H10652

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic/Side Scan Sonar

Field No. AHP-5-2-95

Registry No. H10652

LOCALITY

State Maryland

General Locality Chesapeake Bay

Sublocality Baltimore Harbor

19 95

CHIEF OF PARTY
LT J. A. Illg

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DATE AUG 21 1998

*U.S. GOV. PRINTING OFFICE: 1967---756-980

NOAA FORM 77-28 (10/72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO.: H-10652

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-5-2-95

State: Maryland

General locality: Northern Chesapeake Bay

Locality: Baltimore Harbor

Scale: 1:5,000

Date of survey: September 25, 1995 - August 11, 1997

Instructions dated: 4-17-95

Project No.: OPR-E346

Vessel: NOAA Launch 1017

Chief of party: James A. Illg, Lieutenant, NOAA

Surveyed by: Atlantic Hydrographic Party

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

Graphic record scaled by: GDH, MJM, MMC, JBG

Graphic record checked by: GDH, MJM, MMC, JBG

Protracted by: HPS

Automated plot by: HP Design Jet 350C Plotter (AHB) H/P Design Jet 750 Plus (field)

Verification by: Atlantic Marine Center (Atlantic Hydrographic Branch Personnel)

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

REMARKS: GDH - Glenn D. Hendrix

MJM - Mark J. McMann

MMC - Monica M.Cesternelli

JBG - John B. Gaskin

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

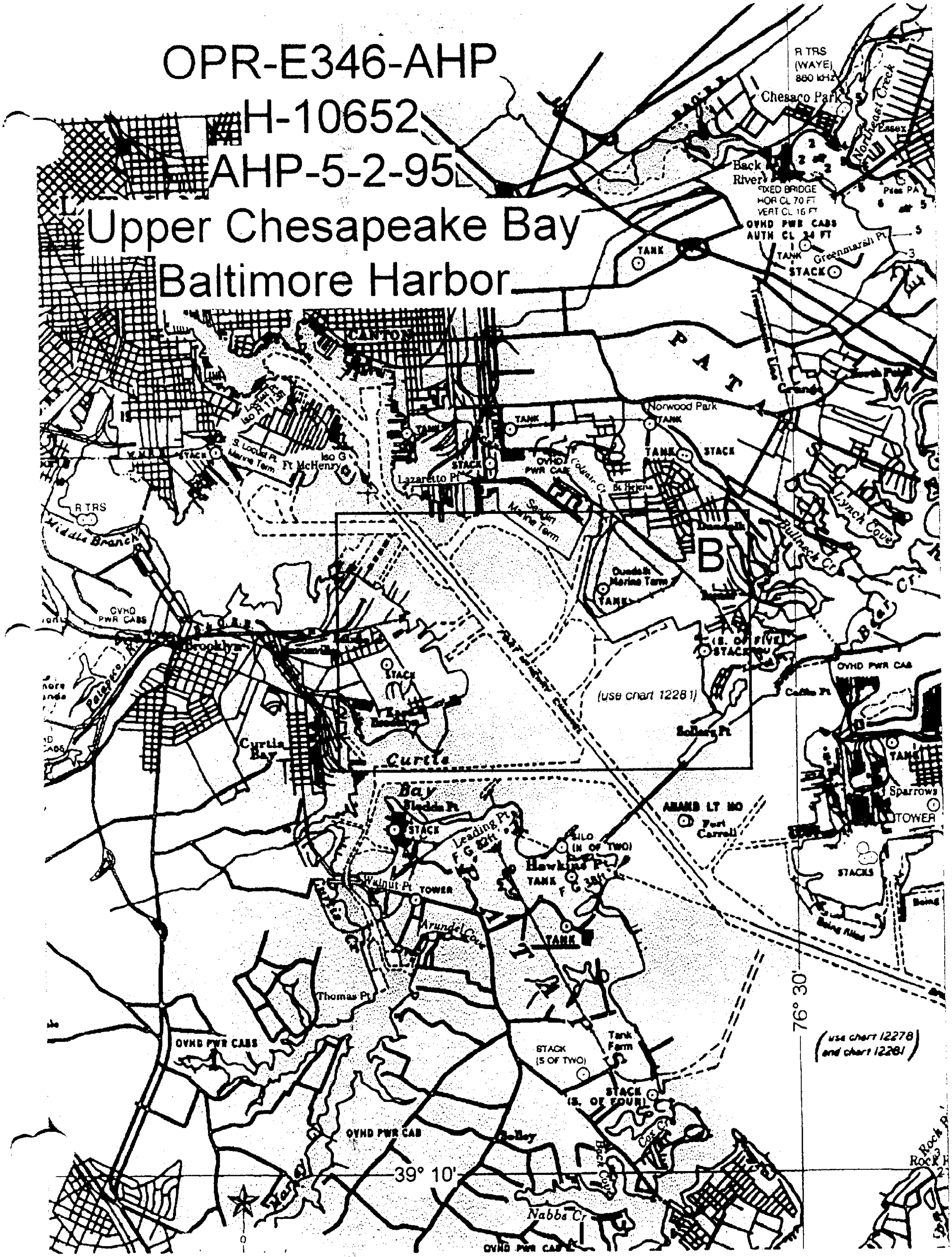
AWOIS/SURF ✓ 8/10/98 SJV

NOAA FORM 77-28 SUPERSEDES FORM C & GS-837.

This form was electronically produced by Elite Federal Forms, Inc.

OPR-E346-AHP
H-10652
AHP-5-2-95

Upper Chesapeake Bay
Baltimore Harbor



DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY H-10652
FIELD NO. AHP-5-2-95
SCALE: 1:5,000
1995-97
ATLANTIC HYDROGRAPHIC PARTY
CHIEF OF PARTY: LT James A. Illg

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, Change No. 1 dated April 25, 1996 and Change No. 2 dated March 31, 1997. This survey is designated as Sheet "B" 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-10652 covers the anchorage areas for the Dundalk Marine Terminal and Seagirt Marine Terminal. Approximate survey limits are:

North - 39°15'20"N
South - 39°13'20"N
East - 076°31'22"W
West - 076°33'32"W

This survey was conducted from September 25, 1995 (DN 268) to August 11, 1997 (DN 223).

C. SURVEY VESSELS

Vessel 1017, a 29-foot Jensen, was the vessel used to collect all side scan data and detached positions. There were no unusual vessel configurations nor problems encountered.

D. AUTOMATED DATA ACQUISITION AND PROCESSING - See Also Evaluation Report -

The Hydrographic Data Acquisition and Processing System (HDAPS) was used to acquire and process all hydrographic data for launch 1017 from September 25, 1995 (DN 268) to October 12, 1995 (DN 285). Coastal Oceanographic's HYPACK was used to acquire data from February 20, 1997 (DN 051) to August 11, 1997 (DN 223).

The Hydrographic Processing System (HPS) was used for processing hydrographic data from February 20, 1997 (DN 051) to August 11, 1997 (DN 223). The hydrographic data for launch 1017 which was acquired and processed with HDAPS was converted to HPS format.

The following non-HDAPS computer programs were used:

VELOCITY (IBM PC)	Ver. 2.0 (12/18/92)
NADCON (IBM PC)	Ver. 1.01
MS-Word (PC)	Ver. 7.0

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:

Vessel	SSS Towfish S/N	260 Recorder S/N	Dates
1017	16989	016508	9/25/95-10/12/95
1017	0011901	0012102	2/20/97- 8/11/97

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 acquired using the 50-meter range scale. In order to obtain the required 200% SSS coverage, main-scheme lines were run at a spacing of 40 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 sonargram and on buoys in the survey area.

The sonargrams were scanned on line and checked scanned in the office. No significant contacts were found.

F. SOUNDING EQUIPMENT

A Raytheon model DSF-6000 echo sounder, serial number A111N, was used to acquire data from September 25, 1995 (DN 268) to October 11, 1995 (DN 285). An Innerspace model 448 echo sounder, serial number 187, was used to acquire data from February 20, 1997 (DN 051) to August 11, 1997 (DN 223).

A standard lead line calibrated in meters, serial number 1017, was used during this survey for comparison readings with the echo sounders.

G. CORRECTIONS TO SOUNDINGS

The echo sounders used on this survey 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 the Field Procedures Manual (FPM) section 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."

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

Velocity Table No.	Cast No.	Deepest Depth (m)	Applicable DN	Cast Position	Day
			(1995)		
11	1	16.4/21.3	268-285	39°14'00"N 076°32'30"W	278
			(1997)		
12	16	15.9/20.7	051-063	39°10'30"N 076°26'00"W	034

*Data filed with original Field Records

13	19	14.0/18.2	064-070	39°15'00"N 076°14'30"W	093
14	20	14.4/18.2	106	39°15'00"N 076°14'30"W	105
15	21	13.1/17.0	122	39°15'00"N 076°14'30"W	118
16	22	14.8/19.3	141	39°15'00"N 076°14'30"W	129
17	24	12.7/16.5	171	39°10'00"N 076°18'05"W	175
18	27	16.1/21.0	220-223	39°10'30"N 076°26'00"W	220

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

Weather permitting, lead line comparisons were conducted each day in accordance with the FPM section 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 0.6 meter was applied to the on-line data from September 25, 1995 (DN 268) to October 12, 1995 (DN 285) for launch 1017.* The static draft information was provided to AHP by the Atlantic Marine Center. After the installation of a new Innerspace transducer, a static draft of 0.4 meter was applied to data acquired from February 20, 1997 (DN 051) to August 11, 1997 (DN 223). The transducer draft was measured from a reference mark on the side of the launch to the transducer face while the boat was hauled out of the water for the transducer replacement, then applying the necessary correction from the water surface to the reference mark after the boat was launched again.

Settlement and squat measurements for launch 1017 were performed on February 7, 1995 (DN 038) in the Elizabeth River, Virginia using Lietz level S/N 100225. A second settlement and squat measurement was performed for launch 1017 as a result of the installation of the new Innerspace transducer. This was conducted on January 31, 1997 (DN 031) at Fort Smallwood Park, Maryland using Lietz level S/N 08745. 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."

*Data filed with original field records.

The Baltimore, Maryland tide station (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 were requested from the Datums Section, N/OES231, in a letter dated September 5, 1997.* A copy of the letter is appended to this report. Approved tides and zoning have been applied during office processing.

H. CONTROL STATIONS - See also Evaluation Report

The horizontal control datum for this project is the North American Datum of 1983. Two stations, the USCG Differential GPS (DGPS) Beacons at Cape Henlopen (38°46'36.406"N, 075°05'15.661"W) and Cape Henry, Virginia (36°55'37.580"N, 076°00'23.884"W) were used to control this survey.

I. HYDROGRAPHIC POSITION CONTROL

DGPS was used for positioning all hydrographic data on this survey. Beacon receiver serial number 036 and beacon receiver serial number X-1251 were used with Ashtech sensor serial number 700417B1270 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 stations CAL 2 1995 (39°12'03.348"N, 076°34'28.922"W) or Cal 1 1996 (39°09'02.966"N, 076°29'42.400"W). The abstracts of these checks are included in the "Survey Separates."* The calibration points were established by measuring a single GPS baseline between a third-order, class I station and the calibration point. The computation for the CAL 1 1996 point is included in the "Survey Separates." The computation for CAL 2 1995 was submitted with survey H-10632.

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

This survey covered only the anchorage areas for the marine terminals. No shoreline verification was required.

* Data filed with original field records.

K. CROSSLINES

A total of 12.5 nautical miles of crosslines were run, representing 14.0% of the main scheme hydrography. Crossline soundings agree to within 0.6 meter of the main scheme soundings.

L. JUNCTIONS

This survey does not junction with any contemporary surveys.

M. COMPARISON WITH PRIOR SURVEYS

See also Evaluation Report

The prior survey comparison will be done by AHB. The prior surveys covering this area are H-4371, 1:10,000 scale, 1924 and H-9563 and 9564, both 1:5,000 scale, 1975-1976.

The hydrographer recommends that data from this survey be used to supersede charted prior survey data in their common areas.

N. ITEM INVESTIGATION REPORTS

See also Evaluation Report

One AWOIS item was assigned to this survey. The item originated from the chart. The investigation report follows in section N.1.

N.1. - AWOIS Item 9523

Description: Obstruction (pile symbol) source unknown, first charted in 1984 with no label or identifying legend.

The investigation requirements called for a 200-meter search radius with 400% side scan sonar coverage. The first 200% side scan sonar coverage was performed during main scheme side scan sonar operations on days 051 (positions 506-1029) and 063 (positions 1072-1717). The second 200% side scan sonar coverage was performed on day 141 (positions 2712-2775). The sonargrams were scanned and no contacts were found.

The hydrographer recommends that the item be removed from the chart. Concur removed

O. COMPARISON WITH THE CHART

See also Evaluation Report

Comparisons were made with chart 12281, 44th Edition, March 19, 1994. Survey soundings compare to within 0.6 meter with the charted soundings, except along the southwest edge of the Fort McHenry Channel where the survey soundings and the charted soundings differ by as much

as 2 meters. Survey soundings are deeper than charted soundings in all areas. These and other discrepancies are shown in the table below.

Charted Depth	Survey Location	Surveyed Least Depth	Recommendation
18ft	39°15'11"N 076°33'01"W	~~16~~ 18ft ~~4.9~~m 5.5	Chart survey soundings
18ft	39°15'06"N 076°32'54"W	18ft 5.5m	Chart survey soundings
18ft	39°14'53"N 076°32'37"W	~~22~~ 21ft ~~6.7~~m 6.4	Chart survey soundings
22ft	39°14'28"N 076°32'27"W	~~23~~ 22ft ~~7.0~~m 6.7	Chart survey soundings
~~12~~ 11ft	39°14'21"N 076°32'30"W	18ft 5.5m	Chart survey soundings
17ft	39°14'19"N 076°32'32"W	~~21~~ 19ft ~~6.4~~m 5.8	Chart survey soundings
18ft	39°14'01"N 076°32'09"W	~~21~~ 20ft ~~6.4~~m 6.1	Chart survey soundings
18ft	39°14'00"N 076°32'01"W	19ft 5.8m	Chart survey soundings
23ft	39°14'14"N 076°31'55"W	~~24~~ 22ft ~~7.3~~m 6.7	Chart survey soundings
15ft	39°13'49"N 076°31'44"W	18ft 5.5m	Chart survey soundings
20ft	39°13'29"N 076°32'01"W	~~25~~ 23ft ~~7.6~~m 7.0	Chart survey soundings
22ft	39°13'38"N 076°32'03"W	~~24~~ 22ft ~~7.3~~m 6.7	Chart survey soundings

Concur
ACC

20ft	39°13'54"N 076°32'17"W	~~25ft~~ 23 ~~7.6m~~ 7.0	Chart survey soundings
20ft	39°13'57"N 076°32'13"W	22ft 6.7m	Chart survey soundings
~~18ft~~ 19	39°13'26"N 076°32'19"W	~~23ft~~ 22 ~~7.0m~~ 6.7	Chart survey soundings
23ft	39°13'29"N 076°32'19"W	~~24ft~~ 26 ~~7.3m~~ 7.9	Chart survey soundings
22ft	39°13'34"N 076°32'25"W	~~24ft~~ 35 ~~7.3m~~ 10.7	Chart survey soundings
20ft	39°13'37"N 076°32'29"W	~~22ft~~ 37 ~~6.7m~~ 11.3	Chart survey soundings
23ft	39°13'40"N 076°32'31"W	~~22ft~~ 38 ~~6.7m~~ 11.6	Chart survey soundings
20ft	39°13'41"N 076°32'36"W	~~21ft~~ 23 ~~6.4m~~ 7.0	Chart survey soundings
21ft	39°13'44"N 076°32'38"W	22ft 6.7m	Chart survey soundings
22ft	39°13'50"N 076°32'40"W	~~23ft~~ 35 ~~7.0m~~ 10.7	Chart survey soundings
20ft	39°13'53"N 076°32'48"W	~~23ft~~ 24 ~~7.0m~~ 7.3	Chart survey soundings
19ft	39°13'45"N 076°33'03"W	~~20ft~~ 21 ~~6.1m~~ 6.4	Chart survey soundings
19ft	39°13'33"N 076°32'46"W	20ft 6.1m	Chart survey soundings
18ft	39°13'28"N 076°32'49"W	20ft 6.1m	Chart survey soundings Concur ALL

19ft	39°13'25"N 076°33'06"W	~~20~~ 21ft ~~6.1~~ 6.4m	Chart survey soundings
~~12~~ 11ft	39°13'40"N 076°33'23"W	14ft 4.3m	Chart survey soundings

There were no dangers to navigation identified on this survey. Concur

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

P. ADEQUACY OF SURVEY - See also Evaluation Report

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

Q. AIDS TO NAVIGATION - See also Evaluation Report.

Detached positions were taken on all thirty-one floating aids to navigation in the survey area. The positions and descriptions were compared with the U.S. Coast Guard Light List Volume II, 1997.

Yellow Can "A" (Light List #8240)
Light List Published Position - 39°13.6', 076°31.6'
Survey position 2596 - 39°13'34.44"N, 076°31'30.62"W
Survey position is 30 meters east of charted position.

Red Nun "6" (Light List #8250)
Light List Published Position - None
Survey position 2597 - 39°13'19.72"N, 076°31'53.22"W
Survey position agrees with charted position.
This buoy has replaced the charted red lighted buoy.

Red Lighted Buoy "8" (Light List #8260)
Light List Published Position - None
Survey position 2598 - 39°13'43.22"N, 076°32'18.97"W
Survey position is 25 meters southeast of charted position.

Red Nun "2" (Light List #21010)
Light List Published Position - None
Survey position 2599 - 39°13'53.43"N, 076°32'18.28"W
Survey position agrees with charted position.

Green Can "3" (Light List #21020)
Light List Published Position - None
Survey position 2600 - 39°14'01.52"N, 076°32'17.43"W
Survey position agrees with charted position.

Red Lighted Buoy "4" (Light List #21025)
Light List Published Position - None
Survey position 2601 - 39°14"01.87"N, 076°32'10.16"W
Survey position agrees with charted position.

Green Lighted Buoy "5" (Light List #21015)
Light List Published Position - None
Survey position ~~5160~~ 2602 - 39°~~13'04.93~~ 14' 09.72"N, 076°~~27'20.28~~ 32' 10.65"W
Survey position agrees with charted position.

Red Nun Buoy "6" (Light List #21035)
Light List Published Position - None
Survey position 2603 - 39°14'18.29"W, 076°31'50.86"W
Survey position agrees with charted position.

Green Can "7" (Light List #21030)
Light List Published Position - 39°14.4'N, 076°32.1'W
Survey position 2604 - 39°14'22.35"N, 076°32'08.34"W
Survey position agrees with charted position.

Red Nun Buoy "6" (Light List #21065)
Light List Published Position - None
Survey position 2605 - 39°14'31.00"N, 076°32'17.34"W
Survey position agrees with charted position.

Red Nun Buoy "4" (Light List #21055)
Light List Published Position - None
Survey position 2606 - 39°14'31.56"N, 076°32'24.60"W
Survey position is 52 meters north of charted position.

Red Lighted Buoy "2SE" (Light List #21045)
Light List Published Position - 39°14.3'N, 076°32.6'W
Survey position 2607 - 39°14'21.61"N, 076°32'33.80"W
Survey position agrees with charted position.
This buoy has replaced ~~the charted red nun buoy "2."~~

Red Lighted Buoy "10" (Light List #8270)
Light List Published Position - None
Surveyed position 2608 - 39°14'15.14"N, 076°32'51.49"W
Survey position agrees with charted position.

Red Nun Buoy "14" (Light List #8285)
Light List Published Position - None
Survey position 2609 - 39°14'49.41"N, 076°33'29.31"W
Survey position agrees with charted position.
This buoy has replaced the charted red lighted buoy "14."

Red Lighted Buoy "16" (Light List #8305)
Light List Published Position - None
Survey position 2610 - 39°14'56.40"N, 076°33'36.29"W
Survey position is 200 meters southeast of charted position.

Red Nun Buoy "4" (Light List #21145)
Light List Published Position - 39°15.1'N, 076°33.6'W
Survey position 2611 - 39°15'08.73"N, 076°33'37.66"W
Survey position agrees with charted position.

Red Lighted Buoy "6" (Light List #21155)
Light List Published Position - 39°15.3'N, 076°33.4'W
Survey position 2612 - 39°15'19.62"N, 076°33'24.86"W
Survey position agrees with charted position.

Red Nun Buoy "8" (Light List #21160)
Light List Published Position - 39°15.2'N, 076°32.9'W
Survey position 2613 - 39°15'19.55"N, 076°33'14.62"W
Survey position agrees with charted position.

Red Nun Buoy "10" (Light List #21165)
Light List Published Position - 39°15.3'N, 076°33.3'W
Survey position 2614 - 39°15'14.05"N, 076°32'57.71"W
Survey position agrees with charted position.

Green Lighted Buoy "11" (Light List #21100)
Light List Published Position - 39°15.1'N, 076°32.7'W
Survey position 2615 - 39°15'03.94"N, 076°32'42.80"W
Survey position agrees with charted position.
~~This buoy has replaced the charted green can buoy "7."~~

Green Lighted Buoy "9" (Light List #21072)
Light List Published Position - None
Survey position 2616 - 39°14'48.72"N, 076°32'30.73"W
This buoy is not charted.

Green Can "7" (Light List #21070)
Light List Published Position - None
Survey position 2617 - 39°14'41.95"N, 076°32'28.88"W
Survey position is 58 meters south-southwest of charted position.
This buoy has replaced the charted green lighted buoy "5."

Green Lighted Buoy "5" (Light List #21060)
Light List Published Position - None
Survey position 2618 - 39°14'31.92"N, 076°32'32.25"W
Survey position is 115 meters southwest of charted position.
This buoy has replaced the charted green lighted buoy "3."

Green Can "3" (Light List #21050)
Light List Published Position - None
Surveyed position 2619 - 39°14'24.60"N, 076°32'38.06"W
Surveyed position agrees with charted position.
~~This buoy has replaced the charted green lighted buoy "1SE."~~

Yellow Can "D" (Light List #8290)
Light List Published Position - 39°15.0'N, 076°33.3'W
Survey position 2620 - 39°14'57.99"N, 076°33'13.97"W
Survey position is 45 meters south of charted position.

Green Lighted Buoy "7" (Light List #8255)
Light List Published Position - None
Survey position 2811 - 39°13'28.74"N, 076°32'17.46"W
Survey position is 37 meters northwest of charted position.

Red Lighted Buoy "2" (Light List #20865)
Light List Published Position - None
Survey position 2812 - 39°13'21.97"N, 076°32'19.14"W
Survey position agrees with charted position.

Red Lighted Buoy "4" (Light List #20885)
Light List Published Position - None
Survey position 2813 - 39°13'21.17"N, 076°32'51.42"W
Survey position agrees with charted position.

Red Lighted Buoy "6" (Light List #20895)
Light List Published Position - None
Survey position 2814 - 39°13'20.60"N, 076°33'31.54"W
Survey position agrees with charted position.

Green Can Buoy "11" (Light List #8275)
Light List Published Position - None
Survey position 2815 - 39°14'27.42"N, 076°33'18.56"W
Survey position agrees with charted position.

Green Lighted Buoy "9" (Light List #8265)
Light List Published Position - None
Survey position 2816 - 39°13'54.46"N, 076°32'44.19"W
Survey position is 490 meters southeast of charted position.

All of the aids serve their intended purpose but should be re-charted using their survey positions. The buoys that no longer exist should be removed from the chart. The replacement buoys listed above should be charted at the surveyed positions.

R. STATISTICS

Description	Quantity
Total Number of Positions	3222
Total Lineal Nautical Miles of Hydrography	41.4
Square Nautical Miles of Hydrography	2.5
Days of Production	18
Detached Positions	31
Bottom Samples	114
Tide Stations	1
Velocity Casts	8

S. MISCELLANEOUS - See also Evaluation Report

No anomalous currents or tides were observed during this survey.

One hundred and fourteen bottom samples were taken on this survey. The samples were brought to the surface, identified, and then discarded. This was in accordance with change No.2 to the Project Instructions, dated March 31, 1997.

T. RECOMMENDATIONS

No additional field work was identified after field office processing was completed. Specific recommendations are made in sections N, O and Q of this report.

U. REFERRAL TO REPORTS

Title	Transmittal Information
Descriptive Report for H-10632	Atlantic Hydrographic Branch Norfolk, VA (N/CS32) (1995)

Submitted by:

Glenn D. Hendrix
Launch Hydrographer in Charge

CONTROL STATION TABLE FOR H10652

No	Latitude	Longitude	Cart	Name
100	038:46:36.406	075:05:15.661	250	CAPE HENLOPEN, VA, GPS
200	036:55:37.580	076:00:23.884	250	CAPE HENRY, VA, GPS

APPROVAL SHEET
Basic Hydrographic Survey
OPR-E346-AHP
AHP-5-2-95
H-10652
1995-97

This basic hydrographic survey was completed in accordance with the Project Instructions for OPR-E346-AHP, the Hydrographic Manual, the Hydrographic Survey Guidelines, and the Field Procedures Manual. All reports, records, and survey sheets were reviewed by Mr. Brian A. Link, Assistant Chief, AHP. Project reports were also reviewed by the Chief, AHP. The chief of party did not directly supervise any part of this survey.

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

James A. Illg

LT James A. Illg, NOAA
Chief, Atlantic Hydrographic Party

Glenn D. Hendrix

Glenn D. Hendrix
Hydrographer-in-charge of daily operations

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: October 15, 1997

HYDROGRAPHIC BRANCH: Atlantic

HYDROGRAPHIC PROJECT: OPR E346-AHP

HYDROGRAPHIC SHEET: H-10652

LOCALITY: Upper Chesapeake Bay, Baltimore Harbor, MD.

TIME PERIOD: September 25, 1995 - October 12, 1995 and
February 20, 1997 - August 11, 1997

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

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 m
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.411 m

REMARKS: RECOMMENDED ZONING

Use zone(s) identified as: CB37

Refer to attachment(s) for zoning information.

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

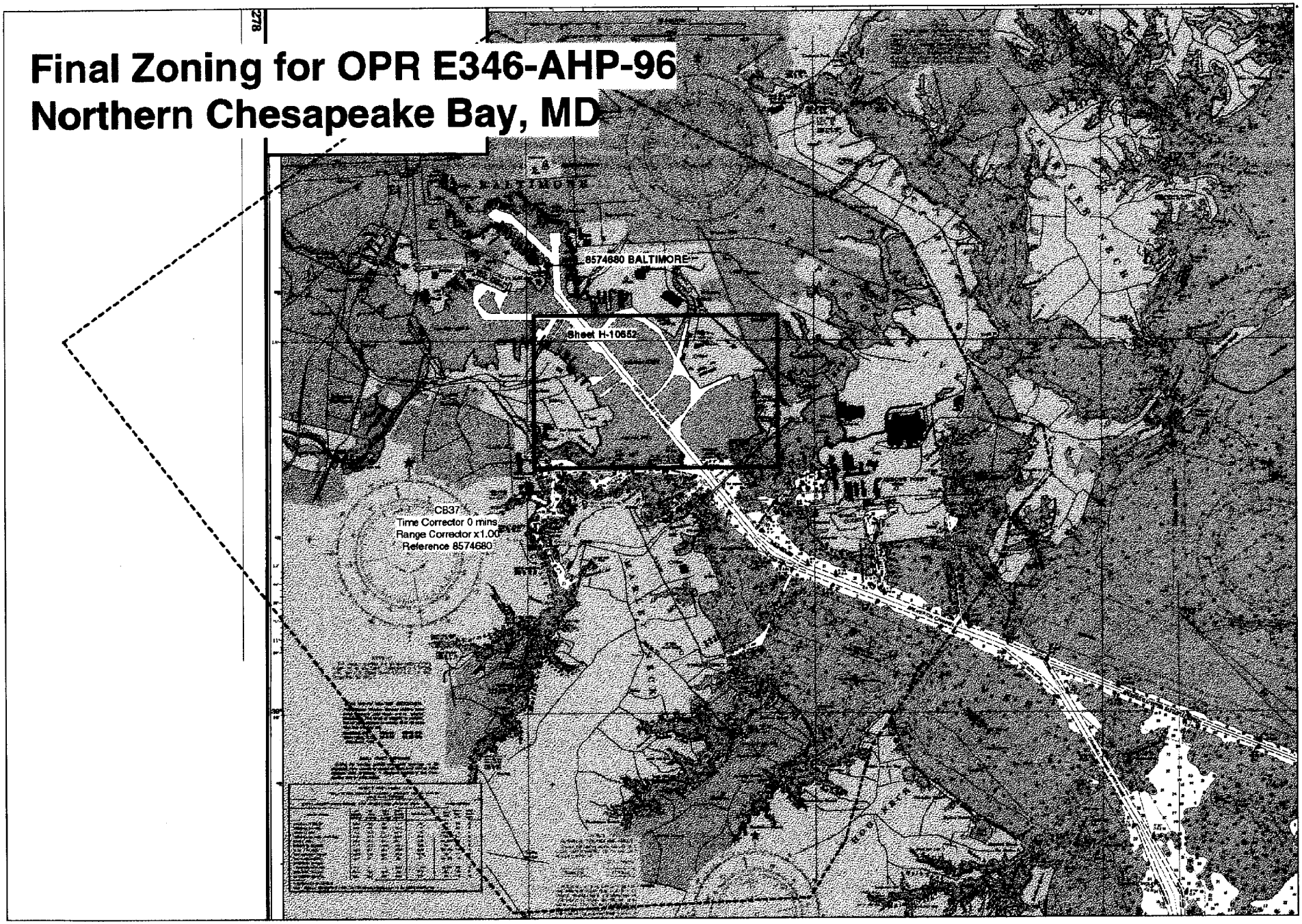
CHIEF, TIDAL ANALYSIS BRANCH

Final tide zone node point locations for OPR E346-AHP-97, Sheet H-10652.

Format: Longitude in decimal degrees (negative value denotes Longitude West),
Latitude in decimal degrees
Tide Station (in recommended order of use)
Average Time Correction (in minutes)
Range Correction

	Tide Station Order	AVG Time Correction	Range Correction
Zone CB37			
-76.718418 39.250542	857-4680	0	1.00
-76.592558 39.319574			
-76.473291 39.273454			
-76.466841 39.262422			
-76.447911 39.233027			
-76.433625 39.2307			
-76.43095 39.220036			
-76.443159 39.21037			
-76.445946 39.200036			
-76.483935 39.159399			
-76.491633 39.138219			
-76.501896 39.125643			
-76.588281 39.122333			
-76.718418 39.250542			

Final Zoning for OPR E346-AHP-96
Northern Chesapeake Bay, MD



NOAA FORM 76-155
(11-72)

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

SURVEY NUMBER

H-10652

GEOGRAPHIC NAMES

Name on Survey	A ON CHART NO. 12281, 12273, 12278	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
BALTIMORE HARBOR (title)	X									1
CHESAPEAKE BAY (title)	X		X							2
COLGATE CREEK	X		X							3
CURTIS BAY	X		X							4
CURTIS BAY CHANNEL	X		X							5
DUNDALK	X		X							6
DUNDALK MARINE TERMINAL (locale)	X		X							7
FISHING POINT	X		X							8
FISHING POINT SHOAL	X									9
FORT MCHENRY CHANNEL	X		X							10
MARYLAND (title)	X		X							11
PATAPSCO RIVER	X		X							12
SEAGRIT MARINE TERMINAL (locale)	X									13
SOLLERS POINT	X		X							14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

[redacted]

Chief Geographer

JAN 7 1998

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 61-29
(12-71)

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

REFERENCE NO.

N/CS33-68-98

LETTER TRANSMITTING DATA

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

☐ ORDINARY MAIL ☐ AIR MAIL

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TO:

CHIEF, DATA CONTROL GROUP, N/CS3x1
NOAA/NATIONAL OCEAN SERVICE
STATION 6815, SSMC3
1315 EAST-WEST HIGHWAY
SILVER SPRING, MARYLAND 20910-3282

DATE FORWARDED

AUG 5 , 1998

NUMBER OF PACKAGES

ONE 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.

H10652

MARYLAND, CHESAPEAKE BAY, BALTIMORE HARBOR

(ONE) TUBE CONTAINING THE FOLLOWING:
1 SMOOTH SHEET FOR SURVEY H10652
1 ORIGINAL DESCRIPTIVE REPORT
DRAWING HISTORY FORM (NOAA FORM #76-71) FOR NOS CHART 12281
RECORD OF APPLICATION TO CHART FORM (NOAA FORM #75-96) FOR SURVEY H10752
1 H-DRAWING FOR NOS CHART 12281
1 COMPOSITE DRAWING FOR NOS CHART 12281

FROM: *(Signature)*

Deborah A. Bland Deborah A. Bland

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

ATLANTIC HYDROGRAPHIC BRANCH
N/CS33
439 WEST YORK STREET
NORFOLK, VA 23510-1114

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

*U.S.GPO:1983-0-664-008/1192

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ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H10652

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)
NADCON, version 2.10
SiteWorks, version 2.01
MicroStation 95, version 5.05
I/RAS B, version 5.01

The smooth sheet was plotted using an Hewlett-Packard Design Jet 350C plotter.

H. CONTROL STATIONS

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

To place this survey on the NAD 27 datum move the projection lines 0.388 seconds (11.964 meters or 1.2 mm at the scale of the survey) north in latitude, and 1.130 seconds (27.108 meters or 2.71 mm at the scale of the survey) east in longitude.

M. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic

H04371	(1924)	1:10,000
H09563	(1975-76)	1:5,000
H09564	(1975-76)	1:5,000

1) H04371 (1924) covers the entire survey area. Present survey depths are generally 0 to 6 feet (0 to 1^8 m) deeper than the prior survey depths. Channel areas show vast differences in depths due to dredging and widening of channels since 1924. Present survey depths are generally 22 feet (6^7 m) deeper than the prior survey depths.

A charted 15-ft (4^6m) depth in Latitude 39°14'05.8"N Longitude 76°33'13.8"W originates with the prior survey and was neither proved nor disproved by the present survey. The 15-ft depth has been brought forward from the prior survey to supplement the present survey. It is recommended that the charted soundings be reapplied.

2) H09563 (1975-76) covers the northwestern part of the present survey. Present survey depths are generally 3 to 10 feet (0^9 to 3 m) deeper than the prior survey depths.

The following charted soundings originate with the prior survey and were not disproved by the present survey. These soundings have been brought forward from the prior to supplement the present survey. It is recommended that the charted soundings be reapplied:

Depth(ft/m)	Latitude(N)	Longitude(W)
$11/3^4$	39°13'38.8"	76°33'26.0"
$14/4^3$	39°13'31.3"	76°33'28.2"

3) H09564 (1975-76) covers the entire survey area except the southern portion. Present survey depths are generally 0 to 1 foot (0 to 0^3 m) shoaler than the prior survey depths.

Differences between the present and prior surveys can be attributed to natural changes in the bottom configuration, cultural changes, and/or improved hydrographic surveying methods.

Except as noted above, the present survey is adequate to supersede the prior surveys in the common area.

O. COMPARISON WITH CHART 12273 (48th Edition, Oct 22/94) 12278 (62nd Edition, Mar 6/93) 12281 (46th Edition, May 17/97)

1. Hydrography

The charted hydrography originates with the previously discussed prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in Section O. of the Descriptive Report. The following should be noted:

a. The charted spoil area shown on chart 12281, in the vicinity of Latitude 39°15'06"N, Longitude 76°32'59"N, was neither verified nor disproved by the present survey. No changes in charting status is recommended.

b. A charted pile awash symbol in Latitude 39°14'30.2"N, Longitude 76°32'34.8"N, originates with an unknown source and was not found by the present survey. It is recommended that the pile awash symbol be deleted from the chart.

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

2. Controlling Depths

a. A conflict exists with the charted controlling depth in Curtis Bay Channel in the vicinity Latitude 39°13'21"N, Longitude 76°32'30"W. The present survey shows a depth of 47 feet (14^3 m) with a controlling depth of 48 feet (14^6 m).

b. A conflict exists with the controlling depth charted in the vicinity of Latitude 39°14'04"N, Longitude 76°32'13"W. The present survey shows conflicting depths of 38 to 41 feet with a charted controlling depth of 41.5 feet (12^6m).

c. A conflict exists with the controlling depth charted in the vicinity of Latitude 39°14'25"N, Longitude 76°32'17"W. The present survey shows a conflicting depth of 37 feet with a charted controlling depth of 37.5 feet (11^4 m).

d. A conflict exists with the charted controlling depth of the channel in the vicinity of Latitude 39°14'20.0"N, Longitude 76°32'41.0"W. The present survey shows conflicting depths of 33 to 41 feet with a charted controlling depth of 41.5 feet (12^6 m).

It is recommended that the proper authority be advised of these conflicts.

P. ADEQUACY OF SURVEY

This is an adequate hydrographic survey. No additional work is recommended.

Q. AIDS TO NAVIGATION

The hydrographer located 31 floating aids to navigation on the present survey. These aids appear adequate to serve their intended purpose. The following should be noted:

Fort McHenry Channel special purpose buoy, Francis Scott Key Memorial Buoy, charted in Latitude 39°13'27.4"N, Longitude

76°31'42.4"W was not verified by the hydrographer during the present survey. No change in charting is recommended unless other information indicates otherwise.

S. MISCELLANEOUS

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

The following NOS chart was used for compilation of the present survey:

12281 (46th Edition, May 17/97)

H10652

Douglas V. Mason

Douglas V. Mason
Cartographic Technician
Verification of Field Data
Evaluation and Analysis

APPROVAL SHEET
H10652

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproval of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Deborah A. Bland Date: 23 July 98
Deborah A. Bland
Cartographer,
Atlantic Hydrographic Branch

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

Andrew L. Beaver Date: 29 JUL 98
Andrew L. Beaver
Lieutenant Commander, NOAA
Chief, Atlantic Hydrographic Branch

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Final Approval:

Approved: Andrew A. Armstrong Date: Aug 20, 1998
Andrew A. Armstrong, III
Captain, NOAA
Chief, Hydrographic Surveys Division

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H10652

INSTRUCTIONS

A basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.

1. Letter all information.
2. In "Remarks" column cross out words that do not apply.
3. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
12281	7/30/98	D.A. Blan	Full [redacted] After Marine Center Approval Signed Via
			Drawing No.
12281	9/14/98	MBRoss JB	[✓ Full] Part Before After Marine Center Approval Signed Via
			Drawing No. Thru BP-165582 #61
12278	9/14/98	MBRoss JB	[✓ Full] Part Before After Marine Center Approval Signed Via
			Drawing No. Thru Cht 12281
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.