April 8, 1978	April 8, 1978
Time of Hit	2313	0122	0245	1255
Depth (in uncorrected meters)	420m	400m	400m	200m
Latitude	32°35.6'N	32°36.5'N	32°36.2'N	32°43.6'N
Longitude	77°38.7'W	77°39.7'W	77°39.6'W	78°06.6'W
Lined or Unlined	unlined	lined	lined	lined
Sample Recovery	276cm	nodules in catcher	nodules in catcher	200cm
Remarks	10 foot pipe	10 foot pipe Smashed core cutter.	10 foot pipe Smashed core cutter.	10 foot pipe

R/V East[redacted]rd Station Number	35000	3500[redacted]	35007	35011[redacted]
Date	April 8, 1978	April 8, 1978	April 9, 1978	April 9, 1978
Time of Hit	1540	1830	0354	0911
Depth (in uncorrected meters)	300m	260m	420m	530m
Latitude	32°30.8'N	32°30.9'N	32°10.3'N	32°01.1'N
Longitude	77°59.9'W	78°20.3'W	78°40.8'W	78°16.3'W
Lined or Unlined	lined	unlined	lined	unlined
Sample Recovery	240cm	40cm	90cm	10cm
Remarks	10 foot pipe	Bent 10 foot pipe and smashed core cutter.	Warped 10 foot pipe	Bent warped core pipe and smashed core cutter.

R/V East[redacted]rd Station Number	35016	3502[redacted]	35027	35034[redacted]
Date	April 9, 1978	April 10, 1978	April 10, 1978	April 11, 1978
Time of Hit	1746	0328	1317	0705
Depth (in uncor-rected meters)	500m	470m	305m	1050m
Latitude	32°12.4'N	32°35.1'N	32°52.8'N	32°38.0'N
Longitude	77°51.8'W	77°27.2'W	77°25.6'W	77°33.2'W
Lined or Unlined	lined	unlined	unlined	lined
Sample Recovery	none	nodules in catcher	230cm	550cm
Remarks	Bent 10 foot pipe	10 foot pipe	10 foot pipe	20 foot pipe

R/V Eastward Station Number	35035	35036	35037	35038
Date	April 11, 1978	April 11, 1978	April 11, 1978	April 11, 1978
Time of Hit	1003	1338	1732	2011
Depth (in uncorrected meters)	2020m	2100m	2360m	2220m
Latitude	32°34.4'N	32°30.3'N	32°26.7'N	32°28.0'N
Longitude	76°21.4'W	76°11.7'W	76°02.5'W	76°08.8'W
Lined or Unlined	lined	lined	lined	lined
Sample Recovery	550cm	550cm	580cm	580cm
Remarks	20 foot pipe	20 foot pipe	20 foot pipe	20 foot pipe

SAMPLE INVENTORY AND PROCEDURE
R/V EASTWARD
E-2E-78
April 2-13, 1978

Sampling Procedure

Unlined Cores: After recovery the unlined cores were immediately split and described. One half of the core was subsampled and the other half preserved. One centimeter subsamples were taken at ten centimeter intervals. Following this, additional select subsamples were taken from the sampled half.

Lined Cores: After recovery the lined cores were extruded, cut into 5 foot sections, and then capped. Select subsamples from the lined cores were either taken from the ends of the five foot core sections or taken from the middle by drilling a hole in the liner, removing the sediment, and replacing the resulting void with a wooden plug which was carefully taped into place.

With the exception of the subsamples listed below, all samples and data collected on the cruise were taken by Mark Ayers and stored at Duke University.

I. The following subsamples were taken by David Schultz (U.S.G.S. Reston) and are being used for light hydrocarbon and organic analysis.

Core Number	Sample Interval
34946	250-270 cm
	530-550 cm
34954	40-70 cm
	240-270 cm
	450-466 cm
34956	0-23 cm
34957	0-30 cm
	132-147 cm
34958	bottom 10 cm
34959	200-220 cm
34960	426-454 cm
34964	170-270 cm
34970	110-140 cm
34973	90-120 cm
	160-190 cm
34974	200-230 cm
34984	180-210 cm
34988	60-90 cm
	200-230 cm
34989	100-125 cm
34991	50-80 cm
	130-160 cm
	220-250 cm

34992	140-170 cm 230-260 cm
35000	224-244 cm
35007	50-60 cm
35034	39-55 cm 288-304 cm 460-476 cm 578-594 cm
35035	110-126 cm 296-312 cm 5540573 cm
35036	124-140 cm 277-293 cm 427-443 cm 560-576 cm
35037	10-26 cm 306-322 cm 542-561 cm
35038	10-29 cm 294-310 cm 556-572 cm

II. The following subsamples were taken for Frank Senftle, Fred Sisler, and Jody Zelibor (U.S.G.S. Reston) and will be used in the study of bacterial and early diagenetic microbial degradation.

Core Number	Sample Interval
34946	gravity core
34949	gravity core
34954	gravity core
34957	125-132 cm
34970	100-110 cm
34974	gravity core

34993	core catcher
35034	29-39 cm 304-314 cm 450-460 cm 594-604 cm
35035	gravity core 100-110 cm 312-322 cm 573-583 cm
35036	gravity core 140-150 cm 293-303 cm 443-453 cm 576-586 cm
35037	gravity core 0-10 cm 296-306 cm 532-542 cm
35038	gravity core 0-10 cm 310-320 cm 572-582 cm

III. The following subsamples were taken for Frank Manheim, U.S.G.S. (Woods Hole) and were used to study the geochemistry of the interstitial pore water.

Core Number	Sample Interval
34973	80-81 cm 230-231 cm
34974	130-131 cm 280-281 cm
34975	35-36 cm 115-116 cm 245-246 cm
34984	81-82 cm 228-230 cm

34985	111-112 cm
	258-260 cm
34986	124-125 cm
	238-240 cm
34991	50-51 cm
	150-151 cm
	260-261 cm
35034	168-170 cm
	314-316 cm
	476-478 cm
	604-608 cm
35035	126-128 cm
	294-296 cm
	437.5-440.5 cm
	583-585 cm
35035	150-152 cm
	303-305 cm
	453-455 cm
	584-586 cm
35037	159-161 cm
	322-324 cm
	561-563 cm
35038	144.5-147.5 cm
	320-322 cm
	443-446 cm
	582-585 cm

SHIPBOARD CORE DESCRIPTIONS
OF ALL UNLINED CORES

R/V EASTWARD
E-2E-78
April 2, 1978 to April 13, 1978

Innermost Blake Plateau and the
Florida-Hatteras Slope.

by

Mark Ayers
5/4/78

CORE 34948

Location: 29°59.8'N
79°54.1'W
Depth: 590 m
Length: 550 cm

0-27 cm	Greenish gray (5 GY 6/1), muddy calcareous, coarse sand with numerous gastropod shells.
27-105 cm	Greenish gray (5 GY 6/1), muddy calcareous, medium sand without gastropod shells.
105-128 cm	Intercalated silty lutites, greenish gray and darker greenish gray (5 GY 6/1), some hytroilite present.
128-180 cm	Greenish gray (5 GY 6/1), muddy, medium sand.
180-225 cm	Greenish gray (5 GY 6/1), sandy silt with coral fragment at 205 cm.
225-247 cm	Light greenish gray (5 GY 8/1), muddy silt with hytroilite.
247-250 cm	Greenish gray (5 GY 6/1), muddy calcareous, sand.
250-345 cm	Greenish gray (5 GY 6/1), muddy medium sand, with numerous black grains.
345-470 cm	Greenish gray (5 GY 6/1), clayey sandy silt, calcareous, with coral fragment at 370 cm.
470-473 cm	Light bluish gray (5 B 7/1) lutite.
473-495 cm	Greenish gray (5 GY 6/1), muddy calcareous, medium sand, with a 2 cm lense of compact lutite (5 B 7/1) at 482 cm.
495-550 cm.	Light greenish gray (5 G 8/1), muddy medium sand.

CORE 34949

Location: 29°53.1'N
79°47.0'W
Depth: 840 m
Length: 477 cm

0-23 cm	Greenish gray (5 GY 6/1), muddy med sand, calcareous, with siliceous sponge spicules.
23-324 cm	Greenish gray (5 GY 6/1), muddy fine sand, with spicules, Coral fragments at 42 and 163 cm. Mottling evident: increasing down the core. Hytroilite present; also increasing down the core.
324-363 cm	Pale olive (10 G 6/2), muddy medium sand grading up to a muddy fine sand. Many coral branches and siliceous sponge spicules.
363-465 cm	Greenish gray (5 GY 6/1), muddy fine sand with several large coral fragments.
465-477 cm	Greenish gray (5 GY 6/1), homogeneous clayey silt without sponge spicules.

Location: $30^{o}09.8'N$
$79^{o}35.8'W$
Depth: 760 m
Length: 200 cm

0-100 cm Yellowish gray (5 Y 7/2), muddy medium sand with many phosphatized coral fragments.

Note: Lower portion of core was washed into cloth bags. This sediment was very similar to the upper (0-100 cm) portion. A rock fragment was also found in the lower portion of the core.

Location: 30°14.2'N
79°49.9'W
Depth: 610 m
Length: 200 cm

0-80 cm	Yellowish gray (5 Y 7/2), calcareous muddy medium sand. Contains patches of black organic material.
80-85 cm	Pale olive (10 Y 6/2) lutite.
85-80 cm	Light olive gray (5 Y 5/2) lutite with coral fragment. Lower contact appears gradational.
90-200 cm	Light olive gray (5 Y 5/2) coarse sand.

CORE 34954

Location: 30°26.4'N
79°44.7'W
Depth: 620 m
Length: 460 cm

0-35 cm	Pale olive (10 Y 6/2) muddy medium sand.
35-77 cm	Greenish gray (5 GY 6/1) sandy lutite with local concentrations of sand.
77-96 cm	Greenish gray (5 GY 6/1) muddy fine sand.
96-110 cm	Greenish gray (5 GY 6/1) lutite with numerous spicules.
110-120 cm	Light olive gray (5 Y 6/1) lutite
120-168 cm	Greenish gray (5 GY 6/1) lutite with mottlings of olive gray lutite (5 Y 6/1). Spicules abundant.
168-180 cm	Light olive gray (5 Y 6/1) lutite, becomes slightly sandy near base.
180-195 cm	Greenish gray (5 GY 6/1) lutite, one cm bed of sand and 190 cm.
195-215 cm	Greenish gray (5 GY 6/1) muddy coarse sand grading up to a fine sandy mud. Distinct contact at base.
215-222 cm	Greenish gray (5 GY 6/1) silty lutite.
222-233 cm	Greenish gray (5 GY 6/1) sandy lutite.
233-460 cm	Greenish gray (5 GY 6/1) slightly sandy lutite. At 248 faint hytroilite band. With one cm bands of darker greenish gray lutites at 313 and 370 cm.
Below 460 cm	Flow-in.

CORE 34955

Location: 30°34.7'N
79°43.5'W
Depth: 560 m
Length: 80 cm

0-26 cm	Grayish yellow (5 Y 8/4) calcareous (ollitic?) muddy medium sand with small manganese nodules. Spicules pteropods, and gastropods were noted.
26-80 cm	Grayish yellow (5 Y 8/4) calcareous (ollitic?) muddy medium sand with numerous angular manganese fragments. Also contains coral fragments, gastropods, and pteropods.

CORE 34959

cation: $30^{o}59.9'N$
$79^{o}37.0'W$
Depth: 480 m
Length: 560 cm

0-10 cm	Pale olive (10 Y 6/2) muddy coarse sand with large coral fragments.
10-60 cm	Light olive gray (10 Y 6/2) lutite with a few coral fragments.
60-110 cm	Light olive gray (5 Y 5/2), sandy mud with numerous coral fragments.
110-150 cm	Greenish gray (5 GY 6/1) muddy coarse sand with numerous coral fragments.
150-180 cm	Grayish Yellow green (5 GY 7/2) muddy medium sand with numerous coral fragments.
180-310 cm	Pale olive (10 Y 6/2) muddy coarse sand with numerous coral fragments.
310-315 cm	Pale olive (10 Y 6/2) silty lutite.
315-365 cm	Pale olive (10 Y 6/2) muddy coarse sand with coral.
365-370 cm	Pale olive (10 Y 6/2) lutite.
370-560 cm	Pale olive (10 Y 6/2) sandy mud with a few coral fragments.

CORE 34960

Location: 31°04.0'N
79°30.0'W
Depth: 680 m
Length: 560 cm

0-30 cm	Yellowish gray (5 Y 8/1) muddy calcareous sand. Coral fragments, pteropods, and forams present. A great abundance of spicules throughout, giving certain parts of the core a hairy appearance when cut open.
30-286 cm	Greenish gray (5 GY 6/1) muddy medium sand, contains mottles of pale olive (10 Y 6/2) muddy sand. Below 170 cm hytroilite present. Coral fragments and sponge spicules present throughout.
286-295 cm	Greenish gray (5 GY 6/1) muddy medium sand. Same as above except that it lacks hytroilite and mottling and the sand content is higher.
295-335 cm	Greenish gray (5 GY 6/1) muddy fine sand. Differentiated from upper unit by its high silt content and finer sand texture.
335-365 cm	Greenish gray (5 GY 6/1) slightly muddy medium sand.
365-495 cm	Same as 295-335.
495-560 cm	Same as 335-365.

Location: $31^{\circ}44.2'$N
$79^{\circ}13.1'$W
Depth: 600 m
Length: 73 cm

0-29 cm	Yellowish gray (5 Y 7/2) silty calcareous medium sand. Contains coral fragments, spicules, pteropods and gastropods.
29-73 cm	Light olive (10 Y 5/4) silty medium sand with fewer fossils than upper unit.

Location: $31^{\circ}47.3'N$
$79^{\circ}16.0'W$
Depth: 300 m
Length: 155 cm

0-10 cm	Moderate olive brown (5 Y 4/4) slightly sandy lutite. Unidentified shell fragments throughout entire core.
10-35 cm	Moderate olive brown (5 Y 4/4) sandy lutite.
35-155 cm	Grayish olive (10 Y 4/2) slightly sandy lutite.

Location: 31°58.4'N
79°00.5'W
Depth: 400 m
Length: 260 cm

0-3 cm	Light olive brown (5 Y 5/6) lutite with small (1 cm diameter) manganese nodules.
3-167 cm	Light olive brown (5 Y 5/6), very dense lutite with occasional hytroilite.
167-260 cm	Light olive brown (5 Y 5/6), very sandy lutite. A manganese nodule (193 cm) and a light olive (10 Y 5/4) clay clast (187 cm) were noted.

CORE 34973

Location: 32°24.5'N
78°34.2'W
Depth: 340 m
Length: 230 cm

0-20 cm	Moderate olive brown (5 Y 4/4) muddy sand. A few shell fragments throughout.
20-40 cm	Moderate olive brown (5 Y 4/4) sandy lutite. A few shell fragments throughout.
40-60 cm	Moderate olive brown (5 Y 4/4) silty lutite. A few shell fragments throughout.
60-98 cm	Moderate olive brown (5 Y 4/4) lutite. With shell fragments throughout.
98-100 cm	Moderate olive brown (5 Y 4/4) sand.
100-120 cm	Moderate olive brown (5 Y 4/4) lutite.
120-155 cm	Moderate olive brown (5 Y 4/4) slightly sandy lutite.
155-197 cm	Grayish olive (10 Y 4/2) lutite. Mottling of a moderate olive brown (5 Y 4/4) lutite was noted. A 1 cm sand lense occurs at 183 cm.
197-220 cm	Grayish olive (10 Y 4/2) silty lutite.
220-230 cm	Grayish olive (10 Y 4/2) slightly sandy lutite.

CORE 34974

Location: $32^{\circ}23.5'$N
$78^{\circ}33.0'$W
Depth: 360 m
Length: 280 cm

0-170	Dusky yellow green (5GY5/2) slightly muddy fine sand. Glauconite (?) grains and shell fragments throughout. Numerous small (0.5 cm) lenses of clean sand with shell fragments throughout.
170-180	Same as above but this section contains more mud.
180-210	Same as above but contains more mud. Sand appears to get finer down the core.
210-280	Dusky yellow green (5GY5/2) silty fine sand with numerous shell fragments. Glauconite (?) grains abundant.

CORE 34975

Location: 32°22.7'N
78°32.3'W
Depth: 330 m
Length: 280 cm

0-15 Moderate olive brown (5Y4/4) muddy sand with mangenese nodules.

15-25 Zone of extreme mottling of yellowish gray (5Y7/2) clean sands and the upper unit.

25-60 Yellowish gray (5Y7/2) clean medium sand (extremely compact with little water).

60-110 Light olive brown (5Y5/6) muddy medium sand

110-235 Highly mottled zone of moderate olive brown (5Y4/4) and light olive brown (5Y5/6) muddy sands.

235-280 Moderate olive brown (5Y4/4) slightly sandy lutite.

CORE 34984

Location: 32°40.1'N
77°25.4'W

Depth: 430 m

Length: 230 cm

0-140	Greenish gray (5GY6/1) muddy medium sand, with numerous shell fragments. Spicules abundant.
140-205	Grayish olive (10Y4/2) muddy medium sand with numerous small manganese nodules (greater 1 cm diameter). Shell fragments abundant.
205-230	Moderate olive brown (5Y4/4) muddy foram sand. Smaller manganese nodules present, although not as many as in unit immediately above.

CORE 34985

Location: $32^{o}43.4'N$
$77^{o}23.0'W$

Depth: 420 m
Length: 260 cm

0-70	Moderate olive brown (5Y4/4) clayey foram sand. Contains only a few shell fragments.
70-230	Moderate olive brown (5Y4/4) clayey sand. Differs from upper unit because it has a lower clay content and no shell fragments.
230-260	Probably flow, same sediment as 70-230 cm.

CORE 34986

Location: $32^{o}41.4'N$
$77^{o}23.8'W$

Depth: 460 m

Length: 240 cm

0-130	Grayish olive (10Y4/2) sand contains numerous shell fragments and phosphorite ? grains.
130-140	Grayish olive (10Y4/2) muddy sand, otherwise similar to upper unit.
140-150	Grayish olive (10Y4/2) sand same as 0-130 cm
150-197	Grayish olive (10Y4/2) slightly sandy mud. Contains several lenses of sand.
197-210	Grayish olive (10Y4/2) sand.
210-240	Grayish olive (10Y4/2) lutite.

CORE 34987

Location: 32°43.6'N
77°21.0'W
Depth: 440 m
Length: 260 cm

0-2	Moderate olive brown (5Y4/4) muddy sand with manganese nodule and coarse shell fragments.
2-40	Moderate olive brown (5Y4/4) sandy mud.
40-260	Moderate olive brown (5Y4/4) muddy sand. Small coral fragment at 155 cm.

CORE 34988

Location: $32^{o}35.6'N$
$77^{o}32.4'W$

Depth: 450 m

Length: 257 cm

0-55 Dusky yellow green (5GY5/2) muddy coarse sand. Contains numerous shell fragments and manganese pebbles.

55-257 Dusky yellow (5Y6/4) clayey fine sand. Down the core the content of shell material and black phosphorite (?) grains decreases.

CORE 34990

Location: 32°37.6'N
77°38.2'W

Depth 400 m
Length: 40 cm

0-15	Moderate olive brown (5Y4/4) silty medium sand. Contains black phosphorite (?) grains and shell material
15-23	Moderate olive brown (5Y4/4) silty coarse sand. Contains shell fragments.
23-40	Mixture of small manganese nodules, rock fragments, shells, and silty sand.

CORE 34991

Location: 32°36.5'N
77°38.5'W

Depth: 390 m

Length: 280 cm

0-5 Large manganese nodules.

5-280 Moderate olive brown (5Y4/4) clayey fine sand. Mottled at 80 cm, banded concentrations of black phosphorite (?) grains at 120 cm.

CORE 34992

Location: $32^{\circ}35.6'N$
$77^{\circ}38.7'W$

Depth: 420 m
Length: 276 cm

0-5 Grayish olive (10Y4/2) muddy sand with small manganese nodules and black phosphorite (?) grains.

5-270 Grayish olive (10Y4/2) muddy sand with no manganese nodules. Banded concentrations of black phosphorite (?) grains at 70, 100, 120, and 130 cm. Apparent cementation of the material occurs at 87 and 93 cm.

CORE 35027

Location: $32^{\circ}52.8'N$
$77^{\circ}25.6'W$

Depth: 305 m

Length: 230 cm

0-230 Pale olive (10Y6/2) silty medium to coarse sand. Has salt and pepper appearance because of the numerous black phosphorite (?) grains. Contains shell fragments throughout. From 220-230 cm there is a higher concentration of shell material.

PRELIMINARY CRUISE FINDINGS

R/V EASTWARD

E-2E-78

April 2 - April 13, 1978

Florida-Hatteras Slope and the

Innermost Bahama Platform

by Mark Ayers
April 20, 1978

Most of our efforts during the last quarter have been directed at organizing and conducting a bottom sampling cruise of the Florida-Hatteras Slope and the innermost Blake Plateau. The eleven-day cruise began with the ship's departure from Brunswick, Georgia, on April 2, and concluded with the ship's arrival at Beaufort, North Carolina, April 13. The ship track and the location of several distinctive bottom features are shown in Figure 1. Aided by good weather throughout most of the cruise, a great deal of work was accomplished. A total of 51 piston cores, 26 box dredges, and 12 rock dredges were taken. In addition, seismic profile lines were taken across a distinctive slump structure in an attempt to estimate the volume of the slump mass.

Primary objectives for the cruise were: 1) to recover piston cores from twenty-one pre-selected areas; and 2) to determine the general character of bottom sediment in the study area. As a secondary objective subsamples were collected for the following analyses: 1) light and heavy hydrocarbon content, 2) bacteria taxonomy, 3) geotechnical properties, 4) pore water geochemistry, and 5) age determination. Upon recovery the unlined cores were immediately extruded, cut open, and described. Descriptions included observations of sediment texture and color, and sedimentary structure. After description one half of the core was subsampled and the other half preserved as an archive section.

Light hydrocarbon content was evaluated on board using a gas chromatograph. Inte rstitial water used to study the pore water geochemistry was

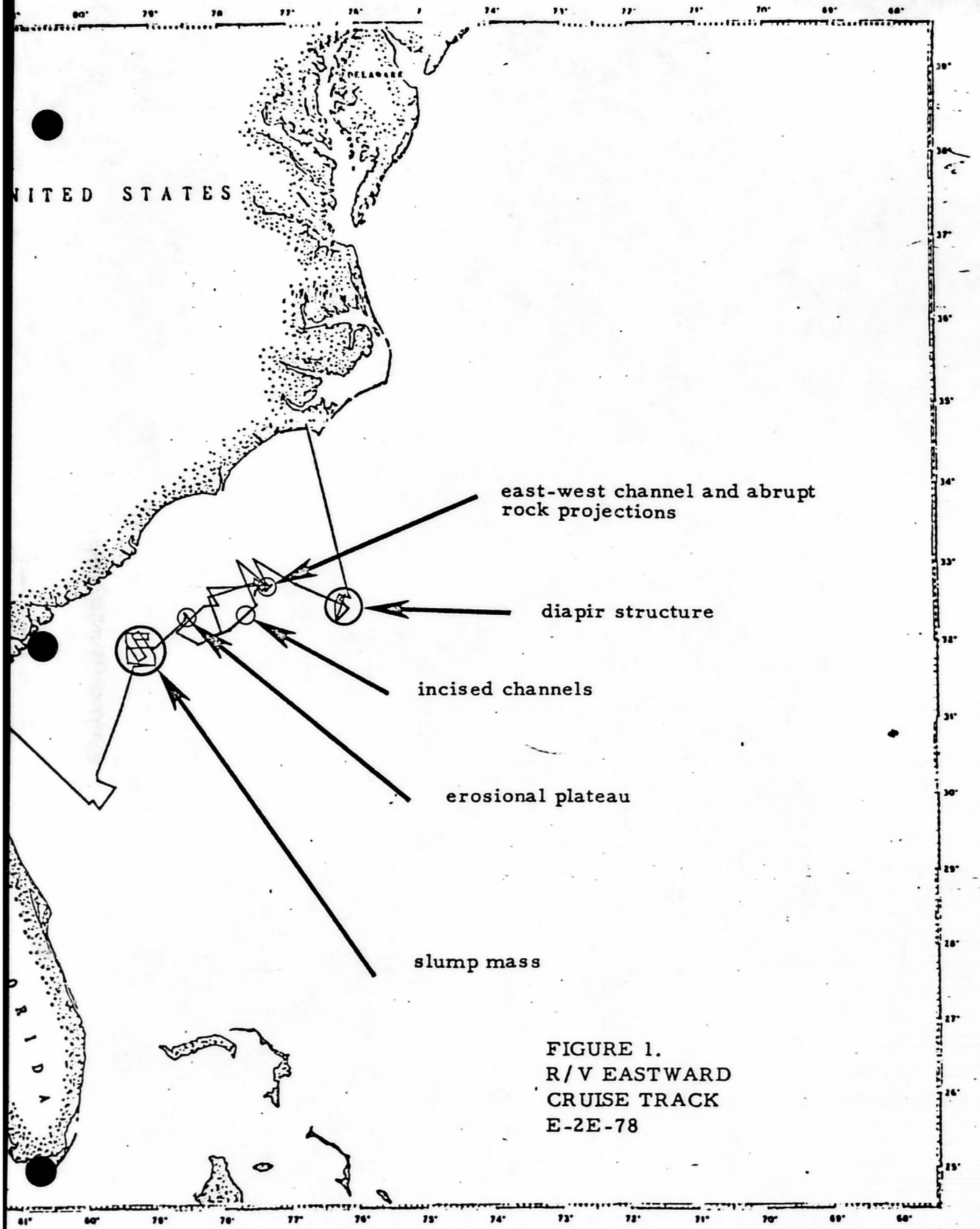

FIGURE 1.
R/V EASTWARD
CRUISE TRACK
E-2E-78

squeezed from the sediments immediately after subsampling. Subsamples for other analyses were appropriately preserved and then stored for later study in shorebased facilities.

Piston coring was extremely difficult and often impossible at many locations throughout the study area. A total of 10 core pipes were bent, and 19 core cutter heads and 4 gravity core pipes were smashed while trying to piston core. Impenetrable substrata of manganese gravels and pavements or sedimentary rock often prevented the recovery of a full core section. Even so, thirty-seven cores recovered greater than one meter of sediment and only two cores failed to recover any sediment at all.

All twelve rock dredges recovered rock or coral. Most of the rock dredges were taken across steep erosional escarpments (Fig. 2) in an attempt to determine what maintains their steep angle of repose. Two rock dredges were taken across bottom projections (Fig. 3) that were observed throughout the study area and one dredge was taken to verify the existence of living coral on the bottom.

Rock dredges taken across the escarpments of the erosional plateaus always recovered manganese pavements. This suggests the manganese may act as a cap rock helping maintain the steeply sloping escarpments. Only one rock dredge recovered a non-manganese rock. At this site the dredge was taken up one wall of a deeply incised channel (Fig. 4). Here a poorly indurated calcareous sandstone was recovered. Rock dredges across the bottom projections recovered large blocks of manganese rock revealing the nature of these features.

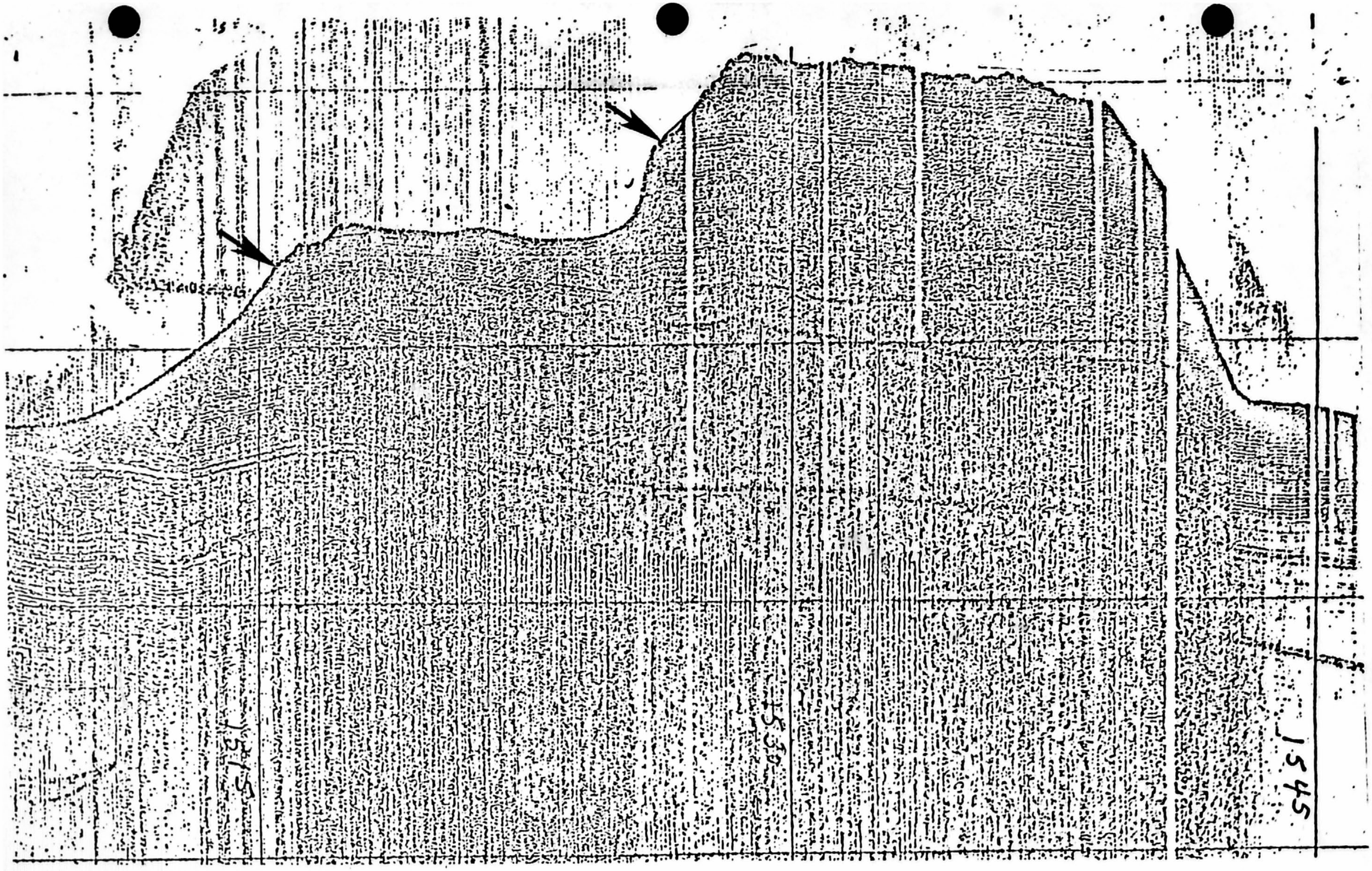

Figure 2. Erosional plateau. Dredges taken across the two escarpments (shown by arrows) recovered large slabs of manganese pavement (for location see Figure 1, "erosional plateau").

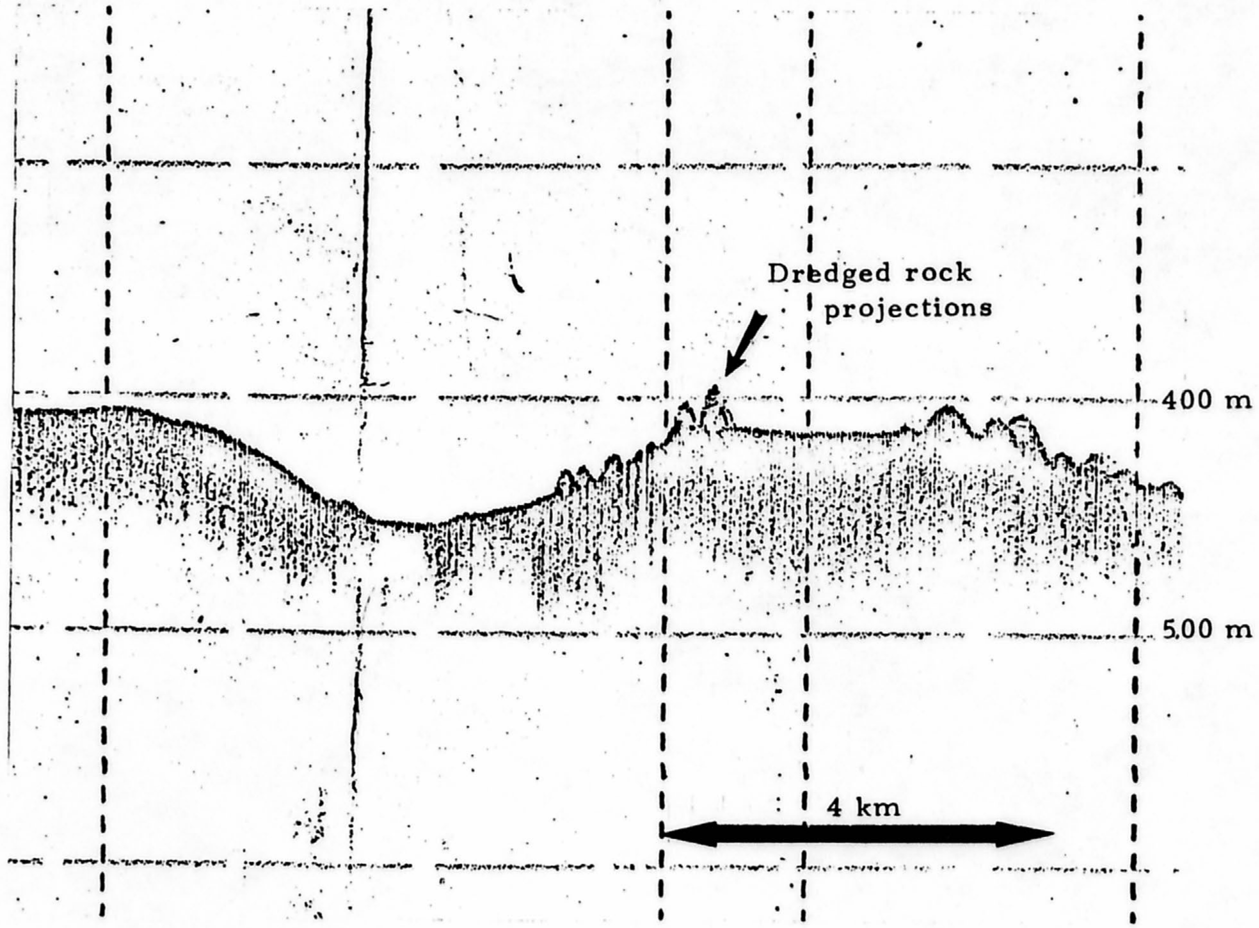

Figure 3. Profile across east-west trending channel. The profile is approximately perpendicular to the channel axis (for location see Figure 1, "east-west trending channel"). Note the rock projections, rock dredging of these features recovered large blocky fragments of manganese rock.

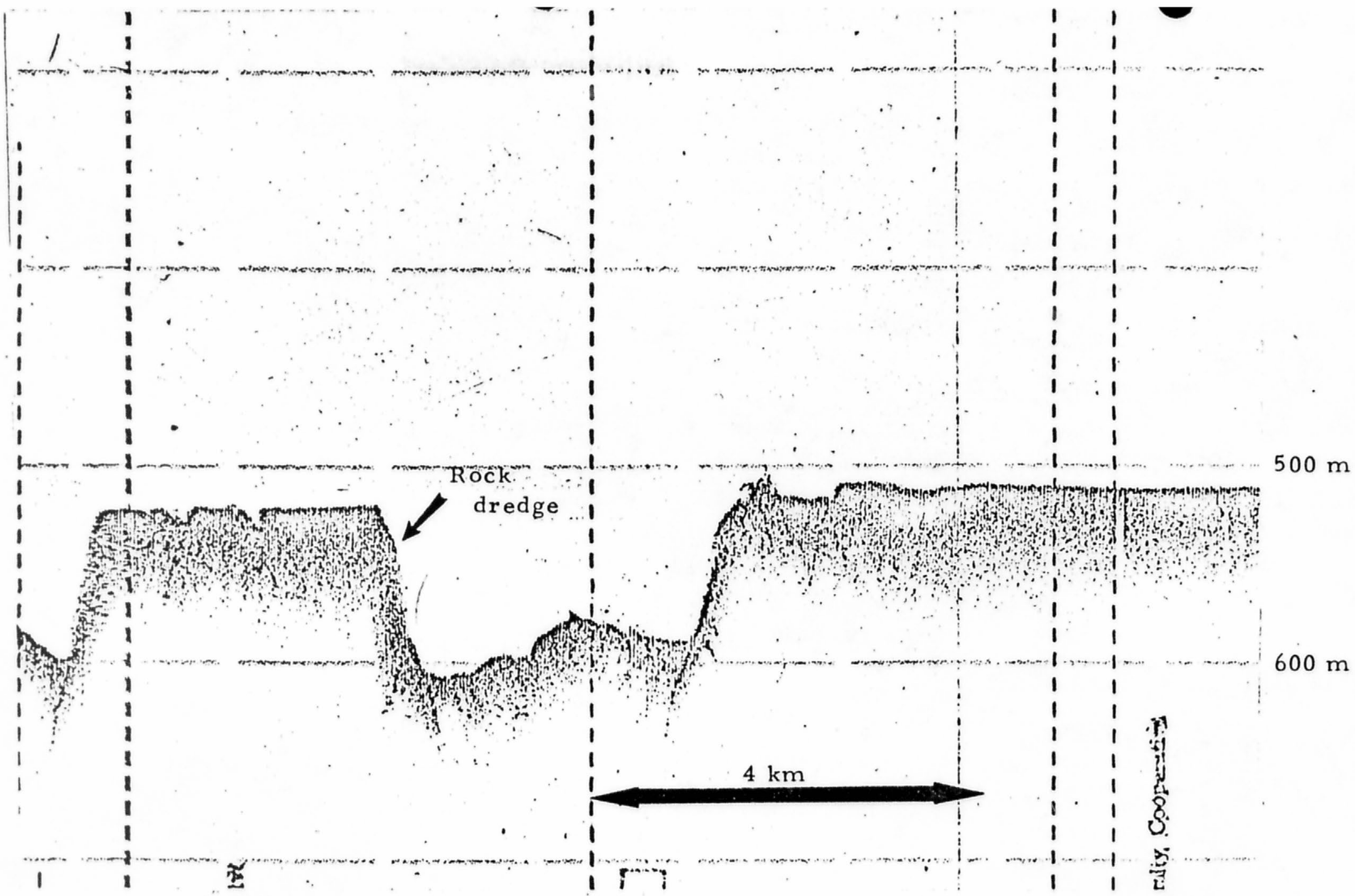

Figure 4. Incised channel; rock dredge of steep wall recovered a poorly lithified calcareous sandstone (for location see Figure 1, "incised channel").

Dredged material from flat bottoms with little relief was also distinctive consisting of numerous fist-sized manganese "rocks."

In light of the great diversity of depositional environments sampled it is difficult to characterize, at this stage, the general lithology and core stratigraphy of the study area. However, most cores contained thick (> 1 m), apparently unstructured, units of muddy, medium to coarse sands. Siliceous sponge spicules and small black grains of manganese or phosphorite were abundant throughout most of the cores. Mud units were seldom present in the cores. In general, sediments tend to be the finest in the northern and western extremities of the study area. This apparently reflects the intensity of winnowing by the Gulf Stream which diminishes in these directions. Distinctive calcareous gravels and coarse sands were typical in the cores taken in areas of dense coral growth.

Physiography of the sea floor in the study area is rugged but low relief, indicative of of strong erosive processes. Numerous erosional channel features were observed. Most of the channels apparently trend north-south related to erosion by the Gulf Stream. However, when an attempt was made to trace a single channel in the northern part of the study area it was obvious that it trended east-west (Fig. 1). This is significant because it indicates some form of cross slope sediment transport must have occurred.

Initial analysis of data from this cruise suggests that a subsequent cruise in the southern part of the same study area would be extremely useful. The cruise should emphasize: 1) grab sampling to map surficial sedimentary facies, 2) rock dredging of steep escarpments, 3) bottom camera stations of rock bottoms, and 4) 3.5 khz bottom profiling. Piston cores would be taken sparingly, and only when bottom character permits.

(p. 108 follows)

Data Library
Rec'd 3 Apr 78
ROSCOP SUBMITTED
Coded for STA 78

Cruise Report

RV Oceanus 39, Leg I

2 - 6 Feb. 1978

B. Butman
USGS
Woods Hole, Mass.

Ship: RV Oceanus
Cruise: 39 Leg I
Area: South Atlantic Bight
Dates: Depart Woods Hole 1700 2 Feb. 1978
Arrive Savannah, Ga. 1600 6 Feb. 1978

Objectives

The purpose of the cruise was to deploy two tripod moorings on the Georgia Shelf, and to conduct CTD and XBT observations as weather and time permitted. The cruise was part of a continuing study of currents and sediment transport on the U.S. east coast continental shelf.

Personnel

Paul Howland	Master
Brad Butman	Chief Scientist
John West	USGS
Gary Prisby	USGS
Stephanie Pfirman	USGS
Betsy Coward	USGS
Nick Lefteriou	USGS
Charles Deadmon	USGS
Frank Jennings	USGS
Al Goodman	USGS
Pete Popenoe	USGS
Andy Eliason	Eliason Data Services

Narrative

2 Feb.	1600	Depart Woods Hole
		CTD and XBT Stations
3 Feb.	0200	Check USGS Mooring 141
		Tripod Upright
	1000	Check USGS Moorings 140,146
		Both Upright. Deployed surface marker buoy
4 Feb.		Underway along 60 m isobath
		XBT and CTD observations
5 Feb.	0700	Deploy USGS Mooring 142
		Surface marker and tripod
		Surface grab sample
	1800	Deploy USGS Mooring 143
		Surface marker and tripod
		Surface grab sample
		XBT and CTD transect.
6 Feb.	1200	Arrive Savannah Light Tower
	1500	Dock Savannah

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Instrumentation Deployed

1. USGS Mooring 142 (Tripod)
   32° 33.7' N 78° 39.5' W
   44 M

2. USGS Mooring 143 (Tripod)
   31° 6.8' N 80° 10.6' W
   47 M

Stations

XBT	80
CTD	15
Surface Grab	3

Attachments

Cruise Track
Station Location List

Oceanus 39 (Feb. 2 - 6,1978) Station List

Sta.#	Date	Lat.		Long.		Depth	XBT	CTD
1	2/2	41	17.1	70	56.5	40	X	
2		41	08.8	71	04.5	33	X	
3		40	56.8	71	15.8	51	X	
4		40	45.2	71	25.9	64	X	
5		40	35.8	71	35.9	74	X	
6		40	26.2	71	51.9	68	X	
7		40	17.5	72	06.2	62	X	
8		40	06.4	72	21.5	72	X	
9		39	57.2	72	35.7	59		X
10		39	47.1	72	29.0	74	X	
11		39	41.6	72	47.8	72	X	
12		39	29.9	72	56.0	58	X	
13		39	14.7	73	06.5	70	X	
14		38	58.4	73	22.1	67	X	
15		38	49.4	73	45.8	48	X	
16		38	46.5	73	41.6	55	X	
17		38	43.2	73	37.2	64		X
18		38	38.9	73	32.5	62	X	
19		38	34.1	73	27.0	82	X	
20		38	29.5	73	45.9	62	X	
21		38	18.3	73	59.5	70	X	
22		38	04.4	74	08.6	74	X	
23		37	52.5	74	17.9	74	X	
24		37	38.8	74	29.6	65	X	
25		37	30.0	74	36.4	65		X
26		37	16.8	74	43.1	63	X	
27		37	06.5	73	47.1	64	X	
28		36	50.5	74	48.5	53	X	
29		36	30.0	74	49.0	64		X
30		36	13.5	74	52.5	81	X	
31	2/4	35	59.6	74	56.7	78	X	
32		35	40.7	74	57.4	57		X
33		35	32.7	74	53.5	50	X	
34		35	19.5	75	01.4	44	X	
35		35	08.6	75	13.0	58	X	
36		35	00.5	75	21.9	69	X	
37		34	52.2	73	30.0	55		X
38		34	41.6	75	41.9	73	X	
39		34	29.2	75	53.6	64	X	
40		34	17.7	76	06.7	61	X	
41		34	07.7	76	18.0	43	X	
42		33	57.0	76	31.2	45	X	
43		33	46.1	76	42.7	47	X	
44		33	34.8	76	54.4	77	X	
45		33	25.8	77	09.2	44	X	
46		33	13.3	77	24.0	40	X	
47		33	10.1	77	38.5	47	X	
48		32	59.4	78	00.0	67	X	
49		32	51.4	78	13.8	104	X	
50		32	47.4	78	25.4	104	X	

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Sta.#	Date	Lat.		Long.		Depth	XBT	CTD
51	2/5	32	43.7	78	51.1	32		X
52		32	40.5	78	48.0	39	X	
53		32	37.0	78	42.6	41	X	
54		32	34.5	78	41.0	45	XX	X
55		32	32.5	78	39.0	57	X	
56		32	31.2	78	36.9	150	X	
57		32	30.8	78	35.8	225	X	X
58		32	29.9	78	47.6	56	X	
59		32	26.1	78	57.5	50	X	
60		32	16.4	79	10.2	50	X	
61		32	06.8	79	23.2	40	X	
62		31	59.0	79	32.6	43	X	
63		31	44.6	79	45.5	49	X	
64		31	31.0	79	54.4	47	X	
65		31	18.0	80	01.4	48	X	
66		31	00.5	79	53.9	145		X
67		31	02.9	79	55.9	65	X	
68		31	01.5	79	58.1	52		X
69		31	03.6	80	02.6	48	X	
70		31	05.5	80	08.0	47		X
71		31	06.7	80	10.5	46		X
72		31	08.5	80	15.5	38	X	
73	2/6	31	10.4	80	21.1	36	X	
74		31	13.0	80	27.8	29		X
75		31	17.4	80	12.4	43	X	
76		31	22.2	79	58.3	44	X	
77		31	26.4	79	44.4	75	X	
78		31	27.9	79	40.8	119	X	
79		31	29.8	79	37.0	160	X	
80		31	31.2	79	33.0	225	X	
81		31	31.0	79	28.5	260	X	
82		31	31.2	79	22.9		X	X
83		31	35.4	79	28.1		X	
84		31	36.4	79	30.5		X	
85		31	38.0	79	33.4		X	
86		31	38.9	79	36.0		X	
87		31	39.9	79	40.9	57	X	
88		31	41.7	79	49.5	40	X	
89		31	44.7	80	01.8	39	X	
90		31	48.4	80	14.0	48	X	
91		31	48.5	80	24.8	30	X	
92		31	54.9	80	35.8	20	X	

Bottom Grab Stations

4706	2/4	32	34.4	78	40.0
4707	2/5	31	6.6	80	10.5
4708	2/6	31	13.0	80	27.8

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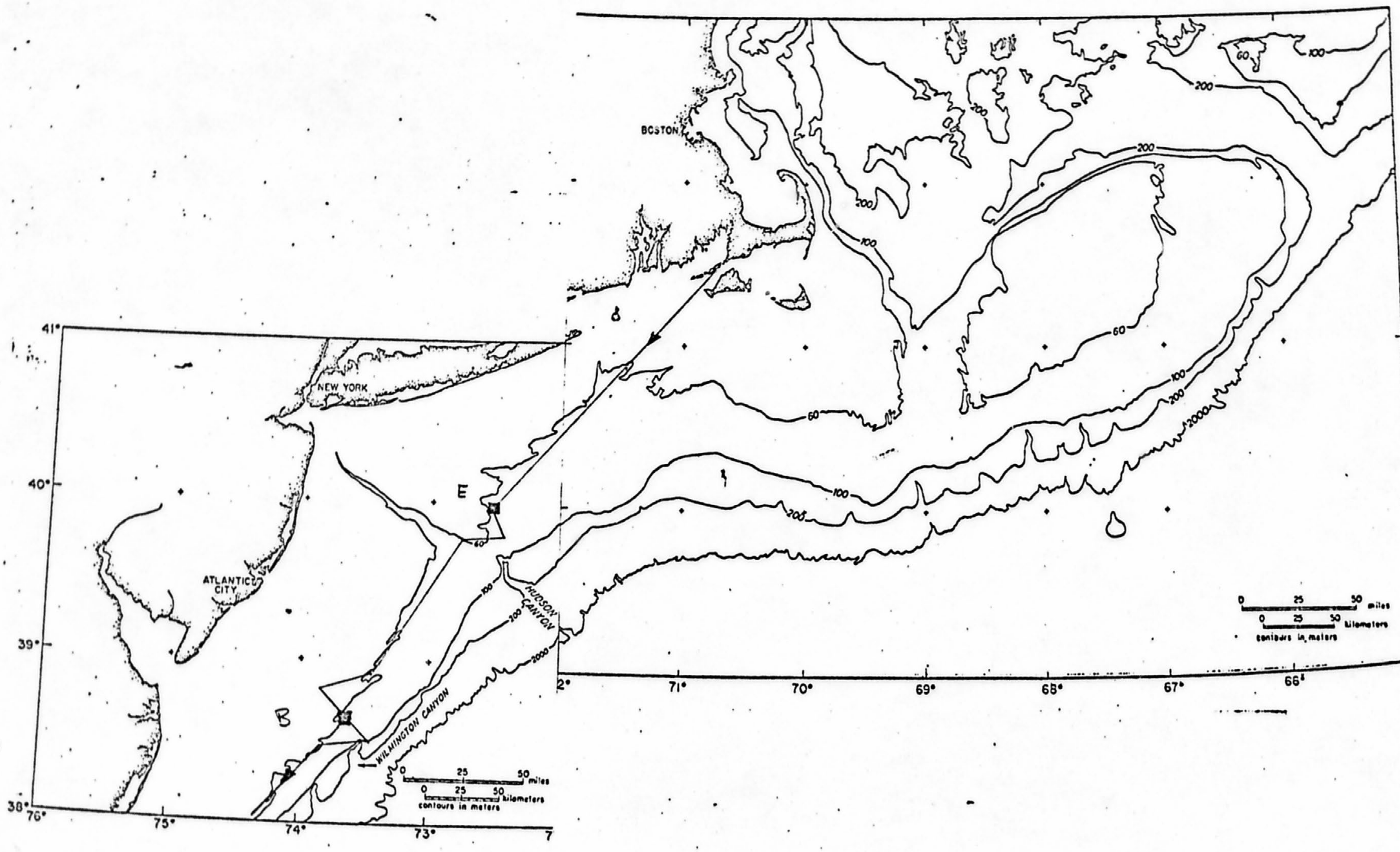
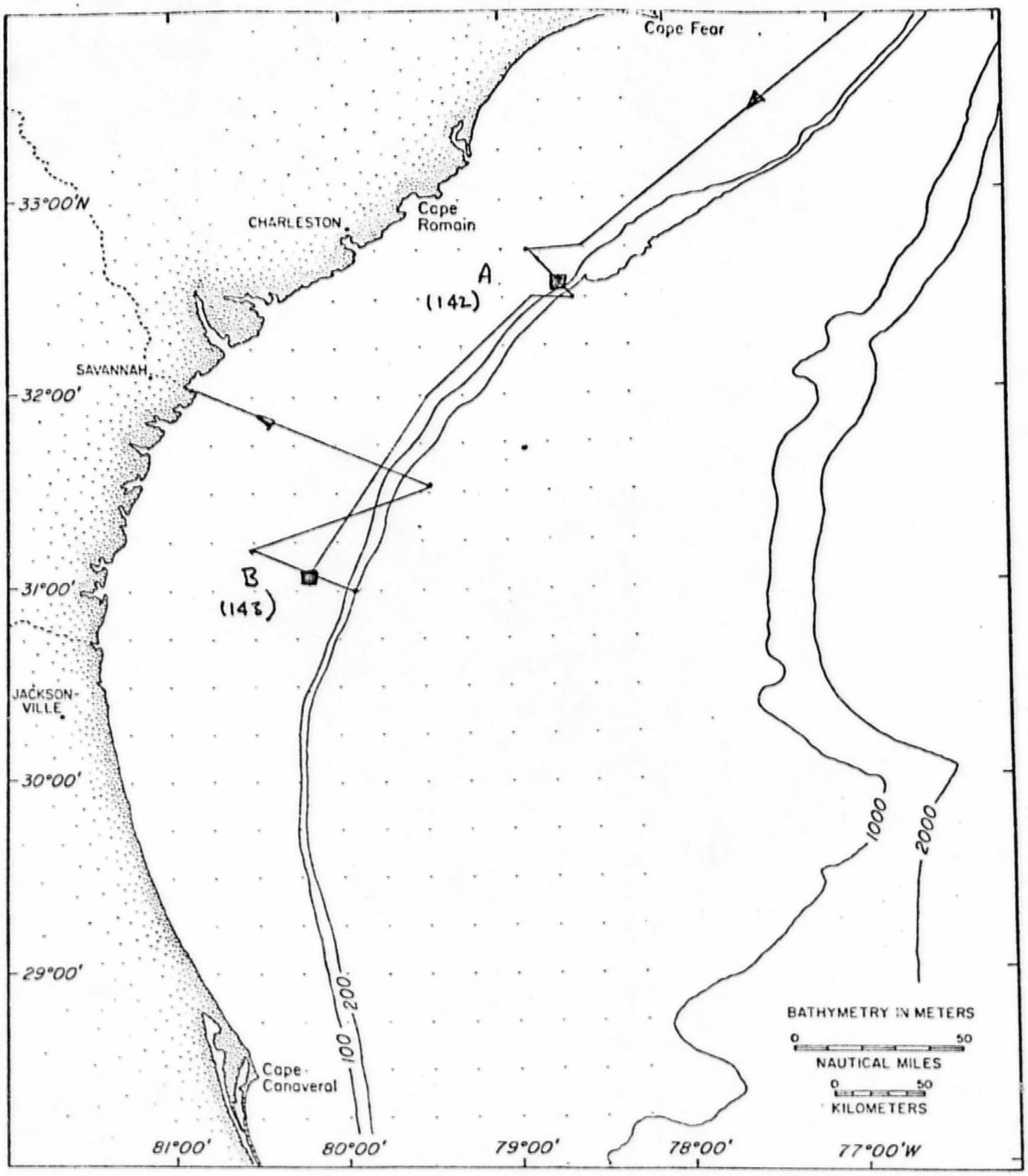


Cruise Track, OCEANUS 39, Leg I 2 - 6 February, 1978



Cruise Track, OCEANUS 39, Leg I 2 - 6 February, 1978

Received [illegible]

Cruise Report

Tug WHITEFOOT

7-18 July 1978

B. Butman
U.S.G.S.
Woods Hole, MA

Area of Operations: South Carolina Shelf

Dates:	7 July	Load and depart Woods Hole, Mass.
	11 July 2200	Arrive Georgetown, South Carolina
	13 July 0200	Depart Georgetown, South Carolina
	14 July 1100	Arrive Georgetown, South Carolina
	14 July 1800	Depart Georgetown, South Carolina
	18 July	Arrive Woods Hole, Mass.

Objectives:

The WHITEFOOT cruise was part of a continuing study of currents and sediment transport on the U.S. east coast Continental Shelf. The purpose of the curise was to recover two bottom tripods and deploy one tripod on the South Carolina shelf, to conduct hydrographic observations (XBT), to relight two surface marker buoys at the tripod site locations, and to obtain samples of the surface sediments at the tripod locations.

For logistic reasons, U.S.G.S. utilized the tug WHITEFOOT for the deployment. It was felt that assembling and offloading the tripod instrumentation at Woods Hole would be safer and more convenient than shipping the large quantity of instrumentation and assembling for deployment by a local vessel. U.S.G.S. personnel met the WHITEFOOT in Georgetown, South Carolina, a port close to the tripod deployment locations.

Personnel:

Ray Campbell, Master

Brad Butman, Chief Scientist U.S.G.S.
Bill Strahle, Electrical Engineer, U.S.G.S.

Narrative:

7 July		Load WHITEFOOT in Woods Hole
8-11 July		Transit to Georgetown, South Carolina
12 July		Prepare ship and tripods
13 July	0200	Depart Georgetown, South Carolina
	1000	Arrive Station A (see Chart)
	1110	Deploy new surface marker buoy
	1220	Deploy tripod (U.S.G.S. mooring 152)
		Steam to Station D, survey depth
	1535	Deploy tripod at Station D, confirm upright (U.S.G.S. mooring 153)
	1800	Recover tripod at station A (U.S.G.S. mooring 147)
	1900	Recover surface marker at Station A
	2000 - 2200	Surface grab sample at station A & D

13 July	2300	Commence cross-shelf XBT section
14 July	0700	Complete XBT section
	1000	Arrive Georgetown, S.C.
14-18 July		Transit to Woods Hole
18 July		Offload

Mooring Condition (147)

The tripod had moderate biological growth on the frame and instrument housings. The camera window had several barnacles and a light coating of slime. The transmissometer prism also had a light coating of slime. Some aluminum oxide corosion had formed on the transmissometer light port. The current rotor and vane were free. There was some diffulty in recovering the tripod through a rear A-frame installed on the WHITEFOOT. The current sensor was damaged on recovery. Although it took several minutes to get the tripod aboard, quick visual observation of the instrument in the water showed several fish inhabiting the savarius rotor current sensor. Crabs, one samll octupus, and several fish also inhabited the corner box frames, open structural pipes, and the top lifting plate of the tripod. The camera strobe would not fire on deck, indicating malfunction or low batteries.

Instrumentation Recovered

1. Mooring 147 (Station A)
   (32° 33.7' N, 78° 39.5' W)

Instumentation Deployed

1. Mooring 152 (Station A, 47 m)
   (32° 34.5 ' N, 78° 39.9' W)

2. Mooring 153 (Station D, 85 m)
   (32° 32.5' N, 78° 37.5' W)

Stations

Surface salinity	10
XBT	10
Surface grab	2

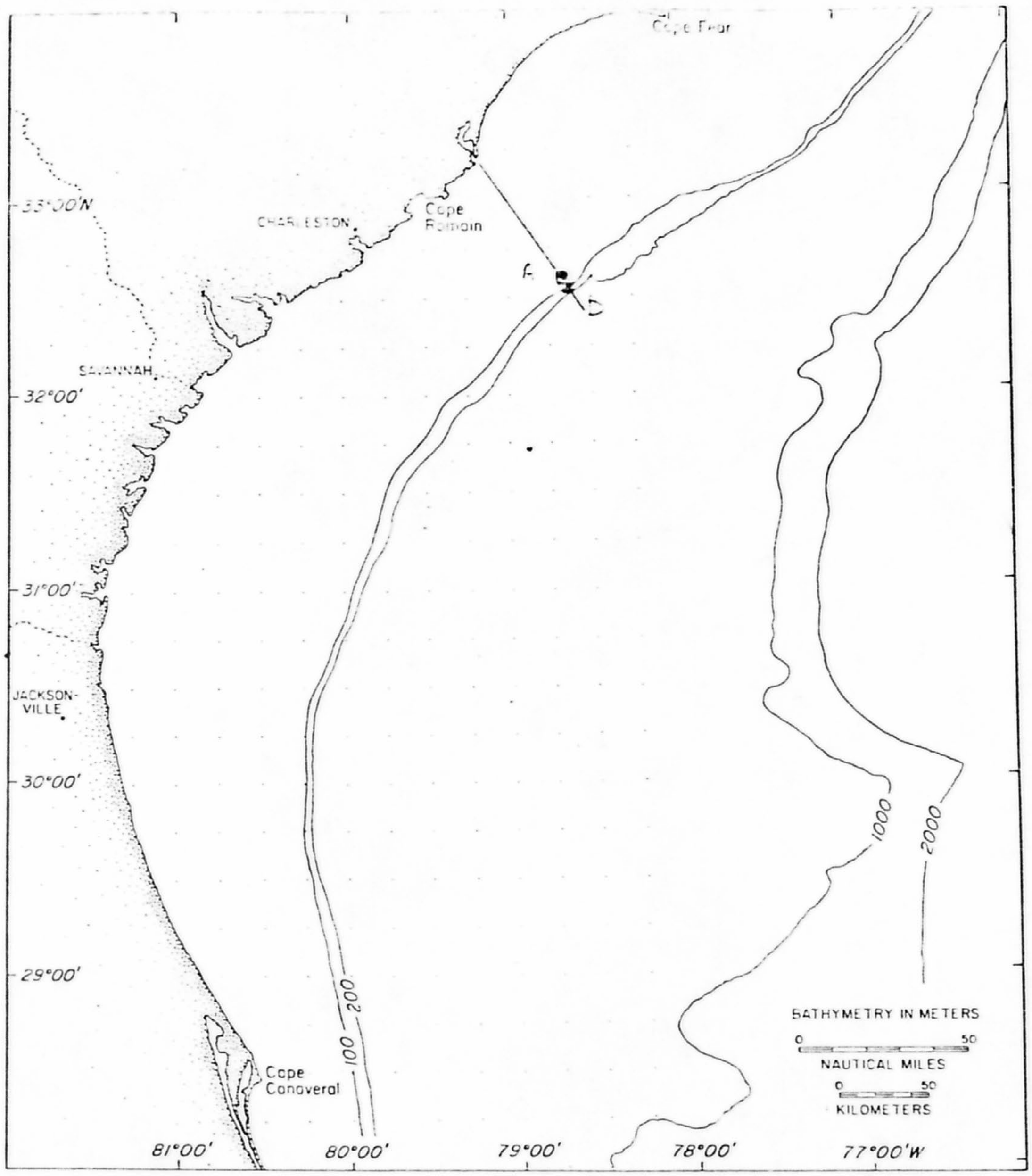
WHITLFOOT

Station List
(13-14 July, 1978)

Sta.	Date	Lat.	Long.	Depth (m)	XBT	SS
1	13 July	32° 23.9' N	78° 31.8'W	275	x	x
2	14 July	32° 27.3' N	78° 35.0'W	275	x	x
3	"	32° 29.9' N	78° 38.0'W	230	x	x
4	"	32° 32.2' N	78° 38.3'W	85	x	x
5	"	32° 34.5' N	78° 39.9'W	45	x	x
6	"	32° 38.2' N	78° 43.5'W	44	x	x
7	"	32° 43.0' N	78° 51.5'W	33	x	x
8	"	32° 48.6' N	78° 54.5'W	30	x	x
9	"	32° 56.5' N	79° 0.8'W	22	x	x
10	"	32° 3.6' N	79° 4.5'W	15	x	x

Surface Grab Samples

4625	13 July	32° 34.5'N	78° 39.9'W	47
4626	"	32° 32.5'N	78° 37.5'W	91



Cruise Track - Tug WHITEFOOT
13-14 July, 1978

Tripods deployed at Station A and D

Tripod recovered at Station A

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CRUISE REPORT

R/V STATE ARROW

Submersible "Diaphus"

South Atlantic Environmental

Program

August, 1978

CRUISE REPORT

VESSEL: STATE ARROW

MASTER: G.F. Ottmer

SUBMERSIBLE:"Diaphus", leased from Texas A & M by Martech International, Inc.

CRUISE NO: STATE ARROW 78, Leg 3

AREA of OPERATION: Southeast Georiga Embayment or Georgia Bight

START: 07:45 Aug. 15, 1978, Savannah,Georgia

END: 08:20 Aug. 19, 1978, Savannah,Georgia

CHIEF SCIENTIST: Dr. Mahlon Ball

SCIENTIFIC PARTY:

Popenoe, Peter	Geologist, U.S.G.S.,Woods Hole,MA
Henry, V.J.	Geologist, Skidway Institute of Oceanography, Savannah, Ga.
Paull, Charles	Geologist, U.S.G.S.,Wooods Hole, MA
Hunt, Jesse, Jr.	Oceanographer, BLM New Orleans OCS Office
Eskenasy, Diane	Geologist, U.S.G.S., Woods Hole, MA
Pfirman, Stephanie	Geologist, U.S.G.S., Woods Hole, MA
Noble, Marlene	Physical Oceanographer, U.S.G.S. Woods Hole,MA

SUBMERSIBLE PERSONNEL (MARTECH)

Bolstad, Don	Supervisor and Dive Master
Hickey, Pat	Submersible pilot
Barksdale, Gordon	Submersible pilot
Jackson, Bob	Diver
Barker, Dan	Diver
Beldon, Mark	Diver and winch operator

OBJECTIVE:

To study the reefs and hargrounds of the Georgia Bight in order to "ground truth" the seismic and side-scan sonar data, to investigate first hand the geologic origin and nature of the reefal features, and their use as a marine habitat. To inspect the bottom tripod instrument package on the shelf edge for evidence of scour, bottom conditions and composition, and to document the extent of the use of the tripods as an animal habitat. A mini-sparker line was planned to supplement existing data from the FY-75-76 FAY Cruises, and XBT observations are to be made in order to better define the water masses associated with the tripods.

SCIENTIFIC EQUIPMENT:

1. Submersible equipped with a Benthos 800 frame camera, video TV recorder, and Van Veen Grab.

2. Northstar 6000 Loran- C

3. Teledyne model 253, 800 Joule minisparker

4. XBT equipment

5. Salinity sample bottles

NAVIGATION TECHNIQUES:

Navigation was entirely by Loran-C with the Northstar - 6000 unit. Nav. Slaves used were the 9930 chain, chiefly stations W and Z.

Tabulated Information

Date	Dives	Diving	Total Time Underwater	XBT	Surface Salinity	Transitting	Sparking	Stand-by
15 Aug. '78	5	5 hrs. 40 min.	2 hrs. 47 min.	3	8	13 hrs. 28 min.	3 hrs. testing no data	———
16 Aug. '78	7	11 hrs. 10 min.	6 hrs. 17 min.	10	11	12 hrs. 50 min.	———	———
17 Aug. '78	6	9 hrs. 30 min.	4 hrs. 41 min.	7	7	14 hrs.30 min.	———	———
18 Aug. '78	4	8 hrs. 40 min.	5 hrs. 14 min.	13	13	12 hrs.20 min.	———	3 hrs.
19 Aug. '78		———	———	5	5	8 hrs.20 min.	———	———
Total	22	35 hrs.	19 hrs.	38	44	61 hrs. 28 min.		3 hrs.

Total time at sea 120 hrs, 35 minutes (5 days, 35 minutes).

Dive	Date	Down	Up	Total	Start	Finish	Depth (feet)	Course	Visibility	Pilot Observer	Remarks
1 (604)	15 Aug.	1336	1404	30	31°23.12 80°52.5	31°23.1 80°52.5	55	100°	10 - 15	Hickey Ball	To N.E. of Gray's reef Sand Bottom, 1.5 knots current at 090
2 (605)	15 Aug.	1435	1511	36	31°23.12 80°53.5	31°23.1 80°52.5	55	Search	10 - 15	Barksdale Henry	To N.E. of Gray's reef Sand bottom, .5 knots current at 20°
3 (606)	15 Aug.	1526	1611	45	31°23.92 80°53.29	31°24.38 80°55.01	60		10 - 15	Hickey Hunt	On Gray's reef, spectacular bottom, no current
4 (607)	15 Aug.	1627	1651	24	31°23.92 80°55.03	31°24.48 80°55.23	50	W N W	10 - 15	Barksdale Popenoe	Sand bottom, current 120° 1.5 knots, Missed reef,
5 (608)	15 Aug.	1757	1829	32	31°24.3 80°55.0	31°24.16 80°54.96	60		20	Hickey Paull	On Gray's reef
6 (609)	16 Aug.	0848	1048	120	30°25.36 80°22.65	30°24.35 80°20.99	130		20	Barksdale Henry	On hardgrounds traversing East across shelf toward shelf edge reef. current 3/4 knot at 270°
7 (610)	16 Aug.	1221	1300	39	30°24.75 80°14.81	30°24.83 80°15.02	150	Search	20	Hickey Ball	On shelf edge reef. No refal features seen, only sand bottom.
8 (611)	16 Aug.	1332	1406	34	30°24.75 80°14.81	30°24.75 80°14.81	170	120°	10 - 15	Barksdale Hunt	Current 130°
9 (612)	16 Aug.	1430	1525	55	30°24.75 80°14.81	30°24.37 80°12.85	170	090°	20	Hickey Paull	Current 120°, good reef seen
10 (613)	16 Aug.	1543	1633	50	30°24.87 80°12.85	30°24.87 80°12.85	175	270°	20	Barksdale Noble	
11 (614)	16 Aug.	1635	1722	47	30°24.87 80°12.85	30°24.87 80°12.85	160	170°	15	Hickey Eskenasy	

00124

Dive	Date	Down	Up	Total	Start	Finish	Depth	Course	Visibility	Pilot Observer	Remarks
12 (615)	16 Aug.	1748	1820	32	30°24.87 80°12.85	30°27.53 80°16.25	155	090°	15	Barksdale Pfirman	Strong current
13 (616)	17 Aug.	0900	0914	14	30°32.2 80°04.68		500		30	Hickey Ball	Dive on deep reefs on lower slope in area of Maganese and phosphate nodules. Dive aborted because of strong Gulf stream current.
14 (619)	17 Aug.	1134	1215	41	30°40.10 80°09.52	30°39.99 80°09.32	180	West	30	Barksdale Popenoe	current 340° at .5 knots Shelf edge reef N. of previous dives.spectacular live bottom.
15 (620)	17 Aug.	1240	1335	55	30°40.16 80°09.49	30°39.98 80°09.67	180	West East	30	Hickey Hunt	Traverse W. across reef to sand top, then E across reef again
16 (621)	17 Aug.	1345	1457	71	30°39.73 80°07.51	30°40.15 80°09.61	180	270°	20	Barksdale Henry	current 340°, weak, good reef seen
17 (622)	17 Aug.	1540	1645	65	30°40.14 80°09.62	30°40.14 80°09.38	165	120°	20	Hickey Paull	good reef seen
18 (623)	17 Aug.	1650	1725	35	30°39.88 80°07.69		165	090°	20	Barksdale Noble	missed reef
19 (624)	18 Aug.	1020	1211	111	32°33 78°39	Same	140	125° 295° 300° 200°	25 - 30	Hickey Pfirman	Dive in search of tripod at described distance and bearing. No tripod found
20 (625)	18 Aug.	1245	1434	109	32°32.5 78°37.5	Same	140	Search Pattern	20	Barksdale Noble	Move to exact loran location of tripod. No tripod found
21 (626)	18 Aug.	1654	1750	54	32°38.64 78°50.98	Same	125	320° 325°	40	Hickey Henry	reticulated bottom area Sandy with hardground and fish
22 (627)	18 Aug.	1805	1845	40	32°39.12 78°51.45	Same	120	325°	40	Barksdale Eskenasy	reticulated bottom area

STATE ARROW
78 - 2
15 - 19 Aug. 1978

Sta.#	Depth (m)	Latitude		Longitude		XBT	Surface Salinity	Date	Time
BR- 1								8/15	0910
2		31	59.0	80	46.0		X		0936
3		31	49.4	80	44.9		X		1038
4		31	42.1	80	47.3		X		1120
5		31	26.4	80	53.8		X		1230
6	18	31	23.6	80	51.5		X		1940
7	25	31	17.2	80	38.3	X	X		2138
8	31	31	09.2	80	27.8	X	X		2305
9	36	30	56.2	80	24.3	X	X	8/16	0030
10	40	30	44.5	80	21.5		X		0200
11	40	30	34.7	80	23.2	X	X		0330
12	36	30	23.7	80	23.1	X	X		0520
13	73	30	24.0	80	13.8	X	X		1140
14	40	30	25.1	80	16.5	X	X		1151
15	340	30	24.6	80	03.5	X	X		2047
16	256	30	25.9	80	06.2	X	X		2110
17	148	30	24.9	80	11.0	X	X		2145
18	40	30	24.2	80	11.5	X	X		2220
19	33	30	23.7	80	25.0	X	X		2303
20	24	30	25.0	80	38.2	X	X	8/17	0020
21	22	30	24.4	80	49.3	X	X		0116
22	18	30	25.1	81	01.1	X	X		0210
23	60	30	41.9	80	08.5	X	X		1835
24	80	30	54.9	80	01.9	X	X		1945
25	40	31	01.0	80	04.0	X	X		2055
26	42	31	15.7	79	59.0	X	X		2235
27	146	31	25.4	79	43.9	X	X	8/18	0000
28	46	32	32.0	78	38.4	X	X		0500
29	47	32	34.3	78	37.7	X	X		1500
30	160	32	31.4	78	39.0	X	X		1530
31	60	32	33.0	78	39.6	X	X		1540
32	50					X	X		1555
33	40	32	36.2	78	46.1	X	X		1615
34	32	32	39.6	78	52.0	X	X		1850
35	30	32	42.5	78	55.8	X	X		1915
36	24	32	45.6	79	00.0	X	X		1945
37	22	32	48.9	79	03.4	X	X	8/18	2010
38	24	32	41.2	79	09.4	X	X		2110
39	26	32	31.0	79	20.8	X	X		2225
40	24	32	19.6	79	36.2	X	X	8/19	0020
41	26	32	08.7	79	47.4	X	X		0130
42	24	31	57.9	79	58.7	X	X		0230
43	20	31	56.9	80	17.1	X	X		0400
44	16	31	57.0	80	26.5	X	X		0535

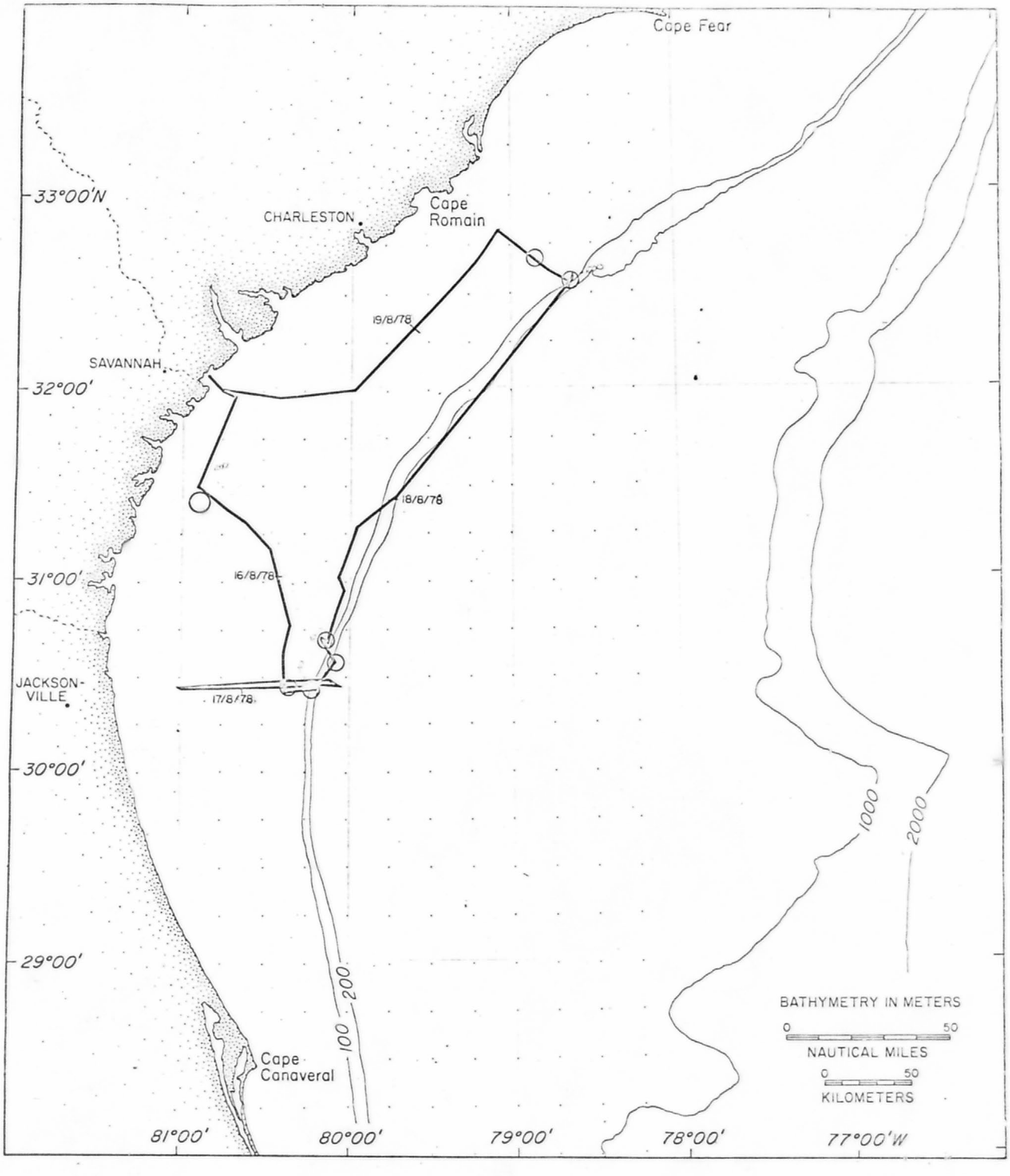

Figure 1: Cruise track chart - circles indicate dive areas.

00127

00193

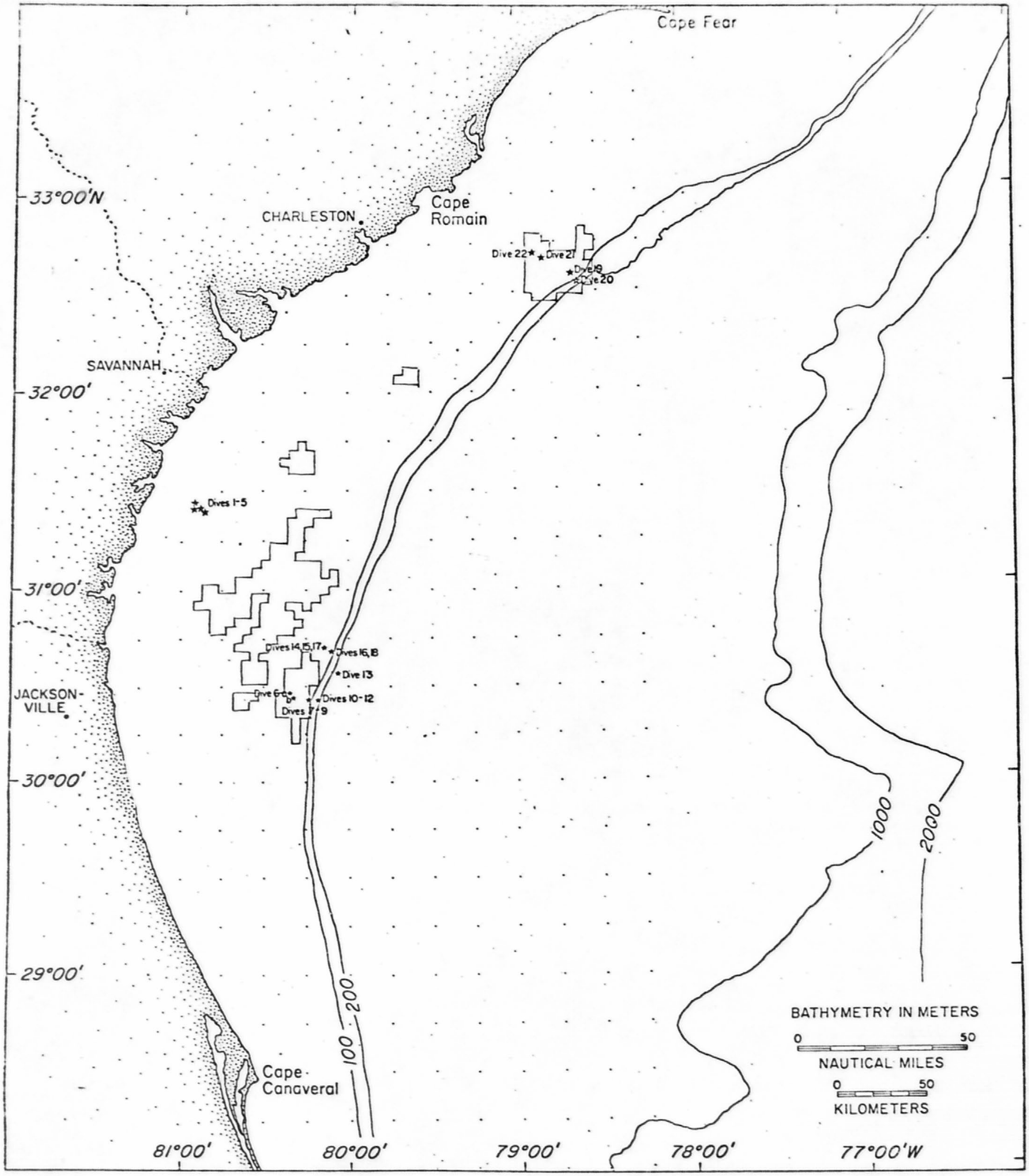

Figure 2: Dive sites, submersible DIAPHUS, STATE ARROW Leg 3, August, 1978

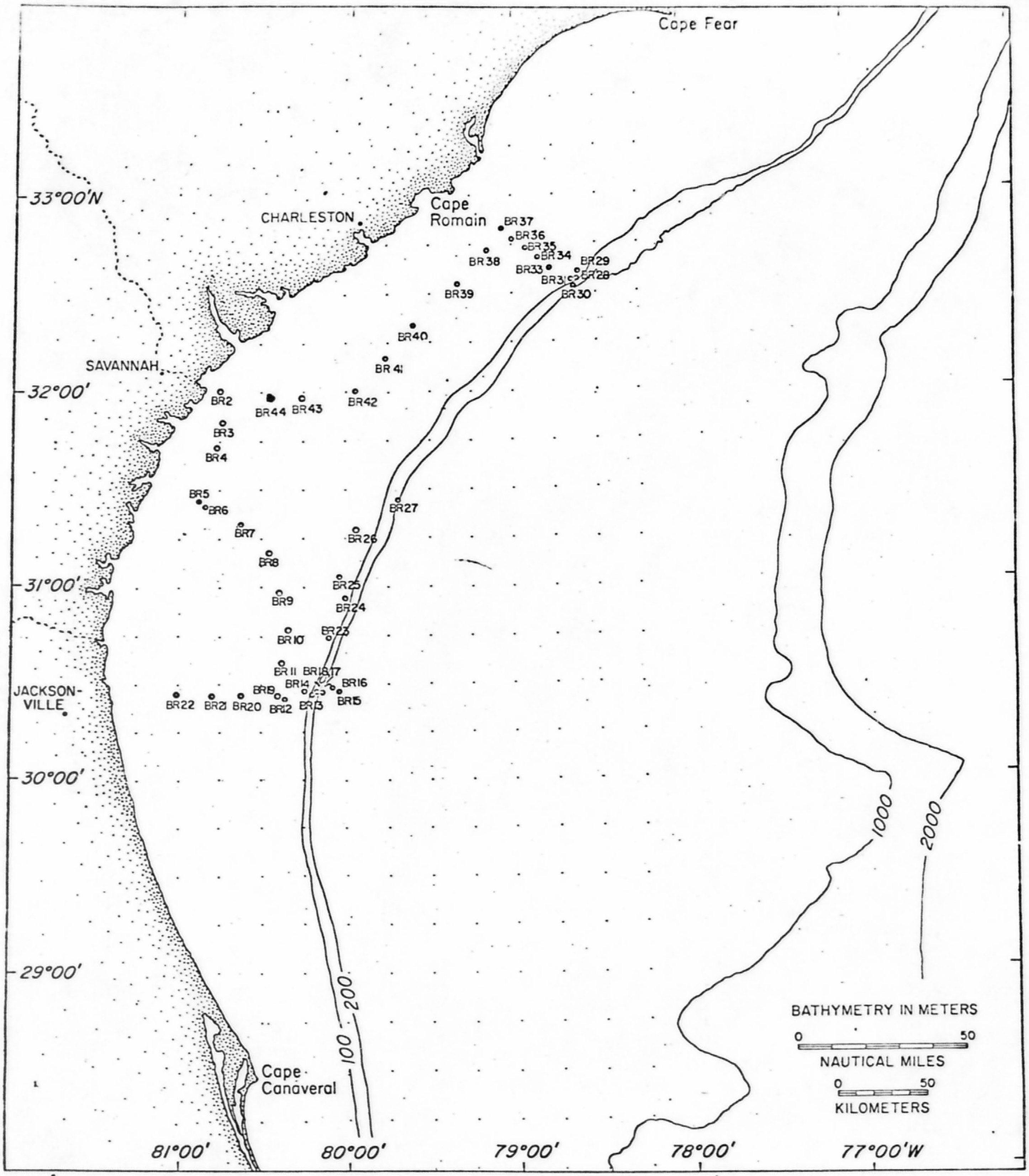

Figure 3: XBT and surface salinity stations, STATE ARROW Leg 3, August 1978

00129

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CHIEF SCIENTIST'S LOG

Mahlon Ball

NOTE: All times are recorded in Eastern Daylight Standard Time. The five digit numbers are Loran C coordinates.

The STATE ARROW experienced rudder problems on Legs 1 and 2 and did not make their planned departure for Leg 3 on 8/10/78. They started for Savannah, Georgia on 8/11/78, however additional rudder problems were encountered just offshore of Woods Hole and they returned to Woods Hole for repairs, finally leaving the morning of 8/12/78 and arriving in Savannah, Georgia in the afternoon of 8/14/78. In Savannah the starboard engine blower was out and was worked on overnight and finally repaired early on 8/15/78.

August 15, 1978

0745 Depart Savannah, Georgia

0910 Surface salinity sample taken (BR-2) still in ship's channel
latitude 31°59.0' longitude 80°46.0'

0912 Stream eel for sparker 14378.7, 70902.7

0930 Course 120, 10 knots
latitude 31°58.97' longitude 80°45.96'

0936 Water sample taken (BR-1)
Weather: sea state 1, 2-3' ground swell, wind SW at 6 knots beautiful day

0945 120° course, 11 knots 14360.6, 70946.7
Sparker recorder problems: signal coming, recorder not doing well no record yet

1035 Slow from 10 knots to 5 knots to see if we can get a useable record 14273.0, 70951.1

1038 Salinity sample (BR-3) 14268.1, 70950.6
latitude 31°49.38' longitude 80°44.88'

1044 Slow to 0 to retrieve eels 14245.3, 70949.2

1049 Return to 10 knots speed (toward Gray's reef), sparker working at 5 knots speed, 10 knots is too fast

1055 10 knots, course 195 14231.2, 70947.1

1120 Surface salinity sample taken (BR-4) 14184.1, 70941.8
latitude 31°42.07′ longitude 80°47.29′

1230 Surface salinity sample taken (BR-5) 13998.5, 70913.6
latitude 31°26.37′ longitude 80°53.79′

1251 At buoy "R2S", change course to 156°

1300 Preparing for first dive on Gray′s reef

1316 Mahlon Ball in sub preparing for dive #1. We are coming up on a flat-topped ridge (Gray′s reef). Buoy "SLB" marks reef. 13968.1, 70923.9
latitude 31°23.12′ longitude 80°52.50′

1328 Mahlon in sub again, Pat Hickey pilot. Weather is nice and calm, blue sky, blue water.

1331 Zodiac over with J. Henry and Martech member.

1332 Swinging ship, we are SW of buoy.

1336 Sub lifted from deck.

1338 Sub in water 13966.9, 70923.0
latitude 31°23.07′ longitude 80°32.66′

1345 Have notified all shipping in area that sub is engaged in submersible operations.

1358 Sub ready to come up, standing by.

1414 Sub on surface.

1418 Zodiac hooked to sub.

1421 Sub back on board, only sand observed.

1435 Dive #2, Jim Henry observer, Gordon Barksdale, pilot.

1517 Sub aboard again, Gray′s reef not found, some hard bottom.

1520 Change position of ship. Steam 210° for one mile 3 knots.

1528 Prepare for dive. 13973.2, 70918.6
latitude 31°23.82′ longitude 80°53.29′

1535 Dive #3. Sub in water, Jesse Hunt observer, Hickey pilot.

1603 Location of Gray′s reef. 13974.3, 70907.2
latitude 31°24.38′ longitude 80°55.01′

1614 Retrieving sub. 13972.9, 70907.1

latitude 31°24.26′ longitude 80°55.01′

1618 Sub on deck, good dive, very live reef, Jesse took lots of pictures.

1625 Dive #4. Sub in water, Popenoe observer, Barksdale pilot.

1632 Current taking sub away from buoy 13972.6, 70907.6.

1700 Retrieve sub.

1705 Sub on board, drifted WNW of buoy 200 yards across bottom. Probably dove west of Gray′s Reef.

1707 Dive report, no reef only sand with ripples.

1717 Return to reef 13973.2, 70909.0.

1721 Zodiac requires motor repair.

1755 Dive #5, Paull observer, Hickey pilot 13971.8, 70906.2.

1825 Sub up 13972.4, 70907.7.
latitude 31°24.16′ longitude 80°54.96′

1835 Sub on deck. Seal on hydraulic cylinder (stb) on "A" frame leaking badly, requiring repair.

1930 Sparker eels in water.

1940 XBT and salinity sample (BR-6) 13976.0, 70929.5
latitude 31°23.64′ longitude 80°51.54′

2005 Sparker operating 13972.3, 70945.9.
latitude 31°22.65′ longitude 80°49.04′

2011 Course 125°, speed 7 knots, depth 58′ begin sparker line
13971.8, 70948.2.
latitude 31°22.51′ longitude 80°48.64′

2030 Trigger on sparker kaput, eels recovered.

2138 XBT and salinity sample (BR-7) 71014.9, 13943.3.
latitude 31°17.22′ longitude 80°38.28′

2305 XBT and salinity sample (BR-8) 13884.6, 71080.3.
latitude 31°09.22′ longitude 80°27.77′

August 16, 1978

0030 Salinity sample (BR-9) 13746.7, 71103.7.
latitude 30°56.17′ longitude 80°27.32′

0200 XBT and salinity sample (BR-10) 13626.4, 71120.0.
latitude 30°44.5′ longitude 80°21.5′

0330 XBT and salinity sample (BR-11) 13503.0, 71110.7.
latitude 30°34.7′ longitude 80°23.2′

0520 XBT and salinity sample (BR-12) 13377.4, 71111.0.
latitude 30°23.7′ longitude 80°23.1′

0814 Sub in water for Dive #6 on hardground to cross inner reef and move to shelf edge; observer V.J. Henry, pilot Barksdale.
latitude 30°23.36′ longitude 80°22.65′

0817 Notice to all shipping of submarine operation in progress.

1048 Sub progress too slow to accomplish objective, signal Henry to come up.

1056 Sub back on board 13390.4, 71123.1.
latitude 30°24.35′ longitude 80°20.99′

1100 Moving east to dive on shelf edge reef.

1140 XBT and salinity station (BR-13).
latitude 30°24.0′ longitude 80°13.8′

1151 XBT and salinity station (BR-14).
latitude 30°25.1′ longitude 80°16.8′

1206 Deployed buoy on shelf edge on eastern side of shelf edge reef.
13409.0, 71156.0
latitude 30°24.75′ longitude 80°14.66′

1220 Begin Dive #7 M. Ball observer, Hickey pilot at shelf edge, 150 feet of water, all calm, beautiful weather, flat sea, etc.
13409.0, 71155.5
latitude 30°24.75′ longitude 80°14.81′

1310 Sub up 13409.3, 71154.5.
latitude 30°24.83′ longitude 80°15.02′

1315 Mahlon reports no reef at buoy next dive should be to east.

1326 Begin Dive #8 observer Jesse Hunt, pilot Barksdale.

1415 Sub up.

1435 Begin Dive #9 observer C. Paull, pilot Hickey to head E over reef.

1510 Water so calm transfer of Paull to ship made by Zodiac, M. Noble transferred to sub. Paull reported bedded rock at 160 to 200′ depth, encrusted.

1535 Begin Dive #10, observer M. Noble, pilot Barksdale 13414.6, 71155.7.
latitude 30°24.87′ longitude 80°12.85′

1625 Sub up, surface transfer to begin Dive #11, observer D. Eskenasy, pilot Hickey.

1722 Sub up, surface transfer.

1730 Begin Dive #12, observer S. Pfirman, Pilot Barksdale.

1748 Surface transfer complete, sub on descent.

1820 Clear to come up.

1830 Sub aboard, end diving 13437.7, 71148.1.
latitude 30°27.53′ longitude 80°16.25′

2047 XBT and salinity sample (BR-15).
latitude 30°24.6′ longitude 80°03.5′

2110 XBT and salinity sample (BR-16).
latitude 30°25.9′ longitude 80°06.2′

2145 XBT and salinity sample (BR-17).
latitude 30°24.9′ longitude 80°11.0′

2220 XBT and salinity sample (BR-18).
latitude 30°24.2′ longitude 80°11.5′

2303 XBT and salinity sample (BR-19).
latitude 30°23.7′ longitude 80°25.0′

<u>August 17, 1978</u>

0020 XBT and salinity sample (BR-20).
latitude 30°25.0′ longitude 80°38.2′

0116 XBT and salinity sample (BR-21).
latitude 30°24.4′ longitude 80°43.3′

0210 XBT and salinity sample (BR-22).
latitude 30°25.1′ longitude 80°01.1′

0900 Begin Dive #13 on deep reefal features on Blake Plateau. Water depth 822 ft, Gulf Stream current strong. Observer Ball, pilot Hickey.
13520.0, 71209.3
latitude 30°32.2′ longitude 80°04.68′

0925 Sub on surface, dive aborted. At 500 ft current from S pushed sub faster than buoy, 1,300 ft of buoy line out and current pulled it under. Sub was sideways to current and could not maintain heading.
13538.7, 71216.7 recovery
latitude 30°34.39′ longitude 80°03.35′

1000 Proceed to shelf edge reef, beautiful weather and calm sea.

00134

~~00200~~

1100 On reef N of previous dives, several passes made over reef and buoy dropped right on reef.

1121 Begin Dive #14. Observer Popenoe, pilot Barksdale.

1128 Sub has landed on top of reef: many fish, sandstone outcrops, etc.

1212 Sub standing by for retrieval position 13598.7, 71186.1.
latitude $30^{\circ}39.99'$ longitude $80^{\circ}09.32'$ Pete was on reef, reports slabs of rock, colorful fish, angelfish, lots of color in general. Rocks encrusted, everything living, basket sponges, visibility 15-20 ft, color only beneath lights.

1230 Begin Dive #15. Observer Jesse Hunt, pilot Hickey.
13600.3, 71185.2
latitude $30^{\circ}40.16'$ longitude $80^{\circ}09.49'$

1325 Jesse is sticking near buoy.

1333 Sub on surface.

1338 Sub aboard. Jesse saw large blocks and holes between them. Lobster in holes, Barracuda, Traverse went across top of reef to white sand bottom, turned around to E and went halfway down reef again. Recorded lots of video tape. Clean white sand with ripple marks on top of reef. Grouper and amberjack.
13597.8, 71184.3
latitude $30^{\circ}39.98'$ longitude $80^{\circ}09.67'$

1348 Begin Dive #16. Observer Henry, pilot Barksdale 13600.2, 71195.4.
latitude $30^{\circ}39.73'$ longitude $80^{\circ}07.57'$

1500 Sub at surface 13599.9, 71184.6.
latitude $30^{\circ}40.15'$ longitude $80^{\circ}09.61'$

1510 Sub aboard.

1535 Begin Dive #17. Observer C. Paull, pilot Hickey. 13599.7, 71184.5
latitude $30^{\circ}40.14'$ longitude $80^{\circ}09.62'$

1637 Sub on surface 13600.3, 71185.9.
latitude $30^{\circ}40.14'$ longitude $80^{\circ}09.38'$

1642 Sub aboard, hatch open.

1653 Sub in water, begin Dive #18 13601.7, 71194.8. Observer M. Noble, pilot Barksdale.
latitude $30^{\circ}39.88'$ longitude $80^{\circ}07.69'$

1734 Sub at surface.

1753 Sub retrieval, Marlene reports that dive missed the reef.

1800 Leave reef area to steam toward tripod area, heading 026°, speed 12.5 knots.

1835 XBT and salinity sample (BR-23) 13622.7, 71904.0.
latitude 30°41.9′ longitude 80°08.53′

1945 XBT and salinity sample (BR-24).
latitude 30°54.9′ longitude 80°01.9′

2055 XBT and salinity sample (BR-25).
latitude 31°01.0′ longitude 80°04.0′

2235 XBT and salinity sample (BR-26).
latitude 31°15.7′ longitude 79°59.0′

August 18, 1978

0000 XBT and salinity sample (BR-27).
latitude 31°25.4′ longitude 79°43.9′

0500 XBT and salinity sample (BR-28).
latitude 32°32.0′ longitude 78°38.4′

0725 Weather is deteriorating, cloudy and windy, squall in distance, lightning.

0730 Arrive at tripod buoy, Buoy G. Waiting for bad weather to clear.
15177.7, 71748.1
latitude 32°31.01′ longitude 78°38.13′

0945 Begin Dive #19 in search for tripod. (We cannot search for tripod with pinger for fear of triggering the release mechanism. If this happens we cannot recover the tripod.) Tripod location at .25 nautical mile at 235° from Buoy "G". Observer Pfirman, pilot Hickey. 15180.1, 56059.3, 71749.3
latitude 32°32.5′ longitude 78°37.5′

1012 Launch sub, begin search pattern.

1220 End Dive #19, tripod not found.

1240 Begin Dive #20 at exact loran locations of tripod. Observer Noble, pilot Barksdale. Begin search pattern. Check buoy light on Buoy G.

1440 Sub on surface, end Dive #20.

1451 Sub recovered, tripod not found, good live bottom found.

1500 Underway to tripod J which was reported to not have a light.

1530 Light at tripod J found to be operating. Preceeding to reticulated bottom area to check on cause of reticulated signature on side-scan radar records.

1644 Prepare for Dive #21. Observer Henry, pilot Hickey 15211.0, 71681.7.
latitude 32°38.64′ longitude 78°50.98′

1649 Launch sub, begin Dive #21.

1740 Sub on surface.

1744 Sub recovered, end Dive #21. Nothing unusual seen in area to cause reticulated bottom. Probably results from density differences in the water column.

1800 Launch sub for Dive #22. Observer Eskenasy, pilot Barksdale. 71687.4, 15214.5
latitude 32°39.12′ longitude 78°51.45′

1838 Sub on surface.

1847 Sub recovered.

1850 XBT and salinity sample (BR-34). Steaming for Savannah, Georgia.
latitude 32°39.6′ longitude 78°52.0′

1915 XBT and salinity sample (BR-35).
latitude 32°42.5′ longitude 78°55.8′

1945 XBT and salinity sample (BR-36).
latitude 32°45.6′ longitude 79°00.0′

2010 XBT and salinity sample (BR-37).
latitude 32°48.9′ longitude 79°03.4′

2110 XBT and salinity sample (BR-38).
latitude 32°41.2′ longitude 79°09.4′

2225 XBT and salinity sample (BR-39).
latitude 32°31.0′ longitude 79°20.8′

August 19, 1978

0020 XBT and salinity sample (BR-400.
latitude 32°19.6′ longitude 79°36.2′

0130 XBT and salinity sample (BR-41).
latitude 32°08.7′ longitude 79°47.4′

0230 XBT and salinity sample (BR-42).
latitude 31°57.9′ longitude 79°58.7′

0400 XBT and salinity sample (BR-43).
latitude 31°56.9′ longitude 80°17.1′

0535 XBT and salinity sample (BR-44).
latitude 31°27.0′ longitude 80°26.5′

0820 In port, Savannah, Georgia.

UNITED STATES GOVERNMENT
Memorandum

DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

IN REPLY REFER TO:
1513.53(300)
AA551-MU8-13

TO : Files

Date: August 22, 1978

FROM : Jesse L.Hunt, Jr.,Oceanographer (Geology), E.A.D.

SUBJECT : Report on U.S.G.S. (Woods Hole) South Atlantic Submersible Cruise as Contract Inspector

The cruise was delayed for a couple of days due to mechanical problems with the main engines and rudder. The problems were taken care of and we departed Savannah at approximately 0800 on 8/15/78. Scientific crew included:

Mahlon Ball, U.S.G.S., Woods Hole (Chief Scientist)
Pete Poponoe, U.S.G.S. Woods Hole
Charles Paull,U.S.G.S. Woods Hole
Diane Eskenasy, U.S.G.S. Woods Hole
Stephanie Phirman, U.S.G.S. Woods Hole
Marlene Noble, U.S.G.S. Woods Hole
Jim Henry, Skidaway Institute of Oceanography
Jesse L. Hunt,Jr., BLM, New Orleans OCS (Contract Inspector)

The support vessel was the "State Arrow" under the command of Captain G. F. Ottmer. The submersible used was the "Diaphus", leased from Texas A & M by Martec International, Inc. The Martec Personnel included:

Don Bolstad, Submersible Supervisor and dive master
Pat Hickey, Submersible pilot
Gordon Barksdale, Submersible pilot
Bob Jackson, Diver
Dan Barker, Diver
Mark Beldon, Diver and winch operator

Prior to arrival at the Savannah Light Tower, the minisparker system was deployed and tested. A course was set for Grey's Reef. Little data was collected with the sparker due to the excessive noise on the hydrophone array caused by the profiling speed of 10 knots. We slowed the vessel and the records cleared up substantially. The gear was then recovered and we ran to Grey's Reef, arriving on station at approximately 13:30. Mahlon Ball made the first dive in the vicinity of the Ga. DNR Buoy "SLB" and nothing but sand was observed. A second dive was made in the same vicinity with Jim Henry as observer, and very little live-bottom was observed. We then replotted the reef area and ran approximately 3/4 mile from the buoy at 212° and came across good bottom. Third dive was made and we saw good "live-bottom". Two more were made in the vicinity and good video tapes and 35mm slides were taken.

DSC-1541-2
Mar. 1974

We then set course for the shelf edge off Jacksonville via the 6002 U.S.G.S. core hole running the sparker at 7 knots. After a short while, the trigger circuit in the sparker went out, probably due to frequent power surges in the ship's power. Fn route to the shelf edge, several XBT's were run.

On 8/16/78, seven dives were made on the shelf edge reef in approximately 160 to 180 feet of water. We obtained good fathometer records over the reef and were able to correlate features observed during the dives with the fathometer records. We then ran shoreward taking XBT's and returned to the same area during the night.

On 8/17/78, an attempt was made to dive on a deeper feature (800 feet) in the phosphatic-manganese accretion area, but the dive was aborted at approximately 600 feet due to excessive current (Gulf Stream). Five more dives were made on a different section of the shelf-edge reef just north of the previous day's dive sites.

We departed that station and ran all night taking XBT's to the area "A" off of Charleston. On 8/18/78, two dives were made at the site of one of the tripods, but it was not found. We then checked the lights on both tripod buoys and ran inshore to an area that showed as "reticulated bottom" on Jim Henry's side scan records. Nothing unusual was observed, so Jim thought perhaps it was the result of density differences in the water column.

Live-bottom areas of the low-relief type were seen in the area of the tripod and shoreward.

En route to Savannah, XBT's were run along the way. Salinity samples (surface) were collected at the XBT sites during the entire cruise.

A total of 22 dives were made at depths from 55 feet to 190 feet.

I felt the submersible operation, and especially the launch and recovery operations and procedures, were very professional, safe and efficient. Back-up safety contingencies and procedures were well thought out and very professional.

A great deal of excellent data was collected which will enable us to better understand, and to even characterize, certain portions of the shelf-edge reef trend off Georgia and Florida. Many color slides were taken and much video footage was shot for future study and documentation.

CRUISE REPORT

R/V COLUMBUS ISELIN

CI 7-78-3

29 Sept.-19 Oct. 78

CRUISE REPORT R/V COLUMBUS ISELIN [CI 7-78-3] 29 Sept -19 Oct 78

1. Ship Name: R/V COLUMBUS ISELIN

2. Cruise number: CI 7-78-3 (Cruise 7-78, leg 3)

3. Project: South Atlantic OCS Environmental Assessment (BLM)

4. Area of Operations: Northern Blake Plateau (32° 30'N to 29° 47'N)

5. Dates and Ports: Left Woods Hole, MA at 1750 EDT 29 Sept 78

   Arrived at Miami, FLA 0808 EDT 19 Oct. 78

   Emergency port call at Savannah, GA 2156 EDT

   2 Oct 78 - 1445 EDT 3 Oct 78.

6. Scientific Party:

Peter Popenoe	Chief Scientist, U.S.G.S.
Alan Goodman	U.S.G.S.
Charles Paull	U.S.G.S.
Barry Irwin	U.S.G.S.
Timothy Bishop	U.S.G.S.
David Egelson	U.S.G.S.
Charles McCreery	U.S.G.S.
James Dodd	U.S.G.S.
Janet Burke	U.S.G.S.
Elizabeth Coward	U.S.G.S.
Tom O'Brien	Woods Hole Oceanographic Institution
David Mason	Woods Hole Oceanographic Institution
Robert Morgan	Master, R/V COLUMBUS ISELIN

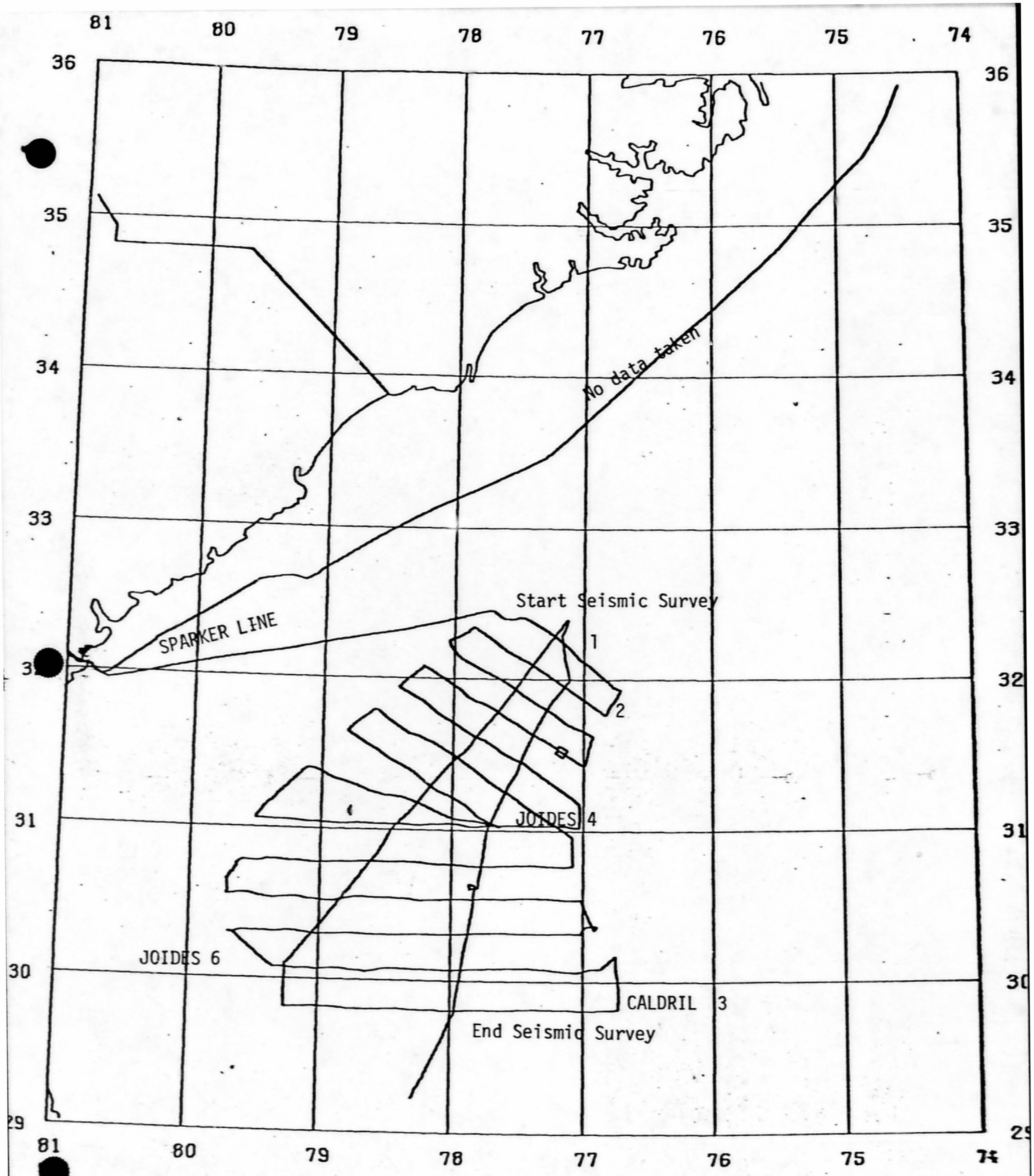
7. Purpose of cruise: To assess the types and frequencies of environmental hazards that may be encountered on the northern Blake Plateau. To study the shallow geologic section in order to define these geologic hazards using high-resolution geophysical profiling gear on a 28 km grid. To test the shipborn gravity system in order to obtain gravity coverage of the northern Blake Plateau.

8. Navigation Techniques: Loran C fixes were automatically recorded at 5 minute intervals from a Northstar 5000 receiver using the 9930 northeast U.S. chain and manually plotted at 15 minute intervals. An integrated navigation system was also on board. These data are available but were not used for post cruises plotted track charts.

9. Scientific Equipment:
   - A. 2-40 cubic inch airguns.
   - B. Teledyne 600 joule minisparker.
   - C. ORE 3.5 kHz tuned transducer in overside fish.
   - D. EPC recorders with various amplifiers and hydrophones.
   - E. Integrated navigation system.
   - F. Northstar 6000 Loran reciever.
   - G. 5050 microprocessor time base.
   - H. Texas Instrument silent 700 terminal with cassette and paper recorder.
   - I. 7-channel analog tape recorder (seismic)

10. Tabulated Information:

A. Days at sea:	20	
B. Amounts of data:	airgun	3570km
	minisparker	3487km
	3.5 kHz	3565km



R V ISELIN - 3   1:3600000 UTM   CM=75   NOV 30 1978

Cruise track map. R/V COLUMBUS ISELIN [CI-7-78-3] Sept. 29 - Oct. 18, 1978.

~~00218~~
00143

11. Narrative:

The R/V COLUMBUS ISELIN departed Woods Hole, MA at 1750 EDT on Friday 29 Sept 1978 and attempted to steam directly to the survey area at an average speed of 10 knots. At 2145 (Z) 30 Sept 78, Captain Morgan informed us of generator problems. By 1330 (Z) the following day, we had been advised through radio contact with Miami to pull into port in Savannah, Ga. for repair. Enroute to Savannah, we deployed the minisparker at 1620 (Z) 1 Oct 78 off the Continental Slope southeast of Cape Hatteras. Due to rough sea conditions and the 10 knot transit speed the data were of poor quality, so we pulled the sparker and resumed our survey when the seas were calmer at 1230 (Z) 2 Oct 78 off Cape Romaine; records improved although the 10 knot speed was maintained. At 1620 (Z) we changed course toward Charleston, S.C. in order to fire an airgun over our Ocean Bottom seismometer(OBS) site (32^{o} 38' 03.6 N - 79^{o} 30' 40.7 W) for testing purposes which ended at 1730 (Z), where we pulled the airgun but continued sparking toward Savannah. Upon arrival at the Savannah Buoy [2330 (Z)] we pulled the minisparker, shut down equipment, and steamed down the Savannah River to port for the evening, arriving at 2156 EDT 2 Oct 78. By 1000 (Z) the following day the generator was repaired; the problem being an overloaded breaker box. We departed Savannah, GA. at 1445 EDT and steamed directly to the survey area, arriving at 1040 (Z) 4 Oct. 78. The minisparker, 3.5kHz and airgun were deployed and all systems were receiving good records by 1300 (Z). During this time we were correcting 59^{o} due to the strong Gulf Stream current with an average ship speed of 6 knots. At 2145 (Z) we crossed a diapir (salt?) structure. We later performed a small survey at 0400 (Z) 6 Oct 78 for more detail on a suspected fault (slump) structure which ended at 0635 (Z). During the last hour of this survey we had problems with the airgun which was replaced. We decreased ship speed at 1200 (Z) 7 Oct. 78 as seas were building and wind had increased to approximately 15-20 knots. By 0220 (Z)

11. Narrative continued:

8 Oct 78 seas had calmed and records improved. We noted some bottom roughness which looked like sea state on line 41 at 0100 (Z) 9 Oct 78 however seas were calm at this time (sand waves?). At 1200 (Z) 10 Oct 78 the weather report indicated that hurricane Juliet was heading our way. Because of this the seas were 8 feet and rising, the wind speed had increased to 25 knots, we were experiencing some precipitation, and our records were poor. By 1200 (Z) 11 Oct 78 we had lost 5 hours in steaming against the Gulf Stream as our average speed had been 1.5 knots. During this time our Northstar receiver and the Integrated navigation system were producing different positions. As of 1600 (Z) the sea state and weather had improved; Juliet had passed us to the east. At 0012 (Z) 12 Oct the ship experienced temporary power surges. We broke off line to survey a new diapir structure, possibly a salt dome, at 1445 (Z) . We then attempted, as planned, a closed box survey to test the gravity system only to be discontinued at 1900 (Z) due to unpleasant sea conditions which caused considerable noise in the gravity system. During this time the 3.5 kHz minisparker, and the airgun were all deployed and working. By 0430 (Z) 18 Oct 78 the planned survey was complete, all gear was pulled and secured, and we headed directly to Miami, FLA. arriving at Dodge Island by 0808 EDT.

APPENDIX

R/V COLUMBUS ISELIN

Leg 3

CHIEF SCIENTISTS NOTES

STANDARDIZED WEATHER OBSERVATIONS

BRIDGE NOTES

NOON POSITION REPORT

CHIEF SCIENTIST'S NOTES

All times recorded here are eastern daylight time

The planned 0900 departure was delayed to repair the starboard generator. Generator was disassembled and a broken wire was found. Reassembled about 1500, tested 2 hours before departure. Final departure was at 1750 with large crowd at dock including Dave Folger, Bill Green, Sue Purdy, Elizabeth Winget, Dianne Eskenasy. Beautiful weather but getting chilly.

29 Sept.

1750 Depart Woods Hole dock; beautiful weather but getting chilly.

30 Sept.

0645 Beautiful morning. Seas 3 to 4 feet. Some clouds but clearing.

0700 Position 39°20'W 71°34'N. Loran unit was tracking wrong signal crossing. Was switched at about 0655.

1000 Gave orientation to Jim Dodd and Janet Burke on survey, schedule, etc. Also short orientation on equipment. Thorough orientation to be given by C. Paull and Al Goodman on seismic equipment, J. McCreery and Tim Bishop on navigational equipment.

Weather is going to deteriorate; a cold front appears to be coming. Weather is now beautiful; seas 4 to 5 feet and clear sky. We passed through two beautiful plankton blooms several hundred meters wide and stretching to East and West as far as the eye could see. Took picture #9 on roll.

1200 Beautiful clear sky, 5 foot seas, very pleasant.

1230 Fire drill.

1250 Generator went out, reset Loran and clocks.

1300 Position 38°29'N, 78°28'W

1500 Goodman and Mason checked all airguns; all were firing. Paull, Bishop, and Dodd rebuilt sparker eel.

1745 Generator went out again. Second generator has (reported) bad vibration. Engineer working on problem.

1830 Captain confirms problem with generator. It is being worked on but may require a stop in Savannah Georgia to fix.

1 Oct.

0730 Overcast, seas 3 to 4 feet.

0930 Captain radioed Miami about generator problem. Miami advised him to head for Savannah, Georgia where they would have people standing by to fix it. ETA project area 0330 tomorrow, ETA Savannah 1730 tomorrow.

1000 Off Diamond Shoals light.

1220 Deployed sparker on continental slope off Hatteras.

1230 Getting good record, speed 11 knots.

1445 Sea state at 6 to 7 feet; raining, weather not bad.

2125 Sparker pulled. We were not getting good record because of ±6 foot seas and 11 knot speed.

2 Oct.

0720 Overcast, seas 3 to 4 feet.

0830 Rebuilt eel S of Cape Romaine. Eel in water 0830, began sparker line.

0910 Radio contact with Folger in Woods Hole. Asked for 2 day extension of ISELIN contract, location of OBS units off Charleston. O'Brien talked with Tom Aldrich on software for gravity system. Aldrich to call Bell Labs to try to get representative in Savannah to look over program. No answer on anything. Next radio contact 1400. We are getting excellent sparker records!

1230 Firing airgun toward OBS array.

1252 Sparker off, airgun only firing.

1311 Directly over OBS units 32°38' 03.6 N, 79°30' 40.7 W.

1345 Airgun off, sparker only operating. We were getting excellent records on the airgun.

1939 Pull sparker at Savannah Buoy.

2156 Docked in Savannah, Georgia for repair of generator.

3 Oct.

1000 Generator problem in overloaded breaker box. Box is fixed and crew is testing generator. Called office to alert that we probably won't need extra days. Bell representative not able to come to Savannah to reprogram gravity software.

1445 Leave Savannah, Georgia to steam directly to survey area. 15 minutes late because of Barry Irwin's gravity tie to North American Gravity Network.

4 Oct.

0640 Arrive at start of line 1, deploy equipment and start survey. Mini-sparker in seas 2 to 3 feet, beautiful.

0725 3.5 kHz tuned transducer in, repairing pulley on compressor.

0900 Airgun in, compressor repaired. Strong Gulf Stream currents. We are correcting 59^{o} for current. Fantastic records.

1657 Finish line 1, start line 2. Change sparker to aft compartment to try to stop interference with gravity system.

1730 Gravity system shut down. Interference still present and software problems. Weather beautiful, seas 2 to 3 feet.

5 Oct.

0745 Weather beautiful, seas 3 to 4 feet, some clouds; thunderstorm in distance.

2315 A good day was had by all (except gravity). Weather picked up slightly in afternoon but all in all, was beautiful.

6 Oct.

Another beautiful day, seas 3 to 4 feet, sky clear, water a beautiful blue.

1500 Seas 3 to 4 feet, beautiful weather.

7 Oct.

0800 Slightly cloudy, seas building 4 to 5 feet.

1000 Clearing, sky only slightly overcast, seas 5 to 6 feet, wind 15-20. A beautiful day but slightly rougher than usual.

1200 Had to slow vessel because of rough seas 5 to 7 feet.

1700 Seas starting to calm, 5 to 6 feet.

2200 Seas calmed down to 3 to 4 feet.

8 Oct.

0300 Seas picked up to 4 to 6 feet.

0800 Seas 3 to 4 feet, beautiful day, 30% cloud cover. Calculated our time ETA to end of project = 9.5 days or 2130 17 Oct. Miami the night of 18 Oct.

9 Oct.

0800 A beautiful day, seas 3 to 4 feet, partly overcast. Alls well with the world.

1030 Seas 3 to 4 feet, 50% cloud cover.

1600 Seas 4 to 6 feet.

10 Oct.

0800 The seas have built to 5 to 7 feet, sky completely overcast, some rain. Weather report indicates that hurricane Juliet is headed our way. We are running west with the seas on line 17 so the motion isn't too bad.

1100 Seas 5 to 8 feet, wind 25 knots, motion not bad but records suffering.

2130 Seas 5 to 8 feet or more. We are in the Gulf Stream and seas are more confused than before.

11 Oct.

Lost 5 hours in steaming against Gulf Stream in heavy seas. Average speed about 1.5 knots against current line #18. Heavy seas all night.

Seas diminishing somewhat. They are now 4 to 6 feet and still confused.

The weather has cleared with only some cloud cover, mostly sunny. Wind has diminished to 10-15 knots. Temperature in the 70's.

The Northstar Loan and Integrated Navigation System are giving different positions. We will need to intercompare cruise tracks when we return.

1200 Seas down to 3 to 5 feet, weather is looking good. Juliet will pass to the East of us.

12 Oct.

Seas all day down to 3 to 5 feet. Beautiful day for the beach.

13 Oct.

Overcast, seas 3 to 5 feet.

14 Oct.

Seas 3 to 5 feet, beautiful day.

15 Oct.

Seas 4 to 7 feet, bouncy.

1000 Wind 20-25 knots, seas building to 5 to 7 feet.

1400 Seas calming, wind 10-15 knots, seas 3 to 5 feet.

16 Oct.

Beautiful, seas 3 to 5 feet.

1000 Almost a millpond, seas 2 to 3 feet in broad gentle swells.

17 Oct.

0800 Seas 3 to 4 feet, beautiful.

1130 Beautiful day, winds 15-20 knots from the N. Seas 3 to 5 feet. We are running S with waves.

1500 Waves 5 to 7 feet.

18 Oct.

0005 Heavy sea, waves 8-10 feet. End survey, start pulling all gear.

0030 All gear pulled and secured.

1000 Headed in, seas 5 to 7 feet. Some washing on deck.

1200 Started rebuilding sparker, airguns, coiling and inspecting hose, etc.

19 Oct.

0807 In dock, Dodge Island, Miami, Florida.

Ships Company (ISELIN)

Captain	Bob Morgan
Chief Officer	Frank Wiggins
2nd Officer	George Beale
Seamen	Carl Taraska, Tom Abell, and Jim (Buck) Buckley
Boatswain	Tom Ince
Chief Engineer	Gary Pellerin
1st Asst. Engineer	"Zip" Lazinski
2nd Asst. Engineer	John Young
Steward	Frank Smith
Cook	Sidney (MAC) McGoodman

APPENDIX 2

COMPONENTS AND PATHWAYS OF SESTON FLUX OF THE GEORGIA EMBAYMENT

APPENDIX 2-1

DATA

The percentages of various constituents of the total suspended load of the Georgia Embayment (February-March,1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
1A-3m	486	2.0	3.15	25.16	29.29	57.60	42.40
1A-9m	488	1.9	4.58	24.11	32.60	61.29	38.71
1B-4m	347	3.0	4.78	21.92	42.15	68.85	31.15
1B-11m	140	7.1	4.10	25.51	30.82	60.42	39.58
1C-10m	259	4.5	6.23	27.70	26.65	60.57	39.43
1C-15m	286	5.9	9.20	24.14	21.40	54.75	45.25
1D-8m	593	9.1	5.45	66.85	1.27	73.57	26.43
1D-23m	348	7.2	6.35	59.13	1.09	66.57	33.43
1E-8m	113	7.8	6.63	34.85	2.55	44.02	55.98
1E-35m	83	11.1	10.90	41.90	3.61	56.41	43.59
1F-10m	216	5.7	1.43	36.65	0.88	38.95	61.05
1F-36m	163	12.6	8.15	49.29	1.73	59.17	40.83
1F-240m	72	15.1	34.43	12.75	13.79	60.96	39.04

The p centages of various constituents of the total suspended load of the Georgia Embayment (February-March,1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
4A-6m	1827	2.2	5.48	25.87	19.72	51.07	48.93
4B-1m	826	4.6	5.08	23.77	6.61	35.45	64.55
4B-8m	765	4.3	5.05	27.97	20.60	53.61	46.39
4C-9m	264	2.7	7.55	26.65	9.06	43.26	56.74
4C-14m	411	2.5	9.98	30.94	12.76	53.67	46.33
4D-5m	204	4.0	29.50	17.00	3.26	49.75	50.25
4D-20m	235	4.5	29.60	18.34	2.19	50.13	49.87
4E-10m	245	3.1	27.75	20.21	1.33	49.29	50.71
4E-27m	209	3.3	29.95	20.69	1.28	51.92	48.08
4F-10m	147	5.4	21.80	31.94	3.92	57.66	42.34
4F-22m	237	4.5	11.80	28.78	2.89	43.47	56.53
4F-50m	18	21.0	19.45	23.59	1.64	44.69	55.31
4G-20m	98	7.0	1.48	6.67	1.12	9.27	90.73
4G-120m	29	11.9	2.10	11.03	1.40	14.52	85.48
4G-320m	31	11.8	7.25	16.89	7.19	31.33	68.67

The percentages of various constituents of the total suspended load of the Georgia Embayment (February-March,1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
5A-4m	1188	3.9	3.95	22.47	14.41	40.83	59.17
5A-9m	1119	4.0	4.73	28.68	14.65	48.06	51.94
5B-2m	1559	1.6	4.28	33.29	23.68	61.24	38.76
5B-7m	1219	2.0	2.63	30.92	27.07	60.62	39.38
5C-2m	375	3.4	2.14	36.47	24.23	62.84	37.16
5C-14m	349	3.4	11.30	34.19	16.29	61.78	38.22
5D-4m	262	3.4	4.65	28.36	10.17	43.18	56.82
5D-21m	165	3.6	16.10	17.06	3.02	36.18	63.82
5E-8m	196	3.8	9.30	19.65	7.78	36.72	63.28
5E-25m	167	3.8	11.50	22.65	3.18	37.34	62.66
5F-10m	228	6.9	10.58	40.62	2.54	53.74	46.26
5F-30m	282	6.3	10.03	46.88	2.68	59.58	40.42

The percentages of various constituents of the total suspended load of the Georgia Embayment (February-March,1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
5G-10m	289	10.8	9.15	48.32	4.14	61.61	38.39
5G-35m	268	10.1	9.20	50.26	4.67	64.13	35.87
5H-20m	60	8.0	7.15	4.46	2.37	13.98	86.02
5H-40m	98	6.5	5.40	1.37	0.94	7.71	92.29
5H-70m	52	9.4	44.50	10.83	1.57	56.90	43.10
5I-20m	39	8.7	3.20	2.63	1.72	7.55	92.45
5I-200m	30	14.8	2.50	6.03	1.28	9.81	90.19
5I-370m	18	18.2	14.93	9.13	3.33	27.38	72.62

The percentages of various constituents of the total suspended load of the Georgia Embayment (February-March,1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
6H-30m	33	7.3	1.38	2.21	0.73	4.31	95.69
6H-200m	42	11.2	20.85	11.98	5.55	38.38	61.62
6H-350m	20	16.1	18.38	16.11	11.78	46.26	53.74

The percentages of various constituents of the total suspended load of the Georgia Embayment (February-March, 1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
7A-7m	295	3.0	7.53	20.78	34.77	63.08	36.92
7A-14m	620	2.8	9.50	19.59	26.23	55.32	44.68
7B-7m	126	3.5	4.98	23.42	12.29	40.69	59.31
7B-14m	302	3.6	19.30	16.33	25.21	60.84	39.16
7C-7m	194	4.6	0.49	38.26	4.67	43.42	56.58
7C-17m	270	4.2	4.53	39.85	9.41	53.79	46.21
7D-6m	194	3.7	1.40	21.75	1.17	24.31	75.69
7D-34m	164	6.0	11.85	36.61	7.27	55.72	44.28
7E-20m	26	5.3	1.61	6.44	1.14	9.18	90.82
7E-80m	49	4.8	6.15	13.15	1.27	20.57	79.43
7E-190m	55	4.9	10.10	18.45	9.90	38.45	61.55
7F-40m	23	7.4	5.30	0.35	0.74	6.38	93.62
7F-130m	24	14.5	8.40	12.06	1.22	21.68	78.32
7F-400m	15	17.2	4.40	10.64	6.96	22.00	78.00

The percentages of various constituents of the total suspended load of the Georgia Embayment (May,1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
1B-5m	209	2.9	1.35	9.60	8.31	19.25	80.75
1B-10m	138	4.1	3.39	17.75	12.85	33.98	66.02
1C-5m	187	3.9	3.94	7.56	6.01	17.51	82.49
1C-15m	139	4.5	4.03	11.39	4.45	19.87	80.13
1D-10m	86	4.5	5.69	29.17	1.03	35.89	64.11
1D-25m	97	5.3	6.21	31.29	1.46	38.96	61.04
1E-15m	44	3.9	0.86	22.88	12.43	36.17	63.83
1E-35m	46	5.5	0.80	21.16	1.48	23.44	76.56
1F-10m	57	4.5	0.00	6.12	1.79	7.91	92.09
1F-50m	161	5.8	10.90	26.48	0.80	38.18	61.82
1F-250m	49	9.1	3.12	3.42	4.42	10.96	89.04

The percentages of various constituents of the total suspended load of the Georgia Embayment (May,1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
4C-7m	137	4.7	3.28	32.78	2.77	38.82	61.18
4C-15m	167	5.2	2.98	38.64	2.33	43.95	56.05
4D-8m	113	2.9	10.90	16.88	3.17	30.94	69.06
4D-20m	101	3.1	8.03	13.14	3.89	25.06	74.94

The percentages of various constituents of the total suspended load of the Georgia Embayment (May,1977).

Station ID#	TSL (ug/l)	Liters Filtered	$\%CaCO_3$	$\%SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
5B-8m	459	2.4	5.51	32.56	11.67	49.74	50.26
5C-7m	187	2.5	11.40	9.36	2.25	23.01	76.99
5C-15m	167	2.9	13.10	12.90	3.21	29.21	70.79
5D-7m	158	2.4	12.40	6.68	2.16	21.24	78.76
5D-20m	58	4.9	2.29	27.37	3.00	32.66	67.34
5E-10m	126	3.0	7.82	19.61	1.93	29.36	70.64
5E-30m	143	5.3	19.90	25.90	3.58	49.38	50.62
5F-15m	91	5.6	8.40	10.33	1.06	19.79	80.21
5F-35m	40	6.9	6.36	24.20	5.58	36.14	63.86

The percentages of various constituents of the total suspended load of the Georgia Embayment (May,1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
5G-15m	54	5.0	60.30	10.61	4.46	75.37	24.63
5G-30m	46	7.8	16.50	15.71	5.14	37.34	62.66
5H-10m	15	8.3	8.00	0.00	3.08	11.08	88.92
5H-40m	25	8.7	5.92	0.11	0.68	6.71	93.29
5H-75m	32	8.7	3.18	15.84	4.16	23.17	76.83
5I-40m	15	8.0	1.59	0.00	1.42	3.01	96.99
5I-200m	8	21.7	10.80	6.29	0.98	18.08	81.92
5I-350m	12	21.9	14.20	11.83	9.11	35.15	64.85

The percentages of various constituents of the total suspended load of the Georgia Embayment (May,1977).

Station ID#	TSL (ug/l)	Liters Filtered	$\%CaCO_3$	$\%SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
7B-5m	191	3.3	11.90	21.55	20.22	53.66	46.34
7B-18m	212	2.5	0.81	34.14	10.91	45.86	54.14
7C-7m	53	4.9	7.14	29.72	8.18	45.04	54.96
7C-19m	54	6.0	10.90	20.91	6.31	38.12	61.88
7D-10m	57	5.6	0.66	8.25	2.99	11.91	88.09
7D-35m	127	5.2	18.30	25.21	0.20	43.71	56.29
7E-30m	33	5.0	1.12	0.00	1.46	2.58	97.42
7E-90m	19	9.2	2.00	11.57	5.75	19.31	80.69
7E-180m	31	14.3	6.19	38.72	4.36	49.28	50.72
7F-50m	11	10.5	1.48	0.90	3.80	6.18	93.82
7F-200m	6	25.3	5.68	6.85	8.92	21.44	78.56
7F-450m	10	24.5	13.00	11.27	2.51	26.78	73.22

The percentages of various constituents of the total suspended load of the Georgia Embayment (August,1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
1A-8m	545	0.8	0.80	13.07	5.33	19.20	80.80
1A-10m	487	1.1	0.89	1.86	5.77	8.52	91.48
1B-3m	322	1.2	0.82	2.13	6.28	9.24	90.76
1B-9m	439	1.1	0.91	17.32	5.62	23.84	76.16
1C-3m	38	6.4	1.67	2.07	0.26	4.00	96.00
1C-17m	166	3.3	4.21	8.31	5.11	17.62	82.38
1D-5m	89	2.6	2.25	0.00	0.10	2.35	97.65
1D-24m	233	4.6	2.70	13.10	0.79	16.59	83.41
1E-5m	182	4.8	2.31	3.41	1.16	6.88	93.12
1E-43m	410	1.4	0.89	3.77	0.31	4.97	95.03
1F-5m	129	2.9	2.19	1.32	0.66	4.17	95.83
1F-208m	53	10.5	9.21	5.19	1.73	16.13	83.87

The percentages of various constituents of the total suspended load of the Georgia Embayment (August,1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
4A-5m	2693	2.7	2.76	19.44	17.99	40.18	59.82
4B-5m	314	3.3	3.60	19.52	20.40	43.52	56.48
4B-19m	70	15.0	4.03	15.18	20.55	39.76	60.24
4C-5m	242	5.0	3.10	19.41	0.46	22.97	77.03
4C-10m	236	2.2	1.79	30.12	5.23	37.14	62.86
4C-16m	327	4.6	6.20	27.12	1.20	34.52	65.48
4D-5m	93	4.0	1.25	15.75	0.82	17.82	82.18
4D-24m	52	5.5	0.97	14.04	3.42	18.43	81.57
4E-31m	95	7.0	9.27	0.97	0.27	10.51	89.49
4F-5m	25	9.2	1.32	1.46	0.94	3.72	96.28
4F-34m	81	10.1	16.00	17.01	10.07	43.08	56.92
4F-54m	80	11.2	13.74	16.07	28.08	57.90	42.10
4G-5m	106	6.9	1.79	2.14	0.82	4.75	95.25
4G-30m	61	6.2	2.62	0.98	0.87	4.48	95.52

The percentages of various constituents of the total suspended load of the Georgia Embayment (August,1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
5A-6m	3646	1.3	5.17	24.73	18.19	48.08	51.92
5B-5m	1276	2.4	8.44	22.48	13.92	44.84	55.16
5C-4m	296	3.4	9.67	25.37	7.73	42.77	57.23
5C-16m	344	2.4	11.07	15.23	7.89	34.19	65.81
5D-5m	48	7.8	3.80	11.45	0.21	15.46	84.54
5D-21m	254	2.6	3.87	21.35	1.24	26.46	73.54
5E-3m	163	5.1	0.26	0.92	0.22	1.39	98.61
5E-29m	119	3.8	4.51	16.97	1.88	23.36	76.64
5F-3m	59	6.2	1.14	1.86	0.40	3.39	96.61
5F-34m	120	4.8	5.34	18.94	1.84	26.12	73.88

The percentages of various constituents of the total suspended load of the Georgia Embayment (August, 1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
5G-7m	94	8.0	1.78	28.12	1.02	30.92	69.08
5G-27m	45	6.9	2.58	3.42	1.05	7.05	92.95
5H-7m	88	4.1	2.38	2.11	0.19	4.68	95.32
5H-52m	49	9.6	16.78	15.98	6.70	39.45	60.55
5H-72m	96	6.9	9.82	9.17	2.81	21.80	78.20
5I-10m	69	7.7	2.47	14.40	0.28	17.15	82.85
5I-310m	39	12.3	25.51	7.20	3.40	36.11	63.89

The percentages of various constituents of the total suspended load of the Georgia Embayment (August, 1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
7A-4m	493	1.5	2.45	17.51	25.97	45.94	54.06
7A-9m	539	1.0	0.62	20.02	28.94	49.58	50.42
7B-5m	198	3.4	5.36	25.07	7.18	37.61	62.39
7B-18m	427	2.3	9.76	29.91	12.11	51.78	48.22
7C-5m	211	4.9	4.50	27.55	1.58	33.62	66.38
7C-18m	71	8.0	4.56	23.85	1.82	30.23	69.77
7D-8m	86	5.5	5.90	4.85	1.40	12.15	87.85
7D-42m	103	7.3	18.59	15.99	6.69	41.28	58.72
7E-5m	116	3.6	1.58	1.32	0.35	3.24	96.76
7E-30m	42	6.7	1.13	1.41	0.12	2.66	97.34
7E-180m	56	9.7	23.39	12.85	8.69	44.93	55.07
7F-8m	200	2.4	2.50	0.84	0.69	4.02	95.98
7F-90m	21	10.5	1.15	9.57	1.04	11.76	88.24
7F-250m	43	8.5	20.99	9.07	1.83	31.89	68.11

The percentages of various constituents of the total suspended load of the Georgia Embayment (November,1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
1B-5m	139	3.4	0.40	14.80	9.36	24.56	75.44
1C-10m	267	2.7	0.33	4.90	5.36	10.58	89.42
1D-5m	206	4.1	1.08	8.46	1.10	10.63	89.37
1D-19m	82	2.0	0.75	12.90	4.71	18.35	81.65
1E-10m	54	5.8	0.55	7.84	1.26	9.65	90.35
1E-36m	44	8.9	0.63	5.70	0.71	7.04	92.96
1F-10m	60	5.0	0.75	0.00	2.50	3.25	96.75
1F-23m	42	8.3	0.90	2.87	0.67	4.44	95.56
1F-252m	27	11.0	0.38	3.34	4.38	8.09	91.91

The percentages of various constituents of the total suspended load of the Georgia Embayment (November, 1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
4C-12m	349	0.9	0.98	17.33	4.75	23.06	76.94
4D-10m	180	2.9	6.40	18.34	3.02	27.75	72.25
4D-20m	230	3.7	13.55	18.40	4.45	36.41	63.59
4F-10m	22	12.0	1.45	7.41	1.72	10.58	89.42
4F-60m	41	8.5	11.73	15.17	4.20	31.10	68.90

The percentages of various constituents of the total suspended load of the Georgia Embayment (November, 1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
5B-6m	865	1.7	12.23	22.04	15.42	49.69	50.31
5C-12m	134	5.4	25.25	22.08	6.80	54.13	45.87
5D-10m	78	7.0	22.03	13.87	3.65	39.54	60.46
5D-18m	120	5.8	26.50	12.44	4.27	43.21	56.79
5E-8m	49	9.0	19.18	10.95	1.66	31.79	68.21
5E-25m	79	6.1	22.50	13.09	1.57	37.15	62.85
5F-10m	85	4.7	15.88	17.40	2.57	35.85	64.15
5F-32m	80	5.1	19.03	15.89	2.73	37.65	62.35
5G-10m	112	4.4	10.63	21.03	2.31	33.96	66.04
5G-33m	118	4.0	10.38	25.45	1.48	37.31	62.69
5H-20m	55	7.3	15.48	5.70	6.48	27.66	72.34
5H-40m	103	6.7	17.20	6.41	5.34	28.95	71.05
5H-60m	67	9.5	29.00	10.63	8.82	48.45	51.55

The percentages of various constituents of the total suspended load of the Georgia Embayment (November, 1977).

Station ID#	TSL (ug/l)	Liters Filtered	%$CaCO_3$	%$SiO_2 \cdot H_2O$ (amorphous)	%Alumino-Silicates	Total Inorganic Content	Organic Percent By Difference
7B-1m	170	3.7	12.13	17.58	10.28	39.99	60.01
7B-17m	367	2.4	12.68	19.28	7.29	39.25	60.75
7C-15m	281	3.4	6.05	14.37	1.35	21.78	78.22
7D-12m	95	6.4	21.63	15.46	5.83	42.92	57.08
7D-32m	148	5.7	24.10	18.78	5.69	48.57	51.43
7E-12m	78	3.7	12.00	6.41	7.51	25.92	74.08
7E-112m	54	11.9	22.45	9.30	7.34	39.09	60.91
7E-212m	54	14.0	28.50	9.70	9.59	47.80	52.20
7F-25m	20	10.6	5.38	1.38	0.49	7.25	92.75
7F-300m	27	8.6	29.75	3.26	4.49	37.50	62.50
7F-500m	46	15.5	10.95	2.21	3.58	16.74	83.26

S O U T H A T L A N T I C B I G H T

S U S P E N D E D S E D I M E N T S

FEBRUARY-MARCH,1977 % ELEMENT IN SPM

Station ID#	TSL (ug/l)	Ca	Mg	Fe	Cd	Cu	Pb	Si	Si	Al	Fe	Cd	Cu	Pb
		WEAK ACID SOLUBLE						AMORPH	REFRACTORY					
1A-3m	486	1.26	0.277	0.306	0.0005	0.022	0.013	9.02	7.49	5.98	1.921	0.0010	0.012	0.009
1A-9m	488	1.83	0.271	0.374	0.0002	0.108	0.010	8.64	8.90	6.65	1.886	0.0014	0.010	0.008
1B-4m	347	1.91	0.279	0.332	0.0002	0.011	0.008	7.86	7.59	8.60	2.040	0.0010	0.004	0.011
1B-11m	140	1.64	0.288	0.364	0.0003	0.033	0.008	9.14	7.70	6.29	1.641	0.0007	0.008	0.007
1C-10m	259	2.49	0.369	0.276	0.0002	0.003	0.004	9.93	7.07	5.44	1.768	0.0008	0.004	0.007
1C-15m	286	3.68	0.340	0.272	BDL	0.005	0.002	8.65	6.75	4.37	1.747	0.0004	0.003	0.006
1D-8m	593	2.18	0.274	0.008	0.0004	0.001	0.001	23.96	2.44	0.26	0.140	0.0001	0.001	0.003
1D-23m	348	2.54	0.342	0.007	0.0003	0.001	0.001	21.20	0.72	0.22	0.093	0.0006	0.001	0.003
1E-8m	113	2.65	0.202	0.009	0.0009	0.003	0.004	12.49	1.70	0.52	0.302	0.0008	BDL	0.008
1E-35m	83	4.36	0.151	0.045	0.0003	0.007	0.005	15.02	2.63	0.74	0.315	0.0015	0.002	0.008
1F-10m	216	0.57	0.216	0.094	0.0011	0.031	0.018	13.13	0.61	0.18	0.803	0.0005	0.005	0.007
1F-36m	163	3.26	0.250	0.026	0.0003	0.009	0.006	17.67	1.90	0.35	0.268	0.0005	0.004	0.009
1F-240m	72	13.77	0.218	0.081	0.0002	0.006	0.005	4.57	4.15	2.81	0.756	0.0011	0.007	0.005

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

FEBRUARY-MARCH,1977 % ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
4A-6m	1827	2.19	0.255	0.205	0.0001	0.002	0.001	9.27	10.34	4.02	2.389	0.0001	0.003	0.002
4B-1m	826	2.03	0.350	0.240	0.0012	0.012	0.002	8.52	9.93	1.35	2.438	0.0009	0.004	0.003
4B-8m	765	2.02	0.367	0.279	BDL	0.004	0.002	10.02	9.20	4.20	2.303	0.0003	0.004	0.006
4C-9m	264	3.02	0.336	0.087	0.0002	0.009	0.004	9.55	3.35	1.85	0.570	0.0026	0.007	0.010
4C-14m	411	3.99	0.373	0.068	BDL	0.002	0.002	11.09	4.18	2.60	0.730	0.0013	0.004	0.003
4D-5m	204	11.80	0.363	0.042	0.0011	0.009	0.002	6.09	1.46	0.66	0.262	0.0028	0.005	0.008
4D-20m	235	11.84	0.306	0.057	0.0017	0.035	0.004	6.57	0.91	0.45	0.190	0.0015	0.006	0.010
4E-10m	245	11.10	0.182	0.045	0.0003	0.004	0.002	7.24	0.76	0.27	0.158	0.0010	0.004	0.005
4E-27m	209	11.98	0.218	0.058	0.0003	0.013	0.005	7.42	0.88	0.26	0.169	0.0007	0.002	0.004
4F-10m	147	8.72	0.219	0.056	0.0004	0.007	0.006	11.45	1.52	0.80	0.303	0.0006	0.004	0.005
4F-22m	237	4.72	0.382	0.066	0.0002	0.066	0.018	10.32	1.61	0.59	0.317	0.0005	0.010	0.022
4F-50m	18	7.78	1.040	0.067	0.0002	0.059	0.006	8.46	0.77	0.34	0.227	0.0027	0.003	0.012
4G-20m	98	0.59	0.407	0.032	0.1454	0.025	0.004	2.39	0.33	0.23	0.082	0.0009	0.002	0.012
4G-120m	29	0.84	0.301	0.095	0.0003	0.012	0.009	3.95	0.83	0.28	0.184	0.0021	0.001	0.017
4G-320m	31	2.90	0.403	0.086	0.0005	0.011	0.008	6.05	2.52	1.47	0.581	0.0038	0.036	0.057

S O U T H   A T L A N T I C   B I G H T

S U S P E N D E D   S E D I M E N T S

FEBRUARY-MARCH,1977 — % ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
5A-4m	1188	1.58	0.606	0.247	0.0002	0.002	0.001	8.05	10.08	2.94	2.232	0.0003	0.001	0.003
5A-9m	1119	1.89	0.500	0.220	0.0001	0.002	0.001	10.28	9.69	2.99	2.502	0.0002	0.002	0.003
5B-2m	1559	1.71	0.275	0.327	BDL	0.007	0.003	11.93	9.00	4.83	1.741	0.0012	0.002	0.004
5B-7m	1219	1.05	0.275	0.429	BDL	0.001	0.002	11.08	8.82	5.52	2.374	0.0005	0.003	0.005
5C-2m	375	0.86	0.249	0.225	0.0001	0.003	0.003	13.07	7.40	4.94	1.321	0.0010	0.002	0.005
5C-14m	349	4.52	0.348	0.161	0.0004	0.004	0.002	12.26	4.90	3.32	0.823	0.0006	0.001	0.005
5D-4m	262	1.86	0.338	0.143	0.0004	0.008	0.003	10.17	4.71	2.07	0.981	0.0007	0.004	0.008
5D-21m	165	6.44	0.654	0.030	0.0003	0.011	0.002	6.12	1.21	0.62	0.309	0.0019	0.006	0.011
5E-8m	196	3.72	0.366	0.104	0.0003	0.025	0.005	7.04	4.02	1.59	1.045	0.0011	0.010	0.012
5E-25m	167	4.60	0.458	0.086	0.0001	0.004	0.002	8.12	1.50	0.65	0.391	0.0019	0.003	0.008
5F-10m	228	4.23	0.397	0.025	0.0007	0.004	0.002	14.56	1.34	0.52	0.265	0.0004	0.001	0.002
5F-30m	282	4.01	0.267	0.028	0.0005	0.003	0.001	16.80	1.41	0.55	0.246	0.0003	BDL	0.003

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

FEBRUARY-MARCH,1977 % ELEMENT IN SPM

		WEAK ACID SOLUBLE						AMORPH	REFRACTORY					
Station ID#	TSL (ug/l)	Ca	Mg	Fe	Cd	Cu	Pb	Si	Si	Al	Fe	Cd	Cu	Pb
5G-10m	289	3.66	0.394	0.013	0.0005	0.003	0.002	17.32	1.84	0.85	0.324	0.0003	0.004	0.003
5G-35m	268	3.68	0.690	0.016	0.0003	0.001	0.001	18.01	2.10	0.95	0.301	0.0002	0.000	0.001
5H-20m	60	2.86	0.559	0.041	0.0025	0.017	0.005	1.60	1.95	0.48	0.349	0.0183	0.024	0.023
5H-40m	98	2.16	0.025	0.044	0.0003	0.018	0.003	0.49	0.64	0.19	0.105	0.0013	0.001	0.015
5H-70m	52	17.80	0.629	0.071	0.0007	0.012	0.004	3.88	1.00	0.32	0.193	0.0018	0.007	0.012
5I-20m	39	1.28	0.466	0.053	0.0026	0.029	0.005	0.94	1.61	0.35	0.320	0.0020	0.009	0.031
5I-200m	30	1.00	0.710	0.104	0.0008	0.033	BDL	2.16	1.08	0.26	0.261	0.0189	0.009	0.013
5I-370m	18	5.97	0.321	0.113	0.0001	0.006	0.009	3.27	1.66	0.68	0.393	0.0037	0.031	0.020

S O U T H   A T L A N T I C   B I G H T

S U S P E N D E D   S E D I M E N T S

FEBRUARY-MARCH,1977

% ELEMENT IN SPM

		WEAK ACID SOLUBLE						AMORPH	REFRACTORY					
Station ID#	TSL (ug/l)	Ca	Mg	Fe	Cd	Cu	Pb	Si	Si	Al	Fe	Cd	Cu	Pb
6H-30m	33	0.55	0.297	0.437	0.0074	0.027	0.007	0.79	0.51	0.15	0.051	0.0013	0.004	0.030
6H-200m	42	8.34	0.318	0.033	0.0007	0.012	0.006	4.29	2.35	1.13	0.482	0.0019	0.014	0.023
6H-350m	20	7.35	0.181	0.165	0.0003	0.007	0.007	5.77	4.58	2.40	0.936	0.0020	0.004	0.016

S O U T H   A T L A N T I C   B I G H T

S U S P E N D E D   S E D I M E N T S

FEBRUARY-MARCH,1977 — % ELEMENT IN SPM

Station ID#	TSL (ug/l)	Weak Acid Soluble Ca	Weak Acid Soluble Mg	Weak Acid Soluble Fe	Weak Acid Soluble Cd	Weak Acid Soluble Cu	Weak Acid Soluble Pb	Amorph Si	Refractory Si	Refractory Al	Refractory Fe	Refractory Cd	Refractory Cu	Refractory Pb
7A-7m	295	3.01	0.372	0.371	0.0004	0.008	0.006	7.45	10.28	7.10	2.112	0.0014	0.006	0.012
7A-14m	620	3.80	0.338	0.308	0.0002	0.004	0.003	7.02	11.90	5.35	2.641	0.0005	0.001	0.004
7B-7m	126	1.99	0.360	0.189	0.0002	0.005	0.005	8.39	4.82	2.51	1.001	0.0011	0.005	0.014
7B-14m	302	7.72	0.328	0.229	BDL	0.002	0.003	5.85	10.39	5.14	1.514	0.0026	0.004	0.005
7C-7m	194	0.20	0.269	0.038	0.0280	0.003	0.001	13.71	1.85	0.95	0.408	0.0007	0.005	0.009
7C-17m	270	1.81	0.326	0.046	0.0006	0.005	0.002	14.28	3.22	1.92	0.621	0.0011	0.005	0.017
7D-6m	194	0.56	0.720	0.071	0.0005	0.014	0.003	7.80	0.69	0.24	0.114	0.0010	0.009	0.012
7D-34m	164	4.74	0.331	0.071	0.0005	0.006	0.003	13.12	2.51	1.48	0.755	0.0012	0.001	0.004
7E-20m	26	0.64	0.738	0.018	BDL	0.007	0.005	2.31	0.77	0.23	0.113	0.0066	0.032	0.044
7E-80m	49	2.46	0.502	0.067	0.0005	0.084	0.008	4.71	1.12	0.26	0.150	0.0029	0.011	0.021
7E-190m	55	4.04	0.294	0.172	0.0008	0.016	0.011	6.61	2.56	2.02	1.046	0.0176	0.033	0.064
7F-40m	23	2.12	1.030	0.025	BDL	0.017	0.007	0.12	0.29	0.15	0.118	0.0037	0.016	0.039
7F-130m	24	3.36	0.304	0.126	0.0004	0.011	0.011	4.32	0.79	0.25	0.262	0.0055	0.006	0.023
7F-400m	15	1.76	0.184	0.181	BDL	0.003	0.016	3.81	3.90	1.42	0.572	0.0082	0.011	0.035

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

MAY, 1977

% ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
1B-5m	209	0.54	0.250	0.206	0.0001	0.011	0.010	3.44	2.61	1.69	0.623	0.0039	0.005	0.008
1B-10m	138	1.36	0.510	0.230	0.0004	0.012	0.008	6.36	4.73	2.62	1.197	0.0017	0.008	0.007
1C-5m	187	1.58	0.600	0.254	0.0004	0.060	0.028	2.71	2.67	1.23	1.360	0.0007	0.003	0.009
1C-15m	139	1.61	0.410	0.156	BDL	0.016	0.008	4.08	1.80	0.91	0.436	0.0040	BDL	0.009
1D-10m	86	2.28	ND	ND	ND	ND	ND	10.45	0.36	0.21	0.102	0.0012	BDL	0.010
1D-25m	97	2.48	0.240	0.110	0.0010	0.011	0.005	11.22	0.74	0.30	0.161	0.0011	0.002	0.008
1E-15m	44	0.34	0.620	0.108	BDL	0.004	0.001	8.20	2.80	2.54	0.034	0.0044	BDL	0.031
1E-35m	46	0.32	0.860	0.037	0.0014	0.016	0.005	7.58	0.74	0.30	0.150	0.0029	0.017	0.015
1F-10m	57	BDL	BDL	0.097	BDL	0.012	0.005	2.19	3.58	0.36	0.260	0.0025	0.007	0.021
1F-50m	161	4.36	0.300	0.047	0.0007	0.005	0.003	9.49	0.36	0.16	0.177	0.0009	0.001	0.009
1F-250m	49	1.25	0.440	0.280	0.0020	0.012	0.058	1.22	1.95	0.90	1.363	0.0018	0.001	0.032

S O U T H A T L A N T I C B I G H T

S U S P E N D E D S E D I M E N T S

MAY, 1977

% ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE						AMORPH	REFRACTORY					
		Ca	Mg	Fe	Cd	Cu	Pb	Si	Si	Al	Fe	Cd	Cu	Pb
4C-7m	137	1.31	0.460	0.042	0.0004	0.006	0.002	11.75	0.97	0.56	0.353	0.0006	BDL	0.016
4C-15m	167	1.19	0.200	0.031	0.0002	0.002	0.002	13.85	0.83	0.48	0.193	0.0005	BDL	0.005
4D-8m	113	4.36	0.330	0.078	0.0005	0.007	0.002	6.05	1.31	0.65	0.205	0.0033	0.008	0.014
4D-20m	101	3.21	0.310	0.110	BDL	0.005	0.003	4.71	1.34	0.79	0.279	0.0029	0.004	0.015

S O U T H   A T L A N T I C   B I G H T

S U S P E N D E D   S E D I M E N T S

MAY, 1977

% ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
5B-8m	459	2.20	0.340	0.171	0.0002	0.004	0.002	11.67	4.73	2.38	1.192	0.0008	0.008	0.006
5C-7m	187	4.56	0.610	0.045	BDL	0.006	0.002	3.36	0.73	0.46	0.178	0.0011	0.005	0.011
5C-15m	167	5.24	0.360	0.091	ND	0.018	0.011	4.62	1.40	0.66	0.218	0.0008	0.003	0.010
5D-7m	158	4.96	0.640	0.073	BDL	0.009	0.003	2.40	1.19	0.44	0.160	0.0011	0.002	0.008
5D-20m	58	0.92	0.510	0.114	0.0004	0.007	0.003	9.81	1.25	0.61	0.269	0.0019	0.004	0.014
5E-10m	126	3.13	0.370	0.132	0.0007	0.010	0.006	7.03	0.65	0.39	0.137	0.0016	0.017	0.006
5E-30m	143	7.96	0.340	0.073	0.0006	0.003	0.001	9.28	1.74	0.73	0.309	0.0016	0.011	0.004
5F-15m	91	3.36	0.750	0.054	0.0006	0.007	0.001	3.70	0.53	0.22	0.124	0.0019	0.010	0.007
5F-35m	40	2.54	0.470	0.117	0.0007	0.025	0.005	8.67	2.23	1.14	0.450	0.0049	0.031	0.011

S O U T H   A T L A N T I C   B I G H T

S U S P E N D E D   S E D I M E N T S

MAY, 1977

% ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
5G-15m	54	24.12	0.960	0.167	0.0015	0.014	0.006	3.80	1.45	0.91	0.282	0.0058	0.010	0.011
5G-30m	46	6.60	0.350	0.255	0.0006	0.010	0.009	5.63	2.60	1.05	0.466	0.0035	0.029	0.032
5H-10m	15	3.20	0.490	0.251	0.0056	0.013	0.011	BDL	1.15	0.63	0.061	0.0032	0.045	0.066
5H-40m	25	2.37	0.390	0.253	0.0008	0.013	0.009	0.04	0.60	0.14	0.208	0.0018	0.023	0.019
5H-75m	32	1.27	0.510	0.107	0.0005	0.002	0.005	5.68	1.38	0.85	0.558	0.0118	0.005	0.012
5I-40m	15	0.64	0.660	0.212	BDL	0.001	0.005	BDL	0.47	0.29	0.034	0.0041	0.020	0.033
5I-200m	8	4.32	0.270	0.219	BDL	0.002	0.007	2.26	0.85	0.20	0.228	0.0013	0.023	0.020
5I-350m	12	5.68	0.250	0.172	BDL	0.003	0.005	4.24	3.76	1.86	0.884	0.0035	0.013	0.022

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

MAY, 1977

% ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
7B-5m	191	4.76	0.340	0.231	0.0009	0.004	0.005	7.72	5.95	4.13	1.731	0.0008	0.002	0.004
7B-18m	212	0.32	0.300	0.168	0.0003	0.003	0.005	12.24	2.95	[illegible] 23	0.996	0.0011	0.001	0.009
7C-7m	53	2.86	0.420	0.263	BDL	0.004	0.006	10.65	2.78	1.67	0.629	0.0019	0.008	0.010
7C-19m	54	4.36	0.540	0.157	0.0004	0.009	0.004	7.50	2.50	1.29	0.831	0.0016	0.039	0.006
7D-10m	57	0.26	0.510	0.076	0.0010	0.002	0.003	2.96	0.47	0.61	0.166	0.0020	0.006	0.014
7D-35m	127	7.32	0.420	0.135	0.0005	0.001	0.002	9.03	3.17	0.04	1.005	0.0006	0.004	0.006
7E-30m	33	0.45	0.260	0.140	BDL	0.006	0.006	BDL	0.44	0.30	0.012	0.0027	0.024	0.029
7E-90m	19	0.80	0.380	0.198	0.0001	0.004	0.003	4.15	1.71	1.17	0.472	0.0038	0.036	0.022
7E-180m	31	2.48	0.220	0.079	0.0007	0.001	0.002	13.88	1.54	0.89	0.354	0.0006	BDL	0.009
7F-50m	11	0.59	0.740	0.711	BDL	0.037	0.001	0.32	1.88	0.78	0.055	0.0038	0.017	0.033
7F-200m	6	2.27	0.460	0.394	0.0128	0.007	0.032	2.45	2.96	1.82	0.373	0.0030	0.043	0.060
7F-450m	10	5.20	0.190	0.295	0.0005	0.005	0.016	4.04	3.80	0.51	1.003	0.0024	0.011	0.019

S O U T H   A T L A N T I C   B I G H T

S U S P E N D E D   S E D I M E N T S

AUGUST,1977 % ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
1A-8m	545	0.32	0.392	0.887	0.0006	0.005	ND	4.68	2.78	1.09	0.721	0.0004	0.003	0.016
1A-10m	487	0.35	0.437	0.563	0.0009	0.006	ND	0.67	2.43	1.18	0.824	0.0005	0.005	0.017
1B-3m	322	0.33	0.389	0.384	0.0001	0.004	0.071	0.76	2.12	1.28	0.579	0.0043	0.004	0.022
1B-9m	439	0.36	0.453	0.166	0.0006	0.005	0.048	6.21	1.88	1.15	0.561	0.0006	0.007	0.009
1C-3m	38	0.67	0.252	0.236	BDL	0.007	0.060	0.74	0.18	0.05	0.158	0.0027	0.010	0.024
1C-17m	166	1.68	0.272	3.448	0.0009	0.004	0.033	2.98	1.80	1.04	0.513	0.0017	0.003	0.011
1D-5m	89	0.90	0.462	0.053	0.0017	0.014	ND	BDL	0.31	0.02	0.208	0.0062	0.005	0.029
1D-24m	233	1.08	0.288	0.078	0.0006	0.006	0.022	4.69	0.50	0.16	0.168	0.0006	0.003	0.004
1E-5m	182	0.93	0.082	0.097	0.0005	0.007	0.016	1.22	0.64	0.24	0.695	0.0002	0.002	0.008
1E-43m	410	0.36	0.157	0.100	0.0004	0.013	0.015	1.35	0.13	0.06	0.124	0.0005	0.001	0.021
1F-5m	129	0.88	0.161	0.082	0.0011	0.024	0.020	0.47	0.32	0.14	0.111	0.0014	0.029	0.016
1F-208m	53	3.68	0.175	0.082	0.0013	0.007	0.008	1.86	0.75	0.35	0.502	0.0014	0.022	0.007

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

AUGUST,1977

% ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
4A-5m	2693	1.10	0.286	0.240	0.0003	0.001	0.001	6.97	12.51	3.67	2.819	0.0001	0.003	0.003
4B-5m	314	1.44	0.198	0.237	0.0008	0.005	0.010	7.00	7.41	4.16	1.434	0.0005	0.004	0.006
4B-19m	70	1.61	0.137	0.247	0.0003	0.001	0.002	5.44	8.32	4.19	1.627	0.0008	0.005	0.004
4C-5m	242	1.24	0.183	0.024	0.0008	0.004	0.003	6.96	0.31	0.09	0.126	0.0003	0.004	0.004
4C-10m	236	0.72	0.174	0.128	0.0006	0.004	0.010	10.80	1.03	1.07	0.373	0.0010	0.002	0.022
4C-16m	327	2.48	0.091	0.043	0.0005	0.003	0.005	9.72	0.63	0.25	0.184	0.0002	0.001	0.004
4D-5m	93	0.50	0.230	0.105	0.0017	0.017	0.008	5.65	0.59	0.17	0.156	0.0008	0.001	0.017
4D-24m	52	0.39	0.310	0.146	0.0060	0.004	0.011	5.03	1.48	0.70	0.429	0.0013	0.007	0.036
4E-31m	95	3.71	0.325	0.073	0.0026	0.006	0.004	0.35	0.10	0.06	0.122	0.0008	0.005	0.005
4F-5m	25	0.53	0.311	0.094	0.0021	0.035	0.015	0.52	0.34	0.19	0.030	0.0018	0.002	0.013
4F-34m	81	6.40	0.157	0.126	0.0009	0.005	0.008	6.10	4.07	2.05	0.881	0.0005	0.002	0.016
4F-54m	80	5.50	0.172	0.114	0.0014	0.005	0.007	5.76	3.59	5.73	0.944	0.0006	0.005	0.008
4G-5m	106	0.72	0.132	0.031	0.0005	0.014	0.004	0.77	0.46	0.17	0.176	0.0006	0.005	0.004
4G-30m	61	1.05	0.177	0.033	0.0007	0.004	0.005	0.35	0.47	0.18	0.198	0.0017	0.007	0.042

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

AUGUST, 1977 — % ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE						AMORPH	REFRACTORY					
		Ca	Mg	Fe	Cd	Cu	Pb	Si	Si	Al	Fe	Cd	Cu	Pb
5A-6m	3646	2.07	0.300	0.351	0.0001	0.001	0.001	8.87	10.87	3.71	2.480	0.0002	0.002	0.003
5B-5m	1276	3.37	0.211	0.119	0.0001	0.003	0.001	8.06	7.10	2.84	1.407	0.0002	0.001	0.002
5C-4m	296	3.87	0.303	0.124	0.0004	0.008	0.004	9.09	4.93	1.58	0.806	0.0009	0.003	0.004
5C-16m	344	4.43	0.246	0.103	0.0004	0.003	0.004	5.46	2.91	1.61	0.774	0.0007	0.004	0.007
5D-5m	48	1.52	0.456	0.065	0.0014	0.019	0.007	4.10	0.15	0.04	0.094	0.0011	0.002	0.009
5D-21m	254	1.55	0.161	0.485	0.0004	0.008	0.039	7.65	0.71	0.25	1.492	0.0009	0.013	0.009
5E-3m	163	0.10	0.071	0.030	0.0003	0.005	0.003	0.33	0.17	0.04	0.042	0.0007	BDL	0.008
5E-29m	119	1.81	0.335	0.106	0.0025	0.014	0.007	6.08	0.77	0.38	0.273	0.0010	0.008	0.011
5F-3m	59	0.46	0.223	0.036	0.0019	0.019	0.008	0.66	0.14	0.08	0.142	0.0006	0.010	0.072
5F-34m	120	2.14	0.198	0.097	0.0015	0.009	0.006	6.79	0.69	0.38	0.316	0.0020	0.007	0.011

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

AUGUST,1977 — % ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
5G-7m	94	0.71	0.225	0.050	0.0006	0.013	0.004	10.08	0.50	0.21	0.221	0.0006	0.007	0.007
5G-27m	45	1.03	0.300	0.053	0.0011	0.013	0.006	1.23	0.67	0.21	0.148	0.0025	0.026	0.013
5H-7m	88	0.95	0.277	0.187	0.0020	0.208	0.022	0.76	0.18	0.04	0.976	0.0010	0.050	0.009
5H-52m	49	6.71	0.244	0.121	0.0015	0.009	0.005	5.73	2.97	1.37	0.734	0.0004	0.006	0.009
5H-72m	96	3.93	0.218	0.217	0.0016	0.012	0.010	3.28	1.17	0.57	0.866	0.0005	0.002	0.007
5I-10m	69	0.99	0.283	0.227	0.0014	0.027	0.015	5.16	0.12	0.06	0.724	0.0011	0.024	0.028
5I-310m	39	10.20	0.288	0.218	0.0020	0.010	0.013	2.58	1.82	0.69	0.726	0.0034	0.009	0.015

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

AUGUST,1977

% ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
7A-4m	493	0.98	0.261	0.288	0.0009	0.004	0.003	6.28	11.11	5.30	2.125	0.0013	0.010	0.008
7A-9m	539	0.25	0.281	0.349	0.0016	0.006	0.003	7.17	8.14	5.91	1.947	0.0016	0.002	0.012
7B-5m	198	2.15	0.156	0.130	0.0013	0.008	0.011	8.98	3.05	1.46	0.714	0.0020	0.006	0.020
7B-18m	427	3.90	0.188	0.194	0.0008	0.005	0.004	10.72	5.14	2.47	1.021	0.0002	0.004	0.010
7C-5m	211	1.80	0.221	0.066	0.0007	0.005	0.004	9.87	0.97	0.32	0.225	0.0006	0.002	0.005
7C-18m	71	1.83	0.242	0.076	0.0008	0.009	0.006	8.55	1.12	0.37	0.275	0.0003	0.006	0.008
7D-8m	86	2.36	0.217	0.110	0.0021	0.012	0.012	1.74	0.82	0.29	0.351	0.0023	0.014	0.019
7D-42m	103	7.44	0.386	0.167	0.0012	0.007	0.003	5.73	4.75	1.37	1.083	0.0003	0.003	0.004
7E-5m	116	0.63	0.261	0.080	0.0011	0.018	0.005	0.47	0.30	0.07	0.232	0.0015	0.010	0.015
7E-30m	42	0.45	0.165	0.095	0.0015	0.020	0.024	0.50	0.28	0.03	0.182	0.0011	0.002	0.011
7E-180m	56	9.35	0.245	0.203	0.0024	0.019	0.008	4.61	3.68	1.77	1.314	0.0006	0.001	0.009
7F-8m	200	1.00	0.245	BDL	0.0008	0.031	0.009	0.30	0.39	0.14	0.124	0.0003	0.003	0.011
7F-90m	21	0.46	0.240	BDL	0.0020	0.011	0.004	3.43	0.58	0.21	0.165	0.0066	0.015	0.031
7F-250m	43	8.40	0.441	BDL	0.0028	0.023	0.028	3.25	0.81	0.37	0.736	0.0010	0.007	0.014

S O U T H   A T L A N T I C   B I G H T

S U S P E N D E D   S E D I M E N T S

NOVEMBER, 1977

% ELEMENT IN SPM

Station ID#	TSL (ug/l)	Weak Acid Soluble Ca	Weak Acid Soluble Mg	Weak Acid Soluble Fe	Weak Acid Soluble Cd	Weak Acid Soluble Cu	Weak Acid Soluble Pb	Amorph Si	Refractory Si	Refractory Al	Refractory Fe	Refractory Cd	Refractory Cu	Refractory Pb
1B-5m	139	0.16	0.360	0.526	0.0015	0.007	0.029	5.30	3.79	1.91	0.941	0.0020	BDL	0.015
1C-10m	267	0.13	0.290	0.220	0.0011	0.007	0.012	1.75	2.95	1.09	0.484	0.0007	0.007	0.012
1D-5m	206	0.43	0.410	0.019	0.0007	0.008	0.004	3.03	0.65	0.22	0.112	0.0007	0.002	0.004
1D-19m	82	0.30	0.730	0.844	0.0028	0.020	0.057	4.62	1.40	0.96	0.706	0.0027	0.003	0.039
1E-10m	54	0.22	0.580	0.033	0.0012	0.011	0.009	2.81	0.81	0.26	0.192	0.0070	0.015	0.031
1E-36m	44	0.25	0.430	0.028	0.0007	0.006	0.004	2.04	0.37	0.15	0.076	0.0014	0.003	0.020
1F-10m	60	0.30	0.490	0.026	0.0009	0.010	0.016	BDL	0.99	0.51	0.109	0.0036	0.018	0.021
1F-23m	42	0.36	0.270	0.068	0.0010	0.007	0.012	1.03	0.47	0.14	0.469	0.0021	BDL	0.006
1F-252m	27	0.15	0.180	0.112	0.0007	0.009	0.009	1.20	1.85	0.89	0.349	0.0017	0.014	0.016

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

NOVEMBER,1977 % ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
4C-12m	349	0.39	0.480	0.034	0.0017	0.030	0.004	6.21	1.14	0.97	0.226	0.0015	0.080	0.014
4D-10m	180	2.56	0.580	0.028	0.0009	0.008	0.005	6.57	1.25	0.62	0.229	0.0019	0.053	0.010
4D-20m	230	5.42	0.720	0.020	0.0018	0.009	0.004	6.60	1.52	0.91	0.347	0.0007	0.005	0.006
4F-10m	22	0.58	0.320	0.030	0.0003	0.007	0.004	2.66	0.59	0.35	0.123	0.0052	0.007	0.027
4F-60m	41	4.69	0.310	0.036	0.0002	0.008	0.004	5.44	1.17	0.86	0.284	0.0013	BDL	0.006

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

NOVEMBER,1977 % ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
5B-6m	865	4.89	0.350	0.104	0.0002	0.001	0.001	7.90	6.42	3.15	1.134	0.0008	0.001	0.005
5C-12m	134	10.10	0.560	0.038	0.0008	0.001	0.001	7.91	3.27	1.39	0.660	0.0006	BDL	0.005
5D-10m	78	8.81	0.310	0.032	0.0013	0.005	0.003	4.97	1.55	0.74	0.238	0.0009	0.008	0.012
5D-18m	120	10.60	0.430	0.025	0.0003	0.002	0.001	4.46	1.04	0.87	0.208	0.0008	0.005	0.005
5E-8m	49	7.67	0.420	0.030	0.0011	0.005	0.002	3.92	0.67	0.34	0.132	0.0019	0.005	0.005
5E-25m	79	9.00	0.520	0.016	0.0008	0.004	0.001	4.69	0.58	0.32	0.136	0.0007	0.004	0.009
5F-10m	85	6.35	0.210	0.023	0.0003	0.003	0.002	6.24	1.02	0.52	0.302	0.0048	0.020	0.007
5F-32m	80	7.61	0.330	0.038	0.0013	0.012	0.003	5.70	0.99	0.56	0.205	0.0011	0.008	0.010
5G-10m	112	4.25	1.150	0.030	0.0013	0.006	0.001	7.54	0.76	0.47	0.196	0.0056	0.004	0.016
5G-33m	118	4.15	0.510	0.026	0.0021	0.010	0.003	9.12	0.75	0.30	0.142	0.0010	0.001	0.005
5H-20m	55	6.19	0.530	0.037	0.0003	0.002	0.001	2.04	2.35	1.32	0.481	0.0050	0.008	0.025
5H-40m	103	6.88	1.020	0.044	0.0005	0.002	0.003	2.30	2.54	1.09	0.551	0.0004	0.001	0.003
5H-60m	67	11.60	0.720	0.071	0.0007	0.005	0.003	3.81	4.02	1.80	1.170	0.0010	0.002	0.015

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

NOVEMBER,1977 % ELEMENT IN SPM

		WEAK ACID SOLUBLE						AMORPH	REFRACTORY					
Station ID#	TSL (ug/l)	Ca	Mg	Fe	Cd	Cu	Pb	Si	Si	Al	Fe	Cd	Cu	Pb
7B-1m	170	4.85	0.410	0.056	0.0007	0.002	0.002	6.30	3.53	2.10	0.777	0.0029	0.002	0.009
7B-17m	367	5.07	0.790	0.045	0.0002	0.001	0.001	6.91	3.74	1.49	0.705	0.0007	0.004	0.034
7C-15m	281	2.42	1.520	0.019	0.0010	0.003	0.003	5.15	0.46	0.28	0.095	0.0004	0.007	0.005
7D-12m	95	8.65	0.270	0.031	0.0002	0.005	0.002	5.54	2.14	1.19	0.420	0.0020	0.034	0.032
7D-32m	148	9.64	0.610	0.050	0.0008	0.004	0.002	6.73	2.84	1.16	0.770	0.0005	0.005	0.007
7E-12m	78	4.80	0.300	0.056	0.0002	0.007	0.003	2.30	3.04	1.53	0.580	0.0006	0.005	0.011
7E-112m	54	8.98	0.670	0.060	0.0003	0.002	0.001	3.33	3.34	1.50	0.645	0.0008	0.011	0.009
7E-212m	54	11.40	0.400	0.109	0.0002	0.002	0.002	3.48	5.28	1.96	1.076	0.0019	0.004	0.005
7F-25m	20	2.15	0.470	0.059	0.0012	0.015	0.012	0.49	0.72	0.10	0.204	0.0090	0.057	0.042
7F-300m	27	11.90	0.600	0.174	0.0016	0.010	0.009	1.17	1.17	0.92	0.375	0.0023	0.012	0.025
7F-500m	46	4.38	1.120	0.064	0.0005	0.003	0.003	0.79	1.77	0.73	0.434	0.0015	0.007	0.012

S O U T H   A T L A N T I C   B I G H T

S U S P E N D E D   S E D I M E N T S

FEBRUARY-MARCH,1977 ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	Ca	Mg	Fe	Cd	Cu	Pb	Si	Si	Al	Fe	Cd	Cu	Pb
		WEAK ACID SOLUBLE						AMORPH	REFRACTORY					
1A-3m	486	6.12	1.34	1.486	0.0025	0.1077	0.062	43.8	36.4	29.03	9.33	0.0049	0.0568	0.042
1A-9m	488	8.93	1.32	1.825	0.0011	0.5251	0.048	42.2	43.4	32.46	9.20	0.0068	0.0500	0.041
1B-4m	347	6.62	0.97	1.151	0.0008	0.0384	0.027	27.2	26.3	29.82	7.07	0.0035	0.0136	0.037
1B-11m	140	2.30	0.40	0.511	0.0005	0.0469	0.011	12.8	10.8	8.82	2.30	0.0010	0.0114	0.009
1C-10m	259	6.46	0.96	0.716	0.0004	0.0079	0.010	25.8	18.3	14.10	4.58	0.0021	0.0109	0.018
1C-15m	286	10.52	0.97	0.777	BDL	0.0140	0.007	24.7	19.3	12.48	4.99	0.0011	0.0092	0.016
1D-8m	593	12.93	1.62	0.045	0.0022	0.0047	0.004	142.1	14.5	1.53	0.83	0.0006	0.0032	0.020
1D-23m	348	8.83	1.19	0.025	0.0012	0.0022	0.004	73.7	2.5	0.77	0.32	0.0021	0.0032	0.011
1E-8m	113	2.98	0.23	0.010	0.0010	0.0030	0.004	14.1	1.9	0.58	0.34	0.0009	BDL	0.009
1E-35m	83	3.60	0.12	0.037	0.0003	0.0056	0.004	12.4	2.2	0.61	0.26	0.0012	0.0021	0.007
1F-10m	216	1.24	0.47	0.203	0.0023	0.0661	0.038	28.4	1.3	0.39	1.74	0.0011	0.0101	0.015
1F-36m	163	5.30	0.41	0.042	0.0005	0.0143	0.009	28.7	3.1	0.57	0.44	0.0008	0.0068	0.014
1F-240m	72	9.87	0.16	0.058	0.0002	0.0043	0.003	3.3	3.0	2.02	0.54	0.0008	0.0051	0.004

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

FEBRUARY-MARCH,1977 ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
4A-6m	1827	40.02	4.66	3.742	0.0011	0.0382	0.020	169.4	188.8	73.54	43.65	0.0018	0.0520	0.035
4B-1m	826	16.77	2.89	1.981	0.0095	0.1022	0.016	70.4	82.0	11.15	20.14	0.0074	0.0371	0.027
4B-8m	765	15.46	2.81	2.135	BDL	0.0313	0.013	76.7	70.4	32.16	17.62	0.0023	0.0301	0.044
4C-9m	264	7.98	0.89	0.230	0.0004	0.0235	0.011	25.2	8.9	4.88	1.51	0.0069	0.0174	0.026
4C-14m	411	16.42	1.53	0.280	BDL	0.0084	0.007	45.6	17.2	10.71	3.00	0.0053	0.0182	0.012
4D-5m	204	24.05	0.74	0.086	0.0022	0.0176	0.004	12.4	3.0	1.35	0.53	0.0057	0.0097	0.017
4D-20m	235	27.86	0.72	0.135	0.0041	0.0812	0.010	15.5	2.2	1.05	0.45	0.0035	0.0143	0.024
4E-10m	245	27.25	0.45	0.110	0.0007	0.0105	0.004	17.8	1.9	0.67	0.39	0.0025	0.0107	0.013
4E-27m	209	24.99	0.45	0.121	0.0007	0.0276	0.009	15.5	1.8	0.54	0.35	0.0015	0.0047	0.008
4F-10m	147	12.85	0.32	0.083	0.0006	0.0099	0.008	16.9	2.2	1.18	0.45	0.0009	0.0058	0.008
4F-22m	237	11.17	0.90	0.157	0.0006	0.1562	0.042	24.4	3.8	1.39	0.75	0.0012	0.0237	0.053
4F-50m	18	1.38	0.18	0.012	0.0000	0.0104	0.001	1.5	0.1	0.06	0.04	0.0005	0.0005	0.002
4G-20m	98	0.58	0.40	0.031	0.1418	0.0248	0.004	2.3	0.3	0.22	0.08	0.0009	0.0016	0.012
4G-120m	29	0.24	0.09	0.027	0.0001	0.0035	0.003	1.1	0.2	0.08	0.05	0.0006	0.0003	0.005
4G-320m	31	0.91	0.13	0.027	0.0002	0.0034	0.002	1.9	0.8	0.46	0.18	0.0012	0.0111	0.018

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

FEBRUARY-MARCH,1977

ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
5A-4m	1188	18.77	7.20	2.934	0.0019	0.0254	0.015	95.7	119.8	34.94	26.52	0.0036	0.0124	0.031
5A-9m	1119	21.15	5.59	2.456	0.0007	0.0249	0.008	115.0	108.4	33.46	27.99	0.0022	0.0215	0.031
5B-2m	1559	26.66	4.29	5.098	BDL	0.1015	0.039	186.0	140.3	75.33	27.14	0.0187	0.0384	0.061
5B-7m	1219	12.80	3.35	5.231	BDL	0.0173	0.027	135.1	107.5	67.37	28.95	0.0061	0.0339	0.059
5C-2m	375	3.21	0.93	0.844	0.0002	0.0108	0.010	49.0	27.7	18.52	4.95	0.0037	0.0062	0.019
5C-14m	349	15.79	1.22	0.563	0.0012	0.0140	0.007	42.8	17.1	11.61	2.88	0.0021	0.0044	0.017
5D-4m	262	4.87	0.88	0.373	0.0011	0.0205	0.007	26.6	12.3	5.43	2.57	0.0018	0.0101	0.020
5D-21m	165	10.62	1.08	0.049	0.0005	0.0174	0.003	10.1	2.0	1.02	0.51	0.0031	0.0093	0.018
5E-8m	196	7.28	0.72	0.204	0.0005	0.0488	0.010	13.8	7.9	3.11	2.05	0.0022	0.0194	0.023
5E-25m	167	7.66	0.76	0.143	0.0002	0.0062	0.004	13.5	2.5	1.08	0.65	0.0032	0.0050	0.013
5F-10m	228	9.63	0.90	0.058	0.0016	0.0101	0.004	33.2	3.1	1.18	0.60	0.0009	0.0031	0.005
5F-30m	282	11.32	0.75	0.079	0.0014	0.0089	0.003	47.4	4.0	1.54	0.69	0.0008	BDL	0.008

S O U T H A T L A N T I C B I G H T

S U S P E N D E D S E D I M E N T S

FEBRUARY-MARCH,1977 ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
5G-10m	289	10.56	1.14	0.038	0.0016	0.0074	0.005	50.0	5.3	2.44	0.93	0.0009	0.0109	0.008
5G-35m	268	9.85	1.85	0.042	0.0009	0.0016	0.002	48.2	5.6	2.55	0.80	C.0005	0.0006	0.004
5H-20m	60	1.72	0.34	0.024	0.0015	0.0103	0.003	1.0	1.2	0.29	0.21	0.0110	0.0143	0.014
5H-40m	98	2.11	0.02	0.043	0.0003	0.0180	0.003	0.5	0.6	0.19	0.10	0.0013	0.0008	0.015
5H-70m	52	9.18	0.32	0.037	0.0004	0.0064	0.002	2.0	0.5	0.17	0.10	0.0009	0.0039	0.006
5I-20m	39	0.50	0.18	0.020	0.0010	0.0114	0.002	0.4	0.6	0.14	0.12	0.0008	0.0037	0.012
5I-200m	30	0.30	0.21	0.031	0.0002	0.0098	BDL	0.6	0.3	0.08	0.08	0.0056	0.0027	0.004
5I-370m	18	1.08	0.06	0.020	0.0000	0.0011	0.002	0.6	0.3	0.12	0.07	0.0007	0.0055	0.004

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

FEBRUARY-MARCH,1977

ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
6H-30m	33	0.18	0.10	0.144	0.0024	0.0090	0.002	0.3	0.2	0.05	0.02	0.0004	0.0014	0.010
6H-200m	42	3.51	0.13	0.014	0.0003	0.0050	0.003	1.8	1.0	0.48	0.20	0.0008	0.0059	0.010
6H-350m	20	1.48	0.04	0.033	0.0001	0.0014	0.001	1.2	0.9	0.49	0.19	0.0004	0.0009	0.003

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

FEBRUARY-MARCH,1977 ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
7A-7m	295	8.87	1.10	1.094	0.0012	0.0243	0.016	22.0	30.3	20.92	6.23	0.0041	0.0168	0.036
7A-14m	620	23.58	2.10	1.911	0.0013	0.0257	0.016	43.6	73.9	33.22	16.39	0.0031	0.0069	0.022
7B-7m	126	2.50	0.45	0.238	0.0003	0.0060	0.006	10.6	6.1	3.15	1.26	0.0014	0.0067	0.017
7B-14m	302	23.31	0.99	0.692	BDL	0.0059	0.010	17.7	31.4	15.53	4.57	0.0079	0.0130	0.016
7C-7m	194	0.38	0.52	0.074	0.0543	0.0056	0.002	26.6	3.6	1.85	0.79	0.0014	0.0092	0.017
7C-17m	270	4.89	0.88	0.124	0.0015	0.0136	0.004	38.6	8.7	5.19	1.68	0.0030	0.0125	0.045
7D-6m	194	1.09	1.40	0.138	0.0009	0.0264	0.005	15.1	1.3	0.46	0.22	0.0019	0.0166	0.023
7D-34m	164	7.77	0.54	0.116	0.0009	0.0100	0.005	21.5	4.1	2.43	1.24	0.0020	0.0022	0.007
7E-20m	26	0.17	0.19	0.005	BDL	0.0018	0.001	0.6	0.2	0.06	0.03	0.0017	0.0083	0.011
7E-80m	49	1.20	0.24	0.033	0.0002	0.0411	0.004	2.3	0.5	0.13	0.07	0.0014	0.0055	0.010
7E-190m	55	2.24	0.16	0.095	0.0004	0.0089	0.006	3.7	1.4	1.12	0.58	0.0097	0.0181	0.035
7F-40m	23	0.49	0.24	0.006	BDL	0.0038	0.002	0.0	0.1	0.03	0.03	0.0009	0.0036	0.009
7F-130m	24	0.79	0.07	0.030	0.0001	0.0026	0.003	1.0	0.2	0.06	0.06	0.0013	0.0015	0.005
7F-400m	15	0.26	0.03	0.027	BDL	0.0005	0.002	0.6	0.6	0.21	0.09	0.0012	0.0017	0.005

S O U T H A T L A N T I C B I G H T

S U S P E N D E D S E D I M E N T S

MAY, 1977

ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
1B-5m	209	1.13	0.52	0.430	0.0003	0.0239	0.020	7.2	5.4	3.54	1.30	0.0081	0.0112	0.016
1B-10m	138	1.87	0.70	0.318	0.0005	0.0162	0.011	8.8	6.5	3.62	1.65	0.0023	0.0109	0.009
1C-5m	187	2.95	1.12	0.475	0.0007	0.1121	0.052	5.1	5.0	2.29	2.55	0.0013	0.0049	0.016
1C-15m	139	2.24	0.57	0.217	BDL	0.0228	0.011	5.7	2.5	1.26	0.61	0.0056	BDL	0.012
1D-10m	86	1.95	ND	ND	ND	ND	ND	9.0	0.3	0.18	0.09	0.0010	BDL	0.009
1D-25m	97	2.41	0.23	0.107	0.0009	0.0107	0.005	10.9	0.7	0.29	0.16	0.0011	0.0024	0.008
1E-15m	44	0.15	0.27	0.047	BDL	0.0017	0.001	3.6	1.2	1.11	0.01	0.0019	BDL	0.013
1E-35m	46	0.15	0.39	0.017	0.0006	0.0073	0.002	3.5	0.3	0.14	0.07	0.0013	0.0076	0.007
1F-10m	57	BDL	BDL	0.055	BDL	0.0067	0.003	1.2	2.0	0.21	0.15	0.0014	0.0037	0.012
1F-50m	161	7.01	0.48	0.076	0.0012	0.0087	0.005	15.3	0.6	0.26	0.29	0.0014	0.0012	0.015
1F-250m	49	0.61	0.22	0.138	0.0010	0.0058	0.028	0.6	1.0	0.44	0.67	0.0009	0.0005	0.016

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

MAY,1977

ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	Ca	Mg	Fe	Cd	Cu	Pb	Si	Si	Al	Fe	Cd	Cu	Pb
		WEAK ACID SOLUBLE						AMORPH	REFRACTORY					
4C-7m	137	1.80	0.63	0.058	0.0006	0.0086	0.003	16.1	1.3	0.78	0.49	0.0008	BDL	0.022
4C-15m	167	1.99	0.33	0.052	0.0003	0.0038	0.004	23.1	1.4	0.79	0.32	0.0008	BDL	0.009
4D-8m	113	4.91	0.37	0.088	0.0005	0.0084	0.003	6.8	1.5	0.73	0.23	0.0037	0.0087	0.016
4D-20m	101	3.25	0.31	0.111	BDL	0.0052	0.003	4.8	1.4	0.80	0.28	0.0029	0.0038	0.015

S O U T H   A T L A N T I C   B I G H T

S U S P E N D E D   S E D I M E N T S

MAY,1977

ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	Ca	Mg	Fe	Cd	Cu	Pb	Si	Si	Al	Fe	Cd	Cu	Pb
		WEAK ACID SOLUBLE						AMORPH	REFRACTORY					
5B-8m	459	10.11	1.56	0.784	0.0011	0.0179	0.008	[illegible]3.5	21.7	10.92	5.47	0.0037	0.0346	0.028
5C-7m	187	8.53	1.14	0.084	BDL	0.0110	0.003	6.3	1.4	0.86	0.33	0.0021	0.0084	0.020
5C-15m	167	8.76	0.60	0.152	ND	0.0309	0.018	7.7	2.3	1.10	0.36	0.0013	0.0043	0.017
5D-7m	158	7.85	1.01	0.116	BDL	0.0139	0.005	3.8	1.9	0.70	0.25	0.0017	0.0025	0.013
5D-20m	58	0.53	0.30	0.066	0.0002	0.0038	0.002	5.7	0.7	0.36	0.16	0.0011	0.0022	0.008
5E-10m	126	3.93	0.46	0.166	0.0008	0.0122	0.007	8.8	0.8	0.50	0.17	0.0020	0.0210	0.008
5E-30m	143	11.38	0.49	0.104	0.0008	0.0037	0.002	13.3	2.5	1.05	0.44	0.0023	0.0159	0.005
5F-15m	91	3.05	0.68	0.049	0.0005	0.0060	0.001	3.4	0.5	0.20	0.11	0.0017	0.0089	0.007
5F-35m	40	1.01	0.19	0.046	0.0003	0.0099	0.002	3.4	0.9	0.45	0.18	0.0019	0.0122	0.004

S O U T H   A T L A N T I C   B I G H T

S U S P E N D E D   S E D I M E N T S

MAY, 1977

ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
5G-15m	54	13.08	0.52	0.091	0.0008	0.0078	0.003	2.1	0.8	0.49	0.15	0.0031	0.0056	0.006
5G-30m	46	3.06	0.16	0.118	0.0003	0.0048	0.004	2.6	1.2	0.49	0.22	0.0016	0.0133	0.015
5H-10m	15	0.47	0.07	0.037	0.0008	0.0019	0.002	BDL	0.2	0.09	0.01	0.0005	0.0066	0.010
5H-40m	25	0.60	0.10	0.064	0.0002	0.0032	0.002	0.0	0.1	0.03	0.05	0.0005	0.0058	0.005
5H-75m	32	0.40	0.16	0.034	0.0002	0.0007	0.002	1.8	0.4	0.27	0.18	0.0037	0.0017	0.004
5I-40m	15	0.09	0.10	0.031	BDL	0.0002	0.001	BDL	0.1	0.04	0.01	0.0006	0.0030	0.005
5I-200m	8	0.36	0.02	0.018	BDL	0.0002	0.001	0.2	0.1	0.02	0.02	0.0001	0.0019	0.002
5I-350m	12	0.68	0.03	0.021	BDL	0.0004	0.001	0.5	0.5	0.22	0.11	0.0004	0.0015	0.003

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

MAY,1977

ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
7B-5m	191	9.08	0.65	0.441	0.0018	0.0076	0.009	14.7	11.4	7.87	3.30	0.0015	0.0043	0.007
7B-18m	212	0.69	0.64	0.357	0.0006	0.0063	0.010	26.0	6.3	4.73	2.11	0.0023	0.0019	0.018
7C-7m	53	1.51	0.22	0.139	BDL	0.0019	0.003	5.6	1.5	0.88	0.33	0.0010	0.0044	0.005
7C-19m	54	2.33	0.29	0.084	0.0002	0.0050	0.002	4.0	1.3	0.69	0.44	0.0009	0.0210	0.003
7D-10m	57	0.15	0.29	0.043	0.0006	0.0012	0.002	1.7	0.3	0.35	0.09	0.0011	0.0035	0.008
7D-35m	127	9.29	0.53	0.171	0.0007	0.0017	0.003	11.5	4.0	0.05	1.28	0.0008	0.0051	0.008
7E-30m	33	0.15	0.09	0.046	BDL	0.0019	0.002	BDL	0.1	0.10	0.00	0.0009	0.0080	0.009
7E-90m	19	0.15	0.07	0.038	0.0000	0.0007	0.001	0.8	0.3	0.22	0.09	0.0007	0.0069	0.004
7E-180m	31	0.78	0.07	0.025	0.0002	0.0004	0.001	4.4	0.5	0.28	0.11	0.0002	BDL	0.003
7F-50m	11	0.07	0.08	0.081	BDL	0.0042	0.000	0.0	0.2	0.09	0.01	0.0004	0.0019	0.004
7F-200m	6	0.13	0.03	0.023	0.0007	0.0004	0.002	0.1	0.2	0.11	0.02	0.0002	0.0025	0.003
7F-450m	10	0.50	0.02	0.028	0.0000	0.0005	0.002	0.4	0.4	0.05	0.10	0.0002	0.0011	0.002

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

AUGUST,1977

ug/1 ELEMENT IN SPM

Station ID#	TSL (ug/1)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
1A-8m	545	1.73	2.14	4.836	0.0034	0.0265	ND	25.5	15.2	5.93	3.93	0.0022	0.0178	0.085
1A-10m	487	1.72	2.13	2.741	0.0043	0.0282	ND	3.2	11.8	5.73	4.01	0.0024	0.0233	0.080
1B-3m	322	1.06	1.25	1.238	0.0002	0.0136	0.229	2.5	6.8	4.13	1.86	0.0139	0.0120	0.072
1B-9m	439	1.59	1.99	0.729	0.0024	0.0208	0.211	27.2	8.2	5.03	2.46	0.0026	0.0314	0.037
1C-3m	38	0.25	0.10	0.090	BDL	0.0026	0.023	0.3	0.1	0.02	0.06	0.0010	0.0040	0.009
1C-17m	166	2.78	0.45	5.708	0.0015	0.0064	0.055	4.9	3.0	1.72	0.85	0.0028	0.0053	0.018
1D-5m	89	0.80	0.41	0.047	0.0015	0.0128	ND	BDL	0.3	0.02	0.19	0.0055	0.0046	0.026
1D-24m	233	2.52	0.67	0.182	0.0015	0.0140	0.051	10.9	1.2	0.37	0.39	0.0014	0.0058	0.009
1E-5m	182	1.68	0.15	0.176	0.0009	0.0118	0.029	2.2	1.2	0.43	1.26	0.0004	0.0044	0.014
1E-43m	410	1.45	0.64	0.410	0.0016	0.0532	0.059	5.5	0.5	0.26	0.51	0.0020	0.0044	0.087
1F-5m	129	1.13	0.21	0.106	0.0015	0.0307	0.025	0.6	0.4	0.17	0.14	0.0018	0.0380	0.021
1F-208m	53	1.97	0.09	0.044	0.0007	0.0035	0.004	1.0	0.4	0.19	0.27	0.0007	0.0119	0.004

S O U T H   A T L A N T I C   B I G H T

S U S P E N D E D   S E D I M E N T S

AUGUST, 1977

ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
4A-5m	2693	29.67	7.70	6.463	0.0074	0.0314	0.030	187.6	336.8	98.88	75.90	0.0027	0.0783	0.086
4B-5m	314	4.52	0.62	0.744	0.0026	0.0150	0.032	22.0	23.3	13.07	4.50	0.0016	0.0139	0.019
4B-19m	70	1.12	0.10	0.172	0.0002	0.0007	0.001	3.8	5.8	2.92	1.13	0.0006	0.0032	0.003
4C-5m	242	3.00	0.44	0.058	0.0018	0.0097	0.006	16.8	0.7	0.23	0.30	0.0007	0.0091	0.010
4C-10m	236	1.69	0.41	0.302	0.0014	0.0090	0.023	25.4	2.4	2.52	0.88	0.0024	0.0044	0.051
4C-16m	327	8.11	0.30	0.141	0.0016	0.0104	0.017	31.8	2.1	0.80	0.60	0.0007	0.0048	0.013
4D-5m	93	0.47	0.21	0.098	0.0016	0.0154	0.008	5.2	0.5	0.15	0.15	0.0007	0.0005	0.016
4D-24m	52	0.20	0.16	0.077	0.0032	0.0022	0.006	2.6	0.8	0.37	0.22	0.0007	0.0037	0.019
4E-31m	95	3.53	0.31	0.070	0.0025	0.0055	0.004	0.3	0.1	0.05	0.12	0.0008	0.0047	0.005
4F-5m	25	0.13	0.08	0.024	0.0005	0.0088	0.004	0.1	0.1	0.05	0.01	0.0005	0.0006	0.003
4F-34m	81	5.19	0.13	0.102	0.0007	0.0044	0.007	4.9	3.3	1.67	0.71	0.0004	0.0020	0.013
4F-54m	80	4.42	0.14	0.092	0.0011	0.0039	0.005	4.6	2.9	4.61	0.76	0.0005	0.0039	0.006
4G-5m	106	0.76	0.14	0.033	0.0005	0.0147	0.005	0.8	0.5	0.18	0.19	0.0006	0.0052	0.004
4G-30m	61	0.64	0.11	0.020	0.0005	0.0027	0.003	0.2	0.3	0.11	0.12	0.0010	0.0045	0.025

S O U T H   A T L A N T I C   B I G H T

S U S P E N D E D   S E D I M E N T S

AUGUST,1977

ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	Ca	Mg	Fe	Cd	Cu	Pb	Si	Si	Al	Fe	Cd	Cu	Pb
		WEAK ACID SOLUBLE						AMORPH	REFRACTORY					
5A-6m	3646	75.32	10.94	12.797	0.0024	0.0348	0.042	323.2	396.2	135.31	90.40	0.0073	0.0648	0.095
5B-5m	1276	43.05	2.69	1.518	0.0018	0.0339	0.018	102.8	90.6	36.24	17.95	0.0026	0.0110	0.031
5C-4m	296	11.45	0.90	0.367	0.0013	0.0237	0.013	26.9	14.6	4.67	2.39	0.0027	0.0079	0.011
5C-16m	344	15.21	0.85	0.354	0.0013	0.0095	0.013	18.7	10.0	5.53	2.66	0.0024	0.0146	0.023
5D-5m	48	0.73	0.22	0.031	0.0007	0.0090	0.003	2.0	0.1	0.02	0.04	0.0005	0.0011	0.004
5D-21m	254	3.94	0.41	1.234	0.0011	0.0200	0.099	19.5	1.8	0.64	3.80	0.0023	0.0333	0.023
5E-3m	163	0.17	0.12	0.049	0.0005	0.0083	0.004	0.5	0.3	0.07	0.07	0.0011	BDL	0.013
5E-29m	119	2.15	0.40	0.127	0.0030	0.0163	0.009	7.3	0.9	0.46	0.33	0.0012	0.0101	0.013
5F-3m	59	0.27	0.13	0.021	0.0011	0.0113	0.005	0.4	0.1	0.05	0.08	0.0004	0.0058	0.042
5F-34m	120	2.56	0.24	0.116	0.0018	0.0102	0.007	8.1	0.8	0.45	0.38	0.0024	0.0083	0.014

S O U T H   A T L A N T I C   B I G H T

S U S P E N D E D   S E D I M E N T S

AUGUST,1977

ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	Ca	Mg	Fe	Cd	Cu	Pb	Si	Si	Al	Fe	Cd	Cu	Pb
		WEAK ACID SOLUBLE						AMORPH	REFRACTORY					
5G-7m	94	0.67	0.21	0.047	0.0005	0.0123	0.003	9.4	0.5	0.19	0.21	0.0006	0.0063	0.007
5G-27m	45	0.46	0.13	0.024	0.0005	0.0056	0.003	0.5	0.3	0.10	0.07	0.0011	0.0118	0.006
5H-7m	88	0.84	0.24	0.165	0.0018	0.1840	0.019	0.7	0.2	0.03	0.86	0.0009	0.0441	0.008
5H-52m	49	3.26	0.12	0.059	0.0007	0.0041	0.003	2.8	1.4	0.66	0.36	0.0002	0.0029	0.004
5H-72m	96	3.77	0.21	0.208	0.0016	0.0116	0.009	3.2	1.1	0.55	0.83	0.0005	0.0014	0.007
5I-10m	69	0.68	0.19	0.156	0.0009	0.0184	0.011	3.5	0.1	0.04	0.50	0.0008	0.0162	0.019
5I-310m	39	3.94	0.11	0.084	0.0008	0.0041	0.005	1.0	0.7	0.27	0.28	0.0013	0.0035	0.006

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

AUGUST,1977

ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
7A-4m	493	4.84	1.29	1.420	0.0043	0.0202	0.013	31.0	54.8	26.14	10.48	0.0064	0.0507	0.039
7A-9m	539	1.33	1.51	1.881	0.0086	0.0301	0.015	38.7	43.8	31.83	10.49	0.0086	0.0124	0.062
7B-5m	198	4.24	0.31	0.257	0.0027	0.0164	0.023	17.8	6.0	2.90	1.41	0.0040	0.0125	0.039
7B-18m	427	16.68	0.80	0.829	0.0035	0.0218	0.016	45.8	22.0	10.56	4.37	0.0009	0.0185	0.042
7C-5m	211	3.79	0.47	0.139	0.0015	0.0107	0.009	20.8	2.1	0.68	0.47	0.0013	0.0048	0.011
7C-18m	71	1.30	0.17	0.054	0.0006	0.0062	0.004	6.1	0.8	0.27	0.20	0.0002	0.0042	0.005
7D-8m	86	2.02	0.19	0.094	0.0018	0.0104	0.010	1.5	0.7	0.25	0.30	0.0020	0.0121	0.016
7D-42m	103	7.63	0.40	0.171	0.0012	0.0075	0.003	5.9	4.9	1.40	1.11	0.0003	0.0033	0.004
7E-5m	116	0.73	0.30	0.093	0.0013	0.0211	0.006	0.5	0.3	0.08	0.27	0.0017	0.0115	0.017
7E-30m	42	0.19	0.07	0.040	0.0006	0.0082	0.010	0.2	0.1	0.01	0.08	0.0005	0.0009	0.004
7E-180m	56	5.20	0.14	0.113	0.0013	0.0108	0.005	2.6	2.0	0.99	0.73	0.0003	0.0006	0.005
7F-8m	200	1.99	0.49	BDL	0.0017	0.0616	0.018	0.6	0.8	0.28	0.25	0.0006	0.0051	0.021
7F-90m	21	0.10	0.05	BDL	0.0004	0.0024	0.001	0.7	0.1	0.04	0.03	0.0014	0.0030	0.007
[illegible]-250m	43	3.64	0.19	BDL	0.0012	0.0098	0.012	1.4	0.4	0.16	0.32	0.0004	0.0031	0.006

S O U T H   A T L A N T I C   B I G H T

S U S P E N D E D   S E D I M E N T S

NOVEMBER,1977

ug/l ELEMENT IN SPM

		WEAK ACID SOLUBLE						AMORPH	REFRACTORY					
Station ID#	TSL (ug/l)	Ca	Mg	Fe	Cd	Cu	Pb	Si	Si	Al	Fe	Cd	Cu	Pb
1B-5m	139	0.22	0.50	0.729	0.0021	0.0097	0.040	7.3	5.2	2.65	1.30	0.0028	BDL	0.020
1C-10m	267	0.35	0.77	0.588	0.0028	0.0176	0.032	4.7	7.9	2.92	1.29	0.0019	0.0199	0.031
1D-5m	206	0.88	0.84	0.039	0.0014	0.0162	0.008	6.2	1.3	0.46	0.23	0.0014	0.0035	0.008
1D-19m	82	0.25	0.60	0.691	0.0023	0.0162	0.047	3.8	1.1	0.79	0.58	0.0022	0.0024	0.032
1E-10m	54	0.12	0.31	0.018	0.0007	0.0059	0.005	1.5	0.4	0.14	0.10	0.0037	0.0078	0.017
1E-36m	44	0.11	0.19	0.012	0.0003	0.0028	0.002	0.9	0.2	0.06	0.03	0.0006	0.0012	0.009
1F-10m	60	0.18	0.29	0.016	0.0006	0.0060	0.009	BDL	0.6	0.31	0.07	0.0022	0.0106	0.013
1F-23m	42	0.15	0.11	0.029	0.0004	0.0029	0.005	0.4	0.2	0.06	0.20	0.0009	BDL	0.003
1F-252m	27	0.04	0.05	0.030	0.0002	0.0024	0.002	0.3	0.5	0.24	0.09	0.0005	0.0037	0.004

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

NOVEMBER,1977 ug/l ELEMENT IN SPM

		WEAK ACID SOLUBLE						AMORPH	REFRACTORY					
Station ID#	TSL (ug/l)	Ca	Mg	Fe	Cd	Cu	Pb	Si	Si	Al	Fe	Cd	Cu	Pb
4C-12m	349	1.36	1.68	0.119	0.0060	0.1054	0.014	21.7	4.0	3.39	0.79	0.0052	0.2796	0.048
4D-10m	180	4.62	1.05	0.050	0.0016	0.0150	0.009	11.9	2.3	1.11	0.41	0.0034	0.0948	0.018
4D-20m	230	12.49	1.66	0.046	0.0041	0.0210	0.008	15.2	3.5	2.09	0.80	0.0016	0.0105	0.014
4F-10m	22	0.13	0.07	0.007	0.0001	0.0015	0.001	0.6	0.1	0.08	0.03	0.0011	0.0015	0.006
4F-60m	41	1.94	0.13	0.015	0.0001	0.0033	0.002	2.2	0.5	0.35	0.12	0.0005	BDL	0.002

S O U T H   A T L A N T I C   B I G H T

S U S P E N D E D   S E D I M E N T S

NOVEMBER,1977 ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
5B-6m	865	42.29	3.03	0.897	0.0016	0.0089	0.012	68.3	55.5	27.22	9.80	0.0069	0.0073	0.040
5C-12m	134	13.54	0.75	0.051	0.0010	0.0015	0.001	10.6	4.4	1.86	0.88	0.0008	BDL	0.006
5D-10m	78	6.86	0.24	0.025	0.0010	0.0037	0.002	3.9	1.2	0.58	0.19	0.0007	0.0062	0.009
5D-18m	120	12.77	0.52	0.030	0.0003	0.0019	0.001	5.4	1.3	1.05	0.25	0.0010	0.0062	0.006
5E-8m	49	3.76	0.21	0.015	0.0005	0.0025	0.001	1.9	0.3	0.17	0.06	0.0009	0.0023	0.002
5E-25m	79	7.09	0.41	0.013	0.0007	0.0031	0.001	3.7	0.5	0.25	0.11	0.0006	0.0035	0.007
5F-10m	85	5.42	0.18	0.020	0.0002	0.0022	0.002	5.3	0.9	0.45	0.26	0.0041	0.0169	0.006
5F-32m	80	6.11	0.26	0.030	0.0010	0.0093	0.002	4.6	0.8	0.45	0.16	0.0009	0.0067	0.008
5G-10m	112	4.74	1.28	0.033	0.0014	0.0065	0.002	8.4	0.8	0.53	0.22	0.0063	0.0050	0.018
5G-33m	118	4.91	0.60	0.031	0.0025	0.0112	0.003	10.8	0.9	0.36	0.17	0.0012	0.0010	0.006
5H-20m	55	3.41	0.29	0.020	0.0002	0.0009	0.001	1.1	1.3	0.73	0.26	0.0028	0.0043	0.014
5H-40m	103	7.12	1.05	0.045	0.0005	0.0016	0.003	2.4	2.6	1.13	0.57	0.0004	0.0014	0.003
5H-60m	67	7.82	0.49	0.048	0.0005	0.0032	0.002	2.6	2.7	1.21	0.79	0.0007	0.0015	0.010

SOUTH ATLANTIC BIGHT

SUSPENDED SEDIMENTS

NOVEMBER, 1977 ug/l ELEMENT IN SPM

Station ID#	TSL (ug/l)	WEAK ACID SOLUBLE Ca	Mg	Fe	Cd	Cu	Pb	AMORPH Si	REFRACTORY Si	Al	Fe	Cd	Cu	Pb
7B-1m	170	8.25	0.70	0.095	0.0012	0.0028	0.003	10.7	6.0	3.57	1.32	0.0049	0.0038	0.015
7B-17m	367	18.62	2.90	0.164	0.0008	0.0029	0.003	25.4	13.7	5.46	2.59	0.0026	0.0165	0.123
7C-15m	281	6.80	4.27	0.052	0.0029	0.0086	0.007	14.5	1.3	0.78	0.27	0.0011	0.0206	0.013
7D-12m	95	8.24	0.26	0.030	0.0002	0.0046	0.002	5.3	2.0	1.13	0.40	0.0019	0.0325	0.030
7D-32m	148	14.24	0.90	0.074	0.0012	0.0057	0.003	9.9	4.2	1.72	1.14	0.0007	0.0081	0.010
7E-12m	78	3.76	0.24	0.044	0.0002	0.0058	0.002	1.8	2.4	1.20	0.45	0.0005	0.0037	0.009
7E-112m	54	4.88	0.36	0.033	0.0002	0.0009	0.001	1.8	1.8	0.81	0.35	0.0004	0.0059	0.005
7E-212m	54	6.20	0.22	0.059	0.0001	0.0010	0.001	1.9	2.9	1.07	0.59	0.0010	0.0019	0.003
7F-25m	20	0.42	0.09	0.012	0.0002	0.0029	0.002	0.1	0.1	0.02	0.04	0.0018	0.0112	0.008
7F-300m	27	3.26	0.16	0.048	0.0004	0.0029	0.003	0.3	0.3	0.25	0.10	0.0006	0.0034	0.007
7F-500m	46	2.03	0.52	0.030	0.0002	0.0015	0.001	0.4	0.8	0.34	0.20	0.0007	0.0032	0.006

APPENDIX 2-1A

STANDARDS

APPENDIX IA

STANDARDS

Elements	Bovine Liver	Orchard Leaves
Cd		
Certified	0.27 ± 0.04	0.11 ± 0.02
Observed	0.32 ± 0.01	0.12 ± 0.00
Cr		
Certified	0.088 ± 0.012	2.3*
Observed	0.074 ± 0.003	1.22 ± 0.05
Cu		
Certified	193 ± 10	12 ± 1
Observed	196 ± 7	12.0 ± 0.45
Fe		
Certified	268 ± 8	300 ± 20
Observed	261 ± 4	192 ± 5
Ni		
Certified	Not Certified	1.3 ± 0.2
Observed	-	0.78 ± 0.09
Pb		
Certified	0.34 ± 0.08	45 ± 3
Observed	3.13 ± 0.24	45.8 ± 1.3
Zn		
Certified	130 ± 13	25 ± 3
Observed	137 ± 5	26.0 ± 0.50

* Value given by NBS, but <u>not certified</u>

APPENDIX IA (cont'd.)

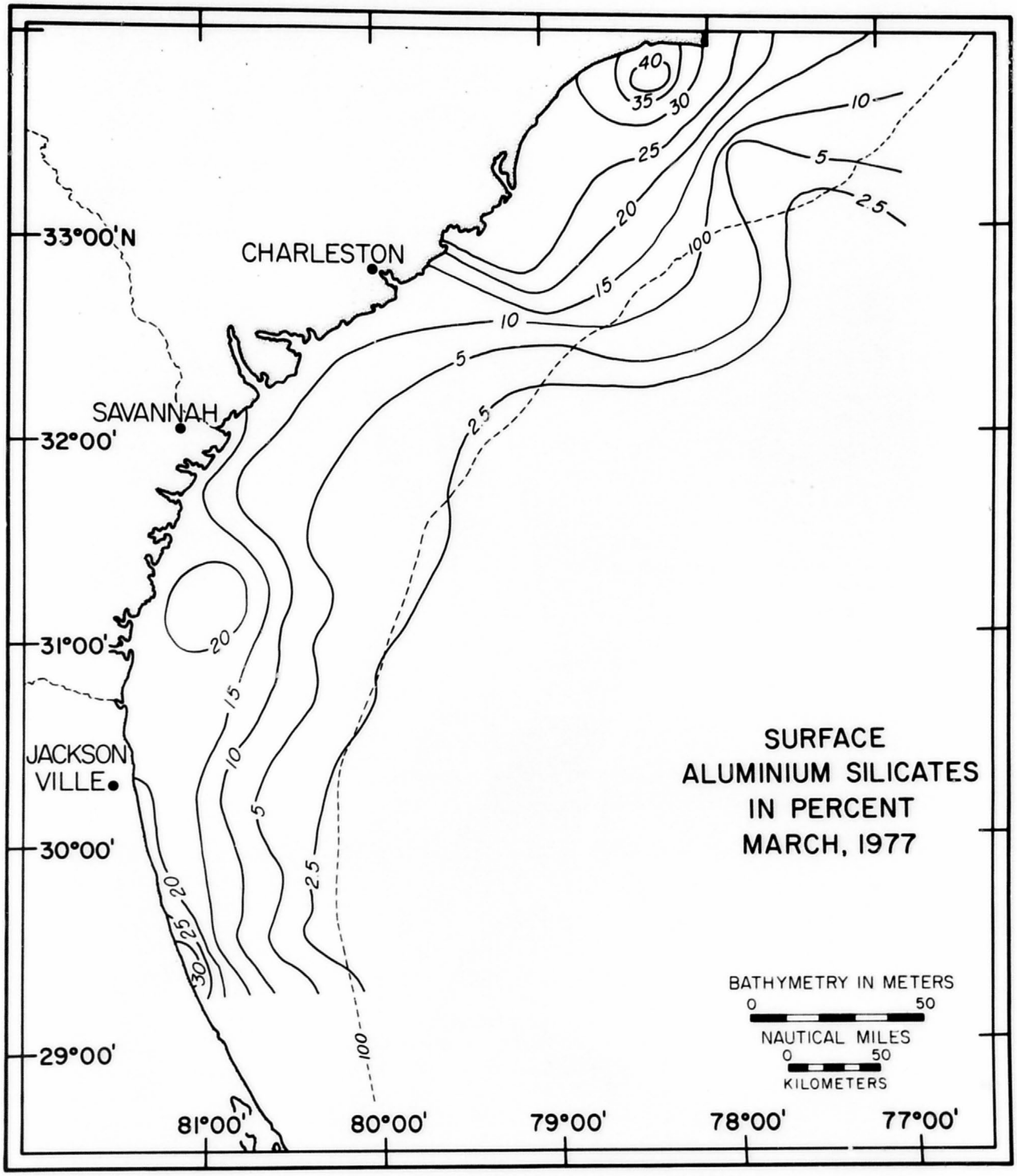
STANDARDS

Elements	P.C. 1 8250 μg	P.C. 2 26968 μg	P.C. 3 12506 μg	Average % Recovery (±1 S.D.)
Al				
Theoretical	1451	4744	2200	
Observed	1416	4849	2109	98.7 (3.1)
% Recovery	98	102	96	
Cr				
Theoretical	2.12	6.9	3.22	
Observed	2.31	7.3	2.8	100.6 (11.9)
% Recovery	109	105.8	87.0	
Fe				
Theoretical	77.6	254	117.6	
Observed	74.4	234.5	112.4	94.6 (2.0)
% Recovery	96	92.3	95.6	
Mg				
Theoretical	20.6	67.4	31.3	
Observed	19.1	67.8	29.5	95.9 (4.1)
% Recovery	93	100.6	94	
Si				
Theoretical	1885.1	6162.2	2857	
Observed	1804.2	5889.4	2739	95.9 (0.2)
% Recovery	96	95.6	96	

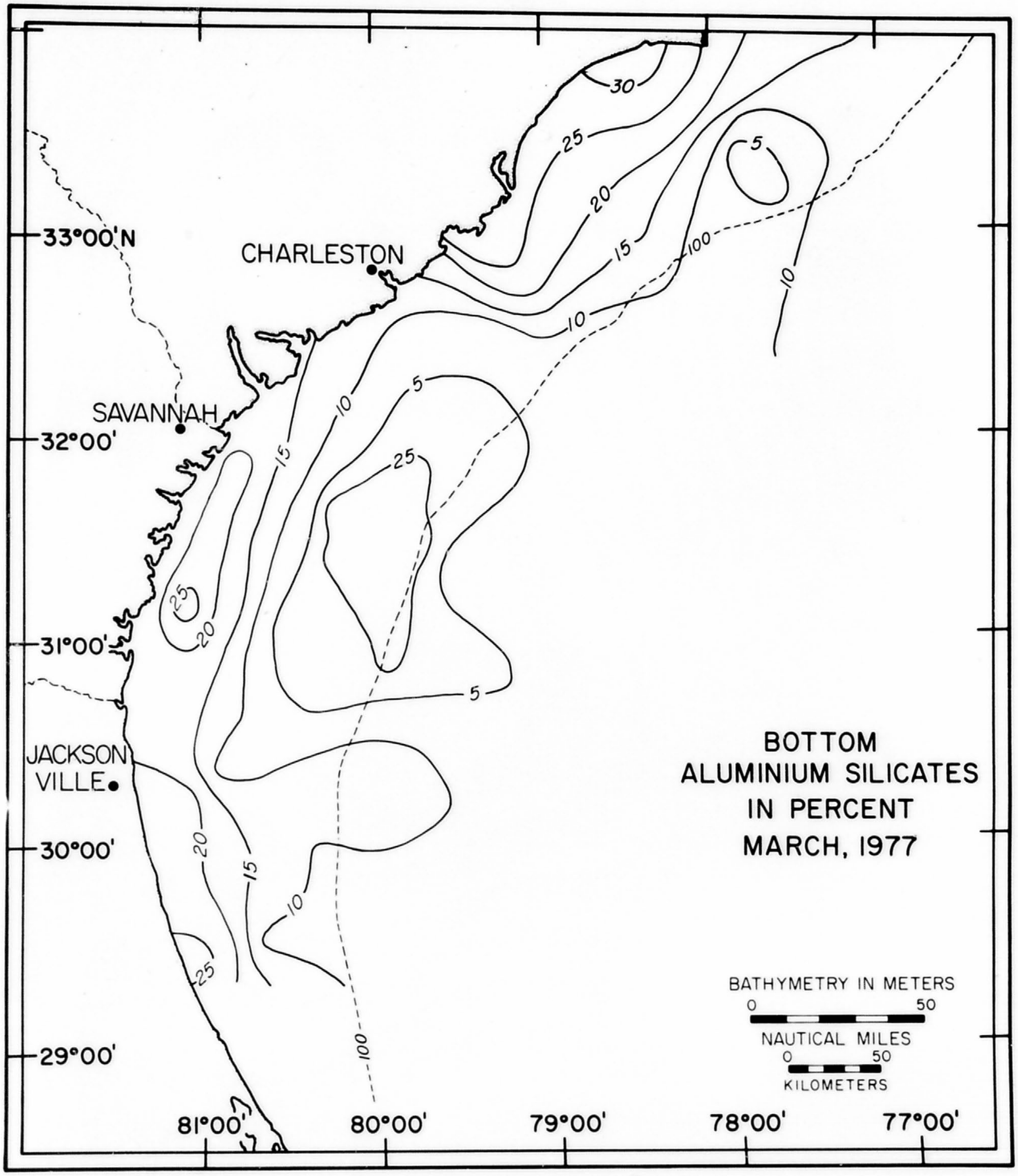
APPENDIX 2-2

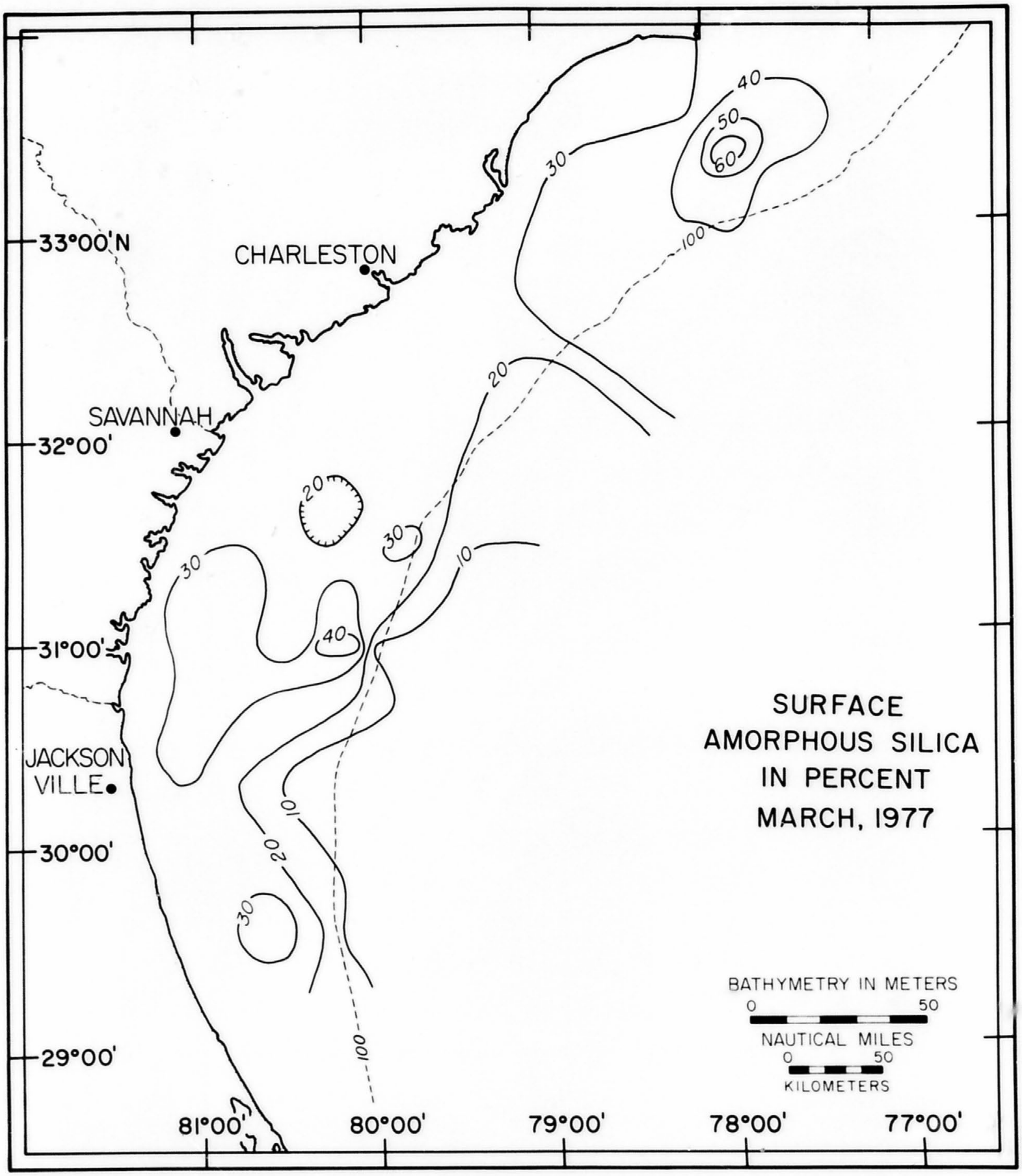
MAJOR COMPONENTS OF THE TOTAL SUSPENDED LOAD

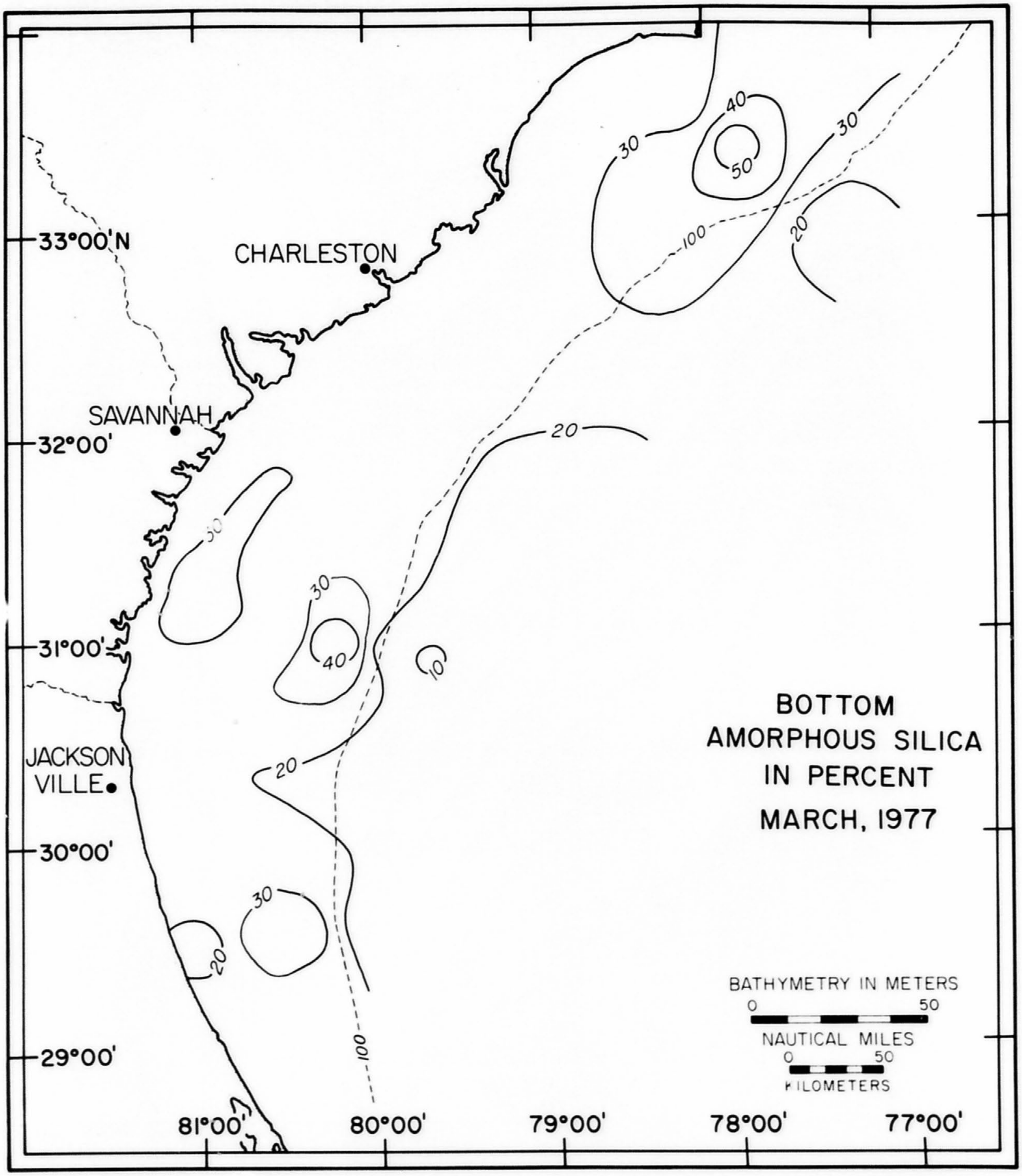
FEBRUARY-MARCH 1977


SURFACE
ALUMINIUM SILICATES
IN PERCENT
MARCH, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS
40
35
30
25
20
15
10
5
2.5
100

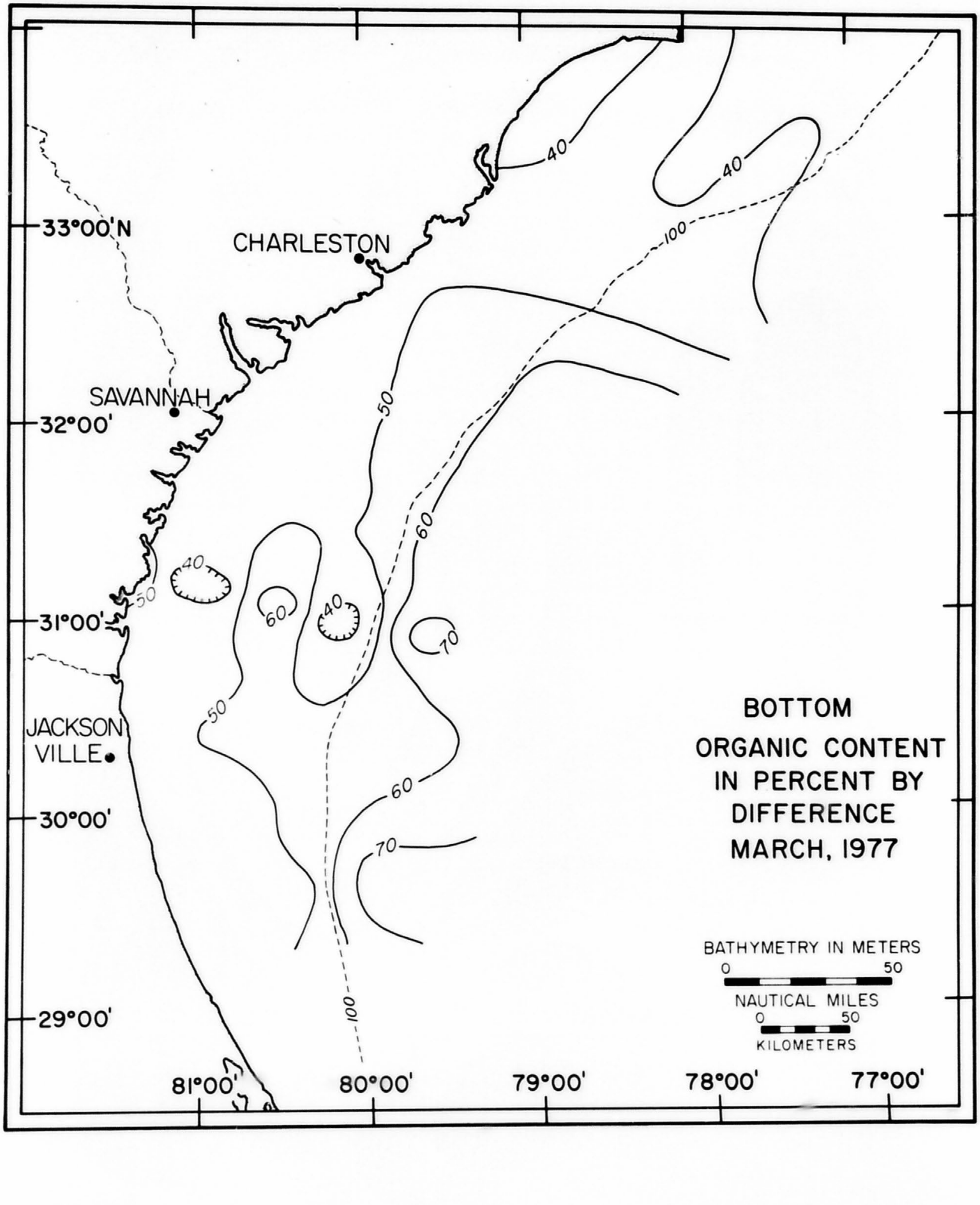
00067


BOTTOM
ALUMINIUM SILICATES
IN PERCENT
MARCH, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS
30
25
20
15
10
5
100


SURFACE
AMORPHOUS SILICA
IN PERCENT
MARCH, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS



BOTTOM
AMORPHOUS SILICA
IN PERCENT
MARCH, 1977
CHARLESTON
SAVANNAH
JACKSON VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
0 50
NAUTICAL MILES
0 50
KILOMETERS



CHARLESTON
SAVANNAH
JACKSON VILLE
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29°00'
81°00'
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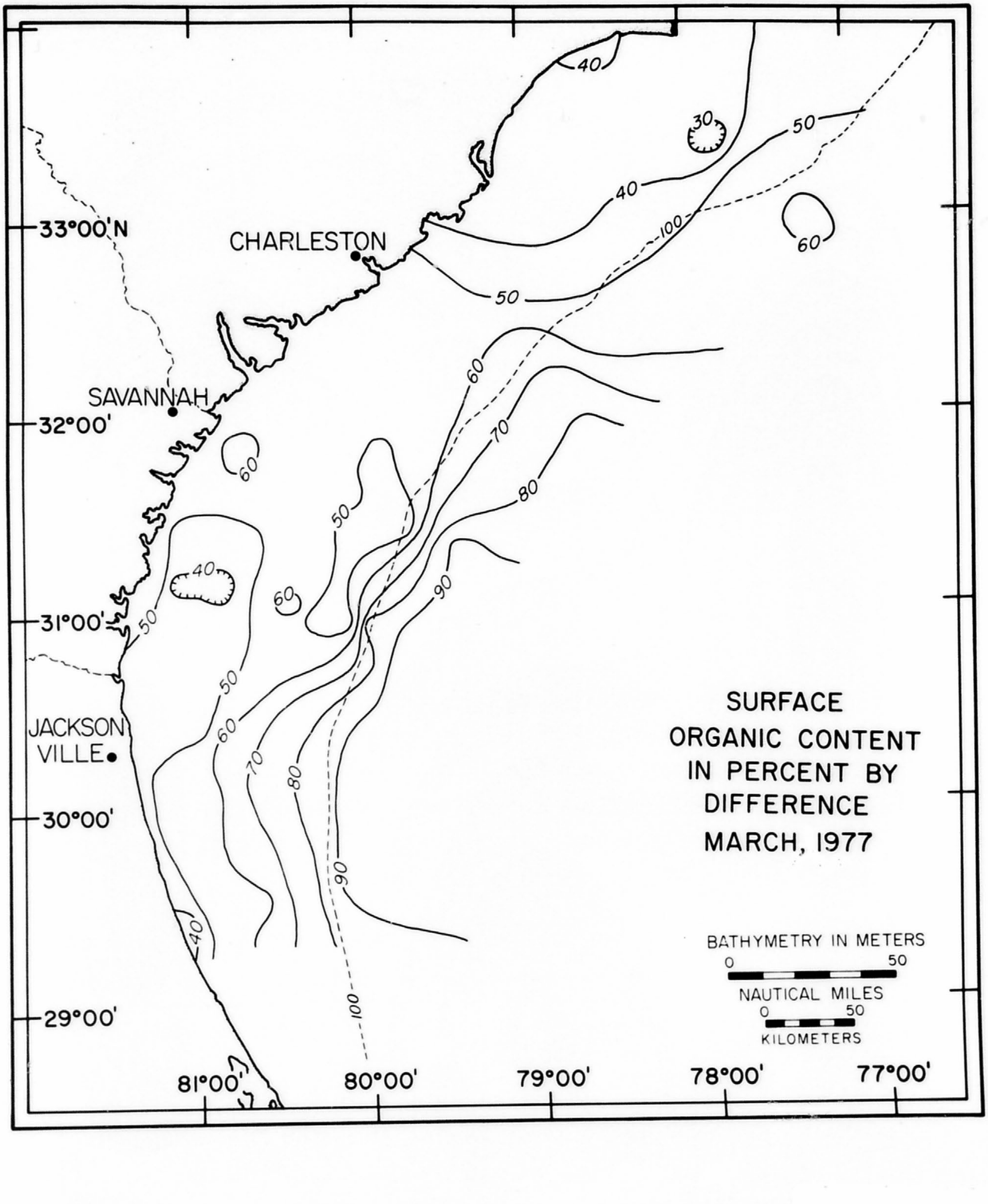
79°00'
78°00'
77°00'
40
40
100
50
60
40
40
60
50
70
50
60
70
100
BOTTOM
ORGANIC CONTENT
IN PERCENT BY
DIFFERENCE
MARCH, 1977
BATHYMETRY IN METERS
0 50
NAUTICAL MILES
0 50
KILOMETERS

00071



CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
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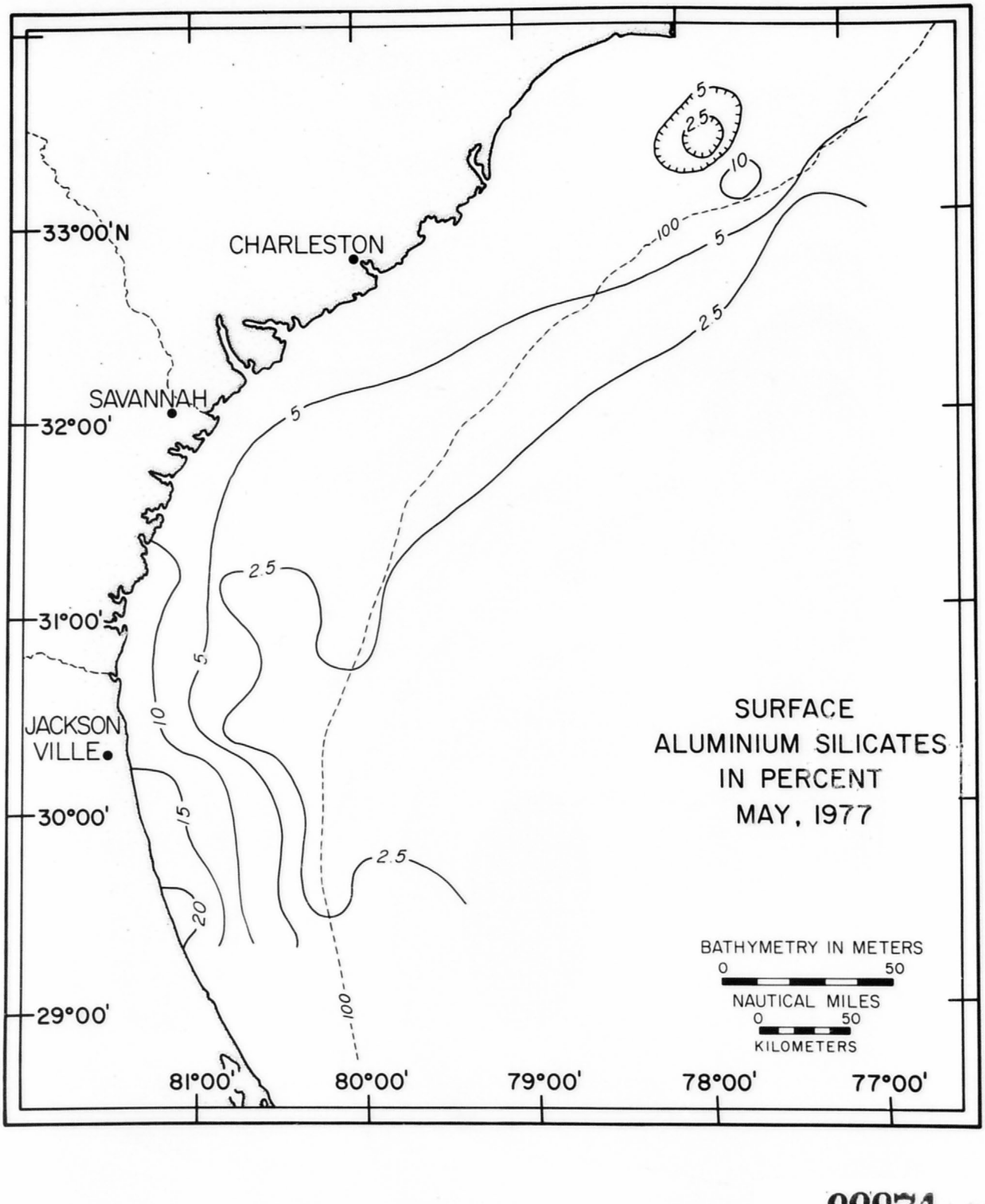
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
SURFACE
ORGANIC CONTENT
IN PERCENT BY
DIFFERENCE
MARCH, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

APPENDIX 2-3

MAJOR COMPONENTS OF THE TOTAL SUSPENDED LOAD

MAY 1977



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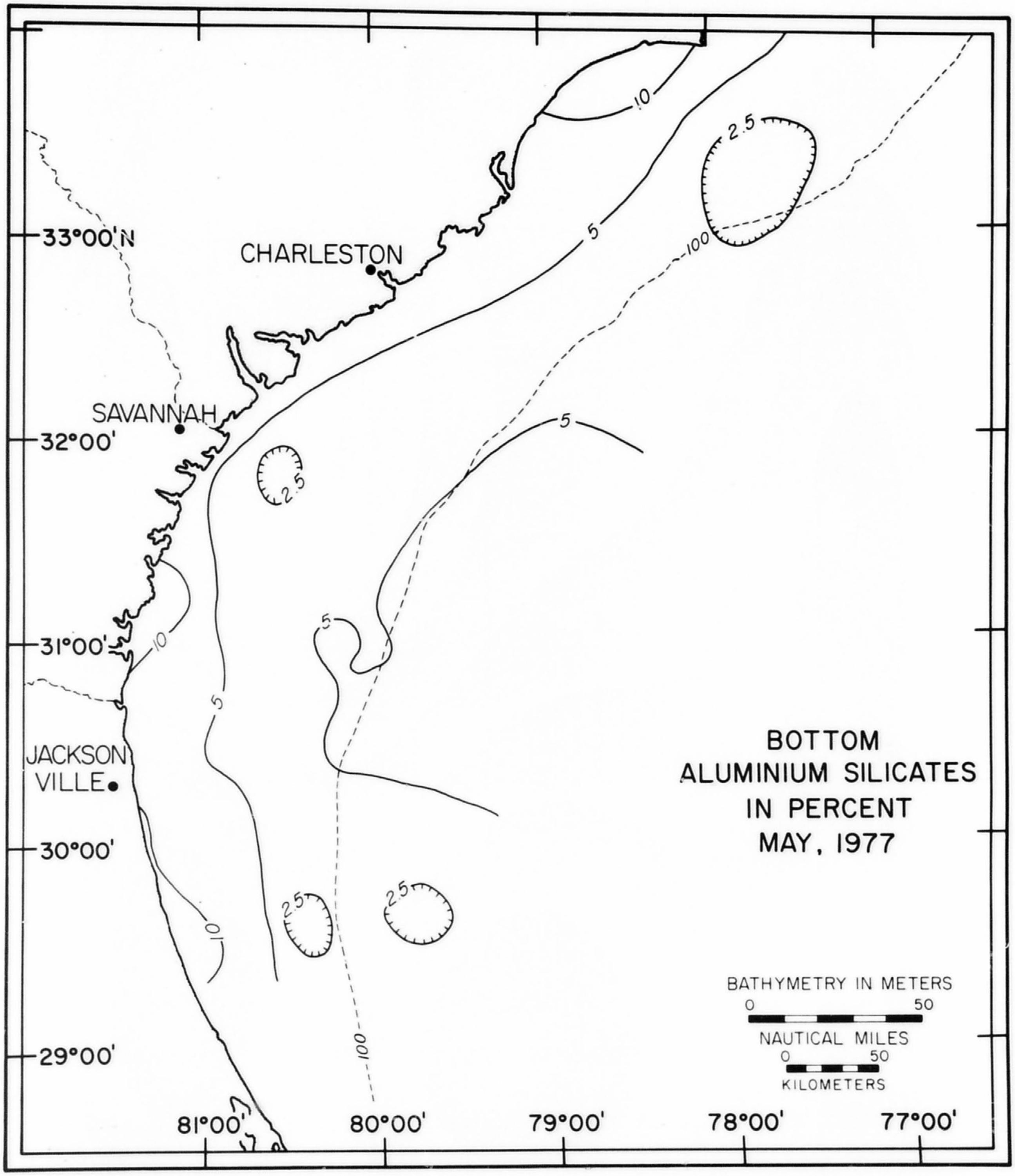
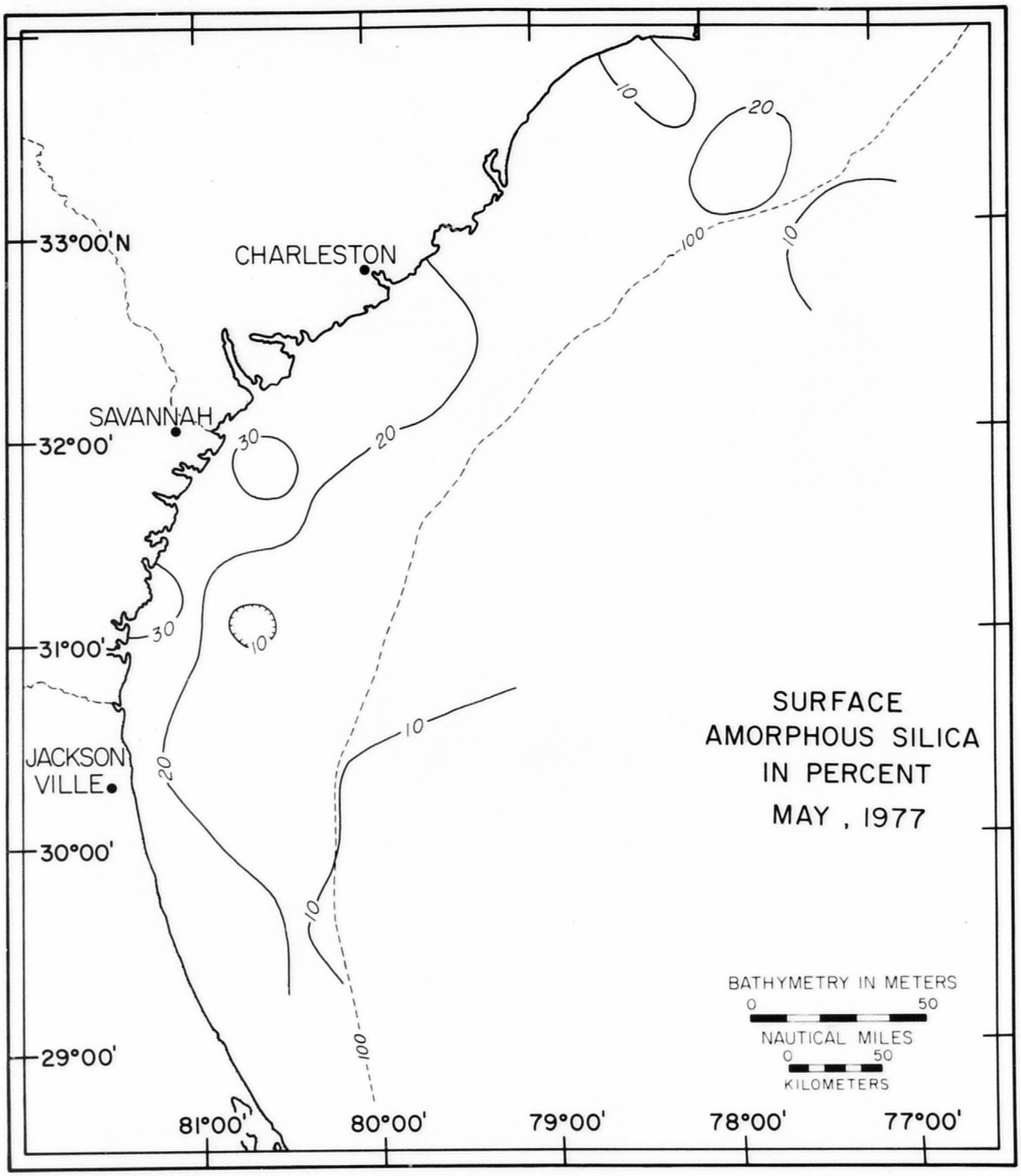
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON
VILLE
5
2.5
10
100
15
20
SURFACE
ALUMINIUM SILICATES
IN PERCENT
MAY, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00074


BOTTOM
ALUMINIUM SILICATES
IN PERCENT
MAY, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
10
5
2.5
100
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00075



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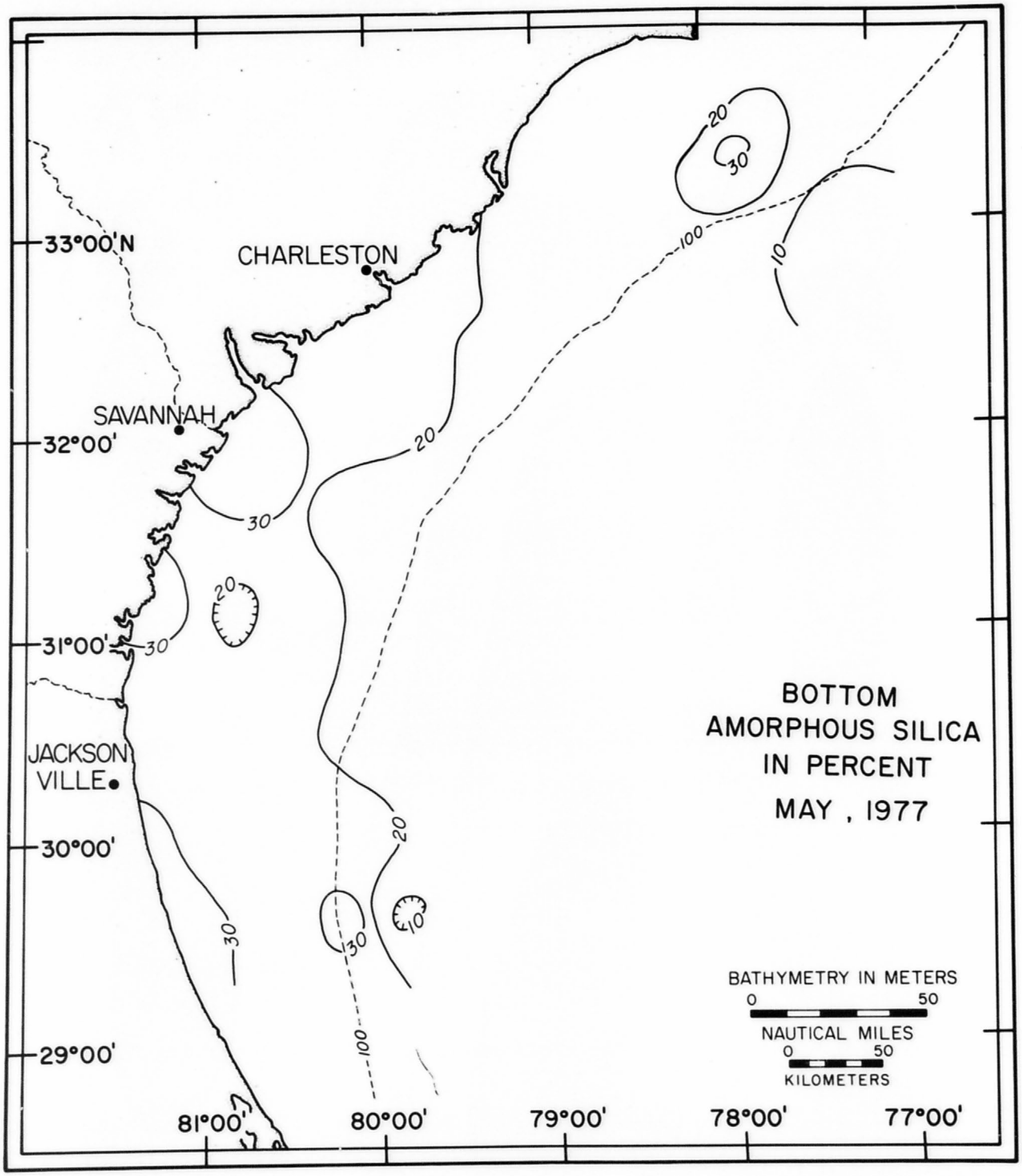
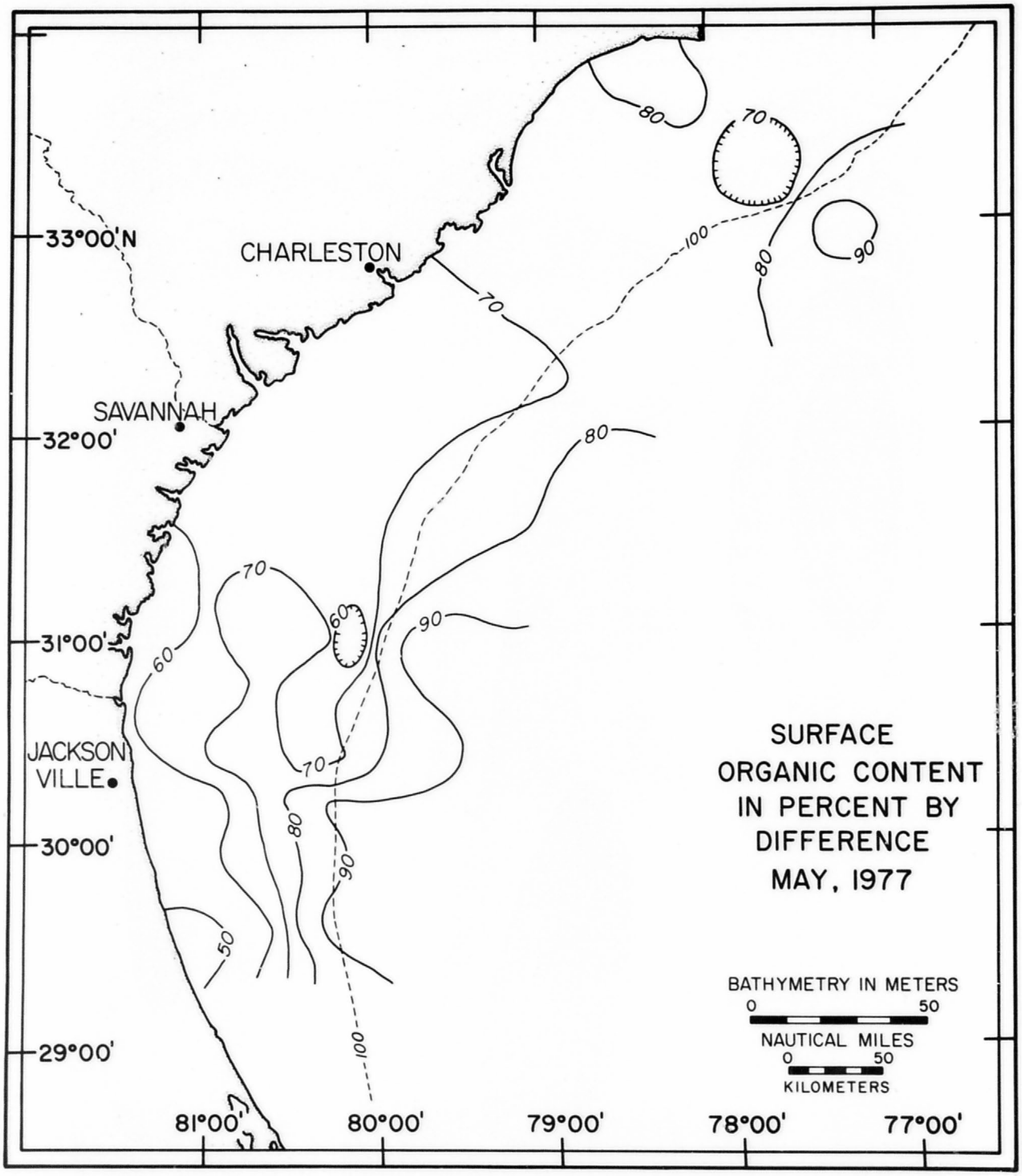
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON
VILLE
10
20
30
100
SURFACE
AMORPHOUS SILICA
IN PERCENT
MAY , 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00076



CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
20
30
10
100
BOTTOM
AMORPHOUS SILICA
IN PERCENT
MAY , 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00077



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31°00'
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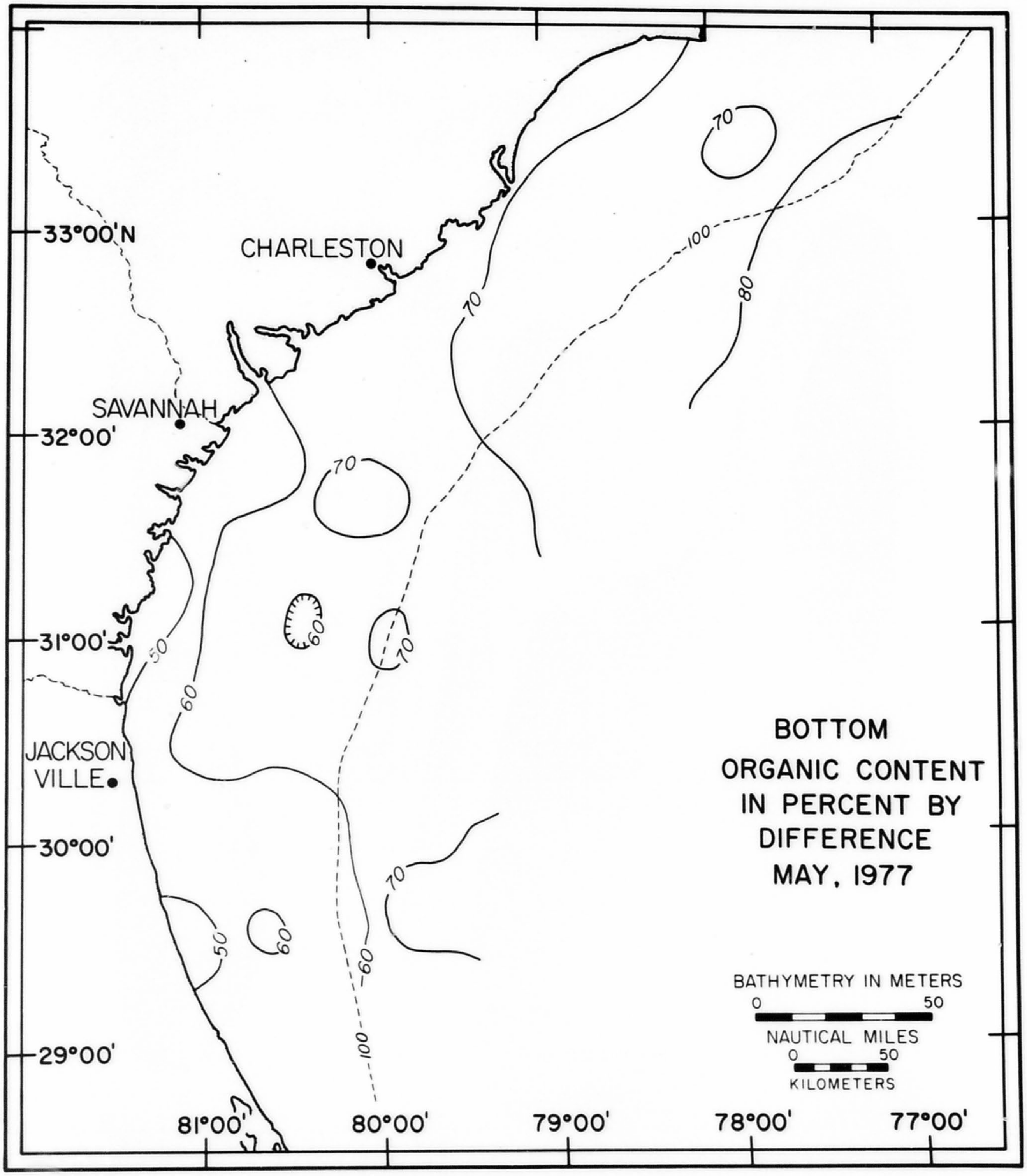
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON VILLE
SURFACE ORGANIC CONTENT IN PERCENT BY DIFFERENCE MAY, 1977
BATHYMETRY IN METERS
0 50
NAUTICAL MILES
0 50
KILOMETERS



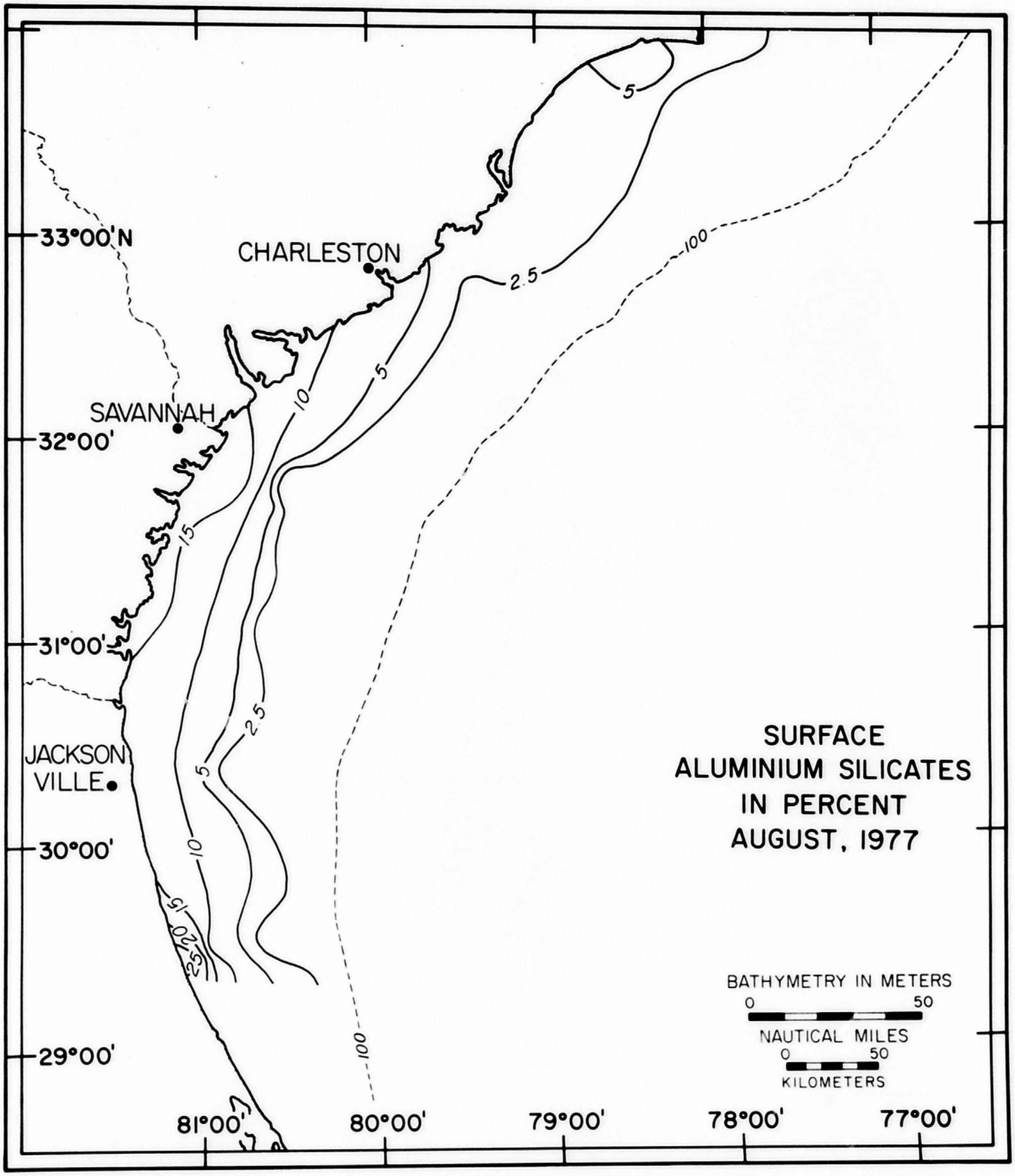
BOTTOM
ORGANIC CONTENT
IN PERCENT BY
DIFFERENCE
MAY, 1977

00079

APPENDIX 2-4

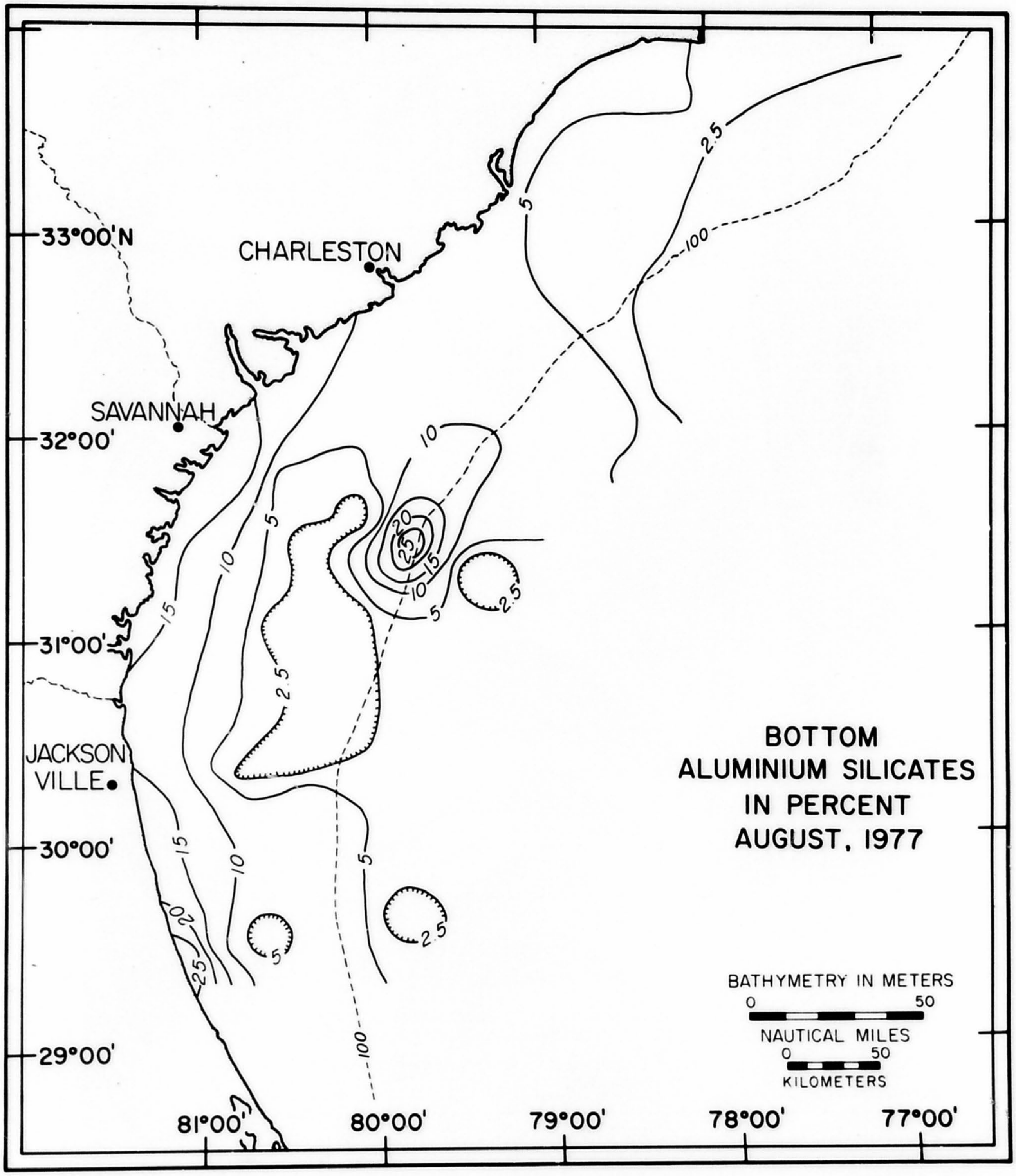
MAJOR COMPONENTS OF THE TOTAL SUSPENDED LOAD

AUGUST 1977



SURFACE
ALUMINIUM SILICATES
IN PERCENT
AUGUST, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS
100
2.5
5
10
15
20
25

0CC81



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31°00'
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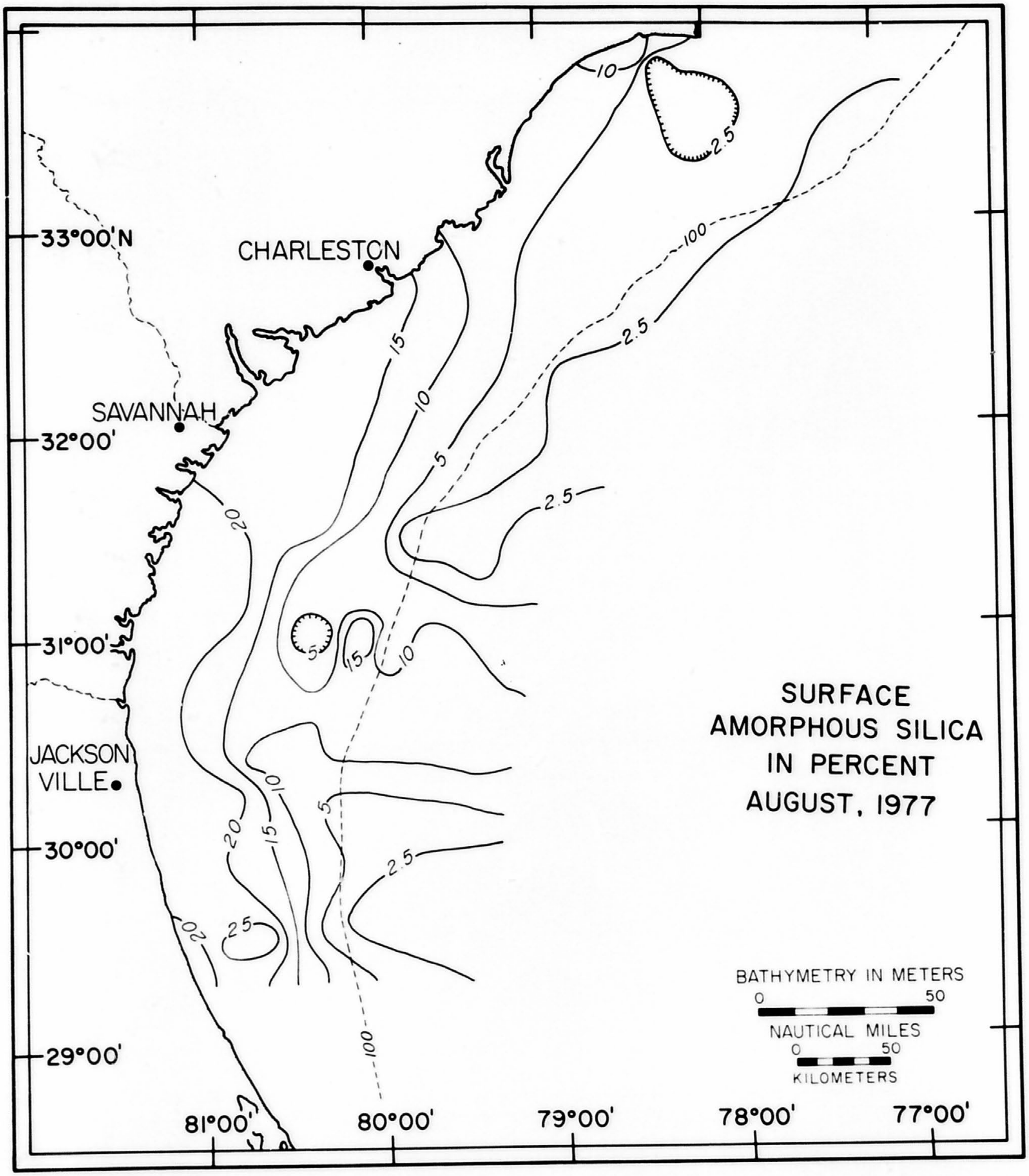
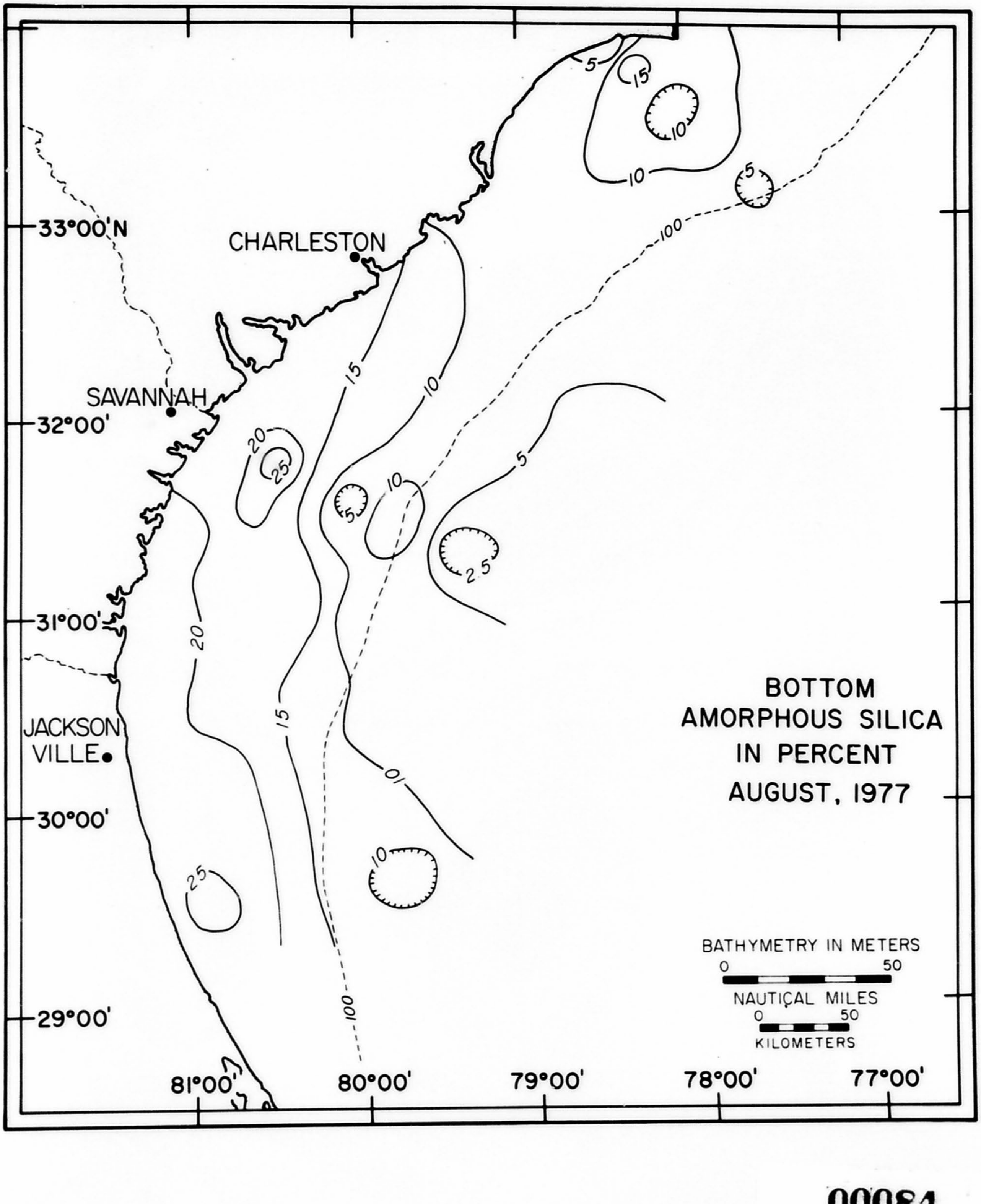
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON
VILLE
BOTTOM
ALUMINIUM SILICATES
IN PERCENT
AUGUST, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00082


SURFACE
AMORPHOUS SILICA
IN PERCENT
AUGUST, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS
100
2.5
5
10
15
20

00083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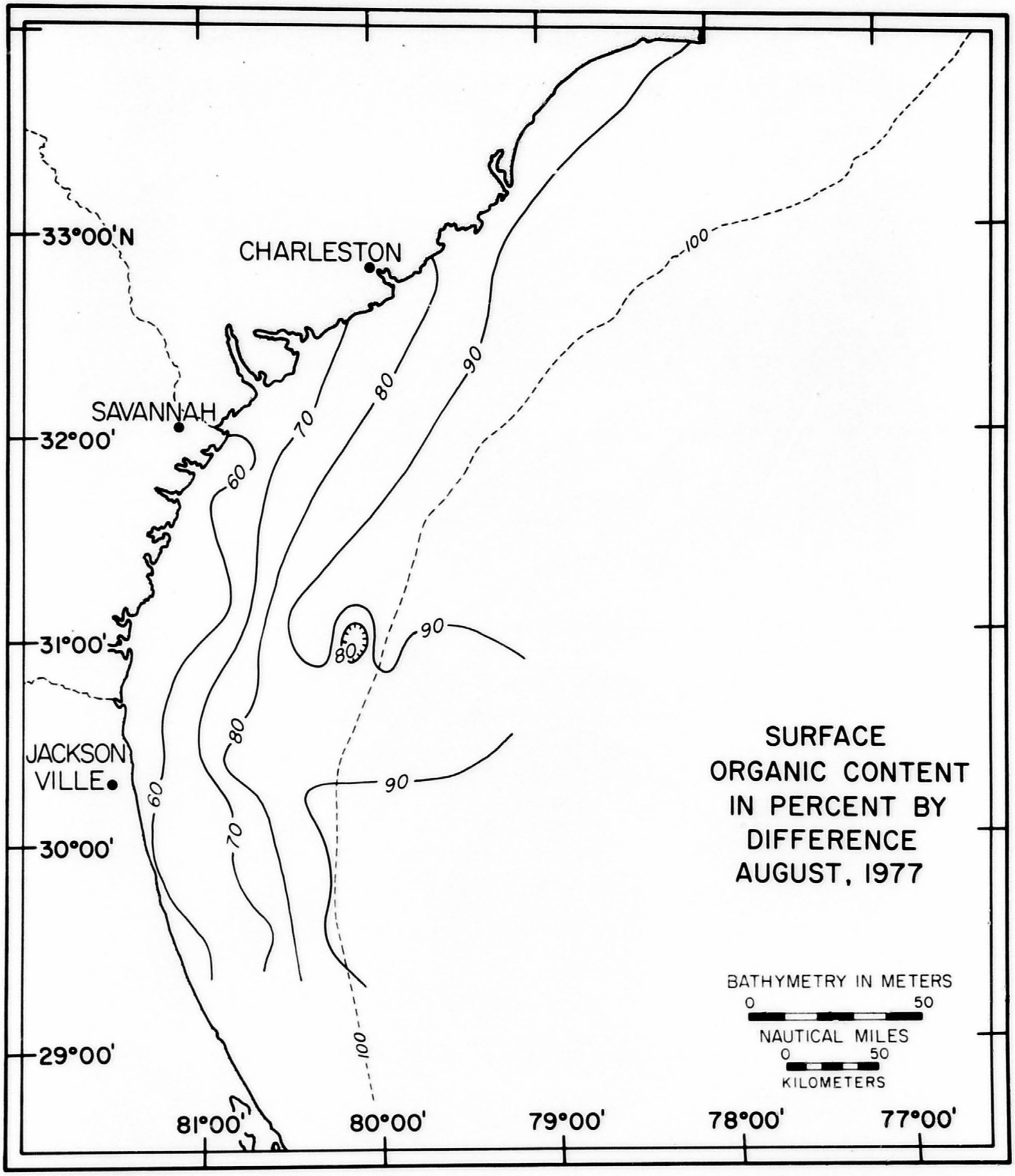
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON
VILLE
BOTTOM
AMORPHOUS SILICA
IN PERCENT
AUGUST, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00084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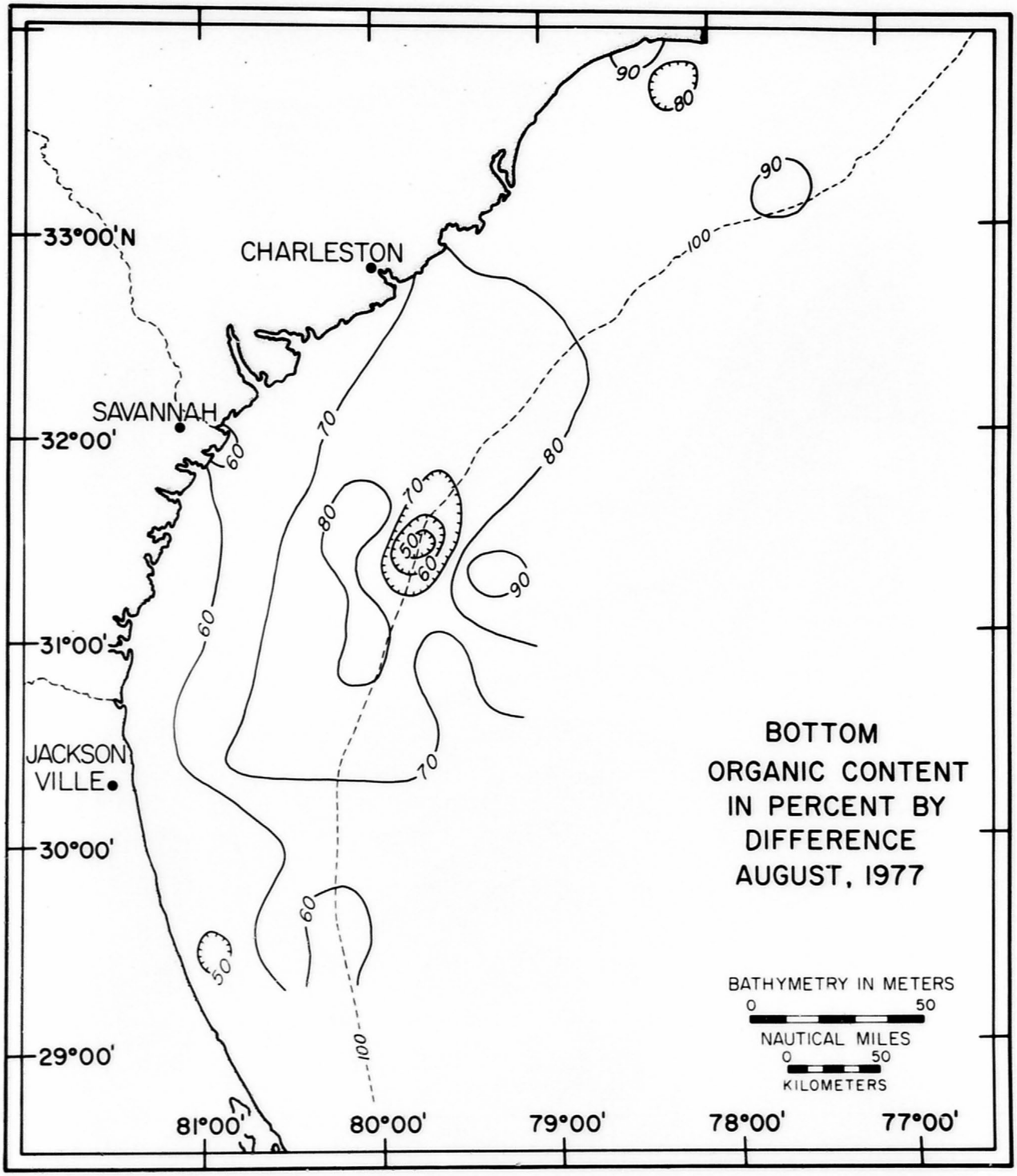
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON VILLE
60
70
80
90
100
SURFACE ORGANIC CONTENT IN PERCENT BY DIFFERENCE AUGUST, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00085



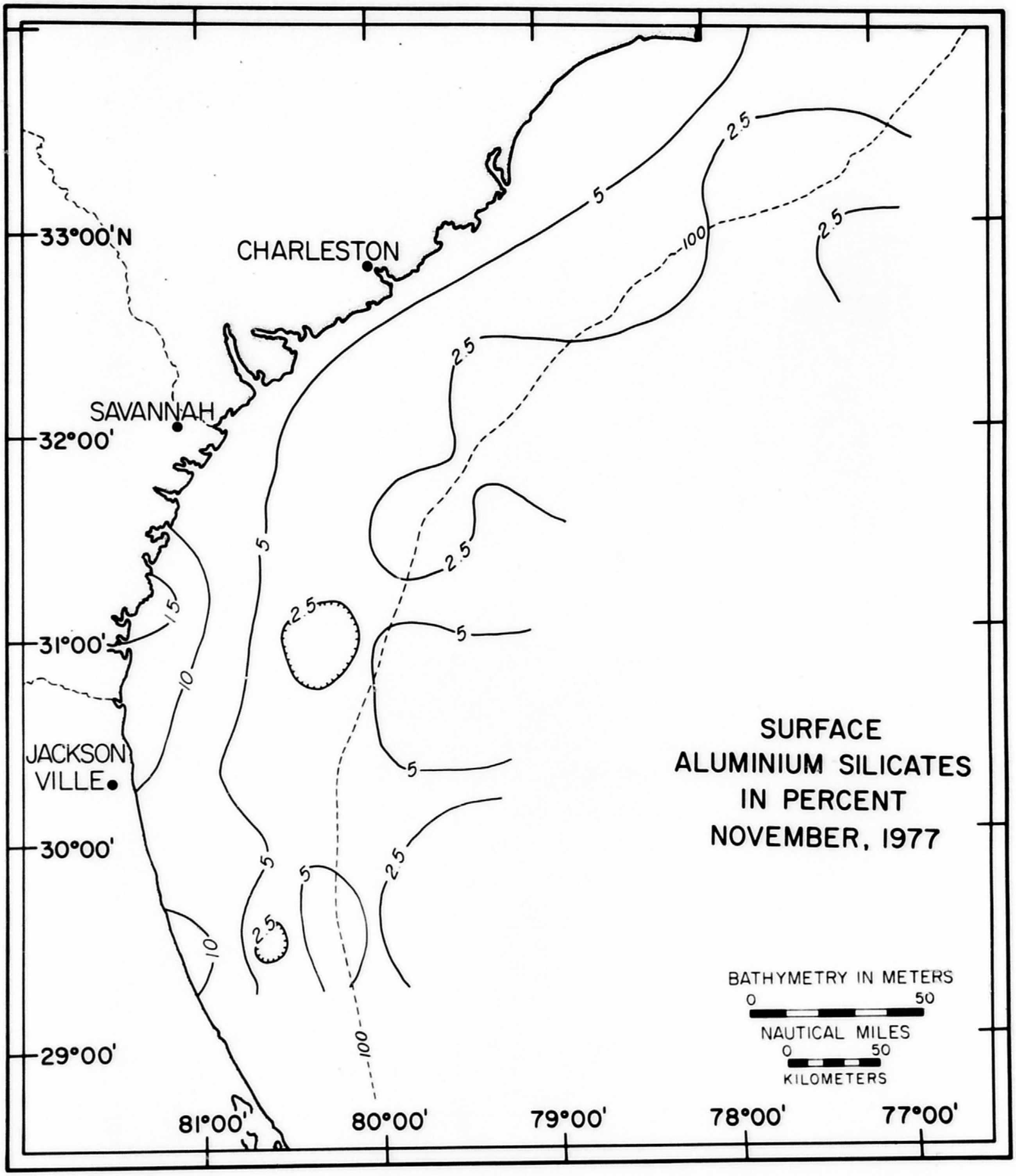
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
100
BOTTOM
ORGANIC CONTENT
IN PERCENT BY
DIFFERENCE
AUGUST, 1977
BATHYMETRY IN METERS
0 50
NAUTICAL MILES
0 50
KILOMETERS

93000

APPENDIX 2-5

MAJOR COMPONENTS OF THE TOTAL SUSPENDED LOAD

NOVEMBER 1977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SAVANNAH
JACKSON
VILLE
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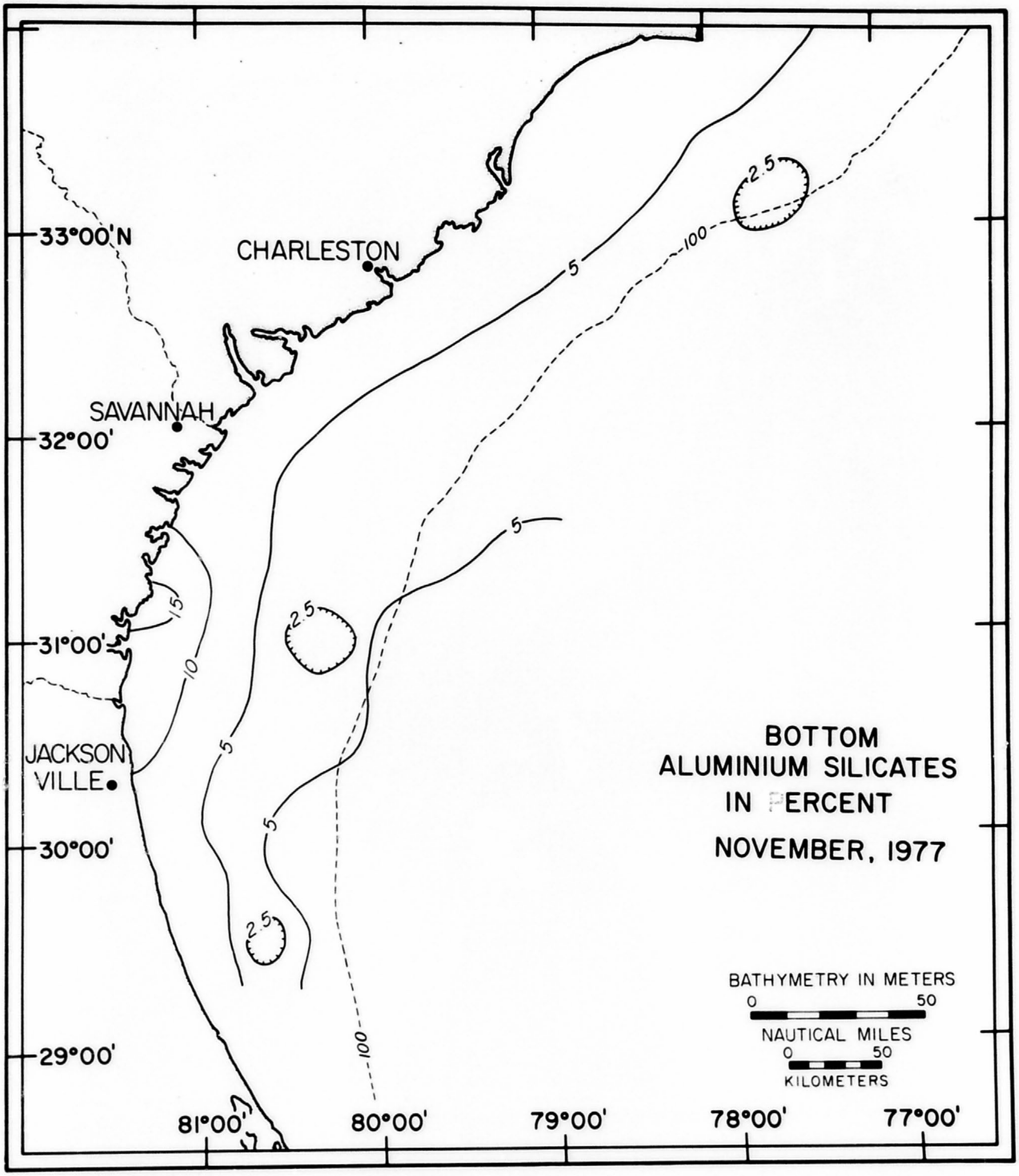
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
5
2.5
10
15
100
SURFACE
ALUMINIUM SILICATES
IN PERCENT
NOVEMBER, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00088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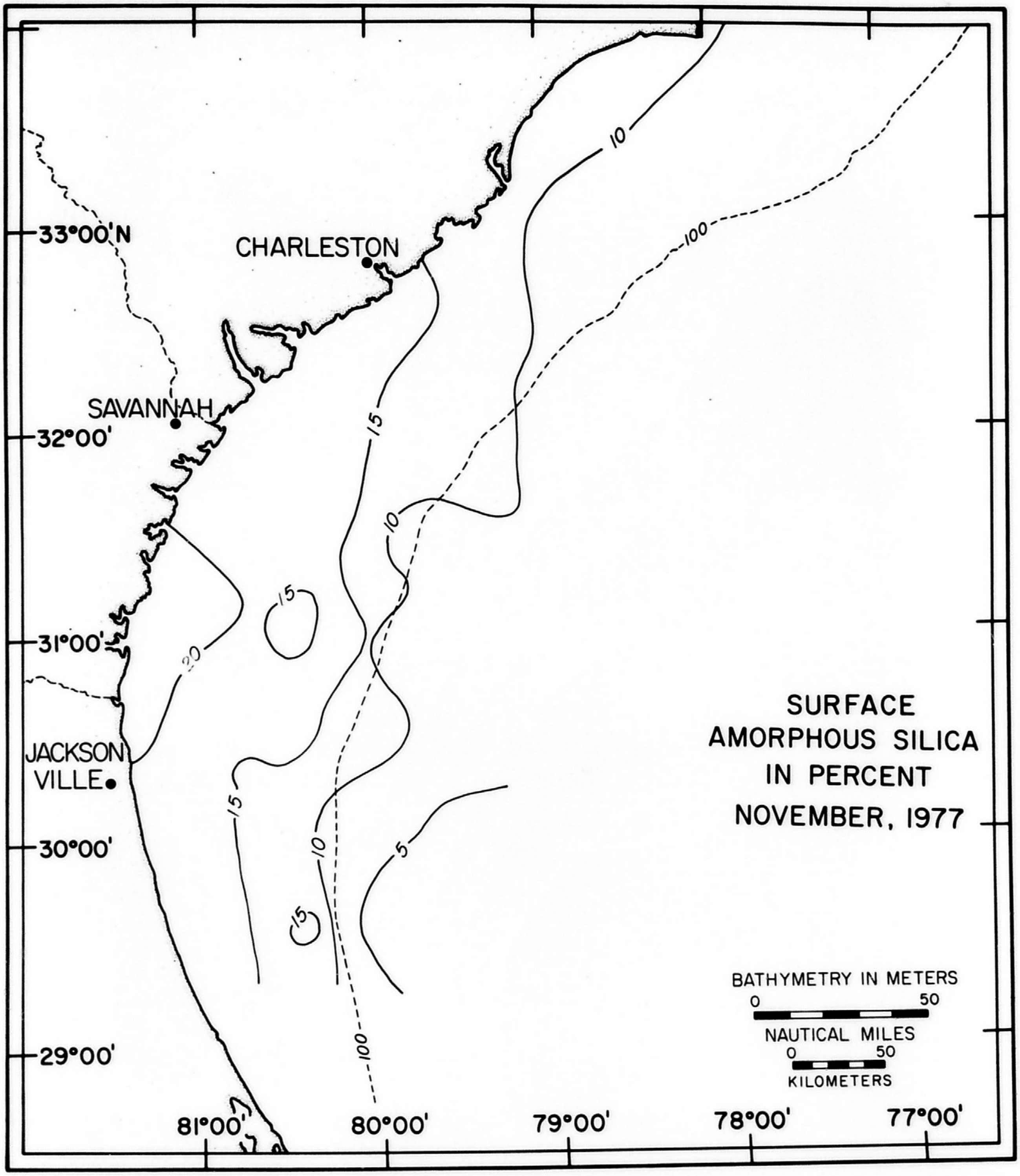
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON
VILLE
2.5
100
5
15
10
BOTTOM
ALUMINIUM SILICATES
IN PERCENT
NOVEMBER, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

CCC89


CHARLESTON
SAVANNAH
JACKSON VILLE
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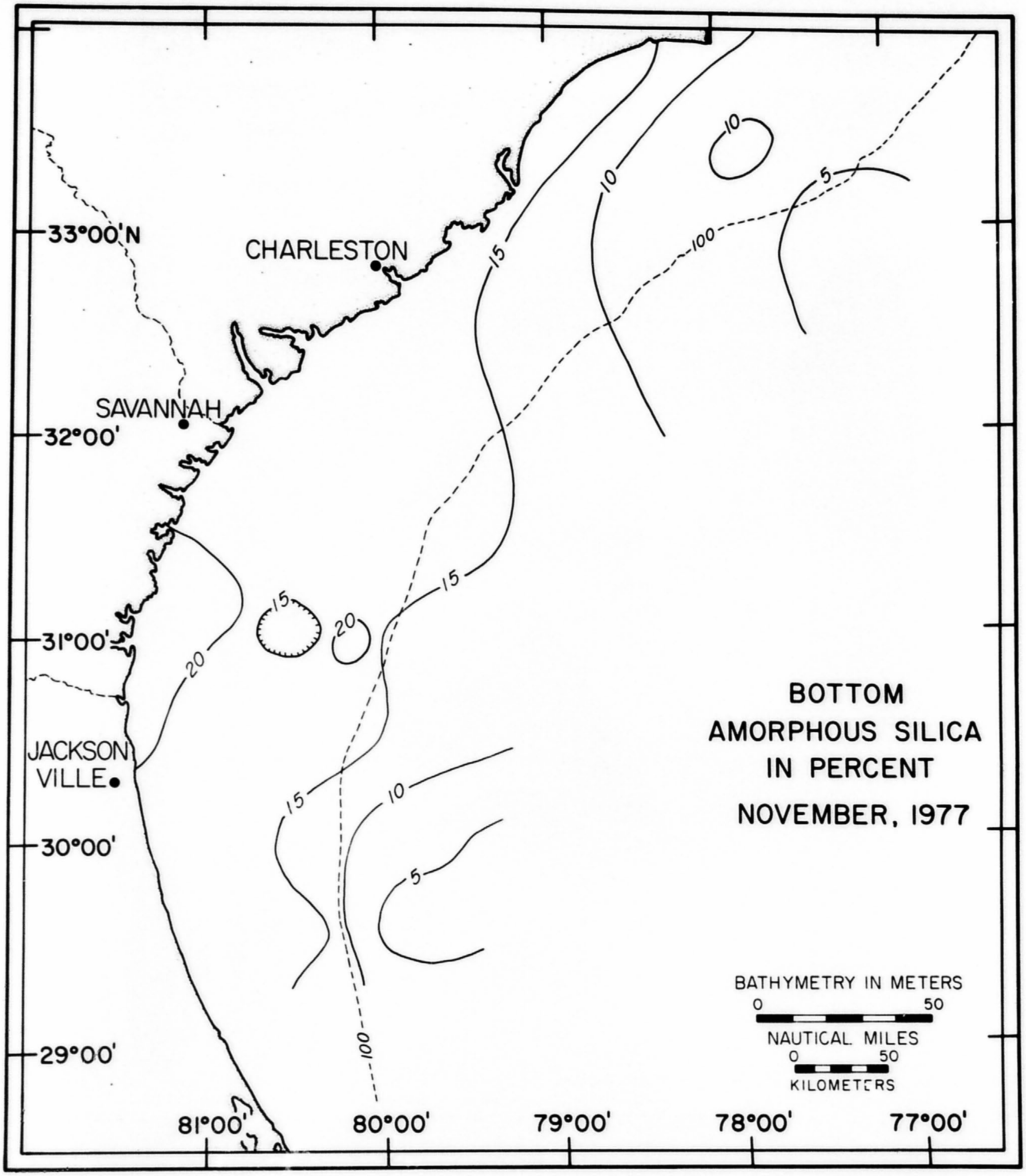
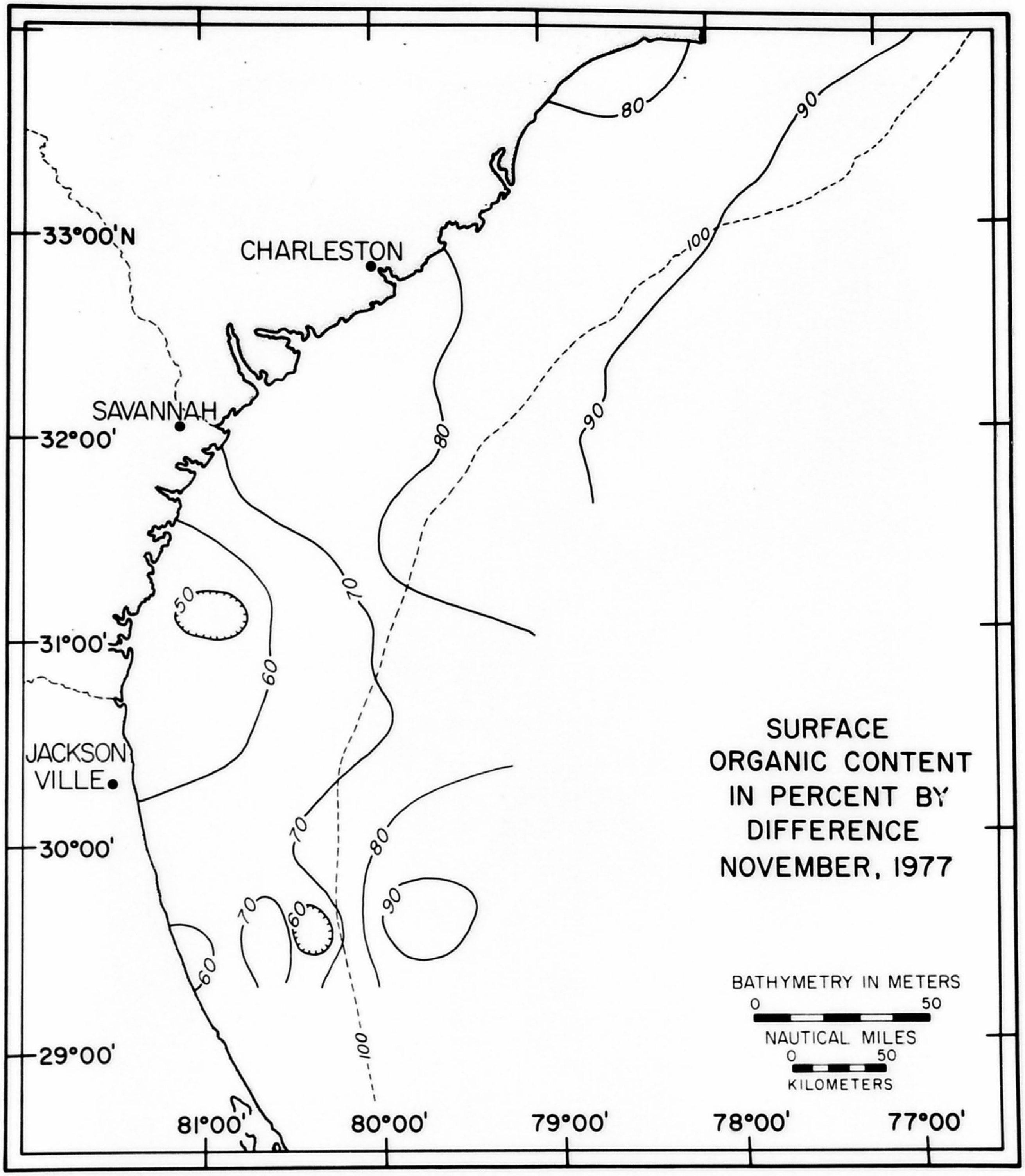
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
10
100
15
20
5
SURFACE AMORPHOUS SILICA IN PERCENT NOVEMBER, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

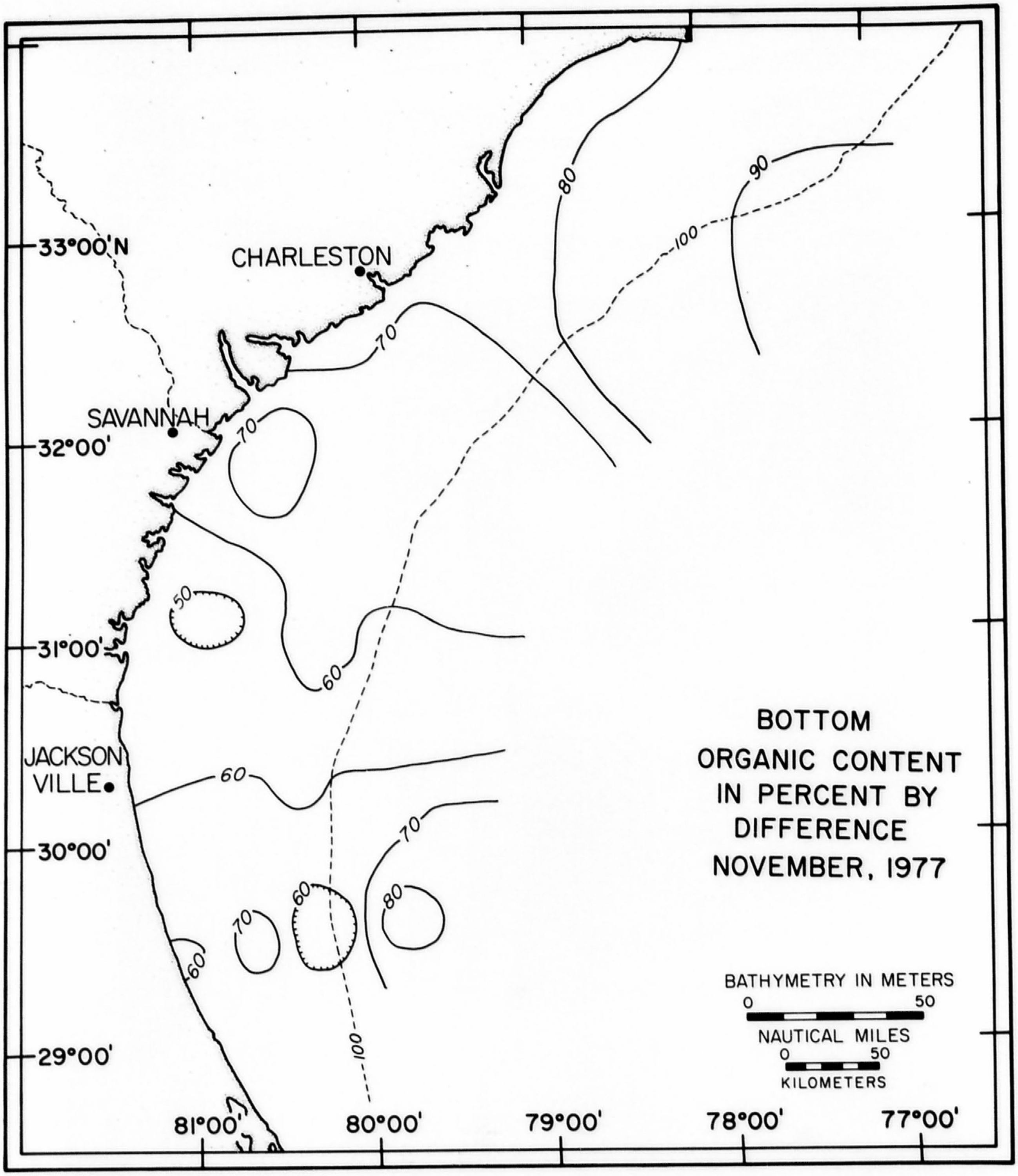
000906



33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON
VILLE
BOTTOM
AMORPHOUS SILICA
IN PERCENT
NOVEMBER, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS
100
100
5
5
10
10
10
15
15
15
15
20
20

00091

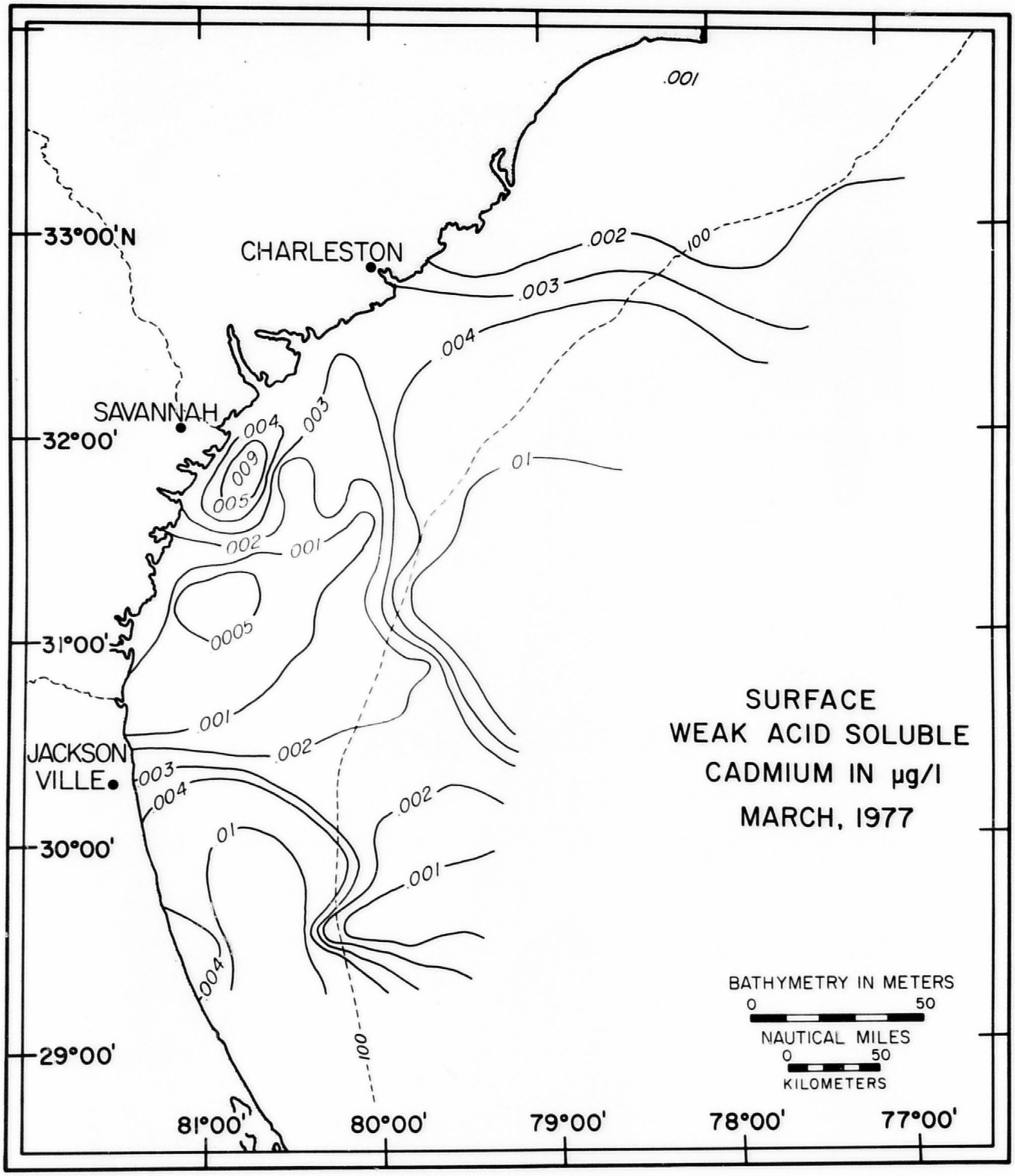

SURFACE ORGANIC CONTENT IN PERCENT BY DIFFERENCE NOVEMBER, 1977
CHARLESTON
SAVANNAH
JACKSON VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
50
60
70
80
90
100
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS


BOTTOM
ORGANIC CONTENT
IN PERCENT BY
DIFFERENCE
NOVEMBER, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS
80
90
100
70
70
50
60
60
70
60
70
80
60
100

APPENDIX 2-6

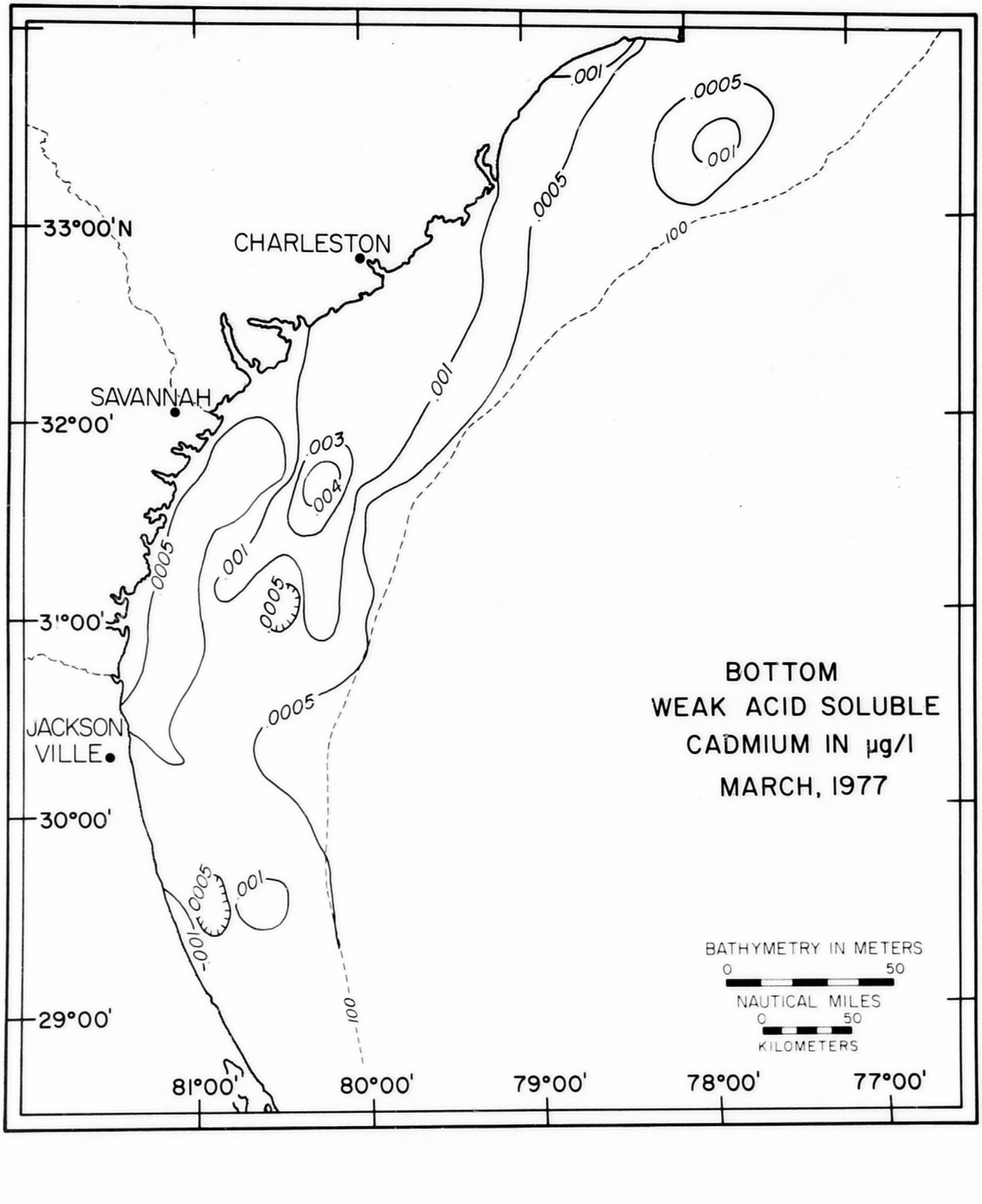
TRACE-METAL DISTRIBUTION

FEBRUARY-MARCH 1977

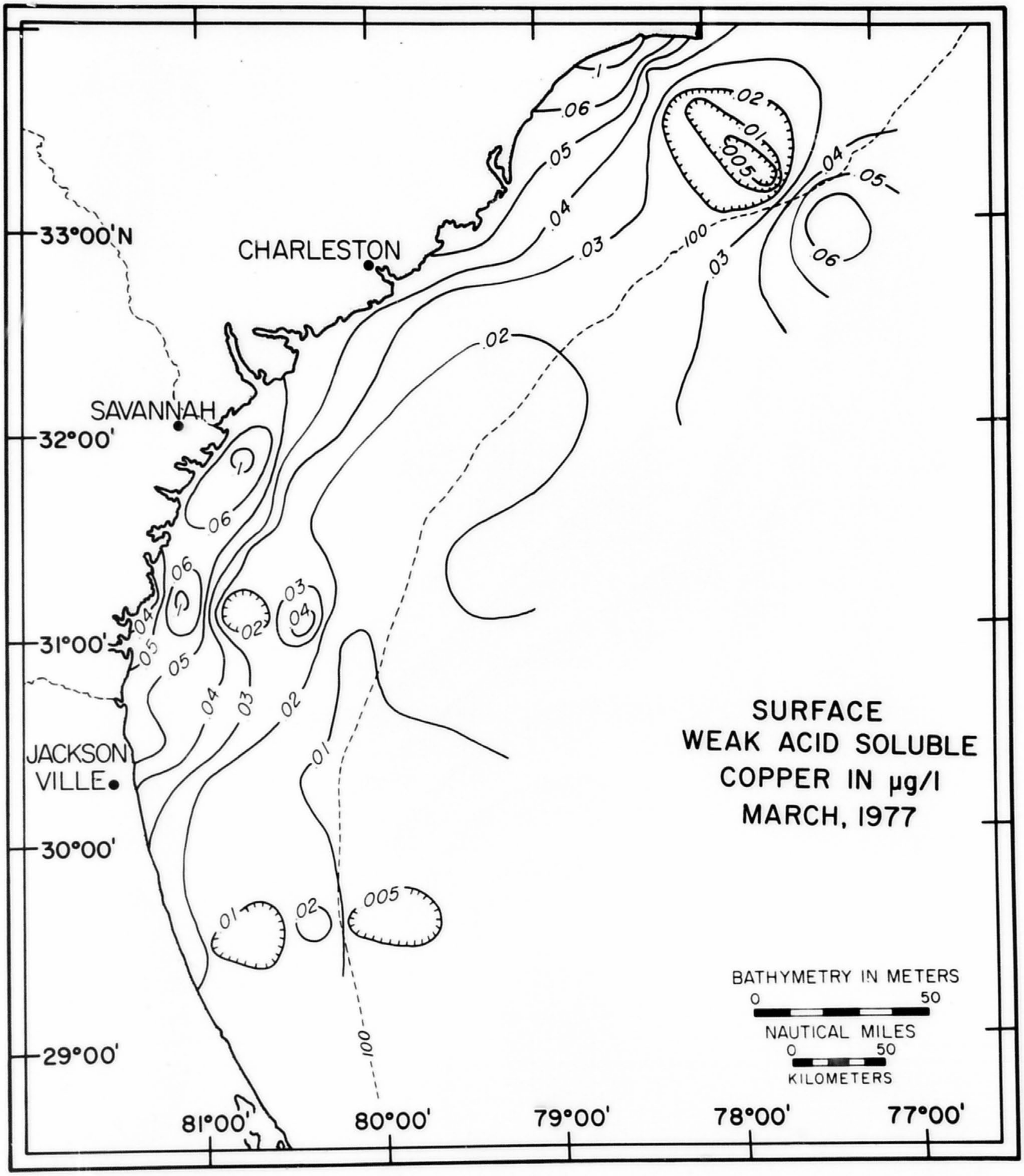


SURFACE
WEAK ACID SOLUBLE
CADMIUM IN µg/l
MARCH, 1977
CHARLESTON
SAVANNAH
JACKSON VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS
.001
.002
.003
.004
.005
.009
.0005
.01
100

00095

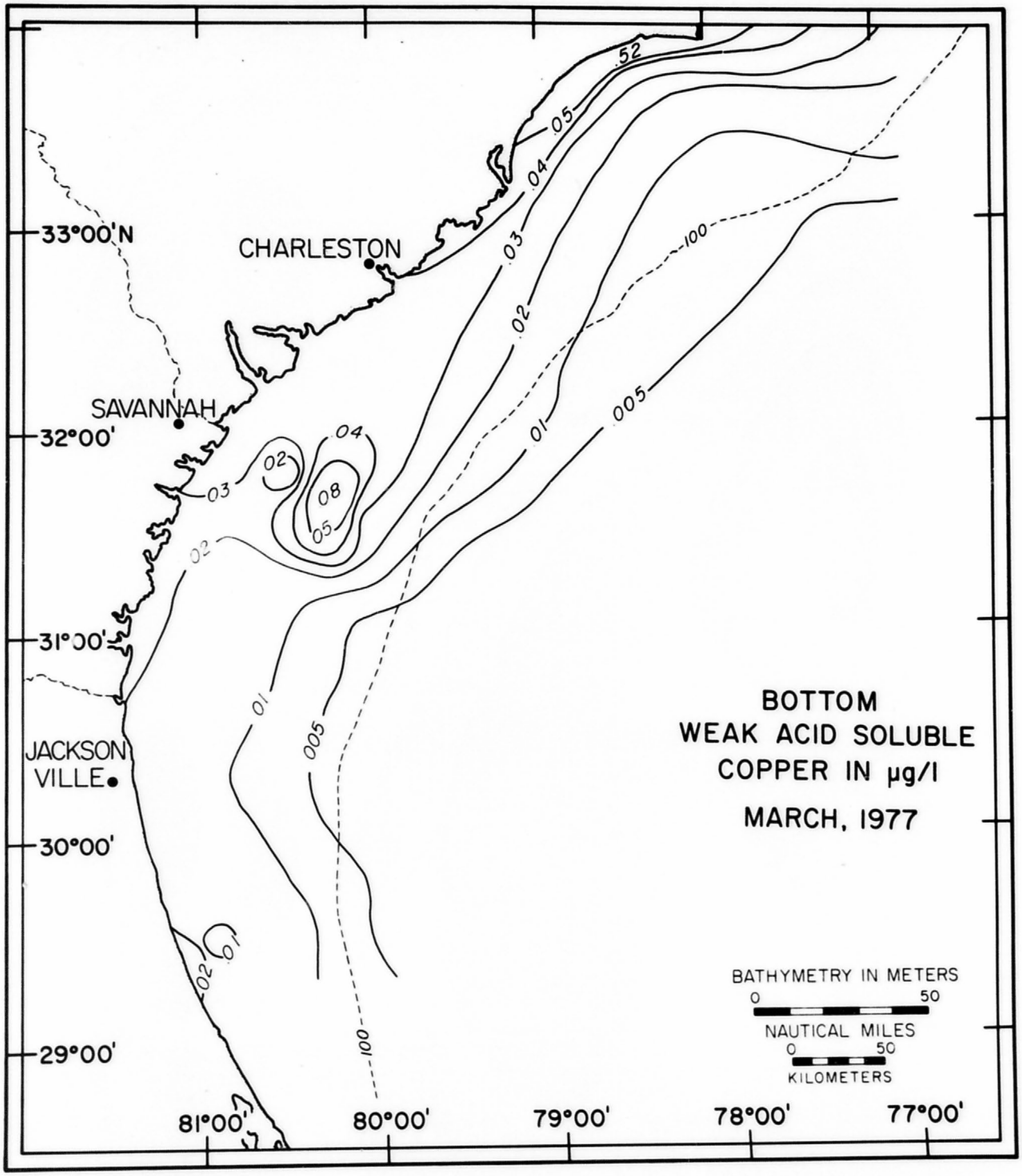


BOTTOM
WEAK ACID SOLUBLE
CADMIUM IN µg/l
MARCH, 1977
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON VILLE
.001
.0005
.003
.004
100
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

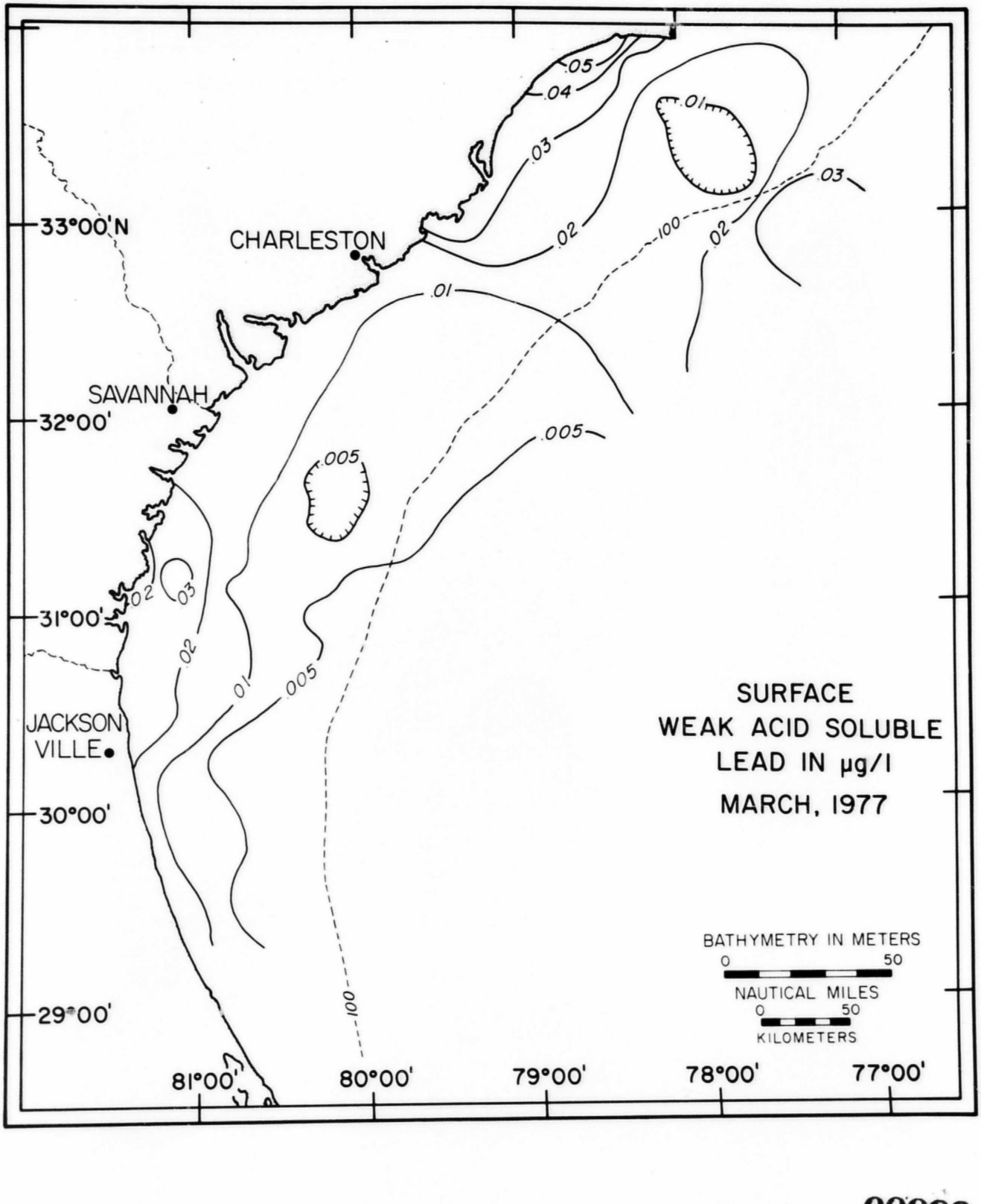


33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON VILLE
SURFACE
WEAK ACID SOLUBLE
COPPER IN µg/l
MARCH, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

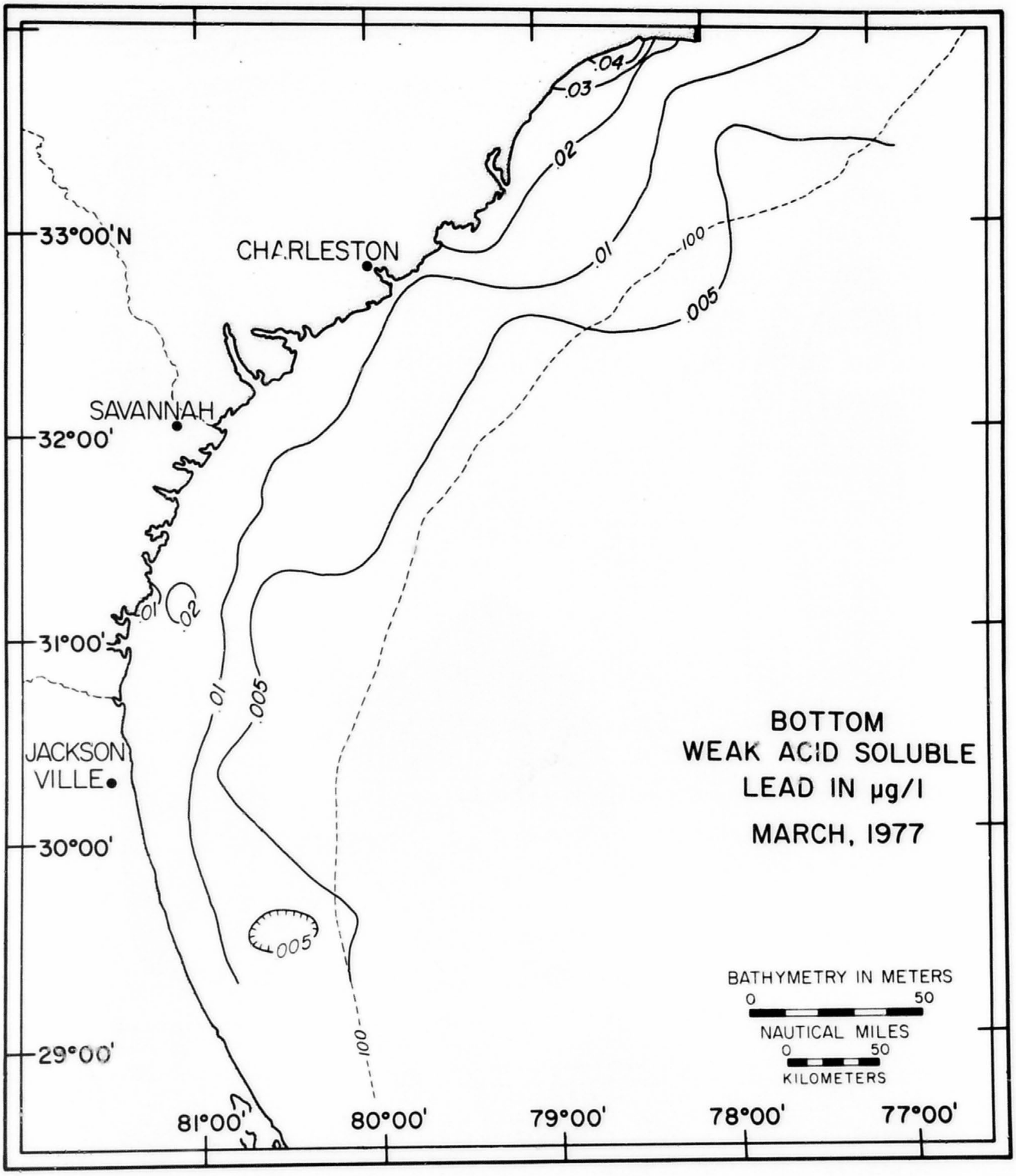
00097


33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON
VILLE
.52
.05
.04
.03
.02
.01
.005
.08
100
BOTTOM
WEAK ACID SOLUBLE
COPPER IN µg/l
MARCH, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00098

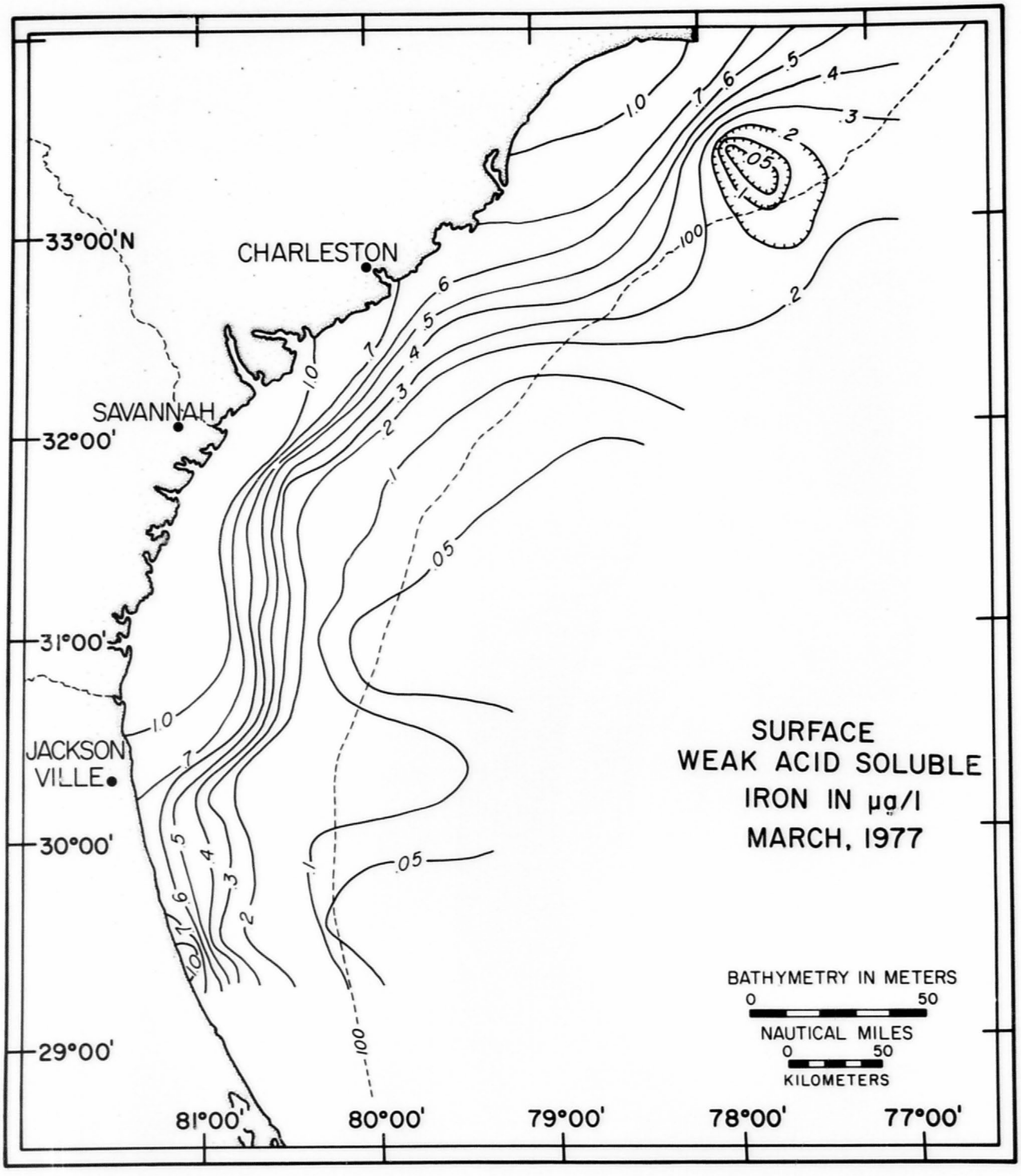


CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
.05
.04
.03
.02
.01
.005
100
SURFACE
WEAK ACID SOLUBLE
LEAD IN µg/l
MARCH, 1977
BATHYMETRY IN METERS
NAUTICAL MILES
0
50
KILOMETERS



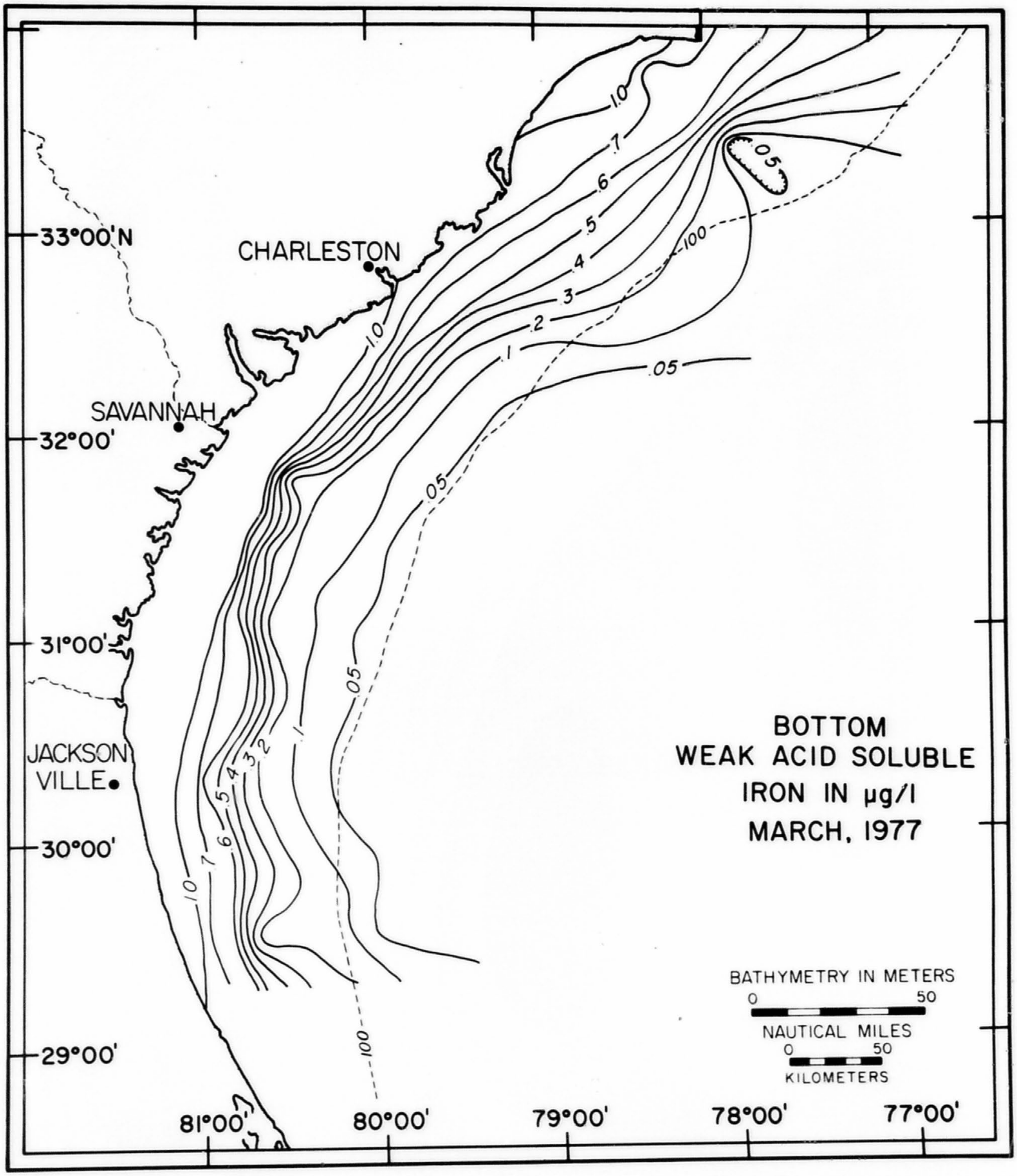
.04
.03
.02
CHARLESTON
.01
100
.005
SAVANNAH
.01
.02
33°00'N
32°00'
31°00'
30°00'
29°00'
.01
.005
JACKSON
VILLE
.005
100
BOTTOM
WEAK ACID SOLUBLE
LEAD IN µg/l
MARCH, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS
81°00'
80°00'
79°00'
78°00'
77°00'

00100



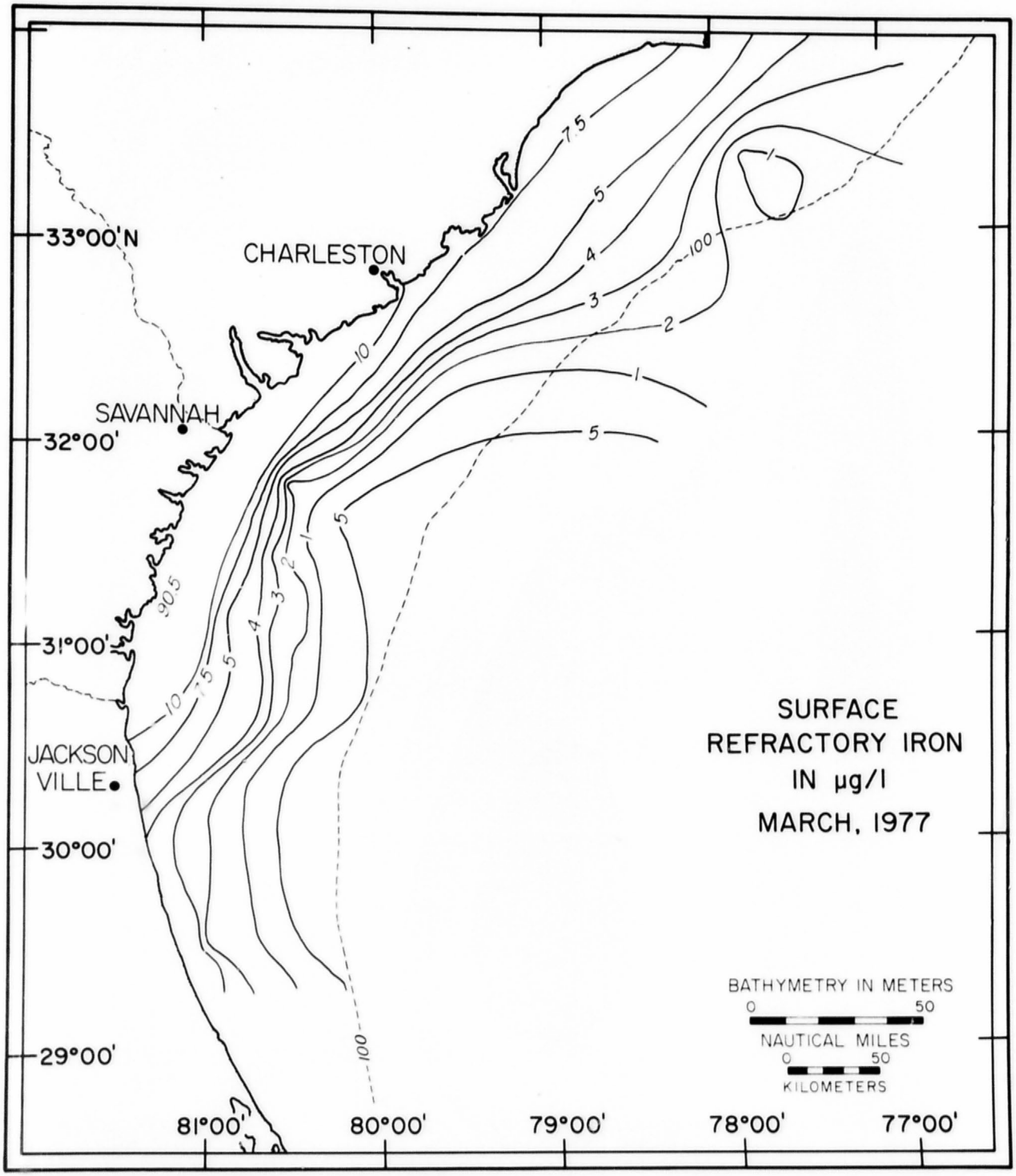
SURFACE
WEAK ACID SOLUBLE
IRON IN μg/l
MARCH, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00101



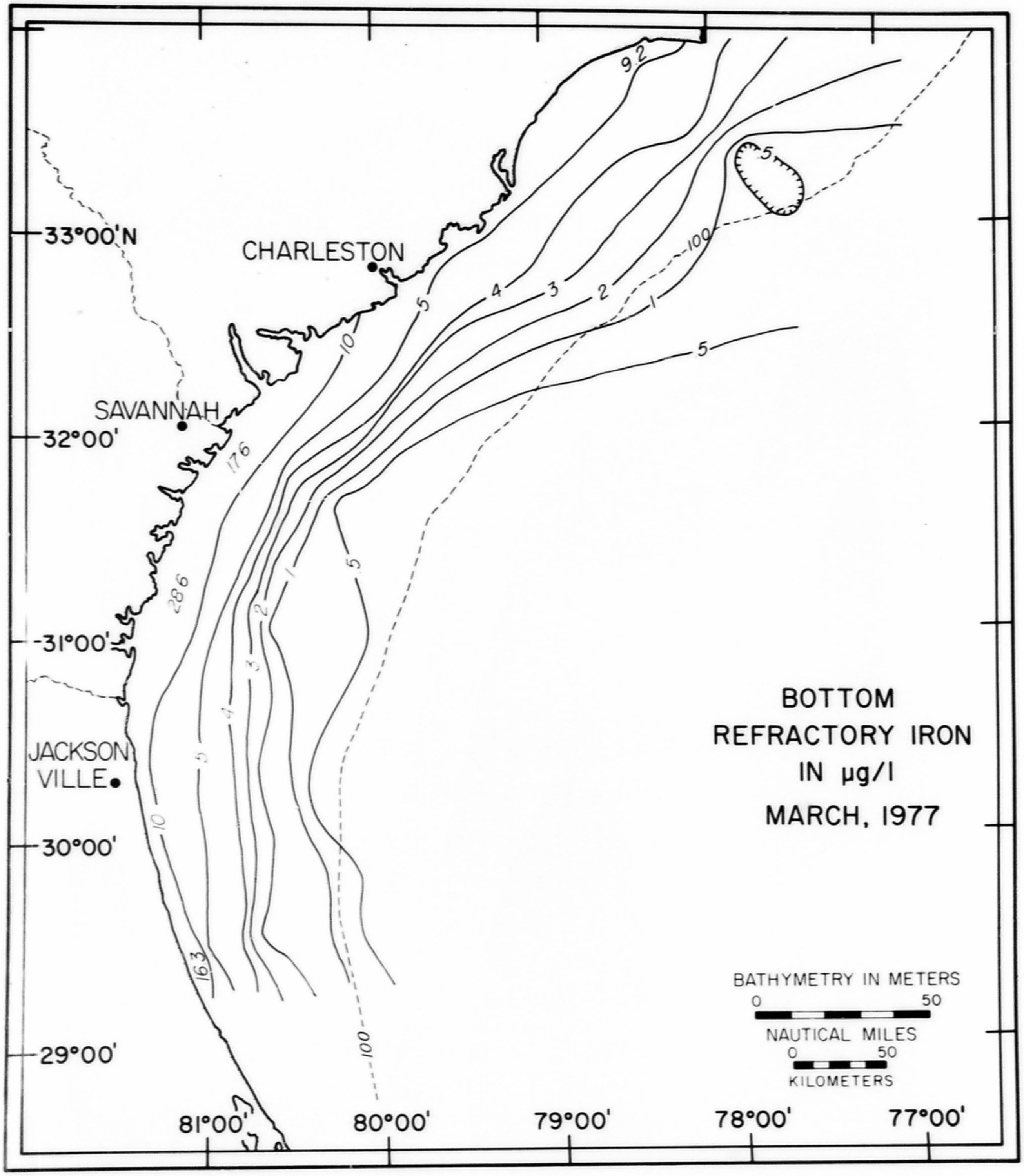
BOTTOM
WEAK ACID SOLUBLE
IRON IN µg/l
MARCH, 1977
CHARLESTON
SAVANNAH
JACKSON VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS
1.0
.7
.6
.5
.4
.3
.2
.1
.05
100

00102



33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON
VILLE
7.5
5
4
3
2
1
10
100
90.5
SURFACE
REFRACTORY IRON
IN µg/l
MARCH, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00103

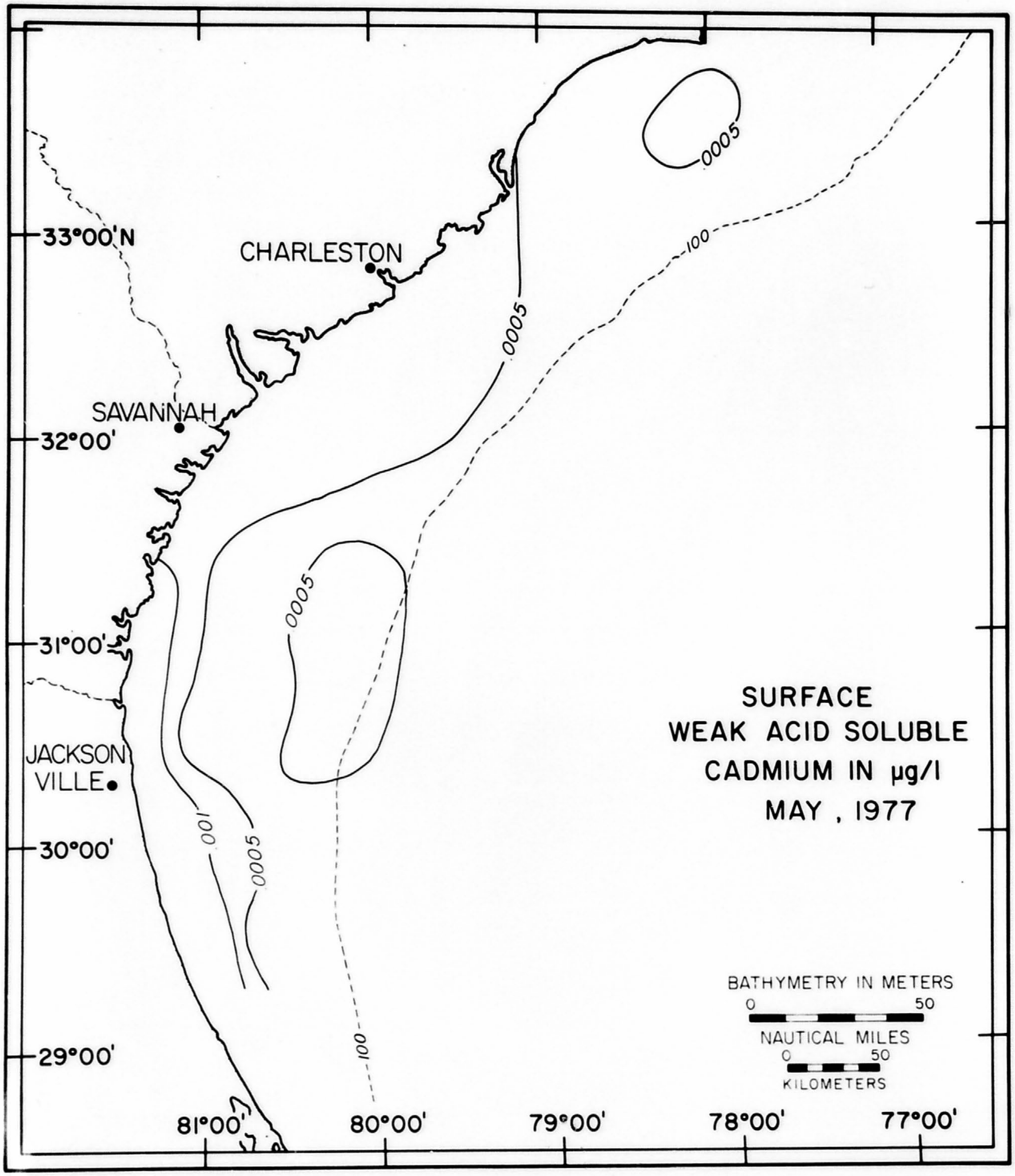

33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON
VILLE
9.2
176
286
163
100
10
5
4
3
2
1
BOTTOM
REFRACTORY IRON
IN µg/l
MARCH, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00104

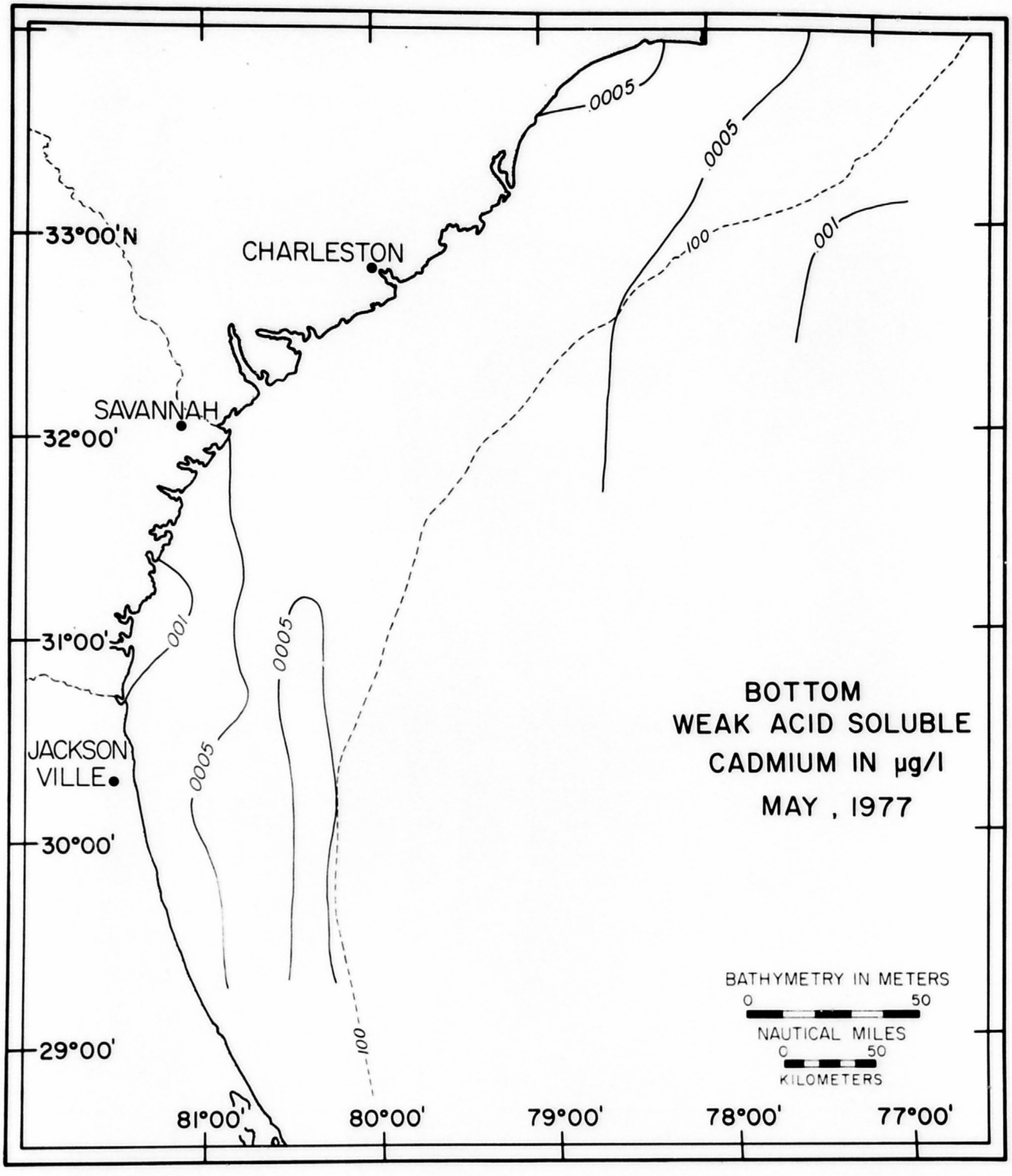
APPENDIX 2-7

TRACE-METAL DISTRIBUTION

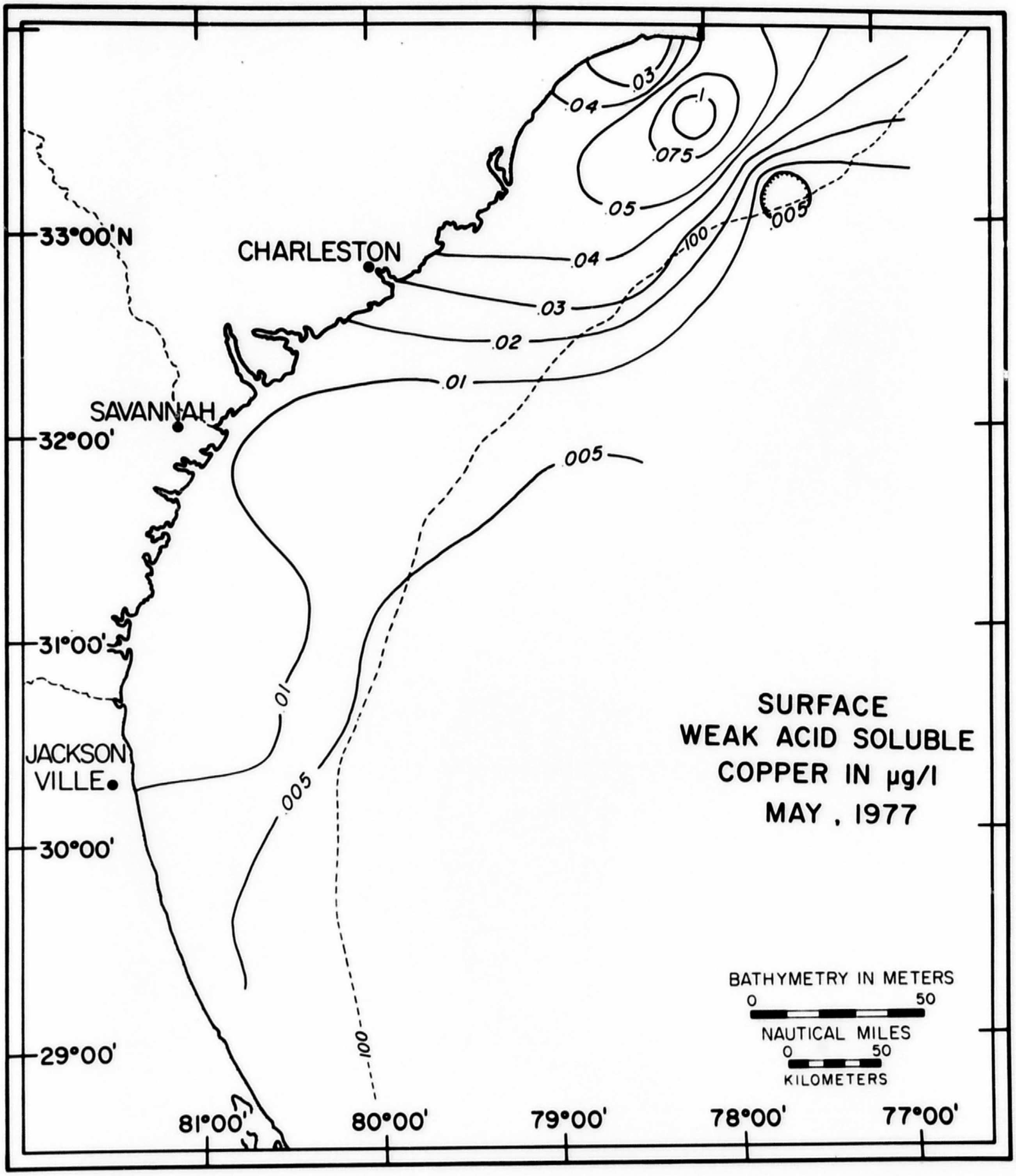
MAY 1977


SURFACE
WEAK ACID SOLUBLE
CADMIUM IN μg/l
MAY , 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
0005
0005
0005
0005
001
100
100
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00106

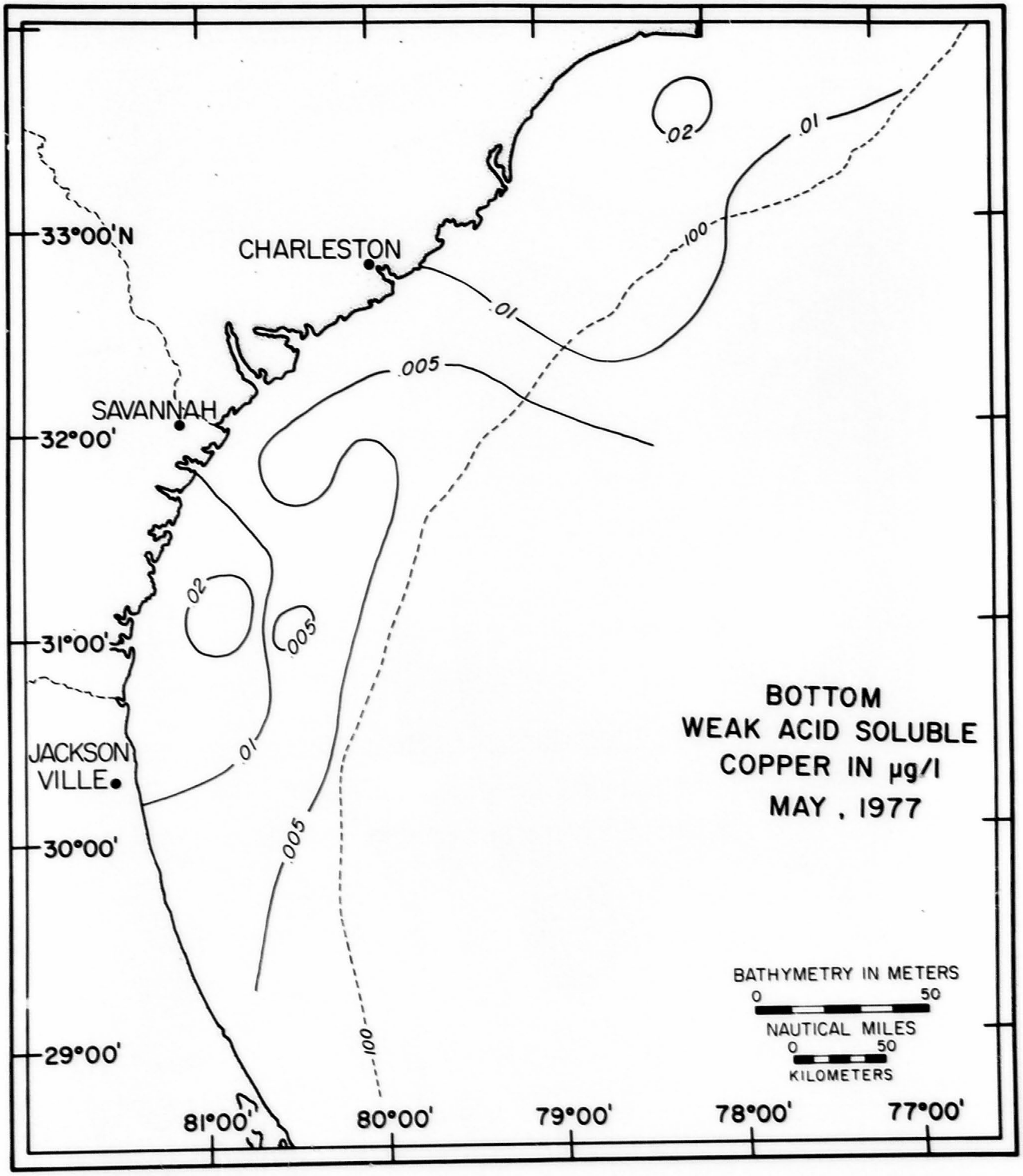

33°00'N
CHARLESTON
SAVANNAH
32°00'
31°00'
JACKSON VILLE
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
.0005
.0005
.001
100
.001
.0005
.0005
100
BOTTOM
WEAK ACID SOLUBLE
CADMIUM IN μg/l
MAY, 1977
BATHYMETRY IN METERS
0 50
NAUTICAL MILES
0 50
KILOMETERS

00107



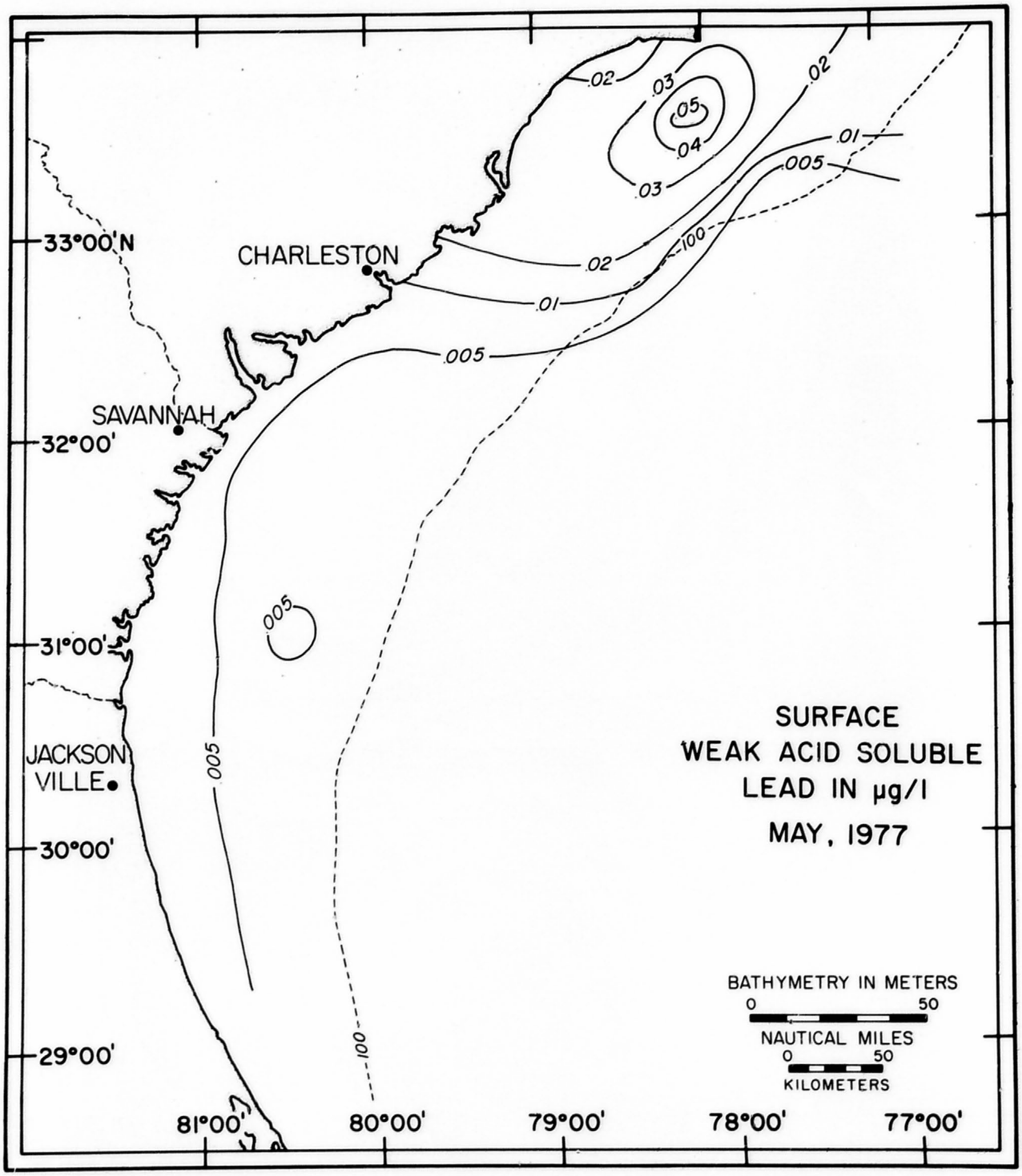
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON
VILLE
.03
.04
.1
.075
.05
.005
100
.04
.03
.02
.01
.005
.01
.005
100
SURFACE
WEAK ACID SOLUBLE
COPPER IN μg/l
MAY , 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

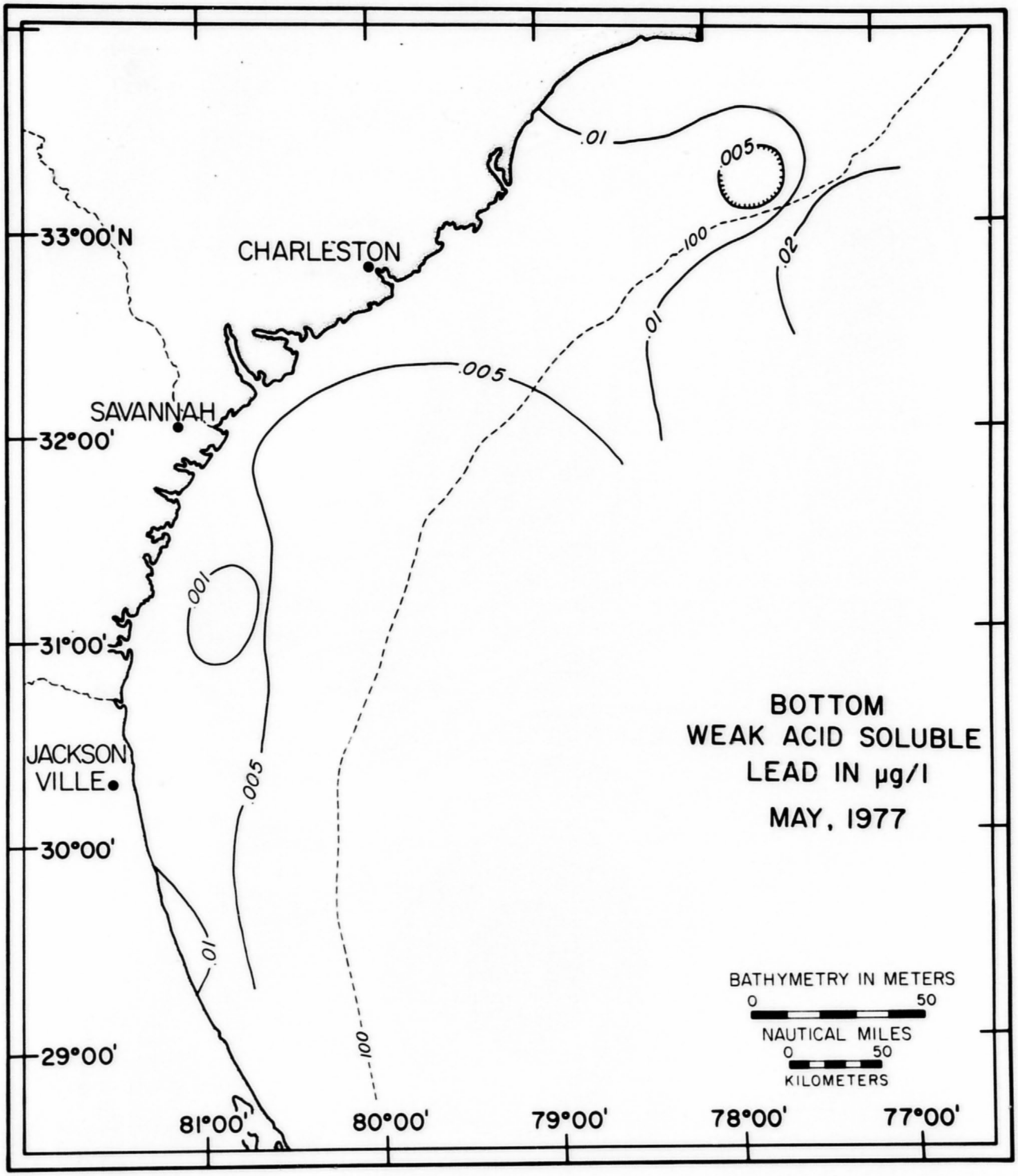
00108

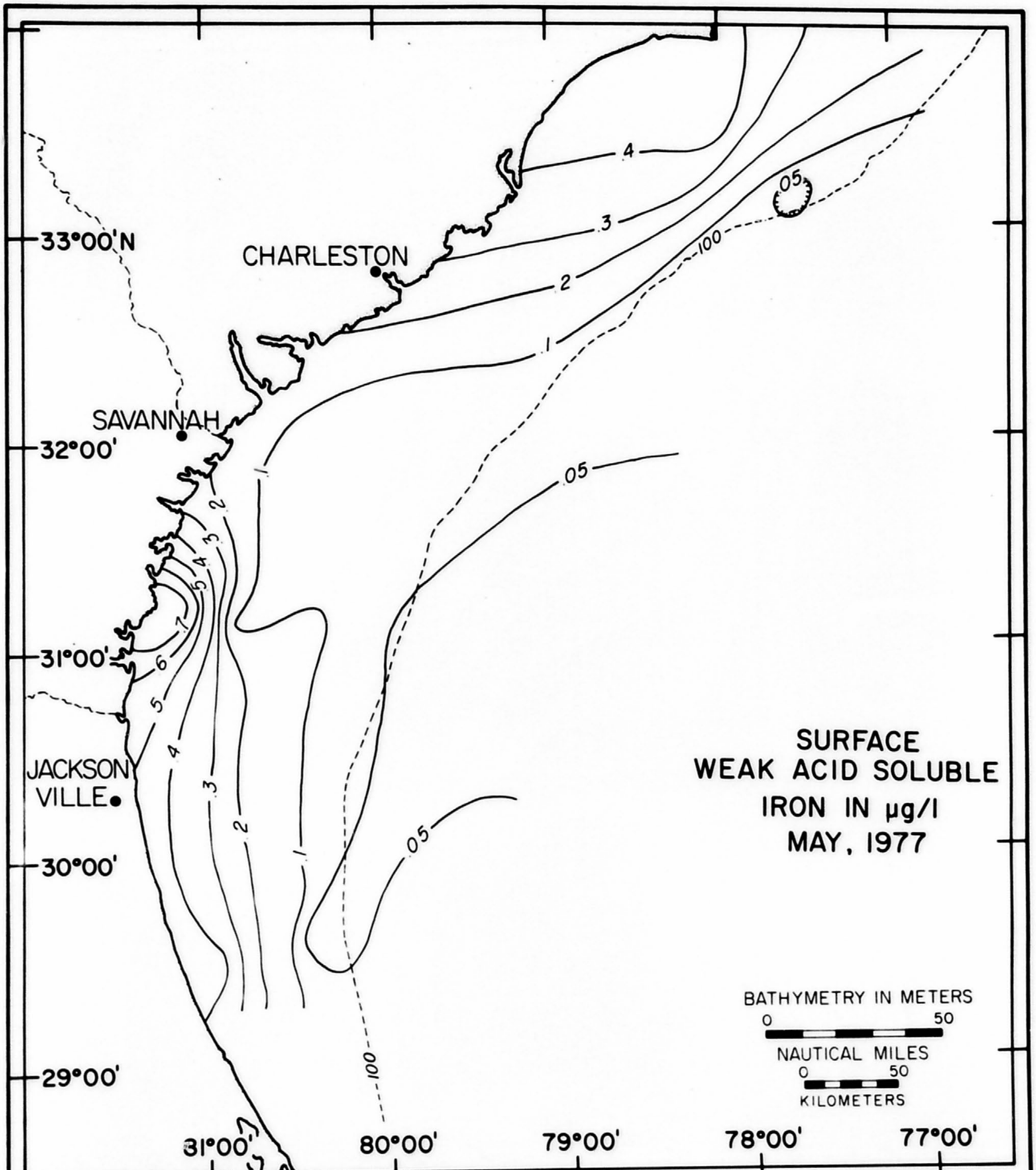


33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON
VILLE
.02
.01
.005
100
BOTTOM
WEAK ACID SOLUBLE
COPPER IN μg/l
MAY , 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

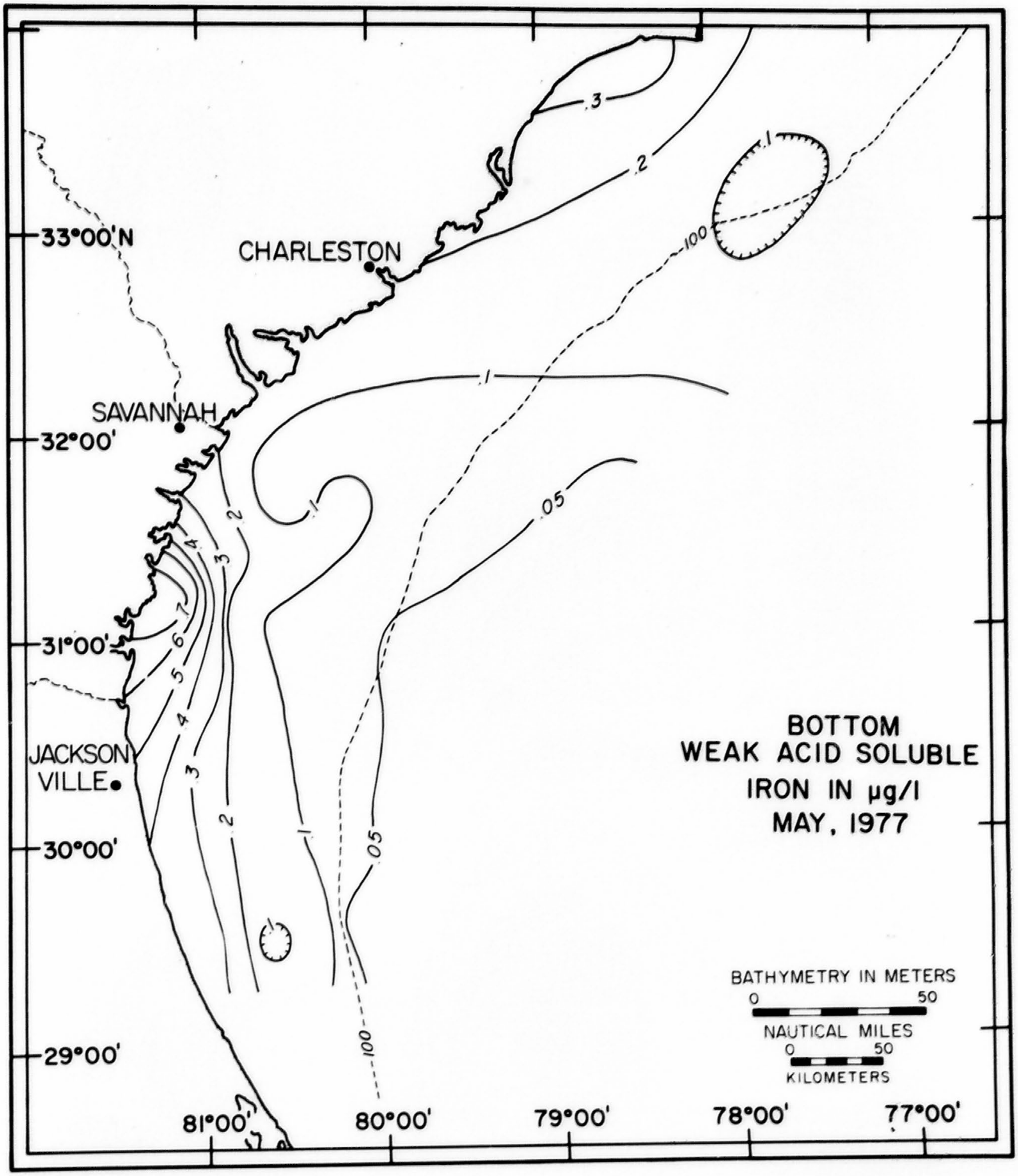
00109


SURFACE
WEAK ACID SOLUBLE
LEAD IN µg/l
MAY, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
.02
.03
.05
.04
.01
.005
100
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

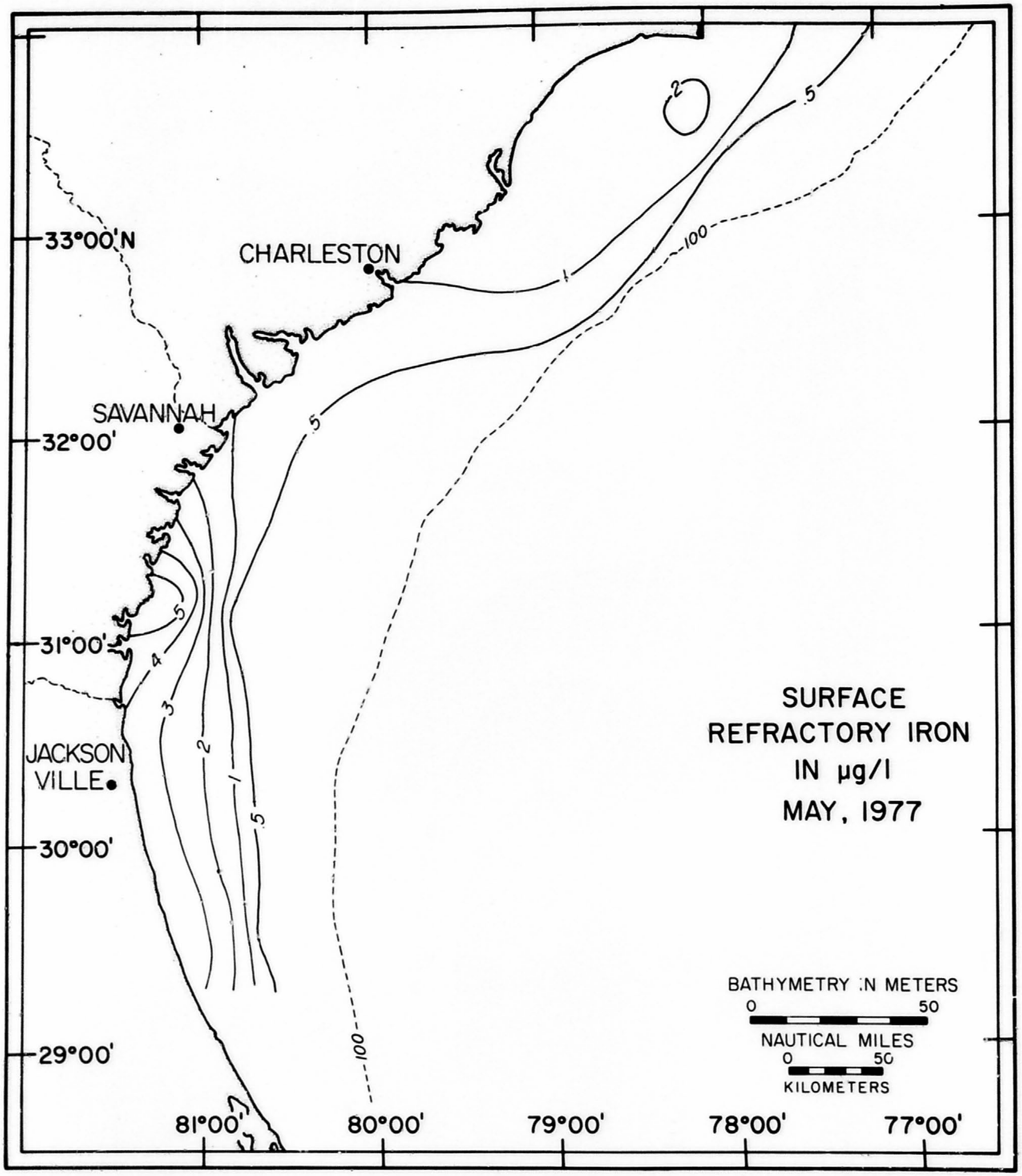

BOTTOM
WEAK ACID SOLUBLE
LEAD IN µg/l
MAY, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
.01
.005
.02
.001
100
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS


SURFACE
WEAK ACID SOLUBLE
IRON IN µg/l
MAY, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
31°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS
100
100
.05
.05
.05
.1
.1
.1
.2
.2
.2
.3
.3
.3
.4
.4
.4
.5
.5
.6
.7

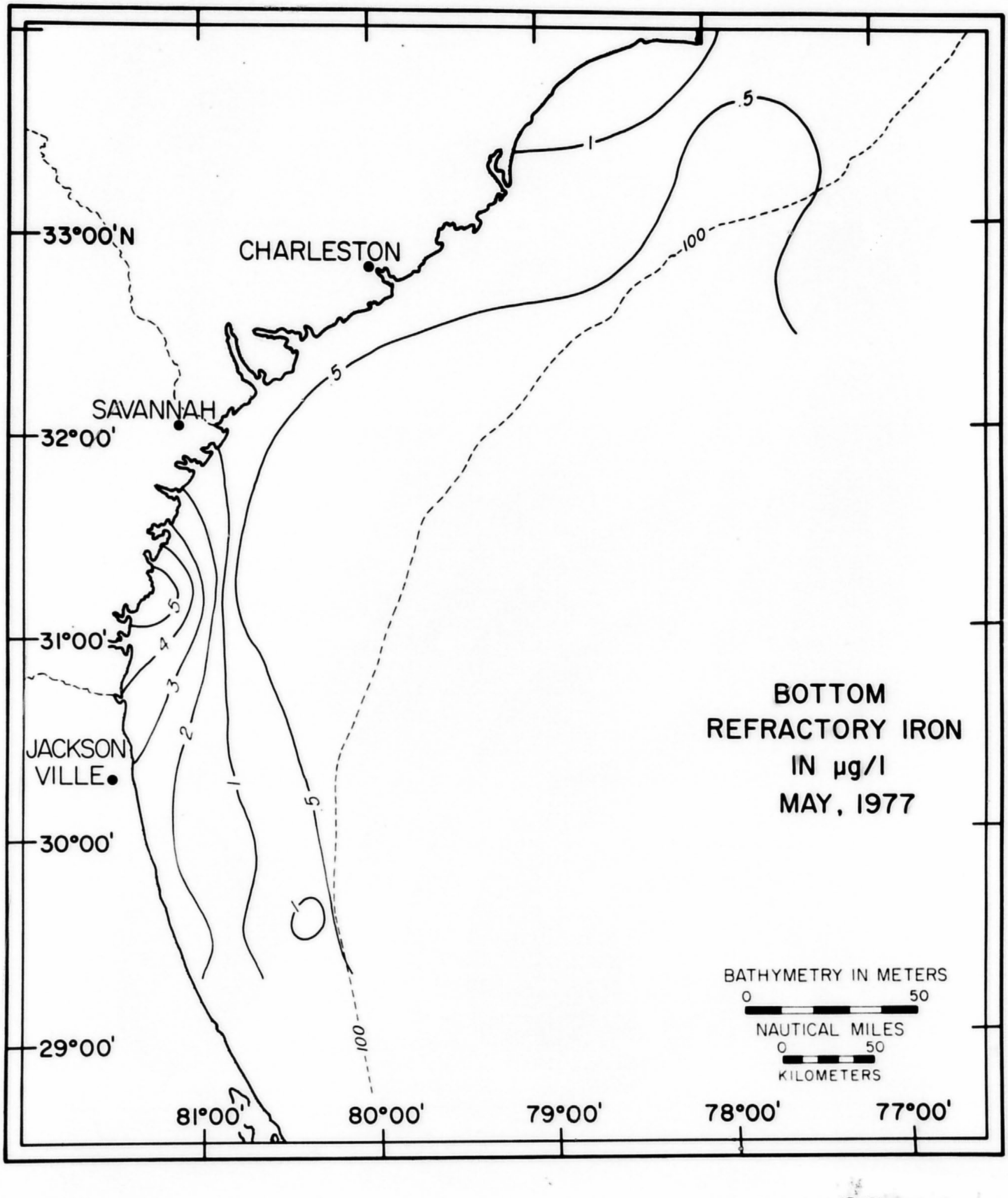
00112


CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BOTTOM
WEAK ACID SOLUBLE
IRON IN μg/l
MAY, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS
100
.05
.1
.2
.3

00113


SURFACE
REFRACTORY IRON
IN µg/l
MAY, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
100
100
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS
.2
.5
1
.5
.5
5
4
3
2
1
.5

00114



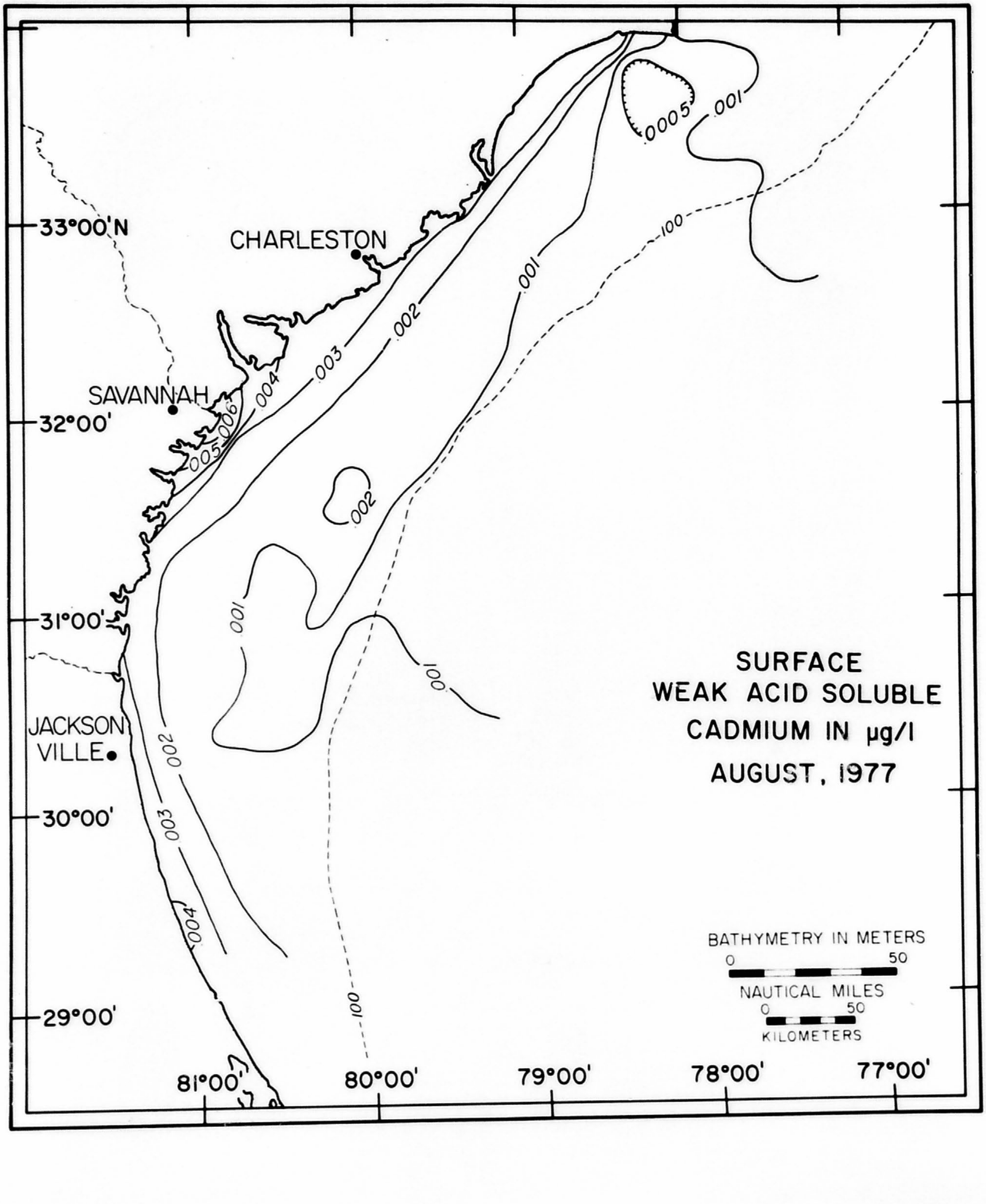
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON VILLE
1
.5
100
5
4
3
2
BOTTOM
REFRACTORY IRON
IN µg/l
MAY, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00115

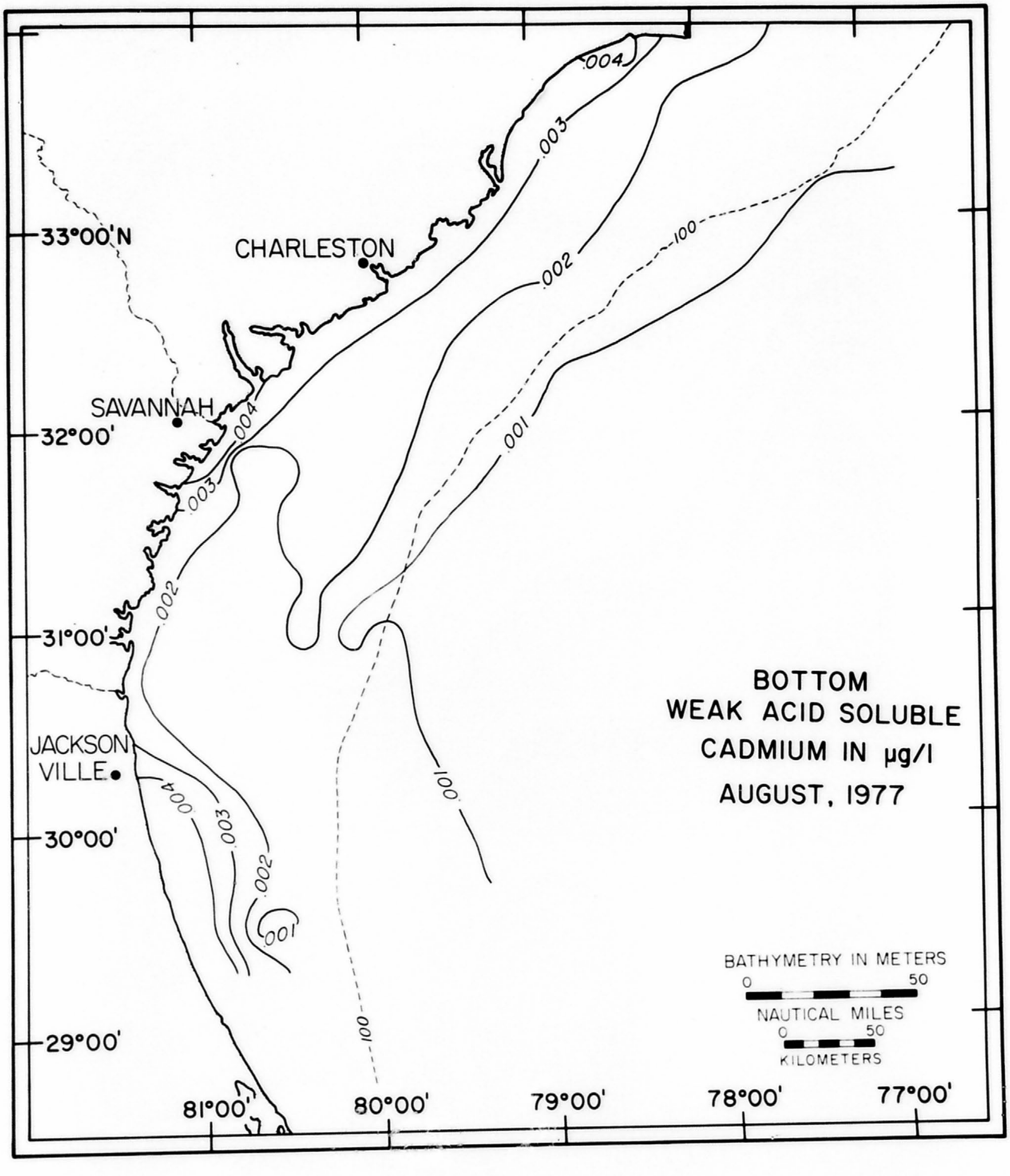
APPENDIX 2-8

TRACE-METAL DISTRIBUTION

AUGUST 1977

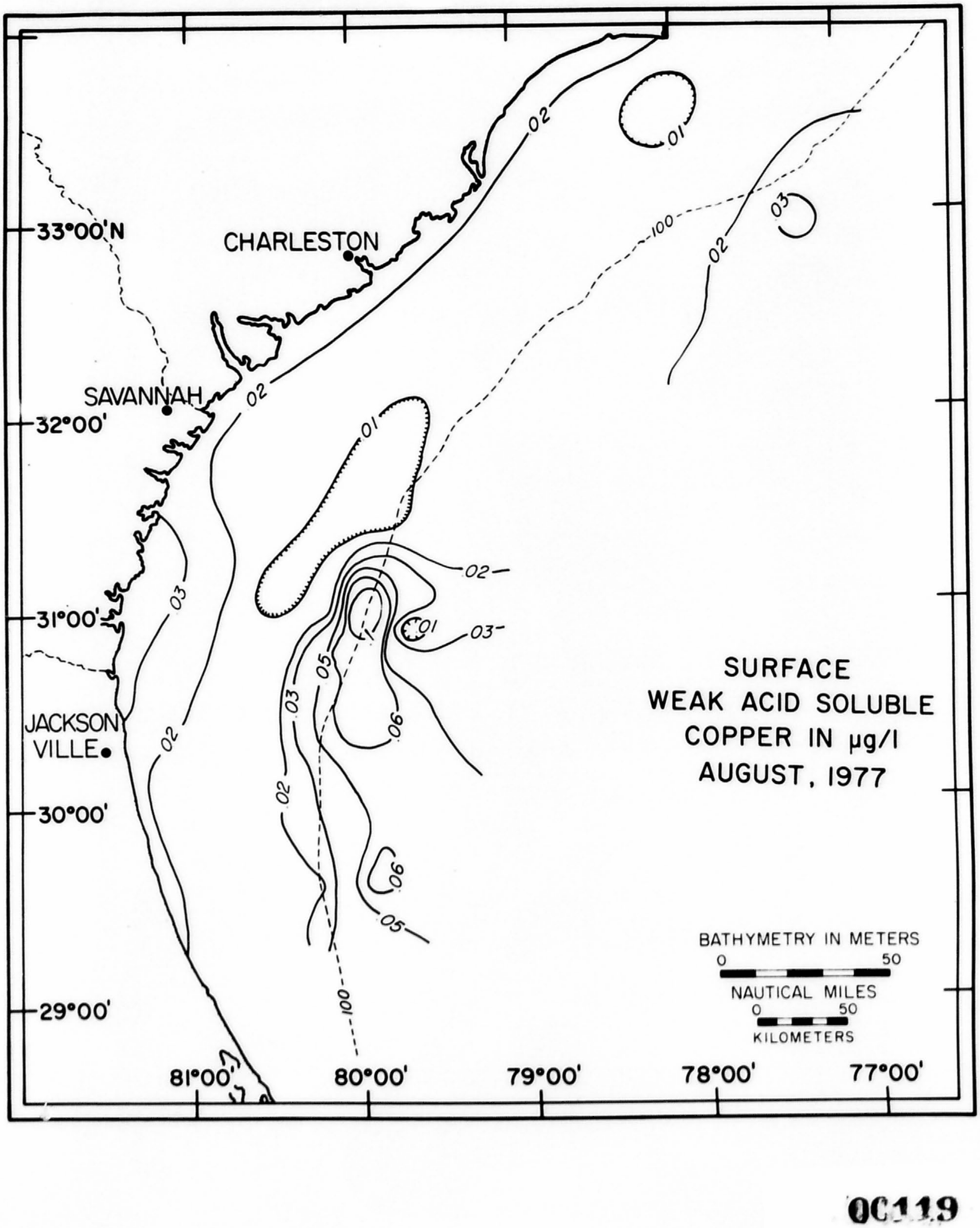

33°00'N
CHARLESTON
SAVANNAH
32°00'
31°00'
JACKSON
VILLE
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
.0005
.001
.002
.003
.004
.005
.006
100
SURFACE
WEAK ACID SOLUBLE
CADMIUM IN µg/l
AUGUST, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00117

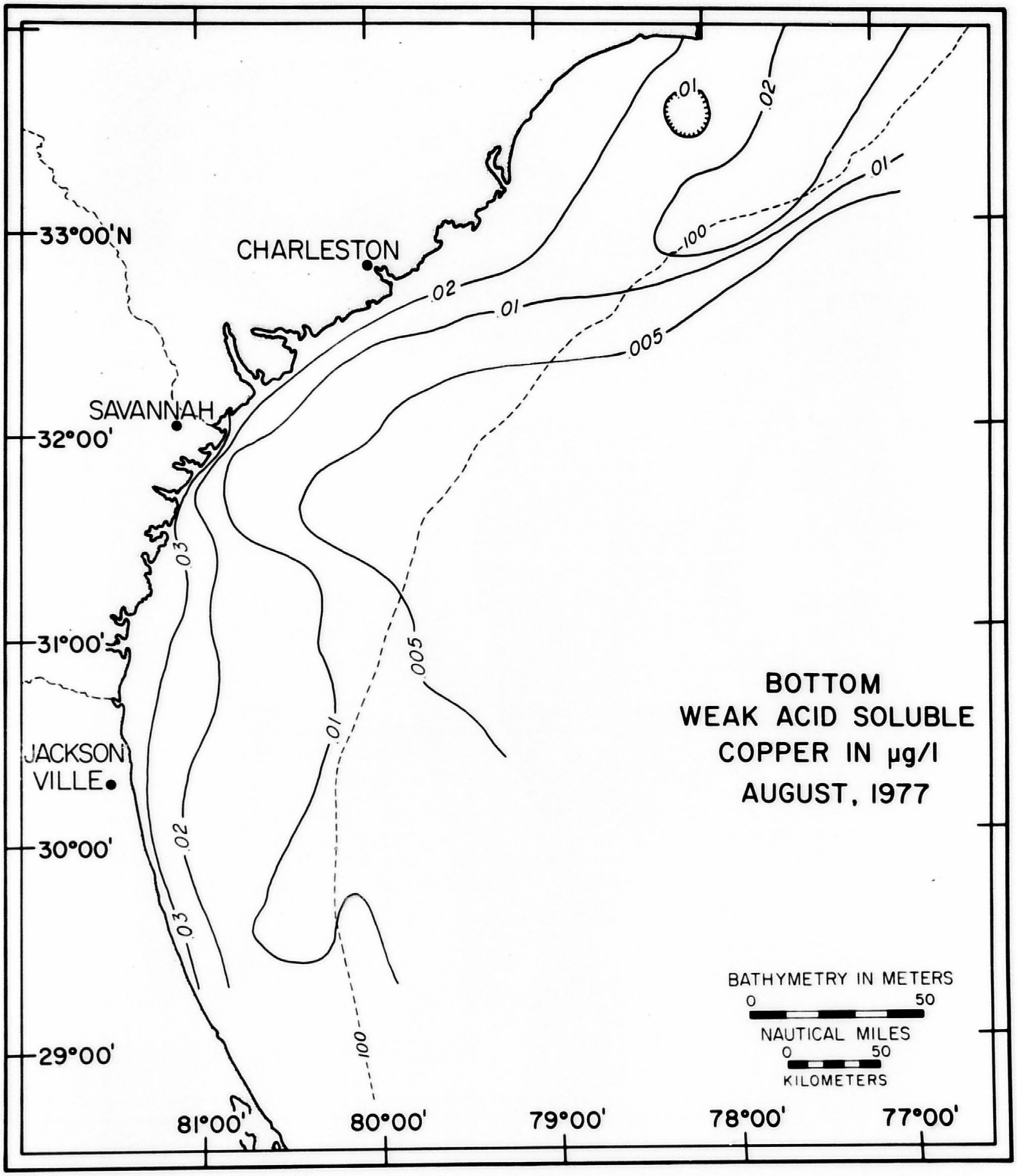


33°00'N
CHARLESTON
SAVANNAH
32°00'
31°00'
JACKSON VILLE
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
.004
.003
.002
.001
100
BOTTOM
WEAK ACID SOLUBLE
CADMIUM IN µg/l
AUGUST, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00118

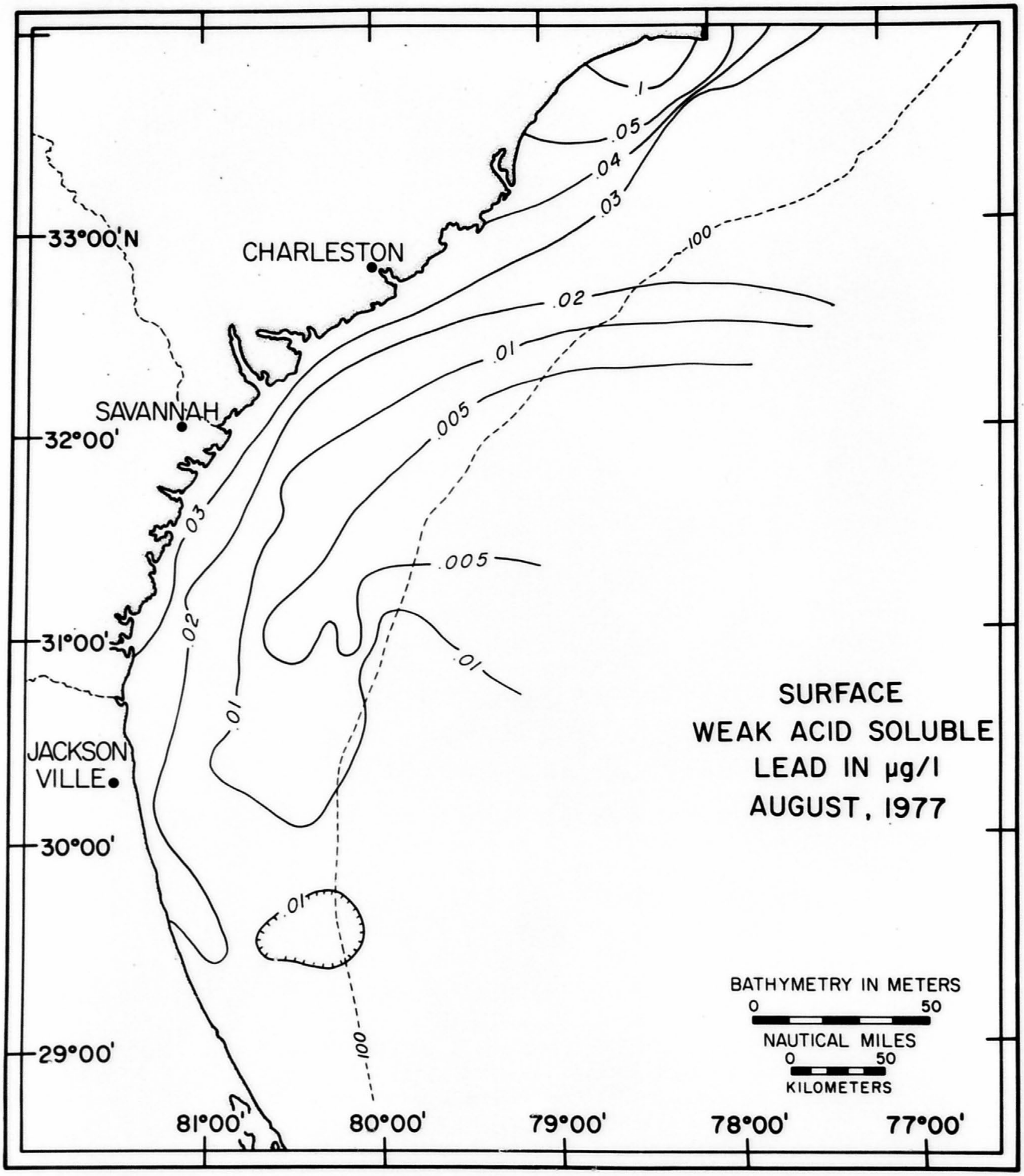

SURFACE
WEAK ACID SOLUBLE
COPPER IN µg/l
AUGUST, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS
02
01
03
100
05
06

OC119



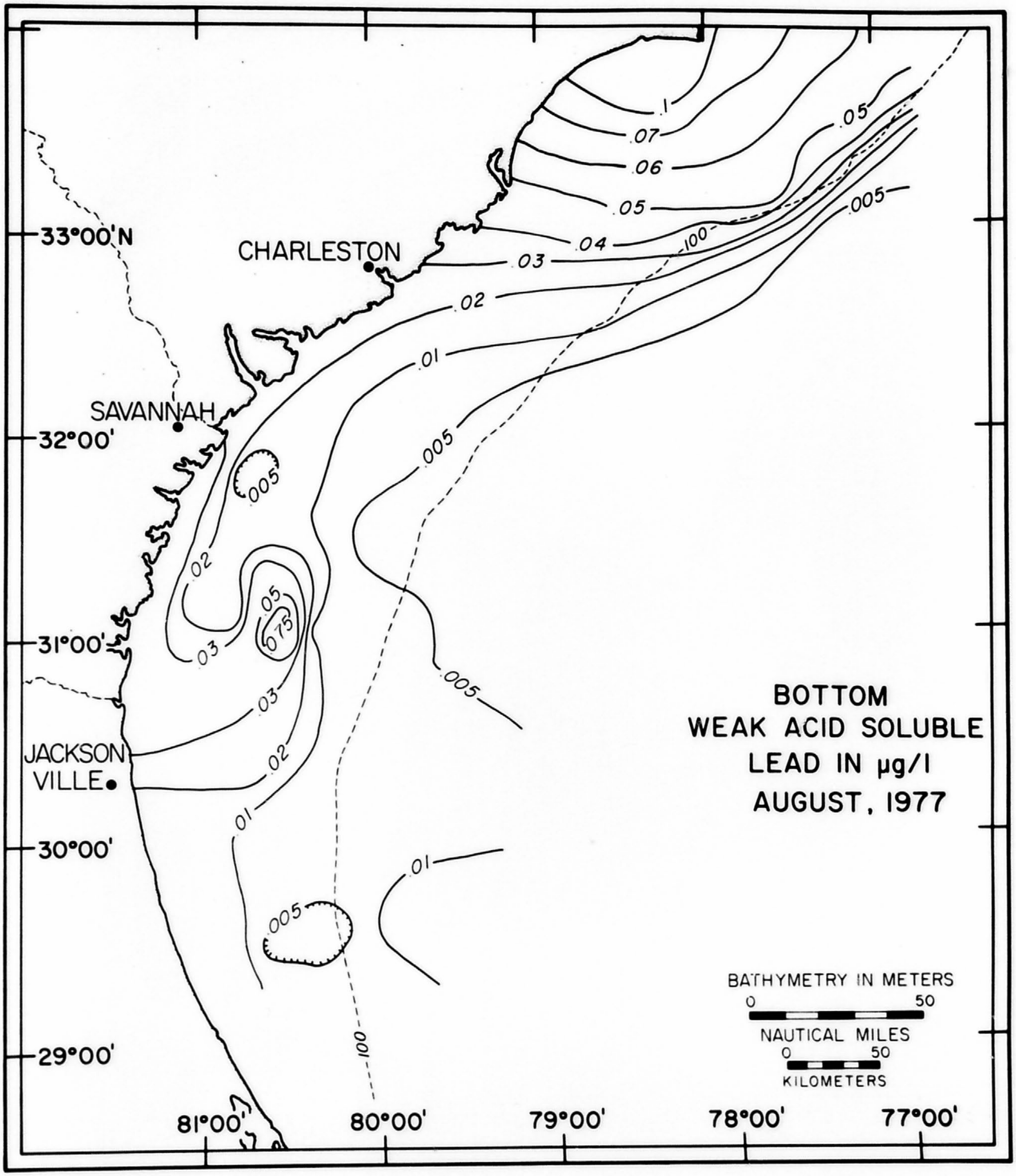
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
.02
.01
.005
.03
100
BOTTOM
WEAK ACID SOLUBLE
COPPER IN μg/l
AUGUST, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00120



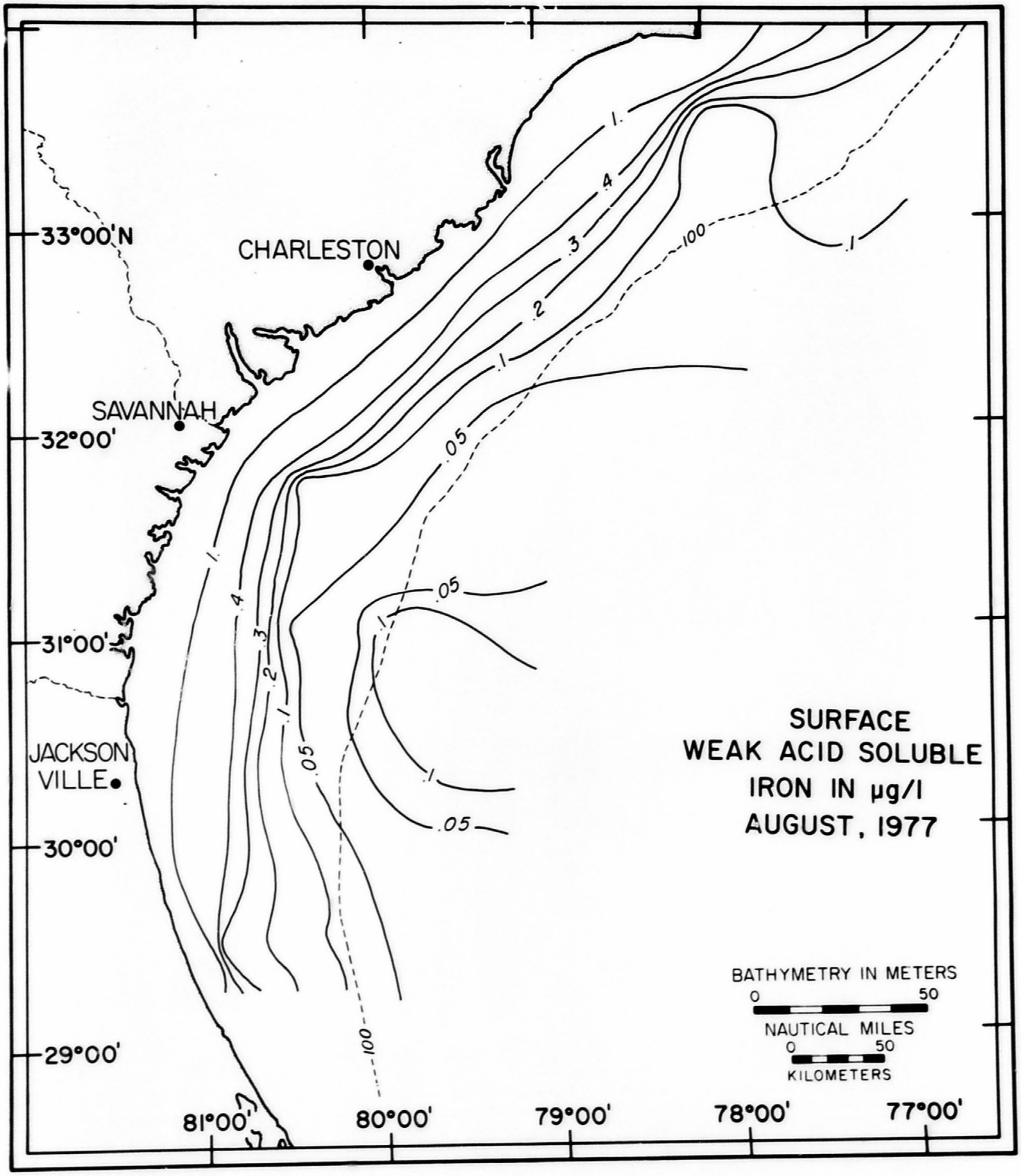
SURFACE
WEAK ACID SOLUBLE
LEAD IN µg/l
AUGUST, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
.1
.05
.04
.03
.02
.01
.005
100
BATHYMETRY IN METERS
0 50
NAUTICAL MILES
0 50
KILOMETERS

00121



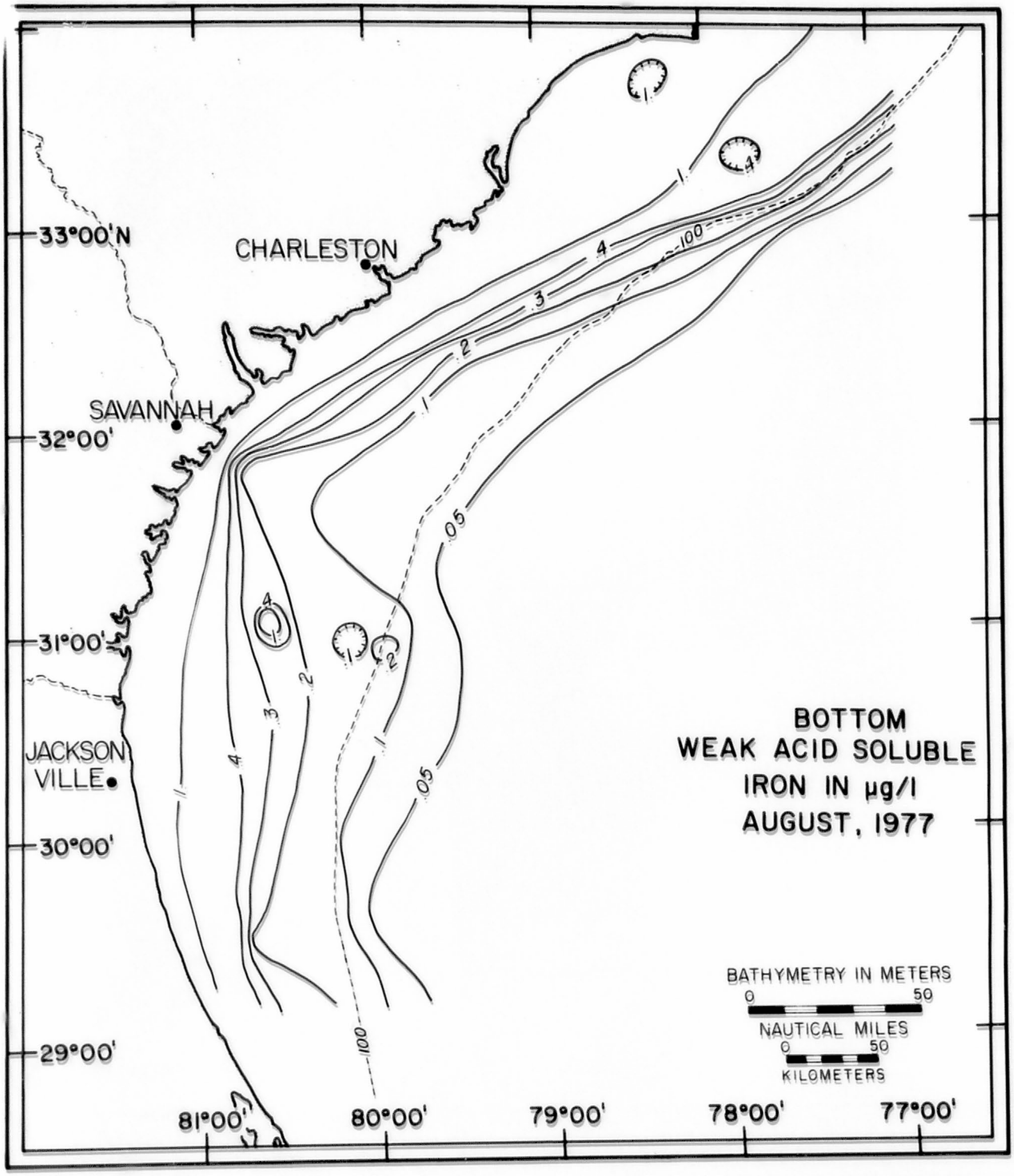
BOTTOM
WEAK ACID SOLUBLE
LEAD IN μg/l
AUGUST, 1977
CHARLESTON
SAVANNAH
JACKSON VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
NAUTICAL MILES
KILOMETERS

0C122

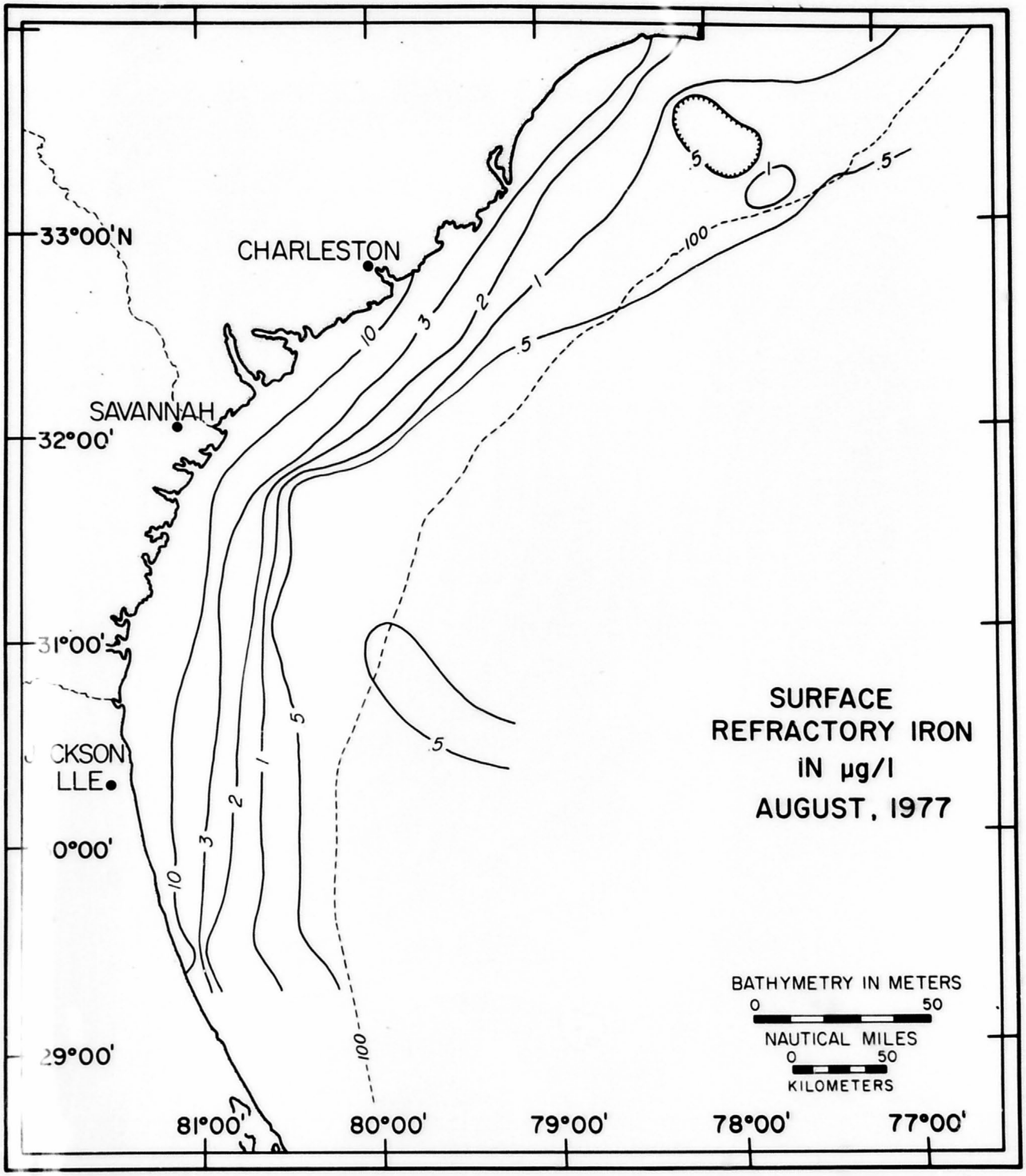


SURFACE
WEAK ACID SOLUBLE
IRON IN µg/l
AUGUST, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
100
.1
.4
.3
.2
.05
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00123

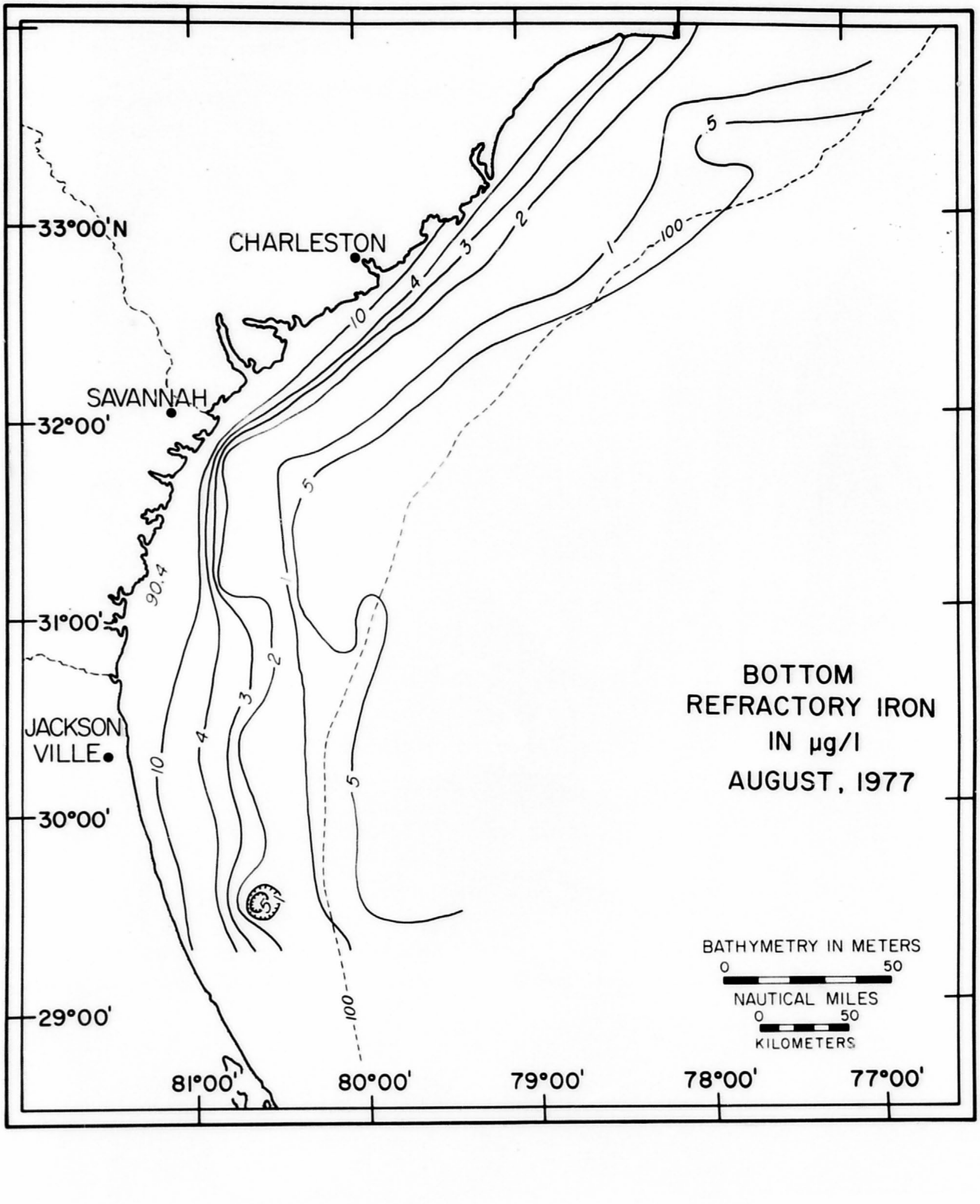

BOTTOM
WEAK ACID SOLUBLE
IRON IN µg/l
AUGUST, 1977
CHARLESTON
SAVANNAH
JACKSONVILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
0 50
NAUTICAL MILES
0 50
KILOMETERS

00124



33°00'N
CHARLESTON
SAVANNAH
32°00'
31°00'
JACKSON
LLE
0°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
10
3
2
1
.5
100
SURFACE
REFRACTORY IRON
IN µg/l
AUGUST, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00125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JACKSON VILLE
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31°00'
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80°00'
79°00'
78°00'
77°00'
BOTTOM REFRACTORY IRON IN µg/l AUGUST, 1977
BATHYMETRY IN METERS
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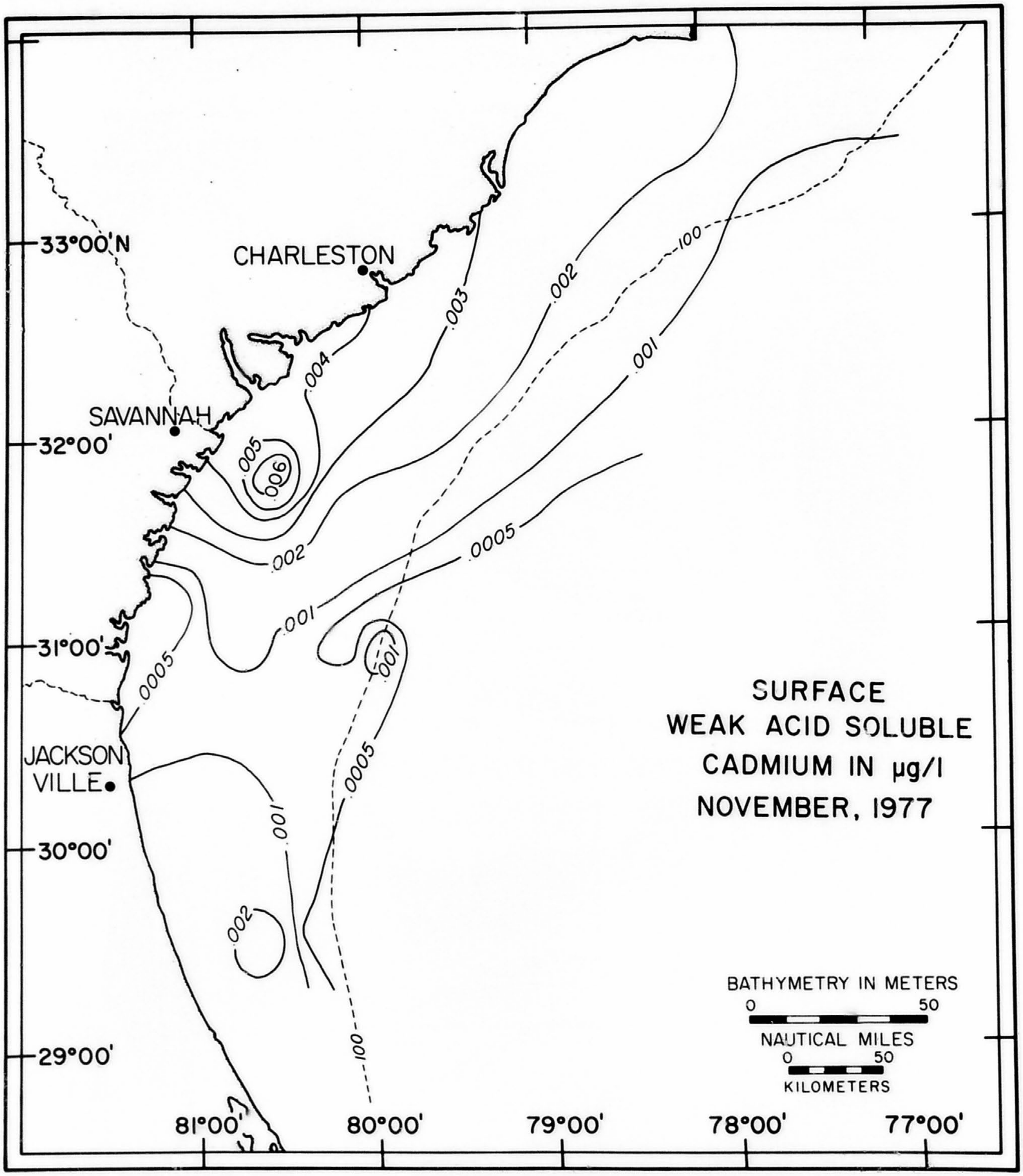
NAUTICAL MILES
0 50
KILOMETERS

00126

APPENDIX 2-9

TRACE-METAL DISTRIBUTION

NOVEMBER 1977



SURFACE
WEAK ACID SOLUBLE
CADMIUM IN µg/l
NOVEMBER, 1977
CHARLESTON
SAVANNAH
JACKSON VILLE
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32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
.003
.002
.001
.004
.005
.006
.0005
100
BATHYMETRY IN METERS
0
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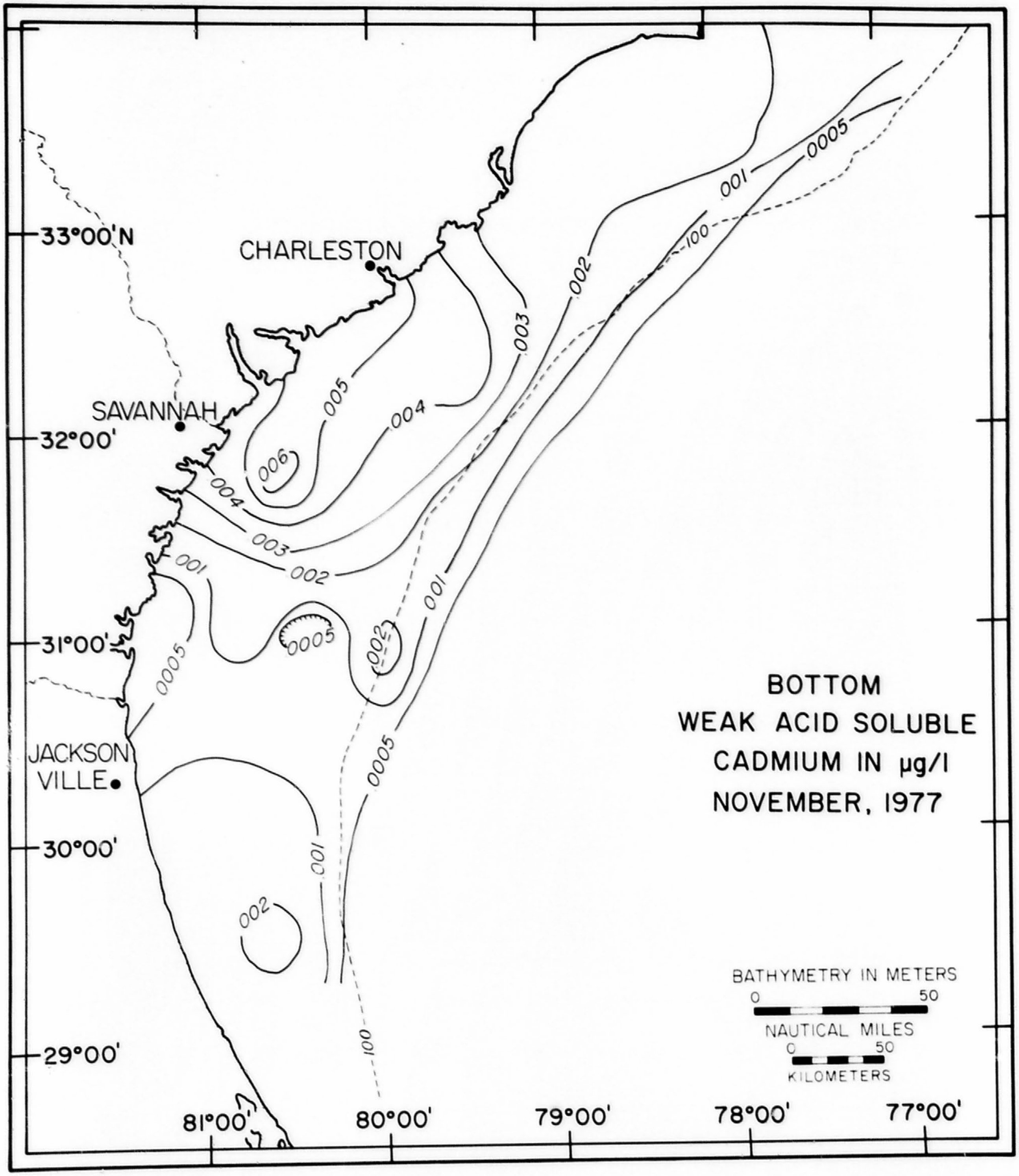
NAUTICAL MILES
0
50
KILOMETERS

00128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CADMIUM IN µg/l
NOVEMBER, 1977
CHARLESTON
SAVANNAH
JACKSON VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
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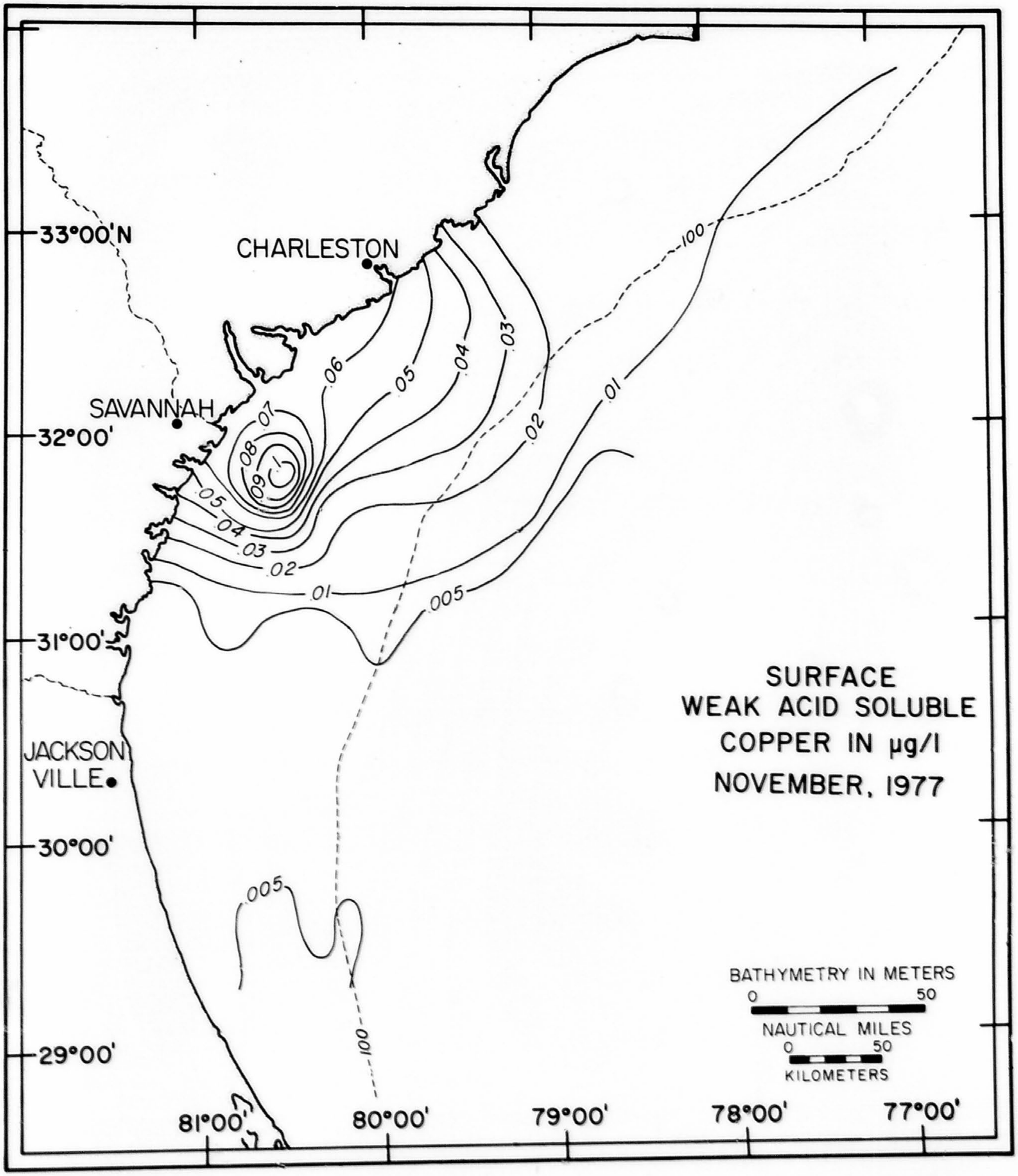
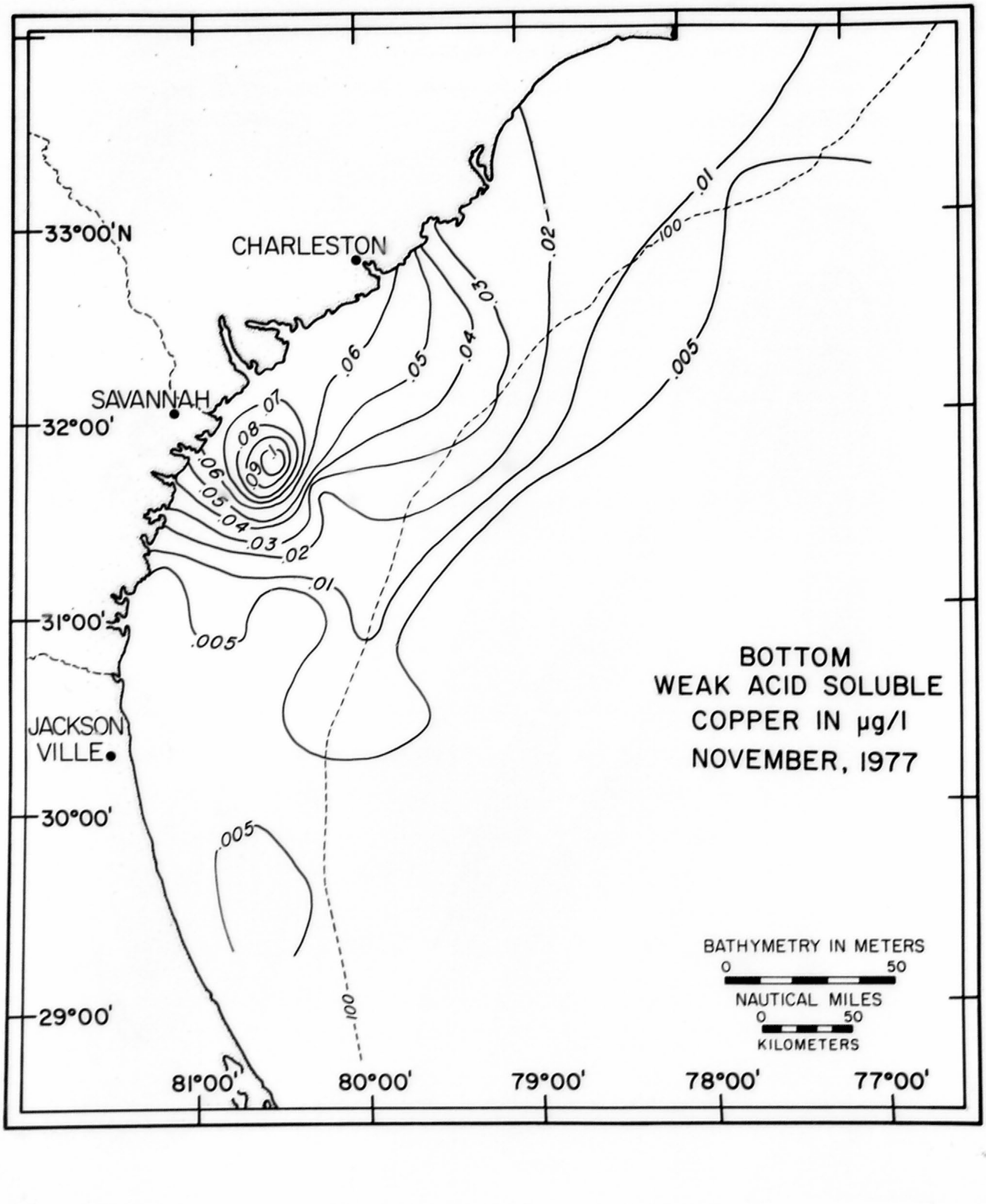
NAUTICAL MILES
0 50
KILOMETERS
.0005
.001
.002
.003
.004
.005
.006
100



33°00'N
CHARLESTON
SAVANNAH
32°00'
31°00'
JACKSON VILLE
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
100
.06
.05
.04
.03
.07
.08
.09
.1
.05
.04
.03
.02
.01
.02
.01
.005
.005
100
SURFACE
WEAK ACID SOLUBLE
COPPER IN µg/l
NOVEMBER, 1977
BATHYMETRY IN METERS
0 50
NAUTICAL MILES
0 50
KILOMETERS

00136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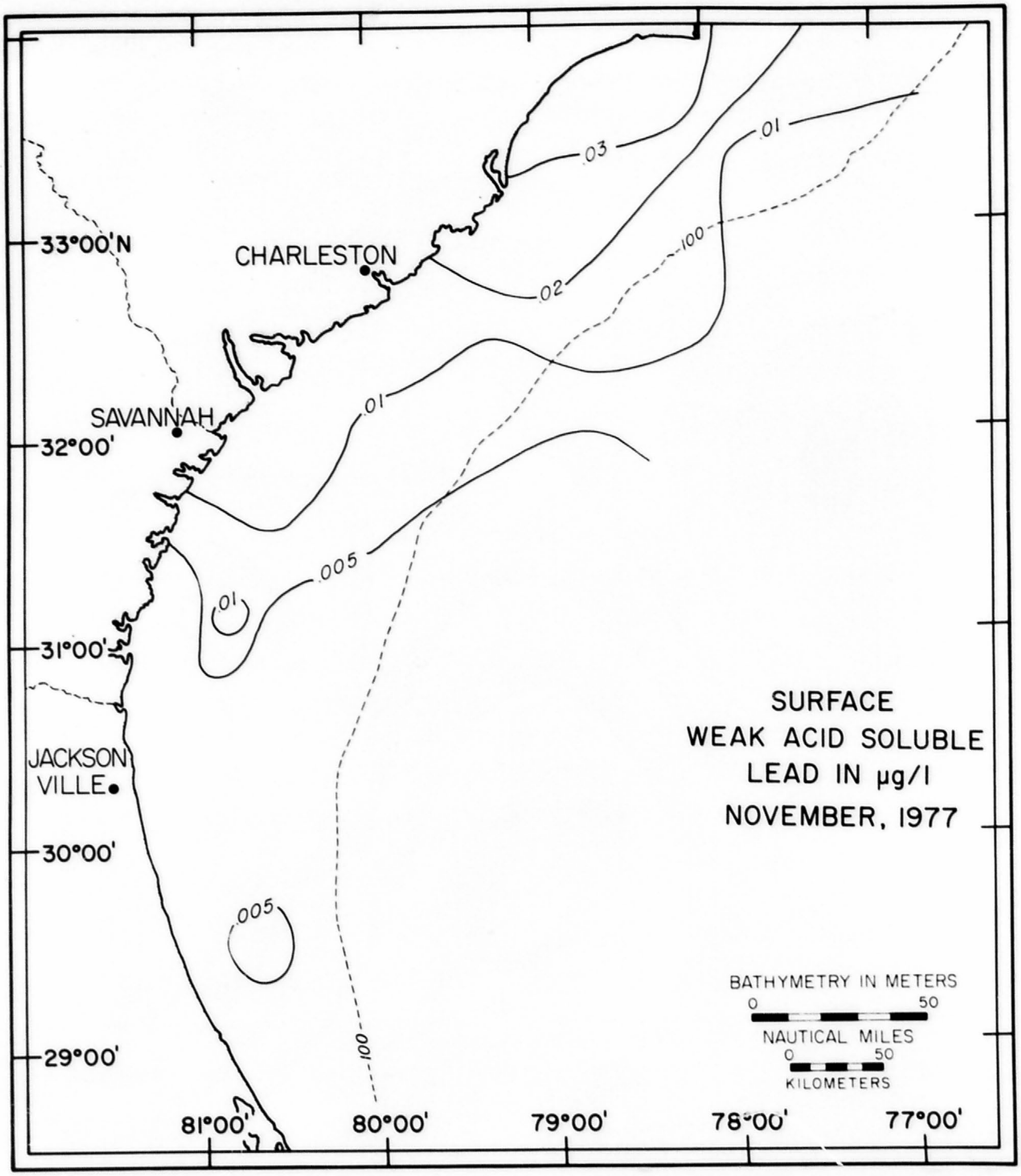
WEAK ACID SOLUBLE
COPPER IN µg/l
NOVEMBER, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS
.01
.02
.03
.04
.05
.06
.07
.08
.09
.1
.005
100



.03
.01
100
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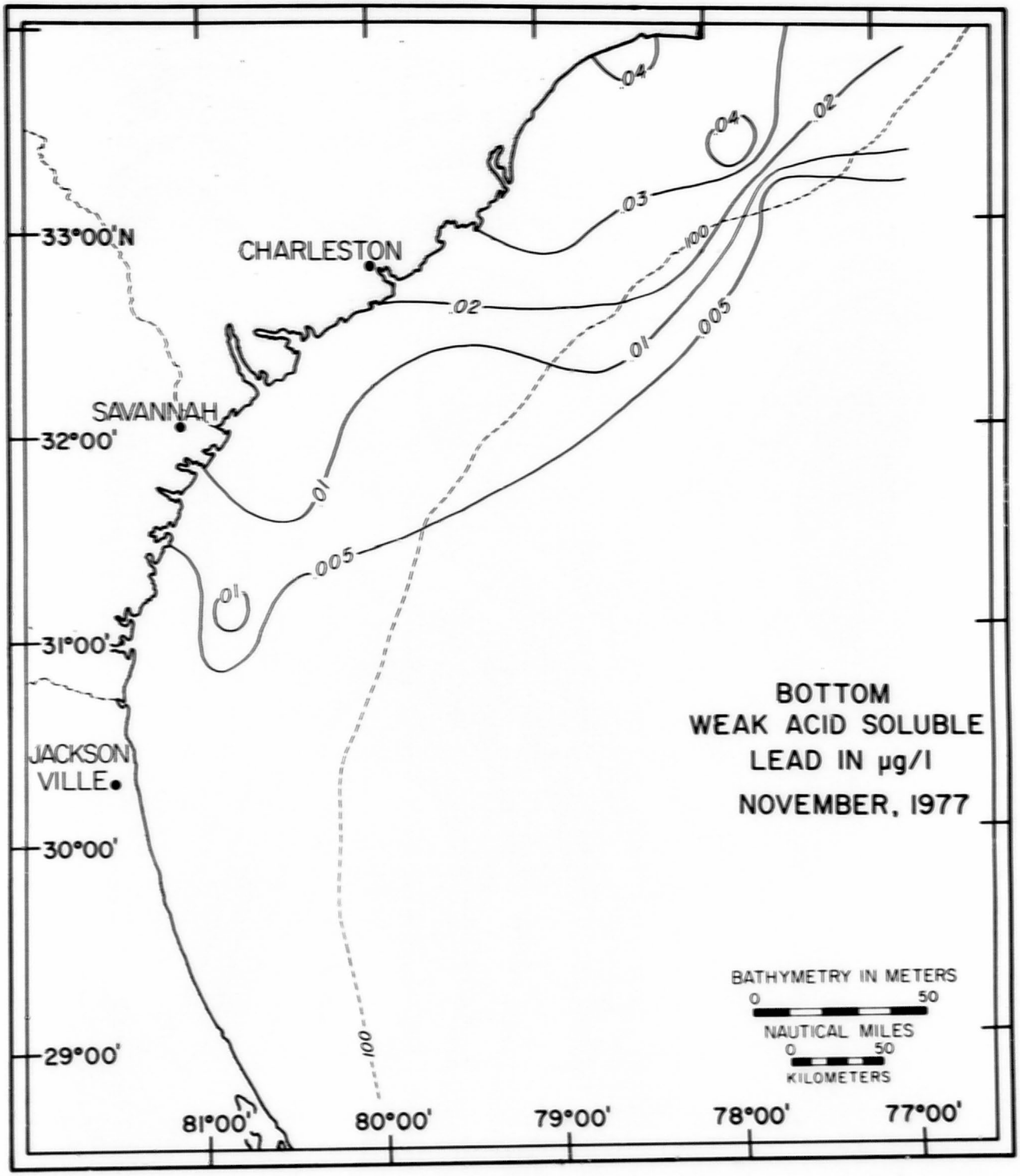
33°00'N
.02
SAVANNAH
.01
32°00'
.005
.01
31°00'
JACKSON
VILLE
30°00'
.005
100
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
SURFACE
WEAK ACID SOLUBLE
LEAD IN µg/l
NOVEMBER, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS



CHARLESTON
SAVANNAH
JACKSON VILLE
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30°00'
29°00'
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80°00'
79°00'
78°00'
77°00'
.04
.04
.02
.03
100
.02
.01
.005
.01
.005
.01
100
BOTTOM
WEAK ACID SOLUBLE
LEAD IN µg/l
NOVEMBER, 1977
BATHYMETRY IN METERS
0
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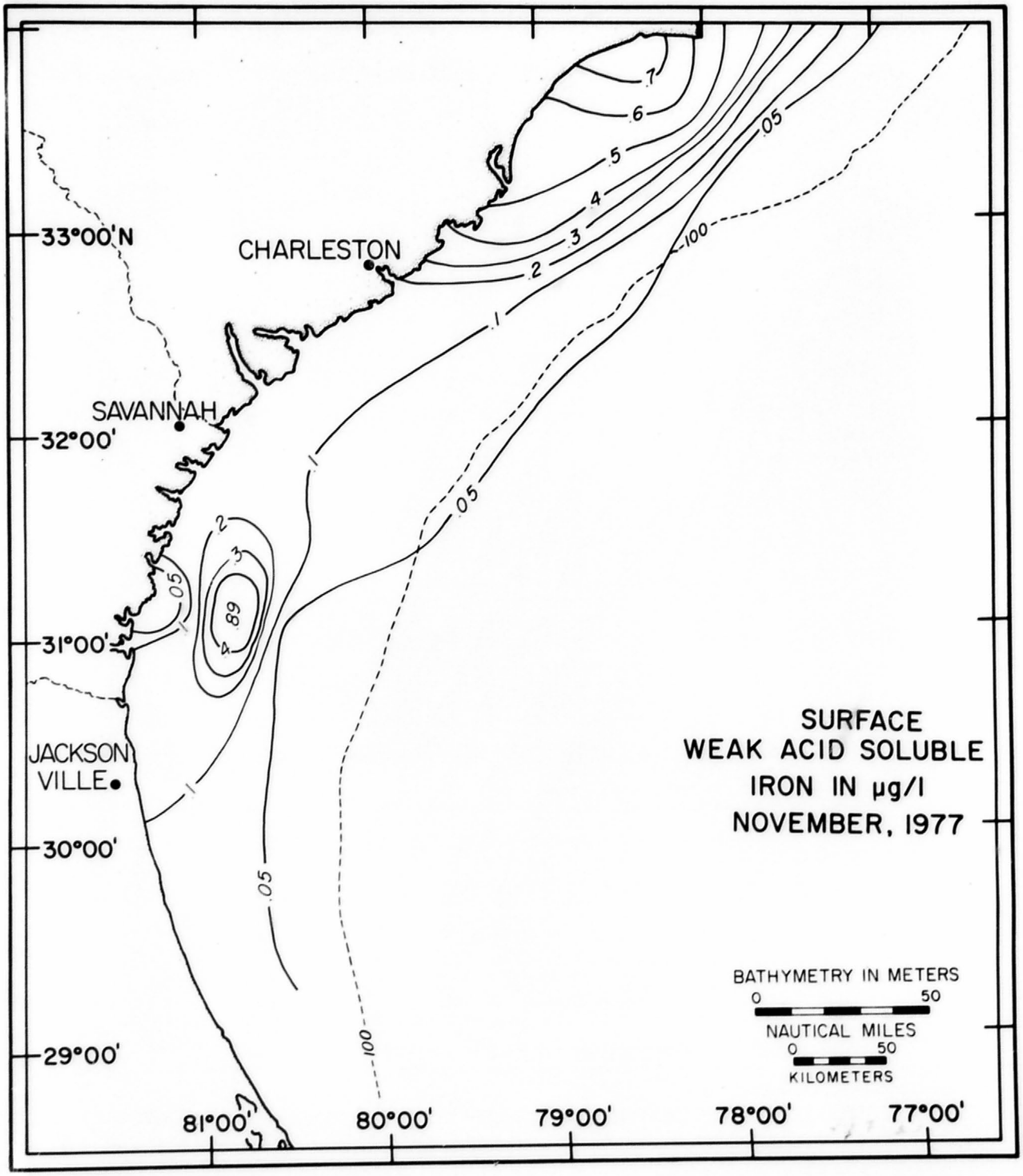
NAUTICAL MILES
0
50
KILOMETERS

00133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JACKSON
VILLE
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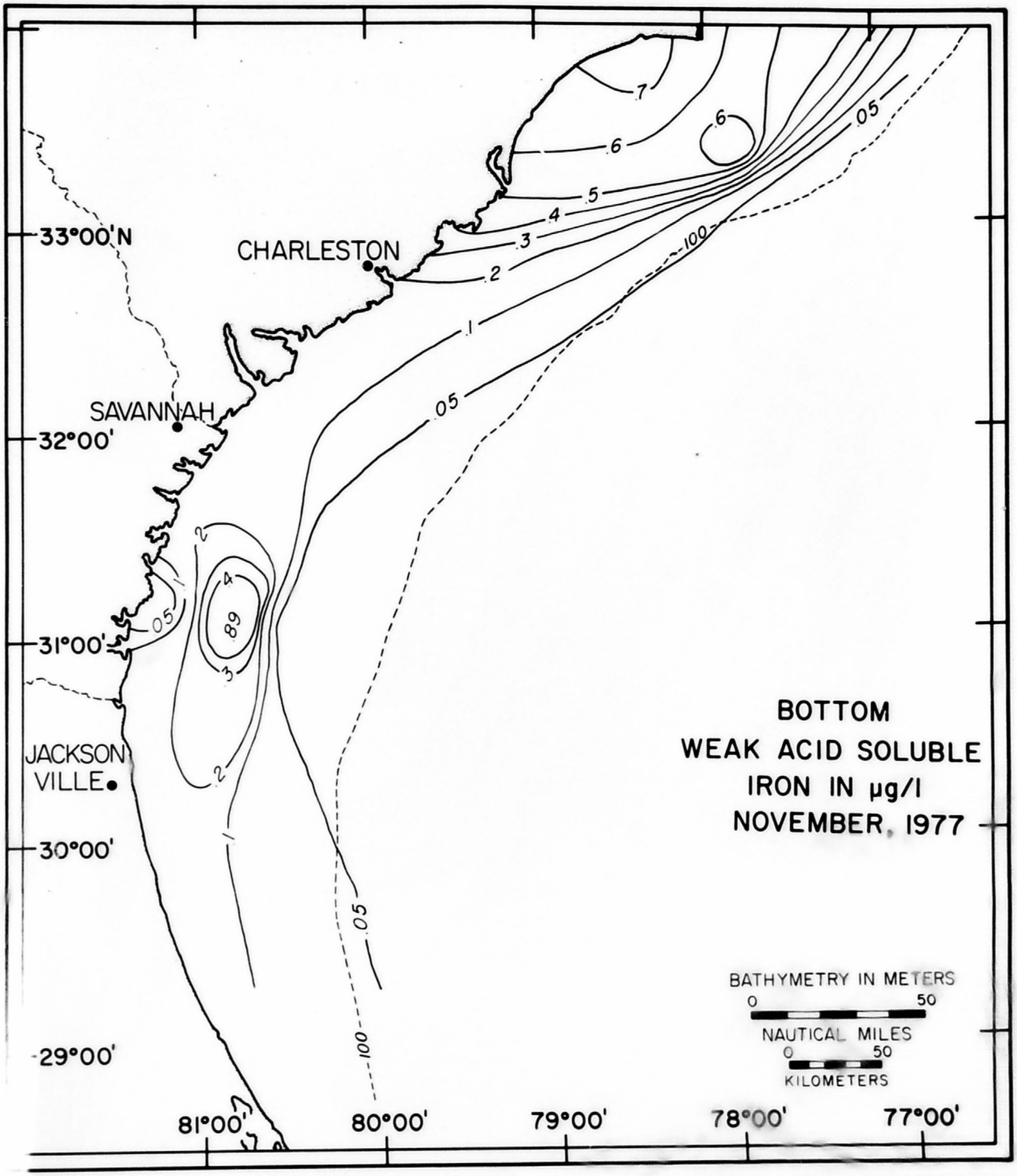
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
SURFACE
WEAK ACID SOLUBLE
IRON IN µg/l
NOVEMBER, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS
.7
.6
.5
.4
.3
.2
.1
.05
100
.89

00134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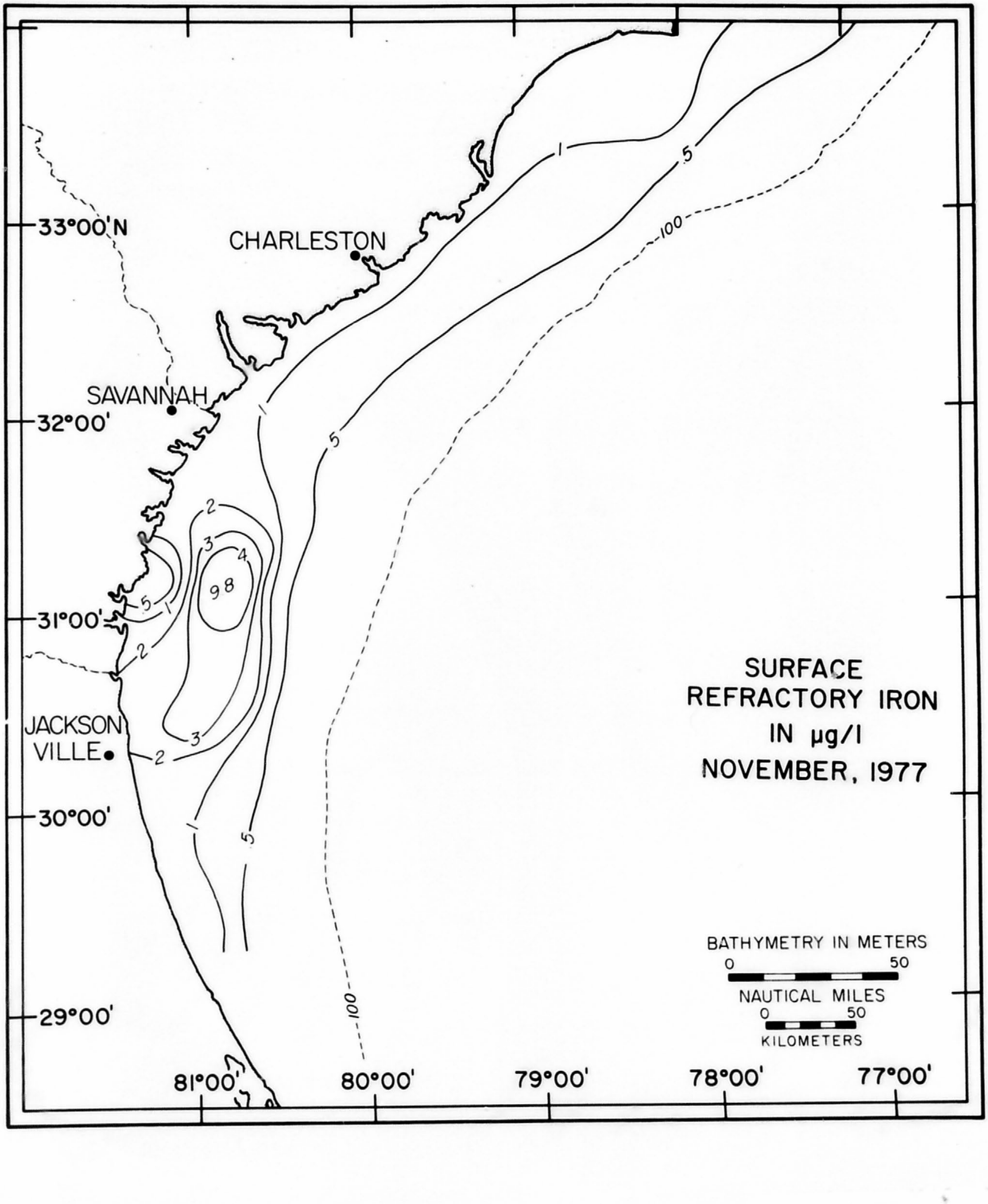
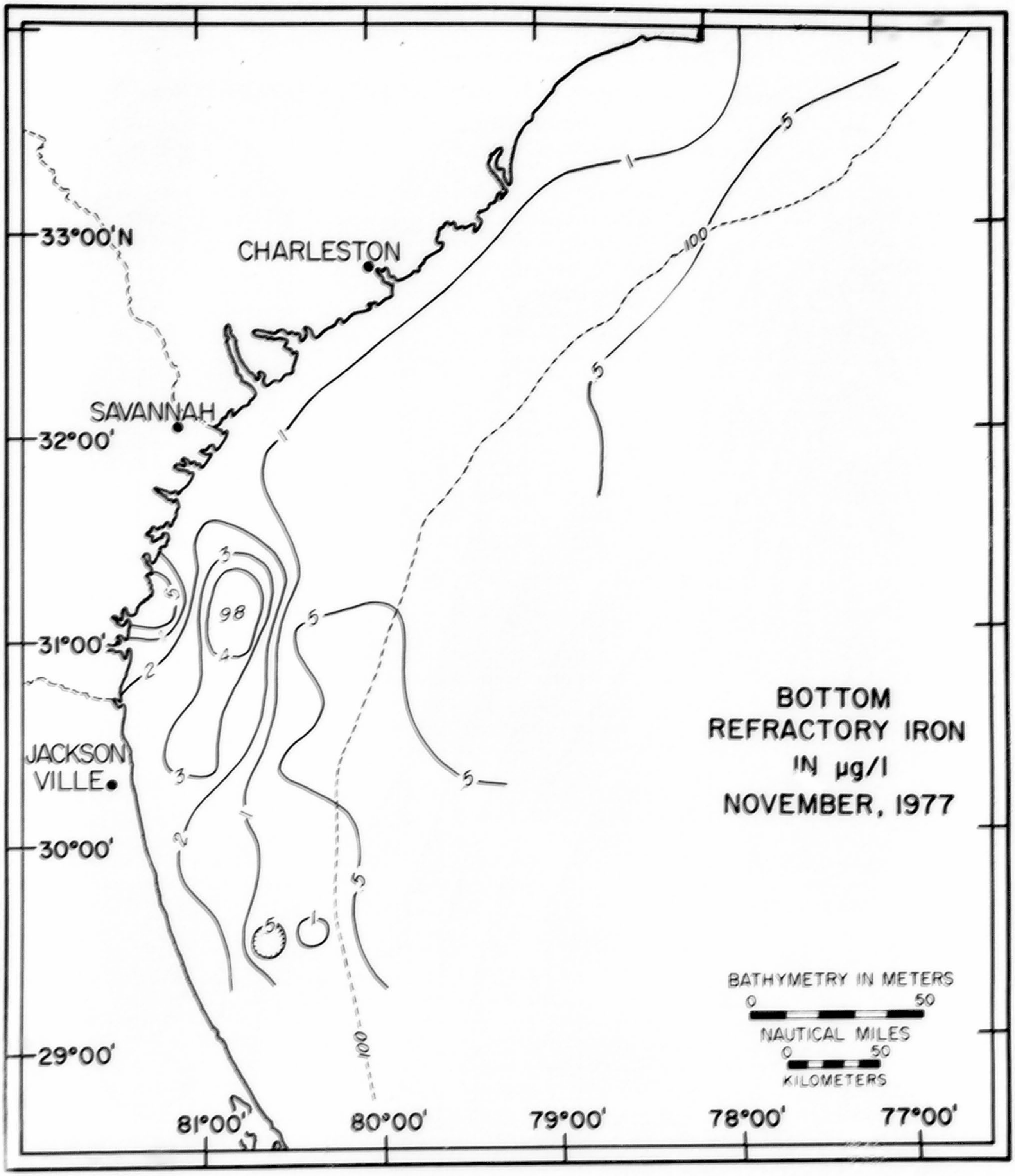
80°00'
79°00'
78°00'
77°00'
CHARLESTON
SAVANNAH
JACKSON
VILLE
.7
.6
.6
.5
.4
.3
.2
.1
.05
.05
.05
.05
100
100
.2
.4
.89
.3
.2
.1
.1
BOTTOM
WEAK ACID SOLUBLE
IRON IN μg/l
NOVEMBER, 1977
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS


SURFACE
REFRACTORY IRON
IN µg/l
NOVEMBER, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
1
5
100
2
3
4
9.8
BATHYMETRY IN METERS
0
50
NAUTICAL MILES
0
50
KILOMETERS

00136


BOTTOM
REFRACTORY IRON
IN µg/l
NOVEMBER, 1977
CHARLESTON
SAVANNAH
JACKSON
VILLE
33°00'N
32°00'
31°00'
30°00'
29°00'
81°00'
80°00'
79°00'
78°00'
77°00'
BATHYMETRY IN METERS
0 50
NAUTICAL MILES
0 50
KILOMETERS

00137

APPENDIX 3

^{210}PB IN SEDIMENT CORES FROM THE ATLANTIC CONTINENTAL SHELF:

ESTIMATES OF RATES OF SEDIMENT MIXING

Table 1. ^{210}Pb and Sediment Characteristics of Core Samples from Georges Bank and the Continental Shelf South of Martha's Vineyard and Nantucket Island.

Core No.	Latitude	Longitude	% Water	Water Depth (m)	Sediment Depth (cm)	Total ^{210}Pb ±	1 σ Counting Error	% Gravel	% Sand	% Silt	%Clay
4507E	40°11.3'N	69°47.2'W	32.77	91	0 - 1	3.75	.15	0.0	75.7	21.6	2.7
			31.81		4.5	5.85	.21	0.0	77.0	19.9	3.1
			31.43		9.0	5.25	.19	0.0	70.0	26.9	3.1
			32.3[illegible]		13.5	6.29	.21	0.0	61.8	34.8	3.4
			27.69		18.0	3.24	.12	0.0	69.6	27.3	3.2

Excess ^{210}Pb Inventory: 97 dpm

Estimated Background ^{210}Pb Activity: .58 dpm/g

Table 1. ^{210}Pb and Sediment Characteristics of Core Samples from Georges Bank and the Continental Shelf South of Martha's Vineyard and Nantucket Island (cont.)

Core No.	Latitude	Longitude	% Water	Water Depth (m)	Sediment Depth (cm)	Total ^{210}Pb ±	1 σ Counting Error	% Gravel	% Sand	% Silt	%Clay
4508A	40°22.0'N	70°03.6'W		82	1.5	4.79	.16		65.2	30.8	4.0
					3.0	5.24	.20		68.4	27.6	4.0
					4.5	5.18	.20		63.6	33.0	3.4
					6.0	4.80	.25		67.8	29.3	2.3
					7.5	4.62	.25		65.7	30.6	3.7
					9.0	4.08	.21		65.7	31.0	3.3
					10.0	3.50	.11		67.9	28.9	3.1
					10.5	3.09	.14				
					12.5	2.53	.10		64.3	32.0	3.7
					13.0	2.33	.11				
					13.5	3.24	.12		64.6	31.8	3.5
					15.0	1.91	.10		63.3	32.4	4.3
					16.5	1.49	.11		65.3	31.2	3.5
					18.0	1.82	.07		65.9	31.1	3.0
					20.0	2.04	.10		65.0	31.4	3.6
					20.5	2.596	.11				
					21.0	1.37	.05				
					22.0	1.19	.05		64.0	32.3	3.7

Excess ^{210}Pb Inventory: 51.6 dpm

Estimated Background ^{210}Pb Activity: 0.72 dpm/g

Table 1. ^{210}Pb and Sediment Characteristics of Core Samples from Georges Bank and the Continental Shelf South of Martha's Vineyard and Nantucket Island (cont.)

Core No.	Latitude	Longitude	% Water	Water Depth (m)	Sediment Depth (cm)	Total ^{210}Pb ±	1σ Counting Error	% Gravel	% Sand	% Silt	% Clay
4521B	41°32.6'N	67°40.3'W	16.5	31	2 - 3	.137	.007		100		
			18.5		6.5 - 7.5	.143	.007		100		
			13.4		10.5 - 12	.192	.008		100		
			11.3		13 - 14	.150	.014		100		
			16.8		18.5 - 19.5	.205	.008		100		
			16.8		22 - 23	.170	.014		100		

Excess ^{210}Pb Inventory: none

Estimated Background ^{210}Pb Activity: .166 dpm/g

Table 1. ^{210}Pb and Sediment Characteristics of Core Samples from Georges Bank and the Continental Shelf South of Martha's Vineyard and Nantucket Island (cont.)

Core No.	Latitude	Longitude	% Water	Water Depth (m)	Sediment Depth (cm)	Total ^{210}Pb ±	1 σ Counting Error	% Gravel	% Sand	% Silt	% Clay
4527D	40°51.0'N	70°31.0'W	39.1	54	0 - 1	4.26	.14	0.0	49.8	41.7	8.5
			34.2		1 - 3	3.46	.07				
			30.7		3 - 5	2.73	.11				
			31.2		5 - 7	3.59	.12				
			29.0		9 - 11	2.87	.10	0.0	56.4	36.8	6.9
			27.5		17 - 19	1.86	.08	0.56	56.5	38.2	4.8
			25.7		21 - 23	1.32	.07				
			25.2		25 - 27	0.77	.03	0.0	57.2	36.1	6.7
			22.3		29 - 31	0.57	.04				
			22.7		33 - 35	0.58	.02	0.78	63.7	30.8	4.7
			23.1		37 - 39	0.60	.02				
			21.8		41 - 43	0.52	.03	1.2	64.6	27.5	6.7

Excess ^{210}Pb Inventory: 54 dpm

Estimated Background ^{210}Pb Activity: .57 dpm/g

Table 1. ^{210}Pb and Sediment Characteristics of Core Samples from Georges Bank and the Continental Shelf South of Martha's Vineyard and Nantucket Island (cont.)

Core No.	Latitude	Longitude	% Water	Water Depth (m)	Sediment Depth (cm)	Total ^{210}Pb ±	1 σ Counting Error	% Gravel	% Sand	% Silt	% Clay
4711[1]	40°30.0'N	71°00.0'W		81							

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[1]Piston Core

Table 1. ^{210}Pb and Sediment Characteristics of Core Samples from Georges Bank and the Continental Shelf South of Martha's Vineyard and Nantucket Island (cont.)

Core No.	Latitude	Longitude	% Water	Water Depth (m)	Sediment Depth (cm)	Total ^{210}Pb ±	1 σ Counting Error	% Gravel	% Sand	% Silt	% Clay
4712	40°30.01'N	71°00.0'W	54.47	81	0 - 2	9.49	.31	0.00	3.2	81.9	14.3
			49.67		4 - 6	7.35	.23				
			47.75		8 - 10	4.87	.17	0.00	4.0	76.7	19.3
			45.95		12 - 14	4.22	.15				
					14 - 16	3.56	.15				
			46.51		16 - 18	3.38	.13				
					18 - 20	2.96	.12	0.00	6.4	77.8	15.8
			43.99		20 - 22	1.50	.07				
					22 - 24	1.05	.06				
			42.65		24 - 26	0.90	.05	0.00	3.6	79.6	16.8
					26 - 28	0.91	.05				
			43.56		28 - 30	1.15	.06	0.00	7.0	68.3	24.8
					30 - 32	1.05	.05				
			42.06		32 - 34	.66	.03	.00	4.2	72.2	23.5
			41.97		40 - 42	0.73	.05				
			43.62		50 - 52	0.86	.05	0.00	2.7	74.0	23.3

Excess ^{210}Pb Inventory: 71 dpm

Estimated Background ^{210}Pb Activity: .75 dpm/g

Table 1. ^{210}Pb and Sediment Characteristics of Core Samples from Georges Bank and the Continental Sheif South of Martha's Vineyard and Nantucket Island (cont.)

Core No.	Latitude	Longitude	% Water	Water Depth (m)	Sediment Depth (cm)	Total ^{210}Pb±	1 σ Counting Error	% Gravel	% Sand	% Silt	% Clay
4714	40°21.4'N	71°30.5'W	48.26	83	0 - 2	7.93	.27	0.0	31.6	60.9	7.5
			38.35		4 - 6	5.15	.19				
			38.97		8 - 10	3.10	.13				
			36.64		10 - 12	2.24	.09				
			36.86		12 - 14	1.39	.07				
			35.90		14 - 16	0.72	.05	0.10	40.2	52.2	7.5
			37.86		16 - 18	1.25	.06				
			36.44		18 - 20	1.46	.07	2.1	38.4	49.4	10.2
			35.10		20 - 22	0.64	.04				
			33.18		22 - 24	0.56	.04				
			32.64		24 - 26	0.44	.03	4.8	38.9	45.8	10.5
			32.09		28 - 30	0.50	.04				
			32.55		34 - 36	0.53	.03				
			34.59		40 - 42	0.56	.03	0.8	38.8	51.1	9.4
			31.26		44 - 46	0.56	.03				
			32.55		54 - 56	0.55	.03	1.0	41.8	40.3	16.9

Excess ^{210}Pb Inventory: 53 dpm

Estimated Background ^{210}Pb Activity: .52 dpm/g

Table 1. ^{210}Pb and Sediment Characteristics of Core Samples from Georges Bank and the Continental Shelf South of Martha's Vineyard and Nantucket Island (cont.)

Core No.	Latitude	Longitude	% Water	Water Depth (m)	Sediment Depth (cm)	Total ^{210}Pb ±	1 σ Counting Error	% Gravel	% Sand	% Silt	% Clay
4722[1]	40°27.6'N	70°32.7'W		77							

---

[1]Piston Core

Table 2. ^{210}Pb and Sediment Characteristics of Core Samples from the Continental Shelf off the Middle Atlantic States.

Core No.	Latitude	Longitude	% Water	Water Depth (m)	Sediment Depth (cm)	Total ^{210}Pb ±	1 σ Counting Error	% Gravel	% Sand	% Silt	% Clay
AII 89-098	39°23.9′N	73°16.9′W		49	1	2.15	.09				
					1.5	1.74	.08		97.7	1.2	1.1
					4	1.62	.07		98.5	0.7	0.8
					6	1.19	.04				
					8	.76	.04		99.0	0.4	0.6
					10	.56	.03		99.3	0.4	0.3
					15	.32	.02				
					20	.50	.03		99.3	0.3	0.4
					25	.16	.02	3.18	92.9	2.2	0.9
					33	.14	.02		98.1	1.1	0.9

Excess ^{210}Pb Inventory: 23 dpm

Estimated Background ^{210}Pb Activity: .19 dpm/g

Table 2. ^{210}Pb and Sediment Characteristics of Core Samples from the Continental Shelf off the Middle Atlantic States (cont.)

Core No.	Latitude	Longitude	% Water	Water Depth (m)	Sediment Depth (cm)	Total ^{210}Pb ±	1 σ Counting Error	% Gravel	% Sand	% Silt	% Clay
AII 89-119	39°27.6'N	73°01.9'W		58	0 - 0.5	.98	.05				
					1	1.03	.06		99.88	.05	.07
					3	1.08	.06		99.39	.55	.06
					6	1.02	.06		99.81	.11	.08
					7.5	.84	.06				
					9	.68	.05		99.89	.07	.04
					10.5	.77	.05				
					11	.55	.04				
					12	.36	.03		99.89	.05	.06
					12	.68?	.04?				
					13	.29	.02				
					14	.29	.02				
					15	.30	.03		99.91	.04	.05
					18	.13	.02				
					20	.10	.02				
					21	.13	.02		99.8	0.1	0.1

Excess ^{210}Pb Inventory: 18.5 dpm

Estimated Background ^{210}Pb Activity: 0.1 dpm/g

Table 2. ^{210}Pb and Sediment Characteristics of Core Samples from the Continental Shelf off the Middle Atlantic States (cont.)

Core No.	Latitude	Longitude	% Water	Water Depth (m)	Sediment Depth (cm)	Total ^{210}Pb ±	1 σ Counting Error	% Gravel	% Sand	% Silt	% Clay
AII 89-115	38°33.5'N	73°31.1'W	17.62	74	0 - 2	2.54	.13		99.0	0.7	0.4
			17.04		4 - 6	1.08	.08		98.5	1.0	0.3
			17.35		10 - 12	.57	.05		97.2	2.1	0.6
			19.12		14 - 16	.19	.02		94.4	4.0	1.5
			17.84		20 - 22	.15	.02		95.9	3.1	0.9
			16.62		24 - 26	.09	.01		98.1	1.3	0.5
			15.96		30 - 32	.11	.01		98.2	1.4	0.6
			16.72		34 - 36	.10	.01		98.2	1.2	0.6

Excess ^{210}Pb Inventory: 24 dpm

Estimated Background ^{210}Pb Activity: 0.1 dpm/g

Table 2. ^{210}Pb and Sediment Characteristics of Core Samples from the Continental Shelf off the Middle Atlantic States (cont.)

Core No.	Latitude	Longitude	% Water	Water Depth	Sediment Depth (cm)	Total ^{210}Pb ±	1 σ Counting	% Gravel	% Sand	% Silt	% Clay
AII 89-133	39°21.9'N	72°43.9'W		90	3	3.37	.1	1.1	89.8	7.4	1.7
					7	2.07	.08	1	88.8	7.8	2.4
					10	1.79	.07	15.9	74.9	7.5	1.7
					15	.68	.04	1.5	87.1	8.2	3.2
					20	.30	.02	4.4	81.7	10.8	3.1
					28	.26	.02	.4	97.1	1.6	.9
					34	.29	.02	5	92.5	1.7	.8
					40	.41	.02	9.8	73.1	10.6	6.5
					44	.44	.02	1.7	77.3	15.2	5.8

Excess ^{210}Pb Inventory: 45 dpm

Estimated Background ^{210}Pb Activity: .362 dpm/g

Table 2. ^{210}Pb and Sediment Characteristics of Core Samples from the Continental Shelf off the Middle Atlantic States (cont.)

Core No.	Latitude	Longitude	% Water	Water Depth (m)	Sediment Depth (cm)	Total ^{210}Pb±	1 σ Counting Error	% Gravel	% Sand	% Silt	% Clay
AII 89-134	39°34.3'N	72°27.1'W	17.4	192	0 - 2	2.96	.07				
			15.5		4 - 6	1.85	.05	6.1	81.0	10.2	2.7
			18.2		10 - 12	1.93	.05	12.2	48.0	28.5	11.3
			20.5		14 - 15	1.08	.03	5.9	29.2	41.7	23.2
			23.8		24 - 26	1.06	.05	0.0	2.2	62.4	35.4
			24.2		28 - 30	1.01	.05				
			24.0		34 - 36	.93	.05				
			22.6		44 - 46	.92	.05		2.3	63.9	33.8
			22.0		48 - 50	1.00	.05				
			21.7		56 - 58	.36	.04				

Excess ^{210}Pb Inventory: 38 dpm

Estimated Background ^{210}Pb Activity: .98 dpm/g

Table 3. ^{210}Pb and Sediment Characteristics of Core Samples from Shelf of the Southeast Georgia Embayment.

Core No.	N Latitude	W Longitude	Water Depth (m)	Sed. Depth (m)	%Gravel	%Sand	%Silt	%Clay	%Water	Total ^{210}Pb (dpm/g)	1 Counting Error	^{226}Ra (dpm/g)
4538C	31°56.1′	80°14.2′		0- 2	17.6	80.3	1.8	0.3	21.2	3.64	.12	
				4- 6	8.7	89.7	1.3	0.4	19.0	13.75*	.36	0.91 0.04
				8-10	11.7	85.9	2.0	0.6	18.6			
				10-12					17.4	5.48	.12	
				14-16					17.3	4.78	.16	4.51 0.07
				20-22	56.9	26.0	9.1	35.1	32.5	3.48	.12	
				30-32					47.0	1.57	.06	0.11 0.01
				34-36	2.8	32.2	44.4	15.5	43.8	1.66	.05	
				38-40					30.0	3.47	.13	
				44-46	0.0	68.4	24.8	6.8	34.0			
				46-48					36.3	2.62	.06	
				50-52	2.1	67.2	22.8	7.9	35.6			
				54-56					24.7	3.43	.13	
				58-60	9.6	79.4	9.2	1.8	20.4	4.25	.14	4.75 0.07

Excess ^{210}Pb Inventory: Could not be estimated.

Estimated Background ^{210}Pb Activity: Variable with depth; see ^{226}Ra activity.

* Standard Deviation of Replicate Samples: 12%

Table 3. ^{210}Pb and Sediment Characteristics of Core Samples from Shelf of the Southeast Georgia Embayment (cont.)

Core No.	N Latitude	W Longitude	Water Depth (m)	Sed. Depth (m)	%Gravel	%Sand	%Silt	Clay	%Water	Total ^{210}Pb (dpm/g)	1 Counting Error	^{226}Ra (dpm/g)
4546C	31°41.0′	79°32.9′		3	12.5	87.1	0.2	0.2	17.36	3.68	.20	
				9	13.1	86.4	.3	.1	18.19	2.66	.10	0.12 0.01
				12	9.3	88.0	2.6	0.1	20.27	2.97	.25	
				15	8.4	91.1	.4	.1	16.21	1.08	.08	
				18	7.0	92.5	0.5	0.1	20.15	2.18	.25	
				24	13.6	86.2	0.1	0.1	16.58	1.36	.13	0.78 0.02

Excess ^{210}Pb Inventory: 80 dpm

Estimated Background ^{210}Pb Activity: .6 dpm/g

Table 3. ^{210}Pb and Sediment Characteristics of Core Samples from Shelf of the Southeast Georgia Embayment (cont.)

Core No.	N Latitude	W Longitude	Water Depth (m)	Sed. Depth (m)	%Gravel	%Sand	%Clay	%Silt	%Water	Total ^{210}Pb (dpm/g)	1 Counting Error	^{226}Ra (dpm/g)
4602	31°02.2′	80°29.6′		2	0.0	99.9	0.0	0.0	12.30	0.98	.10	
				3	0.0	99.9	0.0	0.0	14.05	1.11	.10	0.05 0.01
				5	0.0	99.9	0.0	0.0	15.15	1.00	.10	
				8	0.0	99.9	0.0	0.0	17.92	1.20	.19	
				10	0.0	99.9	0.0	0.0	17.47	1.11	.28	
				13	0.0	99.9	0.0	0.0	16.69	1.14	.25	
				16	0.0	99.9	0.0	0.0	17.03	1.12	.10	
				24	0.0	99.9	0.0	0.0	17.87	.84	.09	0.04 0.01
				32	0.0	99.9	0.0	0.0	16.64	.92	.07	

Excess ^{210}Pb Inventory: 28.8 dpm

Estimated Background ^{210}Pb Activity: 0.04 dpm/g

Table 3. ^{210}Pb and Sediment Characteristics of Core Samples from Shelf of the Southeast Georgia Embayment (cont.)

Core No.	N Latitude	W Longitude	Water Depth (m)	Sed. Depth (m)	%Gravel	%Sand	%Silt	%Clay	%Water	Total ^{210}Pb (dpm/g)	1 Counting Error	^{226}Ra (dpm/g)
4614	32°40.4′	78°43.8′		1	0.0	99.9	0.0	0.0	11.68	1.23	.06	
				5	0.0	99.9	0.0	0.1	15.55	1.95	.09	
				7	0.0	99.9	0.0	0.0	16.50	0.87	.06	
				10	0.0	99.9	0.0	0.1	16.83	1.23	.05	
				13	0.0	99.9	0.0	0.0	16.16	.85	.05	
				16	0.0	99.9	0.0	0.1	16.59	.96	.06	
				20	0.0	99.9	0.0	0.1	17.58	.69	.05	
				24	0.0	99.9	0.0	0.0	16.30	.84	.04	0.34 0.01

Excess ^{210}Pb Inventory: 30 dpm

Estimated Background ^{210}Pb Activity: 0.34 dpm/g

APPENDIX 4

SEDIMENTS AND SEDIMENTARY PROCESSES AS INTERPRETED FROM PISTON CORES AND GRAB SAMPLES FROM THE CONTINENTAL SLOPE OF THE SOUTHEASTERN UNITED STATES

APPENDIX 4-1

CHANNEL SAMPLES

APPENDIX 4-1

CHANNEL SAMPLES

CORE	% SAND	% SILT	% CLAY	% $CaCO_3$
17A	6.4	56.0	37.6	11.6
17B	2.3	51.9	45.8	14.1
17C	4.2	47.6	48.2	15.4
17D	0.8	48.2	50.9	16.0
18A	62.13	25.25	12.62	9.70
18B	52.28	30.63	17.09	15.25
18C	30.28	30.50	39.22	14.41
18D	18.11	35.05	46.84	14.59
19A	29.64	40.16	30.20	13.27
19B	29.76	39.95	30.29	16.66
19C	24.70	32.72	5.58	16.38
19D	7.70	31.76	60.54	16.56
20A	30.09	41.12	28.79	14.55
20B	22.86	47.86	29.28	14.49
20C	47.08	37.46	15.46	15.82
20D	35.12	40.47	24.41	16.53
21A	43.49	37.26	19.25	16.81
21B	15.72	44.26	40.02	18.08
21D	5.88	41.18	52.94	15.48
22A	11.63	43.28	45.09	14.55
22B	5.87	52.20	41.93	24.53
22C	13.40	38.66	47.94	18.56
22D	4.03	21.62	24.35	19.36
22E	2.67	33.87	63.46	11.19
22F	3.72	29.53	66.75	15.64
23A	28.49	36.31	35.20	57.54
23B	15.51	39.03	45.46	40.36
23C	5.42	39.45	55.13	39.29
24A	98.80	0.90	0.30	66.72
24B	22.71	38.00	39.29	41.76
24C	7.30	40.67	52.03	50.89
24D	12.30	42.25	45.45	46.84
25B	86.96	8.26	4.78	54.45
25C	87.62	6.46	5.92	80.29
25D	25.64	25.50	28.86	32.77
27C	75.40	12.52	12.08	70.99
28C	84.81	10.42	4.77	60.97
28D	71.31	19.98	8.71	69.10
29B	84.05	11.75	4.20	60.67
29C	18.10	49.25	32.65	60.88
29D	25.64	45.50	28.86	58.85
30C	64.13	18.60	17.27	43.27
30D	64.36	18.64	17.00	57.38
31C	85.96	7.70	6.34	77.86
31D	57.53	23.12	19.35	83.31
33A	93.50	3.08	3.42	85.86
33B	52.98	25.78	21.24	85.50
33C	39.74	34.84	25.42	80.74
33D	4.78	41.39	53.83	65.59

APPENDIX 4-1 (cont'd)

GRAB	% SAND	% SILT	%CLAY	% $CaCO_3$
22A	36.07	49.40	14.53	10.99
23A	40.7	46.8	12.5	41.79
23D	24.5	55.3	20.2	22.17
25A	98.92	0.00	1.08	73.25
25D	90.96	6.85	2.19	47.50
26A	99.13	0.00	0.87	42.77
26B	99.58	0.00	0.42	42.53
26C	99.2	0.32	0.48	16.90
26D	99.0	0.17	0.83	18.65
27A	99.04	0.00	0.96	27.16
27B	98.01	0.00	1.99	22.61
28A	98.40	0.71	0.89	71.1
28B	98.19	0.91	0.91	63.42
28C	82.41	13.62	3.97	47.39
28D	92.05	7.04	2.91	43.73
29A	95.44	3.73	0.83	49.57
29B	89.67	6.61	3.72	40.28
30A	98.93	0.15	0.92	19.41
30B	95.97	2.27	1.76	17.46
30C	71.90	21.45	6.65	38.88
30D	91.91	5.95	2.14	29.51
31A	98.82	0.39	0.79	53.13
31B	99.06	0.14	0.80	46.69

APPENDIX 4-2

CHANNEL SAMPLES - CLAY MINERALOGY

GRAB SAMPLES - CLAY MINERALOGY

APPENDIX 4-2

CHANNEL SAMPLES
Clay Mineralogy

CORE	% ILLITE MICA	% KAOLINITE	% SMECTITE
18B	53.6	29.14	17.26
18D	50.1	24.96	24.94
19A	51.6	39.93	8.47
19B	51.2	30.66	18.14
19C	56.73	22.83	20.44
19D	59.96	25.53	14.51
20A	51.7	32.33	15.97
20B	59.93	25.93	14.14
20C	48.36	37.2	14.44
20D	39.7	36.9	23.4
21A	50.03	37.4	12.57
21B	38.96	32.8	28.27
21D	51.7	33.5	15.10
22A	42.66	39.1	18.24
22B	6.95	18.0	75.05
22C	41.13	41.53	17.34
22D	35.56	33.7	30.74
22E	49.0	39.06	11.94
22F	37.86	22.66	39.48
23A	29.13	23.93	46.94
23B	15.06	20.26	64.68
23C	23.6	29.33	47.07
24B	27.7	35.13	37.17
24C	15.53	35.9	48.57
24D	14.36	31.33	54.31
25B	29.93	54.7	15.37
25C	14.0	17.0	69.0
25D	15.1	30.1	54.8
27C	39.53	49.5	10.97
28C	31.8	56.0	12.2
28D	41.43	31.7	26.87
29B	8.43	41.13	50.44
29C	11.6	37.33	51.07
29D	8.56	41.03	50.41
30C	9.4	44.4	46.2
30D	10.36	46.5	43.14
31C	10.63	40.56	48.81
31D	55.8	15.53	28.67
32C	6.5	38.13	55.37
33A	8.2	35.5	56.3
33B	6.3	31.86	61.84
33C	6.0	30.2	63.8
33D	11.33	42.63	46.04

APPENDIX 4-2 (cont'd)

GRAB SAMPLES
Clay Mineralogy

GRAB	% ILLITE MICA	% KAOLINITE	% SMECTITE
22A	27.2	51.5	21.3
23A	9.56	34.44	56.0
23D	18.05	32.2	49.75
25D	3.8	18.8	77.4
26A	33.1	52.4	14.5
27D	22.5	50.1	27.4
28A	6.0	54.7	39.3
28B	12.7	47.8	39.5
28C	9.48	39.73	50.79
28D	30.78	39.9	29.32
29A	2.5	28.1	69.4
29B	4.3	36.0	59.6
30B	2.0	26.9	71.1
30C	3.1	32.7	64.2
30D	2.7	31.0	66.3
31A	9.9	66.8	23.2
31B	23.9	64.8	11.4

APPENDIX 4-3

CLAY MINERALOGY AND CARBONATE CONTENT

TOP, MIDDLE, AND BOTTOM

APPENDIX 4-3

CLAY MINERALOGY AND CARBONATE CONTENT
(Top, Middle, and Bottom)

Core No.	Depth (cm)	% Illite Mica	% Kaolinite	% Smectite	% $CaCO_3$
18B	2-4	44.4	39.9	15.6	21.3
	278-280	52.6	24.5	22.9	18.9
	555-557	63.8	22.9	13.3	15.1
18D	2-4	40.9	21.9	37.2	26.1
	166-168	55.6	18.0	26.4	14.2
	331-333	53.8	35.0	11.2	13.9
19A	2-4	59.2	24.1	16.7	18.6
	282-284	49.7	45.2	5.0	20.7
	564-566	45.9	50.5	3.6	17.5
19B	2-4	47.4	27.8	24.8	21.8
	280-282	57.5	27.7	14.8	20.7
	559-561	48.7	36.5	14.8	17.3
19C	2-4	62.8	18.4	18.8	22.5
	248-250	48.1	22.3	29.6	21.9
	274-276	59.3	27.8	12.9	16.4
19D	2-4	64.7	16.2	19.1	20.9
	240-242	64.7	24.8	10.5	19.2
	480-482	50.5	35.6	13.8	17.6
20A	2-4	48.6	33.6	17.8	13.1
	239-241	53.2	34.5	12.3	29.6
	477-479	53.3	28.9	17.8	9.9
20B	2-4	62.9	24.9	12.3	12.4
	278-280	47.6	37.7	14.7	14.9
	555-557	69.3	15.2	15.5	14.5
20C	2-4	43.8	41.7	14.5	14.6
	243-245	60.5	23.4	16.1	16.2
	486-488	40.8	46.5	12.7	16.8
20D	2-4	22.2	38.3	39.5	18.9
	275-277	34.1	46.4	19.5	17.9
	550-552	62.8	26.0	11.2	22.7
21A	2-4	45.1	52.5	2.4	18.7
	284-286	47.1	37.2	15.7	19.7
	568-570	57.9	22.5	19.6	20.7

APPENDIX 4-3 (cont'd)

Core No.	Depth (cm)	% Illite Mica	% Kaolinite	% Smectite	% $CaCO_3$
21B	2-4	43.6	43.4	13.0	20.0
	281-283	41.3	27.9	30.8	21.3
	562-564	32.0	27.1	40.9	19.5
21D	2-4	45.3	28.3	26.4	22.3
	257-259	69.4	22.0	8.6	15.3
	514-516	39.5	50.2	10.2	16.4
22A	2-4	32.5	36.8	30.6	19.6
	273-275	45.8	44.2	10.1	12.3
	546-548	49.7	36.3	14.1	12.0
22B	2-4	7.6	18.2	74.2	33.8
	61-63	6.3	17.8	75.9	43.8
22C	2-4	41.3	31.9	26.8	19.2
	280-282	40.2	46.5	13.3	18.3
	559-561	41.9	46.2	11.8	13.7
22D	2-4	34.5	45.3	20.2	24.9
	280-282	23.9	20.4	55.8	21.9
	561-563	48.3	35.4	16.4	18.0
22E	2-4	48.5	39.1	12.4	18.2
	279-281	46.0	42.9	11.1	26.4
	548-550	52.5	35.2	12.3	14.2
22F	2-4	18.1	30.8	51.2	20.4
	276-278	49.3	18.8	32.0	23.8
	552-554	46.2	18.4	35.3	19.6
23A	2-4	69.7	22.7	7.6	57.8
	286-288	9.6	23.2	67.2	56.1
	572-574	8.1	25.9	66.1	57.7
23B	2-4	16.0	28.6	55.5	46.5
	288-290	7.1	19.3	73.7	49.3
	576-578	22.1	12.9	65.1	24.4
23C	2-4	10.2	18.8	71.0	36.5
	282-284	33.6	23.9	42.5	18.6
	563-565	27.0	45.3	27.7	35.5
25B	2-4	38.4	46.8	14.8	63.2
	113-115	35.9	47.3	16.9	57.8
	226-228	15.5	70.0	14.5	55.6
25C	0-113	14.0	17.0	69.1	77.4

APPENDIX 4-3 (cont'd.)

Core No.	Depth (cm)	% Illite Mica	% Kaolinite	% Smectite	% $CaCO_3$
25D	0-49	15.1	30.1	54.8	28.4
27C	2-4	29.8	59.5	10.8	54.1
	124-126	38.1	52.6	9.3	75.1
	248-250	50.7	36.4	12.9	66.1
28C	2-4	41.2	42.0	16.8	71.5
	132-134	33.6	52.3	14.1	57.1
	264-266	20.6	73.7	5.7	62.5
28D	2-4	50.9	35.6	13.6	63.1
	115-117	58.1	27.3	14.6	72.7
	231-233	15.3	32.2	52.5	69.3
29B	2-4	3.7	36.4	59.9	59.8
	97-99	17.5	55.2	27.3	55.8
	194-196	4.1	31.8	64.1	73.5
29C	2-4	12.0	40.1	47.9	72.6
	134-136	10.4	31.7	58.0	62.4
	268-270	12.4	40.2	47.4	63.3
29D	2-4	16.0	46.2	37.9	65.6
	118-120	3.8	38.2	58.0	58.3
	236-238	5.9	38.7	55.3	59.7
30C	2-4	2.0	26.0	72.0	68.2
	121-123	20.8	56.0	23.1	45.4
	243-245	5.4	51.2	43.4	44.7
30D	2-4	17.7	57.3	25.1	53.6
	133-135	2.5	26.4	71.1	55.1
	266-268	10.9	55.8	33.3	56.9
31C	2-4	23.8	47.4	28.8	80.1
	60-62	2.8	28.4	68.8	79.4
	121-123	5.3	45.9	48.8	82.8
31D	2-4	39.4	40.9	19.6	67.6
	55-57	77.7	0.9	21.4	71.4
	111-113	50.3	4.8	44.9	76.2
32C	2-4	4.6	33.9	61.5	57.2
	124-126	6.7	32.7	60.6	87.0
	248-250	8.2	47.8	44.1	73.6
33A	0-83	8.2	35.5	56.3	86.7

APPENDIX 4-3 (cont'd)

Core No.	Depth (cm)	% Illite Mica	% Kaolinite	% Smectite	% $CaCO_3$
33B	2-4	3.3	33.2	63.5	82.6
	124-126	10.5	28.0	61.5	86.5
	247-249	5.1	34.4	60.5	81.3
33C	2-4	11.9	18.7	69.4	58.4
	124-126	3.1	32.7	64.2	80.2
	248-250	3.0	39.2	57.8	72.7
33D	2-4	10.7	23.0	66.3	51.5
	120-122	10.2	47.2	42.6	68.2
	240-242	13.1	57.7	29.2	86.2

APPENDIX 4-4

DETAILED CLAY MINERALOGY AND $\%CaCO_3$

APPENDIX 4-4

DETAILED CLAY MINERALOGY
AND %$CaCO_3$

Depth (cm)	% Illite Mica	% Kaolinite	% Smectite	% $CaCO_3$
		Core 24B		
2-4	30.1	24.6	45.3	62.6
20-22	34.9	32.4	32.7	25.1
30-32	34.9	32.4	32.7	30.8
40-42	30.5	37.1	32.4	32.7
50-52	31.6	32.8	35.6	50.3
60-62	20.4	57.6	22.0	47.1
70-72	52.3	33.9	13.8	27.7
80-82	27.6	40.2	32.3	47.1
90-92	48.1	35.3	16.6	47.5
100-102	30.1	31.0	38.0	22.2
110-112	32.0	32.5	35.5	19.5
130-132	43.0	31.0	26.0	31.9
140-142	29.2	46.5	24.2	----
150-152	30.0	49.7	20.3	53.2
160-162	27.8	34.6	40.6	48.8
170-172	21.9	41.7	36.7	49.3
180-182	27.7	39.4	32.9	58.3
190-192	22.5	37.0	40.5	54.3
200-202	28.5	47.9	23.6	40.7
210-212	36.8	36.1	27.1	28.3
220-222	46.7	36.6	16.7	25.9
230-232	28.0	41.2	30.8	29.0
240-242	34.4	37.4	28.2	27.7
250-252	32.4	45.3	22.3	26.3
260-262	44.8	25.6	29.6	29.6
270-272	46.9	26.9	26.2	35.5
280-282	36.0	39.6	24.4	38.7
290-292	27.1	22.0	50.9	47.5
300-302	25.1	26.1	48.8	54.8
310-312	20.5	30.3	49.2	55.2
320-322	22.8	37.5	39.7	59.0
324-326	16.2	47.9	35.9	56.9
330-332	17.2	36.3	46.5	17.4
340-342	17.8	24.2	58.0	43.8
350-352	32.0	32.6	35.4	45.8
360-362	18.3	40.4	41.3	45.4
370-372	7.8	27.0	65.2	46.6
380-382	16.3	27.3	56.4	54.9
390-392	8.5	30.8	60.7	64.9
400-402	13.8	26.3	59.9	34.3
410-412	8.8	35.3	62.9	34.4
420-422	11.0	26.1	58.7	59.2
430-432	17.4	23.9	54.8	59.4
440-442	20.3	24.9	54.8	58.9
450-452	30.7	28.1	41.2	----

APPENDIX 4-4 (cont'd)

Depth (cm)	% Illite Mica	% Kaolinite	% Smectite	% $CaCO_3$
460-462	22.1	40.7	37.1	----
480-482	17.6	25.0	57.3	59.5
510-512	22.6	37.2	40.2	----
530-532	21.8	24.9	53.3	----
540-542	18.2	44.5	37.3	----
560-562	17.0	41.2	41.7	----

CORE 24C

Depth (cm)	% Illite Mica	% Kaolinite	% Smectite	% $CaCO_3$
2-4	11.2	25.4	63.4	59.6
10-12	10.7	50.5	38.8	59.0
20-22	13.4	28.7	57.9	58.8
30-32	15.3	28.5	56.2	58.5
40-42	12.2	29.0	58.8	60.4
50-52	17.7	19.6	62.7	60.7
60-62	6.0	22.8	71.2	59.9
70-72	15.1	35.6	49.3	58.9
80-82	7.8	29.1	63.1	60.6
90-92	11.4	30.6	58.0	60.9
100-102	18.9	38.5	42.6	61.0
110-112	7.7	33.1	59.2	61.4
120-122	7.4	34.6	58.0	59.8
130-132	13.8	35.2	51.0	60.2
140-142	7.7	37.6	54.7	57.7
150-152	8.8	23.9	67.3	60.0
160-162	12.1	26.5	61.4	59.9
170-172	8.5	27.7	63.8	60.5
180-182	6.1	26.3	67.6	58.7
190-192	7.4	40.8	51.8	58.9
200-202	14.0	22.0	64.0	59.1
210-212	14.7	28.2	57.1	30.5
220-222	13.6	58.9	27.5	59.2
230-232	15.6	41.1	43.3	59.9
240-242	7.5	20.6	71.9	58.4
250-252	7.9	25.7	66.4	57.1
260-262	12.6	59.1	28.3	58.3
270-272	9.3	30.2	60.5	56.6
280-282	9.1	33.1	57.8	59.8
290-292	10.8	28.5	60.7	57.4
300-302	8.6	47.7	43.7	57.5
310-312	9.7	35.2	55.1	56.6
320-322	12.4	50.7	36.9	54.2
330-332	10.0	33.3	56.7	52.6
340-342	7.9	30.1	62.0	52.4
350-352	12.5	28.4	59.1	51.7
360-362	7.6	35.8	56.6	51.4
370-372	11.5	44.3	44.3	50.6
380-382	7.5	35.5	47.0	47.4

APPENDIX 4-4 (cont'd)

Depth (cm)	% Illite Mica	% Kaolinite	% Smectite	% $CaCO_3$
390-392	12.6	37.8	49.6	47.5
400-402	6.7	28.5	64.8	47.4
410-412	----	----	----	46.9
420-422	----	----	----	49.3
430-432	----	----	----	49.7
440-442	----	----	----	44.7
450-452	----	----	----	48.8
460-462	6.9	25.3	67.8	48.4
470-472	22.5	65.2	12.4	42.8
480-482	----	----	----	42.2
490-492	12.0	33.2	55.0	44.9
500-502	----	----	----	44.5
510-512	31.5	53.9	14.6	43.6
520-522	----	----	----	45.0
530-532	----	----	----	42.1
540-542	26.1	52.1	21.8	55.1
550-552	----	----	----	57.8
560-562	----	----	----	57.0

CORE 24D

Depth (cm)	% Illite Mica	% Kaolinite	% Smectite	% $CaCO_3$
2-4	17.9	47.3	34.8	52.2
10-12	14.2	39.8	46.0	50.7
20-22	16.1	42.2	41.8	51.7
30-32	21.1	58.6	20.3	52.8
40-42	15.8	35.0	49.2	51.8
50-52	8.8	40.9	50.3	50.2
60-62	25.4	34.6	40.0	50.8
70-72	18.0	40.5	41.5	47.8
80-82	7.3	37.1	55.7	46.9
90-92	----	----	----	46.4
100-102	16.2	53.5	30.3	43.9
110-112	16.5	47.5	36.1	45.6
120-122	22.6	39.4	38.0	44.0
130-132	43.2	42.3	14.5	42.5
140-142	26.9	44.5	28.7	38.1
150-152	18.0	48.6	33.4	39.9
160-162	12.0	49.5	38.5	38.0
170-172	14.7	37.9	47.4	38.1
180-182	33.1	34.1	32.8	37.3
190-192	35.6	23.9	40.6	33.9
200-202	15.7	27.8	56.5	49.2
210-212	2.8	3.9	93.4	39.0
220-222	7.3	7.5	85.3	67.0
230-232	----	----	----	64.6
240-242	9.1	7.8	83.1	70.0
250-252	2.6	7.3	90.2	71.0

APPENDIX 4-5

TOTAL ORGANIC CARBON OF CHANNEL SAMPLES

APPENDIX 4-5

TOTAL ORGANIC CARBON OF CHANNEL SAMPLES

Sample #	%C
22A	0.970
23A	1.169
23D	1.041
25A	0.231
25D	0.350
26A	0.368
26B	0.320
26C	0.273
26D	0.079
27A	0.288
27B	0.184
28A	0.200
28B	0.243
28C	0.592
28D	0.425
29A	0.294
29B	0.535
30A	0.094
30B	0.181
30C	0.786
30D	0.347
31A	0.212
31B	0.141

APPENDIX 4-6

DETAILED TOTAL ORGANIC CARBON OF SELECTED CORES

APPENDIX 4-6

DETAILED TOTAL ORGANIC CARBON OF SELECTED CORES

Core #	Depth	%C Corrected
19C	Top	1.492
	50	1.219
	100	1.105
	150	1.064
	200	0.972
	250	1.117
	300	1.015
	350	0.860
	400	0.566
	450	0.901
	500	0.631
	Bottom	0.559
19D	Top	0.990
	50	0.928
	100	0.903
	150	0.937
	200	0.650
	250	0.912
	300	0.683
	350	0.551
	400	0.558
	450	0.518
	Bottom	0.536
22A	Top	0.876
	50	0.602
	100	0.551
	150	0.504
	200	0.503
	250	0.476
	300	0.495
	350	0.548
	400	0.559
	450	0.509
	500	0.515
	Bottom	0.549
22C	Top	1.076
	50	1.170
	100	1.113
	150	1.096
	200	0.959
	250	1.096
	300	1.002
	350	0.824
	400	0.559
	450	0.576
	500	0.640
	Bottom	0.680

APPENDIX 4-6 (cont'd)

Core #	Depth	%C Corrected
23A	Top	1.370
	50	1.411
	100	1.428
	150	1.202
	200	1.608
	250	1.396
	300	1.458
	350	1.212
	400	1.582
	450	1.574
	500	1.561
	Bottom	1.498
23C	Top	1.114
	50	1.185
	150	1.032
	200	1.181
	250	1.019
	300	0.702
	350	0.654
	400	0.653
24C	Top	1.539
	50	1.581
	100	1.581
	150	1.462
	200	1.01
	250	1.420
	300	1.595
	350	1.256
	400	1.323
	450	1.296
	500	1.233
	550	0.902
	Bottom	1.199
27C	Top	0.466
	50	0.517
	100	0.500
	150	0.888
	200	0.927
	Bottom	1.074
29B	Top	0.757
	50	0.616
	100	0.600
	150	0.376
	Bottom	0.371

APPENDIX 4-6 (cont'd)

Core #	Depth	%C Corrected
29D	Top	1.108
	50	1.202
	100	1.080
	150	1.087
	200	1.082
	Bottom	1.116
31C	Top	0.429
	50	0.368
	100	0.365
	Bottom	0.367
33B	Top	0.606
	50	0.405
	100	0.408
	150	0.409
	200	0.408
	Bottom	0.403
33C	Top	0.754
	50	0.590
	100	0.486
	150	0.466
	200	0.396
	Bottom	0.473

APPENDIX 5

PISTON CORE AND SURFICIAL SEDIMENT INVESTIGATIONS

OF THE FLORIDA-HATTERAS SLOPE AND INNER BLAKE PLATEAU

APPENDIX 5-1

TEXTURAL DATA OF SELECTED PISTON CORE SUBSAMPLES

APPENDIX

Textural Data of Selected Piston Core Subsamples.

Sample No.	% Gravel	% Sand	% Mud	Grain Size Statistics: Median Φ	Graphic Mean Φ	Stand. Dev. Φ
946						
0 cm	0.6	82.0	17.4	1.6	2.4	2.7
50 cm	1.2	74.9	23.9	1.8	3.5	3.4
90 cm	0.4	83.0	16.6	2.6	3.1	2.3
130 cm	2.0	83.7	14.3	1.5	1.9	2.3
250 cm	0.8	71.8	27.4	2.3	4.0	3.5
284 cm	0.0	90.9	9.1	2.0	2.2	1.4
294 cm	0.6	84.1	15.3	2.0	2.4	2.0
304 cm	0.0	83.4	16.6	3.0	3.1	2.0
307 cm	0.0	92.3	7.7	2.3	2.3	1.2
319 cm	0.2	93.7	6.1	2.2	2.2	0.9
344 cm	0.0	91.5	8.5	1.9	2.1	1.3
354 cm	0.8	54.3	44.9	2.8	4.8	4.1
374 cm	0.0	66.1	33.9	1.4	3.8	4.0
384 cm	0.1	64.2	35.7	2.5	4.5	3.4
443 cm	0.0	61.1	38.9	2.0	4.4	4.0
483 cm	1.1	52.5	47.5	3.4	5.2	4.0
948						
10 cm	0.7	85.0	14.3	1.6	1.9	1.9
120 cm	0.0	34.7	65.3	5.5	5.7	3.7
280 cm	0.0	72.2	27.8	2.3	3.4	2.6
320 cm	0.0	61.3	38.7	3.0	4.1	3.1
410 cm	0.0	56.1	43.9	3.1	4.5	3.5
510 cm	0.1	37.6	62.3	5.6	6.1	4.0
949						
10 cm	0.3	20.4	79.3	7.3	7.5	3.8
170 cm	0.3	8.5	91.2	7.3	7.9	3.3
340 cm	14.3	19.4	66.3	5.6	4.7	5.2
470 cm	0.0	21.7	78.3	8.3	8.2	4.0
950						
0-20 cm	4.3	58.4	37.3	2.1	4.3	4.4
40-60 cm	15.5	56.6	27.9	2.7	4.1	5.1
80-90 cm	17.2	51.7	31.1	3.6	4.3	5.3

953						
10 cm	0.5	52.2	47.3	2.9	5.1	4.1
50 cm	1.0	47.1	51.9	4.7	5.8	4.1
110 cm	2.4	49.4	48.2	4.1	5.5	4.1
170 cm	0.4	47.9	51.7	4.4	5.7	4.1
954						
10 cm	0.0	40.0	60.0	5.8	6.6	3.8
60 cm	0.0	42.0	58.0	5.4	6.3	3.7
90 cm	0.0	51.0	49.0	3.9	5.9	3.8
110 cm	0.0	23.9	76.1	8.2	7.9	3.7
140 cm	0.0	9.9	90.1	9.2	8.8	3.4
170 cm	0.0	14.0	86.0	9.2	8.6	3.6
190 cm	0.0	19.2	80.8	6.7	7.2	3.5
210 cm	0.2	51.0	47.8	3.8	3.9	4.0
230 cm	0.2	44.0	55.8	6.5	7.1	3.9
270 cm	0.1	51.0	48.9	3.8	5.7	3.8
955						
20 cm	63.3	0.1	36.6	-2.1	1.8	5.3
40 cm	43.0	12.5	44.5	1.9	3.4	5.5
70 cm	15.5	22.5	62.0	6.0	5.5	5.4
956						
0-5 cm	0.0	81.7	18.3	2.5	3.2	2.3
20 cm	80.0	18.4	1.6	-2.2	-1.5	1.3
70 cm	55.0	41.6	3.4	-1.3	-0.5	1.8
80 cm	34.0	37.2	28.8	1.7	2.7	4.8
110 cm	0.1	92.8	7.1	2.0	2.1	1.2
957						
30 cm	32.0	27.8	40.2	2.4	3.4	5.3
90 cm	29.0	16.2	54.8	4.9	4.6	5.6
110 cm	16.5	49.2	34.3	1.9	3.4	4.8
114 cm	40.1	20.4	39.5	1.6	3.1	5.3
154 cm	12.2	45.7	42.1	2.6	4.3	4.7
174 cm	10.3	56.1	33.6	1.1	3.8	4.4
958						
0-30 cm	21.2	40.7	38.1	2.8	3.9	4.9
30-60 cm	16.8	46.3	36.9	2.0	3.4	5.0
60-120 cm	3.8	42.2	64.0	5.7	6.7	3.7
120-180 cm	0.1	28.4	71.5	7.1	7.4	3.8

Appendix 1 (cont.)

959						
10 cm	63.2	14.2	22.6	-2.1	1.2	4.8
120 cm	25.2	56.5	18.3	1.5	1.5	3.8
280 cm	23.0	53.5	23.5	1.5	2.3	4.4
400 cm	22.9	37.0	41.1	3.4	5.0	3.7
540 cm	13.4	26.6	60.0	5.3	5.4	4.9
960						
10 cm	25.0	45.7	29.3	2.1	2.9	4.8
60 cm	43.0	29.4	27.6	1.2	2.4	4.8
100 cm	40.0	26.0	34.0	1.1	2.8	5.1
150 cm	20.2	19.0	60.8	5.9	5.1	5.6
230 cm	53.0	13.6	33.4	-2.0	1.7	5.2
300 cm	60.1	15.3	23.8	2.5	2.6	4.5
390 cm	28.0	31.1	40.9	2.9	3.6	5.4
430 cm	42.0	22.0	36.0	1.5	3.0	5.2
480 cm	37.0	17.4	45.6	2.9	3.7	5.5
961						
0 cm	94.3	4.6	1.1	-2.3	-2.3	0.2
962						
10 cm	26.4	49.0	24.6	1.6	1.9	4.0
70 cm	16.0	58.3	25.7	1.8	2.3	3.8
963						
0-8 cm	4.6	87.1	8.3	1.3	1.2	2.0
964						
155 cm	3.0	93.1	3.9	1.5	1.3	1.2
30 cm	0.0	38.2	61.8	6.0	6.4	4.1
40 cm	1.5	36.5	62.0	6.0	6.6	4.0
50 cm	0.0	21.3	78.7	7.7	7.7	3.8
150 cm	0.6	29.4	70.0	6.8	7.1	4.0
965						
200 cm	17.0	81.9	1.1	-1.3	-0.9	1.2
0-100 cm	40.5	55.0	4.5	1.5	1.3	1.5
100-200 cm	12.8	85.7	1.5	-1.0	-0.6	1.2
966						
0 cm	49.5	48.6	1.9	-2.0	-1.3	1.3
969						
90 cm	79.8	20.1	0.1	-2.2	-2.1	0.4
0 cm	1.1	5.3	93.5	8.7	8.7	3.2

969 (cont.)						
10 cm	2.8	3.7	93.5	8.7	8.7	3.3
30 cm	0.0	8.9	91.1	8.6	8.5	3.4
970						
0 cm	9.5	5.1	85.4	7.6	7.9	4.3
90 cm	0.0	5.4	94.6	6.9	7.6	3.0
190 cm	19.6	24.4	56.0	4.5	3.4	4.6
240 cm	30.2	17.0	52.8	4.4	3.6	4.9
973						
10 cm	0.0	96.0	4.0	2.7	2.9	0.5
30 cm	0.0	56.1	43.9	2.9	5.5	3.4
50 cm	0.0	91.2	8.8	2.8	3.1	1.1
80 cm	0.0	63.4	36.6	2.8	5.5	3.1
110 cm	0.0	52.5	47.5	2.9	5.8	3.5
130 cm	0.0	68.9	31.1	3.0	4.9	3.0
210 cm	0.0	54.5	45.5	2.7	5.6	3.6
974						
10 cm	0.0	76.1	23.9	2.6	3.5	1.8
100 cm	0.0	67.9	32.1	2.5	4.9	3.0
190 cm	0.0	38.0	62.0	3.0	5.8	3.0
270 cm	0.0	57.8	42.2	2.7	5.7	3.7
975						
20 cm	21.8	72.7	5.5	2.5	4.3	3.1
30 cm	0.0	48.5	51.5	2.8	5.8	3.7
70 cm	0.0	89.0	11.0	2.8	3.2	1.3
100 cm	0.0	63.0	37.0	2.7	5.2	3.3
130 cm	0.0	54.2	45.8	2.7	5.6	3.6
170 cm	0.0	50.8	49.2	3.0	5.9	3.6
983						
0-25 cm	32.6	63.6	3.8	0.5	0.4	1.5
25-50 cm	5.1	51.7	43.2	3.8	5.5	3.7
984						
10 cm	0.0	84.4	15.6	1.9	2.4	1.5
110 cm	0.0	88.4	11.6	1.6	1.8	1.6
180 cm	26.7	49.4	23.9	1.7	1.8	3.8
220 cm	20.5	42.5	37.0	2.2	2.8	4.6
985						
10 cm	0.0	62.0	38.0	3.0	3.9	2.5
100 cm	0.0	75.4	24.6	2.1	3.5	2.8
180 cm	0.0	61.3	38.7	2.9	4.8	3.6

Appendix 1 (cont.)

986						
10 cm	0.9	37.6	62.5	6.0	6.2	4.6
20 cm	0.0	46.0	54.0	4.7	5.8	4.2
100 cm	0.5	42.0	57.5	5.3	6.1	4.1
160 cm	0.2	31.1	68.9	6.8	7.1	4.0
220 cm	0.0	27.6	72.4	7.1	7.2	4.0
987						
0 cm	0.1	79.8	20.1	2.3	3.4	2.8
90 cm	0.0	77.2	22.8	2.1	3.1	2.4
180 cm	0.0	77.4	22.6	2.1	3.3	2.7
210 cm	0.0	76.8	23.2	1.9	3.6	3.1
988						
10 cm	7.7	88.1	4.2	1.4	1.0	1.5
40 cm	40.2	46.1	13.7	0.8	0.7	3.3
130 cm	0.0	67.1	32.9	3.6	5.3	3.1
230 cm	0.0	66.0	34.0	3.6	5.2	3.1
989						
0 cm	86.5	9.8	3.7	-2.2	-2.2	0.9
10 cm	68.0	19.0	13.0	-2.1	-0.5	3.2
100 cm	0.0	69.4	30.6	3.3	4.9	3.1
200 cm	0.0	67.5	32.5	3.4	5.1	3.2
990						
0 cm	0.0	78.2	21.8	3.3	4.6	2.8
40 cm	95.9	4.0	0.1	-2.2	-2.2	0.2
991						
10 cm	0.0	32.2	67.8	6.7	7.1	3.8
20 cm	0.0	38.5	61.5	5.9	6.7	3.8
120 cm	0.0	37.3	62.7	6.1	6.8	3.8
140 cm	0.0	40.2	59.8	5.7	6.7	3.7
180 cm	0.2	39.9	59.9	5.6	6.6	3.7
992						
0 cm	70.1	24.8	5.1	-2.1	-0.6	2.2
100 cm	0.0	94.0	6.0	2.4	2.4	1.1
150 cm	1.7	73.9	24.4	2.6	4.0	3.1
250 cm	0.1	74.3	25.6	2.6	4.0	3.2
993						
0-5 cm	48.9	44.4	6.7	-1.2	-0.5	2.3

Appendix 1 (cont.)

994						
0-5 cm	57.9	39.0	3.1	-1.1	-0.3	2.0
999						
0 cm	9.0	76.2	14.8	0.3	1.1	2.5
20 cm	11.0	70.1	18.9	1.0	2.0	3.6
000						
0 cm	65.0	21.2	13.8	-2.1	-0.3	3.4
50 cm	1.0	68.9	30.1	2.9	4.6	3.4
150 cm	11.5	71.0	17.5	1.9	2.4	3.1
200 cm	0.3	78.7	21.0	2.7	3.6	2.8
001						
0-10 cm	15.4	76.3	8.3	1.5	1.1	2.5
007						
0 cm	26.0	30.3	43.7	2.9	3.7	5.4
30 cm	0.0	16.3	83.7	8.1	8.1	3.6
011						
0-6 cm	35.2	59.9	4.9	-0.9	-0.3	2.0
021						
0-6 cm	73.8	24.8	1.4	-2.2	-2.2	0.7
027						
10 cm	0.1	92.8	7.1	2.4	2.6	1.1
100 cm	0.0	82.7	17.3	2.6	3.0	1.8
200 cm	2.5	82.1	15.4	2.7	2.9	1.3

APPENDIX 5-2

DESCRIPTION OF MATERIAL RECOVERED BY ROCK DREDGING

APPENDIX .

DESCRIPTION OF MATERIAL RECOVERED
BY ROCK DREDGING

R/V Eastward
E-2E-78
April 2, 1978 to April 13, 1978

Innermost Blake Plateau
and
Florida-Hatteras Slope

by

Mark Ayers
5/4/79

ROCK DREDGE 952

Location: 30°12.0'N
79°50.1'W

Depth: 610 m

Recovered dredge full of branching colonial corals. Some are Mn (?) stained; others are living and very fresh in appearance.

ROCK DREDGE 976

Location: 32°22.0'N
78°32.0'W

Depth: 320 m

Recovered dredge full of large (average 20 x 23 x 8 cm) blocky phosphorite gravels. The largest gravel is approximately 23 x 25 x 8 cm, and the smallest is approximately 6 x 5 x 10 cm. Black Mn (?) coating occurs on some of the gravels. Serpulid worm tubes encrust the gravels.

Bottom sediment associated with the gravel is a light olive gray (10Y 6/2) sandy lutite.

ROCK DREDGE 977

Location: 32°21.7'N
78°31.8'W

Depth: 203 m

Recovered dredge full of small (average 4-5 cm diameter) rounded phosphorite gravels. Largest gravels measured approximately 15 x 15 x 8 cm and the smallest measured approximately 3 cm in diameter. Small gravels are covered with a black coating of Mn (?). Gravels are encrusted with serpulid worm tubes and a few solitary corals.

A small number of poorly indurated foraminiferal sandstone gravels were also recovered.

ROCK DREDGE 979

Location: 32°05.5'N
78°12.4'W

Depth: 500 m

Recovered a full dredge of large (average = 18 x 6 x 12 cm) of both blocky and rounded phosphorite gravels. Largest gravel measured approximately 20 x 6 x 14 cm, and the smallest measured 3 cm in diameter. Black Mn (?) coating occurs on some of the gravel. Bryozoans and serpulid worms encrust the gravels. Branching colonial corals are attached to the gravels.

A small number of poorly indurated foraminiferal sandstone gravels were also recovered.

ROCK DREDGE 981

Location: 32°13.4'N
78°02.2'W

Depth: 460 m

Recovered a full dredge of mostly small (approximately 4 cm diameter) rounded phosphorite gravels. Some of the phosphorite gravels are cemented in a poorly indurated foraminiferal sandstone. Largest gravel measures approximately 54 x 24 x 15 cm and smallest is coarse sand size. Some gravels are covered with a black Mn (?) coating.

Branching corals, bryozoans, and serpulid worm tubes are attached to the phosphorite gravels.

ROCK DREDGE 982

Location: 32°38.3'N
78°07.4'W

Depth: 230 m

Dredge 1/10 full of large (average = 18 x 9 x 15 cm) rounded phosphorite gravels. Largest phosphorite gravel measured approximately 20 x 9 x 16 cm, and the smallest measured 9 x 14 x 7 cm. Black Mn (?) coating occurs on the gravels. Solitary corals and serpulid worm tubes are attached to the gravels. Colonial branching corals and a gravel of poorly indurated foraminiferal sandstone were also recovered.

ROCK DREDGE 995

Location: 32°35.2'N
77°39.6'W

Depth: 400 m

Large (14 x 10 x 6 cm) blocky phosphorite gravels. Largest gravel measured approximately 15 x 10 x 7 cm, and the smallest measured approximately 4 x 3 x 3 cm. Some gravels are coated with Mn (?). Others are coated with a thick shiney black (organic ?) substance. Serpulid worm tubes encrust the gravels. A few poorly indurated foraminiferal sandstone gravels were also recovered.

ROCK DREDGE 996

Location: 32°36.8'N
77°33.8'W

Depth: 410 m

Bored, foraminiferal sandstone coated with Mn(?). Also recovered branching colonial corals. Possibly a lithoherm (?).

ROCK DREDGE 998

Location: 32°44.0'N
78°03.6'W

Depth: 220 m

Recovered a full dredge of blocky large (average = 30 x 16 x 16 cm) phosphorite gravels. The largest gravel measures approximately 35 x 18 x 18 cm, and the smallest measures 7 cm in diameter. Gravels are encrusted with bryozoans, sponges, and serpulid worm tubes. Mn (?) coated. Gravels are pitted more than others previously observed.

ROCK DREDGE 012

Location: 32°02.6'N
78°20.1'W

Depth: 420 m

Recovered a full dredge of large slabs of phosphorite coated with Mn (?) and shiny black (organic ?) substance. Largest slab measured 65 x 50 x 6 cm. Small solitary corals and serpulid worm tubes are attached to the slabs.

ROCK DREDGE 017

Location: 32°16.0'N
77°46.5'W

Depth: 550 m

Recovered dredge full of large (average = 20 x 25 x 3 cm) pieces of indurated foram sandstone containing branching corals. A classic lithoherm (?).