10356

Diagram No. 1222-5

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Side Scan Sonar

Field No. HE-10-6-90

Registery No. H-10356

LOCALITY

State Virginia

General Locality Atlantic Ocean

Sublocality NE Approach to Chesapeake Bay

1990

CHIEF OF PARTY
LCDR S.R. Iwamoto

LIBRARY & ARCHIVES

DATE December 12, 1991

☆U.S. GOV. PRINTING OFFICE: 1985—566-054

10356

12222
12208
12205 'A'
12221
12220
12200
13003 NC

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.
H-10356

FIELD NO.
HE-10-6-90

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

State VIRGINIA

General locality ATLANTIC OCEAN

Locality NE APPROACHES TO CHESAPEAKE BAY

Scale 1:10,000 Date of survey 11 Sept. - ~~07~~ 06 Nov. 1990

Instructions dated September 5, 1990 * Project No. OPR-D111 - HE90

Vessel NOAA Ship HECK (EDP 9140)

Chief of party Lieutenant Commander Stanley R. Iwamoto, NOAA

Surveyed by LCDR S.R. Iwamoto, LT D.W. Moeller, LT D.S. Wilkes, LTJG K.N. Harbison, & ST W.R. Morris

Soundings taken by echo sounder, ~~XXXXXXXXXXXX~~

Graphic record scaled by LT D.W. Moeller, LT D.S. Wilkes, LTJG K.N. Harbison, & ST W.R. Morris

Graphic record checked by LT D.W. Moeller

Protracted by N/A Automated plot by ~~HDAPS~~ XYNETICS 1201 PLOTTER (AHS)

Verification by ATLANTIC HYDROGRAPHIC SECTION

Soundings in ~~fathoms feet~~ Meters at ~~MLW~~ MLLW

REMARKS: * Change 1 - 20 Sept. 1990, Change 2 - 04 Oct. 1990, Change 3 - 15 Oct. 1990, & Change 4 - 02 Nov 1990

NOTES IN THE DESCRIPTIVE REPORT WERE MADE IN RED DURING OFFICE PROCESSING.

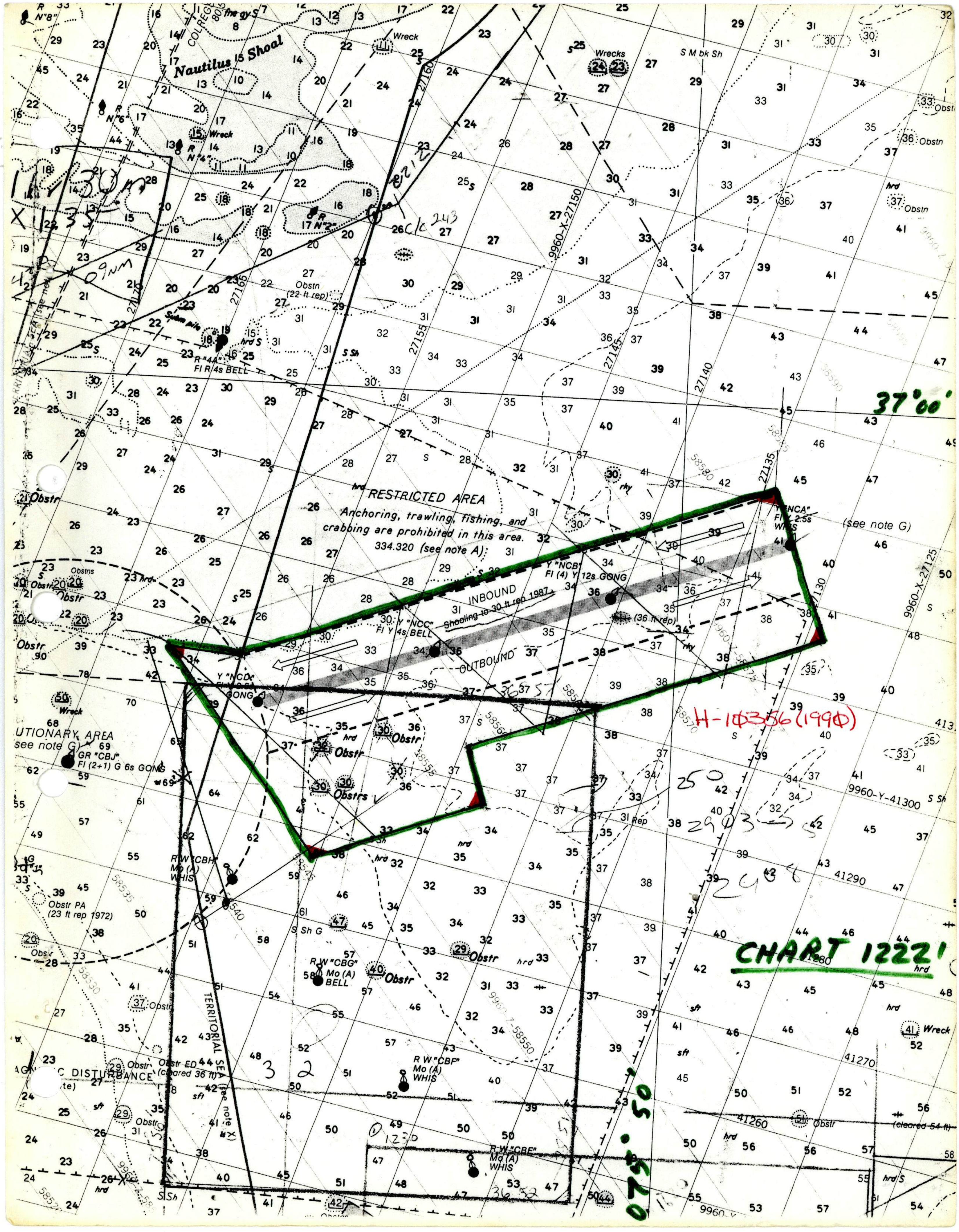
NOAA/SURF 3/5/92 SJV

SC 1-28-97

RWH 3/9/92

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

☆ U.S. GOVERNMENT PRINTING OFFICE: 1978-665-010-1174



Nautilus Shoal
COLREGS
RESTRICTED AREA
Anchoring, trawling, fishing, and crabbing are prohibited in this area.
334.320 (see note A)
INBOUND
OUTBOUND
Shoaling to 30 ft rep 1987
(36 ft rep)
Y "NCB" Fl (4) Y 12s GONG
Y "NCC" Fl Y 4s BELL
Y "NCA" Fl Y 2.5s WHIS
(see note G)
R "4A" Fl R 4s BELL
R N"2"
R N"4"
R N"6"
R N"8"
GR "CBJ" Fl (2+1) G 6s GONG
UTIONARY AREA
see note G)
R W "CBH" Mo (A) WHIS
R W "CBG" Mo (A) BELL
R W "CBF" Mo (A) WHIS
R W "CBE" Mo (A) WHIS
TERRITORIAL SEA (see note X)
Obstn (22 ft rep)
Obstr PA (23 ft rep 1972)
Obstr ED (cleared 36 ft)
(cleared 54 ft)
Subm piles
Wreck
Wrecks
9960-X-27150
9960-X-27125
9960-Y-41300
9960-Z-58550
37°00'
075°50'
H-10356 (1990)
CHART 12221

DESCRIPTIVE REPORT TO ACCOMPANY
SURVEY H-10356
FIELD NUMBER HE-10-6-90
VIRGINIA
ATLANTIC OCEAN
APPROACHES TO CHESAPEAKE BAY
Scale 1:10000
NOAA SHIP HECK S-591
LCDR Stanley R. Iwamoto, CMDG

A. PROJECT

This survey was conducted in accordance with Hydrographic Project Instructions OPR-D111-HE, Chesapeake Bay Entrance, Virginia, dated September 5, 1990, Change 1 - September 20, 1990, Change 2 - October 4, 1990, Change 3 - October 15, 1990, and Change 4 - November 2, 1990.

The purpose of this project is to provide updated information in response to requests by the Coast Guard for their Port Access Route Study and to investigate reported shoaling in the northern channel leading to Chesapeake Bay.

B. AREA SURVEYED

The survey area, designated Sheet D in the Project Instructions, lies in the Atlantic Ocean at the northern entrance to Chesapeake Bay. The actual survey area is an irregular polygon formed by connecting, in order, the following points:

36°57'~~21~~19"N 075°56'~~12~~14"W, 36°57'~~18~~19"N 075°55'~~24~~28"W, 36°59'~~12~~13"N 075°48'~~48~~46"W, 36°57'~~45~~49"N 075°~~48~~47'~~09~~59"W, 36°56'~~24~~23"N 075°52'~~26~~18"W, 36°55'~~54~~56"N 075°52'~~12~~15"W, & 36°55'~~18~~23"N 075°54'~~18~~47"W.

Survey operations began on September 11, 1990 (DOY 254), and were completed on November ~~7~~6, 1990 (DOY 31~~1~~0).

C. SURVEY VESSELS

All hydrographic data were collected by the NOAA Ship HECK (EDP 9140). No unusual vessel configurations were used.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

Survey data acquisition and processing were accomplished utilizing the HDAPS system hardware and the latest version of the NAVITRONIC NAVISOFT 300 software provided to the ship by N/CG24.

An error in the HDAPS survey program, commented out program lines, caused the sonargrams not to be annotated with marks at each selected sounding and fix during the period of September 11 - 14, 1990 (DOY 254 - 257). Sonargrams on these days were manually marked at each fix and annotated with the fix number. Fortunately, no significant contacts were located during these periods, so this had little affect on the processing of the data.

E. SONAR EQUIPMENT

HECK is equipped with an EG&G model 260 slant range corrected Side Scan Sonar (SSS) recorder and model 272 dual frequency towfish. Serial numbers and dates of usage are as follows:

Towfish	S/N 11901	DOY 254 - 264, 297 - 310
	10823	264 - 268
	12104	268 - 296
Recorder	S/N 0011443	DOY 254 - 256
	0012106	256 - 268, 296 - 310
	0012104	268 - 295

The beam width and down angle are not adjustable on this unit. All SSS data was collected using the 50 and 100 meter range scale and 100 Khz frequency. Line spacing of 180 meters was used throughout the survey to maintain the required 2mm of adjacent line overlap.

Confidence Checks were obtained, and annotated on the sonargrams, by towing the side scan unit past known bottom features. Twice daily confidence checks were not obtained on all days as required, however, a sufficient number were obtained through out the survey to adequately demonstrate the performance of the unit.

Required proof of sonar coverage is demonstrated through the included sonar coverage plots. The hydrographer chose this method in lieu of the sonar coverage abstract. The choice of method is left to the hydrographer per Side Scan Sonar Manual section 3.1.3.

The sonar contact list (Side Scan Sonar Manual 3.1.1.1.) is provided through the automated HDAPS contact printout that is produced during the computation and logging of contacts. This printout is located in the separates.

One contact table, New Contact Table 4, was used during this survey.

F. SOUNDING EQUIPMENT

The following Raytheon DSF-6000N echosounders were used during this survey:

S/N A107	DOY 254 - 258, 290
A110N	258 - 283, 296 -310

Both low and high frequency depths were digitized, but only high frequency depths were plotted.

G. CORRECTIONS TO ECHOSOUNDINGS

The following table shows dates and locations of velocity casts conducted using the ODOM Digibar sound velocimeter (S/N 168):

VELOCITY TABLE	DATE	LOCATION
1	09/10/90 (DOY 253)	36°57.5N 075°59.2W
2	10/02/90 (DOY 275)	36°55.1N 075°55.3W
3	10/24/90 (DOY 297)	36°56.1N 075°55.5W
4	11/07/90 (DOY 311)	36°57.4N 075°58.4W

The velocity cast data were reduced and velocity corrections calculated using program VELOCITY. The computed velocity correctors were then applied on line to echosounder depths (both high and low frequency) by entering the correction data into the HDAPS sound velocity table.

On DOY 071, instrument correctors were determined by conducting a dual leadline comparison of echosounder and leadline depths. Comparison resulted in a mean difference of 0.020 meter or a corrector of 0.0 meter.

A static draft of 2.10 meters was applied on line to all echosoundings via the HDAPS offset table.

Settlement and squat correctors for the HECK were determined on March 10, 1989 (DOY 69), at Craney Island fuel pier in Norfolk, Virginia using the level rod method. No alterations have been made to HECK that would change these values.

Settlement and squat values were applied on line to hydrographic soundings via the HDAPS offset table.

Heave is measured by a Datawell B.V. (S/N 19110-C) heave, roll, and pitch sensor (HIPPY) located midships near the transducer. The sensor gathers on line data which is applied to the soundings in near real time. All data acquired in the echosounder mode have been corrected by applying HIPPY correctors.

Post processing of the data revealed an error in the application of the recorded heave values to the data both when depicted on screen during the edit mode and when the data was plotted

applying heave correction. The errors are isolated to the third recorded sounding of the five recorded each logging interval. The system would show correct heave in the first two soundings, a heave of "####" for the third sounding, and heave of 0.0 for the last two soundings. This problem was not initially noticed due to the heave values being recorded and initially displayed correctly. The corruption of the applied heave did not occur until after the data was initially edited and saved for the first time. This initial saving of the data would corrupt the file. Printouts of the data sets in question showed that the correct heave values are in the file and it is only the screen and field plot that are affected. All field data has been re-edited to de-select these corrupt soundings. This problem should not affect the quality of this survey as verification will be able to plot their smooth sheets applying the correct heave values as recorded by the system through the Harris system. The HDAPS office has been contacted and provided software changes on October 1, 1990 (DOY 274) to correct this problem.

Occasionally, the heave value recorded by the system would lock onto a single value resulting in erroneous corrected values. These periods of fixed heave error are annotated on the data envelopes for each affected days data. These groups of data were scanned for heave and plotted without heave correction on the final field sheets. It is recommended that verification also exclude these periods when applying heave to the smooth sheet via the Harris system. CORRECTED DURING OFFICE PROCESSING.

The tidal datum for this survey was mean lower low water (MLLW). The tide station at Hampton Roads, Virginia was the reference station for this survey. No tide stations were established by the HECK in support of this survey.

All hydrographic depths have been corrected for predicted tides using the zone correctors specified in the project instructions. Tidal correctors were applied on line via the HDAPS predicted tide table. APPROVED TIDES AND ZONING WERE APPLIED DURING OFFICE PROCESSING.

H. CONTROL STATIONS SEE ALSO SECTION 2.9. OF THE DESCRIPTIVE REPORT.

The horizontal datum for this project is the North American Datum of 1983 (NAD 83). All stations used were existing control recovered by HECK personnel. All coordinates were taken from NGS Geodetic Control Data. No new stations were established. A list of the horizontal control stations appears in appendix III, LIST OF HORIZONTAL CONTROL STATIONS submitted with this survey. One station, Chesapeake Light, lies seaward of the high water line.

I. HYDROGRAPHIC POSITION CONTROL SEE ALSO SECTION 2.a. OF THE EVALUATION REPORT.

Position control was multiple LOP, utilizing Motorola Mini-Ranger shore stations. Control station positions were entered into the HDAPS Control Station Tables. (See APPENDIX III, LIST OF HORIZONTAL CONTROL STATIONS). The appropriate Mini-Ranger codes were attached to the station number on this table. Each time the survey navigation configuration was altered, the control station and C-O tables were modified to reflected the correct Mini-Ranger code placement/Baseline Corrector values.

Baseline calibration was performed on July 25, 1990 (DOY 206). The data from the baseline calibration of RPU S/N H-0374 was previously submitted with survey H-10350 the data for RPU S/N H-0375 was submitted with survey FE-354SS.

Equipment serial numbers appear as part of the header information on each days data print out.

System checks were conducted in accordance with the Field Procedures Manual and appear as HDAPS screen dumps on the data printouts.

All survey offsets were applied on-line using the HDAPS Offset Table.

At no time during this project did the maximum residual consistently exceed 0.5 mm at the survey scale (5 meters) nor did the 95% confidence ECR consistently exceeded 1.5 mm at the survey scale (15 meters). Data not meeting these requirements were examined and high residuals either accepted or smoothed and high ECR's smoothed or rejected.

Near the end of the project the FALCON system began having *EPROM* errors which prevented certain code numbers from being entered into the system in order to overcome this problem S/N D-2128 code D was changed to code B and S/N E-2963 code B was changed to code 6. This code change is reflected on C-O tables 6 and 7. DATA REMOVED FROM ORIGINAL DESCRIPTIVE REPORT AND FILED WITH FIELD RECORDS.

J. SHORELINE SEE SECTION 2.b. OF THE EVALUATION REPORT.

Not applicable as per project instructions.

K. CROSSLINES SEE SECTION 3.a. OF THE EVALUATION REPORT.

13.0 miles of crosslines were run on this survey and they represent 5.4% of all hydrography. Comparison to mainscheme soundings showed good agreement with random differences of ± 0.2 meters.

L. JUNCTIONS SEE ALSO SECTION 5. OF THE EVALUATION REPORT.

This survey junctions along its western edge with surveys H-10340 (1990) , H-10343 (1990) and FE-356SS (1990). Agreement between soundings along the junction showed excellent agreement with random differences of less than 0.3 meters.

M. COMPARISON WITH PRIOR SURVEYS SEE ALSO SECTION 6. OF THE EVALUATION REPORT.

Comparisons were made between the following prior surveys and survey soundings:

H-9901	1980	1:10,000
H-9905	1980	1:10,000
H-9919	1982	1:20,000

Comparisons to H-9901 showed excellent agreement with the majority of survey soundings 0 to 2 feet (Ø.6 METERS) shoaler than the prior survey. The 30 foot contour appears to be migrating in a SSE direction and is encroaching into the inbound traffic lane. The displacement of the 30 foot (9 METERS) contour is approximately 150 to 200 meters with the greatest displacement occurring east of 075°55.0'W. ~~A 48 foot (14.6 METER) deep located at 36°57.0'N 075°53.6'W is 12 feet deeper than the prior. No indication of this feature is found on the prior survey and no explanation of this extremely localized change is offered.~~ 48 FT (14.6 METERS) SOUNDING COULD NOT BE FOUND ON PRESENT SURVEY DURING OFFICE PROCESSING. PRESENT SURVEY SOUNDING AT ABOVE LOCATION ARE 10.8 TO 11 METERS.
Comparison to H-9905 showed excellent agreement with the survey 0 to 1 foot (Ø.3 METERS) shoaler than the prior in the northern half of the survey and 0 to 1 foot (Ø.3 METERS) deeper in the southern half of the survey.

Comparison to H-9919 showed excellent agreement with the survey 0 to 1 foot (Ø.3 METERS) shoaler than the prior in the northern half of the survey and 0 to 1 foot (Ø.3 METERS) deeper in the southern half of the survey. A 34 foot (10.3 METERS) sounding was brought forward from H-6438WD (1939) at 36°57.~~8~~'N 075°~~49.9~~W on the prior survey. No evidence of a shoal was indicated on either the echograms or sonargrams. The area in question appears to be deepening over time so it is likely that the cause of this grounding is no longer present. SEE ALSO SECTION 6.b. OF THE EVALUATION REPORT.

N. COMPARISON WITH THE CHART SEE ALSO SECTION 7. OF THE EVALUATION REPORT.

Comparison of surveyed soundings were made to NOS chart 12221, 57th edition, Jan/89. The soundings agreed well with the charted soundings consistently 0 to 4 feet (1.2 METERS) shoaler than the survey.

No dangers to navigation were submitted as a result of this survey. CONCUR SEE ALSO SECTION 7.b. OF THE EVALUATION REPORT.

Twenty seven contacts were identified (New contact table 4). All significant contacts were investigated. Only contacts 16, 17, 19, & 20 (AWOIS 823, two anchors) were significant. CONCUR

Seven AWOIS items were investigated with results as follows:

AWOIS 823 - Obstruction, Cleared 30 ft. This item was located and investigated by ship's divers. The obstruction proved to be two old ships anchors (see Dive Report) which were marked and raised by the USCGC COWSLIP (see photo). Recommend this item be deleted from the chart.*

AWOIS 824 - Obstruction, Cleared 30 ft. This item was investigated with 400% side scan sonar coverage. No indication of an obstruction was found. Recommend this item be deleted from the chart.*

AWOIS 828 - Obstruction, Cleared 32 ft. This item was investigated with 400% side scan sonar coverage. No indication of an obstruction or shoaling was found. Recommend this item be deleted from the chart.*

AWOIS 830 - Obstruction, Cleared 30 ft. This item was investigated with 400% side scan sonar coverage. No indication of an obstruction was found. Recommend this item be deleted from the chart.*

AWOIS 3081 - 30 ft shoal. No indication of a shoal was determined during this survey or on prior survey H-9919. It is recommended that this item be deleted from the chart. SEE ALSO SECTION 7.9.1) OF THE EVALUATION REPORT.

AWOIS 7538 - Reported Shoaling to 30 ft. This survey shows that the 30 ft contour is encroaching in to the inbound traffic lane. It is recommended that this notice be deleted and the depths from this survey be charted. SEE ALSO SECTION 7.9.2) OF THE EVALUATION REPORT.

AWOIS 7676 - Submerged Wreck. No indication of this wreck was found during survey operations. AWOIS listing notes a suspected plotting error. It is recommended that the present symbol be deleted. SEE ALSO SECTION 7.9.3) OF THE EVALUATION REPORT.

O. ADEQUACY OF SURVEY SEE SECTIONS 8. AND 9. OF THE EVALUATION REPORT.

This survey is adequate to supersede all prior surveys for the purposes of charting the depths and hazards to navigation within the survey area.

P. AIDS TO NAVIGATION SEE ALSO SECTION 7.C. OF THE EVALUATION REPORT.

Four floating aids to navigation are located within the survey area; Y "NCA" WHISTLE, Y "NCB" GONG, Y "NCC" BELL, & Y "NCD" GONG. Comparison of the charted and survey position show these aids to be accurately charted and described.

* SEE ALSO SECTION 6.b. OF THE EVALUATION REPORT.

Q. STATISTICS

ITEM for... NOAA Ship HECK	AMOUNT
1. Total No. of Positions	1432 Fixes
2. Lineal NM of Soundings	241.6 NMi
3. Square NM Hydrography	13 NMi^2
4. Days of Production	19 Days
5. Bottom Samples	18
6. Tide Stations Established	None
7. Current Stations Established	None
8. Velocity Casts Performed	4 Casts
9. Magnetic Stations Established	None
10. Detached Positions	4

R. MISCELLANEOUS

No anomalies in either tide or current were noted.

Eighteen bottom samples were taken, Log Sheet M appended, and submitted to the Smithsonian Institution. These positions were then logged along with bottom characteristics in Carto table 10.

S. RECOMMENDATIONS SEE ALSO SECTION 9. OF THE EVALUATION REPORT.

The complete insonification of the survey area via echosounder (90 meter line spacing) and side scan sonar (200% coverage) is such that the data from this survey should supersede all charted depths and features presently charted within the survey area.

Recommendations concerning specific AWOIS items and depths are located in sections M and N of this report.

T. REFERRAL TO REPORTS

1. Survey H-10350 submitted to N/CG244 on September 10, 1990
2. Survey FE-354SS submitted to N/CG244 on October 19, 1990

Respectfully Submitted,

David W. Moeller

David W. Moeller, LT, NOAA
Executive Officer
NOAA Ship HECK

DIVING OPERATIONS
OPR-D111-HE-90

H10356

DATE: Oct 28 1990

UNIT: NOAA SHIP HECK S591
AWOIS ITEM # 823
CONTACT # 1ST Anchor + 2nd Anchor

LOCATION: CHESAPEAKE BAY ENTRANCE

DIVE MASTER: LT. MOELLER
TENDERS: ST. MORRIS
SS LEWIS

DIVERS: LT MOELLER ✓
LT WILKES ✓
LTJG HARBISON

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX DEPTH: _____ FT
MAX TIME: _____ MIN
AVERAGE LEAST DEPTH: _____ FT
DEPTH: (1) _____ (2) _____ (3) _____ LEAST DEPTH TIME: ____:____

EQUIPTMENT USED: OPEN CIRCUIT SCUBA.

PNEUMOFATHOMETER:
S/N 8607004N (SHALLOW) GAGE
S/N 8704986 (DEEP) GAGE

CONDITIONS:
WIND: DIR _____ KTS _____
SEAS: DIR _____ FT _____
CURRENT: KTS _____

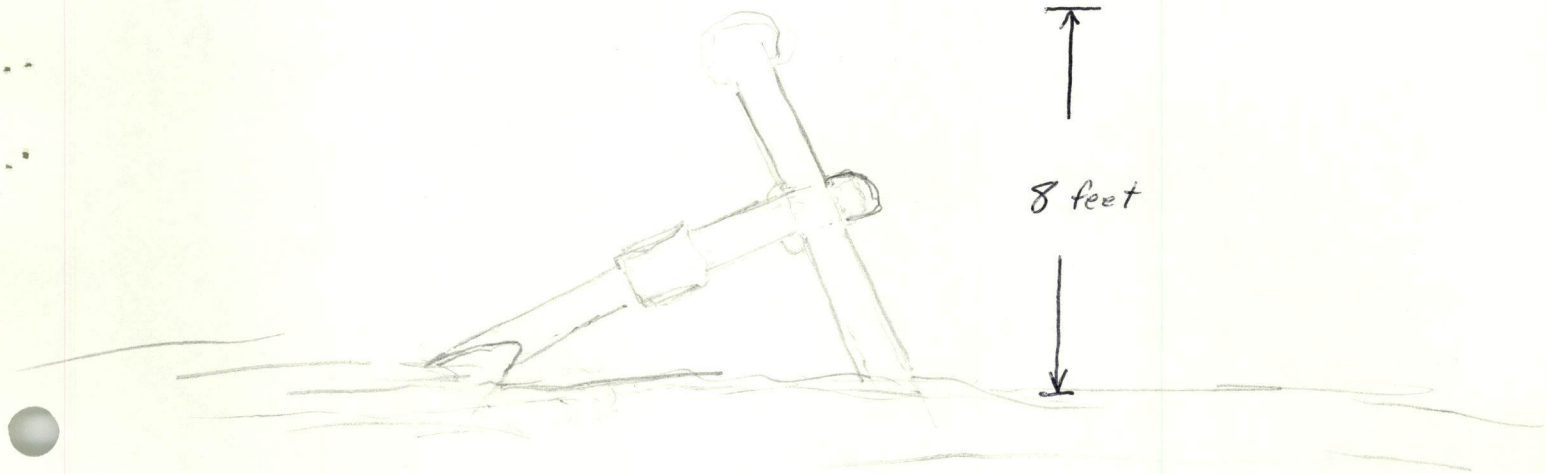
VISIBILITY: _____
AIR TEMP: 80°F
WATER TEMP: 60°F

ALL TIMES GMT

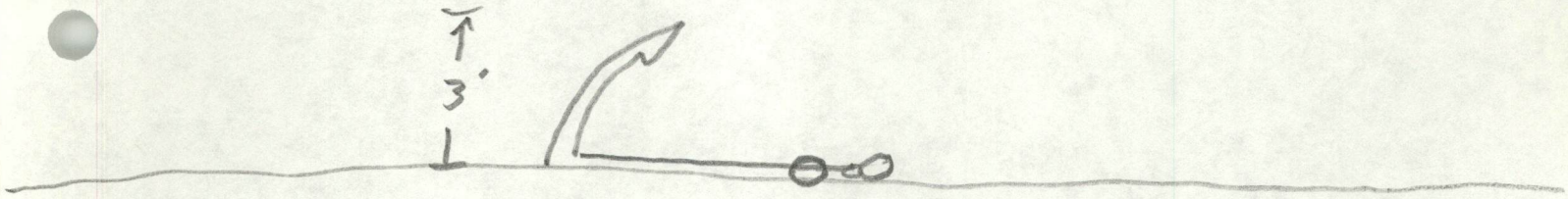
DIVERS NAME	SI	GROUP	RNT	TANK PRES.psi IN	TANK PRES.psi OUT	PRES. CHANGE	DIVE TIMES DOWN/UP	BOTTOM TIME	DEPTH	GROUP
#										
WILKES				3000			D 2116			
HARBISON							U 2130			
1										
XO				2800						
WILKES					800		D 2139			
HARBISON							U 2150			
2										
XO					800					

POST DIVE COMMENTS Descended Buoy line to bottom. Item was 10 ft from buoy ANCHOR 2nd ANCHOR 20m from 1ST

ORR D 111 HE-90
AWOIS # 823
CONTACT # 17, 20
ANCHOR # 1



AWOIS #823
CONTACT # 16, 19
ANCHOR # 2



DIVING OPERATIONS
OPR-D111-HE-90

DAT: 11/01 1990

UNIT: NOAA SHIP HECK S591
AWOIS ITEM # 1ST ANCHOR, 2ND ANCHOR
CONTACT # 16, 17, 19, 20

LOCATION: CHESAPEAKE BAY ENTRANCE

DIVE MASTER: LT. MOELLER
TENDERS: ST. MORRIS
HS ROBINSON BM3 HEIMLICH

DIVERS: LT MOELLER
LT WILKES ✓
LTJG HARBISON ✓

DIVE PLAN: CIRCLE SEARCH AND ITEM INVESTIGATION. MAX DEPTH: ____ FT
MAX TIME: ____ MIN
AVERAGE LEAST DEPTH: ____ FT
LEAST DEPTH TIME: ____ : ____

DEPTH: (1) ____ (2) ____ (3) ____

EQUIPTMENT USED: OPEN CIRCUIT SCUBA.

PNEUMOFATHOMETER:
S/N 8607004N (SHALLOW) GAGE
S/N 8704986 (DEEP) GAGE

CONDITIONS:
WIND: DIR ____ KTS flat
SEAS: DIR ____ FT ____
CURRENT: KTS ____ calm

VISIBILITY: 5-8
AIR TEMP: 20
WATER TEMP: 60

ALL TIMES ~~GMT~~ CMT

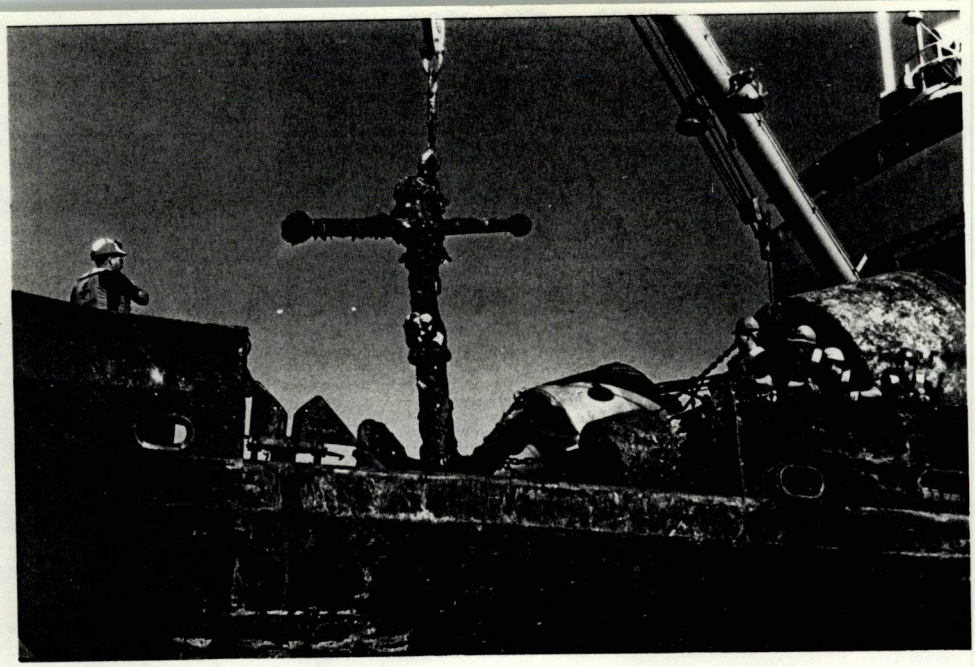
DIVERS NAME	#	SI	GROUP	RNT	TANK PRES.psi IN	TANK PRES.psi OUT	PRES. CHANGE	DIVE TIMES DOWN/UP	BOTTOM TIME	DEPTH	GROUP
WILKES					2900	2200	700	D 0847	~~10~~ 11 MIN	45	~~B~~ C
HARBISON					2900	2000	900	U 0858	~~10~~ 11 MIN	45	~~B~~ C
	1										

58

WILKES	42	C	21	2200	~~2200~~ 500	1700	D 0940	11 MIN	23 MIN	45	C
HARBISON	42	C	21	2000	~~2000~~ 500	1500	U 0951		23 MIN	45	C
	2						D-0954 U-1007	13 MIN			

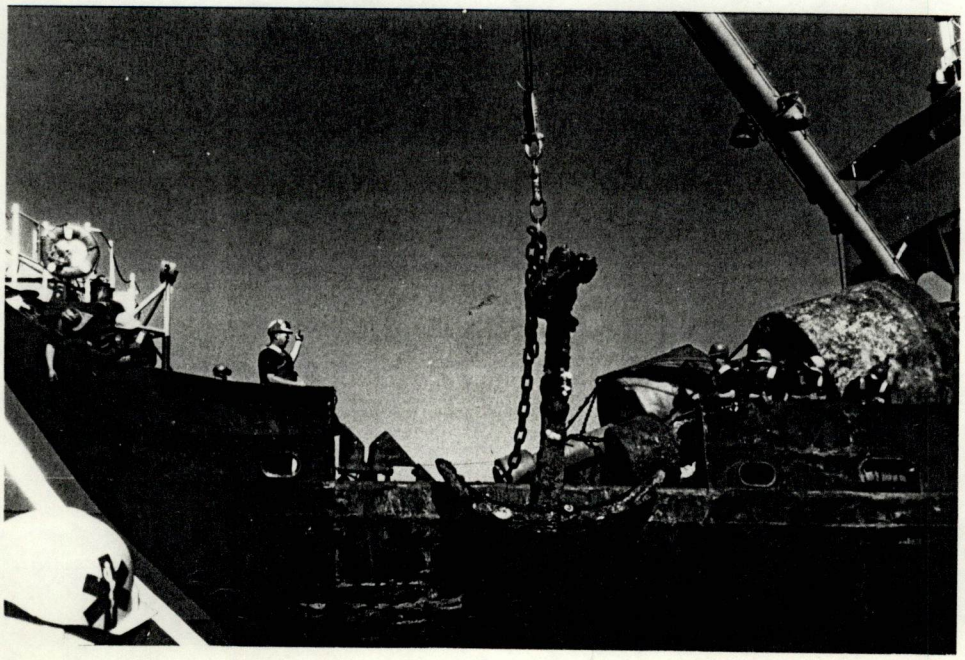
POST DIVE COMMENTS The Purpose of this Dive was to recover AN Anchor that was found on 31 OCT 90. Item is ~~a~~ AN old style anchor that ~~can~~ is approx 15 ft long, -8 ft off the bottom. anchor is clear although has heavy marine growth. Anchor appears to be an 1800's Vintage anchor. Anchor WAS salvaged ~~and~~ with C.G.C. cowslip 2nd ANCHOR Pulled by USCGC COWSLIP

DIVE MASTER SIGNATURE



Combined OPS with
USCGC COWSLIP
Recovered 6000lb anchor
Entrance to Chesapeake B.

AWOIS # 823



LIST OF HORIZONTAL CONTROL STATIONS

NUMBER	NAME	POSITION	
203	Cape Henry Light, 1984	36°55'34.911"	076°00'25.834"973
215	Chesapeake Light, 1966	36°54'16.697"	075°42'45.856"
216	H-52VA, ~~FT. Story~~ 1994	36°55'50.100"	076°01'52.823"
217	Dam Neck BOQ, 1981	36°47'18.061"	075°57'33.733"
220	FEN, 1964	37°05'36.757"	075°58'16.308"
~~230~~	~~H-55VA~~	~~36°54'30.676"~~	~~075°05'49.850"~~

VII. LETTER OF APPROVAL

Field operations contributing to the accomplishment of this survey were conducted under my direct supervision with frequent personal checks of progress and data quality. This report, fieldsheets, and data records have been closely reviewed and are complete and adequate for charting.

Stanley R. Iwamoto, LCDR, NOAA
Commanding Officer
NOAA Ship HECK

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: February 20, 1991

MARINE CENTER: Atlantic

OPR: D111-HE-90

HYDROGRAPHIC SHEET: H-10356

LOCALITY: Atlantic Ocean approaches to Chesapeake Bay, VA.

TIME PERIOD: September 11 - November 6, 1990

TIDE STATION USED: 863 8863 Chesapeake Bay Bridge Tunnel, VA.
LAT. 36 58.0'N LONG. 76 6.8'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): = 24.84 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: = 2.7 ft.

REMARKS: RECOMMENDED ZONING

Apply a X1.23 range ratio to all heights, and a -0 hr 30 min time correction for Chesapeake Bay Bridge Tunnel.

CHIEF, TIDAL DATUM QUALITY
ASSURANCE SECTION

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10356

Name on Survey	A ON CHART NO.	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
ATLANTIC OCEAN(title)	X									1
CHESAPEAKE BAY(title)	X									2
VIRGINIA (title)	X									3
										4
										5
										6
										7
										8
										9
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										24
										25

The geographic name "The Desert" appears on NOS charts 12207 and 12222 in the area of Cape Henry that is presently Seashore State Park. The geographic name "The Desert" is not used by local inhabitants and appears to be either antiquated or named in error. It is recommended that the geographic name The Desert be revised to Seashore State Park.

NOAA FORM 61-29
(12-71)

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

REFERENCE NO.

N/CG244-82-91

LETTER TRANSMITTING DATA

DATA AS LISTED BELOW WERE FORWARDED TO YOU BY *(Check)*:

☐ ORDINARY MAIL ☐ AIR MAIL

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☐ GBL *(Give number)* _____

FEDERAL EXPRESS

TO:

Chief, Data Control Section, N/CG243
NOAA/National Ocean Service
Room 151, WSC-2, 6015 Executive Blvd.,
Rockville, Maryland 20852

DATE FORWARDED

11 December 1991

NUMBER OF PACKAGES

2 Boxes, 1 Tube

NOTE: A separate transmittal letter is to be used for each type of data, as tidal data, seismology, geomagnetism, etc. State the number of packages and include an executed copy of the transmittal letter in each package. In addition the original and one copy of the letter should be sent under separate cover. The copy will be returned as a receipt. This form should not be used for correspondence or transmitting accounting documents.

H-10356

Virginia, Atlantic Ocean,
NE Approach to Chesapeake Bay

Pkg. 1 Tube
1 Final Smooth Sheet
1 Final Position Overlay
2 Excess Sounding Overlays
2 Final Field Sheets
1 Original Descriptive Report

Pkg. 2 Box
1 Accordion file containing Echograms, Data Printouts, Corrector Tape Printouts, for VESNO 9140 for JD's--254-257, 268-269, 277-278, 283, 290-291, 296-297, 303-306, 309-310
18 Envelopes containing Sonargrams for VESNO 9140 for J's--254-257, 268-269, 277-278, 283, 290-291, 296-297, 303-306, 309-310

Pkg. 3 Box
1 Cahier containing FINAL SOUNDING PRINTOUT and L-FILE
1 Cahier containing FINAL POSITION PRINTOUT
1 Binder containing Supplemental Data Removed from Original Descriptive Report
1 Envelope containing supplemental data from printouts

FROM: *(Signature)*

Norris A. Wike

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Atlantic Hydrographic Section, N/CG24411
439 W. York Street
Norfolk, VA 23510-1114

NOAA FORM 61-29 SUPERSEDES FORM C&GS 413 WHICH MAY BE USED.

☆U.S.GPO:1983-0-664-006/1192

12/10/91

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H-10356

NUMBER OF CONTROL STATIONS	5
NUMBER OF POSITIONS	1422
NUMBER OF SOUNDINGS	9583

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	71	09/16/91
VERIFICATION OF FIELD DATA	126	07/01/91
ELECTRONIC DATA PROCESSING	85	
QUALITY CONTROL CHECKS	36	
EVALUATION AND ANALYSIS	41	11/27/91
FINAL INSPECTION	9	11/13/91
TOTAL TIME	368	

ATLANTIC HYDROGRAPHIC SECTION APPROVAL 12/05/91

COAST AND GEODETIC SURVEY
ATLANTIC HYDROGRAPHIC SECTION
EVALUATION REPORT

SURVEY NO.: H-10356 FIELD NO.: HE-10-6-90

Virginia, Atlantic Ocean, NE Approach to Chesapeake Bay

SURVEYED: 11 September through 6 November 1990

SCALE: 1:10,000 PROJECT NO.: OPR-D111-HE-90

SOUNDINGS: RAYTHEON DSF-6000N Fathometer, EG&G Model 260 Side Scan Sonar

CONTROL: MOTOROLA Falcon 484 Mini-Ranger (Range/Range)

Chief of Party.....S. R. Iwamoto

Surveyed by.....D. W. Moeller
.....D. S. Wilkes
.....K. N. Harbison
.....W. R. Morris

Automated Plot by.....XYNETICS 1201 Plotter (AHS)

1. INTRODUCTION

a. This is a combined basic hydrographic/side scan sonar survey. Side scan sonar was operated simultaneously with the fathometer during survey operations. Significant side scan sonar contacts located by the field unit during hydrographic operations were investigated by the field unit.

b. No unusual problems were encountered during office processing.

c. Notes in the Descriptive Report were made in red during office processing.

2. CONTROL AND SHORELINE

a. Control is adequately discussed in sections H. and I. of the Descriptive Report.

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). Office processing of this survey is based on these values. The smooth sheet has been annotated with ticks showing the computed mean shift between the survey datum and the North American Datum of 1927 (NAD 27). To place this survey on the NAD 27 datum move the projection lines 0.531 seconds (16.37 meters or 1.63 mm at the scale of the survey) north in latitude, and 1.272 seconds (31.46 meters or 3.14 mm

at the scale of the survey) east in longitude.

All geographic positions listed from sources other than the present survey are on NAD 27 datum unless otherwise specified. All inverse distance computations are made after geographic positions have been converted to the present survey datum.

b. There is no shoreline within the area surveyed.

3. HYDROGRAPHY

a. Soundings at crossings are in excellent agreement and comply with the criteria found in sections 4.6.1 and 6.3.4.3. of the HYDROGRAPHIC MANUAL.

b. The standard ten (10) meter depth curve was drawn in its entirety. Brown curves were drawn to show additional bottom relief.

c. The development of the bottom configuration and determination of least depths is considered adequate with the following exceptions:

1) A shoal with depths to 10^8 meters, in Latitude 36°57'53.43"N, Longitude 75°48'23.00"W, was not adequately developed by the present survey. Surrounding depths from present survey range from 12 to 12^7 meters. Additional lines of hydrography should have been run to adequately delineate the shoal. It is recommended that the shoal with depths to 10^8 meters be charted in present survey location.

2) A shoal with depths to 9^8 meters, in Latitude 36°57'00.00"N, Longitude 75°48'53.35"W, was not adequately developed by the present survey. Surrounding depths from present survey range from 10 to 13^6 meters. Additional lines of hydrography should have been run to adequately delineate the shoal. It is recommended that the shoal with depths to 9^8 meters be charted in present survey location.

The items discussed above do not degrade the overall quality of the present survey.

4. CONDITION OF SURVEY

The smooth sheet and accompanying overlays, hydrographic records and reports conform to the requirements of the HYDROGRAPHIC MANUAL and the SIDE SCAN SONAR MANUAL with the following exception:

Bottom samples were not obtained as per section 7.7. of the Project Instructions on the two shoals addressed in section 3.c of this report.

5. JUNCTIONS

H-10340 (1990) to the southwest
H-10343 (1990) to the west
H-10372 (1990) to the northwest

Standard junctions were effected with all junctional surveys and the present survey.

There are no contemporary junctional surveys to the north south or east of the present survey. Charted hydrography to the north, south, and east is in harmony with the present survey.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic

H-9901	(1980)	1:10,000
H-9905	(1980)	1:10,000
H-9919	(1980)	1:20,000
H-9922	(1980)	1:20,000

Prior survey depths from H-9901 (1980) show a general trend of being 0^3 to 0^6 meters deeper than present survey soundings.

Prior survey depths from H-9905 (1980) show a general trend of being 0^3 meters deeper than present survey soundings.

Prior survey depths from H-9919 (1980) show a general trend of being 0^3 meters deeper than present survey soundings. There are some scattered depths from survey H-9905 (1980) that are 0^6 meters deeper than present survey soundings.

Prior survey depths from H-9922 (1980) show a general trend of being 0^2 meters deeper than present survey soundings.

The differences between the above prior surveys and the present survey depths may be attributed to natural changes and improved hydrographic surveying methods and equipment.

The present survey is adequate to supersede the above prior surveys in the common area.

b. Wire Drag

H-6438WD (1939) 1:40,000
H-6976WD (1945-47) 1:40,000
FE-77WD (1949) 1:40,000

There is one (1) grounding that originates with H-6438WD (1939) within the common area of the present survey.

A charted shoal to 34 feet (10^3 meters), in Latitude 36°57'48"N, Longitude 75°50'00"W (NAD 27), originates with survey H-6438WD (1939) as a grounding, and has a wire drag clearance depth of 29 feet (8^8 meters). The area was surveyed by prior survey H-9919 (1980) with no indication of the shoal. During present survey operations no contacts or shoal soundings were found in the area. It is recommended that the charted shoal to 34 feet (10^3 meters) be deleted and the area charted as shown on present survey.

There are no conflicts between effective depths of H-6438WD (1939) and the present survey soundings.

There are four (4) hangs that originate with H-6976WD (1945-47) and fall in the area common to the present survey. Each hang has been assigned an AWOIS item number and is discussed in the following paragraphs.

AWOIS item #823, a charted dangerous submerged obstruction with a wire drag clearance depth of 30 feet (9^1 meters) and a danger curve, in Latitude 36°56'00"N, Longitude 75°54'18"W (NAD 27), originates with H-6976WD (1945-47). The obstruction was previously hung at 34 feet (10^3 meters) and subsequently cleared by 30 feet (9^1 meters). During survey operations a contact was investigated by the present survey. An obstruction (anchor), in Latitude 36°56'00.10"N, Longitude 75°54'17.27"W was located by the present survey. Two (2) obstruction (anchors) were salvaged by the U. S. Coast Guard Cutter "COWSLIP". Photographs of the salvage operation are submitted with the Descriptive Report. The obstruction (anchors) is approximately 19 meters southwest of the charted location of AWOIS item #823. It is recommended that the dangerous submerged obstruction with a wire drag clearance depth of 30 feet (9^1 meters) and a danger curve be deleted from the chart.

AWOIS item #824, a charted dangerous submerged obstruction with a wire drag clearance depth of 30 feet (9^1 meters) and a danger curve, in Latitude 36°56'05"N, Longitude 75°54'00"W (NAD 27), originates with H-6976WD (1945-47). The

obstruction was previously hung at 32 feet (9^7 meters) and subsequently cleared by 30 feet (9^1 meters). During survey operations no contacts were found in the area common to the present survey and the AWOIS item. Depths from the present survey range from 10^9 meters (36 ft) to 11^2 meters (37 ft) within the search radius of the AWOIS item. It is recommended that the charted dangerous submerged obstruction with a wire drag clearance depth of 30 feet (9^1 meters) and a danger curve be deleted.

AWOIS item #828, a charted dangerous submerged obstruction with a wire drag clearance depth of 32 feet (9^8 meters) and a danger curve, in Latitude 36°56'24"N, Longitude 75°54'24"W (NAD 27), originates with H-6976WD (1945-47). The obstruction was previously hung at 34 feet (10^3 meters) and subsequently cleared by 32 feet (9^8 meters). During survey operations no contacts were found in the area common to the present survey and the AWOIS item. Depths from the present survey range from 10^9 meters (36 ft) to 11^5 meters (38 ft) within the search radius of the AWOIS item. It is recommended that the charted dangerous submerged obstruction with a wire drag clearance depth of 32 feet (9^8 meters) and a danger curve be deleted.

AWOIS item #830, a charted dangerous submerged obstruction with a wire drag clearance depth of 30 feet (9^1 meters) and a danger curve, in Latitude 36°56'34"N, Longitude 75°53'36"W (NAD 27), originates with H-6976WD (1945-47). The obstruction was previously hung at 34 feet (10^3 meters) and subsequently cleared by 32 feet (9^8 meters). During survey operations no contacts were found in the area common to the present survey and the AWOIS item. Depths from the present survey range from 10^6 meters (35 ft) to 11^2 meters (37 ft) within the search radius of the AWOIS item. It is recommended that the charted dangerous submerged obstruction with a wire drag clearance depth of 32 feet (9^8 meters) and a danger curve be deleted.

The following is a list of conflicts between effective depths of H-6976WD (1976) and the present survey soundings:

Effective Depths		Latitude (N)	Longitude (W)	Present Depths
FT	M			
37	11^2	36°56'57"	75°55'33"	10^7-10^9
34	10^3	36°57'15"	75°54'45"	9^4-10
33	10	36°57'22"	75°54'26"	9^1-9^7

These differences may be attributed to natural changes in the bottom configuration; these conflicts can be disregarded.

There are no hangs or groundings that originate with FE-77WD (1949) within the common area of the present survey. There are no conflicts between effective depths of FE-77WD (1949) and the present survey soundings.

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

7. COMPARISON WITH CHART 12205 (20th Ed., 21 January 1989)
12207 (16th Ed., 3 August 1985)
12221 (57th Ed., 28 January 1989)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys and miscellaneous sources not readily available. The previously discussed prior surveys require no further consideration. The hydrographer makes adequate chart comparisons in section N. of the Descriptive Report. In addition to the recommendations in the Descriptive Report the following should be noted:

1) AWOIS item #3081, a charted shoal depth to 30 feet (9^1 meters) and a danger curve, in Latitude 36°56'12.53"N, Longitude 75°53'19.73"W, originates with Chart Letter 310 of 1940 (CL 310/40). During survey operations no contacts or any indication of the shoal was seen. Depths from the present survey range from 10^7 meters (35 ft) to 11^2 meters (37 ft) within the search radius of the AWOIS item. Prior surveys H-9905 (1980) and H-9919 (1980) show no indication of the charted shoal. The shoal does not appear on Chart 12221 (58th Ed., Sept. 15/90). It is recommended that the charted shoal, depth to 30 feet (9^1 meters) and a danger curve be deleted and the area charted as shown on the present survey.

2) AWOIS item #7538, a charted notation, Shoaling to 30 ft (9^1 meters) rep, 1987, in the vicinity of Latitude 36°57'42"N, Longitude 75°52'48"W (NAD 27), originates with Chart Letter 1137 of 1987 (CL 1137/87). During survey operations the shoal was located to the southwest of the charted notation. It is recommended that the charted notation Shoaling to 30 ft (9^1 meters) rep, 1987 be deleted, and the area charted as shown on present survey.

3) AWOIS item #7676, a charted dangerous sunken wreck, with a notation 36 ft rep (10^9 meters), in Latitude 36°57'48"N, Longitude 75°50'36"W, has unknown origin. During survey operations no contacts were found. Depths from the

present survey range from 10^6 meters (35 feet) to 11^5 meters (38 feet) within the search radius of the AWOIS item. It is recommended that the charted dangerous sunken wreck, with a notation 36 ft rep (10^9 meters), be deleted.

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

b. Dangers to Navigation

There were no dangers to navigation submitted by the field unit. No dangers were discovered during office processing.

c. Aids to Navigation

There were four (4) floating aids to navigation located within the limits of the present survey. These aids appear adequate to serve their intended purpose.

8. COMPLIANCE WITH INSTRUCTIONS

This survey complies with the Project Instructions excepts as noted in section 3.c. of this report.

9. ADDITIONAL FIELD WORK

This is a good basic hydrographic/side scan sonar survey. No additional field work is recommended at this time.

Douglas V. Mason
Cartographic Technician
Verification of Field Data

Norris A. Wike
Cartographer
Evaluation and Analysis

Robert R. Hill
Senior Cartographic Technician
Verification Check

APPROVAL SHEET
H-10356

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproval 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 records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Robert G. Roberson Date: 5 December 91
Robert G. Roberson
Chief, Evaluation and Analysis Team
Atlantic Hydrographic Section

I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.

Christopher B. Lawrence Date: 5 December 1991
Christopher B. Lawrence, CDR, NOAA
Chief, Atlantic Hydrographic Section

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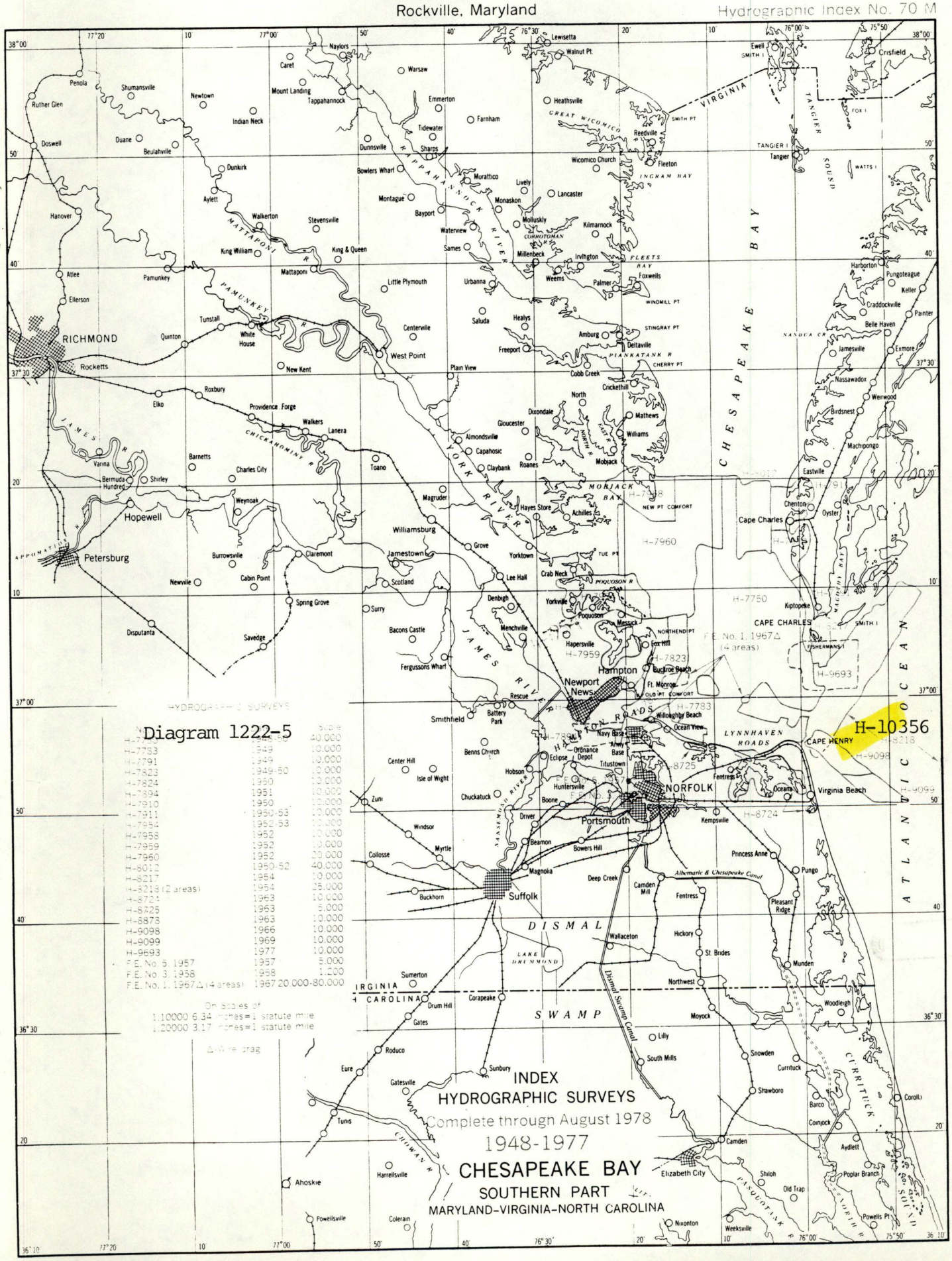
Final Approval:

Approved: J. Austin Yeager Date: 1/23/92
J Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 70 M



NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10356

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
12208	2/6/92	JOSEPH ROBINSON	Full ~~Part~~ Before After Marine Center Approval Signed Via
			Drawing No. 11 Reconstruction reviewed J.S.S. 2/10/92
12221	9/16/92	L. Ackerman	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 88 Thru 12208
12222	11/16/92	Dan Clarke	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 35
12220	1/26/93	L. Ackerman	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 55, P. APPD Thru cht 12221
12200	1/25/93	L. Ackerman	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 54, APPD Thru CHT 12220
12205A	7/7/93	R. A. Lillis	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 23 Appl'd thru cht 12221
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.