

8809

Diag. Cht. No. 1232-2.

FORM C&GS-504

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic
Field No. EX-20-2-63 Office No. H-8809

LOCALITY

State North Carolina
General locality Atlantic Ocean
Locality North of Cape Hatteras

19 63-64

CHIEF OF PARTY

G. W. Moore & J.C. Bull

LIBRARY & ARCHIVES

DATE 11-23-66

6088

HYDROGRAPHIC TITLE SHEET

H-8809

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.

EX 20-2-63

State North Carolina

General locality Atlantic Ocean
~~East Coast of North Carolina~~

Locality North of Cape Hatteras

Scale 1/20,000

Date of survey June 23 - August 9, 1963
June 26 - August 27, 1964

Instructions dated April 26, 1963

Project No. OPR-438

Vessel USC&GS Ship EXPLORER and Launches

Chief of party Captain Glenn W. Moore & John C. Bull

Surveyed by Ships Officers

Soundings taken by echo sounder, hand lead, pole

Graphic record scaled by Ship Personnel

Graphic record checked by Ship Personnel

Protracted by Fred Bean (Norfolk Processing Branch)

Soundings penciled by Fred Bean " " "

Soundings in fathoms feet at MLW MLLW

REMARKS:

Description Report
To Accompany Hydrographic Survey

EX 20-2-63

H-8809

Scale 1:20000

USC&GS Ship EXPLORER

Glenn W. Moore Capt., Comdg.

A. Project:

Hydrography was accomplished in accordance with instructions Project OPR-438 dated April 26, 1963 and Supplemental Instructions OPR-438 dated April 21, 1964.

B. Area Surveyed:

This sheet covers an area on the East Coast of North Carolina in the vicinity of Cape Hatteras. It is bound^d on the west by the Coast of North Carolina, on the east by Longitude $75^{\circ} 21'$ W, on the north by Latitude $35^{\circ} 30'$ N and on the south by Latitude $35^{\circ} 15'$ N. Hydrography was begun on June 23, 1963 and suspended on August 9, 1963. This survey was resumed on June 26, 1964 and completed on August 27, 1964.

The survey makes junctions with contemporary surveys as follows:

EX 40-1-64	1964	H-8810
EX 20-1-63	1963-64	H-8808

C. Sounding Vessels:

All hydrography was accomplished by the EXPLORER and her launches. All operations used the ship as a base of operation.

1963

Launch #1 O-in-C LT CDR MacDonald Purple day letters.

Hydrography accomplished on northern part of sheet also run outline of beach.

Launch #2 O-in-C LTjg Collins ^b Brown day letters.

Hydrography accomplished on middle section of sheet.

Launch #3 O-in-C LTjg Collins a - d days and Ens. Fleming e - m days. Red day letters.

Hydrography accomplished on southern part of sheet.

1964

All hydrography was accomplished in launches from Ship EXPLORER, using the ship as base of operation and all hydrography approximately 3½ miles off beach accomplished by ship.

Launch #1 O-in-C Ens. J. E. Dropp j - k day Ens. E. Vail l - n day purple day letters.

Hydrography accomplished on middle section of 1964 launch work.

Launch #2 O-in-C Ens. E. Vail ^b Brown day letters.

Hydrography accomplished on southern section of 1964 launch work.

Launch #3 O-in-C Ens. Andreasen n - s day. Red day letters.

Hydrography accomplished on northern section of 1964 launch work.

Lt. Hayes O-in-C q day bottom samples in three mile area from signal Hat-Nix. This system of bottom samples extends out to about .8 of a mile off the beach.

D. Sounding Equipment: 1963

Raytheon DE-723 fathometer serial numbers 255, 248 and 258 for 1963 calibrated on 800 fms/sec. were used in Launches #1, 2 and 3 respectively to obtain most of the soundings on the sheets.

1964 Raytheon DE-723 Fathometer serial numbers:

Launch #1 258

Launch #2 248

Launch #3 807

Ship 241, 248, 255, 261

Lead line soundings were taken in shoal areas to verify the shoalest sounding found in the area.

Bar-checks, and lead line comparisons and phase comparisons were made frequently during the survey. Bar checks were made on a daily basis. For further information see "Fathometer

and Velocity Report 1964." *Velocity curve was matched in error with fgm. initial value rather than bar-check value. Error only fraction of a foot*

E. Smooth Sheet: ✓

The smooth sheet was ~~machined~~ ruled in Washington, D. C. office. The smooth sheet is to be smooth plotted by the Norfolk Regional Office Processing Division.

F. Control - Shoreline: ✓

"1963: Visual control was used exclusively on ^{H-8809(1963-64)} EX 20-2-63.

Signals located by Electrotape traverse. Three 50 foot towers and numerous 25 foot tripods were built at signal locations.

These objects were supplemented by natural objects in the vicinity of Cape Hatteras. The signals seemed to hold very well for all hydrography, but it appeared from check angles that signal dog ^(1964 position used OK) was slightly out. This occurred near the end of the season and there was no opportunity to relocate this signal. A recomputation of the traverse revealed no error, so it is assumed there is an error in the original data.

It is recommended that the location of this signal be checked by the Washington Office, Photogrammetry Division, in

connection with the work with the 1963 photography. The geodetic positions and descriptions of these traverse signals are being prepared for the Washington Office to provide control points for 1963 photography in accordance with the Chief of Operation letter of 16 October 1963." The above paragraph was taken in quote from "Descriptive Report, Ship EXPLORER, 1 May to 11 August 1963." Further information may be found in said report.

1964: Initial locations of shoran stations SAL and TAR were located by short base from triangulation stations and occupying two stations. Hydrographic signals FOX, DOG, ACE, BEE and AVON fishing pier were located by triangulation from known triangulation stations. (Signal Location Project OPR 438, 1964, CDR L. S. Baker and Control Report 1964 for OPR 438 by Ens. Rhudy.)

← Records
Submitted
to Geodesy
Jew

G. Shoreline Location:

~~This sheet had no shoreline location.~~

Shoreline on the smoothsheet is from reviewed photogrammetric manuscripts T-12438(1962) T-12440(1962) and T-12442(1962).

H. Crosslines:

Crosslines made up 8.2% of the hydrography on the sheet.

There was generally good agreement on the crosslines. Final comparison will be made by the smooth plotter.

I. Junctions:

H-8809(1963-64)

There are seven EX 20-2-63 sheets used to complete the total area of the sheet. All junctions within the sheet seem to be within one or two feet and these differences may be removed after the sheet is smooth plotted. You will find a sketch of the sheet layout in this report and the sketch will be referred to in this section.

H-8809(1963-64)

Sheets EX 20-2-63 A & B show the work completed in 1963 and were not rerun during 1964. Sheets EX 20-2-63 C, F, G, H, and J show work completed in 1964. All the junctions between Launch and Ship boat sheets on EX 20-2-63 vary by 1 - 2 feet but are acceptable for the area. Where EX 20-2-63 B joins with EX 20-1-63 (latitude $35^{\circ} 15'$ N and extending from the beach area longitude $75^{\circ} 31.5'$ W to longitude $75^{\circ} 25'$ W off shore), seems to have $\frac{1}{2}$ - $\frac{3}{8}$ differences up to $\frac{1}{2}$ off the beach and from there on out to the edge of the sheet the soundings agree somewhat better. EX 20-2-63 (B) was work completed in 1963 and EX 20-1-63 was work completed in 1964.

The 1963 field records were not examined for completeness of reductions and accuracy of records to fathometer records. So the differences in the soundings between the two years work should be in this area.

H-8809 (1963-64) H-8810 (1964)
Where the EX 20-2-63 F joins the EX 40-1-64 the survey was
continuous and no junction variances noted.

The northern limits of the sheet will be compared with the
larges scale chart of the area due to the fact that no
prior surveys are useable in this area.

J. Comparison with Prior Survey:

Prior surveys within this sheet were old and copies were
considered to be of no value to the hydrographer. This
was pointed out in OPR instructions dated April 26, 1963,
paragraph 17, page 3.

K. Comparison with the Chart: (see review par. 7)

H-8809 (1963-64)

EX 20-2-63 C has soundings transferred from C&GS Chart 1232

(Cape Hatteras) of a scale of 1:80,000. Using these soundings
on the latest chart)

(shown in red soundings on the sheet) as the basis of the

comparison the survey was found to ^{disagree} agree with the chart in ^{several} all

areas. ~~except the ones mentioned further in this section.~~ In

the area, latitude $35^{\circ} 19' - 35^{\circ} 29' N$ and longitude $75^{\circ} 21' - 75^{\circ} 23' W$,

there seems to be a ^{general deepening} ~~shoal building up~~. The soundings on the

chart are about ^{3 to 6 ft shoaler} ~~10'~~ deeper from those found on 1964 survey.

~~The soundings to the westward from this area agree with the~~

~~chart except for ^T two areas with the following positions~~

7
latest chart contains soundings from boat sheet
which are uncorrected for velocity and should
be 2-4 ft. deeper

latitude 35° 21.5' N longitude 75° 24.5' W and 35° 22.5' N
 and 75° 24.5' W, ~~Both areas~~ are 72' on the chart and ~~62'~~^{66' to 68'} on
 the survey.

H-8809-(1963-64)

L. EX 20-2-63 is a completed survey and adequate to supersede all
 previous surveys of this area for charting purposes.

M. Aids to Navigation: Fishing Pier. *Under construction* (completed subsequent to date
 of survey)
 There are no aids to Navigation.

N. Statistics:

The survey covered 135 square nautical miles with a total
 of 1692 positions for 434.9 nautical miles of sounding lines
 for 1963 and 4107 positions for 1462.8 nautical miles of
 sounding lines for 1964. In the two seasons a total of 187
 bottom samples were taken over the entire survey area. Below
 are the statistics for each hydrographic vessel.

1963	Launch #1 575 pos.	178.3 NM
	#2 296 pos.	81.7 NM
	#3 821 pos.	174.9 NM
<hr/>		
Total	1692 pos.	434.9

<hr/>			37 bottom samples
			150 bottom samples
1964	Launch #1 395 pos.	91.0 NM	
	#2 243 pos.	58.6 NM	
	#3 327 pos.	56.0 NM	
(Shoran) Ship	2276 pos.	920.9 NM	
(Visual) Ship	866 pos.	336.3 NM	
<hr/>			
Total	4107 pos.	1462.8 NM	

O. Miscellaneous: ✓

In area latitude $35^{\circ} 19' - 29'$ N and longitude $75^{\circ} 21' - 23'$ W there seems to be a shoal building up or the hand sounding in previous surveys in this area were read off by two fathoms.

Prior sdgs probably too sparse to reveal shoal ✓

P. Recommendations:

The 16' sounding at latitude $35^{\circ} 24.0'$ N longitude $75^{\circ} 28.5'$ W was investigated by a development of closely spaced lines and no evidence was found to justify the soundings presence on a chart. So the commanding officer of the ship has recommended its removal in a previous correspondence with the Washington Office. Shoalest sdg 27'

Also the AVON fishing pier has been located and it is recommended that it be put on the chart as an aid to navigation. Latitude

$35^{\circ} 20'$ N, Longitude $75^{\circ} 30'$ W. *Information furnished shows only positions of pier on land. No pier locations were given on offshore. Pier under construction was completed subsequent to date of survey.*

Q. References to Reports:

The following records and reports are necessary for the complete interpretation of the survey records.

Report

Tide Leveling Record

29 July 1964
8 August 1964
22 October 1964

Tide Station Report

27 July 1964
7 August 1964

Report

Seasons Report	1964 1963
Geodetic Field Work, 1964 Field Season	1964
Fathometer Velocity and Correction Report	To be submitted
Shoran Correction Report	To be submitted
Signal Location Project OPR 438, 1964 By CDR L. S. Baker	8 July 1964
Descriptive Report, Ship EXPLORER	1 May to 11 August 1963

TIDE NOTE

TO

ACCOMPANY EX 20-2-63
H-8809(1963-64)

Tide reducers were obtained from both the Portable Tide Gage maintained at Avon Fishing Pier, Avon, North Carolina and the Standard Tide Gage at Virginia Beach, Virginia.

The Avon Fishing Pier Portable Tide Gage is located at latitude $35^{\circ} 20'$ N, longitude $75^{\circ} 30'$ W and the time Meridian is the 60th. Mean low water, as furnished by the Washington Office, was 1.3 feet above the staff zero. The staff installed on 27 July 1964 was lost, and a new staff installed on 7 August 1964.

Previous to 8 August and on 4 October 1964 and 29 September 1964 the Standard Tide Gage at Virginia Beach, Virginia was referred to Avon, North Carolina. The Tide reducers, supplied by the Washington Office were the following.

- 1) -14 minutes applied to the Virginia Beach hourly heights.
- 2) A factor of 0.8 for the range of tide.

ABSTRACT OF CORRECTION TO DISTANCE MEASUREMENT

TO ACCOMPANY EX 20-2-63
H-8809(1963-64)

See Abstract of "Shoran Compⁱilation Report 1964" submitted under
separate cover.

SIGNAL NAMES

TO ACCOMPANY EX 20-2-63
H-8809(1963-64)

Two Shoran Stations were used on this survey. They are the following:

<u>SIGNAL</u>	<u>LOCATION</u>	<u>ORIGIN OF STATION</u>
Sal	35-31-53.161 75-28-23.350	Both stations were located from triangulation stations whose geographic position were determined by geographic surveys from prior years
Tar	35-15 7 34.93 75-31-12.30	

See "Geodetic Field Work, 1964 Field Season" for additional information.

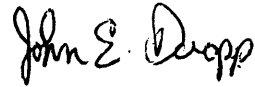
Located by Traverse

1963
ABE
BAG
CAT
CUP
DOG
DUNE
EGO
HAT
HDG
IDA
JAP
KEY
LEO
LOR
MAG
NIX
TOW

Located by Triangulation

1964
ACE
BEE
CAP
CAT
CUP
DOG
EAST
EGO
FOX
HAT
HOG
IDA
JAP
KEY
LEO
LOR
MAG
NAG
NIX
OAK
(H) PAP Vol. 12, pg. 47-51; Vol. 14 pg. 14-15
TAR
WEST

Respectively Submitted



John E. Dropp
LTjg, C&GS

Approved



Marvin T. Paulson
CDR, C&GS
Comdg. Ship EXPLORER

for Glenn W. Moore

GEOGRAPHIC POSITIONS

1964 FIELD SEASON
CAPE HATTERAS, NORTH CAROLINA.

STATION	LATITUDE		LONGITUDE	
	°	' "	°	' "
Hydro Signal "ACE"	35-16	19.79 N	75-31	02.44 W
Hydro Signal "BEE"	35-17	12.08 N	75-30	54.68 W
Hydro Signal "DOG"	35-19	00.293 N	75-30	34.13 W
Hydro Signal "EOK"	35-21	26.23 N	75-29	59.54 W
SHORAN MAST "TAR"	35-15	34.93 N	75-31	12.30 W
CAPE HATTERAS LIGHT HOUSE 1933 ECG 1962 RM NO. 1 "TAR"	35-15	34.93 N	75-31	12.30 W
SHORAN MAST "SAL"	35-31	53.161 N	75-28	23.350 W
"SALVO RM NO. 4"	35-31	53.156 N	75-28	23.342 W
"AVON FISHING PIER (TEMPORARY MARK)"	35-20	49.55 N	75-30	06.62 W
"AVON FISHING PIER-HOUSE"	35-20	49.55 N	75-30	06.33 W
AVON FISHING PIER-END	35-20	49.56 N	75-30	05.49 W
BIDE LIGHT ON POLE @ AIRPORT	35-13	58.22 N	75-37	20.85 W
WATER TANK	35-13	59.74 N	75-37	19.20 W
AVON RM NO. 2 (Radist site 1964)	35-21	23.41 N	75-30	07.25 W
Hydro Signal "LEO"	35-27	29.52 N	75-28	58.25 W

} Plot on Beach

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NORFOLK HYDROGRAPHIC PROCESSING BRANCH
ADDENDUM
To Accompany

HYDROGRAPHIC SURVEY H-8809 (Ex 20-2-63)

GENERAL

Soundings are in generally good agreement considering the exposed location of this survey and the changeable character of the bottom in this area. There were occasional disagreements of 2 to 3 feet in the irregular and unstable areas, mainly inshore, where 1963 and 1964 work overlapped. In all instances the shoaler soundings were retained. *Some conflicts come from faulty scanning and also too short a stylus arm (see review)*

Soundings on line 42 through 83d, launch 1, 1963 season, were in disagreement with surrounding hydrography by from 1 to 3 feet. This office was unable to resolve the discrepancy. *Pos. 42-83d rejected.*

On a, b, c & d days, launch 3, 1963 season, strong double traces appear on the fathograms. This happens in deeper water on both the A and B phases. These fathograms were rescanned in this office using the lower trace. The upper trace, as scanned by the field, was in disagreement with other hydrography by from 2 to 4 feet.
See Review

CHART COMPARISON

A comparison with chart 1232 shows a general deepening over the entire area of the survey, with a considerable Westward movement of the 30 and 60 foot curves. (See enclosed chart section).

Avon Fishing Pier was not plotted on the smooth sheet as the geographic positions attached to this report plot inside the HWL.

Respectfully submitted,


Hugh L. Proffitt

TIDE NOTE FOR HYDROGRAPHIC SHEET

May 26, 1966

~~NAUTICAL OBSERVATIONS~~ Atlantic Marine Center

Plane of reference approved in
28 volumes of sounding records for

HYDROGRAPHIC SHEET 8809

Locality: Cape Hatteras, North Carolina

Chief of Party: G. W. Moore 1964

Plane of reference is mean low water

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

Virginia Beach, Va.
Avon, N. C.

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

2.8 feet

Remarks NOTE: Tide reducers for the positions listed below
have been revised in red and verified.

<u>Vol.</u>	<u>Pos.</u>	<u>Vol.</u>	<u>Pos.</u>
14	239D to 253D ✓ 1E to 54E ✓	20	124K to 160K ✓
17	11H to 23H ✓	24	1J to 4J ✓
19	3J to 26J ✓		

J. M. Symons
Chief, Tides and Currents Branch

Hydrographic Surveys (Chart Division)

HYDROGRAPHIC SURVEY NO. H-8809..

Records accompanying survey: Smooth sheets ..1..;

Mylar boat sheets ..³..; sounding vols. ...³¹..; wire drag vols. ..0...;

Paper " " 2 Descriptive Reports ..1..; graphic recorder envelopes ³-Cahiers

special reports, etc.

.....

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

Number of positions on sheet :5799

Number of positions checked¹⁶

Number of positions revised¹

Number of positions revised (refers to depth only)

Number of soundings/erroneously spaced

Number of signals erroneously plotted or transferred

Topographic details Time

Junctions Time

Verification of soundings from graphic record Time ...^{14 hrs}...

Special adjustments Time

Verification by Alvan K. Schuyler Total time 3 1/2 hrs Date 11/10/66
Correction after inspection 20 hrs

Reviewed by Fannie B. Powers Time 2 1/2 Date 2-28-72

Inspected by Del E. Wetherick Time 24 hrs Date 2/14/72
Carstens 11 hrs

OFFICE OF MARINE SURVEYS AND MAPS

MARINE CHART DIVISION

HYDROGRAPHIC SURVEY REVIEW

REGISTRY NO. H-8809

FIELD NO. EX-20-2-63

North Carolina, Atlantic Ocean, North of Cape Hatteras

SURVEYED: June 23 - August 9, 1963, June 26 - August 27, 1964

SCALE: 1:20,000

PROJECT NO.: OPR-438

SOUNDINGS: Raytheon DE-723 Depth
recorders, Leadline

CONTROL: Shoran, Visual fixes on
shore signals

Chief of Party.....	G. W. Moore and
.....	J. C. Bull
Surveyed by.....	K. A. MacDonald
.....	J. Collins
.....	C. Andreason
.....	J. W. Dropp
.....	E. Vail
.....	C. W. Hayes
.....	M. H. Fleming
Protracted by.....	F. Bean
Soundings Plotted by.....	F. Bean
Verified and Inked by.....	A. K. Schugeld
Reviewed by.....	F. B. Powers
.....	Date: August 18, 1971
Inspected by.....	D. E. Westbrook

1. Description of the Area

This is an inshore survey on the east coast of North Carolina and is bounded on the north by lat. $35^{\circ}29'45''$, on the east by long. $75^{\circ}20'45''$ and on the south by lat. $35^{\circ}15'00''$.

The bottom is generally regular except for occasional 2-10 ft. sand ridges, and slopes seaward to maximum depths of about 80 feet. However, it is very irregular from the shoreline to approx. $\frac{1}{4}$ mile seaward as a result of shifting sand bars. The predominant bottom characteristic is fine gray sand with broken shells.

H-88092. Control and Shoreline

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

The shoreline originates with reviewed photogrammetric manuscripts T-12438, T-12440 and T-12442 of 1963.

3. Hydrography

A. Depths at some crossings were not in good agreement. In some instances where 1963 and 1964 work crosses, there are discrepancies of 1-2 feet. It is believed that there are some inaccuracies in the work of the Ship EXPLORER (1964) caused by an undetected stylus arm correction. Most of this error would have occurred in depths of 40-50 feet. Some soundings were rejected for this reason, where they did not agree with adjacent hydrography. Further correction to the survey was believed unwarranted in the advanced stage of review.

B. The usual depth curves were adequately delineated with the exception of the mean low water line which apparently falls in breakers very close to the shoreline.

C. The development of the bottom configuration and the investigation of least depths are considered adequate.

4. Condition of Survey

The field work, sounding records, smooth plotting and Descriptive Report are adequate and conform to the requirements of the Hydrographic Manual except that:

A. A stylus arm error of about 2% was found to exist in the work of the Ship EXPLORER (1964) which went undetected by the field party and the processing office.

B. No abstracts of echo corrections were inherited in the Descriptive Report.

C. The special report on Fathometer Corrections and the Shoran Correction Report were erroneously included with the hydrographic survey records when they should have been forwarded to NOS archives.

D. Fathometer No. 258 on launch 3 (1963) did not operate properly during the first four days work on this survey. A double trace with

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separation increasing with the depth usually appeared in depths of about 25 feet. Readings from the lower trace resolved discrepancies of 1 to 4 feet at crossings and with adjacent soundings from more reliable graphs and consequently were generally used during verification. Sections of some graphs on the "A" scale were not reread, however, and some depths may be about two feet shoaler than true depths. Malfunctioning of a depth recorder often lends itself only to approximate arbitrary corrections and should not be tolerated during survey operations.

5. Junctions

Adequate junctions were effected with H-8808 (1964) on the south and H-8810 (1964-65) on the east. No contemporary surveys junction with the present survey on the north. However, present survey depths are about 4-5 feet deeper than charted depths near the 60-ft. depth curve at the north edge of the present survey and some discontinuity will exist in this curve until such time as the survey project is extended northward.

6. Comparison with Prior SurveysA. H-244(1852) 1:20,000

This reconnaissance survey shows nothing of interest for modern charts and is entirely superseded by the present survey within the common area.

B. H-237(1849-50) 1:400,000
 H-674(1859) 1:200,000
 H-767(1860) 1:500,000
H-1721(1886) 1:200,000

These small scale surveys lack sufficient reliable information for a comparison of any cartographic value and are considered to be adequately superseded by the present survey within the common area.

C. H-1056(1869-70) 1:40,000
 H-1135(1872) 1:20,000
H-1136(1872) 1:40,000

A comparison of the prior and present surveys reveals changes in the shoreline and in the bottom. The shoreline as shown on the present survey, has receded about 550 meters at the south end of the survey to about 60 meters at the north end since the early surveys. Depths on the present survey have increased by 2 to 11 feet in some areas, while

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other areas have shoaled by 1 to 9 feet since the prior surveys. These random differences are probably due to a combination of natural changes in the bottom and the difference in survey methods used. The 16-ft. feature charted in lat. $35^{\circ}24.0'$ long $75^{\circ}28.35'$ from H-1056 falls in present depths of about 27 ft. The area was closely developed on the present survey and the prior shoal depths are considered to be disproved. The present survey is comprehensive and portrays the bottom in great detail. The present survey is adequate to supersede the prior surveys within the common area.

D. H-2127(1892) 1:40,000
H-4176(1921) 1:5,000

A comparison between the present and prior surveys reveals changes in the shoreline and in the bottom. The shoreline on the present survey has receded as much as 65 meters in the southern part of the survey since 1921. Extensive areas on the present survey have increased in depth by 3 to 16 feet, while others have shoaled by 3 to 10 feet since the prior surveys. These random differences were probably caused by a combination of natural bottom change and differences in survey methods. The present survey is adequate to supersede the prior surveys within the common area.

E. H-8249(1955) 1:20,000

This is an unverified survey and the overlap area with the present survey will be discussed in the review of that survey. However, it is obvious that the bottom has changed enough since 1955 to cause H-8249 to become obsolete for charting within the common area.

F. H-8351(1955) W.D. 1:40,000
F.E. No. 6(1957) W.D. 1:40,000

There are no conflicts between the effective wire drag depths and depths on the present survey.

7. Comparison with Chart 1232, 17th Ed., November 21, 1970

A. Hydrography

The charted hydrography originates with the previously discussed surveys which require no further consideration, supplemented by information from the boat sheet of the present survey and the partial application of the present survey after verification. Attention is directed to the pier charted in lat. $35^{\circ}20'48''$, long $75^{\circ}30'00''$ which is the Avon Fishing pier added to the chart

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subsequent to the date of the present survey from Chart Letter No. 1282 of 1964. This pier should be retained on the chart. Many of the soundings charted from the boat sheet differ with present smooth sheet soundings by 4-12 ft. and should be revised on the chart. Except as noted above, the present survey is adequate to supersede the charted hydrography within the common area.

B. Aids to Navigation

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

8. Compliance with Instructions

This survey adequately complies with the project instructions, except for the deficiencies noted in Par. 4 of this review.

9. Additional Field Work

This survey is considered to be an adequate basic survey and no additional hydrography is recommended.

Examined & Approved

John D. Boyer
Chief,
Marine Chart Division

Robert C. Johnson
Associate Director
Office of Marine Surveys and Maps

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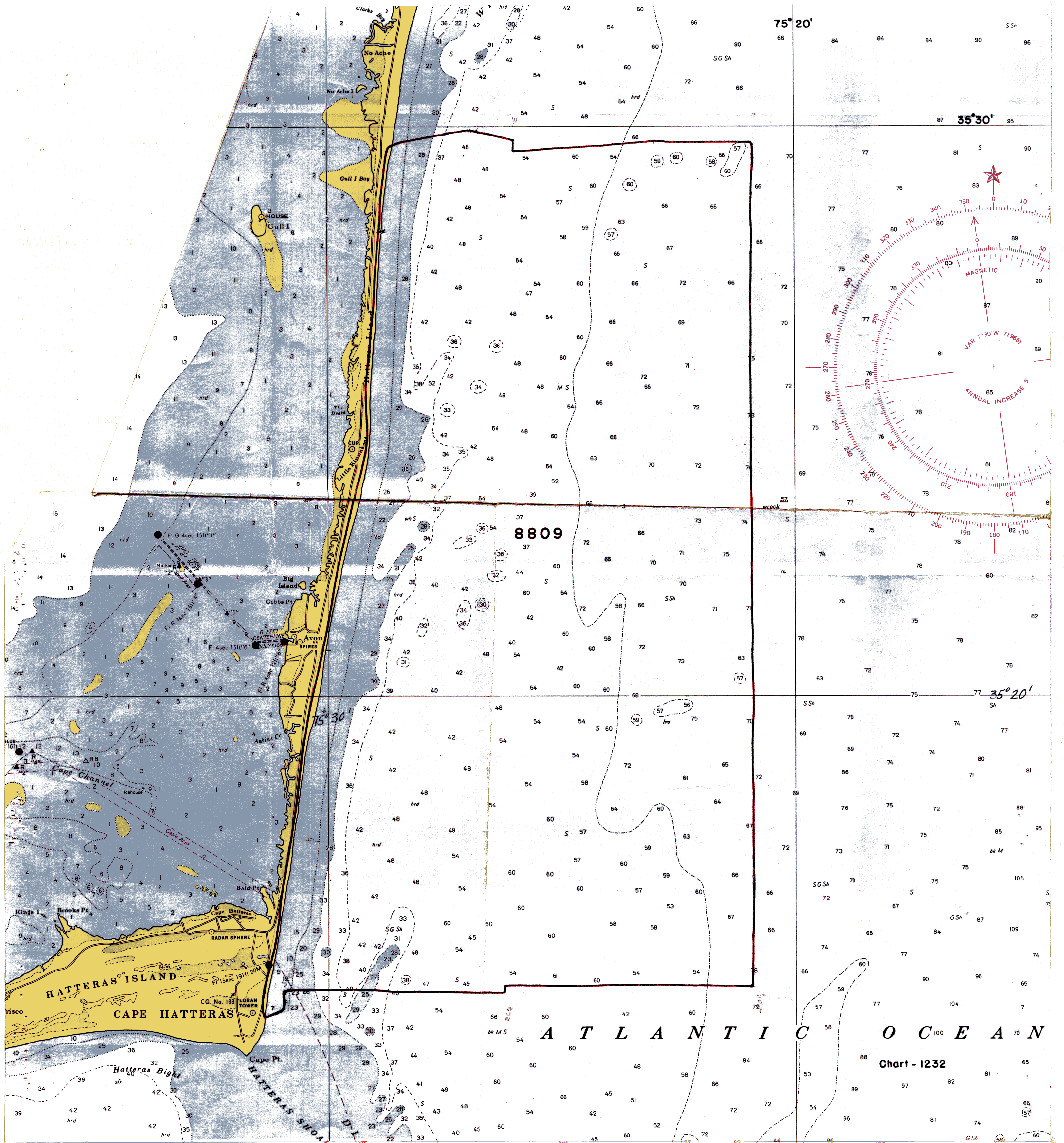
ITEMS FOR FUTURE PRESURVEY REVIEWS

The bottom is considered adequately developed on the present survey. Significant changes were noted in the bottom since the prior surveys. These changes are attributed to the survey methods and natural bottom changes.

Position index lat 352 long 0753
Bottom change 5
Use index 2
Resurvey cycle 25 yrs.

Position index lat 351 long 0753
Bottom change 5
Use index 0
Resurvey cycle 50 yrs.

Position index lat 351 long 0754
Bottom change 6
Use index 0
Resurvey cycle 50 yrs.



RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-8809

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
1000	2/14/67	F. Pavlat	Exam. Full Part Before After Verification Review Inspection Signed Via Drawing No. No corr.
1232	3/21/67	O. Swendsen	Full Part Before After Verification Review Inspection Signed Via Drawing No. 27 <i>Exam. for critical corr. No corr. applied</i> Full Part Before After Verification Review Inspection Signed Via
1109	5-9-67	H. Rodde	Drawing No. 32 <i>32</i> NO CORR
1110	6-8-67	J. T. Callahan	Full Part Before After Verification Review Inspection Signed Via Drawing No. 25 <i>examined for critical corr. on</i> <i>corr. thru Drwg 1232# 27</i>
1001	9-25-67	<i>W. H. Mudd</i>	Full Part Before After Verification Review Inspection Signed Via Drawing No. No corr, exam thru 1109 <i>Drwg # 32</i>
1232	5-26-72	B. Fernowbens	Full Part Before After Verification Review Inspection Signed Via Drawing No.
1110	11-14-72	R. A. Lillis	Full Part Before After Verification Review Inspection Signed Via Drawing No. 31
1309	1-9-73	B. Fernowbens	Full Part Before After Verification Review Inspection Signed Via Drawing No. 39
1000	7-19-73	G. Bailey	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>30</i> Fully applied thru Drwg. <i>1109 # 39</i>
1001	5-7-74	R. A. Lillis	Full Part Before After Verification Review Inspection Signed Via Drawing No.