

H10533

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. **WH-10-1-94**  
Registry No. **H-10533**

### LOCALITY

State **DELAWARE**  
General Locality **ATLANTIC OCEAN**  
Sublocality **12 NM SOUTHEAST OF  
CAPE MAY**

19 94

CHIEF OF PARTY  
**CDR J. D. WILDER, NOAA**

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DATE **AUG 8 1995**

HYDROGRAPHIC TITLE SHEET

H-10533

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

FIELD NO.

WH-10-1-94

State Delaware

General locality ATLANTIC OCEAN  
Approaches to Delaware Bay, DE

Locality 12 NM Southeast of Cape May, NJ

Scale 1:10,000 Date of Survey April 6 - 25, 1994

Instructions dated February 23, 1993 Project No. OPR-D368-WH-94

Vessel NOAA Ship Whiting (2930), Launch 1014 (2932)

Chief of party Commander John D. Wilder, CO

Surveyed by J.D. Wilder, S.R. Barnum, J.S. Verlaque, W.G. Kitt, J.L. Riley,  
E.W. Berkowitz, K.A. Pavelle, F.R. Cruz, J.S. Gaskin, M.M. Cisternelli,  
B.C. Detrich

Soundings taken by echo sounder DSF-6000N

Graphic record scaled by WHITING Survey Personnel

Graphic record checked by WHITING Survey Personnel

Projected by N/A Automated plot by HP 7959B, Bryning

Verification by ATLANTIC HYDROGRAPHIC SECTION PERSONNEL

Soundings in MLLW Meters

REMARKS: Time Zone used, 0 (UTC)

200% Side Scan Sonar coverage

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

*ADWIS/SURF 8/29/95 SJV*

*SC 12-19-96*  
*AUG 8 1995*

**DESCRIPTIVE REPORT TO ACCOMPANY  
HYDROGRAPHIC SURVEY  
OPR-D368-WH-1994  
WH-10-1-94  
H-10533**

**NOAA SHIP WHITING  
CDR John D. Wilder, NOAA  
Commanding Officer**

**A. PROJECT**

Project OPR-D368-WH-94 is a basic hydrographic survey with 200-percent side scan sonar (SSS) bottom coverage of the approaches to Delaware Bay.

The purpose of this project is to update the existing nautical charts and to locate any wrecks and obstructions in or near the approaches to Delaware Bay. Specifically, this project is in response to a request by the Fifth Coast Guard District to survey the approaches to Delaware Bay in order to realign the eastern approach of the traffic separation scheme.

Survey operations were conducted in accordance with Hydrographic Project Instructions OPR-D368-WH dated February 23, 1993. Changes to the original project instructions are as follows:

Change No. 1	May 19, 1993
Change No. 2	July 23, 1993
Change No. 3	July 30, 1993
Change No. 4	March 8, 1994

Changes to the Automated Wreck and Obstruction Information System (AWOIS) listing were issued on May 18, 1993 (Change No. 2) and on February 14, 1994 (Change No. 4).

Project OPR-D368-WH consists of ten survey sheets. The survey described in this report completes the area unsurveyed in sheet 'E' by WHITING survey H-10475 in 1993. This survey was assigned field sheet number WH-10-1-94 and registry number H-10533.

**B. AREA SURVEYED**

Hydrographic survey H-10533 is 12 nautical miles southeast of Cape May, New Jersey. The survey covers a portion of the outbound Cape Henlopen to Five Fathom Bank Traffic lane and adjacent separation zone. The survey is bounded to the north and south by 38° 47' 30" N

and 38° 45' 46" N, respectively, and to the east and west by 074° 41' 46.5" W and 074° 50' 27" W, respectively.

Survey operations began on April 6, 1994 (DN 096) and ended on April 25, 1994 (DN 115).

### C. SURVEY VESSELS

NOAA Ship WHITING (VESNO 2930) was used for side scan sonar and sounding data acquisition while surveying this area. NOAA launch 1014 (VESNO 2932) was used as a dive platform for least depth determination and for acquiring a position on items investigated. Launch 1014 was also used to obtain bottom samples, velocity casts, and 400% side scan sonar (SSS) coverage in certain AWOIS search radii.

No unusual vessel configurations were used nor were any problems encountered.

### D. AUTOMATED DATA ACQUISITION AND PROCESSING

Survey data acquisition and processing were accomplished using the HDAPS system with the following software:

<u>PROGRAM NAME</u>	<u>VERSION</u>	<u>DATE INSTALLED</u>
BACKUP	2.00	March 28, 1994
BASELINE	1.14	March 28, 1994
BIGABST	2.07	March 28, 1994
BIGAUTOST	3.01	March 28, 1994
BLKEDIT	2.02	March 28, 1994
CARTO	2.12	March 31, 1994
CLASSIFY	1.01	March 28, 1994
CONTACT	2.34	March 31, 1994
CONVERT	3.62	March 28, 1994
DAS_SURV	6.67	March 31, 1994
DIAGNOSE	3.03	March 28, 1994
DISC_UTIL	1.00	March 28, 1994
DP	2.14	March 28, 1994
EXCESS	4.21	March 28, 1994
FILESYS	3.21	March 28, 1994
GRAFEDIT	1.06	March 28, 1994
HIPSTICK	1.01	March 28, 1994
HPRAZ	1.26	March 28, 1994
INVERSE	2.01	March 28, 1994
LISTDATA	1.02	March 28, 1994
LOADNEW	2.10	March 28, 1994

LSTAWOIS	3.07	March 31, 1994
MAINMENU	1.20	March 28, 1994
MAN_DATA	2.01	March 28, 1994
NEWPOST	6.01	March 28, 1994
PLOTALL	2.27	March 31, 1994
POINT	2.10	March 28, 1994
PREDICT	2.01	March 28, 1994
PRESURV	7.08	March 31, 1994
PRINTOUT	4.03	March 28, 1994
QUICK	2.04	March 28, 1994
RAMSAVER	1.02	March 28, 1994
REAPPLY	2.10	March 28, 1994
RECOMP	1.02	March 28, 1994
SCANNER	1.00	March 28, 1994
SELPRINT	2.04	March 28, 1994
SYMBOLS	2.00	March 28, 1994
VERSIONS	1.00	March 28, 1994
ZOOMEDIT	2.24	March 31, 1994

*SHIPDIM* version 1.2 was used for DGPS performance checks. Sound velocity corrections were determined using *CAT* version 2.00 and *VELOCITY* versions 2.00 and 2.10.

There were no nonstandard automated acquisition or processing methods used.

#### **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-TH dual-channel, single frequency towfish. The towfish was operated on the 100 kHz frequency and configured with a 20° beam depression. The following sonar equipment was used throughout the survey:

<u>VESNO</u>	<u>Type</u>	<u>S/N</u>	<u>DN</u>	<u>Fix Numbers</u>
2930	Towfish	16699	096-099	6000-7793
2930	Towfish	16835	100-100	7794-7987
2930	Towfish	16699	100-101	7988-8107
2930	Recorder	16669	096-099	6000-7793
2930	Recorder	16670	100-101	7994-8107
2932	Towfish	16835	112-114	3000-3134
2932	Recorder	16942	112-114	3000-3134

The towfish was deployed from a Reuland winch (model number 8377-XF5461A, S/N 814861A-1) on the stern of WHITING. The SSS towfish was maintained at a height off the bottom of 8 to 20 percent of the range scale. SSS operations were limited to a speed of 6

knots or slower. Launch 1014 conducted SSS operations to attain 400% coverage for AWOIS 8243 and AWOIS 8244.

In order to achieve the required 200% SSS coverage, main-scheme lines were run at a spacing of 75 meters when using the 100-meter range scale. Adequate SSS coverage was determined by producing an 'A' and 'B' swath plot and ensuring 100% coverage on each plot.

Confidence checks were performed on a routine basis, primarily by noting changes in bottom texture on the outer edges of the sonagram. Confidence checks were also taken on buoys or wrecks when convenient.

All potentially significant contacts were measured off the sonagram and entered into an HDAPS contact table. Using the contact utility program WHITING hydrographers determined contact heights, positions and correlations to one another. Significant items or items within AWOIS item search radii were then further developed by diver investigation. Refer to Section N and to Separate V for more information.

#### **F. SOUNDING EQUIPMENT**

A Raytheon Digital Survey Fathometer (DSF 6000N) echo sounder was used to measure water depths during the survey. The DSF-6000N produced a graphic record of the high frequency (100 kHz) and low frequency (24 kHz) depth. The high and low frequency digital depths were recorded by the HDAPS acquisition system. The high frequency depths were selected as the primary depths as shown on the sounding plots. In addition, echograms were carefully reviewed for significant features along the track line. Any features on the graphic record that were not selected as primary soundings were manually selected.

Electronic technicians performed daily accuracy checks and preventive maintenance on the DSF-6000N. As a result, the echosounders on WHITING (S/N A106N) and on launch 1014 (S/N C076) operated throughout the survey without any problems.

Diver-determined least depths were measured with a Diver Least Depth Gauge Module (MOD 3, S/N 0001) and a pneumatic depth gauge (S/N 8406714N). The MOD 3 Gauge was used in accordance with the documentation sent by the Nautical Charting Research and Development Laboratory on September 9, 1993. The MOD 3 gauge was calibrated after the 1993 field season; a pre-calibration report was made in March, 1994, prior to its use for this survey. Pneumatic gauge 8406714N was calibrated on September 21, 1993. The MOD 3 gauge was lost at sea during dive operations on DN 113. Consequently, the pneumatic depth gauge was used on two dives conducted on DN 114, in accordance with Hydrographic Guideline No. 55. A system check was performed on DN 114 to ensure the pneumogauge was within tolerances.

## G. CORRECTIONS TO SOUNDINGS

Sound-velocity profiles of the water column were determined using a Seacat Conductivity, Temperature and Depth (CTD) profiler (model SBE 19, S/N 286). The profiler was calibrated on December 17, 1993, during WHITING's winter inport period. A copy of the calibration report is included in Separate IV. ✕

After each CTD cast, programs *CAT 2.00* and *VELOCITY 2.00/2.10* were used to process the data, select significant data points, and create a corrector table. The velocity correctors were manually entered into an HDAPS velocity table. The correctors were applied to both high and low frequency beams during acquisition. Velocity profile data are in the Separates submitted with this survey. ✕

Data Quality Assurance (DQA) for the Seacat CTD profiler was performed by using a hydrometer and a thermometer to measure the density and temperature of a surface water sample taken during each CTD cast; program *CAT* compared these values to the CTD surface values, and confirmed that the velocity probe was working properly.

Four velocity casts were performed as described below:

<u>DN</u>	<u>Cast #</u>	<u>Vel.Table#</u>	<u>Latitude</u>	<u>Longitude</u>	<u>Depth</u>
097	1	1, 2	38° 46' 20"N	074° 42' 00"W	25.2 m
102	3	5, 6	38° 43' 54"N	074° 42' 54"W	22.9 m
112	8	13, 14	38° 46' 00"N	074° 43' 54"W	20.3 m
113	9	15, 16	38° 46' 18"N	074° 44' 06"W	21.0 m

There were no variations in instrument initials.

Bar checks were performed weekly on launch 1014 as per the requirements stated in the Field Procedures Manual. No deficiencies were noted.

All sounding corrections were applied on-line to both the narrow (100 kHz) and wide (24 kHz) DSF-6000N beams.

New leadlines were made on April 10, 1993, and calibrations performed on March 17, 1994, confirmed the leadline error was negligible. A leadline comparison with the DSF-6000N was performed on April 14, 1994 (DN 104). The difference between the leadline and the high frequency digitized reading was +0.1 meters and the difference between the leadline and the low frequency digitized reading was -0.1 meters. No corrections for the differences were applied to the survey data.

The correction for the static draft for launch 1014 was determined on July 28, 1993, to be 0.55 meters. The correction for WHITING's static draft is 3.2 meters, a historical value that WHITING divers confirmed by pneumatic depth gauge on May 20, 1993.

\*DATA FILED WITH FIELD RECORDS.

Settlement and squat measurements for WHITING were conducted and correctors determined on November 10, 1993. The correctors were entered in Offset Table 9 and applied in real time throughout the survey.

Settlement and squat measurements for launch 1014 were conducted and correctors determined on April 4, 1994. The correctors were entered in Offset Table 2 and reapplied to all data collected by launch 1014. Settlement and squat correctors are in Separate IV. DATA FILED WITH FIELD RECORDS.

For data acquired by WHITING, the HDAPS data acquisition computer logged, in real-time, heave data from a heave, roll, and pitch sensor (HIPPY, S/N 19109-C). Heave correctors were applied in post-processing. Most of the sounding data from launch 1014 is in the form of detached positions on dived items; echograms from side scan sonar data were manually scanned for heave action.

The tidal datum for this project was Mean Lower Low Water. The operating tide station at Breakwater Harbor in Lewes, Delaware (855-7380), served as direct control for datum determination. Mr. Larry Nieson, Atlantic Operations Group, N/OES213, confirmed the proper operation of the tide station during the survey. This station also served as the reference station for predicted tides. Time and height correctors for the project were as follows:

	<u>Time Correction</u>	<u>Height Ratio</u>
High Water:	-1 hr 00 min	x0.94
Low Water:	-1 hr 00 min	x0.94

Tidal data used during data acquisition were taken from Table 2 of the East Coast of North and South America Tide Tables and were applied on-line to the digital data using HDAPS software. The tidal data, in digital form, were received on floppy disk from N/CG24, Hydrographic Surveys Branch. A request for smooth tides was submitted to Product and Services Branch, Datum Section, N/OES231 on April 29, 1994. APPROVED TIDES WERE APPLIED DURING OFFICE PROCESSING.

Opening and closing levels were conducted at the Breakwater Harbor tide station on March 30, 1994, and May 7, 1994, respectively. The levels confirmed that the tide staff and marks were undisturbed.

#### H. CONTROL STATIONS SEE ALSO EVALUATION REPORT.

The horizontal datum for this project is the North American Datum of 1983 (NAD-83). Two B-order horizontal control stations were used as DGPS reference stations for this survey: one at Cape Henlopen, Delaware and one at Cape Henry, Virginia. The adjusted NAD-83 positions, computed by GPS methods, were provided by LT Jeffrey Ferguson of the Hydrographic Surveys Branch, N/CG24, on April 3, 1992. The positions are as follows:



	<u>Latitude</u>	<u>Longitude</u>	<u>Frequency</u>
Cape Henry	36° 55' 37.580" N	076° 00' 23.884" W	289 kHz
Cape Henlopen	38° 46' 36.421" N	075° 05' 15.667" W	298 kHz

The Cape Henlopen beacon was used as control while on-line; the Cape Henry served as a check station for performance checks.

## I. HYDROGRAPHIC POSITION CONTROL

A Differential Global Positioning System (DGPS) was used as the navigation system for this survey. WHITING used two Ashtech Sensor GPS receivers with two Communications Systems International, Inc. (CSI) model MBX1 differential radio receivers supplying correctors for DGPS navigation. Launch 1014 used a similar system, but with only one Ashtech/CSI set. Ashtech receivers were initialized by HDAPS and CSI receivers were initialized with CSI firmware via controls on the front of each unit. On board WHITING, only one DGPS receiver drawer sent navigational output to HDAPS; the secondary drawer was used in conjunction with the primary drawer for DGPS performance checks.

DGPS positioning was accomplished in accordance with the Field Procedures Manual (FPM), section 3.4. When the beacon signal was lost for more than 30 seconds (1:10,000 scale), the survey line was broken and the line was rerun where control had been unacceptable. Horizontal Dilution of Precision (HDOP) limits were computed as required in section 3.4.2 of the FPM. Based on a maximum distance from the differential beacon of 50 miles, the HDOP limit for this 1:10,000-scale survey using the Cape Henlopen beacon is 3.6. When high HDOP caused position flyers, those positions were either smoothed or rejected and the line rerun.

The serial numbers of the Ashtech Sensor and MBX1 receivers used are as follows:

<u>Item</u>	<u>Serial Number</u>
Primary System:	
Ashtech Sensor	700417B1193
CSI MBX 1	1081
Secondary System:	
Ashtech Sensor	700417B1194
CSI MBX1	1079
Launch 1014 System:	
Ashtech Sensor	700417B1203
CSI MBX1	1078

Performance checks for WHITING were conducted using the program *SHIPDIM*. *SHIPDIM* uses the two reference station method as described in FPM section 3.4.5. All DGPS performance checks confirmed that WHITING's DGPS positioning systems were operating

properly and accurately. A summary of the DGPS performance checks are in Separate III.\*

Performance checks for launch 1014's DGPS positioning system were conducted with launch 1014 housed securely in WHITING's port davit by comparing simultaneous HDAPS positions for the launch and ship. An offset in distance and azimuth was then calculated between the two systems. Checks were conducted on a weekly basis and no more than 4 meters of error was observed.

DGPS antenna offsets and laybacks were measured on March 19, 1993, for WHITING and on July 28, 1993, for launch 1014. Offsets and laybacks were measured using the 100 kHz (high frequency) echo-sounder transducer as the reference. Antenna heights were measured on the same date. Offsets and laybacks were applied by HDAPS on-line. All offset, layback and height data are included in the Separates.\*

Offsets and laybacks for the WHITING A-frame used to tow the SSS towfish were measured on July 27, 1992, using the forward 100 kHz (high frequency) transducer as the reference. The A-frame height was measured from the water line on the same date. All offset, layback and height data were applied by HDAPS on-line. These data are included in the Separates.\*

Offset and layback corrections for the launch 1014 side scan winch were measured on July 28, 1993, and verified on April 5, 1994.

#### **J. SHORELINE**

There is no shoreline within the boundaries of this survey.

#### **K. CROSSLINES**

A total of 12.0 nautical miles of crosslines were run during survey H-10533, or 8% of the total linear nautical miles of main-scheme lines needed for 100 percent SSS coverage. Crossline and main-scheme agreement, with predicted tides applied, was adequate. Most soundings agreed to within 0.3 meters with no errors greater than 0.5 meters.

#### **L. JUNCTIONS** SEE ALSO EVALUATION REPORT,

Comparison with contemporary surveys was done using mylar junction strips provided by the Atlantic Hydrographic Service (AHS). The junction strips are 1:10,000 scale and cover all junctioned soundings. These contemporary surveys are all part of project OPR-D368-WH, from the 1992 and 1993 field seasons. Note that while the scale is 1:10,000, DGPS constraints from these surveys restricted position accuracy to 1:20,000. A summary of findings follows:

\* DATA FILED WITH FIELD RECORDS.

<u>Registry #</u>	<u>Scale</u>	<u>Position Accuracy</u>	<u>Location</u>	<u>Comparison</u>
H-10439	1:10,000	1:20,000	Northeast	Present survey is 0. <sup>6</sup> / <sub>2</sub> to 0. <sup>1</sup> / <sub>8</sub> meters shoaler
H-10440	1:10,000	1:20,000	North	Present survey is 0. <sup>3</sup> / <sub>2</sub> to 0. <sup>4</sup> / <sub>3</sub> meters shoaler
H-10444	1:10,000	1:20,000	West	Present survey is 0.1 to 0.2 meters shoaler
H-10464	1:10,000	1:20,000	East	Present survey agrees, range ± 0.2 meters
H-10475	1:10,000	1:20,000	South	Present survey is 0.1 to 0.2 meters shoaler

Note that smooth tides have been applied to soundings on the junction strips. The discrepancies may be reconciled upon application of smooth tides to this survey. CONCUR

#### M. COMPARISONS WITH PRIOR SURVEYS SEE EVALUATION REPORT.

Four prior surveys were compared to soundings from this survey. The following table summarizes the sounding comparisons:

<u>Registry #</u>	<u>Scale</u>	<u>Year</u>	<u>Current Soundings</u>
H-9175	1:10,000	1970	0.6 <sup>3</sup> meters deeper
H-9723	1:20,000	1970	Agree ± 0.4 meters
H-9173WD	1:20,000	1970	No Significant Difference
H-9294WD	1:20,000	1970 & 1972	No Significant Difference

All four surveys were referenced to the NAD-27 horizontal datum. Prior surveys H-9175 and H-9723 were provided by AHS as mylar overlays with NAD-83 position ticks. As depicted on the prior surveys, the bottom in the area surveyed is generally smooth.

#### N. ITEM INVESTIGATIONS

Summary of items investigated:

<u>SECTION</u>	<u>NAME</u>	<u>STATUS</u>
N.1	AWOIS 1136/8241	Verified, diver least depth acquired
N.2	AWOIS 1141	Disproved
N.3	AWOIS 8239	Verified, diver least depth acquired
N.4	AWOIS 8243	Disproved
N.5	AWOIS 8244	Disproved
N.6	6447.39P	Diver least depth acquired
N.7	6565.14S	Diver least depth acquired
N.8	6625.38P	Diver least depth acquired
N.9	6746.57P	Diver least depth acquired
N.10	6989.03P	Diver least depth acquired
N.11	7023.13P	Diver least depth acquired
N.12	7643.16P	Diver least depth acquired

N.1 AWOIS 1136 & AWOIS 8241

	<u>AWOIS 1136</u>	<u>AWOIS 8241</u>
Reported Latitude:	38° 45' 54.00" N	38° 45' 54.40" N
Reported Longitude:	074° 45' 06.00" W	074° 45' 04.59" W
Source:	OPR-480-RU/HE-70	OPR-480-RU/HE-70
Charted Depth:	44 ft	44 ft
Datum:	NAD 2783	NAD 2783
Feature:	Obstruction	Obstruction

WHITING believes that items 1136 and 8241 are the same obstruction described in two AWOIS entries. Only one 44 foot obstruction is currently charted on chart 12214 (1:80000).

Survey requirements are 400% side scan sonar coverage over a 200-meter radius, diver investigation, and/or salvage documentation.

Two correlated contacts were found within the search radii during 200% main scheme coverage: 6168.35P and 6204.38P. Echosounding was used to pinpoint a drop position for WHITING divers. Divers descended on the contact and discovered the remains of a wooden and metal wreck. The hull was intact and some ribs were showing. The wreck measured 175 feet long, 15 feet wide, and 4 feet high. A 14.1<sup>3</sup>-meter least depth, adjusted for predicted APPROVED tides, was measured on the wreck's rudder post using the MOD 3 gauge (DP #3004, DN 102). The average water depth surrounding the area was 16.3 meters (predicted tides).

DP #3004 is 154 meters from the position of AWOIS 1136 and 187 meters from the position of AWOIS 8241. WHITING recommends that the 44-foot obstruction charted at 38° 45' 54.40" N, 074° 45' 04.59" W be deleted. A wreck with a least depth known by diver of 14.1<sup>3</sup> meters should be charted at 38° 45' 54.739" N, 074° 45' 11.740" W. CONCUR ✓  
(47 FT), AND A DANGER CURVE,

N.2 AWOIS 1141

Reported Latitude:	38° 47' 25.12" N
Reported Longitude:	074° 45' 31.27" W
Source:	OPR-480-RU/HE-70
Charted Depth:	Not Charted
Datum:	NAD 27
Feature:	Obstruction

There are no survey requirements for this item; it was disproved during WHITING's 1992 survey, H-10440.

The area was covered with 200% side scan sonar during main scheme lines on the present survey. No contacts were found. WHITING recommends that item 1141 be removed from the AWOIS database. CONCUR ✓

N.3 AWOIS 8239

Reported Latitude: 38° 47' 20.40" N  
Reported Longitude: 074° 45' 25.59" W  
Source: OPR-480-RU/HE-70  
Charted Depth: Wire drag cleared to 48 feet  
Datum: NAD 27  
Feature: Dangerous wreck

Survey requirements are 200% side scan sonar coverage over a 500-meter radius, diver investigation, and/or salvage documentation.

Three correlated contacts were found within the search radius during 200% main scheme coverage: 7768.40S, 7813.40S, and 7871.54P. Echosounding was used to pinpoint a drop position for WHITING divers. Divers descended on the contact and discovered scattered wreckage over a 20-meter radius. The wreckage was covered with hawsers and nets. A 17.7-meter least depth, adjusted for predicted tides, was taken on the northern end of the wreckage with the MOD 3 gauge (DP #3092, DN 113). The average water depth surrounding the area was 19.3 meters (predicted tides).

DP #3092 is 80 meters from the charted position of AWOIS 8239. WHITING recommends that the wreck charted at 38° 47' 20.40" N, 074° 45' 25.59" W be deleted. <sup>APPROVED</sup> A wreck with a least depth known by diver of 17.7 meters should be charted at 38° 47' 19.177" N, 074° 45' 28.493" W. <sup>OBSTRUCTION</sup> CONCUR (58FD), AND A DANGER CURVE

4

N.4 AWOIS 8243

Reported Latitude: 38° 46' 36.40" N  
Reported Longitude: 074° 48' 28.60" W  
Source: OPR-516-PE-77  
Charted Depth: 50 feet  
Datum: NAD 27  
Feature: Obstruction

Survey requirements are 400% side scan sonar coverage over a 200-meter radius, diver investigation, and/or salvage documentation.

The area was covered with 400% side scan sonar. No contacts were found. WHITING recommends that the 50-foot obstruction charted at 38° 46' 36.40" N, 074° 48' 28.60" W be deleted from the chart. CONCUR

4

N.5 AWOIS 8244

Reported Latitude: 38° 46' 18.40" N  
Reported Longitude: 074° 47' 46.60" W  
Source: OPR-516-PE-77  
Charted Depth: 55 feet  
Datum: NAD 27  
Feature: Obstruction

Survey requirements are 400% side scan sonar coverage over a 200-meter radius, diver investigation, and/or salvage documentation.

The area was covered with 400% side scan sonar. No contacts were found. WHITING recommends that the 55-foot obstruction charted at 38° 46' 18.40" N, 074° 47' 46.60" W be deleted from the chart. CONCUR ✓

N.6 Contact 6447.39P

Latitude: 38° 46' 00.403" N  
Longitude: 074° 44' 56.225" W  
Cross References: 6268.41P, 6378.37P, 6438.21S, 6454.25S

Contact 6447.39P was found during 200% main scheme coverage. The contact height measured from side scan sonar was significant, warranting a diver investigation. Echosounding was used to pinpoint a drop position for WHITING divers.

Divers descended on the contact and discovered a rectangular metal obstruction measuring 80 feet long, 3 feet wide and 2 feet high. A 16.8<sup>9</sup>-meter least depth, adjusted for <sup>APPROVED</sup> predicted tides, was taken on the eastern end of the wreckage with the MOD 3 gauge (DP #3005, DN 102). The average water depth surrounding the area was 17.9 meters (predicted tides).

DP #3005 is located approximately 280 meters to the northeast of AWOIS items 1136/8241 (see section N.1). Due to the close proximity of contact 6447.39P to AWOIS items 1136/8241, WHITING recommends that contact 6447.39P not be charted. DO NOT CONCUR ✓

IT IS RECOMMEND THAT AN OBSTRUCTION WITH A KNOWN DEPTH OF 16.9m, (55FT), AND A DANGER CURVE BE CHARTED IN LATITUDE 38° 46' 00.403" N LONGITUDE 74° 44' 56.225" W, IF CHART SCALE PERMITS.

N.7 Contact 6565.14S

Latitude: 38° 46' 10.843" N  
Longitude: 074° 44' 44.659" W  
Cross References: 6534.31P, 6624.18S

Contact 6565.14S was found during 200% mainscheme coverage. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted. Echosounding was used to pinpoint a drop position for WHITING divers.

Divers descended on the contact and discovered a large piece of timber measuring 70 feet long, 4 feet wide, and 3 feet high, oriented on an east-west line. The MOD 3 least depth was 17.2 meters, adjusted for ~~predicted~~<sup>APPROVED</sup> tides (DP #3084, DN 113). The average water depth surrounding the area was 19.4 meters (~~predicted~~ tides). ✕

WHITING recommends that an obstruction with a least depth known by diver of 17.2 meters (56 FT), AND be charted at 38° 46' 10.843" N, 074° 44' 44.659" W. CONCUR A DANGER CURVE

N.8 Contact 6625.38P

Latitude: 38° 46' 14.134" N  
Longitude: 074° 44' 26.126" W  
Cross Reference: 6655.00P

Contact 6625.38P was found during 200% mainscheme coverage. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted. Echosounding was used to pinpoint a drop position for WHITING divers.

Divers discovered a twin-screw, wooden and fiberglass wreck oriented NE-SW, measuring approximately 45-feet long and 12-feet wide. Portions of the stern and hull were intact, with most of the bow missing. Fuel tanks were located to the east and extended approximately 2.5 feet off the bottom. A 19.4-meter pneumatic gauge least depth (~~predicted~~ tides) was measured on the wreck's transom at the wreck's SW end (DP #3117, DN 114). The average water depth surrounding the area was 21.1<sup>3</sup> meters (~~predicted~~ tides).

WHITING recommends that a wreck with a least depth known by diver of 19.4 meters, be charted at 38° 46' 14.134" N, 074° 44' 26.126" W. CONCUR (63 FT), AND A DANGER CURVE ✕

N.9 Contact 6746.57P

Latitude: 38° 46' 19.734" N  
Longitude: 074° 44' 33.782" W  
Cross References: 6719.02P, 6807.42S

Contact 6746.57P was found during 200% mainscheme coverage. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted. Echosounding was used to pinpoint a drop position for WHITING divers.

Divers descended on the contact and discovered a wood and metal wreck measuring approximately 70 feet long by 15 feet wide, pointing west. A ~~18.9~~<sup>19.1</sup>-meter least depth (~~predicted~~<sup>APPROVED</sup> tides), was taken on the east end at the stern of the wreck with the MOD 3 gauge (DP #3115, DN 114). A metal piece extending 3 feet off the bottom was found 20 feet to the west of the wreck. The average water depth surrounding the area was 20.5 meters (~~predicted~~ tides).

WHITING recommends that a wreck with a least depth known by diver of ~~18.9~~<sup>19.1</sup> meters, be charted at 38° 46' 19.734" N, 074° 44' 33.782" W. CONCUR (62FT), AND A DANGER CURVE X

N.10 Contact 6989.03P

Latitude: 38° 46' 32.470" N  
Longitude: 074° 44' 22.721" W  
Cross Reference: 7023.07P

Contact 6989.03P was found during 200% mainscheme coverage. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted. Echosounding was used to pinpoint a drop position for WHITING divers.

Divers descended on the contact and found a metal obstruction measuring 25 feet long by 3 feet wide with a 'T' section attached to one end, measuring 6 feet wide by 5 feet high. A least depth of 17.0 meters (~~predicted~~<sup>APPROVED</sup> tides) was measured on the 'T' with the MOD 3 gauge (DP #3054, DN 112). A 10-meter circle search was conducted around the item and nothing else was found. The average water depth surrounding the area was 18.2 meters (~~predicted~~ tides).

DP #3054 is located approximately 60 meters to the ~~north-northeast~~<sup>SOUTH - SOUTHEAST</sup> of H-10533 contact 7023.13P (see section N.11). Due to the close proximity of contact 6989.03P to 7023.13P, WHITING recommends that contact 6989.03P not be charted. DO NOT CONCUR X

IT IS RECOMMEND THAT AN OBSTRUCTION WITH A KNOWN DEPTH OF 17m (56FT), AND A DANGER CURVE BE CHARTED IN LATITUDE 38°46'32.470"N, LONGITUDE 74°44'22.721"W, IF CHART SCALE PERMITS.



N.11 Contact 7023.13P

Latitude: 38° 46' 33.703" N  
Longitude: 074° 44' 23.934" W  
Cross Reference: 6988.57P

Contact 7023.13P was found during 200% mainscheme coverage. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted. Echosounding was used to pinpoint a drop position for WHITING divers.

Divers descended on the contact and discovered a bucket from a steam shovel excavator laying in a NNE-SSW orientation. The bucket measured 10 feet long, 6 feet wide, and 5 feet high. A least depth of 16.1<sup>φ</sup> meters (APPROVED) (predicted tides) was measured on the bucket's teeth with the MOD 3 gauge (DP #3052, DN 112). The average water depth surrounding the area was 17.4 meters (predicted tides). ✓

WHITING recommends that an obstruction with a least depth known by diver of 16.1<sup>φ</sup> meters (52 FT), AND be charted at 38° 46' 33.703" N, 074° 44' 23.934" W. CONCUR A DANGER CURVE

N.12 Contact 7643.16P

Latitude: 38° 47' 09.572" N  
Longitude: 074° 44' 18.227" W  
Cross Reference: 7670.57P

Contact 7643.16P was found during 200% mainscheme coverage. The contact height measured from side scan sonar was computed to be significant and a diver investigation was conducted. Echosounding was used to pinpoint a drop position for WHITING divers.

Divers descended on the contact and discovered a concrete buoy anchor measuring 4 feet by 4 feet by 4 feet. A least depth of 13.8<sup>φ</sup> meters (APPROVED) (predicted tides) was obtained by a DSF-6000N fathometer (DP #3094, DN 113); this depth can confidently be considered a least depth because the object is small and of known shape. The low-frequency echo return and the high frequency echo return coincide at the point of least depth on the echogram. The average water depth surrounding the area was 13.9 meters (predicted tides). ✓

WHITING recommends that an obstruction with a known depth of 13.8<sup>φ</sup> meters be charted at 38° 47' 09.572" N, 074° 44' 18.227" W. CONCUR (44 FT), AND A DANGER CURVE

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

Chart 12214 (1:80,000), 37th edition, June 27, 1992, is the largest scale chart that covers the survey area. No Notices to Mariners have been published for areas within the survey limits since the 27 June 1992 release.

Reports listing the uncharted submerged features discovered were submitted to the Coast Guard on May 9, 1994.

Charted depths were compared to soundings acquired during the survey. In general, sounding agreement was excellent. Acquired and charted depths agreed to  $\pm 0.2$  meters.

No changes to the scale, coverage, or format of Chart 12214 are recommended.

**P. ADEQUACY OF SURVEY** *SEE ALSO EVALUATION REPORT.*

All items found during this survey have been resolved. This survey is complete and of adequate quality to supersede all prior surveys of the area.

**Q. AIDS TO NAVIGATION**

There is one floating aid in the survey area, yellow buoy 'FA'. The Light List Vol. II, 1993, lists this buoy as #125: 'FA' Fl. Y 4s at position  $38^{\circ} 47.3' N$ ,  $074^{\circ} 44.2' W$ . Chart 12214 has the buoy at  $38^{\circ} 47.32' N$ ,  $074^{\circ} 44.22' W$ , again with a Fl. Y 4s light. The characteristic of the light is accurate. The buoy adequately serves the purpose for which it was established.

Four side scan contacts were entered and used to position the buoy anchor. These are 7807.13S, 7865.40P, 7934.20S, 8089.53S. The average position was  $38^{\circ} 47.347' N$ ,  $074^{\circ} 44.228' W$ . This is within 53 meters of the charted position.

There were no bridges, overhead cables, pipelines, submarine cables, ferry routes or ferry terminals in the survey area.

**R. STATISTICS**

Number of Positions .....	2391
Main-scheme Sounding Lines (Nautical Miles) .....	321
Crosslines (Nautical Miles) .....	12.0
Square Nautical Miles Surveyed .....	10.0
Days of Production .....	11
Detached Positions .....	9
Bottom Samples .....	48
Tide Stations Installed .....	None
Current Stations .....	None
Number of CTD Casts .....	4
Magnetic Stations .....	None

**S. MISCELLANEOUS** *SEE ALSO EVALUATION REPORT*

No anomalies in either tide or current and/or unusual magnetic variations were encountered in the survey area. No unusual submarine features were discovered. Bottom samples were not submitted to the Smithsonian Institution.

WHITING suspended side scan operations twice daily to run the engines under full load. This time was used to service equipment or transit between survey areas.

**T. RECOMMENDATIONS** *SEE ALSO SECTION P. OF THE EVALUATION REPORT.*

H-10533 is complete and without inadequacies. See Section N for specific recommendations. No additional fieldwork is required. There are no current plans for construction or dredging in the survey area.

**U. REFERRAL TO OTHER REPORTS**

There are no other relevant reports submitted as a part of OPR-D368-WH-94.

Submitted By:

*Jack L. Riley*  
LTJG Jack L. Riley, NOAA  
Junior Officer, NOAA Ship WHITING

*Kenneth A. Pavelle*  
ENS Kenneth A. Pavelle, NOAA  
Junior Officer, NOAA Ship WHITING





U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
Office of NOAA Corps Operations  
NOAA Ship WHITING S-329  
439 W. York Street  
Norfolk, VA 23510-1114

May 10, 1994

Commander, Fifth Coast Guard District  
Attention: OAN  
431 Crawford Street  
Portsmouth, VA 23704

Dear Sir:

While conducting hydrographic survey operations in the Delaware Bay to Five Fathom Bank Traffic Lane, two uncharted wrecks and three uncharted obstructions were discovered. Attached are reports on these features and a chartlet indicating their locations. The following table is a summary of our findings:

Feature	Latitude	Longitude	Depth (ft)
Obstruction	38°46'10.843"N	074°44'44.659"W	56 -
Obstruction	38°46'33.703"N	074°44'23.934"W	52 -
Obstruction	38°47'09.572"N	074°44'18.227"W	45
Dangerous Subm Wk	38°46'14.134"N	074°44'26.126"W	63 -
Dangerous Subm Wk	38°46'19.734"N	074°44'33.782"W	62 -

Differential GPS was used to determine the items' positions. Positions are referenced to NAD-83. All depths are referenced to MLLW using predicted tides. Chart 12214 is the largest scale chart affected.

A copy of this letter and attachments have been forwarded to the following offices:

Chief, Nautical Charting Division, NOAA  
Director, Operations Division, NOAA  
Director, Defense Mapping Agency  
Hydrographic/Topographic Center

Sincerely,

John D. Wilder  
Commander, NOAA  
Commanding Officer

Attachments

cc: AMC1  
N/CG2  
N/CG244  
DMAHTC



REPORT OF UNCHARTED SUBMERGED FEATURE

Hydrographic Survey Registry Number: H-10533

State: Delaware

General Locality: Approaches to Delaware Bay, DE

Sublocality: 12 NM Southeast of Cape May, NJ

Project Number: OPR-D368-WH-94

The following item was found during hydrographic survey operations by the NOAA Ship WHITING:

**Object Discovered:**

Divers confirmed the existence of a concrete buoy anchor, 4 feet by 4 feet by 4 feet.

**Covers:**

Echosounder development indicated a least depth of 13.8 meters (45 feet), corrected to MLLW using predicted tide correctors.

**Affected Nautical Charts:**

<u>Chart Number</u>	<u>Edition No.</u>	<u>Reported Date</u>	<u>Chart Depth</u>	<u>Chart Datum</u>	<u>Geographic Location</u>	
					<u>Latitude</u>	<u>Longitude</u>
12214	37	6/27/92	45 ft	NAD83	38°47'09.572"N	074°44'18.227"W

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.

REPORT OF UNCHARTED SUBMERGED FEATURE

Hydrographic Survey Registry Number: H-10533

State: Delaware

General Locality: Approaches to Delaware Bay, DE

Sublocality: 12 NM Southeast of Cape May, NJ

Project Number: OPR-D368-WH-94

The following item was found during hydrographic survey operations by the NOAA Ship WHITING:

**Object Discovered:**

A steam shovel excavator, measuring 10 feet long, 6 feet wide and 5 feet high, was found using side scan sonar.

**Covers:**

Divers used a prototype diver least depth gauge to determine the least depth. Their findings indicate a least depth of 16.1 meters (52 feet) corrected to MLLW with predicted tide correctors.

**Affected Nautical Charts:**

<u>Chart Number</u>	<u>Edition No.</u>	<u>Reported Date</u>	<u>Chart Depth</u>	<u>Chart Datum</u>	<u>Geographic Location</u>	
					<u>Latitude</u>	<u>Longitude</u>
12214	37	6/27/92	52 ft	NAD83	38°46'33.703"N	074°44'23.934"W

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.

REPORT OF UNCHARTED SUBMERGED FEATURE

Hydrographic Survey Registry Number: H-10533

State: Delaware

General Locality: Approaches to Delaware Bay, DE

Sublocality: 12 NM Southeast of Cape May, NJ

Project Number: OPR-D368-WH-94

The following item was found during hydrographic survey operations by the NOAA Ship WHITING:

Object Discovered:

An uncharted wood and metal wreck, pointing west, approximately 70 feet long and 15 feet wide, was found using side scan sonar. The wreck extends 8 to 9 feet off the bottom.

Covers:

Divers used a prototype diver least depth gauge to determine the least depth. Their findings indicate a least depth of 18.9 meters (62 feet) corrected to MLLW with predicted tide correctors.

Affected Nautical Charts:

<u>Chart Number</u>	<u>Edition No.</u>	<u>Date</u>	<u>Reported Depth</u>	<u>Chart Datum</u>	<u>Geographic Location</u>	
					<u>Latitude</u>	<u>Longitude</u>
12214	37	6/27/92	62 ft	NAD83	38°46'19.734"N	074°44'33.782"W

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.



REPORT OF UNCHARTED SUBMERGED FEATURE

Hydrographic Survey Registry Number: H-10533  
State: Delaware  
General Locality: Approaches to Delaware Bay, DE  
Sublocality: 12 NM Southeast of Cape May, NJ  
Project Number: OPR-D368-WH-94

The following item was found during hydrographic survey operations by the NOAA Ship WHITING:

**Object Discovered:**

A twin screw, wood and fiberglass wreck oriented NE-SW, measuring approximately 45 feet long and 12 feet wide, was found with side scan sonar. The wreck extends 7 to 8 feet off the bottom.

**Covers:**

Diver used a pneumatic depth gauge to determine a least depth of 19.4 meters (63 feet) corrected to MLLW using predicted tide correctors.

**Affected Nautical Charts:**

<u>Chart Number</u>	<u>Edition No.</u>	<u>Reported Date</u>	<u>Reported Depth</u>	<u>Chart Datum</u>	<u>Geographic Location</u>	
					<u>Latitude</u>	<u>Longitude</u>
12214	37	6/27/92	63 ft	NAD83	38°46'14.134"N	074°44'26.126"W

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.

REPORT OF UNCHARTED SUBMERGED FEATURE

Hydrographic Survey Registry Number: H-10533

State: Delaware

General Locality: Approaches to Delaware Bay, DE

Sublocality: 12 NM Southeast of Cape May, NJ

Project Number: OPR-D368-WH-94

The following item was found during hydrographic survey operations by the NOAA Ship WHITING:

**Object Discovered:**

A large piece of timber, approximately 70 feet long, was found with side scan sonar.

**Covers:**

Divers used a prototype diver least depth gauge to determine the least depth. Their findings indicate a least depth of 17.2 meters (56 feet) corrected to MLLW with predicted tide correctors.

**Affected Nautical Charts:**

<u>Chart Number</u>	<u>Edition No.</u>	<u>Reported Date</u>	<u>Reported Depth</u>	<u>Chart Datum</u>	<u>Geographic Location</u>	
					<u>Latitude</u>	<u>Longitude</u>
12214	37	6/27/92	56 ft	NAD83	38°46'10.843"N	074°44'44.659"W

Questions concerning this report should be directed to the Atlantic Hydrographic Section in Norfolk, Virginia, at telephone number (804) 441-6746.



74°45'

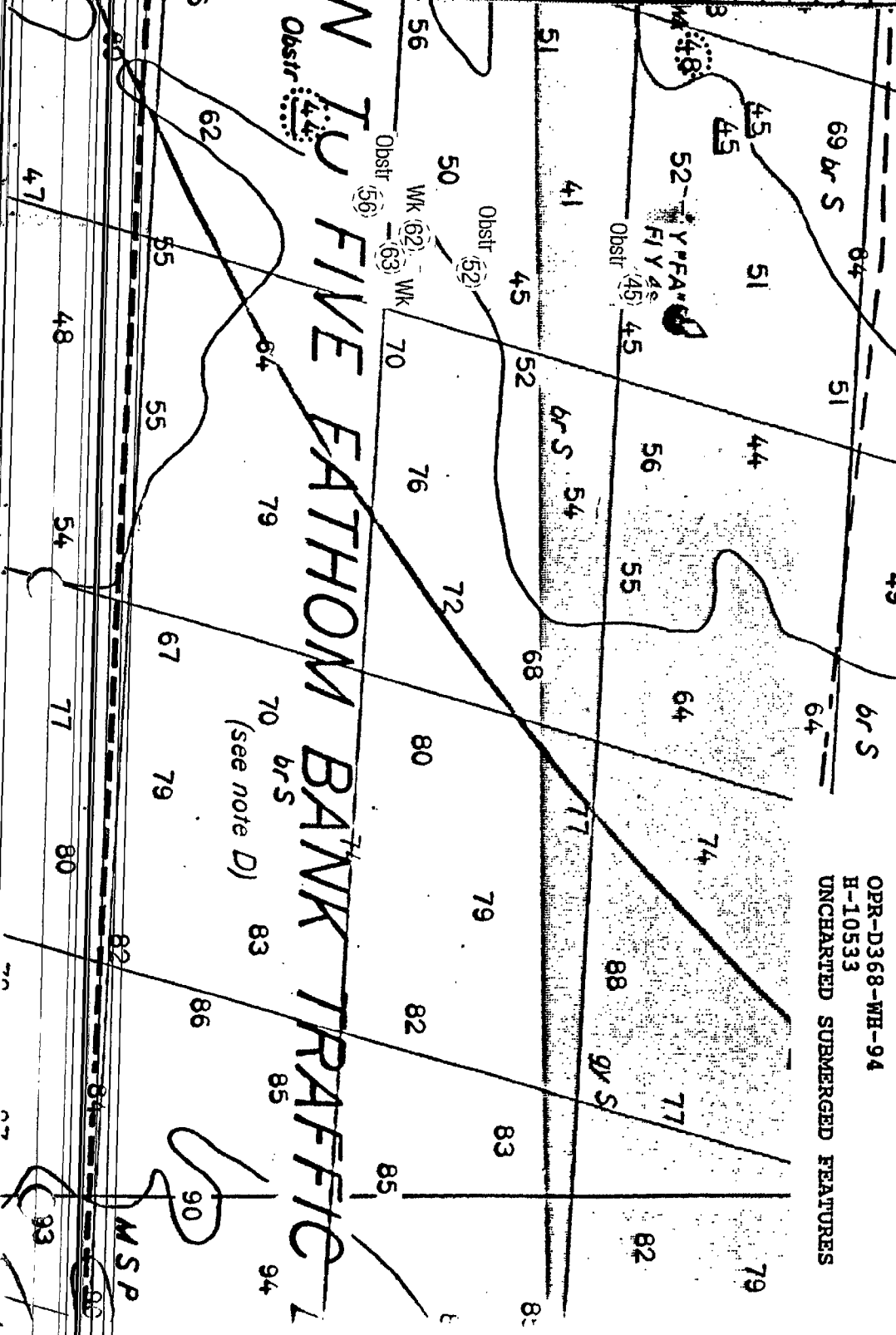
(JOINS CHART 12318)

74°40'

# NK TO CAPEN OPEN TRAFFIC

Enlargement of CHART 12214  
(37th Edition, 27 June 1992)  
to approximately 1 : 40000

OPR-D368-WH-94  
H-10533  
UNCHARTED SUBMERGED FEATURES



38°  
45'

47

48

54

77

80

82

84

86

MSP

90

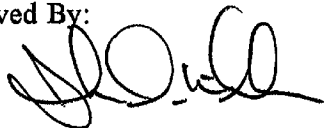
94

(see note D)

**APPROVAL SHEET  
HYDROGRAPHIC SURVEY  
OPR-D368-WH-94  
1994  
WH-10-1-94  
H-10533**

The data for this survey were acquired and checked under my daily supervision. Position and sounding accuracy meet the requirements specified in the Field Project Instructions, Hydrographic Manual, Hydrographic Survey Guidelines and the Field Procedures Manual for Hydrographic Surveying. This survey is complete and adequate for the intended purpose of delineating bottom topography, determining depths and identifying all potential dangers to navigation. No final field sheets were prepared for this survey. The survey data and accompanying records are complete for the preparation of the smooth sheet.

Approved By:



Commander John D. Wilder, NOAA  
Commanding Officer, NOAA Ship WHITING



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: November 21, 1994

MARINE CENTER: Atlantic

HYDROGRAPHIC PROJECT: OPR-D368-WH

HYDROGRAPHIC SHEET: H-10533

LOCALITY: Approaches to Delaware Bay

TIME PERIOD: April 6 - 25, 1994

TIDE STATION USED: 855-7380 Lewes (Ft. Miles), Breakwater Harbor,  
Delaware Lat.  $38^{\circ} 46.9'N$  Lon.  $75^{\circ} 07.2'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 2.51 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.3 ft.

REMARKS: RECOMMENDED ZONING

Apply a -1 hr 00 min time correction and a x0.94 range ratio  
to heights using Lewes Breakwater Harbor, Delaware (855-7380).

Note: Times are tabulated in Eastern Standard Time.

*William M. Johnson*  
-----  
CHIEF, DATUMS SECTION





07/19/95

HYDROGRAPHIC SURVEY STATISTICS  
REGISTRY NUMBER: H-10533

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	2931
NUMBER OF SOUNDINGS	12465

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	169	08/08/94
VERIFICATION OF FIELD DATA	50	03/31/95
QUALITY CONTROL CHECKS	14	
EVALUATION AND ANALYSIS	22	
FINAL INSPECTION	21	03/08/95
COMPILATION	17	06/16/95
TOTAL TIME	293	
ATLANTIC HYDROGRAPHIC BRANCH APPROVAL		07/06/95

**ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT FOR H-10533 (1994)**

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.

**H. 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. 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 0.406 seconds (12.52 meters or 1.25 mm at the scale of the survey) north in latitude, and 1.404 seconds (33.88 Meters or 3.39 mm at the scale of the survey) east in longitude.

**L. JUNCTIONS**

H-10439	(1992)	1:10,000
H-10440	(1992)	1:10,000
H-10444	(1992-93)	1:10,000
H-10464	(1993)	1:10,000
H-10475	(1993)	1:10,000

A standard junction could not be effected between the junctional surveys and the present survey. The junctional surveys are archived at National Ocean Service (NOS) Headquarters, Silver Springs, Maryland..

**M. COMPARISON WITH PRIOR SURVEYS**

**Hydrographic**

H-9175	(1970)	1:10,000
H-9723	(1977)	1:20,000

Prior survey depths from H-9175 (1970) show a general trend of being 0<sup>3</sup> meters (1 foot) deeper than present survey depths.

Prior survey depths from H-9723 (1970) show a general trend of being 0<sup>3</sup> meters (1 foot) deeper than present survey depths.

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



**Wire Drag**

H-9173WD (1970) 1:20,000  
H-9294WD (1970-72) 1:20,000

Comparison between the present survey and prior survey H-9173WD (1970) reveals five groundings within the common area. Two groundings were assigned Automated Wreck and Obstruction Information System (AWOIS) item numbers 8243 and 8244. These AWOIS items are adequately discussed in sections N.4, page 11 and N.5., page 12 of the Descriptive Report. The remaining groundings are considered disproved by the present survey. No change in charting status is recommended.

There are no conflicts between the prior survey effective clearance depths and the present survey depths.

Comparison between the present survey and prior survey H-9294WD (1970) reveals five hangs within the common area. Two hangs are in the vicinity of four AWOIS items; #1136, #8239, #1141 and #8241. These AWOIS items are adequately discussed in sections N.1, page 10, N.2., pages 10-11 and N.3., page 11 of the Descriptive Report. The remaining groundings are considered disproved by the present survey. No change in charting status is recommended.

There are conflicts between the prior survey effective clearance depths and the present survey depths in the vicinity of Latitude 38°46'36.0"N, Longitude 74°46'33.0"W, Latitude 38°46'48.0"N, Longitude 74°45'27.0"W, Latitude 38°47'25.0"N, Longitude 74°43'48.0"W, and Latitude 38°46'45.0"N, Longitude 74°44'18.0"W. These conflicts may be attributed to natural changes in the bottom configuration; these conflicts should be disregarded.

**O. COMPARISON WITH CHARTS 12214 (37<sup>th</sup> Edition, June 27/94)**

The charted hydrography originates with the previously discussed prior surveys and requires no further consideration. The hydrographer makes an adequate chart comparison in sections N. and O. of the Descriptive Report.

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. No additional work is recommended.

S. MISCELLANEOUS

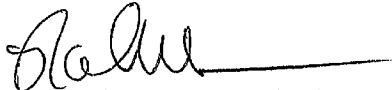
S.3. Chart compilation has been done by Atlantic Hydrographic Branch personnel in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division upon completion of the survey.

WHITING Processing Team



---

Robert Snow  
Cartographic Technician



---

Norris A. Wike  
Cartographer

APPROVAL SHEET  
H-10533

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

Deborah A. Bland

Deborah A. Bland  
Cartographer  
Atlantic Hydrographic Branch

Date: July 6, 1995

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: July 6, 1995

\*\*\*\*\*

Final Approval:

Approved:

Andrew A. Armstrong

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

Date: 8/29/95

MARINE CHART BRANCH  
**RECORD OF APPLICATION TO CHARTS**

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10533

**INSTRUCTIONS**

1. Basic hydrographic or topographic survey supersedes all information of like nature on the uncorrected chart.
2. Enter all information.
3. In "Remarks" column cross out words that do not apply.
4. Give reasons for deviations, if any, from recommendations made under "Comparison with Charts" in the Review.

CHART	DATE	CARTOGRAPHER	REMARKS
12214	6/16/95	Dobson	Full <del>Part Before</del> After Marine Center Approval Signed Via <b>Full APPLICATION</b> Drawing No. <b>OF SNOGS FROM SS</b>
12214	9/18/95	L. Ankova ✓	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No. <b>51</b> <b>Revised in full</b>
12304	9/18/95	L. Ankova ✓	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No. <b>60</b> , <b>Then 12214</b>
12200	9/19/95	L. Ankova ✓	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No. <b>Then 12214</b>
12300	9/19/95	L. Ankova ✓	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No. <b>N/C</b>
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.