F00410

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey: HYDROGRAPHIC/ SIDE SCAN SONAR

Field No.: HE-10-2-95

Registry No.: FE-410

LOCALITY

State: VIRGINIA

General Locality: CHESAPEAKE BAY

Sublocality: 1.0 NM NORTH OF LYNNHAVEN INLET

19 95

CHIEF OF PARTY
LCDR G. E. WHITE, NOAA

LIBRARY & ARCHIVES

DATE: FEB 5 1995

☆U.S. GOV. PRINTING OFFICE: 1987—756-980

Diagram 1222-5

BP157533

Ref: BP157530-31

Products

CP3

12256

12254

12222

12208

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13003NC

NOAA FORM 77-28 (11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.

FE-410SS

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.

HE-10-2-95

State VIRGINIA

General locality CHESAPEAKE BAY

Locality 1.0 NM NORTH OF LYNNHAVEN INLET

Scale 1:10,000 Date of survey 07 March 1995 - 23 May 1995

*Additional Work: 14 Sep 1995

Instructions dated 01 March 1994 Project No. OPR-E696-HE-95

Vessel NOAA SHIP HECK (EDP 9140)

Chief of party George E. White, LCDR, NOAA

Surveyed by LCDR George E. White, LT Gerd Glang, ENS Larry Krepp, ENS Jim Crocker
St Kevin Shaver

Soundings taken by echo sounder, ~~hand lead pole~~ Echosounder

Graphic record scaled by ENS Larry Krepp, ENS Jim Crocker, ST Kevin Shaver

Graphic record checked by ENS Larry Krepp

Protracted by N/A Automated plot by ZETA 824 Plotter (Field) ENCAD NOVAJET PLOTTER (AHB)

Verification by Atlantic Hydrographic Section N/CG244; Bland & Mason

Soundings in ~~METERS~~ ~~fathoms~~ ~~feet~~ at ~~MLW~~ MLLW Feet

REMARKS: See paragraph A for discussion of project instructions

All times UTC

Notes in the original Descriptive Report were made in red during office processing

AWOIS/SURF ✓ 2/9/96 SJV

DGC FEB 5 1995

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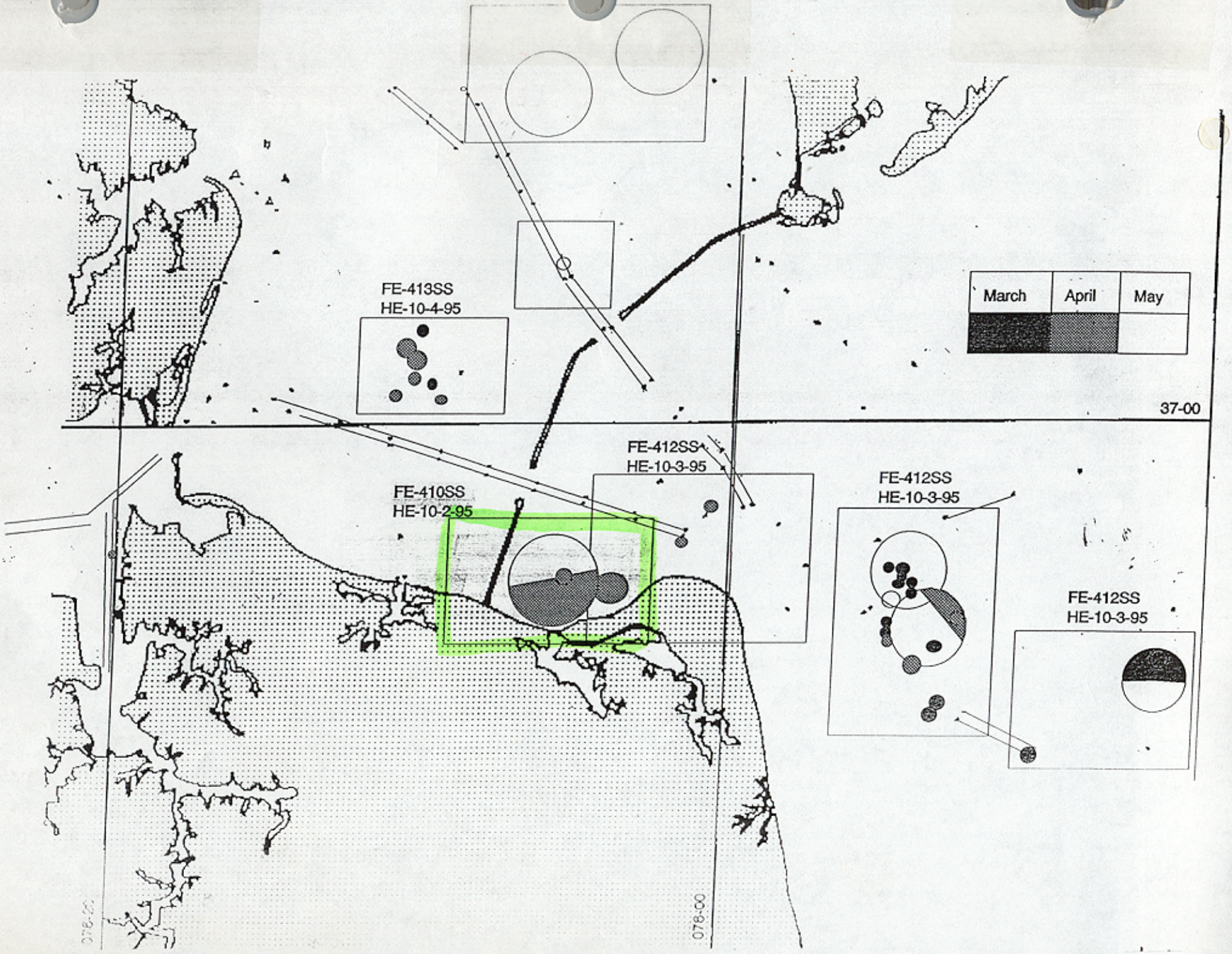
FE-413SS
HE-10-4-95
March
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078-00
078-00

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DESCRIPTIVE REPORT TO ACCOMPANY
SURVEY FE-410SS
FIELD NUMBER HE-10-2-95
VIRGINIA
CHESAPEAKE BAY
1.0 NM NORTH OF LYNNHAVEN INLET
Scale 1:10,000
NOAA SHIP HECK S-591
LCDR George E. White, NOAA, CMDG.

A. PROJECT

1. This survey was conducted in accordance with Hydrographic Project Instructions OPR-E696-HE, Southern Chesapeake Bay Item Investigations, Virginia.

2. Original Project Instructions are dated March 1, 1994.

3. Change #1 to the project instructions is dated January 6, 1995.

4. Field sheets #3 and #10 comprise this field examination. No official sheet letter designation has been issued.

5. The purpose of this project is to investigate numerous wrecks and obstructions charted in the lower Chesapeake Bay. These hazards are hindering the movement of commercial shipping and accurate information regarding these items is considered important to efficient and safe navigation.

B. AREA SURVEYED

1. The survey area, designated in the Project Instructions, lies in the lower Chesapeake Bay, Virginia, and includes the Southeastern approach to Cape Henry/Thimble Shoal Channel, portions of the York Spit Channel and extends as far west as Newport News.

2. The approximate survey sheet limits are formed by connecting the following points:

	Latitude	Longitude 07'	Scale
Sheet 3	36°~~54'12"~~N 55'00"	076°~~08~~'00"W	1:10,000
	36°~~54'12~~"N 55'00"	076°~~02'00~~"W 03' 30"	
	36°~~57'18~~"N 56'40"	076°~~02'00~~"W 03' 30"	
	36°~~57'18~~"N 56'40"	076°~~08~~'00"W 07'	

	Latitude	Longitude	Scale
Sheet 10	36°~~58'10~~"N 57'05"	076°1~~2'00~~"W 10'05"	1:10,000
	36°~~55'00~~"N 58'00"	076°1~~2'00~~"W 10'05"	
	36°~~55'00~~"N 58'00"	076°~~06'30~~"W 08'15"	
	36°~~58'10~~"N 57'05"	076°~~06'30~~"W 08'15"	

The actual survey area consists of numerous AWOIS items specified in the project instructions.

3. Survey operations began on March 07, 1995 (DOY 066), and were completed on ~~May 23~~ SEP 14, 1995 (DOY ~~143~~ 257).

C. SURVEY VESSELS

1. Hydrographic and side scan data for DOY (066-073 and 257) were collected by NOAA Launch 10~~16~~08 (MT. Mitchell). All subsequent hydrographic and side scan data were collected by the NOAA Ship HECK (EDP 9140). All offset and layback information for both the HECK and Mitchell launch 10~~16~~08 is contained in the offset tables located in section IV of the separates. *

2. No unusual vessel configurations were used.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

1. Survey data acquisition and processing were accomplished utilizing HDAPS hardware and the latest version of the NAVITRONIC NAVISOFT 300 software provided to the ship by N/CG24. A listing of actual programs and versions is appended in Appendix VI. *

2. Program Velocity (Version 2.11) was used to compute velocity corrections.

3. No nonstandard automated acquisition or processing methods were used.

* Data Filed with orginal field records

E. SONAR EQUIPMENT

1. Survey launch MI-6 is equipped with an EG&G model 260-TH slant range corrected side scan sonar and model 272 single frequency towfish. HECK is equipped with an EG&G model 260 slant range corrected Side Scan Sonar (SSS) recorder and model 272 single frequency towfish. Serial numbers and dates of usage are as follows:

Towfish	(S/N 0011904)	DOY 066 - 073
Towfish	(S/N 016697)	DOY 103 - 143
Towfish	(S/N 11591)	DOY 257
Recorder	(S/N 016669)	DOY 066 - 073
Recorder	(S/N 0011443)	DOY 103 - 127
Recorder	(S/N 0010884)	DOY 128 - 143
Recorder	(S/N 0012102)	DOY 257

2. The beam width and down angle are not adjustable on this unit. Grazing angle dip switches are normally set to "01" unless otherwise noted on the sonargram.

3. All SSS data was collected using 100 kHz frequency.

4. a. Line spacing of 160 meters on the 100 meter scale, 120 or 110 meters (depending on weather and steerage errors) on the 75 meter scale and 80 meters on the 50 meter scale were used to maintain the required line overlap as determined by the equation in FPM 7.3.2.2.

   b. Confidence checks were obtained, and annotated on the sonargrams, by towing the side scan unit either past known items or linear bottom features. A minimum of one confidence check was obtained on a daily basis as required.

   c. Required proof of sonar coverage is demonstrated through sonar coverage plots produced as HDAPS swath plots. Quality of bottom coverage to the outer edges of the sonargrams was assured during check scanning to the best of the hydrographer's ability.

   d. No anomalies were observed.

   e. The towfish was deployed from the stern. All offset and layback information is provided in the offset table located in section IV of the separates. * Data filed with original field records.

5. Contacts were investigated via side scan sonar developments using a two or three pass "wagon wheel" pattern over the target. Echosounder developments utilizing a line spacing reduced to provide 100% bottom coverage were used when diving operations were considered dangerous or unnecessary. No diver investigations were conducted for this survey.

6. The sonar contact list (Side Scan Sonar Manual 3.1.1.1.) is provided through the HECK's side scan survey contact abstract table and the automated HDAPS contact printout that is produced during the computation and logging of contacts. Depths on HDAPS contact printout are raw, however, depths on the side scan survey contact list are manually corrected for draft (+2.1 meters). Both are located in the separates.*

Three (3) contact tables were used during this survey. In order to prevent confusion all items were identified using their position number. Some contacts have more than one target number from successive hits during 200%-400% coverage, developments, and detached positions. In this case the targets plotted on top of each other, however, the recommended charting positions were derived from their DP's. For items that were resolved with echosounder, the recommended charting position was obtained from the HDAPS Post Survey Graphic Edit routine where the least depth was placed as an insert.

Targets to develop were chosen based on contact height, strength of return, and shape. All contacts with heights greater than 0.6 meters were chosen for further development with side scan sonar or echosounder. Also chosen were contacts with strong returns or interesting shapes. Upon development, those contacts still meeting the criteria for significance (1.0 meter height in depths <20m and heights 10% of water depth in depths of water over 20 meters) were developed using echosounder. Least depths were determined by echosounder.

Annotations required by section 2.6 of the Side Scan Sonar manual (ship's speed, ship's head, weather/sea state) are on the sonargrams. This information is located in the digital records and can be examined in the "Depth/Position Edit" sub-routine of the Post-Survey routine. Weather information is in the weather logs found in Appendix VI.*

*Data Filed with original field records.

F. SOUNDING EQUIPMENT

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

S/N C066	DOY 066 - 073
S/N A107	DOY 102 - 108
S/N A116	DOY 108 - 109
S/N A107	DOY 109 - 135
S/N A111	DOY 135 - 143
S/N A101-3	DOY 257

2. No dives were conducted as part of this survey. The pneumogauge and MOD III diver held least depth gauge were not used.

3. The DSF-6000N failed numerous times during the survey due to electronic motor problems. A change out of the entire unit corrected the problems. This resulted in some data being rejected. The failures did not affect the accuracy or quality of the sounding data.

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

G. CORRECTIONS TO ECHOSOUNDINGS

1. a.1. The following table shows dates and locations of velocity casts conducted using the ODOM Digibar sound velocimeter (S/N 168):

TABLE	DATE	LOCATION
2	03/13/95 (DOY 072)	36°55'41"N 076°04'56"W
15	04/12/95 (DOY 101)	36°57'18"N 076°05'36"W
17	04/17/95 (DOY 107)	36°57'24"N 076°05'48"W
32	09/14/95 (DOY 257)	36°57'28"N 076°09'05"W

The following table shows dates and locations of velocity casts conducted using the Seabird CTD, Model 19-01, (S/N 196723-1251):

TABLE	DATE	LOCATION
25	05/05/95 (DOY 125)	36°56'20"N 076°10'31"W
30	05/15/95 (DOY 135)	36°58'00"N 076°08'59"W

Seacat data was downloaded and processed utilizing the latest suite of velocity and cat programs provided by the Nautical Charting Division.

The velocity cast data collected with the Digibar were reduced and velocity corrections calculated using program VELOCITY version 2.11. The Digibar was checked on January 14, 1995 by ODOM and found to be functioning correctly. Field checks using the prescribed fresh water method were accomplished prior to each cast and recorded on the velocity cast form.

The Seabird CTD was calibrated on March 17, 1995 by Sea-Bird Electronics INC. A list of calibration coefficients was loaded into the SEACON program, then copied into the SEASOFT.CFG file and transferred into the SEACAT.CFG file as a .CGS file used by the velocity program. Field checks consisted of comparing the specific gravity of a surface sea water sample to surface measurements made by the seacat.

b. There are no variations in the instrument initial on the DSF-6000N.

c. There are no instrument corrections on the DSF-6000N.

d. On DOY 073 (1995) a dual leadline comparison was conducted aboard HECK. A mean difference of 0.04 meter was obtained resulting in a corrector of 0.0 meter.

e. The computed velocity correctors were applied on line to echosounder depths (both high and low frequency) by entering the correction data into the HDAPS sound velocity table.

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

g. Settlement and squat values for NOAAS HECK were determined on March 15, 1995 in the vicinity of Craney Island fuel pier in Norfolk, Virginia using the level rod method. These correctors are on file at N/CG244 and are included in separates section IV. X

Settlement and squat values were applied on line to hydrographic soundings via the HDAPS offset table located in section IV of the separates. X Data filed with original field records

h. 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 have been corrected by applying HIPPY correctors.

2. No unusual methods or instruments were used.

3. No zoning or special correctors were used.

4. The pneumogauge and diver held least depth gauge were not used in this survey.

5. There were no unusual factors affecting DSF records.

6. a. The tidal datum for this survey was mean lower low water (MLLW). The tide station at Hampton Roads (863-8610) was the back up station and Chesapeake Bay Bridge Tunnel (863-8863) was the reference station. Contact with the observer was made, and the station at Hampton Roads was inspected and opening levels were run by personnel from Atlantic Operations Section N/OES213 on February 27, 1995. The station at CBBT was inspected and opening and closing level runs were made by personnel from the Atlantic Operations Section N/OES213 as per project instructions. No tide stations were established by HECK in support of this survey.

b. All hydrographic depths have been corrected for predicted tides. Zone correctors were 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.

c. Zoning was in accordance with project instructions.
The zones, along with time and height correctors, are as follows:

zone 5 - bound by points:

36°55.0'N, 076°07.0'W
36°55.5'N, 076°02.5'W
37°02.6'N, 076°00.0'W
37°03.2'N, 076°01.8'W

Apply a -10 minute time correction and a x1.06 range ratio to predicted tides at CBBT.

zone 9 - bound by points:

36°56.2'N, 076°12.8'W
36°55.5'N. 076°09.7'W
37°04.0'N, 076°05.0'W
37°03.8'N, 076°04.0'W

Apply a +12 minute time correction and a x0.92 range ratio to predicted tides at CBBT.

H. CONTROL STATIONS

1. The horizontal datum for this project is the North American Datum of 1983 (NAD 83).

2. Horizontal control was accomplished using GPS in conjunction with DGPS beacons at Cape Henry, VA, Cape Henlopen, DE and Alexandria, VA.

3. Coast Guard DGPS beacons were positioned by N/CG241. All control stations were positioned to Third order, Class 1 standards.

4. No horizontal control stations were installed or maintained by HECK.

5. No Horizontal Control Report for OPR-E696 has been submitted to NOAA Atlantic Hydrographic Section, N/CG244.

6. No known anomalies or unconventional methods were noted.

I. HYDROGRAPHIC POSITION CONTROL

1. Position control was by Differential Global Positioning System. Differential Beacon positions were entered into the HDAPS Control Station Table. The first and most commonly used was the Cape Henry beacon (289 kHz). The Cape Henlopen beacon (298 kHz) and Alexandria beacon (305 kHz) were also used for performance checks and occasionally for primary positioning. The list of DGPS beacons and their positions appear in Appendix III, LIST OF HORIZONTAL CONTROL STATIONS submitted with this survey.

2. Accuracy requirements were met as specified by the Hydrographic Manual and Field Procedures Manual.

3. Equipment serial numbers appear as part of the header information on each day's data print out. The GPS receivers on board HECK are Ashtec OEM sensors (s/n 700417131012 and 70041781195, both with version 1E89 D-P EPROM's). The GPS receiver on board MI-6 is an Ashtec OEM sensors (s/n 700417B1196). The differential receivers on HECK are Magnavox MX50R receivers. The serial number for DGPS receiver number one is 079. The serial number for DGPS receiver number two is 077. The differential receiver on board MI-6 is also a MX50R receivers (s/n 458769).

4. The DGPS beacons used for this survey were the USCG beacons located at Cape Henry, VA (289 kHz), Cape Henlopen, DE (298 kHz), and Alexandria, VA (305 kHz).

5. System checks were conducted in accordance with the Field Procedures Manual and appear in the on-line printout as performance checks using the DIM program (ver. 2.1). The performance checks compare GPS positions using DGPS correctors from the Cape Henry, Alexandria and Cape Henlopen differential beacons. A critical systems check was performed using the launch to launch method at the onset of launch operations. This system check data was submitted along with the hydrographic data. Informal systems checks were completed daily by pulling the launch alongside a known buoy location and comparing the launch position with the published position of the buoy from the Light List.

6. When Differential GPS was used, the maximum allowable HDOP was set at 3.0 for the Cape Henry beacon , Alexandria beacon and the Cape Henlopen beacon to avoid EPE's in excess of the allowable 15 meters for this scale survey. Data not meeting these requirements were examined and either accepted, smoothed or rejected.

7. a. No unusual methods were used.

b. No equipment malfunctions were witnessed.

c. No unusual atmospheric conditions were noted.

d. No weak signals or poor geometric configurations were noted.

e. No systematic errors were discovered.

f. and g. All survey offsets were applied on-line using the HDAPS Offset Table 1. * Data filed with original field records.

J. SHORELINE

A formal shoreline verification was not required or conducted in this survey.

K. CROSSLINES

1. Crosslines were not run on any of the item investigations on this field examination. However, all of the AWOIS circles required at least 200% coverage for disproval. Second and fourth 100% coverages were run perpendicular to first and third 100% coverages. On items using echosounder for development, crosslines were occasionally run as part of the item development.

2. Comparison of soundings between first and second 100% coverages showed good agreement with random differences of ± 0.3 meters.

3. No significant discrepancies were noted.

4. No sounding equipment changes were made between the running of crosslines and mainscheme.

L. JUNCTIONS

Soundings taken on the item investigations within this sheet did not junction with any other sheets related to this project.

M. COMPARISON WITH PRIOR SURVEYS See also Evaluation Report

The Atlantic Hydrographic Section HECK Processing Team is completing survey comparisons as agreed upon at the start of this project.

N. ITEM INVESTIGATION REPORTS

N1. SUMMARY OF ITEMS INVESTIGATED

AWOIS NO. TGT #	SECTION	STATUS	RECOMMENDATION
820	N2	Disproved	Delete Obstruction
856	N3	Disproved	Delete Obstruction
3690	N4	Disproved	Delete Obstruction
3692	N36	Not Investigated	Retain As Charted
3693	N36	Not Investigated	Retain As Charted
3695	N36	Not Investigated	Retain As Charted
3710	N5	Disproved	Delete Obstruction
3711	N36	Not Investigated	Retain As Charted
3722	N6	Disproved	Delete Obstruction
3723	N7	Disproved	Delete Obstruction
3724	N8	Disproved	Delete Obstruction
3725	N9	Disproved	Delete Obstruction
3749	N10	Disproved	Delete Wreck
3754	N11	Disproved	Delete Obstruction
9425	N12	Disproved	Delete Obstruction
6089.42	N13	Found	Do Not Chart
6090.49	N14	Found	Do Not Chart
6319.37	N15	Found	Do Not Chart
6365.10	N16	Found	Do Not Chart
6514.69	N17	Found	Do Not Chart
6543.71	N18	Found	Do Not Chart
6589.78	N19	Found	Do Not Chart
6691.11	N20	Found	Do Not Chart
7760.17	N21	Found	~~Do Not~~ Chart Obstruction
7763.155	N22	Found	Do Not Chart
7776.73	N23	Found	Do Not Chart
7783.00	N24	Found	Chart Obstruction
7795.67	N25	Found	Do Not Chart
7890.565	N26	Found	Do Not Chart
7901.60	N27	Found	Do Not Chart
7901.66	N28	Found	Do Not Chart
7931.435	N29	Found	Do Not Chart
7933.04	N30	Found	Do Not Chart
7952.195	N31	Found	Chart Obstruction
7968.62	N32	Found	Do Not Chart
7994.315	N33	Found	Do Not Chart

N1. SUMMARY OF ITEMS INVESTIGATED (CONT)

AWOIS NO. TGT #	SECTION	STATUS	RECOMMENDATION
8037.14	N34	Found	Chart Obstruction
8209.01	N35	Found	Do Not Chart

N2. AWOIS ITEM 820

1. Area of Investigation

Reported Position:
Latitude: 36°55'32.92"
Longitude: 076°04'03.55"
Datum: NAD 83
Depth: 16 feet
Feature: Obstruction

2. Description of Item

This item is listed as an obstruction that was hung at 19 ft. and cleared to 16 ft. in 1950. Item not found in 1971 and 1980 surveys but was recommended to remain as charted.

3. Survey Requirements

Survey requirements specify determining the existence of this item through salvage documentation, 400% side scan coverage over a 500 meter radius, or diver investigation.

4. Method of Investigation

The HECK had completed the northern 25% of the search area of this item during the 1994 field season with 100% side scan sonar coverage. During the 1995 field season, 400% side scan sonar coverage was completed over the entire search radius.

5. Results of Investigation

No contacts were discovered at the published location for this obstruction. However, one (1) item, contact 6691.11, discussed in sections N20 below was discovered within the assigned search radius for this item. The hydrographer recommends deleting the obstruction from the present location and charting the aforementioned item as described later in this descriptive report.

Recommendation: Delete Obstruction CONCUR deleted

N3. AWOIS ITEM 856

1. Area of Investigation

Reported Position:
Latitude: 36°57'37.68"
Longitude: 076°09'26.05"
Datum: NAD 83
Depth: 22ft
Feature: Obstruction

2. Description of Item

This item is listed as a diesel engine reported lost in 1972. In 1980, divers investigated the item and reported an irregular shaped metal object, possibly the diesel engine with a least depth of 22'.

3. Survey Requirements

Survey requirements specify determining the existence of this item through salvage documentation, 400% side scan coverage over a 50 meter radius, or diver investigation.

4. Method of Investigation

400% side scan sonar coverage was obtained over the 50 meter radius.

5. Results of Investigation

No significant contacts were located within the assigned search radius. This item is disproved.

Recommendation: Delete Obstruction concur deleted

N4. AWOIS ITEM 3690

1. Area of Investigation

Reported Position:
Latitude: 36°57'39.68"
Longitude: 076°08'54.92"
Datum: NAD 83
Depth: N/A
Feature: Obstruction

2. Description of Item

This item is listed as a dangerous submerged obstruction, located in 1980, described as a 6'x6' wooden beam extending 2' off the bottom.

3. Survey Requirements

Survey requirements specify determining the existence of this item through salvage documentation, 400% side scan coverage over a 50 meter radius, or diver investigation.

4. Method of Investigation

400% side scan sonar coverage was completed over the assigned search radius.

5. Results of Investigation

No significant contacts were located within the assigned radius. This item is disproved.

Recommendation: Delete Obstruction concur deleted

N5. AWOIS ITEM 3710

1. Area of Investigation

Reported Position:
Latitude: 36°57'18.22"
Longitude: 076°09'45.27"
Datum: NAD 83
Depth: 18ft
Feature: Obstruction

2. Description of Item

This item is listed as an obstruction, described as sections of railroad track extending 4.5' off the bottom, hung at 19' with a least depth of 18' from a survey of the area in 1971 and 1972.

3. Survey Requirements

Survey requirements specify determining the existence of this item through salvage documentation, 400% side scan coverage over a 50 meter radius, or diver investigation.

4. Method of Investigation

400% side scan sonar coverage was completed over the assigned search radius.

5. Results of Investigation

No significant contacts were discovered within the limits of the search area. This item is disproved.

Recommendation: Delete Obstruction CONCUR deleted

N6. AWOIS ITEM 3722

1. Area of Investigation

Reported Position:
Latitude: 36°57'23.52"
Longitude: 076°09'25.77"
Datum: NAD 83
Depth: 11ft
Feature: Obstruction

2. Description of Item

This item was first located in 1948 and is described as an obstruction, hung at 14' and cleared by 11'.

3. Survey Requirements

Survey requirements specify determining the existence of this item through salvage documentation, 400% side scan coverage over a 200 meter radius, or diver investigation.

4. Method of Investigation

400% side scan sonar coverage was completed over the assigned search radius.

5. Results of Investigation

No significant contacts were discovered within the assigned search radius. This item is disproved.

Recommendation: Delete Obstruction. concur deleted

N7. AWOIS ITEM 3723

1. Area of Investigation

Reported Position:
Latitude: 36°57'33.52"
Longitude: 076°09'01.26"
Datum: NAD 83
Depth: 15ft
Feature: Obstruction

2. Description of Item

This item was first located in 1948 and is listed as an obstruction, hung at 15.5' and cleared by 15'.

3. Survey Requirements

Survey requirements specify determining the existence of this item through salvage documentation, 400% side scan coverage over a 200 meter radius, or diver investigation.

4. Method of Investigation

400% side scan sonar coverage was completed over the assigned search radius.

5. Results of Investigation

No contacts were discovered at the published location for this obstruction. However, one item, contact 8037.14, discussed in section N34 was discovered just outside the assigned search radius for this item. The hydrographer recommends deleting the obstruction from the present location and charting the aforementioned item as described later in this descriptive report.

Recommendation: Delete Obstruction. CONCUR deleted

N8. AWOIS ITEM 3724

1. Area of Investigation

Reported Position:
Latitude: 36°57'43.52"
Longitude: 076°08'54.76"
Datum: NAD 83
Depth: 15ft
Feature: Obstruction

2. Description of Item

This item was first discovered in 1948 and is listed as an obstruction, hung at 17' and cleared by 15'.

3. Survey Requirements

Survey requirements specify determining the existence of this item through salvage documentation, 400% side scan coverage over a 200 meter radius, or diver investigation.

4. Method of Investigation

400% side scan sonar coverage was completed over the assigned search radius.

5. Results of Investigation

No significant contacts were found within the assigned search radius. This item is disproved.

Recommendation: Delete Obstruction. Concur deleted

N9. AWOIS ITEM 3725

1. Area of Investigation

Reported Position:
Latitude: 36°57'46.52"
Longitude: 076°08'30.76"
Datum: NAD 83
Depth: 13ft
Feature: Obstruction

2. Description of Item

This item was first discovered in 1948 and is listed as an obstruction, hung at 14' and cleared by 13'.

3. Survey Requirements

Survey requirements specify determining the existence of this item through salvage documentation, 400% side scan coverage over a 200 meter radius, or diver investigation.

4. Method of Investigation

400% side scan sonar coverage was completed over the assigned search radius.

5. Results of Investigation

No significant contacts were located within the assigned search radius. This item is disproved.

Recommendation: Delete Obstruction. concur deleted

N10. AWOIS ITEM 3749

1. Area of Investigation

Reported Position:
Latitude: 36°55'48.52"
Longitude: 076°05'22.76"
Datum: NAD 83
Depth: Unknown
Feature: Wreck

2. Description of Item

This item is listed a 27 ft. pleasure craft sunk in 26 ft. of water in 1978. The item was not found in a 1980 survey of the area but the hydrographer at the time concurred with the previous charting recommendations.

3. Survey Requirements

Survey requirements specify determining the existence of this item through salvage documentation, 200% side scan coverage over a 1,000 meter radius, or diver investigation.

4. Method of Investigation

100% side scan sonar coverage was completed over approximately 80% of the assigned area and 200% side scan coverage was completed over the northern 25% of the assigned radius by the HECK during the 1994 field season. On February 7, 1995 during a telephone conversations with HSB Operations, it was decided that a line running east to west would be drawn through the charted Fl G 2.5s "1" buoy at the entrance to Lynnhaven Inlet and survey requirements for disproval of this item would be waived south of this line due to water depth. During the 1995 field season, 200% side scan sonar coverage was completed over the area remaining from the 1994 season and north of the line at the Fl G 2.5s "1" buoy.

5. Results of Investigation

No contacts fitting the description of a 27 foot pleasure craft were located within the assigned search radius. However, five (5), contacts 6090.49, 6319.37, 6365.10, 6514.69, and 6589.78, discussed in sections N14, N15, N16, N17, and N18 below were found within the assigned radius and should be charted as described in their respective descriptive report write-ups.

Recommendation: Delete Wreck concur deleted

N11. AWOIS ITEM 3754

1. Area of Investigation

Reported Position:
Latitude: 36°55'55.72"
Longitude: 076°05'02.06"
Datum: NAD 83
Depth: 24 feet
Feature: Obstruction

2. Description of Item

This item is listed as an old anchor extended 2 ft. off the bottom. 1980 survey concurs with prior charting recommendations.

3. Survey Requirements

Survey requirements specify determining the existence of this item through salvage documentation, 400% side scan coverage over a 200 meter radius, or diver investigation.

4. Method of Investigation

100% side scan sonar coverage was completed over the assigned area by the HECK during the 1994 field season. The HECK completed the remaining 300% side scan sonar coverage during the 1995 field season.

5. Results of Investigation

No contacts were discovered at the published location for this obstruction. However, one(1) item, contact 6543.71, discussed in section N18 below was discovered within the assigned search radius for this item. The hydrographer recommends deleting the obstruction from the present location. ~~and charting the aforementioned item as described later in section N18 of this descriptive report.~~

Recommendation: Delete Obstruction. CONCUR deleted

N12. AWOIS ITEM 9425

1. Area of Investigation

Reported Position:
Latitude: 36°57'20.00"
Longitude: 076°09'47.00"
Datum: NAD 83
Depth: 15ft
Feature: Obstruction

2. Description of Item

This item was first discovered in 1948 and is described as a hang depth unknown, cleared to 15'.

3. Survey Requirements

Survey requirements specify determining the existence of this item through salvage documentation, 400% side scan coverage over a 200 meter radius, or diver investigation.

4. Method of Investigation

400% side scan sonar coverage was completed over the assigned search radius.

5. **Results of Investigation**

No significant contacts were located within the assigned search radius. this item is disproved.

Recommendation: Delete Obstruction. concur deleted

N13. CONTACT# 6089.42

This contact is listed in contact table #6 with a computed height of 0.4 meters in 9.6 meters of water. The item was further investigated on DOY 111 with the side scan sonar on the 50 meter range scale and determined to be insignificant.

Recommendation: Do Not Chart. concur JoCox

N14. CONTACT# 6090.49

This contact is listed in contact table #6 with a computed height of 0.9 meters in 8.5 meters of water. The item was later investigated on DOY 109 with side scan sonar on the 50 meter range scale and determined to be insignificant.

Recommendation: Do Not Chart. concur JoCox

N15. CONTACT# 6319.37

This contact is listed in contact table #6 with a computed height of 0 meters in 7.4 meters of water. On DOY 118, this item was further investigated with side scan sonar on the 50 meter range scale and found to be insignificant.

Recommendation: Do Not Chart concur JoCox

N16. CONTACT# 6365.10

This contact is listed in contact table #6 with a computed height of 2.1 meters in 9.4 meters of water. On DOY 109, this item was further investigated with side scan sonar on the 50 meter range scale and found to be insignificant.

Recommendation: Do Not Chart. concur NO Chart

N17. CONTACT# 6514.69

This contact is listed in contact table #6 with a computed height of 0.7 meters in 8.1 meters of water. On DOY 109, this item was further investigated with the side scan sonar on the 50 meter range scale and determined to be insignificant.

Recommendation: Do Not Chart concur NO Chart

N18. CONTACT# 6543.71

This item is listed in contact table #6 with a computed height of 0.5 meters in 9.5 meters of water. On DOY 109 and DOY 118, this item was further investigated with side scan sonar on the 50 meter range scale and determined to be insignificant.

Recommendation: Do Not Chart. concur NO Chart

N19. CONTACT# 6589.78

This item is listed in contact table #6 with a computed height of 1.0 meters in 9.2 meters of water. On DOY 109, this item was further investigated with side scan sonar on the 50 meter range scale. The item was then developed with echosounder on DOY 111 using 4 meter line spacing to give 100% bottom coverage at that depth and determined to be insignificant.

Recommendation: Do Not Chart. concur NO Chart

N20. CONTACT# 6691.11

This item is listed in contact table #6 with a computed height of 1.8 meters in 9.0 meters of water. On DOY 111, this item was further investigated with side scan sonar on the 50 meter range scale and determined to be insignificant.

Recommendation: Do Not Chart. concur NOAA

N21. CONTACT# 7760.17

This item is listed in contact table #20 with a computed height of 0.8 meters in 6.5 meters of water. On DOY 135, this item was further investigated with side scan sonar on the 50 meter range scale. On DOY 137 and 139, the item was developed with echosounder using three meter line spacing to provide 100% bottom coverage. A least depth of 4.0 meters was inserted at position #8175.16 resulting in a corrected least depth of 6.0 meters in 6.8 meters of water. This item is insignificant.

Recommendation: Do Not Chart. Do Not concur. Chart a 19 Foot (6m) obstruction in Lat 36/57/16.627N, Lon 76/09/35.608W. Charted.

N22. CONTACT# 7763.155

This item is listed in contact table #20 with a computed height of 0.7 meters in 7.5 meters of water. On DOY 135, this item was further investigated with the side scan sonar on the 50 meter range scale and determined to be insignificant.

Recommendation: Do Not Chart. concur NOAA

N23. CONTACT# 7776.73

This item is listed in contact table #20 with a computed height of 0.7 meters in 6.6 meters of water. On DOY 135, this item was further investigated with the side scan sonar on the 50 meter range scale and determined to be insignificant.

Recommendation: Do Not Chart. concur NOAA

N24. CONTACT# 7783.0

This item is listed in contact table #20 with a computed height of 1.3 meters in 7.8 meters of water. On DOY 135, this item was further investigated with the side scan sonar on the 50 meter range scale. On DOY 139, the item was investigated with echosounder using three meter line spacing to provide 100% bottom coverage. A least depth of 4.4 meters was inserted at position 8213.14, producing a corrected least depth of 5.9 meters. The water depth in the area is 7.2 meters.

Position: 8213.14
Time: 15:13:12 UTC
LAT: 36°57'31.041"N
LON: 076°09'16.181"W
Raw Depth: 4.4m
Draft: 2.1m
Tide: -0.6~~6~~7m
Sound Velocity: 0.0m

Corrected Least Depth: 5.~~9~~8m (19FT)

Recommendation: Chart Obstruction with least depth of 5.~~9~~8 meters (19 foot) based on ~~predicted~~ smooth tides. concur chartid.

N25. CONTACT# 7795.67

This item is listed in contact table #20 with a computed height of 0.6 meters in 7.6 meters of water. On DOY 137, this item was further investigated with the side scan sonar on the 50 meter range scale and determined to be insignificant.

Recommendation: Do Not Chart concur DNC

N26. CONTACT# 7890.565

This item is listed in contact table #20 with a computed height of 0.7 meters in 7.6 meters of water. On DOY 137, this item was further investigated with the side scan sonar on the 50 meter range scale and determined to be insignificant.

Recommendation: Do Not Chart. concur DNC

N27. CONTACT# 7901.60

This item is listed in contact table #20 with a computed height of 1.2 meters in 7.9 meters of water. On DOY 137, this item was further investigated with the side scan sonar on the 50 meter range scale and determined to be insignificant.

Recommendation: Do Not Chart. concur NC

N28. CONTACT# 7901.66

This item is listed in contact table #20 with a computed height of 0.8 meters in 7.9 meters of water. On DOY 137, this item was further investigated with the side scan sonar on the 50 meter range scale and determined to be insignificant.

Recommendation: Do Not Chart. concur NC

N29. CONTACT# 7931.435

This item is listed in contact table #30 with a computed height of 1.0 meters in 8.2 meters of water. On DOY 137, this item was further investigated with the side scan sonar on the 50 meter range scale and determined to be insignificant.

Recommendation: Do Not Chart. concur NC

N30. CONTACT# 7933.04

This item is listed in contact table #30 with a computed height of 1.0 meters in 8.1 meters of water. On DOY 137, this item was further investigated with the side scan sonar on the 50 meter range scale and determined to be insignificant.

Recommendation: Do Not Chart. concur NC

N31. CONTACT# 7952.195

This item is listed in contact table #30 with a computed height of 0.9 meters in 8.1 meters of water. On DOY 137, this item was further investigated with the side scan sonar on the 50 meter range scale. On DOY 139, the item was developed with echosounder using three meter line spacing top provide 100% bottom coverage. A least depth of 4.9 meters was inserted at position 8245.11, resulting in a corrected least depth of 6.2 meters. The water depth in the area is 7.3 meters.

Position: 8245.11
Time: 16:54:44 UTC
LAT: 36°57'32.793"N
LON: 076°08'50.147"W
Raw Depth: 4.9m
Draft: 2.1m
Tide: -0.8m
Sound Velocity: 0.0m

Corrected Least Depth: 6.2m (20Ft)

Recommendation: Chart Obstruction with least depth of 6.2 meters (20 Ft) based on ~~predicted~~ smooth tides. at the above location. charted concur

N32. CONTACT# 7968.62

This item is listed in contact table #30 with a computed height of 2.1 meters in 7.4 meters of water. On DOY 137, this item was further investigated with the side scan sonar on the 50 meter range scale and determined to be insignificant.

Recommendation: Do Not Chart. Concur DNC

N33. CONTACT# 7994.315

This item is listed in contact table #30 with a computed height of 0.7 meters in 7.1 meters of water. On DOY 137, this item was further investigated with side scan sonar on the 50 meter range scale and determined to be insignificant.

Recommendation: Do Not Chart. Concur DNC

N34. CONTACT# 8037.14

This item is listed in contact table #30 with a computed height of 1.6 meters in 7.2 meters of water. On DOY 137, the contact was further investigated with the side scan sonar on the 50 meter range scale. On DOY 139 the item was developed with echosounder using three meter line spacing to provide 100% bottom coverage. A least depth of 4.0 meters was inserted at position 8199.10, resulting an a corrected least depth of 5.7 meters. The water depth in the area is 7.2 meters.

Position: 8199.10
Time: 14:22:18 UTC
LAT: 36°57'26.500"N
LON: 076°09'00.487"W
Raw Depth: 4.0m
Draft: 2.2m
Tide: -0.~~3~~7m
Sound Velocity: 0.0m

Corrected Least Depth: 5.~~7~~5m (18 Ft)

Recommendation: Chart Obstruction with least depth of 5.~~7~~5 meters (18 Feet) based on ~~predicted~~ smooth tides. concur chart.

N35. CONTACT# 8209.01

This item appeared during an echosounder development of another contact but was not positioned until the HECK had left the area. The item is listed in contact table #31 with a computed height of 3.1 meters in 7.2 meters of water. On DOY 257 the item was investigated by MI-6 with side scan sonar using the 50 meter range scale. No significant contacts were found upon development of the area.

Recommendation: Do Not Chart. concur DO Con

N36. AWOIS 3692, 3693, 3695, 3711

These AWOIS items were assigned to the HECK on April 26, 1995 by the Hydrographic Surveys Branch N/CG241. Due to time constraints, the HECK was not able to address any of these items and recommend that they be retained as charted and assigned to the next field unit that works the Little Creek area. Concur No Comment

0. COMPARISON WITH THE CHART See also Evaluation Report

1. The Atlantic Hydrographic Section HECK Processing Team is completing comparisons with current editions of the following NOS charts as agreed upon at the start of this project.

CHART	EDITION	DATE	SCALE
12208	05th	MAR 94	1:50,000
12221	63rd	APR 95	1:80,000
12222	37th	APR 95	1:40,000
12254	36th	JUN 93	1:20,000

2. No danger to navigation reports were filed with this survey.

3. a. The charted soundings compare favorably with depths of the present survey.

   b. The survey shows slightly greater depths (up to 0.4 meters) than those charted throughout the survey area.

   c. No extraordinary hydrographic features were noted.

   d and e. There are no safety fairways or maintained channels within the survey area.

4. There are no non-sounding features other than those mentioned in section N of this report.

5. No changes are recommended to scale coverage or format of published charts within the survey area.

P. ADEQUACY OF SURVEY See also Evaluation Report

1. This survey meets or exceeds 1:10,000 specifications, and is adequate to supersede all prior surveys for the purposes of charting the depths and hazards to navigation within the survey area.

2. No portion of this survey has been identified as substandard or incomplete.

Q. AIDS TO NAVIGATION

1. No correspondence was initiated with the Coast Guard regarding floating aids to navigation.

2. Two buoys, Fl G 2.5s "1", at the entrance to Lynnhaven Inlet, and Fl R 2.5s "2LC", at the entrance to Little Creek Harbor were located within the survey area. Detached positions were not taken, but the locations of these buoys observed while on-line (in some cases used as a confidence check) coincided well with the charted position. All buoys in the Southern Chesapeake Bay area are closely maintained on station by the USCG. One unlit mooring buoy located northeast of Lynnhaven Inlet was positioned by D.P. #8349 on DOY 143. The position of this buoy coincided well with the charted position.

3. There were no aids to navigation not shown in the Light List noted in the survey area.

4. No bridges or overhead cables are close to the survey area.

5. No submarine cables, submarine pipelines, or ferry routes were noted.

6. There are no uncharted ferry terminals within this survey area.

R. STATISTICS

ITEM	AMOUNT
1. Total No. of Positions	1334 Fixes
2. Lineal NM of Soundings	151.45 NMi
3. Square NM Hydrography	4.30 NMi^2
4. Days of Production	21 Days
5. Bottom Samples	None
6. Tide Stations Established	None
7. Current Stations Established	None
8. Velocity Casts Performed	6 Casts
9. Magnetic Stations Established	None
10. Detached Positions	1 D.P.

S. MISCELLANEOUS See also Evaluation Report

1. a. No unusual silting conditions were observed in the survey area.

   b. No unusual submarine features were noted.

   c. No unusual tidal conditions were observed.

   d. No current observations were made, no unusual current conditions were observed.

   e. No magnetic anomalies were noted.

2. No bottom samples were taken during the course of this survey as per project instructions.

T. RECOMMENDATIONS

1. No additional field work is recommended. Do not concur. See Evaluation Report Section P.

2. No salvage or dredging operations should interfere with the results of this survey.

3. No further investigation of unusual features or sea conditions is recommended.

U. REFERRAL TO REPORTS

1. User Evaluation Reports have been submitted to N/CG241 and N/CG244 at the end of the project.

2. A Coast Pilot Report has been submitted to N/CG241 and N/CG222 at the end of the project.

3. No Horizontal Control Report or Electronic Control Report will be submitted for this survey.

Respectfully Submitted,

Larry Krepp, LTjg, NOAA
Operations Officer
NOAA Ship HECK

CONTROL STATION TABLE FOR FE-410

No	Latitude	Longitude	Cart	Name
100	036:55:36.000	076:00:24.000	250	CAPE HENRY DGPS STATION
200	038:46:36.000	075:05:18.000	250	CAPE HENLOPEN DGPS STATION
300	036:51:00.136	076:17:50.869	250	BENCHMARK "CONDO"-NAUTICUS

VII. LETTER OF APPROVAL

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

George E. White, LCDR, NOAA
Commanding Officer
NOAA Ship HECK

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Office of Ocean and Earth Sciences
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: September 27, 1995

HYDROGRAPHIC BRANCH: Atlantic

HYDROGRAPHIC PROJECT: OPR-E696-HE

HYDROGRAPHIC SHEET: FE-410SS

LOCALITY: Virginia, Chesapeake Bay, 1.0 Nautical Miles North of Lynnhaven Inlet

TIME PERIOD: March 7 - May 23, 1995

TIDE STATION USED: 863-8863 Chesapeake Bay Bridge Tunnel, Va.
Lat. 36° 58.0'N Lon. 76° 06.8'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 24.88 ft.
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 2.7 ft.

REMARKS: RECOMMENDED ZONING

1. In the area bounded by points:

1 36° 55.8'N/76° 02.4'W
2 37° 02.5'N/76° 00.0'W
4 36° 54.8'N/76° 06.9'W
3 37° 03.2'N/76° 01.6'W

Apply a -10 minute time correction and a x1.06 range ratio to heights using Chesapeake Bay Bridge Tunnel, Va. (863-8863).

2. In the area bounded by points:

36° 54.8'N/76° 06.9'W
37° 03.2'N/76° 01.6'W
37° 03.8'N/76° 03.7'W
36° 55.5'N/76° 09.6'W

Times and heights are direct on Chesapeake Bay Bridge Tunnel, Va. (863-8863).

3. In the area bounded by points:

2 37° 03.8′N/76° 03.7′W
1 36° 55.5′N/76° 09.6′W
37° 04.3′N/76° 05.0′W
36° 56.1′N/76° 12.3′W

Apply a +12 minute time correction and a x0.92 range ratio to heights using Chesapeake Bay Bridge Tunnel, Va. (863-8863).

Notes: 1. Times are tabulated in Greenwich Mean Time.
2. The data is temporarily stored in file #663-8863.

Wilson M. Gibson

CHIEF, DATUMS SECTION

NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

FE-410

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO. 12254, 12256, 12222	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	
CHESAPEAKE BAY (title)	X		X							1
CRUMPS BANK	X		X							2
LITTLE CREEK	X		X							3
LYNNHAVEN INLET	X		X							4
LYNNHAVEN ROADS	X		X							5
VIRGINIA (title)	X		X							6
										7
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										25

Approved:

Chief Geographer

JAN 16 1996

NOAA FORM 76-155 SUPERSEDES C&GS 197

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR FE-410 (1995)

This Evaluation Report has been written to supplement and/or clarify the original Descriptive Report. Sections in this report refer to the corresponding sections of the Descriptive Report.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

The following software was used to process data at the Atlantic Hydrographic Branch:

AutoCAD, Release 12
Hydrographic Processing System
MicroStation, version 5.0
NADCON, version 2.10

H. CONTROL STATIONS

7. 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.

To place this survey on the NAD 27 datum move the projection lines 0.529 seconds (16.304 meters or 1.63 mm at the scale of the survey) north in latitude, and 1.234 seconds (30.54 meters or 3.05 mm at the scale of the survey) east in longitude.

M. COMPARISON WITH PRIOR SURVEYS

A comparison with prior surveys was not done in accordance with section 4. of the memorandum titled "Changes to Hydrographic Survey Processing", dated May 24, 1995.

O. COMPARISON WITH CHART 12205 (23rd Edition, Apr. 30/94)
12208 (5th Edition, Mar. 12/94)
12221 (62nd Edition, Dec. 11/93)
12222 (36th Edition, Mar. 19/94)
12254 (36th Edition, June 5/93)
12256 (10th Edition, July 24/93)

The hydrographer makes adequate chart comparisons in sections N. and O. of the Descriptive Report.

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

P. ADEQUACY OF SURVEY

3. This is an adequate side scan sonar survey; no additional work is recommended. Additional work is recommended by the field unit in Section N., page 30 of the Descriptive Report.

S. MISCELLANEOUS

Chart compilation using the present survey was done by the Atlantic Hydrographic Branch personnel in Norfolk, Virginia. Compilation data will be forwarded to the Marine Chart Division, Silver Spring, Maryland.

HECK PROCESSING TEAM

Deborah A. Bland for
Douglas V. Mason
Cartographic Technician

Deborah A. Bland
Deborah A. Bland
Cartographer

APPROVAL SHEET
FE-410

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. A final sounding printout of the survey has been made. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Deborah a Bland Date: 12-22-95

Deborah A. Bland
Cartographer
Atlantic Hydrographic Branch

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.

Nicholas E. Perugini Date: 12-22-95

Nicholas E. Perugini,
Commander, NOAA
Chief, Atlantic Hydrographic Branch

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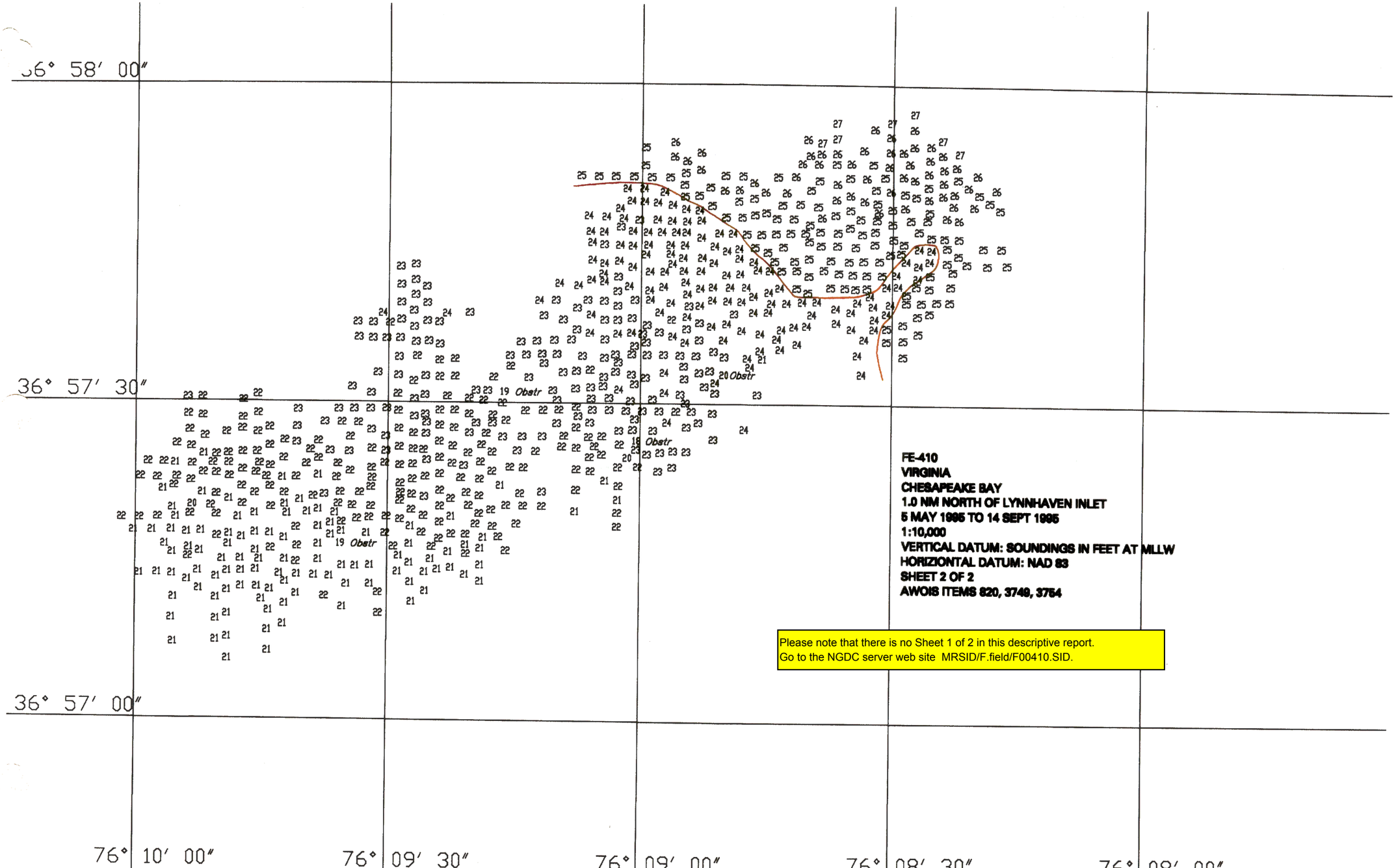
Final Approval:

Approved: Andrew A. Armstrong III Dated: 2-15-96

Andrew A. Armstrong III
Captain, NOAA
Chief, Hydrographic Surveys Division



FE-410
VIRGINIA
CHESAPEAKE BAY
1.0 NM NORTH OF LYNNHAVEN INLET
5 MAY 1995 TO 14 SEPT 1995
1:10,000
VERTICAL DATUM: SOUNDINGS IN FEET AT MLLW
HORIZIONTAL DATUM: NAD 83
SHEET 2 OF 2
AWOIS ITEMS 820, 3749, 3754

Please note that there is no Sheet 1 of 2 in this descriptive report.
Go to the NGDC server web site MRSID/F.field/F00410.SID.

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. FE-410

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
12205	2/15/96	D.A. Bland	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No.
12208	1/25/96	D.A. Bland	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No.
12221	2/15/96	D.A. Bland	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No.
12222	1/25/96	D.A. Bland	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No.
12254	2/16/96	D.A. Bland	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 62 – appld in full adj under sndgs.
12256	2/9/96	D.A. Bland	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No.
12254	3/20/96	L. Akins	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No.
12256	3/20/96	L. Akins	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No.
12222	3/22/96	L. Akins	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 38
12205A	3/29/96	D. Stewart	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 24
12280	5/3/96	M. Hetrick PS	FULL — " " " " "
			DRAWING NO. 1 – THRU 12221 # 93

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED