

9231

Diag. Cht. Nos. 1000-3 & 1001-3

NOAA FORM 76-35A

U.S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

DESCRIPTIVE REPORT (HYDROGRAPHIC)

Type of Survey Hydrographic
Field No. MI-80-1-71
Office No..... H-9231

LOCALITY

State North Carolina
General Locality .. Atlantic Ocean
Locality East of Cape Hatteras

1971

CHIEF OF PARTY
Edwin K. McCaffrey

LIBRARY & ARCHIVES

DATE June 29, 1973

9231

Area 3, 2 & 1
CHT
11520
111009
-12200 PCH 8/81
-13003

HYDROGRAPHIC TITLE SHEET

H-9231

INSTRUCTIONS - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

MI-80-1-71

State North Carolina

General locality Atlantic Ocean

Locality East of Cape Hatteras
~~Lat. 34°59'N to 35°30'N; and Long 74°28'W to Long 75°07'W~~

Scale 1:80,000

Date of survey 22 Sep 71 to 14 Oct 71
JD 265 JD 287

Instructions dated 12 August 1971

Project No. OPR-438-MI-71

Vessel NOAA Ship MT MITCHELL (MSS-22)

Chief of party Edwin K. McCaffrey, Captain, NOAA

Surveyed by LCDR C.W. Fisher, LT J.L. Wallace, LT C.L. Hardt, LTJG S. McGee,
LTJG S.C. Schwartz, LTJG G.R. Bass, LTJG G.L. Sundin,
LTJG S. Wood, ENS G.M. Adair, ENS M.F. Kolesar

Soundings taken by echo sounder, ~~hydrographic log~~

Graphic record scaled by Ship Personnel

Graphic record checked by Ship Personnel and Verification Branch

Protracted by Cal-Comp Plotter

Automated plot by Atlantic Marine Center

Soundings penciled by Cal-Comp Plotter

Soundings in fathoms ~~XXXX~~ at MLW MKKX

REMARKS: It is to be noted that wherever the "Processing" stamp appears in the records the entry "Bubbler" Tide Gage at "Avon, N.C." was used. This gage location was changed to Hampton Roads, Virginia for the reason mentioned in a letter from Tides Branch, Rockville (See Page 26).

Applied to stel 9-5-79
MS

RWV 8/26/92

Descriptive Report
To Accompany
Hydrographic Survey Sheet
MI-80-1-71 (H-9231)

Project OPR-438-MI-71
1971 Field Season
Scale: 1:80,000

NOAA Ship MT MITCHELL (MSS-22) Edwin K. McCaffrey, CAPT, NOAA
Commanding Officer

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** Pages removed from this report and filed with field records*

A. PROJECT

This survey was accomplished as part of Project OPR-438, North Carolina Marine Charting, in accordance with Project Instructions, OPR-438-MI-71, dated August 12, 1971.

B. AREA SURVEYED

The survey was conducted between September 22, 1971 and October 14, 1971 off the coast of North Carolina. The northern limit of hydrography was Latitude 35°50'00"N. The southern limit was Latitude 34°59'00"N. The eastern limit was Longitude 74°28'30"W. The western limit was irregular, ranging from Longitude 75°00'00"W. to Longitude 75°06'54"W., to junction with three contemporary surveys. These three surveys are, from south to north, EX-40-1-64 (H-8810), MI-40-1-70 (H-9137), and MI-40-2-70 (H-9155). Junction is made with one contemporary survey to the north; MI-80-2-71 (H-9243).

C. SOUNDING VESSEL

The entire survey was accomplished by the NOAA Ship MT MITCHELL (MSS-22).

D. SOUNDING EQUIPMENT

Two echo sounding systems were used in this survey. In the shoaler water (to approximately 120 fathoms) a Raytheon Depth Recorder, Model DE-723D (Serial No. 37010) was used in conjunction with a Raytheon Digital Depth Monitor, Model DE-723D (Serial No. 37017). In deeper water, an EDO UQN Depth Recorder-Indicator, Model 185 (Serial No. 169) was used in conjunction with a McKiernan-Terry Precision Depth Recorder (PDR), Model Mark XVa (Serial No. 325) for the display.

All soundings were recorded in fathoms, read to the nearest unit on the PDR and digitized to the nearest tenth unit on the Raytheon DE-723D. All soundings were plotted to the nearest unit on the bathymetry sheets.

E. SMOOTH SHEET

An on-line plot was produced and a master data tape was punched during the survey by the HYDRO-PLOT system which operated

in conjunction with the ship's PDP-8E Digital Computer. The soundings were entered automatically while the DE-723D was in use, and entered manually while the PDR was in use.

Raw HI-FIX lane correctors were determined by visual calibration and preliminary correctors entered manually. Appropriate changes were made to these correctors whenever lane jumps were observed.

All fathograms were scanned for soundings to be corrected or inserted. These corrected and inserted soundings were logged to form a short-word corrector tape. Long corrector words were inserted after the actual HI-FIX and TRA correctors were determined, forming a smooth corrector tape. These tapes and the master tapes were used to plot a corrected sheet, which was used to determine lines to be re-surveyed, additional splits to be run, etc.

The only tide reducers represented on the boatsheet are the predicted tides used on the on-line plot. Smooth tides were not available at the time the boatsheet was drawn.

The boatsheet was plotted in three sections as required by the limitations of the ship's COMLOT plotter. Sheet "A" extends from Latitude 34°59'00"N. to Latitude 35°18'00"N. Sheet "B" extends from Latitude 35°18'00"N. to Latitude 35°38'00"N. Sheet "C" extends from Latitude 35°38'00"N. to Latitude 35°50'00"N. All data tapes and records are labeled "Sheet A, B, or C" referring to the three sections.

F. CONTROL

HI-FIX, operating at a frequency of 1618.650 KHz was used for position control during all operations. The Range-Range system, with slave stations located at two shore sites, was used.

Shore station FISH (R1) (Latitude 35°20'50.73"N, Longitude 75°30'06.63"W.), near Avon, North Carolina, and shore station SHIP (R2) (Latitude 36°01'27.59"N. Longitude 75°39'45.79"W.), 25 miles north of Oregon Inlet were located by Atlantic Marine Center personnel in 1970. Arc intersection using this configuration was less than the optimum 30° or greater at the southern sheet extremities. However, this requirement was waived by letter from the Atlantic Marine Center. (Refer to CAML letter to Commanding Officer, MT MITCHELL dated July 30, 1971).

HI-Fix was calibrated at the beginning of each cruise and whenever the lane count was in doubt. Calibrations were made at one of two locations. At Diamond Shoals Light Tower, the circling method of calibration was used. The lane count values for Diamond Shoals Light were derived, utilizing the "Utility Computations" program, (AM300), from the 1971 geographic position of the light. At Oregon Inlet, the 3-point fix method of calibration was used, utilizing the "Hyperbolic/Range-Range Calibration" program, (AM560). Bodie Island Lighted Bell Buoy R"8" (Light List No. 162) (Latitude 35°55.8' North Longitude 75°27.5' West) was used for a rough check on whole-lane count. The lane count was determined by the circling method, after having come directly from a 3-point fix calibration at Oregon Inlet, then, after 9½ hours of hydrography, the buoy was again circled as a check on the HI-Fix lane count.

G. SHORELINE

There is no shoreline to be considered in this survey.

H. CROSSLINES

Crosslines amount to 10% of the total miles of sounding lines in depths greater than 1000 fathoms. Crosslines inside the 1000 fathom curve amount to 6.2% of the total sounding lines in accordance with Project Instructions.

I. JUNCTIONS

The western edge of this survey made junction with three contemporary surveys: EX-40-1-64 (H-8810), MI-40-1-70 (H-9137), and MI-40-2-70 (H-9155), reading from south to north. Junction comparisons were made after converting the soundings of the above listed three contemporary surveys to fathoms and re-plotting them on a 1:80,000 scale. and H-9243 (1971)

The junction with EX-40-1-64⁽⁸⁸¹⁰⁾ was excellent in all but the extreme southern end of the junction area. The apparently greater discrepancy at this southern end is probably due to the steeper bottom slope and the relative scarcity of soundings in this area.

The junction with MI-40-1-70⁽⁹¹³⁷⁾ was almost perfect, with only a few differences of 1 fathom.

The junction with MI-40-2-70^(H-9155) was generally good, with agree-
ment to within 1 fathom over the entire junction area. ✓

J. COMPARISON WITH PRIOR SURVEYS

The most recent prior survey of the project area is H-1721, ✓
a 1:200,000 scale sheet completed in 1886. Agreement is
generally within two or three fathoms out to the 50 fathom
curve. In greater depths, especially in areas of steep
slope, disagreement becomes much greater, the differences
ranging up to 400 fathoms. These disagreements can most
probably be attributed to the limitations of the methods
used for the 1886 survey.

There was one Pre-Survey Review item within the limits of ✓
this survey: Pre-Survey Review Item 1b, a sunken wreck ^{charted} at
Latitude 35°49.3' N. Longitude 74°54.0' W. This wreck was
found at Position No. 514 of the regular sounding lines and,
although a development was later conducted in the area, no
further trace of the wreck was found. The wreck lies at the
seaward edge of a shelf in 44 fathoms of water. The trace
found, consists of two spikes; the first one, 10 fathoms
tall, falls exactly on Position No. 514, and the second, 5
fathoms tall, lies 2300 feet due west from the first. The
shoalest depth found in the area of this feature is 34 fath-
oms (echo sounding).
** Smooth sounding 38.5 fms
Lat 35°49.11"
Long 74°54'01"*

K. COMPARISON WITH THE CHART

The C&GS charts covering the area in this survey are: Chart ✓
1109 (Scale 1:416,944), Chart 1001 (Scale 1:1,200,000),
and Chart 1000 (Scale 1:1,200,000). Agreement is within
three fathoms out to the 50 fathom curve. In deeper water
the disagreement reaches 300 fathoms in 1300 fathoms. This
disagreement is, again, probably due to the limitations of
the methods used for the 1886 survey, upon which much of
these charts are based.

L. ADEQUACY OF THE SURVEY

The bottom sampling operations were not completed. (Refer to ✓
the "RECOMMENDATIONS" section of this report). This survey
is adequate in all other respects, within the limits of hydro-
graphy, to supersede prior surveys for charting this area.

M. AIDS TO NAVIGATION

There are no aids to navigation within the boundaries of this survey. ✓

N. STATISTICS

Number of Positions -----	1314
Number of Positions rejected -----	4
N.M., Sounding Line inside 1000 fathom curve ----	497.0
N.M., Crosslines inside 1000 fathom curve -----	51.3
N.M., Sounding Line outside 1000 fathom curve ---	1293.2
N.M., Crosslines outside 1000 fathom curve -----	80.3
Total N.M. of hydrography (linear) -----	1921.8
Square N.M. surveyed -----	1395.3
N.M., Developments -----	9.0
Square N.M., Developments -----	2.0
N.M., Miscellaneous Distance Run -----	965.0
N.M., Distance Run To & From -----	606.5
Number of Bottom Samples -----	5-
Number of Serial Temperature Casts (Nansen) ----	5
Percentage Crosslines inside 1000 fathom curve --	10.0%
Percentage Crosslines outside 1000 fathom curve -	6.2%

O. MISCELLANEOUS

All times used on this project are Greenwich Mean Time. The approximate longitude of the area of operations is 74°50'W. ✓

A Hydrographic Operations Log Book (Sounding Volume), one for each of three COMPLIT sheets designated "A", "B" and "C", was used for recording remarks and data appropriate to the survey as per Project Instructions. The required notes and stamps also appear on the Range-Range Master Tape printouts. ✓

Insert soundings and soundings obtained during HI-FIX lane jumps are plotted on time and course. Soundings obtained during lane jumps have an indicator of "3" on the Range-Range Corrector Tape. ✓

The boatsheet (comprised of ^{four} ~~three~~ COMPLIT sheets "A", "B", "C") supplied to the Atlantic Marine Center is not corrected for smooth tides or velocity of sound in sea water. Corrections were not available at the time the survey was plotted. All positions do reflect corrected HI-FIX values and all soundings ✓

Sheet "C" Development

are corrected for instrument error, draft of the vessel, settlement and squat, and predicted tides.

P. RECOMMENDATIONS

It is recommended that the bottom sampling operations be completed in accordance with Section 1-42 of the Hydrographic Manual. It is to be noted that the depths in the survey area range from 19 fathoms to 1439 fathoms and the bottom sampling operations may be in excess of 2 hours per sample in deep water.

Bottom sampling was deferred in accordance with the priority schedule listed in Section 2 of the Project Instructions.

Q. REFERENCES TO REPORTS

The 1971 Field Season reports, listed below, for Project OPR-438-MI-71, North Carolina Marine Charting, should be referred to for a complete evaluation of this survey.

Report on Corrections to Echo Soundings
Report on Calibration of HI-FIX

Respectfully Submitted,

Gary M. Adair
Gary M. Adair, LTJG, NOAA

Approved and Forwarded,

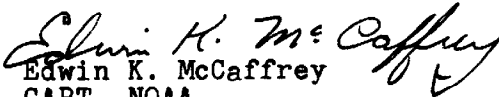
Edwin K. McCaffrey
Edwin K. McCaffrey, CAPT, NOAA
Commanding Officer

APPROVAL SHEET

Field Number MI-80-1-71

Registry Number H-9231

The field work and processing of data from this hydrographic survey was under my immediate daily supervision. The boatsheet and all records have been reviewed and are approved by me. Subject to limitations noted in Sections "L" and "P" of the descriptive report, this survey is complete and adequate to supersede all prior surveys of the area.


Edwin K. McCaffrey
CAPT, NOAA
Commanding Officer

ABSTRACT OF VELOCITY CORRECTIONS
 OCEO STATION #1 (Zone I)

CORR FATH	DEPTH FATH	CORR FATH	DEPTH FATH	CORR FATH	DEPTH FATH
	0.0		87.0		739
0.0	2.5	4.2	92.2	21.0	795
0.2	6.3	4.4	97.2	22.0	843
0.4	9.5	4.6	102.2	23.0	885
0.6	13.2	5.0	116.5	24.0	928
0.8	17.0	5.5	127.8	25.0	975
1.0	21.2	6.0	141.5	26.0	1022
1.2	25.0	6.5	153.5	27.0	1065
1.4	29.0	7.0	174.5	28.0	1111
1.6	32.8	8.0	200	29.0	1152
1.8	37.0	9.0	225	30.0	1193
2.0	41.8	10.0	250	31.0	1228
2.2	45.7	11.0	275	32.0	1261
2.4	50.2	12.0	305	33.0	1295
2.6	54.5	13.0	342	34.0	1326
2.8	59.0	14.0	385	35.0	1361
3.0	63.8	15.0	432	36.0	1394
3.2	68.5	16.0	487	37.0	1427
3.4	73.0	17.0	555	38.0	1460
3.6	77.2	18.0	619	39.0	1492
3.8	81.5	19.0	681	40.0	1525
4.0	87.0	20.0	739	41.0	1558

ABSTRACT OF VELOCITY CORRECTIONS

OCEO STATION #1 (Zone ^{II}I)

CORR FATH	DEPTH FATH
--------------	---------------

	1558
42.0	1591
43.0	1624
44.0	1658
45.0	1691
46.0	1725
47.0	1757
48.0	1789
49.0	1823
50.0	1855
51.0	1890
52.0	1924
53.0	1955
54.0	1984

54.0 *Depth*

ABSTRACT OF AVERAGE VELOCITY CORRECTIONS

AVERAGE OF OCEO STATIONS III, VI, & VII (Zone I)

CORR FATH	DEPTH FATH	CORR FATH	DEPTH FATH
0.0	0.0	8.0	343
0.2	2.3	9.0	515
0.4	6.5	10.0	587
0.6	11.8		669
0.8	19.2	10.0	Deeper
1.0	26.3		
1.2	34.0		
1.4	41.5		
1.6	48.6		
1.8	56.0		
2.0	64.5		
2.2	73.5		
2.4	79.5		
2.6	87.2		
2.8	96.0		
3.0	105.0		
3.5	119.0		
4.0	141.0		
5.0	185.0		
6.0	258		
7.0	345		

Abstract of Transducer Draft Correctors

Boatsheet MI-80-1-71

Registry Number H-9231

<u>Julian Day</u>	<u>Date (1971)</u>	<u>Draft Entered On Master Tape (feet)</u>	<u>Actual Draft (feet)</u>	<u>Corrector (feet)</u>
265	Sep. 22	13.8	14.2	+ 0.4
266	Sep. 23	13.8	14.1	+ 0.3
267	Sep. 24	13.8	14.0	+ 0.2
268	Sep. 25	13.8	13.9	+ 0.1
269	Sep. 26	13.8	13.7	- 0.1
270	Sep. 27	13.8	13.6	- 0.2
271	Sep. 28	13.8	13.5	- 0.3
277	Oct. 4	13.8	13.6	- 0.2
278	Oct. 5	13.8	13.5	- 0.3
279	Oct. 6	13.8	13.3	- 0.5
280	Oct. 7	13.8	13.2	- 0.6
281	Oct. 8	13.8	13.0	- 0.8
285	Oct. 12	13.8	13.4	- 0.4
286	Oct. 13	13.8	13.4	- 0.4
287	Oct. 14	13.8	13.3	- 0.5

NOAA Ship MT MITCHELL (MSS-22)

Settlement & Squat Corrections

(Skeg Transducer)

<u>RPM's</u>	<u>Correction</u>
105 -----	+0.1
110 -----	+0.1
115 -----	+0.2
120 -----	+0.2
125 -----	+0.3
130 -----	+0.3
135 -----	+0.4
140 -----	+0.4
145 -----	+0.5
150 -----	+0.5
155 -----	+0.6
160 -----	+0.6
165 -----	+0.7
170 -----	+0.7
175 -----	+0.8

ATLANTIC MARINE CENTER
ELECTRONIC CONTROL PARAMETERS

1. Project # OPR-438 2. Reg. # H- 9231 3. Field # MI-80-1-71
 4. Type of Control Hi-Fix (Range-Range) (Hi-Fix, ~~Hyperbolic, Range-Visual~~)
 5. Frequency 1618.650 KHz (for conversion of electronic lanes to meters)
 6. Mode of Operation (check one):

Range-Range

Range-Visual

Range One (R₁)
 Station I.D. FISH (1970)
 Range Two (R₂)
 Station I.D. SHIP (1970)

Lat. 35 ° 20 ' 50.733 "
 Long. 75 ° 30 ' 06.631 "
 Lat. 36 ° 01 ' 27.592 "
 Long. 75 ° 39 ' 45.789 "

Hyperbolic (3-station)

Hyper-Visual

Slave One
 Station I.D. _____
 Master
 Station I.D. _____
 Slave Two
 Station I.D. _____

Lat. _____ ° _____ ' _____ "
 Long. _____ ° _____ ' _____ "
 Lat. _____ ° _____ ' _____ "
 Long. _____ ° _____ ' _____ "

7. Location of Survey:

Range-Range

Imagine an observer is standing at R₁ Station and looking directly at R₂ (check one):

Survey area is to observer's Right A=∅

Survey area is to observer's Left A=1

Hyperbolic

Looking from survey area toward Master Station:

Slave One must be to observer's Left.

Slave Two must be to observer's Right.

8. This form is submitted as an aid in preparing a boat sheet.

This form applies to all data on this survey.

This form applies to part of the data on this survey.

Vessel EDP #	From Time Day	To Time Day	Position Numbers (inclusive)
_____	_____	_____	_____ to _____
_____	_____	_____	_____ to _____
_____	_____	_____	_____ to _____

9. Remarks: _____

Descriptive Tide Note

Boatsheet MI-80-1-71 (H-9231)

Boatsheet MI-80-2-71 (H-9243)

The standard tide station used for this project was Hampton Roads, Virginia (Latitude $36^{\circ}57.0'N.$, Longitude $76^{\circ}20.0'W.$).

Project Instructions OPR-438-MI-71 called for the use of a reference station at Avon Fishing Pier, Avon, North Carolina, but since data from that station was "intermittent and erratic", it could not be used with confidence and tidal control was taken directly from the Hampton Roads station.

Hourly heights from both the Hampton Roads and Avon tide gages were furnished from Rockville and copies of this data are included in this report.

Refer to letter dated December 15, 1971 from C3312-307 NOAAAS to Commanding Officer, MT MITCHELL. (Copy included in this report).

A small portion of the hydrography for this project extended to the north of Latitude $36^{\circ}00'N.$ which was to be the northern limit of the first tide zone. For sheet continuity, the northern limit of the tide zone was extended to Latitude $36^{\circ}12'N.$ to include the entire area surveyed in 1971.

All times have been converted to Greenwich Mean Time.



U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SURVEY
Rockville, Md. 20852

Date: March 2, 1973

Reply to
Attn of: C3311-15-SIP

Subject: Zoning Requirements for OPR 438-1971

To: Lieutenant (jg) Wayne Turnacliff
Data Preparation Group, CAM221

The following time and height corrections are recommended for Hydrographic sheets H-9231 and H-9243.

Time Difference

Range Ratio

-1 hr. 45 min.

x 1.1 ft.

Hampton Roads hourly heights should be used for tide control for reasons previously stated in a memo from the Chief, Processing Section, Oceanographic Division, C3312.

Robert A. Cummings

Robert A. Cummings
Chief, Tides Branch
Oceanographic Division

U. S. DEPARTMENT OF COMMERCE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SURVEY

1/15/73

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center

Hourly heights are approved for Form 362's Hourly Heights

Tide Station Used (NOAA form 77-12): Hampton Roads, Va.

Period: September 22 - October 22, 1971

HYDROGRAPHIC SHEET: H-9243

OPR: 438

Locality: N.C. Coast

Plane of reference (mean ~~lower~~ low water): 3.9
which is feet on tide staff.

Height of Mean High Water above Plane of Reference is 2.5

Remarks:

Chief, Tides Branch

R-9231

GEOGRAPHIC NAMES

Name on Survey	Source of Name										
	A	B	C	D	E	F	G	H	K		
	ON CHART NO.	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	GRAND McNALLY ATLAS	U.S. LIGHT LIST			
Atlantic Ocean											1
											2
											3
											4
											5
											6
											7
											8
											9
											10
											11
											12
											13
											14
											15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25

Approved by:
Chas. E. Hamming
 Staff Geographer
 Nov. 13, 1973

AMC VERIFICATION NOTES

SURVEY H-9231

GENERAL

This appears to be an excellent basic survey. The few problems found and the methods used to resolve them may be found in the enclosed "Plotter Notes".

SOUNDINGS

When the excess sounding plot was made the decimal fractions and 3 and 4 digit soundings caused far too many soundings to plot on the excess sounding overlay. Since a program to excess soundings with the orientation changed is not available, the soundings were plotted at 45 degrees to show decimal fractions on the 2 digit soundings, and to get the proper spacing on the 3 and 4 digit soundings. Some soundings were excessed or added to the survey by hand.



Hugh L. Proffitt
Chief, Verification Br., AMC

Norfolk, Va.
June 15, 1973

ATLANTIC MARINE CENTER
APPROVAL SHEET
FOR
AUTOMATED SURVEY H- 9231

- A. All revisions and additions made on the smooth sheet during verification have been entered in the magnetic tape records for this survey. A new final position printout has ~~not~~ been made. A new final sounding printout has ~~not~~ been made.

Date: June 15, 1973

Signed: *Alfred J. Ruffin*

Title: Chief, Verification Branch

- B. The verified smooth sheet has been inspected, is complete, and meets the requirements of the Hydrographic and AMC Manuals. Exceptions are listed in the verifier's report.

Date: 20 June 1973

Signed: *LTJG Gregory R. Davis*

Title: ^{for} Chief, Processing Division

Fig. 18.

DESCRIPTIVE REPORT DATA RECORD		
PART I SMOOTH SHEET PREPARATION		
	PREPARED BY/OPERATOR	DATE
A. PLOTTER OPERATOR	EDP-AMC	
B. DISTORTION MARKS PLOTTED	N.A.	
C. PROJECTION INTERSECTIONS PLOTTED	EDP-AMC	
D. POINTS OF ELECTRONIC CONTROL ARCS PLOTTED	EDP-AMC	
E. OVERLAYS PREPARED BY	EDP-AMC	
1. POSITION NUMBER	EDP-AMC	
2. EXCESS SOUNDINGS	EDP-AMC	
3. PRELIMINARY SMOOTH PLOT	EDP-AMC	
4. LIST OTHERS		
A.		
B.		
F. SOUNDING SELECTION BY	EDP-AMC	
G. PLOTTER INPUT	PREPARED	
H.	CHECKED	
I. DESCRIPTIVE REPORT ADDENDUMS		
PART II SMOOTH SHEET COMPLETION		
	CARTOGRAPHER	DATE
A. DISTORTION SCALE TICKS IDENTIFIED BY NOTE	N.A.	
B. PROJECTION INTERSECTIONS VERIFIED BY	BTD	6/6/73
C. PROJECTION LINES RULED BY	EDP-AMC	
D. ELECTRONIC CONTROL ARCS RULED AND LOCATION VERIFIED	EDP-AMC Verified by BTD	
E. OVERLAYS COMPLETED BY		
1. POSITION NUMBER LEADERS ADDED	BTD	6/8/73
2. EXCESS SOUNDING OVERLAY COMPARED	BTD	6/12/73
3. PRELIMINARY SMOOTH PLOTS COMPARED	BTD	6/12/73
4. OTHERS UTILIZED		
A.		
B.		
F. DESCRIPTIVE REPORT ADDENDUM	BTD	6/13/73
G. CONTROL STATIONS VERIFIED		
H. POSITIONS MANUALLY PLOTTED		
I. MANUAL PLOT VERIFIED		
J. SHORELINE APPLIED		
K. BOTTOM CHARACTERISTICS ADDED	BTD	6/8/73
L. NOTES AND DEPTH CURVES ADDED	BTD	6/12/73

FORM CGCS-946
 (REV. 11-65)
 PREP. BY
 HYDROGRAPHIC
 MANUAL 20-2,
 6-91, 7-131

U.S. DEPARTMENT OF COMMERCE
 ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION
 COAST AND GEODETIC SURVEY
 NAUTICAL CHART DIVISION

HYDROGRAPHIC SURVEY STATISTICS
 HYDROGRAPHIC SURVEY NO. **H-9231 (MI-80-1-71)**

RECORDS ACCOMPANYING SURVEY: To be completed when survey is registered.

RECORD DESCRIPTION	AMOUNT	RECORD DESCRIPTION	AMOUNT			
SMOOTH SHEET & PNO	1	BOAT SHEETS	1 (4 parts)			
DESCRIPTIVE REPORT	1	OVERLAYS	6			
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS / SOURCE DOCUMENTS
ENVELOPES	#5					
CAHIERS	1		4			
VOLUMES	3 Hydrographic Operations log					
BOXES			4			1

T-SHEET PRINTS (LIST) **None**

SPECIAL REPORTS (LIST)
See page 6 of Descriptive Report

OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS *			TOTALS
	PRE-VERIFICATION	VERIFICATION	REVIEW	
POSITIONS ON SHEET				1314
POSITIONS CHECKED		130		
POSITIONS REVISED		3		
DEPTH SOUNDINGS REVISED		150+		
DEPTH SOUNDINGS ERRONEOUSLY SPACED		0		
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED		0		
		TIME (MANHOURS)		
TOPOGRAPHIC DETAILS		0	0	
JUNCTIONS		8	16	
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		30	20	
SPECIAL ADJUSTMENTS				
ALL OTHER WORK		127	52	
TOTALS		165	88	
PRE-VERIFICATION BY		BEGINNING DATE	ENDING DATE	
VERIFICATION BY		BEGINNING DATE	ENDING DATE	
R.G. Roberson - B.T. Davis		12/4/72	6/13/73	
REVIEW BY		BEGINNING DATE	ENDING DATE	
<i>L. Dunbar</i>		15 Dec 77	15 May 79	

Insp. D.R. Engle

26 hrs 6 Jun 79

OFFICE OF MARINE SURVEYS AND MAPS
HYDROGRAPHIC SURVEYS DIVISION
MODIFIED HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-9231

FIELD NO. MI-80-1-71

North Carolina, Atlantic Ocean, East of Cape Hatteras

SURVEYED: September 22 - October 14, 1971

SCALE: 1:80,000

PROJECT NO.: OPR-438

SOUNDINGS: Raytheon DE-723D Depth Recorder
and Precision Depth Recorder

CONTROL: Hi-Fix (Range-Range)

Chief of Party	E. K. McCaffrey
Surveyed by	C. W. Fisher
.....	J. L. Wallace
.....	C. L. Hardt
.....	S. McGee
.....	S. C. Schwartz
.....	G. R. Bass
.....	G. L. Sundin
.....	S. Wood
.....	G. M. Adair
.....	M. F. Kolesar
Automated Plot by	Calcomp 618 (AMC)
Verified by	R. G. Roberson
.....	B. T. Davis
Reviewed by	L. Quinlan
	Date: May 15, 1979
Cursory inspection made--survey	D. R. Engle
processing considered complete	June 6, 1979

1. Control and Shoreline

The origin of the control is adequately covered in part F of the Descriptive Report.

There is no shoreline within the limits of this offshore survey.

2. Hydrography

- a. Depths at crossings are in good agreement.

b. The usual depth curves are adequately delineated except in the canyons on the continental slope where additional splits would have enhanced the survey. Some brown curves have been added to emphasize certain bottom features.

c. The development of the bottom is considered adequate except as noted in b above.

3. Condition of Survey

The survey records, automated plotting, and the Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual and the Instruction Manual - Automated Hydrographic Surveys.

The junctional notes were inked during verification indicating the junctions had been accomplished, although depth curves had not been brought into coincidence as required. The junctional curves were brought into coincidence by the reviewer.

Insufficient bottom characteristics were obtained because of time limitation. Therefore, a few bottom characteristics were brought forward from prior survey H-1721, in areas of stable bottom, to supplement the present survey data.

4. Junctions

Adequate junctions were effected with H-9243 (1971) on the north, H-8810 (1964-65) on the west, H-9137 (1970) on the northwest, and H-9155 (1970) on the northwest. No contemporary surveys junction with the present survey on the south and east. However, present survey depths are in general harmony with the charted depths in those areas except in the extreme northeast, southeast, and southwest corners of the survey area where the adjacent charted depths are considerably shoaler than survey depths.

5. Comparison with Prior Surveys

a.	H-237	(1849-50)	1: 400,000
	H-1458	(1880-82)	1:1,200,000
	H-1498a	(1880-82)	1:1,200,000
	H-1498b	(1880-82)	1:1,200,000
	H-1500a	(1881)	1: 600,000
	H-1721	(1886)	1: 200,000
	H-2920a	(1882-87)	1:1,200,000

These early small-scale surveys lack sufficient reliable information for a comparison of any cartographic value.

With the addition of several bottom characteristics carried forward from H-1721, the present survey supersedes the above surveys in the common area.

b. FE No. 6 W.D. (1957) 1:40,000

Present survey depths do not conflict with effective cleared depths on this wire-drag survey.

A 23-fathom sounding on an obstruction located in latitude $35^{\circ}37.72'$, longitude $74^{\circ}53.44'$ has been carried forward from this wire-drag survey to the present survey.

6. Comparison with Chart 12200 (1109) 29th Edition, April 9, 1977

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys, supplemented by Bp-52945 and HO Chart 0942.

The present survey is adequate to supersede the above charted hydrography.

Attention is directed to the following:

(1) The sunken wreck charted in latitude $35^{\circ}49'00''$, longitude $74^{\circ}55'00''$ from the Navy Wreck List was found to the east of its charted position in latitude $35^{\circ}49'11''$, longitude $74^{\circ}54'01''$. See paragraph J in the hydrographer's section of the Descriptive Report for further details.

(2) The sunken wreck cleared to 17 fathoms charted in latitude $35^{\circ}37.72'$, longitude $74^{\circ}53.8'$ from Chart Letter 561 (1955) and FE No. 6 of 1957, on which it is described as a 23-fathom obstruction, is presently charted about 450 meters west of its survey position.

b. Aids to Navigation

There are no aids to navigation within the limits of the present survey.

7. Compliance with Instructions

The survey adequately complies with the project instructions.

8. Additional Field Work

This survey is considered to be adequate for charting and no additional field work is recommended.

Examined and Approved:


Acting Chief
Hydrographic Surveys Division


Associate Director
Office of Marine Surveys and Maps

Reg. No. 9231

The Computer and Excess Sounding Cards for this survey have not been corrected to reflect the changes made to the Computer Card and Excess Card Printouts at this time of the review.

When the cards have been updated to reflect the final results of the survey the following shall be completed:

CARDS CORRECTED

DATE _____ TIME REQ'D _____ INITIALS _____

REMARKS:

Reg. No. 9231

The magnetic tape containing the data for this survey has not been corrected to reflect the changes made during evaluation and review.

When the magnetic tape has been updated to reflect the final results of the survey, the following shall be completed:

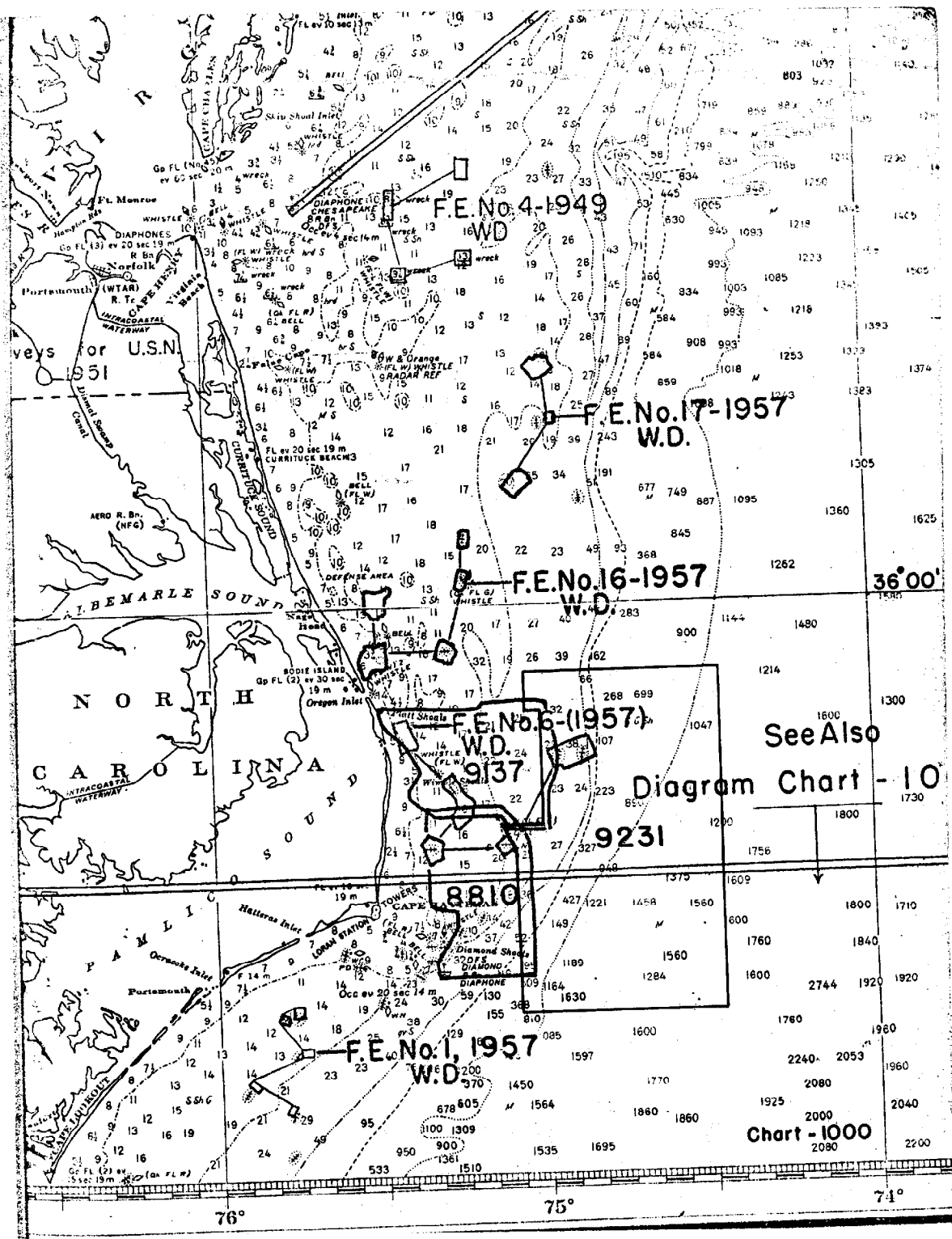
MAGNETIC TAPE CORRECTED

DATE 12-6-82 TIME REQ'D _____ INITIALS JSC

REMARKS:

Revise records nos. : 10710, 10712, 10713, ~~10714~~, 10716, 9493, 6386, 6387, 6392

²
Insert Soundings after record no : 9494



F.E.No. 4-1949
W.D.

F.E.No. 17-1957
W.D.

F.E.No. 16-1957
W.D.

F.E.No. 6-(1957)
W.D.
9137

8810

F.E.No. 1, 1957
W.D.
570

See Also
Diagram Chart - 10

Chart - 1000

76°

75°

74°

36°00'

