

H10632

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Hydrographic  
Type of Survey Side Scan Sonar.....  
Field No. ....AHP-5-1-95.....  
Registry No. .H-10632.....

LOCALITY

State ....Maryland.....  
General Locality Northern Chesapeake Bay...  
Sublocality Baltimore Harbor.....

19 95

CHIEF OF PARTY  
LT K. N. Harbison

LIBRARY & ARCHIVES

DATE .....MAY 27 1997.....

**DIAGRAM 77-4**

Ref Bp161465

Charts

12281

12278 NC

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NOAA FORM 77-28

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

REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H-10632

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.

AHP 5-01-95

State Maryland

General Locality Northern Chesapeake Bay

Locality Baltimore Harbor

Scale ~~1:10,000~~ 1:5,000 Date of Survey August 17, 1995 - September 21, 1995

Instructions Dated April 17, 1995 Project No. OPR-8346

Vessel NOAA Launch Nos. 0517, 1017

Chief of Party Kevin N. Harbison, Lieutenant, NOAA

Surveyed By Atlantic Hydrographic Party

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

Graphic record scaled by MJM, JLB, GBH, RTB, MA \*\*

Graphic record checked by MJM, JLB, GBH, RTB, MA \*\*

Protracted by HDAPS

Automated plot by ENCAD NOVAPLOT II PLOTTER (AHP)  
BRUNING ZETA 824A (FIELD)

Verification by Atlantic Marine Center ATLANTIC HYDROGRAPHIC BRANCH PERSONNEL

Soundings in meters at MLLW (FIELD) FEET (AHP)

REMARKS: \*\* MJM - Mark J. McMann

JLB - Jan L. Budlong

GBH - Glenn D. Hendrix

RTB - Richard T. Brennan, LTJG, NOAA

MA - Michael Annis

NOTES IN RED IN THE DESCRIPTIVE REPORT  
WERE MADE DURING OFFICE PROCESSING  
SB 5-27-97 AWD/LS/SURF V 5/22/97 SS



DESCRIPTIVE REPORT TO ACCOMPANY  
HYDROGRAPHIC SURVEY H-10632  
FIELD NO. AHP-5-1-95  
SCALE: 1:5,000  
1995  
ATLANTIC HYDROGRAPHIC PARTY  
CHIEF OF PARTY: LT Kevin Harbison

A. PROJECT

This survey was conducted in accordance with Hydrographic Project Instructions OPR-E346-AHP, Northern Chesapeake Bay - Baltimore Harbor, Maryland, dated April 17, 1995. This survey is designated as Sheet "A" on the sheet layout dated August 21, 1995.

The purpose of this project is to provide contemporary hydrography for updating charts and responds to requests from the Maryland Port Administration, Association of Maryland Pilots, U.S. Army Corps of Engineers, and the U.S. Coast Guard. The area was last surveyed between 1975 and 1976 by the U. S. Coast and Geodetic Survey.

B. AREA SURVEYED

The area surveyed for H-10632 covers Baltimore Harbor from Ferry Bar Channel to Spring Garden Channel and from East Channel to the Inner Harbor inshore to the 3-meter depth curve.

North - 39°17'15"N  
South - 39°15'00"N  
East - 076°34'00"W  
West - 076°37'50"W

This survey was conducted from August 17, 1995 (DN 229) to September 21, 1995 (DN 264).

C. SURVEY VESSELS

Vessel 0517, a 21-foot MonArk, was the vessel used to collect sounding data and detached positions. Vessel 1017, a 30-foot Jensen, was the vessel used to collect all side scan data. There were no unusual vessel configurations nor problems encountered.

D. AUTOMATED DATA ACQUISITION AND PROCESSING *SEE ALSO THE EVALUATION REPORT.*

The Hydrographic Data Acquisition and Processing System (HDAPS) was used to collect and process all hydrographic data for launch 1017. PC-DAS version 4.03 was used for on-line data acquisition on launch 0517. A listing of HDAPS programs used for data processing and their corresponding version numbers is appended to this report. *FILED WITH THE ORIGINAL FIELD RECORDS.*

The following non-HDAPS computer programs were used:

VELOCITY (IBM PC)	Ver. 2.0 (12/18/92)
NADCON (IBM PC)	Ver. 1.01
WORDPERFECT (IBM PC)	Ver. 6.1

#### E. SIDE SCAN SONAR EQUIPMENT

Side scan sonar (SSS) operations were conducted using an EG&G model 260 slant-range corrected SSS recorder and an EG&G 272-T dual-channel, single frequency towfish. The towfish was operated on the 100-kHz frequency and was configured with a 20° beam depression. Serial numbers (S/N) for the side scan sonar equipment used throughout the survey are listed below:

<u>Vessel</u>	<u>SSS Towfish S/N</u>	<u>260 Recorder S/N</u>	<u>Dates</u>
1017	11908	016508	8/17/95
1017	16989	016508	8/21/95-9/20/95

On launch 1017 the SSS towfish was deployed using a Superwinch Model W115 in conjunction with an adjustable davit arm on the stern of the launch. The SSS towfish was towed with vinyl-coated Kevlar cable and was connected to the recorder via a slip ring assembly.

Side scan data were collected utilizing the 25 and 50-meter range scale. In order to acquire the required 200% SSS coverage, main-scheme lines were run at a spacing of 80 meters. Adequate coverage was determined by producing two separate swath plots and ensuring 100% coverage on each plot.

The SSS towfish was maintained at a height off the bottom of 8 to 20 percent of the range scale used. Confidence checks were performed on a routine basis, primarily by noting changes in bottom texture on the outer edges of the sonagram, and on the numerous piers and other contacts in the survey area.

All significant contacts were measured off the sonagrams and entered into an HDAPS contact table. Field party personnel determined contact heights, positions, and cross-reference

correlations using the HDAPS Contact Utility Program. Contacts were investigated using side scan sonar developments followed by echosounder investigation as needed.

Contact table number 1 was the only table used. The following contacts were identified on this survey:

<u>1st 100% Contact Location</u>	<u>2nd 100% Contact Location</u>	<u>Contact Height</u>	<u>Surrounding Depths</u>
12.05	None	2.3	4.5-12.0
38.75	None	3.5	5.0-6.0
76.37	None	0.4	12.0
79.3	None	0.5	12.0
96.4	None	0.6	9.0-12.0
96.52	241.85	0.5	8.0-10.0
96.73	241.64	0.5	7.8-9.0
105.63	None	1.4	5.0-7.0
135.05	None	2.0	5.0-7.0
149.03	None	1.6	6.0-14.5
155.45	None	0.9	6.0-7.0
197.58	None	0.4	5.0-6.0
210.1	None	0.6	7.0-8.0
240.34	None	1.6	10.5-13.0
240.56	None	0.6	12.0
242.05	None	0.6	11.0-12.0
242.42	None	0.6	12.0
257.53	None	0.5	12.0-13.0
264.75	None	0.6	3.5-4.0
273.08	None	2.6	6.5-8.5

A development was performed on DN 263, pos. no.441-446, for contact no. 12.05 and nothing was found. *VICINITY OF 39-16-33N 76-34-36W*

A star pattern development was done on DN 263, pos. no.423-440, for contact no. 38.75 and a least depth of ~~4.5~~ <sup>5.1</sup> meters *(16 FT)* was found over a small spike between pos. no. 439 and pos. 440. *SEE SECTION 0.3. OF THE EVALUATION REPORT.*

A star pattern development was done on DN 263 for contact no. 105.63, pos. no. 447-462, and nothing was found. *VICINITY OF 39-16-32N 76-34-57W*

A development was conducted on DN 263, pos. no.463-466, for <sup>(30 FT)</sup> contact no. 135.05 and a spike with a least depth of 6.2 meters was located between pos. 465 and 466. *39-17-00.3N, 76-36-20, 76W CHART AS A 20 FT DEPTH.*

A star pattern development was done on DN 263, pos. no.483-502, *VICINITY OF* for contact no. 149.03 and no significant features were found. *39-15-45N 76-34-33W*

A star pattern development was performed on DN 263 for contact

39-16-23N  
 76-35-04N  
 (20 FT)  
 no. 240.34, pos. no. 469-482, and a 6.2 meter spike was located.  
 DO NOT CONCORD. NOTHING FORWARD. NO SPIKE IS SEEN ON THE ECHOGRAM  
 BETWEEN THESE POSITION NUMBERS. DO NOT CHART!  
 A development was done on DN 263 for contact no. 273.08, pos. no.  
 467-468, and a 6.5 meter spike was found.

All least depths are computed using predicted tides. All other contacts were insignificant. All development data except for the lines depicting the least depths over spikes was designated, "Not for Smooth Plot (NSP)".

#### F. SOUNDING EQUIPMENT

An Innerspace model 448 depth sounder, serial number 241 was used to collect all soundings on launch 0517. A Raytheon model DSF-6000 serial number A111N was used to collect all soundings on launch 1017.

A standard lead line calibrated in meters, serial number 0517 was used during this survey for comparison readings with the echo sounders.

#### G. CORRECTIONS TO SOUNDINGS

Soundings were recorded using the Innerspace model 448 and the Raytheon model DSF-6000 depth sounders. They were adjusted for an assumed speed of sound through water of 1500 meters/second. Changes to the gain and/or chart speed were noted on the echograms. Digitized soundings agreed with the analog trace within 0.1 meter. Necessary corrections were made while scanning the echogram.

Corrections for the speed of sound through water were computed from data obtained with Sea-Bird Electronics, Inc., SEACAT electronic profiler, serial number 192276-287. Data quality assurance tests were performed in accordance with Field Procedures Manual (FPM) 2.1.3.2. Program VELOCITY, version 2.0, was used to compute speed of sound through water corrections. Copies of the velocity tables and cast data are in the "Survey Separates." FILED WITH THE ORIGINAL FIELD RECORDS

Correctors for the velocity of sound through water were determined from the casts listed below:

<u>Velocity</u>	<u>Cast</u>	<u>Deepest</u>			<u>Cast</u>
<u>Table No.</u>	<u>No.</u>	<u>Depth (m)</u>	<u>Applicable DN</u>	<u>Position</u>	<u>Day</u>



1	1	15.7/20.4	236	39°16'00"N 076°34'30"W	236
2	2	15.3/19.9	237-250	39°16'30"N 076°36'00"W	237
3	3	16.7/21.7	251-264	39°15'10"N 076°33'50"W	263

Correctors were applied to the sounding data using the HDAPS program REAPPLY prior to plotting.

Weather permitting, lead line comparisons were conducted each day in accordance with FPM 2.1.3.1. No instrument error was detected from these comparisons. The lead line comparison form is in the "Survey Separates." \*

A static draft of 0.3 meter was applied to the on-line data for launch 0517. The draft was measured by subtracting the difference from a punch mark on the side of Launch 0517, 0.6 meter above the transducer, to the water surface. A static draft of 0.6 meter was applied to the on-line data for launch 1017.

Settlement and squat measurements were performed on Dec. 20, 1994 (DN 346), at Clear Lake, Texas, using Zeiss level S/N 08754 for launch 0517, and February 07, 1995 (D.N. 038) in Elizabeth River, Virginia, using level S/N 100225 for launch 1017. Settlement and squat correctors and the static draft corrector were applied on-line through the offset table. Copies of the field data, the graphs of the settlement and squat correctors vs. speed in m/sec., and the offset table are included in the "Survey Separates." \*

The Baltimore, Maryland, tide station number 857-4680, served as control for datum determination. This station is also the reference station for the predicted tides which were applied to the final sounding plot. Tides for this survey were direct off of the Baltimore station. *APPROVED TIDES AND ZONES WERE APPLIED DURING OFFICE PROCESSING*

Approved tides were requested from the Sea and Lake Levels Branch, N/OES231, in a letter dated Nov. 28, 1995. A copy of the letter is appended to this report. *FILED WITH THE ORIGINAL FIELD RECORDS*

H. CONTROL STATIONS *SEE ALSO THE EVALUATION REPORT*

*\* FILED WITH THE ORIGINAL  
FIELD RECORDS.*

The horizontal control datum for this project is the North American Datum of 1983. One station, the USCG Differential GPS (DGPS) Beacon at Cape Henlopen, was used to control this survey. The position for the beacon is shown on the "Control Station List" appended to this report. ✓

#### I. HYDROGRAPHIC POSITION CONTROL

DGPS was used as the method of positioning for all hydrographic data on this survey. The USCG Differential GPS beacon at Cape Henlopen, Delaware was used as the reference station in conjunction with beacon receiver serial number X-1086 and antenna serial number MBA-M1039 on launch 0517. An Ashtech sensor, serial number 700417A1065 was used as the remote station on vessel 0517. Beacon receiver serial number 036 and Ashtech sensor serial number 700417B1270 were used on launch 1017. This equipment met the accuracy standards for this 1:5,000 scale survey.

Performance checks were conducted daily by resting the launch alongside station CAL 2 1995. The raw record and the abstract of these checks are included in the "Survey Separates." \* The calibration point was established by measuring a single GPS baseline, between a third-order, class I station and the calibration point. The computations for CAL 2 1995, are included in the "Survey Separates." \*

Occasionally, a good position misplotted on the raw track plot. This problem was attributed to good DGPS data following a period of questionable DGPS data. These positions were reviewed, then edited or rejected as necessary.

#### J. SHORELINE *SEE ALSO THE EVALUATION REPORT.*

Shoreline shown on the final sounding plot was transferred by hand from the enlargement of chart 12281 44th edition, Mar.19, 1994. This chart was enlarged from 1:15,000 scale to 1:5,000. No shoreline verification was required on this survey.

A complete list of all detached positions by day, is included in the accordion file. It lists the position of each feature and the AWOIS item number when applicable.

#### K. CROSSLINES

A total of 8.2 nautical miles of crosslines were run,

\* *FILED WITH THE ORIGINAL 6  
FIELD RECORDS*

representing 14.6% of the main scheme hydrography. Crossline soundings agree to within 0.3 meter of the main scheme soundings.

L. JUNCTIONS

This survey does not junction with any contemporary surveys. *CONCUR*

M. COMPARISON WITH PRIOR SURVEYS *SEE ALSO THE EVALUATION REPORT*

The prior survey comparison will be performed by AHS. The prior surveys covering this area are H-9565 and H-9566, 1:5,000, 1975-1976. AWOIS item numbers 9524 and 9527 originated from the prior surveys.

The hydrographer recommends that data from the present survey be used to supersede that of H-9565 and H-9566 within their common areas. *CONCUR*

N. ITEM INVESTIGATION REPORTS *SEE ALSO THE EVALUATION REPORT*

Five AWOIS items were assigned to this survey. Item investigation reports are appended to this report. *CONCUR*

O. COMPARISON WITH THE CHART *SEE ALSO THE EVALUATION REPORT.*

Comparisons were made with chart 12281, 44th Edition, March 19, 1994. Survey soundings compare very well with those charted in the northern portion of the survey area, with agreement generally being within 0.3 meter. There are no soundings charted inside of the U.S. Army Corps of Engineers maintained channels, but current survey soundings are within the project depths shown on the chart for each channel. There are two soundings shoaler than the project depth inside the Northwest Harbor West Channel Turning Basin. The project depth for the area is 38.2 ft, and the current survey soundings are 34.5 ft. using ~~predicted~~ <sup>APPROVED</sup> tides. The soundings are located on the far northwest edge of the turning basin. This may be a result of a shoal encroaching on the dredged area or poor definition of the basin on the chart.

*VICINITY OF 39-16-30 N, 76-35-31 W*

Sounding agreement in the Middle branch, <sup>AND SPRING GARDEN CHANNEL</sup> area of the survey is not as good, with current survey soundings being as much as 1 meter shoaler at the north end of the survey area. *VICINITY OF 39-15-52 N 76-37-25 W*

There were no dangers to navigation identified on this survey.

The hydrographer recommends sounding data from this survey be used to update the chart.

P. ADEQUACY OF SURVEY

This survey is complete and adequate to supersede all prior surveys within the common area.

Q. AIDS TO NAVIGATION

There are eighteen aids to navigation in the survey area. Eight are daybeacons, three are lights, five are lighted buoys, and two are buoys. Four of the aids have a published position in the USCG Light List, Volume II, Atlantic Coast, 1995.

Detached positions were taken on all aids to navigation. The comparison of the surveyed position with the charted location was:

Spring Garden Channel Daybeacon 6 (Light List #21320)

Light List Published Position - None

Surveyed Position (No. 5246) - 39°15'45.96"N, 076°37'27.09W

Surveyed position is 70 meters E of the charted position

Spring Garden Channel Daybeacon 4 Light List #21315)

Light List Published Position - None

Surveyed Position (No. 5247) - 39°15'43.86"N, 076°37'20.06"W

Surveyed position is 80 meters E of the charted position

Spring Garden Channel Daybeacon 2 (Light List #21310)

Light List Published Position - 39°15.6'N, 076°37.1'W

Surveyed Position (No. 5248) - 39°15'33.86"N, 076°37'06.72"W

Surveyed position is 100 meters SE of the charted position

Ferry Bar Channel Daybeacon 14 (Light List #21305)

Light List Published Position - None

Surveyed Position (No. 5249) - 39°15'24.46"N, 076°36'47.10"W

Surveyed position agrees with the charted position

Ferry Bar Channel Light 13 (Light List #21300)

Light List Published Position - 39°15.4'N, 076°36.7'W

Surveyed Position (No. 5250) - 39°15'18.83"N, 076°36'40.08"W

Surveyed position agrees with charted position

Ferry Bar Channel Daybeacon 12 (Light List #21295)

Light List Published Position - None

Surveyed Position (No. 5251) - 39°15'20.00"N, 076°36'37.13"W

Surveyed position agrees with charted position

Ferry Bar Channel Daybeacon 10 (Light List #21290)

Light List Published Position - None

Surveyed Position (No. 5252) - 39°15'19.92"W, 076°36'23.49"W

Surveyed position agrees with charted position

Ferry Bar Channel Daybeacon 9 (Light List #21285)

Light List Published Position - None

Surveyed Position (No. 5254) - 39°15'18.00"N, 076°36'13.63"W

Surveyed Position agrees with charted position

Ferry Bar Channel Daybeacon 8 (Light List #21280)

Light List Published Position - None

Surveyed Position (No. 5255) - 39°15'20.45"N, 076°36'06.98"W

Surveyed position agrees with charted position

Ferry Bar Channel Junction Buoy FB (Light List #21275)

Light List Published Position - None

Surveyed Position (No. 5256) - 39°15'19.32"N, 076°35'49.75"W

Surveyed position is 110 meters SE of the charted position

Ferry Bar Channel Lighted Buoy 7 (Light List #21270)

Light List Published Position - None

Surveyed Position (No. 5258) - 39°15'16.29"N, 076°35'43.55"W

Surveyed position agrees with charted position

Locust Point West Channel Buoy 1LW (Light List #21240)

Light List Published Position - 39°15.6'N, 076°35.9'W

Surveyed Position (No. 5257) - 39°15'24.74"N, 076°35'53.81"W

Surveyed position is 100 meters SE of charted position

Northwest Harbor Lighted Buoy 3 (Light List #21335)

Light List Published Position - None

Surveyed Position (No. 5259) - 39°15'37.36"N, 076°34'32.29"W

Surveyed position is 140 meters W of the charted position

Northwest Harbor Lighted Buoy 5 (Light List #21340)

Light List Published Position - None

Surveyed Position (No. 5262) - 39°15'56.92"N, 076°34'32.76"W

Surveyed position agrees with charted position

Northwest Harbor Lighted Buoy 7 (Light List #21345)

Light List Published Position - None

Surveyed Position (No. 5263) - 39°16'04.02"N, 076°34'35.54"W

Surveyed position is 130 meters SE of the charted position

Northwest Harbor Junction Lighted Buoy NH (Light List #21360)

Light List Published Position - None

Surveyed Position (5264) - 39°16'12.55"N, 076°34'34.49"W

Surveyed Position agrees with charted position

Fort McHenry Front Range Light (Light List #8220)

Light List Published Position - 39°15.8'N, 076°34.7'W

Surveyed Position (5260) - 39°15'50.41"N, 076°34'39.22"W

Surveyed Position agrees with charted position

Fort McHenry Rear Range Light (Light List #8225)

Light List Published Position - None

Surveyed Position (5266) - 39°16'32.04"N, 076°35'24.10"W

Surveyed Position agrees with charted position

The aids serve their intended purpose, though should be re-charted using current surveyed positions. *CONCUR.*

R. STATISTICS

<u>Description</u>	<u>Quantity</u>
Total Number of Positions	821
Total Lineal Nautical Miles of Hydrography	56.3
Square Nautical Miles of Hydrography	2.5
Days of Production	10
Detached Positions	25
Bottom Samples	0
Tide Stations	1
Velocity Casts	3

S. MISCELLANEOUS

No anomalous currents or tides were observed during this survey.

Several bottom samples were taken and compared to the charted bottom characteristics. All surveyed characteristics agreed with those charted. The samples were not retained or plotted. *RECOMMEND BOTTOM SAMPLES BE RETAINED AS CHARTED.*

The "assign fix" function of the program QUICK EDIT, was used to assign position numbers to the beginning or ending of a line as needed.

T. RECOMMENDATIONS

No additional field work was identified after field office processing was completed. Specific recommendations are made on the Item Investigation Reports appended, and in sections J., O., and Q. of this report.

U. REFERRAL TO REPORTS

<u>Title</u>	<u>Transmittal Information</u>
Coast Pilot for OPR-E346-AHP	Atlantic Hydrographic Branch N/CG244, Norfolk, Va 23510 (At conclusion of project)
User Evaluation for OPR-E346-AHP	Atlantic Hydrographic Branch N/CG244, Norfolk, Va 23510 (At conclusion of project)

Submitted by:

Atlantic Hydrographic Party

Approval Letter  
Basic Hydrographic Survey  
OPR-E346-AHP  
AHP-5-1-95  
H-10632

This hydrographic survey was conducted in accordance with the project instructions for OPR-E346-AHP, the hydrographic manual, the hydrographic survey guidelines, and the field procedures manual. The survey data and reports were completed and reviewed in their entirety and all supporting records were also checked.

This is a complete hydrographic survey for the area described in section B of this report.



Kevin Harbison  
Lieutenant, NOAA  
Chief, Atlantic Hydrographic Party



AWOIS NO: 9540

**Item Description:** OBSTRUCTION

**Source:** UNKNOWN

**AWOIS Position:** 39° 17' 03.40"N, 76° 36' 30.00"W

**Required Investigation:** SD, S4, DI

**Charts Affected:** 12281

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INVESTIGATION

**Date(s)/DN(s):** 9-20-95 / 263 (OPR-E346-AHP2, H-10632)

**Position Numbers:** 467-468      **Launch Number:** 1017

**Investigation Used:** Side Scan Sonar

**Position Determined By:** DGPS

**Investigation Summary:** Due to it's location and close proximity to the bulkhead and AWOIS 9539 the two items were determined to be the same thing. *Do NOT CONCUR*

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CHARTING RECOMMENDATION

The hydrographer recommends using the item located at AWOIS 9539 to resolve this item as well.

**Recommended Position:** See AWOIS 9539.

**Recommended Least Depth:** See Awois 9539.

*SEE SECTION N.2 OF THE EVALUATION REPORT.*

\*\*\*\*\*

COMPILATION NOTES

Chart

Applied As

AWOIS NO: 9539

**Item Description:** OBSTRUCTION

**Source:** UNKNOWN

**AWOIS Position:** 39° 17' 02.00"N, 76° 36' 27.00"W

**Required Investigation:** SD, S4, DI

**Charts Affected:** 12281

INVESTIGATION

**Date(s)/DN(s):** 9-20-95 / 263 (OPR-E346-AHP2, H-10632)

**Position Numbers:** 467-468 **Launch Number:** 1017

**Investigation Used:** Side Scan Sonar

**Position Determined By:** DGPS

**Investigation Summary:** A side scan sonar developement at the awois position found a spike with an echosounder least depth of 6.9 meters (22.6 ft).

CHARTING RECOMMENDATION

The hydrographer charting the pile as located below.

**Recommended Position:** Lat - 39°17'02.<sup>189</sup>8"  
Lon - 076°36'30.<sup>281</sup>8"  
**Recommended Least Depth:** <sup>7.1</sup>~~6.9~~ meters (<sup>23.3</sup>~~22.6~~ ft) at MLLW using predicted tides. *CONCUR. SEE ALSO SECTION N.2. OF THE EVALUATION REPORT.*  
*APPROVED*

\*\*\*\*\*

COMPILATION NOTES

Chart

Applied As

(23) Obs'n

AWOIS NO: 9527

**Item Description:** OBSTRUCTION (DOLPHIN)

**Source:** CL1581/73

**AWOIS Position:** 39° 16' 04.58"N, 76° 34' 46.27"W

**Required Investigation:** SD, S4, DI

**Charts Affected:** 12281

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INVESTIGATION

**Date(s)/DN(s):** 9-20-95 / 263 (OPR-E346-AHP2, H-10632)

**Position Numbers:** 405-422                      **Launch Number:** 1017

**Investigation Used:** Side Scan Sonar

**Position Determined By:** DGPS

**Investigation Summary:** A side scan sonar search conducted in the area of the item revealed a spike with an echosounder least depth of 5.1 meters (16.8 ft).

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CHARTING RECOMMENDATION

The hydrographer recommends charting the dolphin as located below.

**Recommended Position:** Lat- 39°16'03.5"  
Lon- 076°34'45.1"

**Recommended Least Depth:** 5.<sup>4</sup> meters (<sup>17.7</sup>~~16.8~~ ft) below at MLLW using predicted tides. *CONCUR, SEE ALSO SECTION N.1 OF THE EVALUATION REPORT.*  
*APPROVED*

\*\*\*\*\*

COMPILATION NOTES

Chart

Applied As

*(17) Obstr*

AWOIS NO: 9525

**Item Description:** UNKNOWN

**Source:** LNM37/73, H9566/75-76

**AWOIS Position:** 39° 15' 18.38"N, 76° 35' 40.87"W

**Required Investigation:** SD, S2, DI

**Charts Affected:** 12281

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INVESTIGATION

**Date(s)/DN(s):** None (OPR-E346-AHP2, H-10632)

**Position Numbers:** None **Launch Number:** 1017

**Investigation Used:** Telephone

**Position Determined By:** DGPS

**Investigation Summary:** Discussion with Mr. Tom Waddington of the US Army Corps of Engineers Baltimore District (410-962-6031) indicate this item was never found in the process of dredging the channel. Corps records indicate this channel was last dredged in the mid-1980's.

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CHARTING RECOMMENDATION

The hydrographer recommends removing the ED wreck symbol from the chart. *NAT PRESENTLY CHARTED. NO CHANGE IN CHARTING IS RECOMMENDED.*

**Recommended Position:** None

**Recommended Least Depth:** None

\*\*\*\*\*

COMPILATION NOTES

Chart

Applied As

AWOIS NO: 9524

**Item Description:** OBSTRUCTION

**Source:** LNM32/72, H9566/75-76

**AWOIS Position:** 39° 15' 28.20"N, 76° 37' 03.00"W

**Required Investigation:** SD, BD, DI

**Charts Affected:** 12281

INVESTIGATION

**Date(s)/DN(s):** 9-20-95 / 263 (OPR-E346-AHP2, H-10632)

**Position Number:** 514-525      **Launch Number:** 1017

**Investigation Used:** Side Scan Sonar

**Position Determined By:** DGPS

**Investigation Summary:** A side scan sonar investigation in the area of the AWOIS item revealed a pile with an echosounder least depth of 3.7 meters (12.1 ft).

CHARTING RECOMMENDATION

The hydrographer charting the <sup>PILE</sup> ~~pipe~~ as located above.

**Recommended Position:** Lat - 39°15'30.<sup>466</sup>5"  
Lon - 076°37'05.2"021

**Recommended Least Depth:** 3.7<sup>6 (12 ft)</sup> meters below at MLLW (<sup>APPROVED</sup> ~~predicted~~ tides). CONSIDER CHART AS 12 OBSTN. SEE ALSO SECTION M.2. OF THE EVALUATION REPORT.

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COMPILATION NOTES

Chart

Applied As

(12) OBSTN

Inventory of the University of California, Berkeley

No.	Type	Location	Quantity	Unit	Price	Total Value	Acquired	Character Name
1000000000	Books	Library	1	copy	1.00	1.00	1900	Book 1000000000
1000000001	Books	Library	1	copy	1.00	1.00	1900	Book 1000000001



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: May 23, 1996

HYDROGRAPHIC SECTION: Atlantic

HYDROGRAPHIC PROJECT: OPR E346-AHP

HYDROGRAPHIC SHEET: H-10632

LOCALITY: Baltimore Harbor, Northern Chesapeake Bay, Maryland

TIME PERIOD: August 17 - September 21, 1995

TIDE STATION USED: 857-4680 Baltimore, Md.  
Lat. 39° 16.0'N Lon. 76° 34.7'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 3.87 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.4 ft.

REMARKS: RECOMMENDED ZONING

Times and heights are direct on Baltimore, Md. (857-4680).

- Notes:
1. Times are tabulated in Greenwich Mean Time.
  2. Data for Baltimore, Md. (857-4680) are temporarily stored in file #657-4680.

  
CHIEF, DATUMS SECTION



GEOGRAPHIC NAMES

Name on Survey

Page 1 of 2

A PHOENIX MAP NO. 12281, 12278, 12273  
B ON PREVIOUS SURVEY  
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

Name on Survey	A	B	C	D	E	F	G	H	K
BALTIMORE	X		X						1
BALTIMORE HARBOR (title)	X		X						2
CANTON	X		X						3
CHERRY HILL	X		X						4
CHESAPEAKE BAY (title)	X		X						5
CLIFFORD	X		X						6
EAST CHANNEL	X		X						7
FEDERAL HILL PARK	X		X						8
FERRY BAR	X		X						9
FERRY BAR CHANNEL	X		X						10
FORT MCHENRY	X		X						11
FORT MCHENRY ANGLE	X		X						12
GWYNNS FALLS	X		X						13
HIGHLANDTOWN	X		X						14
INNER HARBOR	X		X						15
JONES FALLS	X		X						16
LATROBE PARK	X		X						17
LAZARETTO POINT	X		X						18
LOCUST POINT	X		X						19
LOCUST POINT YARD (locale)	X		X						20
MARYLAND (title)	X		X						21
MOUNT WINANS	X		X						22
MIDDLE BRANCH PATAPSCO	X		X						23
RIVER									24
NORTHWEST HARBOR	X		X						25



GEOGRAPHIC NAMES

H-10632

Name on Survey

Page 2 of 2

A CHARTING NO. 12281, 12278, 12275  
 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 GRAND McNALLY ATLAS  
 H U.S. LIGHT LIST  
 K

Name on Survey	A	B	C	D	E	F	G	H	K
PATTERSON PARK	X		X						1
RIVERSIDE PARK	X		X						2
SMITH COVE	X		X						3
SOUTH LOCUST POINT	X		X						4
MARINE TERMINAL									5
SPRING GARDEN CHANNEL	X		X						6
SWANN PARK	X		X						7
WEST CHANNEL	X		X						8
WESTPORT	X		X						9
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Approved

*[Signature]*  
Chief Geographer

JUN 14 1996

05/09/97

HYDROGRAPHIC SURVEY STATISTICS  
REGISTRY NUMBER: H-10632

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	821
NUMBER OF SOUNDINGS	4385

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	0	05/30/96
VERIFICATION OF FIELD DATA	83	03/06/97
QUALITY CONTROL CHECKS	120	
EVALUATION AND ANALYSIS	37.50	
FINAL INSPECTION	42	03/08/97
COMPILATION	48	05/10/97
TOTAL TIME	331	
ATLANTIC HYDROGRAPHIC BRANCH APPROVAL		03/11/97

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N/CS33-27-97

LETTER TRANSMITTING DATA

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

- ORDINARY MAIL                       AIR MAIL
- REGISTERED MAIL                       EXPRESS
- GBL (Give number) \_\_\_\_\_

TO:

NOAA/National Ocean Service  
 Chief, Data Control Group, N/CS3x1  
 SSMC3, Station 6815  
 1315 East-West Highway  
 Silver Spring, MD 20910-3282

DATE FORWARDED

May 12, 1997

NUMBER OF PACKAGES

1 Box, 1 Tube

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

H-10632

Maryland, Northern Chesapeake Bay, Baltimore Harbor

1 Box Containing:

- 1 Original Descriptive Report for H-10632
- 1 Envelope with 1 HISTORY OF CARTOGRAPHIC WORK (NOAA form 76-71) for H-10632 for chart 12281

1 Tube Containing:

- 1 Original Smooth Sheet for H-10632
- 2 Paper Composite plots, (1 of 2) & (2 of 2) of Survey H-10632 for NOS chart 12281
- 1 Mylar H-DRAWING of H-10632 for NOS chart 12281

FROM: (Signature)

Richard H. Whitfield

RECEIVED THE ABOVE  
(Name, Division, Date)

Return receipted copy to:

Atlantic Hydrographic Branch N/CS331  
 439 W. York Street  
 Norfolk, VA 23510-1114

**ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT FOR H-10632 (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:

Hydrographic Processing System (HPS)  
AUTOCAD, Release 12  
QUICKSURF, version 5.1  
MicroStation, version 5.0  
NADCON, version 2.10  
I/RAS B, version 5.01

The smooth sheet was plotted using an ENCAD NovaJet III plotter.

**H. CONTROL**

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). The smooth sheet has been annotated with ticks showing the computed mean shift between the NAD 83 and the North American Datum of 1927 (NAD 27).

To place this survey on the NAD 27, move the projection lines 0.386 seconds (11.90 meters or 2.38 mm at the scale of the survey) north in latitude, and 1.121 seconds (26.88 meters or 5.38 mm at the scale of the survey) east in longitude.

**J. SHORELINE**

Shoreline for the present survey originates with National Ocean Service (NOS) chart 12281 (45<sup>th</sup> Edition, Apr 13/96). The shoreline is shown on the present survey smooth sheet in brown and is for orientation purposes only.

**M. COMPARISON WITH PRIOR SURVEYS**

**Hydrographic**

H-9565 (1975-76) 1:5,000  
H-9566 (1975-76) 1:5,000

Prior survey H-9566 (1975-76) covers the southwest portion of the present survey. Outside of the channels, prior survey depths are in good agreement with soundings varying plus or minus 1 to 2 feet (0<sup>3</sup> to 0<sup>6</sup> m) with present survey depths.

Prior survey depths are 0 to 2 feet (0 to 0<sup>6</sup> m) deeper than present survey depths in the Ferry Bar Channel and in the Spring Garden Channel. In the vicinity of Latitude 39°15'50"N, Longitude 76°37'25"W present survey soundings are up to 11 feet (3<sup>3</sup> m) shoaler than prior survey soundings. The following should be noted:

1. A charted 6-ft depth originating with the prior survey, in Latitude 39°15'25.6"N, Longitude 76°37'08.0"W, is not considered disproved by the present survey. The 6-ft depth has been brought forward from the prior survey to supplement the present survey. It is recommended that the 6-ft depth be retained as charted.

2. Automated Wreck and Obstruction Information System (AWOIS) item #9524, is a charted submerged pipe, in Latitude 39°15'28.20"N, Longitude 76°37'03.00"W, that originates with the prior survey. An obstruction with a depth of 12 feet (3<sup>6</sup> m) was located by the hydrographer in Latitude 39°15'30.466"N, Longitude 76°37'05.021"W 279 feet (85.04 m) northwest of the AWOIS item. The charted submerged pipe is not considered disproved. The submerged obstruction (iron pipe) has been brought forward from the prior survey to supplement the present survey. It is recommended that the submerged pipe be retained as charted. It is also recommended that an obstruction with a depth of 12 feet (3<sup>6</sup> m) be charted as shown on the present survey.

Comparison with prior survey H-9565 (1975-76) was not done during office processing in accordance with section 4. of the memorandum titled *Changes to Hydrographic Survey Processing*, dated May 24, 1995.

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

#### **N. ITEM INVESTIGATIONS**

1. AWOIS item #9527 is a charted obstruction PA (9 ft rep), in Latitude 39°16'04.58"N, Longitude 76°34'46.27"W, originating with Chart Letter 1581 of 1973 (CL1581/73). The hydrographer located a submerged pile with a fathometer depth of 17 feet (5<sup>2</sup> m) in Latitude 39°16'03.517"N, Longitude 76°34'45.137"W, 40 meters southeast of the AWOIS position. The pile located by the hydrographer is the northernmost pile of three charted piles. Side Scan Sonar and fathometer coverage is considered insufficient to disprove AWOIS item #9527. It is recommended that the obstruction PA (9 ft rep) be retained as charted. It is also recommended that the charted submerged

pile in Latitude 39°16'03.6"N, Longitude 76°34'44.6"W be deleted from the chart and an obstruction with a depth of 17 feet (5<sup>2</sup> m) be charted as shown on the present survey.

Two of three charted dolphins in the vicinity of Latitude 39°16'02.5"N, Longitude 76°34'45.6"W were neither verified nor disproved by the hydrographer. These piles originate with prior survey H-9565 (1975-76) and have been brought forward from the prior survey as submerged dolphins to supplement the present survey. It is recommended that the two charted dolphins be revised to submerged dolphins as shown on the present survey.

2. AWOIS item #9539 is a charted submerged pile in Latitude 39°17'02.00"N, Longitude 76°36'27.00"W. The hydrographer located an obstruction (pile) with a depth of 23 feet (7 m) in Latitude 39°17'02.789"N, Longitude 76°36'30.281"W. However, this pile is closer to AWOIS item #9540 which is two charted submerged piles in the vicinity of Latitude 39°17'03.40"N, Longitude 76°36'30.00"W. It is believed that the pile is AWOIS item #9540. It is recommended that an obstruction with a fathometer depth of 23 feet (7<sup>1</sup> m) be charted and the two submerged piles be deleted from the chart. It is considered that AWOIS item #9539 has not been disproved. No change in charting is recommended.

**O. COMPARISON WITH CHART 12281 (45<sup>th</sup> Edition, Apr. 13/96)**

**Hydrography**

The charted hydrography originates with the previously discussed prior surveys and needs no further discussion. A comparison of the survey with Chart 12281 yielded good agreement. The following should be noted:

1. The two charted submerged piles in the vicinity of Latitude 39°16'48.0"N, Longitude 76°36'17.0"W were found by the hydrographer as a row of piles. No change in charting is recommended.

2. The following uncharted features were located by the present survey:

<u>Feature</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
Priv marker	39°16'19.225"	76°34'23.187"
Dolphin	39°15'47.193"	76°34'19.153"
Dolphin	39°16'10.817"	76°34'46.522"

It is recommended that these features be charted as shown on the present survey.

3. The hydrographer located an uncharted obstruction with a fathometer depth of 16 feet (5<sup>1</sup> m) in Latitude 39°15'45.502"N, Longitude 76°34'36.711"W. It is recommended that an obstruction with a depth of 16 feet (5<sup>1</sup> m) be charted as shown on the present survey.

The present survey is adequate to supersede the chart in the common area.

**P. ADEQUACY OF SURVEY**

This is an adequate hydrographic/side scan sonar survey. Additional work to adequately verify or disprove AWOIS items #9539 and #9527 should be conducted at an opportune time.

**Q. AIDS TO NAVIGATION**

The following fixed aids to navigation were located by the field unit.

<u>Aid to Navigation</u>	<u>Latitude N</u>	<u>Longitude W</u>
Spring Garden Channel Daybeacon 2	39°15'33.86"	76°37'06.72"
Ferry Bar Channel Daybeacon 14	39°15'24.46"	76°36'47.10"
Ferry Bar Channel Daybeacon 12	39°15'20.00"	76°36'37.13"
Ferry Bar Channel Daybeacon 10	39°15'19.92"	76°36'23.49"
Ferry Bar Channel Daybeacon 9	39°15'18.00"	76°36'13.63"
Ferry Bar Channel Daybeacon 8	39°15'20.45"	76°36'06.98"

These aids to navigation are presently charted as Position Approximate (PA). It is recommended that the notations PA be removed from the chart.

**S. MISCELLANEOUS**

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



Marilyn Schlüter  
Marilyn L. Schlüter  
Cartographic Technician  
Verification and Evaluation and Analysis

APPROVAL SHEET  
H-10632

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

Richard H. Whitfield  
Richard H. Whitfield  
Cartographer  
Atlantic Hydrographic Branch

Date: MARCH 11, 1997

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

Date: March 11, 1997

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Final Approval:

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

Date: May 20, 1997

