H11028

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey	**Basic Hydrographic/Multibeam/ Side Scan Sonar**
Registry No.	**H11028**

LOCALITY

State	**Virginia**
General Locality	**Chesapeake Bay**
Sub-locality	**York River Entrance Channel to Tail of the Horseshoe**

2001-2002

CHIEF OF PARTY
Andrew L Beaver, LCDR, NOAA

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NOAA FORM 77-28
U.S. DEPARTMENT OF COMMERCE
(11-72)
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HYDROGRAPHIC TITLE SHEET

REGISTRY NUMBER:

H11028

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: **~~Southern~~ Chesapeake Bay**

Sub-Locality: **York River Entrance Channel to Tail of the Horseshoe**

Scale: **1:10,000** Date of Survey: **03/13/01 to 04/06/01**
11/19/01 to 12/14/01
04/08/02 to 06/03/02

Instructions Dated: **02/06/01** Project Number: **OPR-E350-RU**

Vessel: **NOAA Ship RUDE, S-590**

Chief of Party: **Lieutenant Commander Andrew L. Beaver, NOAA**

Surveyed by: **RUDE Personnel**

Soundings by: **Odom Echotrac DF3200 MK II Echosounder**
Innerspace model 448 VBES
RESON SeaBat 9003 multibeam sonar
RESON SeaBat 8125 multibeam sonar

Graphic record scaled by: **RUDE Personnel**

Graphic record checked by: **RUDE Personnel**

Hewlett Packard DesignJet 2500cp (office)

Protracted by: **N/A** Automated Plot: **HP DesignJet 1050C** ***(field)***

Verification by: **Atlantic Hydrographic Branch** ***Personnel***

Soundings in: **Feet at MLLW**

Remarks: ***Bold, Italic, Red notes in Descriptive Report were made during office processing.***

1) All Times are UTC.

2) This is a basic Hydrographic Survey.

3) Projection is UTM Zone 18.

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DESCRIPTIVE REPORT

to accompany

HYDROGRAPHIC SURVEY H11028

Scale of Survey: 1:10,000

Year of Survey: 2001 - 2002

NOAA Ship RUDE

LCDR Andrew L. Beaver, Commanding

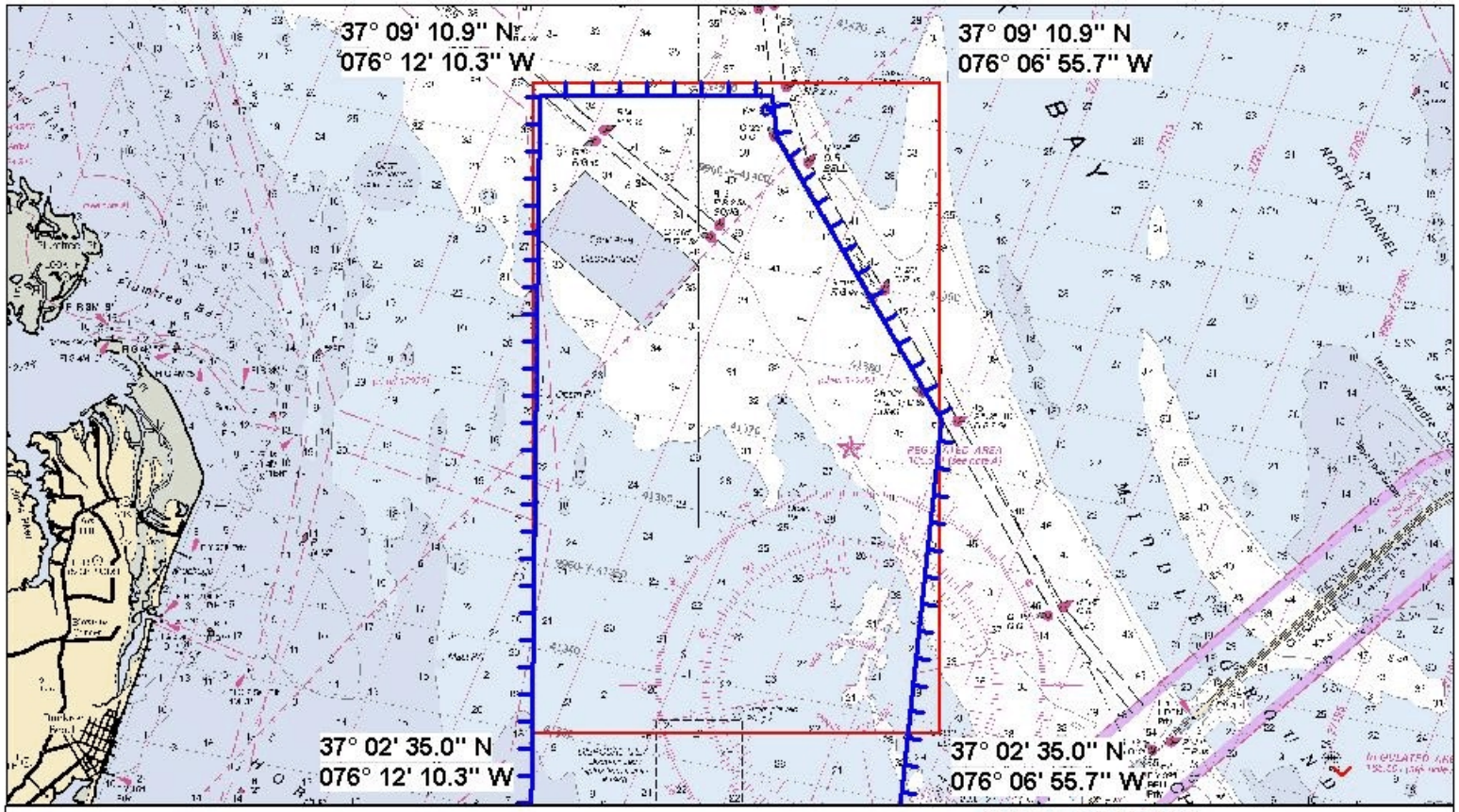
A. AREA SURVEYED

This hydrographic survey was conducted in accordance with Hydrographic Survey Letter Instructions for project OPR-E350-RU, Southern Chesapeake Bay, Virginia. The original Letter Instructions were dated March 26, 1999. Three Amendments to Instructions were subsequently received. Change No. 1, No. 2, and No. 3 were dated November 29, 1999; February 22, 2000, and February 6, 2001 respectively.

This Descriptive Report pertains to “Sheet "A" of project OPR-E350-RU, which includes York River Entrance Channel and Tail of the Horseshoe. The assigned registry number for this sheet, as prescribed in the Letter Instructions is H11028.

This survey responds to the requests from the Association of Maryland Pilots and the Virginia Pilots Association. The movement of commercial shipping in the Chesapeake bay increasingly relies on accurate, full bottom coverage surveys. Updated soundings of the survey area is required to encourage smaller crafts such as tugs, trawlers and recreational boats to maneuver outside the channel in order to allow the larger commercial vessels to remain in the deeper, more restricted channel. Acquisition of modern hydrographic data in the area would help to reduce congestion and unnecessary close passing in the Bay Entrance channel.

Complete survey limits of H11028 are illustrated in the chartlet on the following page.



Chartlet 1 of 1 *Chart 12222 40rd Ed Nov. 27, 1999, 1:40000*

NOT FOR NAVIGATION.

NATIONAL OCEANIC AND
ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

Project:	*OPR-E350-RU*
Survey:	*H11028*
State:	*Virginia*
Locality:	*Southern Chesapeake Bay*
Sub-locality:	*York River Entrance Channel to Tail of the Horseshoe*

Survey Scale:	*1:10,000*
Sounding Units:	*Feet*
Sounding Datum:	*MLLW*
Horizontal Datum:	*NAD 83*
Projection:	*UTM 18*
Central Meridian:	*075° 00 00*
Scale Factor:	*0.9996*

NOAA Ship RUDE
Andrew L. Beaver
Commanding
March 13, 2001to
June 3, 2002

B. DATA ACQUISITION AND PROCESSING *See also the Evaluation Report*

B.1 EQUIPMENT

Data were acquired by NOAA ship RUDE, NOAA Survey Launch 1419 and NOAA Survey Launch 1017. RUDE is a Class V Hydrographic Survey Ship, 90 feet in length with a 22-foot beam and 7-foot draft. Launch 1419 is a 23 foot SeaArk aluminum launch with a 8.5 foot beam and 1.5 foot draft. Launch 1017 is a 29 foot aluminum Jensen launch with a 10 foot beam and 2.5 foot draft.

RUDE acquired shallow water multibeam (SWMB), side scan sonar (SSS) and vertical beam echosounder (VBES) data. SWMB data were acquired using two different multibeam echosounders. A RESON SeaBat 9003 was used during the 2001 field season and was later replaced by a RESON SeaBat 8125 for the 2002 field season. SSS data were acquired using an Edgetech (EG&G) model 272T towed side scan sonar. VBES data were acquired using an Odom Echotrac DF3200 MK II echosounder. Positioning and attitude were determined with a Seatex Seapath 200. Trimble DSM-212L DGPS receiver and Sperry Mk-32 Gyrocompass were used temporarily for positioning and attitude during the failure of Seapath 200. For the 2002 field season, Seapath 200 was replaced by TSS POS/MV.

Launch 1419 acquired SSS data and VBES data using the same equipment listed above. Positioning was determined with a Starlink DNAV-212 DGPS receiver. Launch 1419 was not equipped with heave or attitude sensors during the 2001 field season.. For the 2002 field season, a TSS DMS-05 was installed on 1419 to acquire attitude data.

Launch 1017 acquired SSS data using equipment listed above and VBES data using an Innerspace model 448 VBES. Positioning was determined with a Trimble DSM-212L integrated differential GPS receiver. Launch 1017 was not equipped with attitude sensors.

Sound velocity data were acquired using two Sea-Bird SBE 19 SEACAT Conductivity, Temperature and Depth (CTD) Profilers.

No unusual vessel configurations or problems were encountered. Data Acquisition and Processing Report (DAPR) for 2001 and 2002 field season is submitted with this Descriptive Report. Refer to the appropriate DAPR* for detailed equipment and vessel configuration.
**** DAPR filed at the Atlantic Hydrographic Branch (AHB)***

B.2 QUALITY CONTROL

Side Scan Sonar Quality Control

Daily confidence checks were made by observing the outer ranges of the side scan sonar images. A good check consisted of distinguishing contacts or sand waves across the entire range of the side scan trace. No unusual problems were encountered.

Shallow Water Multibeam Quality Control

Daily confidence checks were made by correlating sounding data to the VBES sonar data during acquisition. At the beginning of 2002 field season, heave measurement was affected by long term drift. The problem was solve by adjusting the heave filter constants. There were no major faults with the shallow water multibeam system which affected data integrity in this survey. Refer to the project's DAPR for detailed discussion of SWMB system calibrations, data acquisition, and data processing.

Crosslines

Single beam
The total distance of crosslines is 24.08 linear nautical miles which is equal to 5.20 % of total mainscheme lines. Crossline to mainscheme line comparison was conducted using MapInfo 6.5, most soundings were in general agreement and only small discrepancies (± 1 ft) were found. No indication of systematic error was observed.

Multibeam
The total distance of crosslines is 6.50 linear nautical mile which is 1.67 % of the total main scheme lines. Crossline to mainscheme line comparison was conducted using MapInfo 6.5, most soundings were in general agreement and only small discrepancies (± 1 ft) were found. A CARIS HIPS (UNIX) Quality Control Report was generated as a way of performing statistical comparison between mainscheme lines and crosslines (See Separate V).* The results indicated excellent correlation between mainscheme and cross line soundings. According to the Quality Control Report, sounding error did not exceed the IHO depth accuracy criteria.
**** Data filed with the original field records***

Preliminary Smooth Sheet Histogram

A histogram showing the counts of selected soundings as a function of beam number was generated. The analysis was conducted separately for RESON Seabat 9003 (Figure 1) and Seabat 8125 (Figure 2, 3). Number of counts were extremely high in the outermost beams and the nadir beam for Seabat 9003. The problem can be attributed to insufficient sound velocity correction. For the most part, soundings from Seabat 8125 were evenly selected from all the beams, outerbeam counts were only slightly higher than the other beam counts.

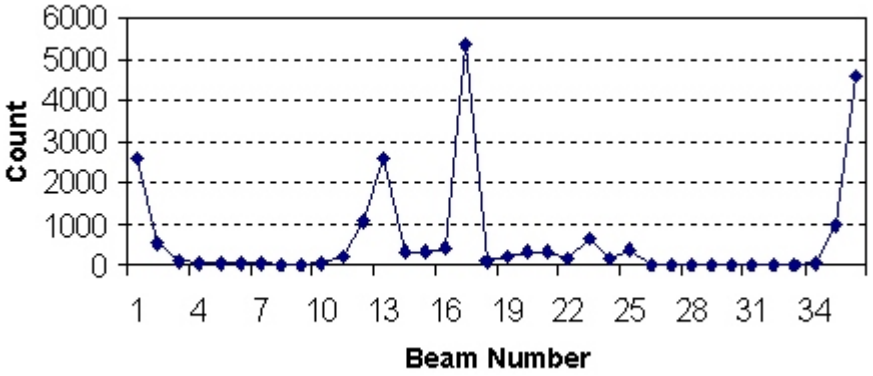


Figure 1. RESON Seabat 9003 (Beam number 3 - 38)

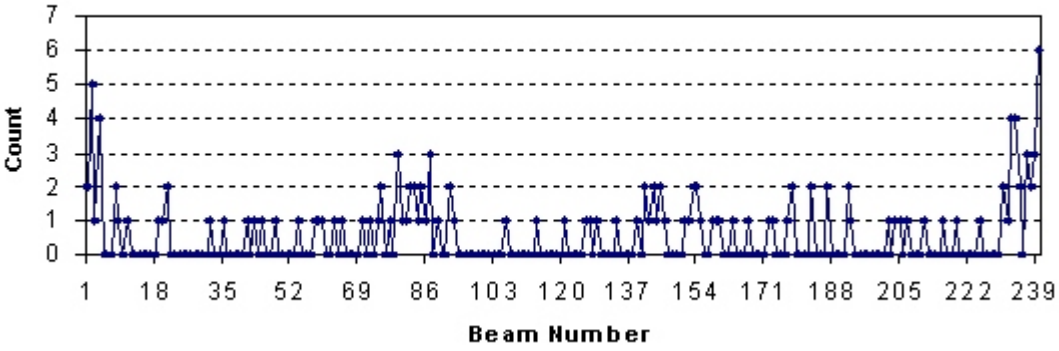


Figure 2. RESON Seabat 8125 (Beam number 1 - 240)

Junctions

Survey H11028 junctions with survey F00450 (1999) at the area of AWOIS item 8875 & ~~3950~~ ***3190***. The soundings in the present survey were in general agreement with those in survey F00450. The majority of the differences between the soundings were no larger than 1 ft.
Concur

B.3 CORRECTIONS TO ECHO SOUNDING

All methods or instruments were implemented as described in the Correction to Echo Sounding section of the DAPR for this project. A table detailing all sound velocity profiles is located in Separate III.* Sound velocity data has been submitted on a CD-ROM with the digital data package.
**** Data filed with the original field records***

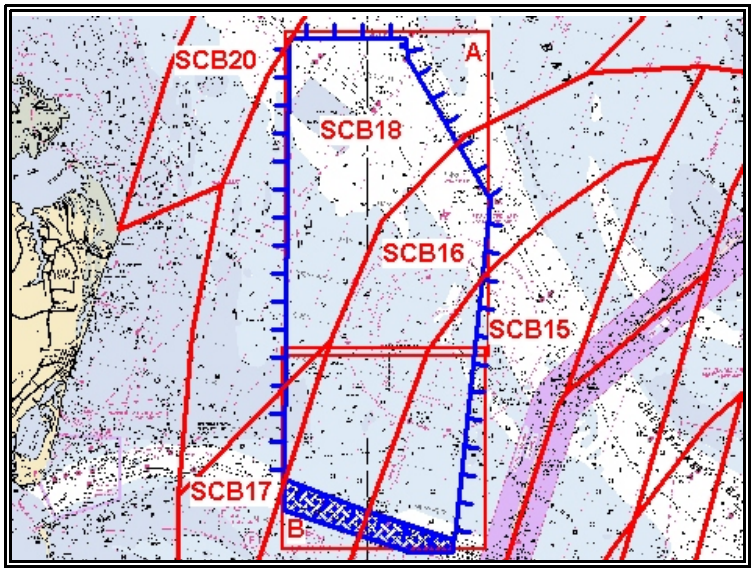
C. VERTICAL AND HORIZONTAL CONTROL

VERTICAL CONTROL

The tidal datum for this project is Mean Lower Low Water (MLLW) and Mean High Water (MHW). Soundings are referenced to MLLW. Heights of overhead objects (bridges and cables) are reference to MHW. The operating tide station at Chesapeake Bay Bridge Tunnel, VA (863-8863) served as datum control for the survey area.

Tidal zoning for this survey was consistent with the Letter Instructions. The zones used for this survey are as follows.

Zone Name	Time Corrector (min)	Range Ratio	Predicted Reference
SCB15	+6	x1.00	863-8863
SCB16	+18	x0.96	863-8863
SCB17	+24	x0.96	863-8863
SCB18	+24	x0.92	863-8863



A Request for Approved Tides letter was sent to N/OPS1 on June 10, 2002 (Appendix IV).* Verified tides from the N/OPS1 CO-OPS website were downloaded and applied to all sounding data acquired before June 1, 2002. Preliminary tides were applied to sounding data acquired after June 1, 2002. Tide corrections were applied to the soundings using CARIS HIPS and SIPS v5.2 (Service pack 2).
Approved tides and zones were reapplied in CARIS during office processing.
**** Data filed with the original field records***

HORIZONTAL CONTROL ***See also the Evaluation Report***

The horizontal datum used for this survey is the North American Datum of 1983 (NAD 83), projected using UTM zone 18.

Sounding positional control was determined using the Global Positioning System (GPS) corrected by U.S. Coast Guard differential GPS (DGPS) beacon stations. The primary and the only DGPS beacon used for this survey was Driver, Virginia. No horizontal control stations were established for this survey.

Beacon Station	**Frequency** (kHz)	**Latitude**	**Longitude**	**Station ID**
Driver	289	36˚57'00" N	76˚33'00" W	806

Horizontal dilution of precision (HDOP) was monitored daily on RUDE and the launch. That value did not exceeded 2.50, and adequate satellite coverage was maintained throughout the survey period.

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON *See also the Evaluation Report*

There are five NOS charts affected by this survey:

12221, 72nd edition, September 15, 2001, scale 1:80,000
12222, 42nd edition, February 2, 2002, scale 1:40,000
12224, 22nd edition, December 9, 2000, scale 1:40,000
12238, 36th edition, March 3, 2001, scale 1:40,000
12280, 2nd edition, June 23, 2001, scale 1:200,000

Local Notices to Mariners issued after the date of the Hydrographic Survey Letter Instruction and before the completion of the survey did not affect the survey area.

General Agreement with Charted Depths

In general, the soundings were in good agreement with the charted depths. Most discrepancies occurred in the southeast section of the survey area (vicinity of Tail of Horseshoe) where shoaling trends have changed. For example, shoals in the vicinity of position Lat. 37˚ 06' 00.11" N, Long. 076˚ 09' 00.01" W have migrated towards the south. ***Concur*** In addition, shoaling in the vicinity of position Lat. 37˚ 05' 12.25" N, Long, 076˚ 11' 32.88" W has become 1 to 2 ft deeper in this survey. ***Concur*** The Hydrographer recommends revising the charted 18 ft and 30 ft curves within the survey area to match the current shoaling trends. ***Concur*** The following table is a list of charted depths that are significantly different from the soundings in the present survey.

Charted Depth (ft)	**Survey Sounding** (ft)	**Latitude**	**Longitude**
		Chart 12221/***12222***	
40	3~~8~~***9*** *	37° 08' 11.~~81~~" N ***.86"***	076° 09' ~~35.73~~" W ***34.98"***
43	4~~1~~***2*** *	37° 05' ~~56.92~~" N ***57.43"***	076° 08' 13.~~78~~" W ***.98"***
29	2~~5~~***9*** *	37° 05' ~~48.00~~" N ***47.62"***	076° 11' 50.~~71~~" W ***.79"***
26	29 *	37° 04' ~~24.02~~" N ***22.45"***	076° 07' ~~56.88~~" W ***57.11"***
30	2~~8~~***9***	37° 03' ~~44.91~~" N ***46.14"***	076° 07' ~~15.22~~" W ***17.72"***
27	2~~5~~***6*** *	37° 03' 27.~~83~~" N ***.48"***	076° 07' ~~16.71~~" W ***17.62"***
24	~~22~~***6*** **	37° 03' ~~11.02~~" N ***09.87"***	076° 07' ~~45.68~~" W ***47.75"***
31	28 **	37° 02' ~~57.76~~" N ***59.88"***	076° 08' ~~04.58~~" W ***07.24"***
28	24 *	37° 03' ~~34.31~~" N ***35.44"***	076° 09' ~~29.61~~" W ***31.95"***
		*Chart 12222/**12221***	
31	34~~5~~ **	37° 08' 07.~~92~~" N ***.40"***	076° 11' ~~46.07~~" W ***45.92"***
38	3~~6~~***7*** *	37° 08' ~~08.05~~" N ***07.61"***	076° 09' 54.~~41~~" W ***.03"***
29	33 **	37° 05' 41.52" N ***40.42"***	076° 09' 48.~~35~~" W ***.64"***
33	~~29~~***30*** **	37° 03' ~~51.87~~" N ***53.38"***	076° 09' ~~17.89~~" W ***18.65"***
28	24 *	37° 03' 35.~~15~~" N ***.44"***	076° 09' ~~30.86~~" W ***31.95"***
33	2~~8~~***9*** **	37° 04' 29.~~21~~" N ***.05"***	076° 08' ~~29.85~~" W ***30.25"***

24	2~~2~~6 **	37° 03' ~~10.44~~" N 09.87"	076° 07' ~~48.53~~" W 47.75"
31	29 **	37° 03' 17.~~61~~" N .80"	076° 07' ~~54.99~~" W 55.58"
33	28 **	37° 03' ~~48.84~~" N 49.52"	076° ~~07' 59.61~~" W 08'01.19"
26	29*	37° 04' 24.~~87~~" N .32"	076° 07' ~~58.41~~" W 57.72"
26	29 **	37° 04' ~~34.05~~" N 33.96"	076° 07' ~~43.63~~" W 42.96"

Charted Depth (ft)	**Survey Sounding** (ft)	**Latitude**	**Longitude**
Chart 12280/12222/12221			
40	~~38~~39 **	37° 08' ~~12.75~~" N 12.0"	076° 09' ~~33.09~~" W 34.5"
25	27 *	37° 04' ~~45.15~~" N 37.81"	076° 08' ~~57.73~~" W 59.12"

**** Chart soundings in present survey location***
***** Do not chart; shoaler soundings in vicinity***

York River Entrance Channel

The soundings in the York River Entrance Channel from the present survey were 1 to 2 ft deeper than the reported tabular depths by the Corp of Engineers (May, 2000). ***Concur***

Charted Items

Charted 17 ft Obstruction (PA) at position Lat. 37° 05' 59.95" N, Long. 076° 11' 56.22" W was covered with 200% side scan sonar, no significant contact was found in the vicinity. A least depth of 21 ft was determined by SWMB at position Lat. 37° 06' 00.0~~5~~2" N, Long. 076° 11' 57.1~~4~~3" W. The Hydrographer recommends further investigation of the area with 100% SWMB. All additional features are mention in the AWOIS items and Significant Contacts section. ***Do not concur Delete 17 Obstn PA and danger curve; disproved through 200% side scan sonar investigation. Chart present survey soundings.***

Danger to Navigation

One item was submitted as Danger to Navigation for this survey. ***Two other items were submitted as Dangers to Navigation from Project Number S-E604-WH/RU (DTONs 1 and 2) .*** ~~A copy~~ ***Copies*** of the Danger to Navigation Report***s*** ~~is~~ ***are*** ~~included in Appendix I~~ ***attached to this report. See also pages 18, 21 and 31 of this report.***

AWOIS Items and Significant Contacts

There are two AWOIS items located within the survey limits. These AWOIS items along with all other significant contacts found within the survey area are summarized in the following pages.

AWOIS: 9428

Item Description: Obstruction (6-inch diameter pile)

Source: LNM 31/93

Item Position: Lat. 37° 02' 48.0" N, Long. 076° 09' 30.0" W

Required Investigation: SWMB, S2, DI, SD **Radius:** 500

Charts Affected: 12221, 12222, 12280

INVESTIGATION

Contact No: 333_158_1450_0002, and 339_206_2003_0002

Date(s): 2001: DN 333, 339

Least Depth Position Number: DN 2002-150, Line 607A1207, Ping 1215, Beam 92

Investigation Used: 200% SSS, SWMB

Surveyed Position: Lat. 37° 02' 52.06" N, Long. 076° 09' 10.93" W

Position Determined By: Differential GPS

Investigation Summary: Approximately 86% of the search radius was covered with 200% side scan sonar. Four contacts were found during this coverage, two of which were determined to be significant and further investigated with SWMB. A least depth sounding was determined by SWMB to be 2~~6~~***7*** ft (8.~~21~~***33*** m, corrected using ~~preliminary~~ ***approved*** tides) at position Lat. 37° 02' 52.1" N, Long. 076° 09' 10.9" W. The remaining search area will be investigated during survey operation of the adjoining sheet OPR-E350-RU, H10945 (Sheet B). A copy AWOIS item description is included in Appendix V.******

CHARTING RECOMMENDATION

Recommendations: AWOIS item 9428 requires further investigation; therefore, the hydrographer recommends retaining the item as charted. ***Do not concur . The further investigation was done on survey H10945 (2001-2004) and the item was disproved. Delete Subm pile (rep 1993) PA***
**** Data filed with the original field records***

AWOIS: 10,863

Item Description: Obstruction (1800-ft tow wire)

Source: LNM 5/95

Item Position: Lat. 37° 05' 00" N, Long. 076° 08' 48" W

Required Investigation: SWMB, S2, DI, SD **Radius:** 1000

Charts Affected: 12221, 12222, 12280

INVESTIGATION

Contact No: 332_116_1832_0007, and 339_216_1759_0005

Date(s): 2001: DN 332, 339

Least Depth Position Number: DN ~~2002-144, Line 567_0421, Ping 507, Beam 229~~
2001-340, Line 801_1405, Ping 744, Beam 25

Investigation Used: 200% SSS, VBES, SWMB

Surveyed Position: Lat. 37° 04' 58.5~~6~~***3***" N, Long. 076° 08' 47.~~50~~***29***" W

Position Determined By: Differential GPS

Investigation Summary: Two hundred percent side scan sonar coverage was achieved over the entire search radius for this item. Two significant contacts were found within the search area and were further investigated with SWMB and dive operation. The divers found a heavily encrusted cylindrical object, approximately 2 ft in diameter, lying horizontally 1 ft above the surrounding bottom. The object is most likely the can buoy that was placed to mark the AWOIS item. Divers did not find any objects matching the AWOIS description. However, the contacts were determined by side scan sonar and SWMB imagery to be the item described in AWOIS 10863 (see Separate II).* A least depth (corrected using ~~verified~~ ***approved*** tides) sounding of 32 ft (9.***93*** m) was acquired with SWMB . A copy of AWOIS item description is included in Appendix V *

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends the charted Obstruction ***PA and danger curve*** at position Lat. 37° 05' 00" N, Long. 076° 08' 48" W be removed and that an Obstruction with a least depth of 32 ft(9.***93*** m) be charted at position Lat 37° 04' 58.~~6~~***53***" N, Long. 076° 08' 47.~~4~~***29***" W as shown in the present survey. ***Concur Chart 32 Obstn with danger curve on chart 12222***
**** Data filed with the original field records***

Contact: 333_119_1502_0013

Item Description: Buoy block

Source: H11028 SSS data

Item Position: Lat. 37° 08' 55.8" N, Long. 076° 11' 26.4" W

Required Investigation: N/A **Radius:** N/A

Charts Affected: 12221, 12224, 12238, 12280

INVESTIGATION

Correlating Contacts: 341_219_1412_0001

Date(s): 2001: DN 333, 341

Least Depth Position Number: DN 2002_154, Line 883_1909, Ping 394, Beam 21

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB. Side scan sonar and SWMB imagery indicate that the contact is most likely a pair of buoy blocks (approximately 5 meters apart). The least depth was determined by SWMB to be 34 ft (10.~~36~~*47* m, corrected using ~~preliminary~~ ***approved*** tides) at position Lat. 37° 08' 55.~~8~~*75*" N, Long. 076° 11' 26.4*2*" W. No dive investigation was conducted due to time restraints.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that a depth of 34 ft (10.~~36~~*47* m) be charted at position Lat. 37° 08' 55.~~8~~*75*" N, Long. 076° 11' 26.4*2*" W as shown in the present survey.
Concur with clarification Chart 34 Obstn with danger curve

Contact: 333_119_1502_0012

Item Description: Buoy block

Source: H11028 SSS

Item Position: Lat. 37° 08' 51.8" N, Long. 076° 11' 23.7" W

Required Investigation: N/A **Radius:** N/A

Charts Affected: 12221, 12224, 12238, 12280

INVESTIGATION

Correlating Contacts: 341_219_1412_0002

Date(s): 2001: DN 333, 341

Least Depth Position Number: DN 2002-154, Line 886_1905, Ping 406, Beam 146

Investigation Used: 200% SSS, 100% SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB. The least depth was determined to be ~~34~~***35*** ft (10.~~51~~***61*** m, corrected using ~~preliminary~~ ***approved*** tides) at position Lat. 37° 08' 51.8***3***" N, Long. 076° 11' 23.~~7~~***68***" W. No dive investigation was conducted due to time restraints.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends a depth of ~~34~~***35*** ft (10.~~51~~***61*** m) be charted at position Lat. 37° 08' 51.8***3***" N, Long. 076° 11' 23.~~7~~***68***" W as shown in the present survey.
Concur with clarification Feature determined insignificant during office processing. Chart present survey soundings.

Contact: 072_112_1605_0001

Item Description: Charted wreck (AWOIS items 3,190 and 8,875)

Source: H11028 SSS

Item Position: Lat. 37° 08' 54.0" N, Long. 076° 09' 07.9" W

Required Investigation: N/A **Radius:** N/A

Charts Affected: 12221, 12224, ~~12238,~~ 12280

INVESTIGATION

Correlating Contacts: 087_211_1939_0008

Date(s): 2001: DN 072, 087

Least Depth Position Number: DN 2002-144, Line 619_0101, Ping 1040, Beam 187

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: Two hundred percent side scan sonar coverage was acquired over 34 ft charted Wreck (AWOIS item 3190, 8875) at position Lat. 37° 08' 54.6" N, Long. 076° 09' 07.5" W. One contact was selected and further investigated with SWMB. A least depth of 35 ft (10.~~74~~***85***m, corrected using ~~verified~~ ***approved*** tides) was determined by SWMB.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends retaining the 34 ft charted Wreck at position Lat. 37° 08' 54.6" N, Long. 076° 09' 07.5" W. ***Do not concur It is recommended that the 34 Wk be deleted and a wreck with a depth of 35 (35 Wk) be charted in Latitude 37° 08'53.95"N, Longitude 076° 09'07.91"W . Chart 35 Wk with danger curve***

Contacts: 332_116_1747_0001

Item Description: Buoy block

Source: H11028 SSS

Item Position: Lat. 37° 08' 44.3" N, Long. 076° 11' 35.2" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221,12238, 12280

INVESTIGATION

Correlating Contacts: 339_216_1759_0009

Date(s): 2001: DN 332, 339

Least Depth Position Number: DN 2002-154, Line 877_1902, Ping 407, Beam 172

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB. The least depth was determined by SWMB to be 34 ft (10.58 m, corrected using ~~preliminary~~ ***approved*** tides) at position Lat. 37° 08' 44.4***4***" N, Long. 076° 11' 35.~~3~~***29***" W. No dive investigation was conducted due to time restraints.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that a depth of 34 ft (10.58 m) be charted at position Lat. 37° 08' 44.4***4***" N, Long. 076° 11' 35.~~3~~***29***" W as shown in the present survey. ***Do not concur Determined insignificant during office processing. Do not chart***

Contact: 332_116_1747_0002

Item Description: Obstruction (Sunken buoy)

Source: H11028 SSS ***LNM 29/02 Chart Letter 1206/02***

Item Position: Lat. 37° 08' 42.5" N, Long. 076° 11' 30.7" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12238, 12280

INVESTIGATION

Correlating Contacts: 332_117_1912_0009, 339_217_1908_0001

Date(s): 2001: DN 332, 339

Least Depth Position Number: DN 2002-127, Line 539_1841, Ping 440, Beam 159

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB. The least depth was determined by SWMB to be 31 ft (9.46 m, corrected using ~~verified~~ ***approved*** tides) at position Lat. 37° 08' 42.5***4***" N, Long. 076° 11' 30.~~7~~***67***" W. The contact was determined to be a sunken buoy from the SWMB imagery (see Separate II).* No dive investigation was conducted due to time restraints.
**** Data filed with the original field records***

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that an Obstruction with a least depth of 31 ft (9.46 m) be charted at position Lat. 37° 08' 42.5***4***" N, Long. 076° 11' 30.~~7~~***67***" W as shown in the present survey. ***Concur with clarification 31 Obstn shown on charts 12221 (76th Edition) and 12238 (38th Edition) originates with a Danger to Navigation dated July 03, 2002. Revise charted 31 Obstn to present survey location. Chart 31 Obstn and danger curve***

Contact: 332_114_1526_0002

Item Description: Obstruction (Debris)

Source: H11028 SSS

Item Position: Lat. 37° 07' 58.8" N, Long. 076° 11' 12.5" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12224, 12238, 12280

INVESTIGATION

Correlating Contacts: None

Date(s): 2001: DN 332

Least Depth Position Number: DN 2002-127, Line 702_1855, Ping 325, Beam 79

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB. The least depth was determined by SWMB to be 33 ft (~~9.98~~ ***10.02***m), corrected using ~~verified~~ ***approved*** tides) at position Lat. 37° 07' ~~59.0~~***58.96***" N, Long. 076° 11' 12.3***4***" W. The contact appears to be a pile of debris in SWMB imagery. No dive investigation was conducted due to time restraints.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that an Obstruction with a least depth of 33 ft (~~9.98~~ ***10.02***m) be charted at position Lat. 37° 07' ~~59.0~~***58.96***" N, Long. 076° 11' 12.3***4***" W as shown in the present survey. ***Concur Chart 33 Obstn with danger curve***

Contact: 331_110_1622_0001

Item Description: Unknown

Source: H11028 SSS

Item Position: Lat. 37° 07' 55.8" N, Long. 076° 11' 32.1" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12238, 12280

INVESTIGATION

Correlating Contacts: None

Date(s): 2001: DN 331

Least Depth Position Number: DN 2002-127, Line 701_1902, Ping 622, Beam 106

Investigation Used: 200% SSS, SWMB

Surveyed Position: Lat. 37° 07' 55.8" N, Long. 076° 11' 32.1" W

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB. The least depth was determined by SWMB to be ~~33~~***34*** ft (10.40 m, corrected using ~~verified~~ ***approved*** tides) at position Lat. 37° 07' 55.9***0***" N, Long. 076° 11' 32.1***2***" W. No dive investigation was conducted due to time restraints.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted depths in the vicinity of position Lat. 37° 07' 55.9***0***" N, Long. 076° 11' 32.1***2***" W be superseded by the soundings in the present survey. ***Concur.***

Contact: 333_122_1854_0003

Item Description: Obstruction (Sunken Buoy and buoy block)

Source: H11028 SSS ***LNM 29/02***

Item Position: Lat. 37° 07' 56.5" N, Long. 076° 10' 21.7" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12224, 12238, 12280

INVESTIGATION

Correlating Contacts: 347_223_1658_0013, 347_223_1658_0014, 347_223_1658_0015

Date(s): 2001: DN 333, 347

Least Depth Position Number: DN 2002-127, Line 550_1828, Ping 477, Beam 127

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB. Side scan sonar and SWMB imagery indicate that the contact is most likely a sunken buoy and a buoy block (approximately 7 m apart, see Separate II).* The least depth was determined by SWMB to be ~~31~~ ***32*** ft (9.77m, corrected using ~~verified~~ ***approved*** tides) at position Lat. 37° 07' 56.~~1~~***05***" N, Long. 076° 10' 21.7***0***" W. No dive investigation was conducted due to time restraints.
**** Data filed with the original field records***

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that an Obstruction with a least depth of ~~31~~ ***32*** ft (9.77 m) be charted at position Lat. 37° 07' 56.~~1~~***05***" N, Long. 076° 10' 21.7***0***" W as shown in the present survey. ***Concur 32 Obstn shown on charts 12221 (76th Edition), 12222 (46th Edition), 12224 (23rd Edition) and 12238 (38th Edition) originates with Danger to Navigation dated July 03, 2002. Revise charted 32 Obstn to present survey location. Chart 32 Obstn and danger curve***

Contact: 072_111_1506_0007

Item Description: Scoured buoy block

Source: H11028 SSS

Item Position: Lat. 37° 07 '47.0" N, Long. 076° 08' 23.4" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12224, 12280

INVESTIGATION

Correlating Contacts: 087_211_1939_0004

Date(s): 2001: DN 072, 087

87 211_1939 8617 26

Least Depth Position Number: DN 2002-~~127~~, Line ~~250~~_~~1811~~, Ping ~~591~~, Beam ~~133~~

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB. The least depth was determined by SWMB to be ~~45~~***44*** ft (13.~~81~~ ***60*** m, corrected using ~~verified~~ ***approved*** tides) at position Lat. 37° 07 '46.~~9~~***70***" N, Long. 076° 08' 23.~~4~~***67***" W. SWMB imagery indicates that the contact is a buoy block located on a slope at the edge of the York Spit Channel. Heavy scouring of the bottom is also present around the buoy block. ***Feature determined insignificant during office processing.***

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted depths in the vicinity of Lat. 37° 07 '46.~~9~~***70***" N, Long. 076° 08' 23.~~4~~***67***" W be superseded by the soundings in the present survey. ***Concur***

Contact: 087_211_1939_0005

Item Description: Buoy block

Source: H11028 SSS

Item Position: Lat. 37° 07' 46.2" N, Long. 076° 08' 22.3" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12224, 12280

INVESTIGATION

Correlating Contacts: 072_111_1506_0006, 072_111_1506_0012

Date(s): 2001: DN 072, 087

Least Depth Position Number: DN 2001-074, Line 808_1536, Ping 409, Beam 25

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB. The least depth was determined by SWMB to be 49 ft (15.10 m, corrected using ~~verified~~ ***approved*** tides) at position Lat. 37° 07 '46.~~9~~***09***" N, Long. 076° 08' ~~23.4~~***22.23***" W. The location of the buoy block was reported to the US Coast Guard Fifth District in April 2001. ***See supplemental correspondence attached to this report. Item determined insignificant during office processing; shoaler soundings in area.***

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted depths in the vicinity of Lat. 37° 07 '46.~~9~~***09***" N, Long. 076° 08' ~~23.4~~***22.23***" W be superseded by the soundings in the present survey. ***Concur.***

Contact: 072_111_1506_0009

Item Description: Sunken Buoy

Source: H11028 SSS

Item Position: Lat. 37° 07' 45.4" N, Long. 076° 08' 27.3" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12224, 12280

INVESTIGATION

Correlating Contacts: 087_210_1826_0001

Date(s): 2001: DN 072, 087

Least Depth Position Number: DN 2001-074, Line 812_1543, Ping 439, Beam 6

Investigation Used: 200% SSS, SWMB, DI

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB and dive operation. Divers found the contact to be a can type navigation buoy with heavy marine growth and no visible markings. The least depth was determined by SWMB to be ~~40~~***42*** ft (12.~~78~~***89*** m, corrected using ~~verified~~ ***approved*** tides) at position Lat. 37° 07' 45.~~5~~***46***" N, Long. 076° 08' 27.2***3***" W. The location of the sunken buoy was reported to the US Coast Guards Fifth District in April 2001.* Most recent SWMB imagery (May, 2002) revealed only a heavy scour mark at the location, the sunken buoy was most likely recovered. **** See supplemental correspondence attached to this report. Item determined insignificant during office processing; shoaler soundings in area.***

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted depths in the vicinity of Lat. 37° 07' 45.~~5~~***46***" N, Long. 076° 08' 27.2***3***" W be superseded by the sounding from the present survey. ***Concur***

Contact: 072_111_1506_0005

Item Description: Sunken buoy

Source: H11028 SSS

Item Position: Lat. 37° 07' 44.7" N, Long. 076° 08' 22.1" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12224, 12280

INVESTIGATION

Correlating Contacts: 087_211_1939_0005

Date(s): 2001: DN 072, 087

Least Depth Position Number: DN 2001-074, Line 810_1522, Ping 232, Beam 24

Investigation Used: 200% SSS, SWMB, DI

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB and dive operation. The divers found sunken navigation buoy lying horizontally in deep scour. The least depth was determined by SWMB to be 42 ft (~~13.05~~***12.92*** m, corrected using ~~verified~~ ***approved*** tides) at position Lat. 37° 07' 44.7***0***" N, Long. 076° 08' 22.1***3***" W. The location of the sunken buoy was reported to the US Coast Guard Fifth District in April 2001.* Most recent SWMB imagery (May, 2002) revealed only a heavy scour mark at the location, the sunken buoy was most likely recovered. **** See supplemental correspondence attached to this report. Item determined insignificant during office processing; shoaler soundings in area.***

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted depths in the vicinity of Lat. 37° 07' 44.7***0***" N, Long. 076° 08' 22.1***3***" be superseded by the sounding in the present survey. ***Concur***

Contact: 072_111_1506_0008

Item Description: Buoy block

Source: H11028 SSS

Item Position: Lat. 37° 07' 43.8" N, Long. 076° 08' 25.2" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12224, 12280

INVESTIGATION

Correlating Contacts: 087_210_1826_0002

Date(s): 2001: DN 072, 087

Least Depth Position Number: DN 2002-127, Line 518_1801, Ping 405, Beam 115

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB. The least depth was determined by SWMB to be 41 ft (12.~~53~~***51*** m, corrected with ~~verified~~ ***approved*** tides) at position Lat. 37° 07' ~~44.0~~***43.80***" N, Long. 076° 08' 25.~~3~~***23***" W. The location of the buoy block was reported to the US Coast Guard Fifth District in April 2001. ***See supplemental correspondence attached to this report. Item determined insignificant during office processing; shoaler soundings in area.***

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted depths in the vicinity of position Lat. 37° 07' ~~44.0~~***43.80***" N, Long. 076° 08' 25.~~3~~***23***" W.be superseded by the soundings in the present survey. ***Concur***

Contact: 087_206_1350_0002

Item Description: Obstruction (Unknown)

Source: H11028 SSS

Item Position: Lat. 37° 07' 30.5" N , Long. 076° 08' 53.5" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12224, 12280

INVESTIGATION

Correlating Contacts: 074_106_1824_0002, 074_106_1824_0003

Date(s): 2001: DN 074, 087

Least Depth Position Number: DN 2002-154, Line 862_2005, Ping 346, Beam 193

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: Three contacts were found during 200% side scan sonar coverage of the area. The contacts were further investigated with SWMB which revealed a least depth of 38 ft (11.55 m, corrected using ~~preliminary~~ ***approved*** tides) at position Lat. 37° 07' 31.1***0***" N , Long. 076° 08' 53.~~4~~***39***" W. In SWMB imagery, the contacts appear to be a linear object approximately 40 m in length (see separate II).* No dive investigation was conducted due to time restraints.
**** Data filed with the original field records***

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that an Obstruction with a least depth of 38 ft (11.55 m) be charted at position Lat. 37° 07' 31.1***0***" N , Long. 076° 08' 53.~~4~~***39***" W as shown in the present survey. ***Concur Chart a 38 Obstn with danger curve***

Contact: 098_225_0921_0014

Item Description: Obstruction (Unknown)

Source: H11028 SSS

Item Position: Lat. 37° 06' 59.2" N, Long. 076° 09' 26.7" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12224, 12280

INVESTIGATION

Correlating Contacts: None

Date(s): 2002: DN 098

Least Depth Position Number: DN 2002-144, Line 595_0155, Ping 342, Beam 35

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200 % side scan sonar coverage. The contact was further investigated with SWMB which revealed a least depth of 32 ft (9.89 m, corrected using ~~verified~~ ***approved*** tides) at position Lat. 37° 06' 59.~~1~~***08***" N, Long. 076° 09' 26.5~~5~~***4***" W. SWMB imagery shows that the contact consists of three linear objects, each approximately 6 meters in length, that are positioned parallel to each other(see Separate II).* No dive investigation was conducted do to time restraints.
**** Data filed with the original field records***

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that an Obstruction with least depth of 32 ft (9.89 m, corrected with ~~preliminary~~ ***approved*** tides) be charted at position Lat. 37° 06' *59.~~1~~**08*** N, Long. 076° 09' 26.5~~5~~***4***" W as shown in the present survey. ***Concur Chart a 32 Obstn with danger curve***

Contact: 087_204_1009_0001

Item Description: Obstruction (Sunken mooring buoy)

Source: H11028 SSS

Item Position: Lat. 37° 06' 04.9" N, Long. 076° 08' 01.0" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12224, 12280

INVESTIGATION

Correlating Contacts: None

Date(s): 2001: DN 087

Least Depth Position Number: DN 2001-094, Line 810A1748, Ping 501, Beam 25

Investigation Used: 200% SSS, SWMB, DI

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB and dive operation. The contact was confirmed by divers to be a sunken mooring buoy. The least depth was determined by SWMB to be 39 ft (12.05 m, ~~verified~~ ***approved*** tides corrected) at position Lat. 37° 06' 04.~~9~~***85***" N, Long. 076° 08' 01.~~1~~***09***"W.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that an Obstruction with a least depth of 39 ft (12.05 m) be charted at position Lat. 37° 06' 04.~~9~~***85***" N, Long. 076° 08' 01.~~1~~***09***" W as shown in the present survey. ***Concur Chart a 39 Obstn with danger curve***

Contact: 099_220_1019_0001

Item Description: Obstruction (Unknown)

Source: H11028 SSS

Item Position: Lat. 37° 05' 26.2" N, Long. 076° 09' 53.9" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12280

INVESTIGATION

Correlating Contacts: 106_220_1301_0003

Date(s): 2002: DN 099, 106

Least Depth Position Number: DN 2002-144, Line 510_0337, Ping 1348, Beam 114

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB. The least depth was determined by SWMB to be 23 ft (7.~~17~~***28*** m, corrected using ~~verified~~ ***approved*** tides) at position Lat. 37° 05' 26.0***0***" N, Long. 076° 09' 53.8***3***" W. No dive investigation was conducted due to time restraints.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that an Obstruction with a least depth of 23 ft (7.~~17~~***28***m) be charted at position Lat. 37° 05' 26.0***0***" N, Long. 076° 09' 53.8***3***" W as shown in the present survey. ***Concur Chart 23 Obstns with danger curve***

Contact: 331_109_1525_0001

Item Description: Obstruction (Possible wreck)

Source: H11028 SSS

Item Position: Lat. 37° 05' 25.6" N, Long. 076° 09' 46.7" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12280

INVESTIGATION

Correlating Contacts: 338_209_1718_0002

Date(s): 2001: DN 331, 338

Least Depth Position Number: DN 2002-144, Line 518_0352, Ping 356, Beam 231

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB. The least depth was determined by SWMB to be 21 ft (6.~~41~~***53*** m, corrected using ~~verified~~ ***approved*** tides) at position Lat. 37° 05' 25.~~6~~***59***" N, Long. 076° 09' 46.7***4***" W. In the SWMB imagery, the contact appears to be remnants of a ship wreck. No dive investigation was conducted due to time restraints. This item was submitted as a Danger to Navigation (~~See Appendix I~~). ***Danger to Navigation Report attached to this report.***

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that an Obstruction with a least depth of 21 ft (6.~~41~~***53*** m) be charted at position Lat. 37° 05' 25.~~6~~***59***" N, Long. 076° 09' 46.7***4***" W as shown in the present survey. ***Concur Chart 21 Obstns with danger curve***

Contact: 339_249_1612_0001

Item Description: Unknown

Source: H11028 SSS

Item Position: Lat. 37° 04' 25.9" N, Long. 076° 11' 29.1" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12280

INVESTIGATION

Correlating Contacts: None

Date(s): 2001: DN 339

Least Depth Position Number: DN 2002-150, Line 580_1318, Ping 560, Beam 178

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated using SWMB. The least depth was determined by SWMB to be 24 ft (7.49 m, corrected using ~~verified~~ ***approved*** tides) at position Lat. 37° 04' 26.0***2***" N, Long. 076° 11' 29.1***5***" W. No dive investigation was conducted due to time restraints.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted depths in the vicinity of position Lat. 37° 04' 26.0***2***" N, Long. 076° 11' 29.1***5***" W be superseded by the soundings in the present survey. ***Concur***

Contact: 338_257_1732_0001

Item Description: Unknown

Source: H11028 SSS

Item Position: Lat. 37° 04' 20.0" N, Long. 076° 11' 54.9" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12280

INVESTIGATION

Correlating Contacts: None

Date(s): 2001: DN 338

Least Depth Position Number: DN 2002-150, Line 544_1307, Ping 371, Beam 93

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated with SWMB. In SWMB imagery, two objects were found lying approximately 10 m apart. The least depth was determined by SWMB to be 23 ft (7.17 m, corrected using ~~verified~~ ***approved*** tides) at position Lat. 37° 04' 20.1***1***" N, Long. 076° 11' 54.~~8~~***79***" W. No dive investigation was conducted due to time restraints.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted depths in the vicinity of position Lat. 37° 04' 20.1***1***" N, Long. 076° 11' 54.~~8~~***79***" W to be superseded by the soundings in the present survey. ***Concur***

Contact: 098_211_1131_0001

Item Description: Obstruction (Two sunken buoys)

Source: H11028 SSS

Item Position: Lat. 37˚ 04' 11.0" N, Long. 076˚ 09' 26.0" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12280

INVESTIGATION

Correlating Contacts: None

Date(s): 2002: DN 098

Least Depth Position Number: DN 2002-150, Line 541_1220, Ping 899, Beam 87

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated using SWMB. Two objects that resemble a sunken buoy can be seen in SWMB imagery. The objects are approximately 10 meter in length and lying parallel to each other. The least depth was determined by SWMB to be 27 ft (8.21 m, corrected using ~~verified~~ ***approved*** tides) at position Lat. 37˚ 04' ~~11.0~~ ***10.88***" N, Long. 076˚ 09' 26.~~1~~***00***" W. No dive investigation was conducted due to time restraints.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that an Obstruction with a least depth of 27 ft (8.21 m) be charted at position Lat. 37˚ 04' ~~11.0~~ ***10.88***" N, Long. 076˚ 09' 26.~~1~~***00***" W as shown in the present survey. ***Concur Chart a 27 Obstn with danger curve***

Contact: 338_259_1607_0001

Item Description: Unknown

Source: H11028 SSS

Item Position: Lat. 37° 03' 51.8" N, Long. 076° 12' 01.9" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12280

INVESTIGATION

Correlating Contacts: 107_917_2009_0001, 107_918_2027_0003

Date(s): 2001: DN 338, 2002: DN 107

Least Depth Position Number: DN 2002-150, Line 526_1329, Ping 757, Beam 20

Investigation Used: 200% SSS, SWMB

Surveyed Position: N/A

Position Determined By: Differential GPS

Investigation Summary: This contact was identified with 200% side scan sonar coverage and further investigated using SWMB. The least depth was determined by SWMB to be 21 ft (6.40 m, corrected using ~~preliminary~~ ***approved*** tides) at position Lat. 37° 03' 52.~~1~~***07***" N, Long. 076° 12' ~~02.00~~***01.97***" W.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted depths in the vicinity of position Lat. 37° 03' 52.~~1~~***07***" N, Long. 076° 12' ~~02.00~~***01.97***" W be superseded by the soundings in the present survey. ***Concur***

Contact: 107_918_2027_0001

Item Description: Unknown

Source: H11028 SSS

Item Position: Lat. 37° 03' 00.2" N, Long. 076° 12' 04.3" W

Required Investigation: N/A Radius: N/A

Charts Affected: 12221, 12222, 12224, 12280

INVESTIGATION

Correlating Contacts: None

Date(s): 2002: DN 107

Least Depth Position Number: DN 2002-150, Line 531_1341, Ping 486, Beam 19

Investigation Used: 200% SSS, SWMB

Surveyed Position: Lat. 37°03' 00.2" N, Long. 076°12' 04.3" W

Position Determined By: Differential GPS

Investigation Summary: The contact was identified with 200% side scan sonar coverage and further investigated using SWMB. The least depth was determined by SWMB to be 21 ft (6.38 m, corrected using ~~preliminary~~ ***approved*** tides) at position Lat. 37° 03' 00.~~3~~***27***" N, Long. 076° 12' 04.0***3***" W.

CHARTING RECOMMENDATION

Recommendations: The hydrographer recommends that the charted depths in the vicinity of position Lat. 37° 03' 00.~~3~~***27***" N, Long. 076° 12' 04.~~02~~***03***" W be superseded by the sounding in the present survey. ***Concur***

D.2 ADDITIONAL RESULTS

Shoreline

Shoreline investigation was not required for this survey. ***Concur***

Aids to Navigation and Other Detached Positions

All aids to navigation were found within the proximity of the charted position and are serving their intended purpose. ***Concur***

Bridges and Overhead Cables

There are no bridges or overhead cables charted within the survey limits of H11028. ***Concur***

Submarine Cables and Pipelines

There are no submarine cables or pipelines charted within the survey limits of H11028. Imagery from SSS does not show any objects that would represent any of these features. ***Concur***

Bottom Samples

Sediment samples were taken at eighteen locations within the survey limits. The sampling locations were evenly distributed throughout the survey area. The position, depth (observed depth), and abbreviated description of each sample obtained are listed in the table below. This table is available as a Pydro .xml file in the digital submission package (File location: H11028/PSS/H11028_BS.xml).

Position		Depth (m)	Description
Latitude	Longitude		
37° 03' 05.5" N	076° 07' 54.0" W	7.35	fne ~~br~~ S
37° 04' 31.0" N	076° 07' 46.8" W	7.36	fne ~~br~~ S
37° 04' 07.9" N	076° 09' 07.1" W	7.01	fne S
37° 03' 14.1" N	076° 10' 01.8" W	5.66	fne ~~br~~ S
37° 03' 13.9" N	076° 11'3 7.2" W	5.55	fne ~~gy~~ S
37° 04' 26.2" N	076° 11' 01.7" W	6.62	fne ~~br~~ S
37° 05' 33.0" N	076° 11' 00.3" W	7.82	~~br~~ S M
37° 05' 22.1" N	076° 09' 25.4" W	8.86	~~br~~ S
37° 05' 43.8" N	076° 07' 39.9" W	12.01	*stk ~~g~~ M*
37° 06' 06.4" N	076° 08' 41.9" W	9.55	*stk ~~g~~ M*
37° 06' 14.9" N	076° 10' 10.8" W	9.11	*fne S Cl*
37° 06' 17.5" N	076° 11' 53.4" W	6.51	*fne ~~br~~ S*
37° 07' 24.2" N	076° 11' 55.2" W	8.52	*~~br~~ M*
37° 08' 07.1" N	076° 10' 48.3" W	9.21	*stk ~~g~~ M*
37°07'00.169" N	076° 09' 00.3" W	11.30	*stk ~~g~~ M*
37° 06' 41.5" N	076° 07' 50.9" W	12.07	*~~br~~ M*
37° 08' 07.4" N	076° 09' 12.2" W	10.72	*stk ~~br~~ M*
37° 08' 57.5" N	076° 10' 05.8" W	9.68	*stk ~~br~~ M*

REPORT OF DANGERS TO NAVIGATION

Hydrographic Survey Registry Number: H11028

Survey Title:	State:	Virginia
	Locality:	Southern Chesapeake Bay
	Sublocality:	York River Entrance Channel to Tail of the Horseshoe

Project Number: OPR-E350-RU

Survey Date: 13 March 2001 - 03 June 2002

Soundings are reduced to Mean Lower Low Water (MLLW) using preliminary tides. Horizontal datum is WGS 84. Positions were determined using Differential Global Positioning System (DGPS).

Charts affected: **12221**, 72nd edition, September 15, 2001, Scale 1:80,000 NAD83
12222, 42nd edition, February 2, 2002, Scale 1:40,000 NAD83
12280, 2nd edition, June 23, 2001, Scale 1:200,000 NAD83

DANGERS TO NAVIGATION

FEATURE	DEPTH	LATITUDE (N)	LONGITUDE (W)
1. Possible Wreck	21 feet	37° 05' 25.6" N	076° 09' 46.7" W

Questions concerning this report should be directed to the Commanding Officer, NOAA Ship RUDE at (757) 615-6465 or (631) 642-2683.

See page 31 of the Descriptive Report for charting recommendation

DANGERS TO NAVIGATION REPORT

Survey Registry Number: N/A

Field Unit: NOAA Ship RUDE
State: Virginia
Locality: Hampton Roads
Sub-Locality: N/A

Project Number: S-E604-WH/RU
Survey Date(s): May 8, 2002 to May 30, 2002

Soundings are reduced to Mean Lower Low Water (MLLW) using Verified Water Levels. Horizontal datum is NAD 83.

Chart(s) Affected: **12222**, 41st Ed., Dec. 16, 2001, 1:40,000
12238, 36th Ed., Mar. 03, 2001, 1:40,000

DANGERS TO NAVIGATION

Six dangers to navigation were discovered during mainscheme hydrography on E604 Hampton Roads.

DTON #	LATITUDE	LONGITUDE	DEPTH	Type
1	37° 07' 56.056" N	76° 10' 21.619" W	32	Buoy and block
2	37° 08' 42.543" N	76° 11' 30.592" W	31	Buoys
3	37° 14' 16.300" N	76° 22' 47.736" W	9	Piling
4	37° 14' 09.706" N	76° 23' 35.302" W	11	Fish Trap/Pilings
5	37° 14' 09.784" N	76° 28' 36.963" W	27	Obstruction
6	37° 13' 41.140" N	76° 28' 54.339" W	17	Piling

Questions concerning this report should be directed to the Commanding Officer, NOAA Ship RUDE at (757) 615-6465.

See also pages 21 and 18 of the Descriptive Report for recommendations for DTON's 1 and 2.

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship RUDE S-590
439 W. York Street
Norfolk, VA 23510-1114

12 April 2001

Commander, Fifth District
United States Coast Guard
AOWW
431 Crawford St.
Portsmouth, VA 23704

Dear Sir:

During a routine hydrographic survey of southern Chesapeake Bay, NOAA Ship RUDE located two sunken navigation buoys. The buoys were located by sonar, and further investigated by divers. Both were heavily encrusted, and no identifying marks were visible. The buoys were found on the bottom between buoys G"19" and G"23" of the York Spit Channel (see attached chartlet) at the following positions:

Contact Latitude/Longitude (WGS84)	Diver Comment
37° 07' 44.678" N / 076° 08' 22.140" W	Structure buoy, on side
37° 07' 45.456" N / 076° 08' 27.228" W	Can type buoy, on side

These positions were generated using DGPS in conjunction with RUDE's hull mounted multi-beam sonar system.

If these features are not removed, they may be charted as obstructions due to their manmade nature, vertical extent, and proximity to the York Spit Channel. RUDE is currently deployed to Long Island Sound for the summer, but we anticipate returning to Chesapeake Bay to complete this project this fall. If the USCG does recover either of these buoys, we would appreciate being notified so we can resurvey the area and include the most current data when the project is submitted.

In addition, several other contacts matching the profile of sunken buoys or buoy blocks were located along the channel. These contacts were not investigated by divers because they are heavily scoured and do not rise above the surrounding bottom, and therefore do not pose a hazard to navigation. They were, however, fully developed by sonar and are located at the following positions:

Contact Latitude / Longitude (WGS84)
37° 07' 43.853" N / 076° 08' 25.173" W
37° 07' 46.873" N / 076° 08' 23.394" W
37° 06' 58.206" N / 076° 07' 49.392" W
37° 06' 57.609" N / 076° 07' 52.087" W
37° 08' 39.357" N / 076° 09' 01.767" W

See also pages 23-26 of the Descriptive Report for recommendations

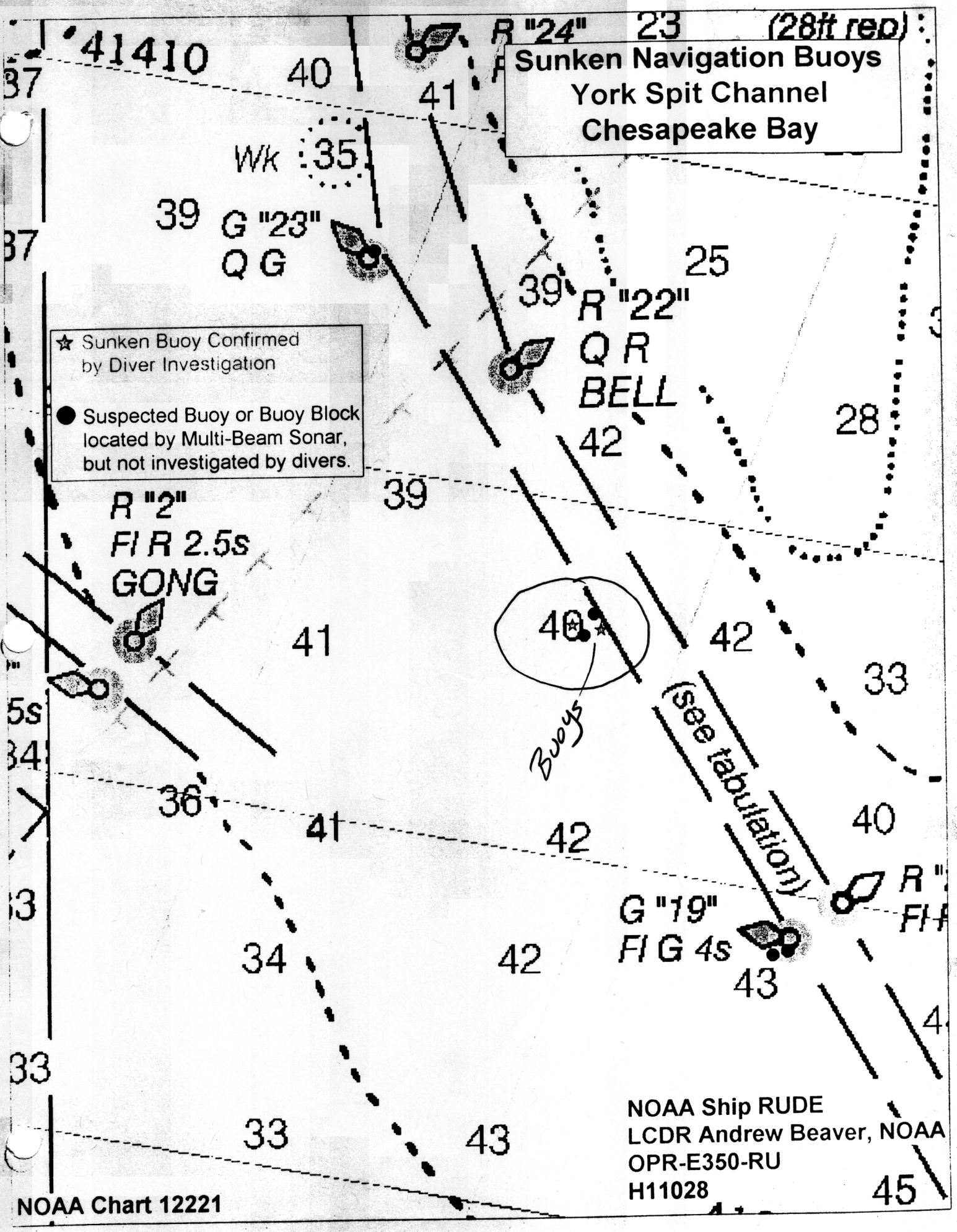
If you require any additional information, please contact me at (757) 615-6465 or by email at Andrew.L.Beaver@noaa.gov.

Sincerely,

Andrew Beaver, LCDR, NOAA
Commanding Officer
NOAA Ship RUDE

cc: N/CS31
N/CS33

Attachments


Sunken Navigation Buoys
York Spit Channel
Chesapeake Bay
(28ft rep)
R "24"
41410
Wk
G "23"
Q G
R "22"
Q R
BELL
R "2"
Fl R 2.5s
GONG
G "19"
Fl G 4s
Sunken Buoy Confirmed by Diver Investigation
Suspected Buoy or Buoy Block located by Multi-Beam Sonar, but not investigated by divers.
Buoys
(see tabulation)
NOAA Ship RUDE
LCDR Andrew Beaver, NOAA
OPR-E350-RU
H11028
NOAA Chart 12221

E. APPROVAL SHEET

OPR-E350-RU
Southern Chesapeake Bay
Virginia

York River Entrance Channel to Tail of the Horseshoe
Survey Registry No. H11028

Field operations for this basic hydrographic survey were conducted under my daily supervision with frequent checks of progress and adequacy. All field sheets, this Descriptive Report, and all accompanying records and data are approved.

This survey is adequate to supersede all prior surveys in common areas, and for application to the relevant NOS nautical charts.

Respectfully,

Submitted:

Toshihiko Uozumi
Physical Scientist

Approved and Forwarded:

LTJG Jeff D. Kelley, NOAA
Field Operations Officer

LCDR Andrew L. Beaver, NOAA
Commanding Officer

NOAA SHIP RUDE DIVE OPERATIONS LOG

Project: OPR - E350 - RU	Date: 6 Dec 2001
Sheet: "A" sheet, H- 11028	Day #: 340 TU

Subject of investigation: Prob Obst, ~1.3m high, ~0.6m deep scour 15m SE

Location: 37° 06' 04.850" N 76° 08' 01.088" W

Side-scan contact #s: 087/204-1009/~~1~~1	Fatho/Seabat fix #s: 094/17:49:14

Contact Chamber:	(Y/N)	( )
Contact US Coast Guard	(Y/N)	( )

Divers	Surface Interval	RNT	Pressure In	Pressure Out	Time In	Time Out	Bottom Time	Max Depth
EVANS	—	—	3200	2000	0957	1013	14	48
PIERCE	—	—	3000	1400	0957	1013	14	48

Diver's Remarks: Divers located a large barrel shaped cylinder, ~8' long x 5' diameter lying on its side in a shallow scour. Probable derelict mooring buoy. Heavily encrusted and deteriorated, one end open

Visibility: 5 feet Current: 0.25 knots Water Temp: 50 degrees

MOD III Depth Gage SN	68336
MOD III Surface Pressure:	14.96 psia
MOD III at least depth:	33.80 psia
Time of Least Depth (UTC)	: UTC
Barometric Pressure:	mb
Sound Velocity Cast #:	
Computed Least	m

Depth (m)	
+ Tide corrector (m)	m
= Corrected Least Depth (m)	m
Detached Position Fix #:	#
LORAN Rates:	
LORAN Rates:	

mod3divelog.wpd

NOAA SHIP RUDE DIVE OPERATIONS LOG

Project: OPR- E350-RU	Date: 6 Dec 2001
Sheet: "A" sheet, H- 11028	Day #: 340 TU

Subject of investigation: Prob obst, AWOIS 10863 - pos cable nearby

Location: 37° 04' 58.467" N 76° 08' 47.393" W (SSS)

Side-scan contact #s: 2001-332/116-1832/7	Fatho/Seabat fix #s:

Contact Chamber:	(Y/N)	( )
Contact US Coast Guard	(Y/N)	( )

Divers	Surface Interval	RNT	Pressure In	Pressure Out	Time In	Time Out	Bottom Time	Max Depth
EVANS	≈21 min	25	2000	1100	1034	1042	7	35
PIERCE	≈21 min	25	1400	500	1034	1042	7	35

Diver's Remarks: Divers located a long (~25') cylindrical object, possibly the buoy marking AWOIS 10863. Encrusted, no marking visible. Buoy ~2' in diameter, lying horizontally ~1' above surrounding bottom. Object matching AWOIS 10863 (cable) not found.

Visibility: 8 feet Current: 0.25 knots Water Temp: 50 degrees

MOD III Depth Gage SN	68336
MOD III Surface Pressure:	14.78 psia
MOD III at least depth:	30.15 psia
Time of Least Depth (UTC)	: UTC
Barometric Pressure:	mb
Sound Velocity Cast #:	
Computed Least	m

Depth (m)	
+ Tide corrector (m)	m
= Corrected Least Depth (m)	m
Detached Position Fix #:	#
LORAN Rates:	
LORAN Rates:	

mod3divelog.wpd

NOAA SHIP RUDE DIVE OPERATIONS LOG

Project: E350 - RV	Date: 5 APRIL 200
Sheet: " A " sheet, H- 11028	Day #: 095

Subject of investigation: LARGE UNKNOWN CONTACT, ALSO CONTACT 12M @ 117.0°

Location: 37° 07' 45" 456 N, -076° 08' 27" 228 W E398657.80563881 N4109824.54114058

Side-scan contact #s: 072-111-1506-9 (LARGE) 072-111-1506-10 (SMALL)	Fatho/Seabat fix #s: 4507

Contact Chamber: LITTLE CREEK	(Y / N)	( ) 462-8801
Contact US Coast Guard	(Y / N)	( )

Divers	Surface Interval	RNT	Pressure In	Pressure Out	Time In	Time Out	Bottom Time	Max Depth
BEAVER			3000	1600	1129	1133		
AERCE			2800	2000	1129	1133		

Diver's Remarks: SUNKEN BOAT, BOTTOM HIGHEST, FULLY EXPOSED, ENCRUSTED

Visibility: 20 feet Current: 0.5 knots Water Temp: 50°C degrees

MOD III Depth Gage SN	68336
MOD III Surface Pressure:	15.22 psia
MOD III at least depth:	33.97 psia
epth (UTC)	15:31 UTC
Barometric Pressure:	1029.3 mb
Sound Velocity Cast #:	15

Computed Least Depth (m)	13.02 m
r (m)	-0.20 m
= Corrected Least Depth (m)	12.82 m
Detached Position Fix #:	# 4506
LORAN Rates:	
LORAN Rates:	

MOD3DIVELOG.DOC

LEAST DEPTH REPORT, VELOCITY PROGRAM, Version 5.05

PROJECT: OPR-E350-RU SURVEY: H11028 DATE OF DIVE: 04-05-2001

NOAA UNIT: RUDE YEAR 2001
AWOIS NUMBER: NONE FIX NUMBER: 4506 CONTACT NUMBER: 072_111_1506_9

CAST TABLE NUMBER: 15 CAST INSTRUMENT: SEACAT S/N:1991 CD:09/02/01
DAY OF CAST (UTC): 095 TIME OF CAST (UTC): 13:34

DIVER GAUGE SERIAL NUMBER: 68336
DAY OF DIVE (UTC): 095 TIME OF LD MEASUREMENT (UTC): 15:31
LATITUDE OF DIVE: 37/07/45.46 N
LONGITUDE OF DIVE: 076/08/27.23 W
PREDIVE GAUGE PRESSURE (psia): 15.22
GAUGE PRESSURE AT DESIGNATED LEAST DEPTH (psia): 33.97

RESULTS
COMPUTED LEAST DEPTH (m): 13.02
TIDE CORRECTOR (m): -0.20
CORRECTED LEAST DEPTH (m): 12.82

COMMENTS AND RECOMMENDATIONS:
Sunken can type navigation buoy.
Laying on side in deep scour, least depth at base of buoy.
Heavy marine growth, no identifying markings visible.

Time Zone
SOB 18 +24 min × 0.92

Day	Time	Tide
2001/04/05	15:07:00	0.242
		↓ −0.003333...
		0.238666
		↓ ×0.92
		0.2195

Tide corrector (verified) 0.22 (m)

(2)

NOAA SHIP RUDE DIVE OPERATIONS LOG

Project: E-350-RV	Date: 5 APRIL 200
Sheet: A " " sheet, H- 11028	Day #: 095

Subject of investigation:

E 398783.06418
N 4109799.0571

Location: 37° 07' 44"678 N, -076° 08' 22"140 W

Side-scan contact #s: 072-111-1506-5	Fatho/Seabat fix #s: 4508

Contact Chamber: LITTLE CREEK	(Y / N)	( ) 462-8801
Contact US Coast Guard	(Y / N)	( )

Divers	Surface Interval	RNT	Pressure In	Pressure Out	Time In	Time Out	Bottom Time	Max Depth
BEAVER			1600	1200	1137	1141		
PIERCE			2000	1500	1137	1141		

Diver's Remarks: STRUCTURE BOUY (SMALL), STRUCTURE HIGHEST BOTTOM BURIED HEAVILY ENCRUSTED, NO MARKINGS VISIBLE

Visibility: 20 feet Current: 0.5 knots Water Temp: 50°C degrees

MOD III Depth Gage SN	68336
MOD III Surface Pressure:	15.22 psia
MOD III at least depth:	33.64 psia
epth (UTC)	15:39 UTC
Barometric Pressure:	1029.3 mb
Sound Velocity Cast #:	

Computed Least Depth (m)	12.80 m
r (m)	-0.10 m
= Corrected Least Depth (m)	12.70 m TU
Detached Position Fix #:	#
LORAN Rates:	
LORAN Rates:	

MOD3DIVELOG.DOC

LEAST DEPTH REPORT, VELOCITY PROGRAM, Version 5.05

PROJECT: OPR-E350-RU
SURVEY: H11028 DATE OF DIVE: 04-05-2001

NOAA UNIT: RUDE YEAR 2001

AWOIS NUMBER: NONE FIX NUMBER: 4507
CONTACT NUMBER: 072_111_1506_5

CAST TABLE NUMBER: 15 CAST INSTRUMENT: SEACAT S/N:1991 CD:09/02/01

DAY OF CAST (UTC): 095 TIME OF CAST (UTC): 13:34

DIVER GAUGE SERIAL NUMBER: 68336

DAY OF DIVE (UTC): 095 TIME OF LD MEASUREMENT (UTC): 15:39

LATITUDE OF DIVE: 37/07/44.68 N

LONGITUDE OF DIVE: 076/08/22.14 W

PREDIVE GAUGE PRESSURE (psia): 15.22

GAUGE PRESSURE AT DESIGNATED LEAST DEPTH (psia): 33.64

RESULTS

COMPUTED LEAST DEPTH (m):	12.80
TIDE CORRECTOR (m):	-0.10
CORRECTED LEAST DEPTH (m):	12.7

COMMENTS AND RECOMMENDATIONS:

sunken structure type navigation buoy
lying on side in deep scour, least depth at top of structure
Heavy marine growth, no identifying markings
visible

Tide Zone	Time Corr	Range Ratio
SCB 18	+24min	x 0.92
	Time	Tide (Verified)
2001/04/05	15:15:00	+0.201

↑

(0.222 - 0.003333) x 0.92

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: October 4, 2002

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-E350-RU-2002
HYDROGRAPHIC SHEET: H11028

LOCALITY: York River Entrance Channel to Tail of the Horseshoe
TIME PERIOD: March 13, 2001 - June 3, 2002

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): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.829 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: SCB15, SCB16, SCB17, SCB18 & SCB20.

Refer to attachments for zoning information.

Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time.

Thomas K. Meier 10/4/02

CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H11028 (2001-2002)

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.

B. DATA ACQUISITION AND PROCESSING

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

Hydrographic Processing System
MicroStation J, version 7.01
I/RAS B, version 7.01
MapInfo, version 6.5
CARIS HIPS/SIPS 2000 version 5.3
PYDRO, version 3.71

The smooth sheet was plotted using a Hewlett Packard DesignJet 2500CP plotter.

JUNCTIONS

F00450 (1999) to the east
H10945 (2001-2004) to the south

Standard junctions were effected between F00450 (1999), H10945 (2001-2004), and the present survey. There are no junctional surveys to the north or to the west. Present survey depths are in harmony with the charted hydrography to the north and west.

C. HORIZONTAL CONTROL

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.

D.1. CHART COMPARISON

12221 (76th Edition, Feb./05)
Corrected through NM Feb.19/05
Corrected through LNM Feb.15/05
12222 (46th Edition, May/04)
Corrected through NM May 29/04
Corrected through LNM May 18/04
12224 (23rd Edition, Dec./02)
Corrected through NM Nov.30/02
Corrected through LNM Nov.19/02
12238 (38th Edition, Nov./03)
Corrected through NM Nov.01/03
Corrected through LNM Oct.21/03

12280 (2nd Edition, Jun. 23/01)

Hydrography

The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in section D. of the Descriptive Report (DR). Attention is directed to the following:

1. A charted Disposal Area (discontinued) Depths from survey of 1948 in the vicinity of Latitude 37°02'18"N, Longitude 76°10'00"W was partially investigated during the present survey and completed during survey H10945 (2001-2004). It is recommended that the area be deleted and superseded by present survey depths.

2. A charted Spoil Area (discontinued) in the vicinity of Latitude 37°07'30"N, Longitude 76°11'05"W was investigated during the present survey. It is recommended that the area be deleted and superseded by present survey depths.

Except as noted above, the present survey is adequate to supersede the charted hydrography within the common area.

COMPARISON WITH PRIOR SURVEYS

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

ADEQUACY OF SURVEY

This is an adequate hydrographic/side scan sonar/multibeam survey. No additional field work is recommended.

MISCELLANEOUS

Chart compilation was done by Atlantic Hydrographic Branch personnel, in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division, Silver Spring, Maryland. The following NOS charts were used for compilation of the present survey:

12221 (76th Edition, Feb./05) (updated through Feb.19, 2005)
12222 (46th Edition, May/04) (updated through May 29, 2004)
12238 (38th Edition, Nov./03) (updated through Nov.01, 2003)
12224 (23rd Edition, Dec./02) (updated through Nov.30, 2002)

Marilyn Schlüter

Marilyn L. Schlüter
Cartographer
Verification of Field Data
Evaluation and Analysis

APPROVAL SHEET
H11028

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. All revisions and additions made to the smooth sheet during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Marilyn Schluter Date: 4/12/05

Marilyn L. Schluter
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.

Approved: P. Schattgen Date: 13 April 2005

P. Tod Schattgen
Lieutenant Commander, NOAA
Chief, Atlantic Hydrographic Branch

Digitally signed by Jeremy Mchugh
Reason: AWOIS and SURF check complete
Location: HSD, Operations Branch
Date: 2005.04.19 12:45:51 -04'00'

NOAA FORM 61-29
(12-71)

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

LETTER TRANSMITTING DATA

REFERENCE NO.
N/CS 33-07-05

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

- [ ] ORDINARY MAIL
- [ ] AIR MAIL
- [ ] REGISTERED MAIL
- [X] EXPRESS
- [ ] GBL (Give number)_____

DATE FORWARDED 04/14/2005

NUMBER OF PACKAGES 1

TO:

NOAA / National Ocean Service
Chief, Data Control Group, N/CS 3x1
SSMC3, Station 6704
1315 East-West Hwy.
Silver Spring, MD 20910-3282

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.

H11028

Virginia
York River Entrance Channel to Tail of the Horseshoe

1 Mylar Smooth Sheet

1 Mylar H-Drawing for NOS chart 12221
1 Mylar H-Drawing for NOS chart 12222
1 Mylar H-Drawing for NOS chart 12224
1 Mylar H-Drawing for NOS chart 12238

ATTN: 301-713-2698 x 110

FROM: (Signature) Marilyn Schluter

Return receipted copy to:

Marilyn L. Schluter
Atlantic Hydrographic Branch
439 W. York St.
Norfolk, VA 23510

RECEIVED THE ABOVE
(Name, Division, Date)

NOAA FORM 61-29 SUPERCEDES FORM C AND GS 413 WHICH MAY BE USED.

U.S. GOVERNMENT PRINTING OFFICE: 1988 - 554-006-61309