

9061

Diag. Cht. Nos. 1001-3 & 1235

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-100-1-69
Office No. H-9061

LOCALITY

State NORTH CAROLINA
General Locality .. ONSLOW BAY
Locality EAST OF FRYING PAN SHOALS

1969

CHIEF OF PARTY
Kenneth A. MacDonald

LIBRARY & ARCHIVES

DATE 8/17/71

9061

Areas 2+3

Cht
1001 }
1110 } Area 3
1007 }

11534 (+235) Area 2

HYDROGRAPHIC TITLE SHEET

H-9061

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 100-1-69

State NORTH CAROLINA

General locality ATLANTIC OCEAN ONSLOW BAY

Locality EAST OF FRYING PAN SHOALS

Scale 1:100,000 Date of survey Oct. 1969

Instructions dated 13 Aug. 1969 Project No. OPR-486

Vessel USC&GS SHIP MT. MITCHELL

Chief of party KENNETH A. MACDONALD

Surveyed by Y.A. BUSH, V.E. DELNORE, W.R. DANIELS, D.R. MCKEEL, TOM GRYNIEWICZ, R.S. MOODY, P.A. BRIGGS & B.S. SIKES

Soundings taken by echo sounder, ~~and tide pole~~ ECHO SOUNDER

Graphic record scaled by SHIP PERSONNEL

Graphic record checked by SHIP PERSONNEL

Protracted by GERBER DIGITAL PLOTTER Automated plot by PACIFIC MARINE CENTER

Soundings penciled by GERBER DIGITAL PLOTTER

Soundings in ~~fathoms~~ feet at MLW ~~MLW~~

REMARKS: Misc. items have been removed from the P.R. and are filed in the Cahier with the field records

*Chrs
1001
1007
1110*

*Applied to Stds 10/28/71
GAB*

*Exam for N.S. 11/3/71
GAB*

XJW 8/12/72

DESCRIPTIVE REPORT
TO ACCOMPANY
HYDROGRAPHIC SURVEY SHEET
MI-100-1-69 (H-9061)
1969 FIELD SEASON

USC&GS SHIP MT. MITCHELL

SCALE 1:100,000

KENNETH A. MACDONALD, CDR USESSA

CHIEF OF PARTY

A. PROJECT

This survey was accomplished under Project OPR-486, Bathymetric Surveys, North Carolina Coast. Instructions dated August 13, 1969 supersede all previous instructions.

B. AREA SURVEYED

The area in which this survey was conducted includes the southwest portion of Onslow Bay, near Cape Fear, N.C., joining on the west the Ship PIERCE's work on Boat Sheet PE-80-2-69 at Long. 77° 20' W. and on the south the Ship MT. MITCHELL's work on Boat Sheet PE-80-2-69. The survey is bounded on the north by Lat. 34° 00' N. and on the east by the 100 fathom curve. There is also a small panhandle of the survey to the northeast about 4 miles wide extending eastward to Long. 76° 00' W.

C. SOUNDING VESSEL

The Ship MT. MITCHELL performed all hydrography on this sheet. Position numbers are denoted in violet.

D. SOUNDING EQUIPMENT

A Raytheon fathometer, type DE-723, was used for sounding this survey. Fathometer number 1280 was used for the entire survey. A newly-installed skeg-mounted transducer gave very good results even in moderate seas. Depths to 1600 ft. were observed.

The velocity corrections for the ship were obtained by taking Nansen cast oceanographic stations. Depth and temperature were recorded in the field. Salinity data was determined by means of a salinometer carried on board. Results of the oceanographic observations were used in determining layer velocities for sound. These values were then graphed, with velocity corrector values picked off for standard depths as per the Hydrographic Manual (C&GS Pub. 20-2).

(Commencing at position 156)
The initial was held close to 0.0 ft., and the actual values have been abstracted. An instrument corrector of 1.2 (+) was determined. No phase corrector for fathometer depths existed.

Hourly comparisons of the "A" and "F" scale initial traces were made. Frequent daily checks were made of the fix mark trace with that of the fine arcs on the fathogram. All comparisons remain with the fathogram.

E. SMOOTH SHEET

The smooth sheet will be computer plotted at the Pacific Marine Center, Seattle, Washington. Field records were encoded on punched tapes designed for computer use. This "Raw Data Tape" was made during the field operations and contained position information including time, depth, day number, and the two Hi-Fix readings, recorded in ASCII Code, single indicator format. A Hydrographic Logger and Depth Module Mark 3-0 (#201687) was used to record these parameters. Corrector tapes were also logged which provide calibration corrections to Hi-Fix readings as well as all other data (smooth tides, transducer corrections, etc.), necessary to reduce the depth to final, correct values. The tapes will be integrated by computer to obtain data for the computer plotter.

F. CONTROL

Hi-Fix ^(range-range) was used for positioning the ship during hydrographic operations. Shore stations established at "CLUB" (Atlantic Beach, N.C.) and "DOW" (Kure Beach, N.C.) generated the electronic control required. ^{Pow (A) 34°0'13.45" 77°54'15.16"}

Hi-Fix ^(range-range) was calibrated at the beginning of each cruise and also at the end, except when prevented by weather or equipment problems, by running the range of PIER and WAVE while taking sextant angles to determine a position and simultaneously recording Hi-Fix values. When these values were compared with those scaled from a 1:10,000 scale calibration sheet, corrections were obtained for P1 and P2. ^{C106(P2) 34°41'52.01" 76°45'58.07"}

The Hi-Fix ^(range-range) lane count was often checked by circling previously located buoys or structures by comparing observed and scaled values. Initial shore calibrations required a minimum of six fixes to obtain corrections and buoys were circled twice for lane checks. The correctors for both the plotting boatsheet and smoothsheet were derived to the nearest 0.1 lane. ^{1618.65 KC Pier 34°41'44.72" 76°42'39.36" WAVE 34°43'14.73" 76°42'53.41"}

G. SHORELINES

There was no shoreline to be considered on this sheet. ^{Beau 34°43'09.03" 76°39'49.92" RANG. 34°41'18.73" 76°39'30.98"}

H. CROSSLINES

Crosslines were run at 5.9% of the total mileage of sounding lines. Crossings in some areas were 2 to 3 ft. off, but within the limits specified by the Hydrographic Manual (C&GS Pub. 20-2). Most crossings were in good agreement.

I. JUNCTIONS

Junction was made with contemporary ⁽⁹⁰⁴⁵⁾ survey PE-80-1-69 ⁽¹⁺⁹⁰⁴⁴⁾ along the northern limit, and with PE-80-2-69 along the western border. Most junction arcs agreed to within a foot and depth curves showed no discontinuity through the junction. Also junctions with MI-80-1-69 ^(H-9060) on the north east.

J. COMPARISON WITH PRIOR SURVEYS

Four developments were run on this sheet. All four included pre-survey review items. Sounding lines were run at 450 meter spacings and covered an area of approximately 2.0 nm radius from the plotted sounding. The least depths found are corrected for predicted tides only.

<u>Development number</u>	<u>Position Questioned</u>	<u>Questioned Depth</u>	<u>Least Depth Found</u>	<u>New position of least depth found</u>
1	33° 59.0' N 77° 14.0' W	84 ft.	88 ⁹ ft.	33° 59.5' N 77° 14.0' W Wreck
2	33° 45.3' N 77° 16.3' W	90 ft.	107 ⁵ ft.	33° 45.3' N 77° 16.3' W Wreck
3	33° 38.4' N 77° 10.0' W	102 ft.	104 ft.	33° 38.5' N 77° 10.3' W Wreck
4	33° 54.5' N 77° 12.8' W	84 ft.	88 ⁹¹ ft.	33° 54.3' N 77° 13.0' W Wreck

1) Concerning developments 1, 2, and 4, the charted soundings are definitely not general bottom features. The possibility remains they may be wrecks; however, since they are not dangers to navigation, it is recommended that they be removed from the chart.

2) In development 3 the sounding of 104 ft. indicates the 102 ft. sounding may be in the area and therefore recommend it remain on the chart. *The above questionable soundings are considered to be general bottom features. See review - 68.*

Four other pre-survey review items were not developed, owing to soundings approximating the questioned depths nearby and allowing for the relatively poor control in the 1927 survey. They are as follows:

<u>Position</u>	<u>Questioned Depth</u>	<u>Depth Found</u>	<u>Remark</u>
33° 24.5' N 77° 19.0' W	102 ft.	118 ⁷ ft.	a sounding of 100 ft. exists 1 nm to SW on 11-9045 ✓
33° 29.0' N 77° 11.2' W	120 ft.	128 ⁹ ft.	a sounding of 120 ² ft. exists 2 1/4 ^{2 1/4} nm to N and slightly W. ✓
33° 31.5' N 77° 10.7' W	120 ft.	133 ² 119 ft.	ridge just inshore with 119-120 ft. sounding about 1 nm to NE 720 m NE. recommend charting 119 ft. ✓
33° 58.5' N 77° 17.0' W	84 ft.	89 ⁸ 84 ft.	

The wreck listed as pre-survey item "F" was found on October 8, 1969, and its position confirmed at 33° 58' N Lat. and 77° 02' W Long. *Least depth found on present survey - 80 ft. Retain as charted.*

Two other wrecks, pre-survey items "E" (position 33° 44.7' N, 77° 10.4' W) and "G" (position 33° 56.0' N, 77° 32.4' W), were not found in the routine hydrography and no oil slicks were observed in the areas.

See Review
7a(4)

K. COMPARISON WITH THE CHART

Discrepancies in depths shown on C&GS chart 1110 were found in three cases, as follows:

<u>Latitude</u>	<u>Longitude</u>	<u>Charted depth</u>	<u>Depth found</u>
33°33.0'N	76°58.3'W	138.246 ft.	150-13 ¹⁵ ft.
33°30.5'N	76°55.6'W	444 ft.	297-31 ³⁰ ft.
33°55.5'N	76°51.0'W	108.144 ft.	112 ⁴ ft.

} See review
68

In the shoal areas, the chart (1110) has depths generally from 5 to 8 ft. greater than indicated by this survey. Deeper waters also show greater depths than those found but the discrepancy is often much greater. The differences are probably due to the lack of good position control in the earlier survey, especially in offshore areas.

Velocity corrections derived from Nansen cast oceanographic stations will add several feet to the raw depths observed on this survey and bring this survey into closer agreement with chart.

L. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede previous surveys of the area.

M. AIDS TO NAVIGATION

The wreck buoy "WR2" was located at 33°57.8'N and 77°01.7'W and in excellent agreement with the charted position.

N. STATISTICS

- ✓ 2398 positions
- 3495.1 nautical miles of sounding line
- 4 bottom samples
- 2986.0 nautical miles of magnetic trackline
- 1406 square miles surveyed

O. MISCELLANEOUS

Four oceanographic stations in the form of Nansen casts were observed on this sheet:

<u>Station</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Date</u>
Tc	33°55'N	75°57'W	26 Sept.
Td	33°47'N	76°28'W	9 Oct.
Te	33°51'N	77°21'W	9 Oct.
Tf	33°21'N	76°58'W	21 Oct.

Simultaneous measurements of the total intensity of the earth's magnetic field were gathered by means of a towed magnetometer sensor coupled with a Varian magnetometer providing a direct readout in gammas, units of the field's strength. This readout was coordinated in time with the position numbers of the fixes observed. Data collected has been annotated to facilitate

matching up the magnetic data with sounding and positional information. The Fredricksburg Geomagnetic Laboratory will handle this aspect of the processing.

A thermistor was towed for the entire survey for possible use in determining velocity correctors. ✓

Tides for the survey were supplied by the Hampton Roads tide gage (36° 57' N, 76° 20' W). ✓

P. RECOMMENDATIONS

None.

Q. REFERENCE TO REPORTS

USC&GS Hydrographic Manual (C&GS Publication 20-2). ✓

USESSA Instruction Manual, Automated Hydrographic Surveys, October 1968 edition.

Project Report-OPR 486-USC&GSS PIERCE, 1969 Field Season.

Respectfully submitted,

Richard S. Moody
Richard S. Moody
ENSIGN USESSA

APPROVED/FORWARDED

Kenneth A. MacDonald
Kenneth A. MacDonald
CDR USESSA
Chief of Party

UNITED STATES GOVERNMENT

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

Memorandum

TO : Director, Atlantic Marine Center

DATE: 29 October 1969

In reply refer to:

FROM : Commanding Officer,
USC&GSS MT MITCHELL

SUBJECT: Skeg Transducer Performance, Ship MT MITCHELL

The new 723 transducer recently installed on the skeg of the MT MITCHELL has given highly satisfactory results on the offshore North Carolina surveys during September and October. We experienced our share of rough weather this fall especially northeasters blowing against the Gulf Stream. This caused pitching when running into the sea which was critical to sounding when using the pilot house fathometer and the mid-ships transducers. Often soundings were missed for periods for as long as one minute due to pitching. At the same time the plotting room fathometer using the new skeg transducer obtained adequate soundings throughout, in depths from 10 to 100 fathoms. It is obvious that when the stern is up due to heavy pitching, the skeg transducer is affected some by bubbles or turbulence. However it gets all of the top of the sawtooths when the stern is down and enough of the rest to permit very adequate meaning of the wave action. As a result of this experience we are very optimistic about the performance of the UQN skeg transducer in deep water, and hope to give it a good test enroute to Puerto Rico in March.

Another item of interest was the settlement and squat determination. This was run in 52 feet of water, calm with only a slight swell and the data is well within the limits of $\frac{1}{2}$ foot accuracy. We had a full load of fuel and the draft was 13.8 ft. stern, 14.0 ft, midships at dockside just before the determination.



BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

10/29/67

Skeg Transducer Performance, Ship MT MITCHELL

Results were:

	<u>Standard Speed</u> <u>175 RPM</u>	<u>Half Speed</u> <u>105 RPM</u>
Skeg Transducer	0.8 feet	0.1 feet
Mid-ships Transducer	1.4 feet	0.6 feet

This bears out the past eyeball observations that the MT MITCHELL goes down by the bow considerable when underway. Fuel is always used from the forward tanks first to combat this situation.

Kenneth A. MacDonald
Kenneth A. MacDonald
CDR, USESSA

cc: CFN 4
PMC
C52

78°

PROGRESS SKETCH

77°

76°

OPR-486

BATHYMETRIC SURVEYS, NORTH CAROLINA COAST
SEPTEMBER-OCTOBER 1969

USC&GS SHIP MT MITCHELL (MSS-22)

KENNETH A. MACDONALD, CDR, USESSA, COM'D'G.

SCALE OF C&GS CHART 1001

LEGEND

SEPT	OCT	
17	19	DAYS AT SEA ON PROJECT
2827	2499	MILES, SOUNDING LINE
385	636	MILES, DISTANCE TO & FROM
745	389	MILES, MISCELLANEOUS
2437	2141	MILES, MAGNETOMETER
3	4	NANSEN CASTS (VELOCITY)
56	4	BOTTOM SAMPLES (GRAB)

9276457

SHEET "F" MI-80-1-69

CAPE LOOKOUT

SEPT

SEPT

OCT

OCT

MI-100-1-69

SHEET "B"

PE-80-2-69 SHEET "A"

34°

PI

CAPE FEAR

34°

33° 78°

77°

76°

33°

UNITED STATES GOVERNMENT

Memorandum

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION

Coast and Geodetic Survey

TO : Commanding Officer
USC&GSS MT MITCHELL

FROM : Tides and Currents Branch
Oceanography Division

SUBJECT: Tidal Data - OPR 486, North Carolina

DATE: December 4, 1969

In reply refer to:
C331W-211-CSS

In accordance with your memorandum of November 3, 1969, there are enclosed hourly heights at Hampton Roads for October 1969. The corrections listed in our memorandum of October 27, 1969, would still apply.

The hourly heights may be referred to 60° time meridian by adding 1 hour to the time of the tabulated heights.


L. C. Wharton

Enclosure



BUY U.S. SAVINGS BONDS REGULARLY ON THE PAYROLL SAVINGS PLAN

ATLANTIC MARINE CENTER
VERIFICATION REPORT

SURVEY H-9061

GENERAL

This appears to be an excellent basic survey. Soundings are in good agreement at crossings and depth curves form normal patterns the lumpy and irregular bottom inside the 120 foot curve.

Various discrepancies were encountered during the verification process. These, and the methods used to resolve them, are listed in the enclosed copies of "AMC Plotter Note to EDAT".


Hugh L. Proffitt
Chief, Verification BR., AMC

Norfolk, Va.
August 12, 1971

TIDE NOTE FOR HYDROGRAPHIC SHEET

December 22, 1969

~~Nautical Chart Division~~: Atlantic Marine Center

Plane of reference approved by
~~Hydrographic Office~~ for

HYDROGRAPHIC SHEET 9045, 9060-61

Locality: North Carolina Coast

~~Chief of Party~~ Year 1969

Plane of reference is mean low water


Tide Station Used (Form C&GS-681):

Hampton Roads (Sewells Pt.)

Height of Mean High Water above Plane of Reference ^{at the working grounds} is as follows:

3.7 feet

Remarks


Chief, Tides and Currents Branch

UNITED STATES GOVERNMENT

Memorandum

U.S. DEPARTMENT OF COMMERCE
ENVIRONMENTAL SCIENCE SERVICES ADMINISTRATION

Coast and Geodetic Survey

TO : Commanding Officer
USC&GSS MT MITCHELL

FROM : Tides & Currents Branch
Oceanography Division

SUBJECT: Tidal data, OPR-486, North Carolina coast

DATE: October 27, 1969

In reply refer to:
C331W-180-CSS

In accordance with memorandum dated October 8, 1969, from AMC, there are enclosed hourly heights at Hampton Roads, Virginia, for September 1969.

The enclosed hourly heights are to be used for sheets F and B using a correction of -2 hours in time and 1.5 range ratio.

L. C. Wharton
L. C. Wharton

2 Enclosures



TIDAL NOTE

The location of the tide station used for OPR-486 is 36°57'N. Lat. and 76°20'W. Long. (Hampton Roads, Sewells Pt.). The height on the tide staff at the station is 3.9 feet. The time meridian used was 60°W. throughout the project except for the last two days of ship hydro (October 27 and 28) which were completed using 75°W. Hourly heights were furnished from the Washington office.

The following corrections (sheets MI-100-1-69 and MI-80-1-69) were made on the hourly heights for the differences in time and height:

Time: -2 hours (tidal lag)
 -1 hour (Daylight savings time)
 -3 hours (net correction)

Height: x1.5 (range ratio)
 -3.9 ft. (height datum below MLW)

On several occasions, and definitely on 23 October 1969, 20 to 30 knot northeast winds blew over the survey area. On the same day, 15 to 30 knot north to northwest winds blew at Hampton Roads (tidal reference station). This may affect the tide reducers, since the NE winds in the survey area probably caused locally high tides which would not be indicated in Hampton Roads hourly heights.


November 17, 1970

Approved & Re-Submitted:

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

APPROVAL SHEET
FIELD NUMBER ME-100-1-69

The field work and processing of data from this hydrographic survey was under my immediate, daily supervision. The boat sheet and all records have been reviewed and are approved by me. With the comments in Sections "J" and "K" noted, it is believed this survey is complete and adequate to supercede all prior surveys of the area.


Kenneth A. MacDonald
CDR USESSA
Chief of Party

GEOGRAPHIC NAMES

Survey No. H-9061

Name on Survey	Source of Name											
	A	B	C	D	E	F	G	H	K			
Atlantic Ocean												1
Onslow Bay												2
												3
												4
												5
												6
												7
												8
												9
												10
												11
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												26
												27

PREPARED BY

James W. Dickatt
CARTOGRAPHIC TECHNICIAN

APPROVED BY

A. Joseph Wraight
CHIEF GEOGRAPHER

FORM C&GS-946
(REV. 11-65)
(PREP. BY
HYDROGRAPHIC
MANUAL 20-2,
6-94, 7-13)

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

HYDROGRAPHIC SURVEY STATISTICS
HYDROGRAPHIC SURVEY NO. H-9061 (M1-100-1-69)

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT	
SMOOTH SHEET		1	BOAT SHEETS		1	
DESCRIPTIVE REPORT		1	OVERLAYS		5	
DESCRIPTION	DEPTH RECORDS	HORIZ. CONT. RECORDS	PRINTOUTS	TAPE ROLLS	PUNCHED CARDS	ABSTRACTS / SOURCE DOCUMENTS
ENVELOPES	★					
CARRIERS	1		3			
VOLUMES						
BOXES			2	1		
T-SHEET PRINTS (LINE)						
SPECIAL REPORTS (LINE)						

OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS					
	PRE-VERIFICATION	VERIFICATION	REVIEW	TOTALS		
POSITIONS ON SHEET				2398		
POSITIONS CHECKED		250	230			
POSITIONS REVISED		23	—			
DEPTH SOUNDINGS REVISED		135	45			
DEPTH SOUNDINGS ERRONEOUSLY SPACED						
SIGNALS ERRONEOUSLY PLOTTED OR TRANSFERRED						
	TIME (MANHOURS)					
TOPOGRAPHIC DETAILS			0			
JUNCTIONS		5	3			
VERIFICATION OF SOUNDINGS FROM GRAPHIC RECORDS		33	43			
SPECIAL ADJUSTMENTS		24	logging 0			
ALL OTHER WORK		176	56			
TOTALS		238	109			
PRE-VERIFICATION BY	Guy Trefethen	Bernie Davis	BEGINNING DATE	5/12/70	ENDING DATE	6/21/71
VERIFICATION BY	Bernie Davis		BEGINNING DATE	8/2/71	ENDING DATE	8/6/71
REVIEW BY	<i>[Signature]</i>	Inspected: X.W. Wellman	BEGINNING DATE	28 OCT 77	ENDING DATE	23 NOV 77 / 1-7-78

D.R. Engle SAsS 9-22-78

Fig. 18.

DESCRIPTIVE REPORT DATA RECORD			
PART I SMOOTH SHEET PREPARATION		PREPARED BY/OPERATOR	DATE
A.	PLOTTER OPERATOR	EDAT - PMC	
B.	DISTORTION MARKS PLOTTED	EDAT - PMC	
C.	PROJECTION INTERSECTIONS PLOTTED	EDAT - PMC	
D.	POINTS OF ELECTRONIC CONTROL ARCS PLOTTED	EDAT - PMC	
E.	OVERLAYS PREPARED BY	EDAT - PMC	
	1. POSITION NUMBER	EDAT - PMC	
	2. EXCESS SOUNDINGS	EDAT - PMC	
	3. PRELIMINARY SMOOTH PLOT	EDAT - PMC	
	4. LIST OTHERS		
	A.		
	B.		
F.	SOUNDING SELECTION BY	EDAT - PMC	
G.	PLOTTER INPUT PREPARED	EDAT - PMC	
H.	CHECKED	EDAT - PMC	
I.	DESCRIPTIVE REPORT ADDENDUMS	BTD	8/6/71
PART II SMOOTH SHEET COMPLETION		CARTOGRAPHER	DATE
A.	DISTORTION SCALE TICKS IDENTIFIED BY NOTE	BTD	8/2/71
B.	PROJECTION INTERSECTIONS VERIFIED BY	BTD	8/2/71
C.	PROJECTION LINES RULED BY	BTD	8/3/71
D.	ELECTRONIC CONTROL ARCS RULED AND LOCATION VERIFIED	BTD	8/5/71
E.	OVERLAYS COMPLETED BY	BTD	
	1. POSITION NUMBER LEADERS ADDED	BTD	8/5/71
	2. EXCESS SOUNDING OVERLAY COMPARED	BTD	8/4/71
	3. PRELIMINARY SMOOTH PLOTS COMPARED	BTD	8/4/71
	4. OTHERS UTILIZED		
	A.		
	B.		
F.	DESCRIPTIVE REPORT ADDENDUM	BTD	8/6/71
G.	CONTROL STATIONS VERIFIED		
H.	POSITIONS MANUALLY PLOTTED		
I.	MANUAL PLOT VERIFIED		
J.	SHORELINE APPLIED		
K.	BOTTOM CHARACTERISTICS ADDED	BTD	8/4/71
L.	NOTES AND DEPTH CURVES ADDED	BTD	8/5/71

H- 9061

Marked on 90.
HLP

- A. Additions and corrections have been furnished the plotter
center by the verification unit. ~~Except those listed for submission~~
by Review.

Signed Charles J. Ruffin
Date Aug. 12, 1971 Title Chief, Verification Br., AMC

- B. Additions and corrections have been added to the survey
records and the final smooth sheet forwarded to the ~~verification~~
~~unit~~ unit.

Signed Charles J. Ruffin
Date Aug. 12, 1971 Title Chief, Verification Br., AMC

- C. The smooth sheet has been inspected, is complete, and
meets the requirements of the General Instructions for
automated surveys and the Hydrographic Manual. (Note:
All exceptions are listed in the verifier's report).

Signed Charles J. Ruffin
Date Aug. 12, 1971 Title Chief, Verification Br., AMC

- D. Smooth sheet and records forwarded to Rockville, Maryland
Office.

Date Aug. 13, 1971.

Reg. No. H-9061

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:

leg. No. _____

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 _____ TIME REQ'D. _____ INITIALS _____

REMARKS:

H-9061

Items for Future Presurvey Reviews

None

<u>Position Index</u>		<u>Bottom Change Index</u>	<u>Use Index</u>	<u>Resurvey Cycle</u>
<u>Lat.</u>	<u>Long.</u>			
332	0772	2	2	50 years
333	0771	2	2	50 years
333	0772	2	2	50 years
333	0770	0	2	50 years
334	0770	0	2	50 years
334	0771	2	2	50 years
334	0772	2	2	50 years
335	0765	0	2	50 years
335	0770	2	2	50 years
335	0771	2	2	50 years
335	0772	2	2	50 years

Portions of the present survey area with depths less than 120 feet are listed for the Resurvey Cycle above. The remaining portions of the survey cover areas with depths greater than 120 feet, thus obviating inclusion in the above listing. The Resurvey Cycle for such unlisted areas is 50 years.

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

REGISTRY NO. H-9061

FIELD NO. MI-100-1-69

North Carolina, Onslow Bay, East of Frying Pan Shoals

SURVEYED: October 1969

SCALE: 1:100,000

PROJECT NO.: OPR-486

SOUNDINGS: Raytheon DE-723 Depth Recorder

CONTROL: Hi-Fix (Range-Range)

Chief of Party	K. A. MacDonald
Surveyed by	Y. A. Bush
.....	J. E. Delnore
.....	W. R. Daniels
.....	D. R. McKeel
.....	T. Gryniewicz
.....	R. S. Moody
.....	P. A. Briggs
.....	B. S. Sikes
Automated Plot by	Gerber Digital Plotter (PMC)
Verified by	B. Davis
Reviewed by	L. Quinlan
	Date: November 23, 1977
Cursory inspection made--survey	K. W. Wellman
processing considered complete	January 7, 1978

1. Control and Shoreline

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

There is no shoreline within the limits of the present survey.

2. Hydrography

a. Depths at crossings are, in general, in good agreement. Minor differences of 1 to 3 feet are attributed to sea conditions and irregularities on the bottom not adequately shown at the scale of the present survey. Irreconcilable discrepancies of as much as 6 feet were noted in areas where a few soundings on the crossline from positions 105 to 126 conflict with the regular hydrographic development of the present survey. Accordingly, such anomalous crossline soundings were excessed inasmuch as

an examination of the records failed to reveal the cause(s) for such discrepancies and, further, the noted discrepancies fall in general non-critical depths of 125 feet or greater.

b. The usual depth curves are adequately delineated. Brown and dashed curves were added to emphasize isolated bottom features.

c. The development of the bottom configuration and the investigation of least depths are considered adequate; however, a detailed representation of the bottom is precluded by the relatively small scale of the present survey.

3. Condition of Survey

The sounding records, smooth plotting, and Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual supplemented by the Instruction Manual - Automated Hydrographic Surveys except that the 600-foot standard depth curve was omitted during verification. It was added to the smooth sheet during review.

4. Junctions

The junctions between the present survey and H-9044 (1969) on the north-west, H-9045 (1969) on the west and southwest, and H-9060 (1969) on the northeast are discussed in their respective Review Reports and require no further consideration. Present depths are in general harmony with charted depths on the east where no contemporary surveys junction with the present survey.

6. Comparison with Prior Surveys

a.	H-686	(1859)	1:200,000	
	H-768	(1860)	1:500,000	Trackline
	H-884	(1865-66)	1:240,000	
	H-1458b	(1880)	1:1,200,000	Trackline
	H-1498a	(1880-83)	1:1,200,000	
	H-1498b	(1880-81)	1:1,200,000	
	H-1500b	(1881)	1:600,000	Trackline
	H-1561	(1880-81)	1:1,200,000	

The reconnaissance nature of these prior, smaller scale surveys provides only general information and would make detailed comparison of little cartographic value. The present survey reveals the delineation of the bottom in much greater detail and is adequate to supersede these prior surveys within the common area.

b.	H-4306	(1923)	1:100,000
	H-4437	(1924)	1: 40,000
	<u>H-4769</u>	<u>(1927)</u>	<u>1:240,000</u>

These prior surveys cover most of the area of the present survey. A comparison between the present and prior surveys reveals general depth differences of ± 10 feet ranging to scattered maximum depth differences of as much as ± 132 feet in areas of relatively steep bottom gradient. The noted depth differences are attributed to the less accurate methods employed on the prior surveys. The present survey is adequate to supersede the prior surveys within the common area.

c. F.E. No. 14 (1957) 1:40,000

Depths on the present survey do not conflict with the effective cleared depths shown on the wire-drag overlays. The following wire-drag items have been carried forward to supplement the present survey:

- (1) Obstruction in latitude $33^{\circ}44.83'$, longitude $77^{\circ}10.40'$
(cleared by 97 feet)
- (2) A 90-foot sounding in latitude $33^{\circ}54.70'$, longitude $77^{\circ}14.40'$
(cleared by 85 feet)
- (3) A 38-foot sounding on a wreck in the vicinity of latitude $33^{\circ}57.96'$, longitude $77^{\circ}01.86'$ (cleared by 36 feet)

A comparison between present depths and depths on the hydrographic development overlay (sheet 5 of 5 sheets) reveals present depths to be generally 1 to 6 feet deeper than prior depths. The noted depth differences are attributed to the less accurate methods employed in obtaining the prior soundings. The present survey is adequate to supersede the hydrographic development shown on overlay number 5 of the prior Field Examination.

7. Comparison with Chart 11520 (1110), 20th Edition, January 10, 1976
11539 (1235), 12th Edition, May 14, 1977

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys which require no further consideration, supplemented by the partial application of depths from the boat sheet (Bp-78046) of the present survey and the smooth sheet after verification and before review and U.S. Navy trackline data. Attention is directed to the following:

(1) The position of the 16-fathom cleared depth on chart 1110 in the vicinity of latitude $33^{\circ}54.00'$, longitude $77^{\circ}06.00'$ originates with the 1945 edition of Wreck Chart 1110-A which indicates a wreck in the area; however, a wire-drag investigation (F.E. No. 14, 1957) to an effective depth of 97 feet failed to locate the wreck. The existence of the wreck is not verified or disproved by the present survey. The 16-fathom cleared depth should be retained on the chart.

(2) The 14-fathom cleared depth charted in the vicinity of latitude $33^{\circ}55.50'$, longitude $77^{\circ}14.00'$ originates with F.E. No. 14 (1957) W.D. A submerged wreck was first charted approximately 30" of latitude to the south of the above position on the 1942 edition of Wreck Chart 1110-A. The position was subsequently revised on the basis of a 1944 letter referenced on the 1945 edition of Wreck Chart 1110-A. The position of the wreck published in the U.S. Navy Wreck List of 1957 is at variance with the charted position and is considered to be due to an erroneous interpretation of F.E. No. 14 (1957) W.D. The charted position falls within an area cleared to 90 feet on F.E. No. 14 (1957) W.D. The chart should be revised to show the greater cleared depth of 90 feet.

(3) The position of the 16-fathom cleared depth on chart 1110 in the vicinity of latitude $33^{\circ}45.50'$, longitude $77^{\circ}13.30'$ originates with the 1945 edition of Wreck Chart 1110-A which indicates a submerged wreck in the area. A wire-drag investigation (F.E. No. 14 (1957) W.D.) to an effective depth of 98 feet failed to locate the wreck. The present survey does not verify or disprove the existence of the wreck. The 16-fathom cleared depth should be retained as presently charted.

(4) The position of the 16-fathom cleared depth WK on chart 1110 in the vicinity of latitude $33^{\circ}44.7'$, longitude $77^{\circ}10.33'$ originates with F.E. No. 14 (1947) W.D., which indicates an obstruction located by sonar contact below the effective wire-drag depth of 97 feet. Inasmuch as there is no information as to the nature of the obstruction, it is recommended that the 16-fathom cleared depth be retained as charted and the notation "WK" be revised to "obstr".

(5) The submerged wreck charted in the vicinity of latitude $33^{\circ}56.00'$, longitude $76^{\circ}32.40'$ originates with the U.S. Navy Wreck List of 1957. It is not verified or disproved by the present survey and should be retained as presently charted.

(6) The 60- and 95-fathom soundings charted from a U.S. Navy Trackline in approximate latitude $34^{\circ}01'$, longitude $76^{\circ}11'$ fall in present depths of 130 to 160 fathoms, are obviously in error, and should be removed from the chart.

Except as noted in paragraphs (1) through (5) above, the present survey is adequate to supersede the charted hydrography within the common area.

b. Aids to Navigation

The aid to navigation within the limits of the present survey is in substantial agreement with the charted position and adequately marks the intended feature.

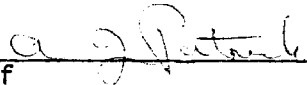
7. Compliance with Instructions

This survey adequately complies with the project instructions; however, it was noted that, in some cases, depths generally in excess of 70 fathoms were recorded in feet thus necessitating the utilization of fathogram scales ranging from AA to DDD. The use of such scales served to hinder the ready interpretation of depths and was therefore not in conformance with the intended purpose of section 16 of the project instructions which permits the recording of depths in fathoms "in depths over 20 fathoms."

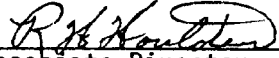
8. Additional Field Work

This is an adequate basic survey and no additional field work is recommended.

Examined and Approved:



Chief
Marine Surveys Division



Associate Director
Office of Marine Surveys
and Maps

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-9061

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
1235	11/2/71	Carrollton Reese	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>NO CRITICAL CORRECTIONS</i>
1110	12/13/71	<i>G. Moore</i>	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>EXAM - NO CORR. REVISED 3 SDGS</i>
1001	5/3/72	<i>H. Schantz</i>	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>THRU 1110 - NO CORR. REVISED 2 SDGS</i>
1007	10/14/71	<i>Carrollton Reese</i>	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>THRU 1001. REVISED 2 SDGS (WAL, DUKSTON)</i> <i>DWG NOT AVAILABLE. USED HISTORY AS RECORD OF APPLICATION.</i>
11539 (1235)	9-25-80	<i>J.C. Hopkins</i>	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>22 Category II Survey</i> <i>EXAM NO CORRECTIONS</i>
11520	11/23/82	<i>Mary J. Friesz</i>	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>41 Fully opp'd hydro thru Chart 11539</i> <i>Remainder was directly opp'd to Chart 11520</i>
11669	2-17-83	<i>B. Fernandez</i>	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>49 - Fully opp'd through chart 11520</i>
411	9/11/90	<i>Dan Black</i>	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>62 - THRU # 11009</i>
			Full Part Before After Verification Review Inspection Signed Via Drawing No.
			Full Part Before After Verification Review Inspection Signed Via Drawing No.

