

# 9972

Diagram No. 1227-2

NOAA FORM 76-35A

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

## DESCRIPTIVE REPORT

Type of Survey Hydrographic  
Field No. PE-20-3-81  
Office No. H-9972

### LOCALITY

State Virginia  
General Locality Atlantic Ocean  
Locality Offshore-Sandbridge Beach

1981

CHIEF OF PARTY  
CDR. D.E. Nortrup

### LIBRARY & ARCHIVES

DATE October 17, 1983

U.S. GOV. PRINTING OFFICE: 1980-766-230

2166  
9972

AREA 2

CHARTS

12207 ✓ 80,000

12200 ✓ 419,706

13003 N/C 1,200,000

12205A ✓ 40,000/80,000

12220 ✓ 200,000

12108

TABLE OF CONTENTS

HYDROGRAPHIC TITLE SHEET

PROGRESS SKETCH

A. PROJECT . . . . .	1
B. AREA SURVEYED . . . . .	1
C. SOUNDING VESSEL . . . . .	1
D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDINGS . . . . .	1
E. HYDROGRAPHIC SHEETS . . . . .	3
F. CONTROL STATIONS . . . . .	3
G. HYDROGRAPHIC POSITION CONTROL . . . . .	4
H. SHORELINE . . . . .	6
I. CROSSLINES . . . . .	6
J. JUNCTIONS . . . . .	6
K. COMPARISONS WITH PRIOR SURVEYS . . . . .	7
L. COMPARISONS WITH THE CHART . . . . .	9
M. ADEQUACY OF SURVEY . . . . .	9
N. AIDS TO NAVIGATION . . . . .	9
O. STATISTICS . . . . .	10
P. MISCELLANEOUS . . . . .	10
Q. RECOMMENDATIONS . . . . .	11
R. AUTOMATED DATA PROCESSING . . . . .	11
S. REFERENCE TO REPORTS . . . . .	11

APPROVAL SHEET

APPENDICES A-K

Appendices A, D, E, G, H and K were removed from this report and placed in the envelope labeled "H-9972, Misc. Printouts."

NOAA FORM 77-28  
(11-72)

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

REGISTER NO.

**HYDROGRAPHIC TITLE SHEET**

H-9972

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.

PE-20-3-81

State VIRGINIA ✓  
General locality ~~Approaches to Chesapeake Bay Entrance~~ Atlantic Ocean  
Locality Offshore Sandbridge Beach ✓  
Scale 1:20,000 ✓ Date of survey 9 September - 21 October 1981  
Instructions dated 31 March 1981 Project No. D103-MI/PE-81 ✓  
Vessel NOAA Ship PEIRCE (VESNO 2830) ✓  
Chief of party CDR Donald E. Nortrup, NOAA ✓  
Surveyed by G.E. Leigh, L.F. Simoneaux, M.M. Mozgala, J.W. Bailey, R.B. Harris  
M.E. Poeschl  
Soundings taken by echo sounder, hand lead, pole Ross 5000 (echo sounder)  
Graphic record scaled by G.E.L., L.F.S., M.M., J.W.B., R.B.H., M.P., B.E.M., R.H.W., T.R.O.  
Graphic record checked by G.E.L., L.F.S., R.B.H.  
Protracted by \_\_\_\_\_ Automated plot by Xynetics 1201 Plotter (AMC)  
Verification by \_\_\_\_\_  
Soundings in ~~fathoms~~ feet at ~~MLLW~~ MLLW \_\_\_\_\_

REMARKS:

All times recorded in this survey are Greenwich Mean Time (GMT).

Notes in the Descriptive Report were made in red during verification.

STANDARDS CK'D 10-25-83

Celoy

AKDHS - 10/27/83 MJA

OPR-D103, DELMARVANC

OFFSHORE CHESAPEAKE BAY ENTRANCE

NOAA Ship PEIRCE

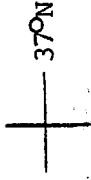
DONALD E. NORTRUP, CDR, NOAA

From Chart 12200

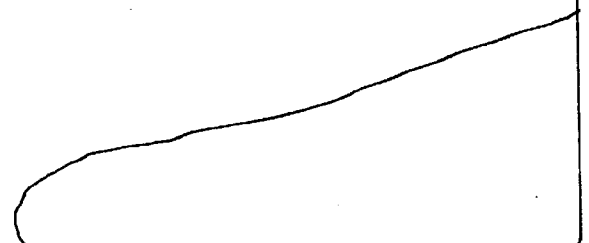
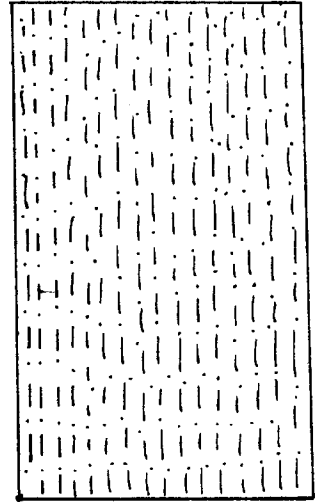
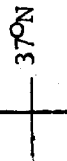
Registry Number H-9972

Field Number PE 20-3-81

75°W



76°W



Descriptive Report  
To Accompany  
Hydrographic Survey H-9972  
(Field Number PE 20-3-81)  
CDR. Donald E. Nortrup, NOAA

A. PROJECT ✓

This basic hydrographic survey is a constituent of OPR-D103-PE-81, Atlantic Seaboard Area Project (ASAP), DELMARVANC phase. It was conducted in accordance with requirements in the project instructions dated 31 March 1981, from Associate Director, Marine Surveys and Maps, forwarded via Director, Atlantic Marine Center. The changes and amendments to the project instructions are as follows:

- |                   |  |
|-------------------|--|
| Change No. 1----- | Supplement to Instructions<br>dated April 27, 1981 |
| Change No. 2----- | Amendment to Instructions<br>dated May 6, 1981     |
| Change No. 3----- | Supplement to Instructions<br>dated July 21, 1981  |

The one change to the project instructions affecting this survey is Change No. 2, Amendment to Instructions dated 6 May 1981.

B. AREA SURVEYED ✓

This survey was conducted approximately eight miles off shore of Sandbridge Beach, Virginia. The following are the survey limits:

Latitude 36-47-30N	Northern Limit
Latitude 36-41-00N	Southern Limit
Longitude 075-31-00W	Eastern Limit
Longitude 075-47-00W	Western Limit

This survey was performed between the dates of 9 September 1981 (JD 252) and 21 October 1981 (JD 294).

C. SOUNDING VESSEL ✓

The hydrographic survey was conducted by the NOAA Ship PEIRCE, VesNo 2830, which is equipped with a hydroplot system.

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDING ✓

The sounding equipment utilized in this survey is the Ross Model #5000 digital ~~fathometer~~ <sup>echo sounder</sup>. The individual sounding equipment serial numbers and dates used are listed below:

D. SOUNDING EQUIPMENT AND CORRECTIONS TO ECHO SOUNDING (Cont'd)

	<u>Fathometer S/N</u>	<u>JD</u>
NOAA Ship PEIRCE, VesNo 2830	1079	252-255, 279-284
	1087	255-266, 294

Full phase checks were performed at the conclusion of each hydrographic line. Partial phase checks were taken at the thirty foot mark periodically while on line. Graphic records were scanned by trained ship personnel and any discrepancies in calibration phase checks were resolved at that time. During this survey the ship encountered actual depths of 38 to ~~83~~ <sup>84</sup> feet.

Two Nansen/TDC Cast comparisons were performed during the field season to validate the TDC instrument. The first Nansen/TDC Cast taken on 27 June 1981 revealed temperature agreements within 0.18°C and salinity agreements within 1.2 parts per thousand. The second Nansen/TDC Cast taken 6 November 1981 indicated an average temperature agreement of 0.14°C and an average salinity agreement of 1.7 parts per thousand.

Corrections for the velocity of sound in water were computed for the ship by TDC Cast # 6 and TDC Cast # 8 taken on 16 September 1981 and 10 October 1981, respectively. Both casts were taken to a depth of + 75 feet. The TDC casts were graphed and the velocity table scaled at increments of 0.2 of a foot. The TDC casts were performed with the Martek VII, Model # 167-20, S/N 177, water quality instrument with a Martek Sensor Model #167-20, S/N 177. The instrument was calibrated by the factory prior to usage by the ship. No further calibration of the instrument has been performed by PEIRCE.

A static draft of 10.35 feet was computed after a vertical cast (leadline, S/N PE 100-1-78), was taken on 22 July 1981 to a depth of 67 feet. A transducer correction of -0.65 feet was computed and should be applied algebraically to the assumed on-line draft of 11.0 feet as listed in the sounding correction abstract.

The following is a list of stations observed by the ship:

<u>Type of Station</u>	<u>JD</u>	<u>Latitude</u>	<u>Longitude</u>
Nansen/TDC Cast	178	36-48-43N	075-33-55W
Vertical Cast	203	36-54-40N	075-43-37W
TDC Cast # 6	259	36-43-15N	075-36-40W
TDC Cast # 8	283	36-43-08N	075-35-35W
Nansen/TDC Cast	310	36-53-00N	075-21-36W

Settlement and squat corrections for the ship with both launches aboard are based on observations made 21 September 1981 at the Army Corp of Engineers Pier, Elizabeth River, Norfolk, VA. Corrector values for speeds used in this survey were calculated and listed in the Sounding Correction Abstract (See Hydrographic Manual Fourth Edition, Section 4.9.4.2 for description of method). Results of settlement and squat tests can be found in the supplement data files. All speed changes during this survey are noted in the sounding volume and on-line master printouts. A copy of the Sounding Correction Abstract is in Appendix D of this report.

Listings of the velocity tables and the TC/VI tape are in Appendix J and Appendix K respectively.

#### E. HYDROGRAPHIC SHEETS

The final field sheets were constructed and drawn on board PEIRCE. The sheets were prepared by the Digital PDP 8/E computer and complot system utilizing program RK 201.

All hydrographic data is presented on four plotter sheets. Two of the plotter sheets depict mainscheme and mainscheme split hydrography while the overlays depict bottom samples, crosslines, and developments. The four plotter sheets are at a scale of 1:20,000 with a skew of 0, 18, 54. Listings of the sheets' parameters is in Appendix A of this report.

The final smooth sheet will be compiled by the Atlantic Marine Center (A.M.C.). All field records will be forwarded to A.M.C. for final verification.

#### F. CONTROL STATIONS

The hydrographic survey required the use of nine horizontal control stations. Four of the stations were occupied by electronic positioning systems. All of the hydrography was controlled by reference stations COROLLA (002) and BATTERY CRAMER (018) utilizing the Argo (Automated Range Grid Overlay) system. Stations BACK BAY (004) and DAM NECK BOQ (009) were occupied by the Del Norte system; however, these two stations were used only in the calibration of the Argo system. All other stations were used as visual or fixed calibration objects.

All horizontal control used in this survey is based on the North American Datum of 1927. Listed below are the control stations used in this survey:

<u>Signal #</u>	<u>Station Name</u>	<u>Source</u>	<u>Type</u>
002	COROLLA	AMC	Electronic
004	BACK BAY	AMC	Electronic
009	DAM NECK BOQ	AMC	Electronic
012	SANDBRIDGE WATER TANK	AMC	Visual
013	DAM NECK MILLS NAVY TANK 1953	NGS	Visual
014	CAPE HENRY LIGHTHOUSE 1887	NGS	Visual
018	BATTERY CRAMER	AMC	Electronic
019	VA BEACH MUNICIPAL WATER TANK 1953	NGS	Visual
023	CHESAPEAKE LIGHT 1966	NGS	Fixed

Stations COROLLA, BACK BAY, AND DAM NECK BOQ were established in May 1981 by Atlantic Marine Center Operations Division personnel by Third Order, Class I traverse methods.

Station BATTERY CRAMER, was established in May 1980 by A.M.C., Operations Division personnel by Third Order, Class I traverse methods.

Station SANDBRIDGE WATER TANK was established by the Third Order, Class I intersection method in May 1981 by Operations Division personnel from A.M.C.

All other stations used as visual or fixed calibration objects in this survey meet the Third Order, Class I or better accuracy standards required. No horizontal control stations are located within the limits of this survey. A complete list of the signals is included in Appendix F of this report.

#### G. HYDROGRAPHIC POSITION CONTROL

All hydrographic positioning of the ship for this survey was obtained in the range/range mode using the Argo system, a medium range, phase comparison system. The Del Norte system was also used in this survey strictly for calibrating the Argo system. Del Norte base line calibration information is listed in the supplemental data files.

The electronic equipment and serial numbers used in this survey are as follows:

#### ARGO EQUIPMENT

<u>VesNo</u> 2830	<u>Equipment</u>	<u>S/N</u>	<u>JD</u>
	Range Processing Unit (RPU)	R047844	252-266
		R0379116	279-294
	Antenna Loading Unit (ALU)	A047847	252-294
	Control Display Unit (CDU)	CO37948	252-294
	Strip Chart Recorder	S097948	252-294
	Thermal Printer	A04127	252-294
Station COROLLA (002)	Range Processing Unit	R0379121	252-294
	Antenna Loading Unit	A047853	252-294
	Power Supply	VO478108	252-294
Station BATTERY CRAMER (018)	Range Processing Unit	R0379115	252
		R047855	253-294
	Antenna Loading Unit	A047851	252-294
	Power Supply	VO38167	252-294

#### DEL NOTRE EQUIPMENT

<u>DMU Master</u>	<u>Remote S/N</u>	<u>JD</u>
515/162	76 (1062) DAM NECK BOQ	257-266
	78 (1063) BACK BAY	257-266

The Argo system was calibrated using three methods of calibration, one of which combined the use of the Argo and the Del Norte systems. The primary



method was fixed point circle calibration at CHESAPEAKE LIGHT. (See Hydrographic Manual, Fourth Edition, Section 4.4.3.3 for description of method). Line of position azimuths were determined by adding 90 and 270 degrees to the computed azimuths from CHESAPEAKE LIGHT to the shore stations COROLLA and BATTERY CRAMER. The second method encompassed the use of both the Argo and Del Norte systems. Rates from the Argo stations and ranges from the Del Norte stations were simultaneously observed and recorded. Ranges from the Del Norte stations were then converted into Argo rates via program RK 561. The program compared both sets of rates and computed partial rate correctors for the Argo system (See Hydrographic Manual Fourth Edition, Section 1.3.3.2.4.). This method of calibration, however, was not used for both opening and closing calibration during the same day. It was supplemented by the third method of calibration--the three point sextant fix with check angle, or the fixed point circle calibration at Chesapeake Light.

Geographic positions of CHESAPEAKE LIGHT and all electronic control stations are listed below:

<u>Stations</u>	<u>Latitude</u>	<u>Longitude</u>
CHESAPEAKE LIGHT, 1966 (023)	36-54-16.158N	075-42-47.123W
COROLLA (002)	36-22-35.633N	075-49-49.342W
BACK BAY (004)	36-40-29.194N	075-54-54.781W
DAM NECK BOQ (009)	36-47-17.522N	075-57-34.990W
BATTERY CRAMER (018)	36-55-04.220N	075-59-44.489W

Calibrations were taken twice daily throughout the survey except when the ship was experiencing problems with the Argo system. On line partial rate correctors were based on each day's opening (first) calibration and entered into the nav-cal feature of program RK 112. The average of the opening and closing partial correctors was used as the final corrector value for hydrography completed between the times of the opening and closing calibration. Since one Julian Day overlapped two calendar days, two sets of correctors were necessary for data collected on each Julian Day. Correctors were applied to the data via the off-line corrector tape. Daily calibration records can be found in the supplemental data files. The Electronic Corrector Abstract is in Appendix F of this report. The Argo system went off the air three times during this survey and no closing calibrations were performed on these days. To ensure that no lanes were lost, the strip chart was thoroughly checked.

Whole lanes were observed and recorded on the Virginia Beach Wreck Lighted Bell Buoy (R"2V"), charted position 36-45-58.8N, 075-46-09.9W, on 11 September 1981 while working in that vicinity. The buoy then provided whole lane checks when thunderstorms were in the area and/or the ship was at a distance from the calibration site. (See Hydrographic Manual Fourth Edition, Section 4.4.3.3. for description of method). All information concerning whole lane checks on the buoy can be found in the sounding volume.

Throughout this survey Argo was maintained at a smoothing code of 02. Two time slots (01-05-00-00) were incorporated into the system to allow for a one second update of rates. Fixed shore stations' AGC values and antennae range tune values were monitored every hour on a daily basis. The Argo system was maintained at a frequency of 1646.7 KHZ. Daily AGC values and antennae range tune values can be found in the supplemental data files.

#### H. SHORELINE

There was no shoreline included within the survey limits.

#### I. CROSSLINES

A total of 84.4 nautical miles of crosslines were run. This constitutes 8.96% of the total mainscheme hydrography. Ninety-nine percent (99%) of the crossline and mainscheme agreements were within two feet. General differences of three to six feet were observed in a small southwestern section of this survey. The crosslines revealed shoaler depths in that area. To resolve the discrepancy, all records pertaining to that area were rechecked and an additional crossline was run through that area. The discrepancies were probably due to the non-application of real tides. The additional crossline verified crossline soundings. The only six foot discrepancy in the survey is located approximately 36-42-46.8N, 075-46-43.8W.

#### J. JUNCTIONS

This survey junctions with four contemporary surveys:

<u>Survey Registry No.</u>	<u>Scale</u>	<u>Date</u>	<u>Position Relative to H-9972</u>
H-9922	1:20,000	1980	Northwest
H-9948	1:20,000	1981	West
H-9959	1:20,000	1981	North
H-9978	1:20,000	1981	Northeast

##### H-9922

Junction comparisons with H-9922 were excellent with 100% of the sounding agreements within 2 feet. The survey junctioned with H-9922 in the extreme northwest area of the survey and encompassed an area of approximately 0.12 square nautical miles. H-9922 is in the process of final verification at Atlantic Marine Center.

##### H-9948

Junction comparisons with unverified survey H-9948 were good with 94% of the sounding agreements within 2 feet. Differences of as much as three to four feet were observed in the northwestern area of the survey; H-9948 revealing the shoaler soundings. Since final field sheets for H-9948 and H-9972 were plotted with different prezone tide tapes, hydrographic lines from both surveys

were plotted using the same prezone tide tape in an attempt to resolve the discrepancy. Results revealed no significant difference in soundings (depths in some areas of H-9948 became deeper by one foot.). The conclusion was made that the probable cause of the discrepancies is due to the non-application of real tides.

#### H-9959

Junction comparisons with unverified survey H-9959 were excellent with 100% of the sounding agreements within 2 feet. Comparisons were performed by plotting the junctioning area of both sheets with the same prezone tide tape. Occasional differences of three feet were noted with no apparent pattern in the differences. Depth curves are continuous throughout the junction zone.

#### H-9978

Junction comparisons with unverified survey H-9978 were excellent with 100% of the sounding agreements within 2 feet. Comparisons were made with the off-line plot of both surveys (no velocity corrections applied). Depth curves are continuous throughout the junction zone.

There were no contemporary survey junctions to the south and to the east of this survey.

#### K. COMPARISONS WITH PRIOR SURVEYS See also Evaluation Report

The DELMARVANC Presurvey Review was issued 21 April 1980, extended 8 August 1980, and updated 10 September 1980 and again 21 April 1981. Only three items, identified as dashed-circled unnumbered items, lie within the survey limits. The items are charted shoal depths which, in accordance with Presurvey Review Instructions, require a full shoal development to verify or disprove their existence. Listed below are the charted positions of the three items and the corresponding survey depths. (Chart 12207, 15th Edition, August 15, 1981, Scale 1:80,000).

<u>Latitude</u>	<u>Longitude</u>	<u>Item</u>	<u>Survey Soundings</u>
36-44-03N	075-41-12W	Charted 54'	54' 52'-54'
36-43-30N	075-41-21W	Charted 51'	51-55' 53'-57'
36-43-00N	075-41-27W	Charted 57'	57-59' 58'-60'

Ninety meter spacing was run to develop the shoal areas. Results of developments verified the three charted shoal depths. There was also no difference in the 60 foot depth curve surrounding the shoal area. The least depth\* obtained during the development is 51 feet. \* Echo sounder least depth.

Comparisons were made with the following two prior surveys:

<u>Prior Survey</u>	<u>Scale</u>	<u>Date</u>
H-4286'	1:40,000	1922
H-5990'	1:40,000	1935

K. COMPARISONS WITH PRIOR SURVEYS (Cont'd)H-4286

Prior survey H-4286 covers the following area of this survey: 36-47-30N, Northern Limit 36-41-00N, Southern Limit; 075-38-30W, Eastern Limit; 075-47-00W, Western Limit. Comparisons with this survey indicate very good agreement with 99% of the sounding comparisons within 2 feet. The only significant difference was a prior survey depth of 86 feet located 36-45-03N, 075-38-51W. Survey soundings indicate depths of 78-80 feet in that area. There was no major difference in the depth curves.

H-5990

Prior survey H-5990 covers the majority of the survey area with exceptions of the extreme northernmost part of the survey and an area located in the southwest part of the survey. Comparisons were excellent with 99% of the soundings within 2 feet. The only discrepancies are prior survey depths ranging from 72-75 feet, located 36-41-48N, 075-41-42W. Survey soundings observed in that area range from 68-70 feet. It is recommended that survey soundings supersede prior survey soundings.

Three developments were conducted during this survey, one of which was an investigation of a possible obstruction. The individual developments and subsequent recommendations are as follows:

<u>Development</u>	<u>Lat/Long</u>	<u>Development Pos.</u>	<u>Remarks</u>
Development "A"	36-45-35N 075-43-10W	1886-1894	Investigation of mainscheme sounding of <del>54</del> <sup>53</sup> feet at 50 meter spacing. Least depth found: <del>54</del> <sup>53</sup> feet. Recommend supersede the chart.
Development "B"	36-46-58N 075-41-27W	1956-1975	Development of an area to delineate the 60 foot curve. Least depth found: 58 feet. Recommend supersede the chart.
Development "C"	<sup>44</sup> 36- <del>45</del> -34N 075-39-42W	2369-2380	Investigation of possible obstruction located between mainscheme positions 989+6 and 989+7. No obstruction found.

Two wrecks are charted within the survey limits. A reported 43 feet wreck, located 36-43-43N, 075-34-18W was wire dragged in 1975 (FE 225 WD) by the NOAA Ships RUDE and HECK and is now charted as a cleared 44 feet wreck. The other wreck, marked by the Virginia Beach Wreck Lighted Bell Buoy, located 36-45-58N, 075-46-18W, was wire dragged in 1949 (FE 77 WD) and charted as a cleared 39 feet wreck. No further investigation of the wrecks was performed by PEIRCE. See position 6φ2, 4 out. Echo sounder depth of 53 feet

L. COMPARISON WITH THE CHART See also Evaluation Report

Comparisons were made with Chart No. 12207, 15th Edition, August 15, 1981, at a scale of 1:80,000.

Comparisons with the chart revealed very good agreements. Ninety-two percent (92%) of the sounding comparisons were within two feet. Occasional differences of as much as three to ten feet were observed in some areas; however, the charted soundings indicated the shoaler depths. Larger discrepancies were observed in areas where there appeared to be a shift in the general trend of the depth curves. The majority of the discrepancies are located in the northwestern part of a charted 60 foot depth curve located 36-43-30N, 075-33-00W. Part of the curve has changed and all soundings in that area are deeper than the charted soundings. Since the trend of the curve on prior survey H-5990, surveyed 1935, is in general agreement with the survey 60 foot curve in that area, it is recommended that the chart be reconstructed to agree with this survey. Larger discrepancies of significance are listed below:

<u>Latitude</u>	<u>Longitude</u>	<u>Charted Soundings</u>	<u>Survey Soundings</u>
36-46-49N	075-32-18W	62'	<del>70</del> 69-74' 75
36-46-03N	075-33-54W	66'	72 <del>68-75'</del> 76
36-43-48N	075-34-00W	55'	63 <del>61-64'</del> 65
36-43-30N	075-32-00W	55'	62 <del>61-65'</del> 65
36-43-12N	075-33-42W	54'	61 <del>62-64'</del> 63

Variations were observed in the 60 foot curve located in the northwestern part of the survey (36-46-00N, 075-46-00W). Survey depths are two feet deeper thus changing the depth curve in that area. All other curves compare favorably with the chart.

A shoal depth of 55 feet charted at approximately 36-45-46N, 075-32-06W has been disproved. Survey depths in the vicinity range from ~~65-71~~ feet and prior survey H-4286 and H-5590 revealed similar depths. It is recommended that this shoal area be deleted from the chart.

The only shoaler than charted depths of significance are depths ranging from 42-45 feet located 36-41-32N, 075-44-58W. The chart indicates a 51 foot depth in that area. It is recommended that the chart be revised to reveal the shoaler depth in that vicinity.

M. ADEQUACY OF SURVEY

This survey is considered complete and adequate to supersede the common portions of all prior surveys for charting purposes with exception of the wire drag surveys FE 225 WD and FE 77 WD.

N. AIDS TO NAVIGATION

The only aid to navigation located in the survey limits is the Virginia Beach Wreck Lighted Bell Buoy (R "2V"). The buoy is located in 60 feet of water and marks the wreck of the vessel TIGER. R "2V" is maintained by the U.S. Coast Guard and is characterized as a quick flashing red, bell buoy.

The location of R "2V" was determined by taking a detached position of the ship as the buoy was abeam the ship. A forward position was computed from the detached position of the ship to the buoy (distance and bearing abeam the ship). All computations and information pertaining to the Virginia Beach Wreck Lighted Bell Buoy can be found in the sounding volume and supplemental files.

Comparisons between published positions and the observed position of the buoy are listed below:

<u>Source</u>	<u>Latitude</u>	<u>Longitude</u>
Light List, 1981, Vol. I	36-46-06.0N	075-46-06.0W
Chart 12207, 15th Edition, August 15, 1981, Scale 1:800,000	36-45-58.8N	075-46-09.9W
Observed Position	36-45-55.3N	075-46-02.9W

O. STATISTICS

<u>Category</u>	<u>VesNo 2830</u>
Total Number of Positions	2920
Nautical Miles of Sounding Lines	1132.7
Square Nautical Miles of Hydrography	107.6
Nansen Casts	2
TDC Casts	2
Bottom Samples	45
Tide Stations	2
Vertical Cast	1
Settlement and Squat	1

Note: Total number of positions does not include rejected and omitted positions.

P. MISCELLANEOUS

Forty-five bottom samples were taken during this survey; a copy of the Oceanographic Log Sheet "M" is included in Appendix H of this report. Bottom samples were submitted to Chief, Operations Division for shipment to the Virginia Institute of Marine Science.

All supplemental data will be submitted with this report.

Q. RECOMMENDATIONS

It is recommended that data compiled for this survey supersede all existing charts and information for charting with exception of the wire drag surveys FE 77 WD and FE 225 WD. Specific recommendations regarding charted features and general bottom topography were made in sections K and L of this report.

R. AUTOMATED DATA PROCESSING

The following programs were used in acquiring and processing data for this survey:

<u>Program</u>	<u>Program Name</u>	<u>Version</u>
RK 112	Hyperbolic R/R Hydroplot	8/04/81
RK 201	Grid, Signal, Lattice Plot	4/18/75
RK 211	Range/Range Non-Real Time Plot	2/02/81
RK 300	Utility Computations	10/21/80
RK 330	Reformat and Data Check	5/04/76
RK 360	Electronic Corrector Abstract	2/02/76
AM 500	Predicted Tide Generator	11/10/72
RK 530	Layer Corrections for Velocity	5/10/76
RK 561	H/R Geodetic Calibration	2/19/75
AM 602	Elinore-Extended Line Oriented Editor	5/20/75
AM 606	Tape Duplicator	8/22/74
RK 612	Line Printer List	3/22/78

Geodetic Package (800610) Hewlett - Packard 9815A

S. REFERENCE TO REPORTS

The ship's personnel installed two tide gages at Sandbridge Pumping Pier, Station # 863-9428. See field tide note in Appendix B of this report. This report, leveling records, and monthly tide records have been submitted to the Tides and Water Levels Branch, Rockville, Maryland. Horizontal control reports are available at the Operations Division, Atlantic Marine Center or the National Geodetic Survey, Rockville, Maryland. Corrections to echo soundings have been submitted to Atlantic Marine Center.

Respectfully submitted,

*Roslyn B. Harris*

Roslyn B. Harris, ENS, NOAA

Approval Sheet  
H-9972

Field operations contributing to the accomplishment of this this survey were conducted under my supervision with frequent personal checks of progress and adequacy. This report and the final field sheet have been closely reviewed and found to represent a complete survey adequate to supersede the common coverage portions of all prior surveys cited in section K of the Descriptive Report with the exception of wire drag investigations FE 225 WD (1975) and FE 77 WD (1949).



Donald E. Nortrup  
CDR, NOAA  
Commanding Officer  
NOAA Ship PEIRCE S-328



APPENDIX B

FIELD TIDE NOTE

## FIELD TIDE NOTE

The field tide reduction of soundings was based on predicted tides from Hampton Roads, Virginia which were corrected in accordance with the pre-zoning scheme provide with 1980 project instructions and was interpolated by the PDP 8/E computer utilizing program AM 500. All times of both predicted and recorded tides are Greenwich Mean Time.

To maintain continuous tidal records the ADR gage installed at Sandbridge, Station # 863-9428 was supplemented by a gas-purged pressure gage at the same site. The location and period of operation are as follows:

<u>Site</u>	<u>Location</u>	<u>Period</u>
Sandbridge Pumping Pier	36-41-30N 075-55-12W	11 June 1981 - 10 November 1981

Sandbridge Pumping Pier - Metercraft Model 7602, S/N 705-108 gage was installed on 11 June 1981 and began operation on 12 June 1981. The staff was installed during the 1980 field season and was leveled on 12 June 1981. Fisher-Porter, ADR, Model 1551, S/N R6511A4632M2, gage was installed on 11 June 1981 and began operations on 12 June 1981. The same staff, leveled 12 June 1981, was used for both gages.

On 7 August 1981, the punch block jammed on the ADR gage. The gage was removed and returned to Atlantic Marine Center for inspection; it was replaced by Fisher-Porter, ADR, Model 1550, S/N 7601A1469M23. Operations of the new gage commenced on 10 August 1981.

On 7 September 1981, the bubbler gage failed during hydrographic operations. During the down time of the bubbler gage, the ADR gage was operational. Upon inspection of the gage on 12 September 1981, it was discovered that the orifice was buried below 6" of sand. The problem was rectified by remounting the orifice 2.5 feet above the ocean bottom. Gage restored to operations on 12 September 1981.

On 16 September 1981 during inspection of the ADR gage, it was found that the gage was punching 12 minutes fast. The conclusion was that the problem resulted from excessive vibration of the pier and by the take-up spring on the gage. The spring was readjusted and the gage commenced operating on 17 September 1981.

On 30 October 1981, the punch block jammed on the ADR gage. The gage was removed and returned to A.M.C. for repair. The punch block assembly was replaced and the gage was reinstalled at Sandbridge that same day.

All tidal records were removed from the tide station at Sandbridge, VA on 11 November 1981. The tide station operation was discontinued due to completion of the hydrographic field season by PEIRCE.

Levels: Four spirit level runs were made at the Sandbridge Station: (1) On 12 June 1981, to establish tide station prior to hydrographic operations; (2) on 19 August 1981, station releveled by personnel from Tides and Water Levels Branch at A.M.C.;

(3) on 1 October 1981, to check the elevation of the tide staff after the passage of Hurricane Dennis; (4) on 16 November 1981, to level at the removal of the tide station. All information and data was forwarded to Tide and Water Levels Branch, Rockville, MD.

Zoning: Zoning is based on the prezoning scheme noted in the project instructions with correctors of - 2 hours 30 minutes and tide value multiplier of 1.30.

Duck, North Carolina - Station Number 865-1370 was operational and under the jurisdiction of A.M.C., Tides and Water Levels Branch, throughout the survey. A check level was performed 5 June 1981. The gage was again leveled on 19 November 1981 at the end of the field season. All data was forwarded to Tide and Water Levels Branch, Rockville, MD.

Hampton Roads, Virginia - Reference station number 863-8610.



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SURVEY  
NOAA Ship PEIRCE S-328  
439 W. York Street  
Norfolk, Virginia 23510

December 9, 1981

TO: Chief, Water Levels Branch (C234)  
FROM: *Maude Peirce*  
Commanding Officer  
NOAA Ship PEIRCE S-328  
SUBJECT: Request for Verified Hourly Heights of Tides

Please provide hourly heights of tide and the value of MLLW on the tide staff for the period of hydrography on H-9919, H-9948, H-9959, H-9972, H-9978 OPR-D103. The actual times of hydrography for all surveys were submitted each month with the tide package.

Period of Hydrography: 13 June 1981 (JD 164) thru 6 November 1981 (JD 310)

Control Station: Hampton Roads, Virginia (# 863-8610)

Please forward the requested information directly to the Atlantic Marine Center, Attention: CAM 33.

Attachment: Progress Sketch

cc: CAM 1  
CAM 3



**10TH ANNIVERSARY 1970-1980**  
**National Oceanic and Atmospheric Administration**  
A young agency with a historic  
tradition of service to the Nation

APPENDIX C

GEOGRAPHIC NAMES LIST

---

GEOGRAPHIC NAMES (FIELD)

PE 20-3-81  
(H-9972)

Name on Survey	Source of Name											
	A	B	C	D	E	F	G	H	K			
Not applicable												1
												2
												3
												4
												5
												6
												7
												8
												9
												10
												11
												12
												13
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												22
												23
												24
												25

APPENDIX F

LIST OF STATIONS

SIGNALS AND NAMES

PE 20-3-81

H-9972

SIGNALS

NAMES

001	CURRITUCK BEACH LIGHT 1875
002	COROLLA
003	ANN 1934
004	BACK BAY
005	SANDBRIDGE PUMPING PIER
006	SANDFIDDLER
007	GUN AZIMUTH MARK
008	GUN 1934
009	DAM NECK BOQ
010	NE CORNER BOQ
011	TECUMSEH
012	SANDBRIDGE WATER TANK
013	DAM NECK MILLS NAVY TANK 1953
014	CAPE HENRY LIGHTHOUSE 1887
015	CAPE HENRY LIGHTHOUSE (OLD)
016	CAVALIER HOTEL CUPOLA
017	RAMADA
018	BATTERY CRAMER
019	VA BEACH MUNICIPAL WATER TANK 1953
020	PARCEL C TOWER "A" USE 1939
021	PARCEL C TOWER "B"
022	RAYDIST
023	CHESAPEAKE LIGHT 1966





## SIGNAL TAPE LISTING

PE 20-3-81

H-9972

001	3	36	22	35424	075	49	51632	139	0048	000000
002	3	36	22	35633	075	49	49342	250	0000	164670
003	3	36	40	18361	075	54	58141	139	0000	000000
004	3	36	40	29194	075	54	54781	250	0000	000000
005	5	36	41	39178	075	55	20177	250	0000	000000
006	3	36	44	24743	075	56	30719	139	0000	000000
007	3	36	44	48095	075	56	40601	139	0000	000000
008	3	36	44	43388	075	56	48875	139	0000	000000
009	3	36	47	17522	075	57	34990	250	0015	000000
010	3	36	47	18953	075	57	35154	139	0015	000000
011	3	36	45	39786	075	57	00940	139	0000	000000
012	3	36	44	44473	075	56	51556	139	0000	000000
013	3	36	46	13694	075	57	51981	139	0000	000000
014	3	36	55	34335	076	00	27216	139	0050	000000
015	3	36	55	32330	076	00	30516	139	0000	000000
016	3	36	52	08381	075	59	02012	139	0000	000000
017	3	36	52	58401	075	59	05291	139	0019	000000
018	3	36	55	04200	075	59	44489	250	0006	164670
019	3	36	50	31980	075	59	23523	139	0031	000000
020	6	36	53	35785	075	59	18153	139	0000	000000
021	6	36	53	33941	075	59	18266	139	0020	000000
022	3	36	55	21706	075	59	56344	250	0000	164670
023	3	36	54	16158	075	42	47123	139	0000	000000

CONTROL STATIONS

PE 20-3-81

H-9972

<u>STATION</u>	<u>SOURCE</u>	<u>REMARKS</u>
COROLLA (002)	AMC	Non-published station
BATTERY CRAMER (018)	AMC	Published, established in 1980
BACK BAY (004)	AMC	Non-published station
DAM NECK BOQ (009)	AMC	Non-published station
CHESAPEAKE LIGHT 1966 (023)	NGS	Published, Quad 360754, Station 1047
SANDBRIDGE WATER TANK (012)	AMC	Non-published station
CAPE HENRY LIGHTHOUSE 1887 (014)	NGS	Published, Quad 3607611, Station 1009
DAM NECK MILLS NAVY TANK 1953 (013)	NGS	Published, Quad 360754, Station 1050
VA BEACH MUNICIPAL WATER TANK 1953 (019)	NGS	Published, Quad 360754, Station 1054

APPENDIX G

ABSTRACT OF POSITIONS

APPENDIX I

LANDMARKS FOR CHARTS

---

NOAA FORM 76-40  
(8-74)

Replaces C&GS Form 567.

- TO BE CHARTED
- TO BE REVISED
- TO BE DELETED

REPORTING UNIT  
(Field Party, Ship or Office)

STATE

LOCALITY

DATE

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

### NON-EXISTING AIDS OR LANDMARKS FOR CHARTS

#### ORIGINATING ACTIVITY

- HYDROGRAPHIC PARTY
- GEODETIC PARTY
- PHOTO FIELD PARTY
- COMPILATION ACTIVITY
- FINAL REVIEWER
- QUALITY CONTROL & REVIEW GRP.
- COAST PILOT BRANCH

(See reverse for responsible personnel)

The following objects HAVE  HAVE NOT  been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.

JOB NUMBER

SURVEY NUMBER

DATUM

METHOD AND DATE OF LOCATION  
(See instructions on reverse side)

OFFICE

FIELD

CHARTS  
AFFECTED

#### POSITION

LATITUDE

LONGITUDE

° / ' " //  
D.M. Meters

° / ' " //  
D.M. Meters

#### DESCRIPTION

(Record reason for deletion of landmark or aid to navigation.  
Show triangulation station names, where applicable, in parentheses)

Not applicable

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	ORIGINATOR <input type="checkbox"/> PHOTO FIELD PARTY <input type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)
POSITIONS DETERMINED AND/OR VERIFIED	FIELD ACTIVITY REPRESENTATIVE
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	OFFICE ACTIVITY REPRESENTATIVE <input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE

**INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'**  
*(Consult Photogrammetric Instructions No. 64.)*

**OFFICE**

**I. OFFICE IDENTIFIED AND LOCATED OBJECTS**

Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.  
 EXAMPLE: 75E(C)6042  
 8-12-75

**FIELD**

**I. NEW POSITION DETERMINED OR VERIFIED**

Enter the applicable data by symbols as follows:

- F - Field
- L - Located
- V - Verified
- 1 - Triangulation
- 2 - Traverse
- 3 - Intersection
- 4 - Resection
- 5 - Field Identified
- 6 - Theodolite
- 7 - Planetable
- 8 - Sextant

A. Field positions\* require entry of method of location and date of field work.

EXAMPLE: F-2-6-L  
 8-12-75

\*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.

**FIELD (Cont'd)**

B. Photogrammetric field positions\*\* require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.  
 EXAMPLE: P-8-V  
 8-12-75  
 74L(C)2982

**II. TRIANGULATION STATION RECOVERED**

When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.

EXAMPLE: Triang. Rec.  
 8-12-75

**III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH**

Enter 'V-Vis.' and date.  
 EXAMPLE: V-Vis.  
 8-12-75

\*\*PHOTOGAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

APPENDIX J

VELOCITY TAPE LISTING

VELOCITY TAPE LISTING

PE 20-3-81

H-9972

TDC CAST # 6

000130 0 0000 0006 000 233000 020381

000171 0 0002

000213 0 0004

000256 0 0006

000298 0 0008

000340 0 0010

000382 0 0012

000423 0 0014

000465 0 0016

000507 0 0018

000550 0 0020

000591 0 0022

000631 0 0024

000674 0 0026

000716 0 0028

000758 0 0030

000800 0 0032

000840 0 0034

~~999999 0 0034~~

φφφ881 φ φφ3.6

φφφ922 φ φφ3.8

*Velocity table not deep enough*



VELOCITY TAPE LISTING

PE 20-3-81

H-9972

TDC CAST # 3

000136 0 0000 0008 000 283000 020381

000185 0 0002

000239 0 0004

000288 0 0006

000340 0 0008

000390 0 0010

000441 0 0012

000494 0 0014

000545 0 0016

000597 0 0018

000648 0 0020

000696 0 0022

000750 0 0024

~~999999 0 0024~~

φφφ81 φ φφ26

φφφ852 φ φφ28

*Velocity table not deep enough*

## HYDROGRAPHIC SURVEY STATISTICS

H-9972

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

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS. ARC. EXCESS		3
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		
DESCRIP- TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR- GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS
ACCORDIAN FILES				1 <sup>now PLO</sup> fathograms	
ENVELOPES					
VOLUMES					
CAHIERS					
BOXES				2 <sup>smooth PLO</sup> misc. data	

## SHORELINE DATA

SHORELINE MAPS(List):

PHOTOBATHYMETRIC MAPS(List):

NOTES TO THE HYDROGRAPHER(List):

SPECIAL REPORTS(List):

NAUTICAL CHARTS(List):

## OFFICE PROCESSING ACTIVITIES

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

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET			2291
POSITIONS REVISED			
SOUNDINGS REVISED	552	4	556
CONTROL STATIONS REVISED			
	TIME - HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION	31		31
VERIFICATION OF CONTROL	8		8
VERIFICATION OF POSITIONS	48		48
VERIFICATION OF SOUNDINGS	177	16	193
VERIFICATION OF JUNCTIONS		12	12
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	84		84
COMPARISON WITH PRIOR SURVEYS AND CHARTS		12	12
EVALUATION OF SIDESCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		35	35
OTHER		3	3
DIGITIZING	34		
TOTALS	382	78	460
Pre-processing Examination by H. R. Smith, J. S. Bradford, R. L. Keene	Beginning Date 29 DEC 81	Ending Date 6 JAN 82	
Verification of Field Data by J. B. Wilson, J. S. Bradford	Time(Hours) 382	Ending Date 24 NOV 82	
Verification Check by H. R. Smith	Time(Hours) 60	Ending Date 30 NOV 82	
Evaluation and Analysis by R. G. Roberson	Time(Hours) 78	Ending Date 9 AUG 83	
Inspection by CDR K. Wm. Kieninger, R. D. Sanocki, L. G. Cram	Time(Hours) 6.	Ending Date 17 AUG 83	

DATE: February 16, 1982

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

TIDE NOTE FOR HYDROGRAPHIC SHEET

Processing Division: Atlantic Marine Center:

Hourly heights are approved for

Tide Station Used (NOAA Form 77-12): 863-9428 Sandbridge, Virginia

Period: June 13-November 9, 1981

HYDROGRAPHIC SHEET: H-9972

OPR: D103

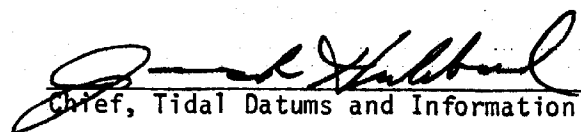
Locality: Delmarvance

Plane of reference (mean lower low water): 2.59 ft.

Height of Mean High Water above Plane of Reference is 3.60 ft.

REMARKS: Recommended zoning:

- (1) West of 75°40' apply x 1.06 range ratio.
- (2) East of 75°40' apply - 10 minute time correction and x 1.06 range ratio.

  
Chief, Tidal Datums and Information Branch

GEOGRAPHIC NAMES

H-9972

Name on Survey	ON CHART NO. 12207 ON PREVIOUS SURVEY ON U.S. QUADRANGLE MAPS FROM LOCAL INFORMATION ON LOCAL MAPS P.O. GUIDE OR MAP ATLAS GRAND MCNALLY U.S. LIGHT LIST											
	A	B	C	D	E	F	G	H	K			
<del>Atlantic Ocean (TITLE)</del>	X											1
Sandbridge Beach (TITLE)	X											2
Virginia (TITLE)	X											3
												4
												5
												6
												7
												8
												9
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												24
												25

Approved:

*Chas. P. Harrington*  
Chief Geographer - N/C62x5

4 MARCH 1983

ATLANTIC MARINE CENTER  
EVALUATION REPORT

REGISTRY NO.: H-9972

FIELD NO.: PE 20-3-81

Virginia, Atlantic Ocean, Offshore--Sandbridge Beach

SURVEYED: September 9 through October 21, 1981

SCALE: 1:20,000

PROJECT NO.: OPR-D103-MI/PE-81

SOUNDINGS: Ross Digital Echo Sounder

CONTROL: Cubic Western DM-54  
ARGO (range/range)

Chief of Party .....	D. E. Nortrup
Surveyed by .....	G. E. Leigh
.....	L. F. Simoneaux
.....	M. M. Mozgala
.....	J. W. Bailey
.....	R. B. Harris
.....	M. E. Poeschl
Automated Plot by .....	Xynetics 1201 Plotter (AMC)

1. INTRODUCTION

- a. No unusual problems were encountered during verification.
- b. Notes in the Descriptive Report were made in red during verification.

2. CONTROL AND SHORELINE

- a. Control is adequately discussed in sections F and G of the Descriptive Report and is supplemented by horizontal control report submitted by Operations Division, Atlantic Marine Center in 1981.
- b. There is no shoreline within the survey area.

3. HYDROGRAPHY

- a. Soundings at crossings are in excellent agreement; depths vary one (1) to two (2) feet.
- b. The standard depth curves could be adequately delineated brown and dashed curves were added to show additional bottom relief.

c. Development of the bottom configuration and determination of least depths is adequate with the following exception:

A charted 55-ft sounding in approximate Latitude  $36^{\circ}45'46''N$ , Longitude  $75^{\circ}32'06''W$  with surrounding depths of 66 to 71 feet should have been more thoroughly developed to substantiate the recommendation for removal made in Section L of the Descriptive Report.

#### 4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports are adequate and conform into the requirements of the Hydrographic Manual with the following exceptions:

a. Effective depth comparisons with prior surveys FE-77WD, 1949 and FE-225WD, 1975 were not made.

b. Use of an estimated distance and bearing for the location of a floating aid to navigation is not, "The most accurate means of positional control available..." (Section 1.6.5 of the Hydrographic Manual). The Hydrographic Manual suggest a detached position with a check fix.

c. The separates following the text of the Descriptive Report were not assembled properly. The separates are listed from A through J. in Section 5.3.5 of the Hydrographic Manual. Two (2) misplaced separates (J and K) should have been included in separate D "Abstract of Corrections to Echo Soundings". This situation was corrected during verification.

d. The hydrographer did not address the adequacy of the aid to navigation located in the survey area as required in Section 5.3.4.N of the Hydrographic Manual.

#### 5. JUNCTIONS

H-9922 (1980) to the northwest  
H-9948 (1981) to the west  
H-9959 (1981) to the north  
H-9978 (1981) to the northeast

Adequate junctions were effected with the above surveys.

There are no junctional surveys to the south or east. Depths in the junctional area are in harmony with the charted depths.

#### 6. COMPARISON WITH PRIOR SURVEYS

a. H-4286 (1:40,000) 1922  
H-5990 (1:40,000) 1935

These surveys cover the present survey area in its entirety.

H-4286 (1922) covers a small portion of the southwest corner of the present survey. Generally depths varied from zero to three (3) feet in comparison with present survey depths. Depths in the survey area range from forty (40) to

eighty-three (83) feet. The maximum difference between the present and prior surveys was five (5) feet in various locations. Considering the time between surveys, it is felt that these differences present no problem.

H-5990 (1935) almost covers the present survey in its entirety. Generally depth differences vary from zero (0) to four (4) feet with no consistent trend. Considering the time between surveys, natural changes and technological advances, it is felt that no major discrepancies exist.

The present survey is adequate to supersede the prior surveys within the common areas.

b. Wire Drag Surveys

FE-77WD (1949) 1:40,000

\* FE-225WD (1975) 1:40,000

H-9871WD (1976) 1:20,000

(1) A comparison with the present survey and FE-77WD (1949) revealed a single wire drag item located in the common area. A wreck "TIGER" hung at 41 feet, cleared by 39 feet in Latitude  $36^{\circ}45.95'N$ , Longitude  $76^{\circ}46.32'W$  is located near buoy "2V", Virginia Beach Wreck Lighted Bell Buoy. This wreck was also located on wire drag survey H-9871 WD (1976) and is discussed in subsection three (3) below.

$36^{\circ}45.95'$   
 $76^{\circ}46.32'$

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

(2) A comparison with the present survey and FE-225 WD (1975) revealed two (2) wire drag items located in the common area. A wreck "MARGARET P. HANKS", hung at 54 feet, cleared by 44 feet in Latitude  $36^{\circ}43.5'N$ , Longitude  $75^{\circ}34.3'W$  and two (2) submerged obstructions (2 steel tanks, 5 foot diameter, 18 feet long) hung at 61 feet, cleared by 54 feet in Latitude  $36^{\circ}43.7'N$ , Longitude  $75^{\circ}34.19'W$  fall in an area of reduced line spacing. No indications were found on the echograms. It is recommended that the wreck remain as charted and that the two (2) obstructions be charted.

24

There are no conflicts between the effective depths of the prior survey and the present survey depths. The wreck, "MARGARET P. HANKS", and the obstructions were brought forward from FE-225WD (1975) to supplement the present survey.

(3) A comparison with the present survey and H-9871 WD (1976) revealed a single wire drag item within the common area. The wreck, "TIGER", hung at 44 feet, cleared by 43 feet in Latitude  $36^{\circ}45.95'N$ , Longitude  $75^{\circ}46.32'W$  is located near buoy "2V", Virginia Beach Wreck Lighted Buoy. A wreck indication on the present survey was found on the echogram for Julian day 256, position 602, fifth (5th) out in Latitude  $36^{\circ}45'58.90''N$ , Longitude  $75^{\circ}46'17.83''W$ . The echo sounder depth on the present survey is fifty-three (53) feet with surrounding depths of fifty-seven (57) to sixty (60) feet. The deeper clearance depth on H-9871 WD (1976) is most probably due to settlement and deterioration. It is recommended that the wreck remain as charted in its current location with a revised clearance depth of forty-three (43) feet.

retained  
charted.  
24

There are no conflicts between the prior wire drag effective depths and present survey depths. The wreck, "TIGER", was brought forward from H-9871WD (1976) to supplement the present survey.

7. Comparison with Chart 12207 (15th Edition, August 15, 1981)

a. Hydrography

Charted hydrography within the common area originates with the above prior surveys and miscellaneous sources. Attention is directed to section L of the Descriptive Report where discrepancies are addressed.

The chart compiler should ascertain the source of the following soundings and evaluate them for applicability to subsequent editions of the chart:

A charted 51-ft. sounding in Latitude  $36^{\circ}42'57''N$ , Longitude  $75^{\circ}32'10''W$  with present survey depths of 57 to 59 feet in the area.

A charted 53-ft. sounding in Latitude  $36^{\circ}43'08''N$ , Longitude  $75^{\circ}33'06''W$  with present survey depths of 60 to 62 feet in the area.

A charted 55-ft. sounding in Latitude  $36^{\circ}43'45''N$ , Longitude  $75^{\circ}34'00''W$  with present survey depths of 63 to 65 feet in the area.

It is doubtful, considering the botton configuration and development by the present survey, that the above charted depths should be retained. / 201

The present survey is adequate to supersede the charted hydrography within the common area.

b. Aids to Navigation

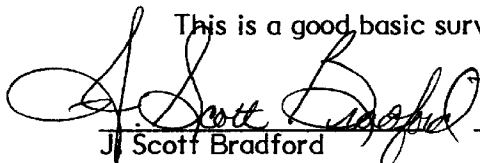
One floating aid to navigation was located on the present survey and is adequate to serve its intended purpose. See sections 4.b and 4.d for additional comments.

8. Compliance with Instructions

This survey adequately complies with the Project Instructions.

9. Additional Field Work

This is a good basic survey; no additional field work is recommended.



J. Scott Bradford  
Cartographic Technician  
Verification of Field Data



Robert G. Roberson  
Cartographer  
Evaluation and Analysis



Harry R. Smith  
Senior Cartographic Technician  
Verification Check



INSPECTION REPORT  
H-9972

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproof of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the magnetic tape record for this survey. Final control, position, and sounding printouts of the survey have been made. The survey complies with National Ocean Service requirements except as noted in the Evaluation Report. The survey records comply with NOS requirements except where noted in the Evaluation Report.

Inspected



R. D. Sanocki  
Chief, Verification Section  
Hydrographic Surveys Branch

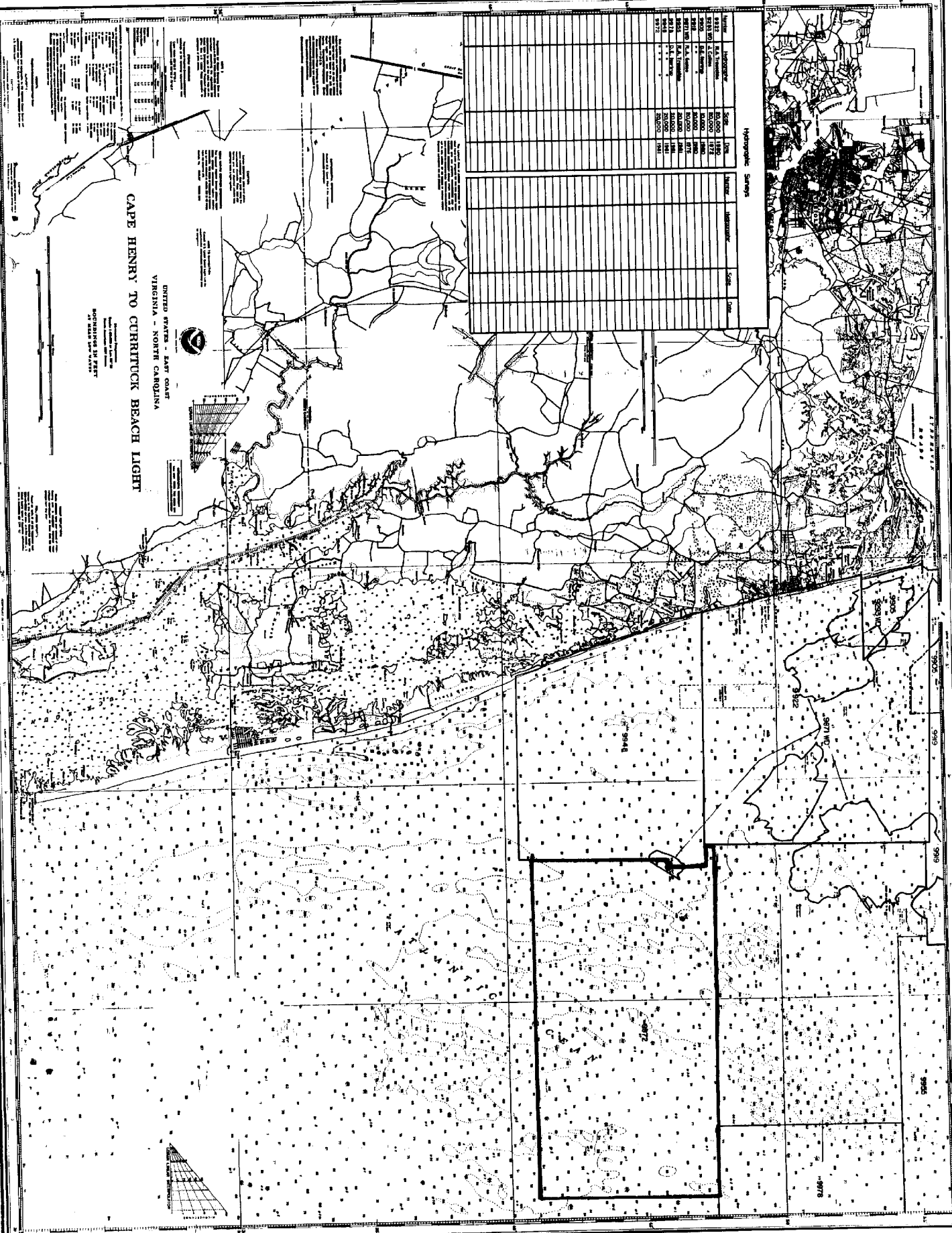


Karl Wm. Kieninger, CDR, NOAA  
Chief, Hydrographic Surveys Branch

Approved 29 August 1983



Wesley V. Hull, RADM, NOAA  
Director, Atlantic Marine Center

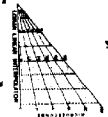


Hydrographic Survey

NAME	DATE	NO.	DEPTH	REMARKS
1811	1811	1811	1811	1811
1812	1812	1812	1812	1812
1813	1813	1813	1813	1813
1814	1814	1814	1814	1814
1815	1815	1815	1815	1815
1816	1816	1816	1816	1816
1817	1817	1817	1817	1817
1818	1818	1818	1818	1818
1819	1819	1819	1819	1819
1820	1820	1820	1820	1820
1821	1821	1821	1821	1821
1822	1822	1822	1822	1822
1823	1823	1823	1823	1823
1824	1824	1824	1824	1824
1825	1825	1825	1825	1825
1826	1826	1826	1826	1826
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1832	1832	1832	1832	1832
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1868	1868	1868	1868	1868
1869	1869	1869	1869	1869
1870	1870	1870	1870	1870
1871	1871	1871	1871	1871
1872	1872	1872	1872	1872

CAPE HENRY TO CURRITUCK BEACH LIGHT  
 VIRGINIA - NORTH CAROLINA

ORIGINATED BY EAST COAST  
 VIRGINIA - NORTH CAROLINA  
 APPROVED BY WEST  
 OF EAST COAST



RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. *H-9972*

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
<i>12208</i>	<i>12-14-93</i>	<i>R. Kennedy</i>	Full Part Before After Verification Review Inspection Signed Via Drawing No. 10 <i>Fwd. exam for critical corr. only.</i>
<i>12205</i>	<i>12-14-83</i>	<i>R. Kennedy</i>	Full Part Before After Verification Review Inspection Signed Via Drawing No. 18 <i>Fwd exam for critical corr only.</i>
<i>12220</i>	<i>8-21-84</i>	<i>D.C. Harpine</i>	<del>Full Part Before</del> After Verification Review Inspection Signed Via Drawing No. <i>51 Examined, Critical Corrections</i>
<i>12207</i>	<i>9-22-84</i>	<i>D.C. Harpine</i>	<del>Full Part Before</del> After Verification Review Inspection Signed Via Drawing No. <i>24 Exam, Critical Corrections</i>
<i>13003</i>	<i>12-12-84</i>	<i>Walter J. Fijn</i>	Full Part Before After Verification Review Inspection Signed Via Drawing No. <i>59 Examined, Critical Corrections</i>
<i>12201</i> <i>Prototype</i>	<i>10-2-85</i>	<i>J. Graham</i>	Full Part <del>Before</del> After Verification Review Inspection Signed Via Drawing No.
<i>12207</i>	<i>2-21-90</i>	<i>L. ARKENAU</i>	Full Part <del>Before</del> After Verification Review Inspection Signed Via Drawing No. <i>25</i>
<i>12205</i>	<i>2-28-90</i>	<i>ELLEN SPENCER</i>	Full Part <del>Before</del> After Verification Review Inspection Signed Via Drawing No. <i>21 Applied thru 12207-same scale)</i>
<i>12200</i>	<i>10-15-90</i>	<i>Tracy Sanford</i>	Full Part <del>Before</del> After Verification Review Inspection Signed Via Drawing No. <i>52 APPLIED THROUGH #12207 17th Ed.</i>
<i>12220</i>	<i>10-15-90</i>	<i>Tracy Sanford</i>	Full Part <del>Before</del> After Verification Review Inspection Signed Via Drawing No. <i>53 APPLIED THROUGH 12207, 17th Ed.</i>
<i>12208</i>	<i>11/15/91</i>	<i>J. Robinson</i>	FULL Drawing # 11 - Reconstruction