

10285

Diagram No. 1215-3

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-10-2-88

Registry No. H-10285

LOCALITY

State New Jersey

General Locality Atlantic Ocean

Sublocality Offshore Monmouth Beach

to Elberon

19 88

CHIEF OF PARTY

CDR D.R. Seidel

LIBRARY & ARCHIVES

DATE January 29, 1991

☆U.S. GOV. PRINTING OFFICE: 1985-566-054

10285

CHTS

12326

12324A

12300

13006

13003

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

REGISTER NO.

HYDROGRAPHIC TITLE SHEET

H-10285

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.

WH-10-2-88

State New Jersey

General locality Atlantic Ocean

Locality Offshore Monmouth Beach to Elberon

Scale 1:10,000 Date of survey 19 Sept - 28 Oct 1988

Instructions dated 22 August 1988 Project No. OPR-C147-WH

Vessel NOAA Ship WHITING (Edp# 2930)

Chief of party CDR Dean R. Seidel
Dean R. Seidel, Todd A. Baxter, Samuel P. DeBow, James S. Verlaque

Surveyed by Mark P. Skarbek, Jeffrey D. Bear, Peter C. Stauffer

Soundings taken by echo sounder, hand lead, pole DSF-6000N

Graphic record scaled by See Remarks 1

Graphic record checked by See Remarks 2

Protracted by Automated plot by Bruning Nicolett
824 ZETA (FIELD)

Verification by Atlantic Hydrographic Section

Soundings in ~~fathoms~~ feet at MLW MLLW

REMARKS:

¹ John D. Wilder, Samuel P. DeBow, James S. Verlaque,
Mark P. Skarbek, Jeffrey D. Bear, Peter C. Stauffer,
Maxine Fetterly, Felix R. Cruz, Gale A. Variot,
Patricia Wiggins, Bruce A. Olmstead, Reginal L. Keene,
Robert R. Hill, Frank L. Saunders, Douglas V. Mason,
Richard H. Whitfield

² JDW, SPD, JSV, MPS, JDB, PCS, MF, FRC, GAV, PW, BAO, RLK, RRH, FLS
DVM, RHW

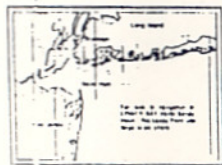
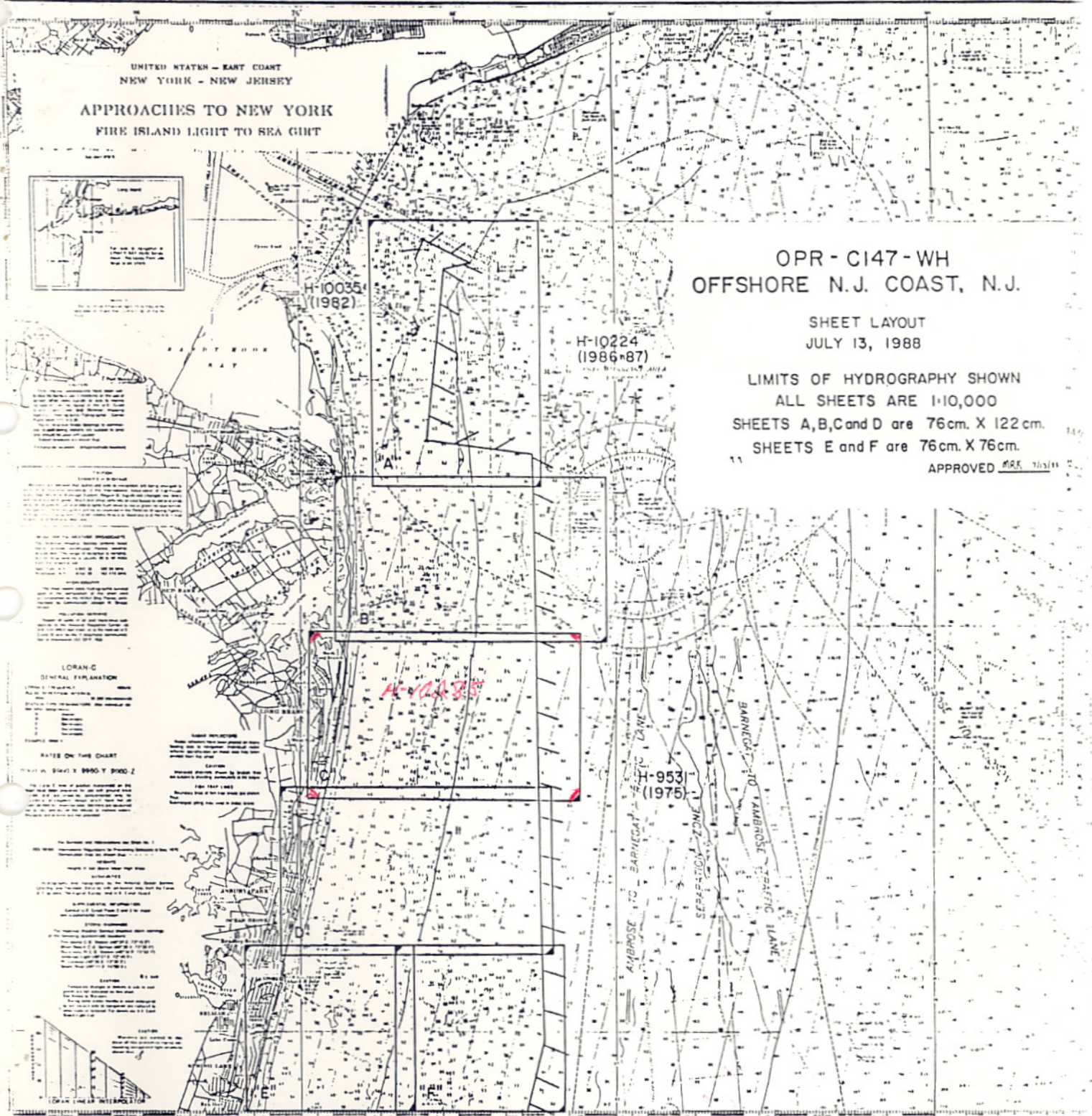
Notes in red were made during office processing

This survey junctions on the north with H-10284 and on the south

by H-10287. *and H-9531 to the east*

AWOIS/SURFM 810 3/6/91

SOUNDINGS IN FEET

UNITED STATES - EAST COAST
NEW YORK - NEW JERSEYAPPROACHES TO NEW YORK
FIRE ISLAND LIGHT TO SEA GIRTOPR - CI47-WH
OFFSHORE N.J. COAST, N.J.SHEET LAYOUT
JULY 13, 1988LIMITS OF HYDROGRAPHY SHOWN
ALL SHEETS ARE 1:10,000
SHEETS A, B, C and D are 76cm. X 122cm.
SHEETS E and F are 76cm. X 76cm.
APPROVED MARK 10/11

NOTES

1. This chart is based on the latest available hydrographic data.

2. The soundings are in feet.

3. The chart is not to be used for navigation without the aid of a compass.

4. The chart is not to be used for navigation without the aid of a compass.

NOTES

5. The chart is not to be used for navigation without the aid of a compass.

6. The chart is not to be used for navigation without the aid of a compass.

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21. The chart is not to be used for navigation without the aid of a compass.

22. The chart is not to be used for navigation without the aid of a compass.

TABLE OF CONTENTS

	PAGE
HYDROGRAPHIC TITLE SHEET	i
PROGRESS SKETCH	ii
SHEET LAYOUT	iii
A. PROJECT	1
B. AREA SURVEYED	3
C. SOUNDING VESSEL	5
D. SOUNDING EQUIPMENT & CORRECTIONS TO ECHO SOUNDINGS	5
E. HYDROGRAPHIC SHEETS	13
F. CONTROL STATIONS	13
G. HYDROGRAPHIC POSITION CONTROL	14
H. SHORELINE	15
I. CROSSLINES	15
J. JUNCTIONS	16
K. COMPARISONS WITH PRIOR SURVEYS	16
L. COMPARISONS WITH THE CHART	20
M. ADEQUACY OF THE SURVEY	20
N. AIDS TO NAVIGATION	21
O. STATISTICS	21
P. MISCELLANEOUS	22
Q. RECOMMENDATIONS	22
R. AUTOMATED DATA PROCESSING	23
S. REFERRAL TO REPORTS	23

SEPARATES FOLLOWING TEXT

- * A. HYDROGRAPHIC SHEET PROJECTION AND ELECTRONIC CONTROL PARAMETERS
- * B. FIELD TIDE NOTE
- * C. GEOGRAPHIC NAMES LIST *(field)*
- * D. ABSTRACT OF CORRECTIONS TO ECHO SOUNDINGS
- * E. ABSTRACT OF ELECTRONIC CORRECTIONS
- F. LIST OF STATIONS
- * G. ABSTRACT OF POSITIONS
- * H. CARTO CODE LIST
- * I. BOTTOM SAMPLES
- J. LANDMARKS FOR CHARTS
- * K. SIDE SCAN SONAR RECOMENDATIONS
- * L. REQUEST FOR APPROVED TIDES
- M. APPROVAL SHEET

** filed with original field records*

DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY

OPR-C147-WH

1988

WH-10-2-88

H-10285

NOAA SHIP WHITING

CDR Dean R. Seidel

Commanding Officer

A. PROJECT

General

The purpose of project OPR-C147-WH, sheet C, was to accomplish complete side scan sonar coverage with identification of contacts over a large area along the New Jersey coast. Verification of charted wrecks and obstructions had been requested by the New York and New Jersey Pilots' Associations and masters of vessels calling in New York and Newark Harbors. Because prior basic surveys in this area were conducted in 1934, contemporary survey data are required to update existing charts. ✓

The survey was conducted in accordance with Hydrographic Project Instructions OPR-C147-WH, issued August 22, 1988, Change No.1, issued September 26, 1988 and Change No.2 issued November 22, 1988. Charted wrecks and obstructions will be detected or disproved with 200 or 400 percent side scan sonar coverage. WHITING processed all data to the extent that recommendations were made as to which obstructions warranted further investigation and least depth determinations. A compilation of recommendations for further work has been included in this report. Per section 7.1 of the Project Instructions, items recommended for further investigation will be performed at a later date by a different field party. The survey data acquired for this survey affects charts 12324, 12326, and 12300. ✓

Survey of Methods

In order to accomplish this project, WHITING was outfitted with the new Hydrographic Data Acquisition and Processing System (HDAPS) for on-line data collection and post processing. The HDAPS system is a semi-automated data acquisition system whose main advantage lies in its ability to acquire and store vast quantities of sounding and sonar data, utilize multiple lines of position (MLOP) for precise positioning, and combine all data input into an easily workable format. ✓

HDAPS consists of the following system components: a Hewlett Packard (HP) 9000 Model 310 computer, two HP 35471 Color Monitors, an HP 9153B Disk Drive with a Winchester hard disk storage capacity of 20 Mbytes, a Bruning-Nicolett ZETA 824 plotter, an HP 82906A ✓

printer, and a M4 Data Model 9800 Tape Streamer. The interface between the computer and the hydrographic sensors is with a Navitronic Hyflex 1000 Hydrographic Data Handler. A Navitronic Path Guidance Unit (PGU) functions both as a remote steering display for the helm, and as a remote control for the HDAPS. All software programs are written in HP BASIC.

HDAPS determines a hydrographic position by using the Houtenbos algorithm which basically computes a least squares adjustment of the vessel's position. Up to four lines of position, in addition to the vessel acceleration and gyro compass information, are utilized in the algorithm for position computations. Erroneous range data are excluded from the real time position computation by a range editor. FALCON Mini-Ranger ranges which fall below the minimally accepted signal strength are not used in the solution.

The acquisition of MLOP has significantly increased data quantity and quality. The quantity of data has dramatically increased since the positioning algorithm has reduced the number of "flyers" obtained on-line. As a result, survey lines need not be rerun due to positional errors. Data quality has improved significantly since the least squares adjustment of the lines of position allows the hydrographer to ascertain the overall accuracy and precision of each sounding. The accuracy of each line of position determined from the algorithm is presented as a "residual". A residual is the theoretical correction to be applied to each LOP in order to make the observations intersect at the least squares position. The overall precision of each position is given as size of the 95% confidence circle. With these tools the hydrographer can readily ascertain the quality of the survey.

In the data acquisition mode, HDAPS is capable of recording side scan sonar, echo sounder, and positioning data every two seconds. All soundings are corrected on-line for predicted tides, velocity corrections, and dynamic draft (static draft plus Settlement and Squat correction). As a result, the field hydrographer, for the first time, has the capability of comparing on line "almost" smooth soundings with charted and prior survey soundings. HDAPS also has the capability to accept real time tides, when they are available. Both the high and low frequency digitized depths are recorded. All LOP's are corrected for the baseline calibration correctors entered in the C-0 table. Any one of the following On-line plots can be produced: Depth plot, Trackline plot, or Side Scan Sonar Swath plot. All mainscheme lines were plotted as Swath Plots to ensure that adequate overlap between adjacent swaths was maintained. Depth plots were used exclusively for crosslines and developments.

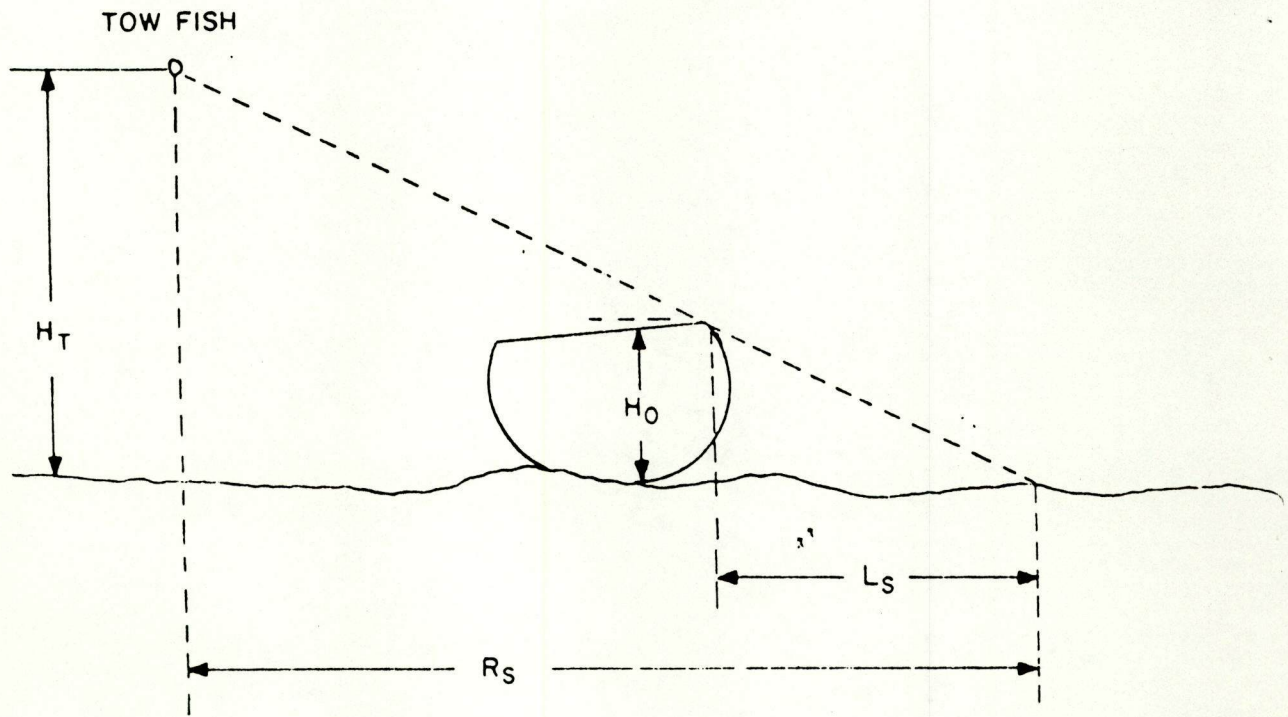
Data are archived on 7-inch magnetic tape reels read on the M4 Data Tape Streamer. Data tapes are labeled with a five digit code designating the day, number of tape for that day, and a "0" for a raw or master tape, and a "1" for an edited tape. For example, the second master tape on Day 285 would be coded as 28520. Likewise, the first edited tape of Day 247 would be 24711.

On-line operations were conducted exclusively from WHITING. The mode of operations was conducted from running a 24-hour shipboard data acquisition and processing schedule. In order to ensure that 200% side scan sonar coverage was obtained, sounding lines were run at 80 meter line spacing for the 100 meter range scale, and 130 meter line spacing for the 150 meter range scale. This line spacing ensured that the required effective swath overlap of 2.0 mm at the scale of the survey (20 meters) was maintained, per the Provisional Side Scan Sonar Manual, dated April of 1985. An EG&G model 260 dual channel image correcting side scan sonar unit, towed behind WHITING, was the only unit used for the survey. The use of a heavier towing cable reduced the number snags on lobster pot lines, resulting in less down time. All significant contacts located were plotted and their height off the bottom determined as shown on figure 1. Items deemed significant enough for further investigation are included in Section Q. *See also section 7.2.2 of the Evaluation Report.*

The Project Instructions dictated the inshore limits of the survey to be the 30-foot depth curve. This 30-foot curve inshore limit was not adhered to because of safe limits for navigation or side scan sonar coverage limitations. In most cases, adequate side scan sonar coverage was not obtainable in less than 35 feet of water. In 30 feet of water (9.1 meters), the minimum height of the sonar fish off the bottom is 8 meters (8% of the 100 meter range scale). This would result in a towfish height of 1.1 meters below the water surface. Since WHITING has a draft of 10.6 feet (3.2 meters), cavitation from the screws would degenerate the sonar trace. Consequently, by varying towing speeds and cable lengths, WHITING could adequately obtain sonar coverage in depths 35 feet or greater. The HDAPS on-line swath plot reduces the effective scanning swath whenever the fish is less than 8% of the range scale in use. In areas where the effective swath is plotted as less than 8%, the sonargrams were examined to ensure adequate coverage was maintained.

B. AREA SURVEYED

The project area for "C" sheet extends approximately from offshore Monmouth Beach, New Jersey on the north edge (latitude 40-19-45⁵⁸N) southward to offshore Elberon, New Jersey (latitude 40-15-42 N) and junctions to the east with H-9531 (longitude 73-52-15²W). The western limit is the limit of safe navigation, or, the minimum effective side scan tow depth of 35 feet. This survey was conducted from September 19 through October 28, 1988.



$$H_0 = \frac{L_S}{R_S} H_T$$

For example:

If, Shadow length (L_S)	= 15 Meters
Shadow range (R_S)	= 50 Meters
Tow fish height (H_T)	= 20 Meters
Then, Object height (H_0)	= 6 Meters

Figure 1. Object height determination.

C. SOUNDING VESSELS

The NOAA Ship WHITING was the only sounding vessel used for this survey.

<u>EDP#</u>	<u>Vessel</u>	<u>Hull No.</u>	<u>Days (1988)</u>
2930	WHITING	S329	263-267, 269-271, 278, 280-281, 284, 291, 293, 299-302

D. SOUNDING EQUIPMENT AND CORRECTION TO ECHO SOUNDINGS

1. SOUNDING EQUIPMENT

WHITING was equipped with an EG&G model 260 dual channel image correcting side scan sonar unit. A listing of serial numbers and days of use follows:

<u>EDP#</u>	<u>Vessel</u>	<u>Type</u>	<u>S/N</u>	<u>Days (1988)</u>
2930	WHITING S329	EG&G Recorder 260	0012102	264-267, 269-271 278, 280-281, 284 291, 293, 299-300
		Towfish	0011902	264-266
			0011908	266-267, 269-270
			0011902	271
			0011908	278, 280-282, 284
			0011901	291, 293, 299-302

A Raytheon DSF 6000N echo sounder was the only sounding equipment used during this survey. The following is a list of serial numbers and days of use:

<u>EDP#</u>	<u>Vessel</u>	<u>Type</u>	<u>S/N</u>	<u>Days (1988)</u>
2930	WHITING S329	DSF 6000N	A116N	263-267, 269-271 278, 280-281, 284 291, 293, 299-302

In accordance with the Project Instructions, section 6.6.1, depths recorded with the DSF 6000N echo sounder were measured in feet with a calibrated velocity of sound through water of 1463.04 m/s.

Survey records were scanned by NOAA Commissioned Officers,

Survey Technicians, and Cartographic Technicians. Upon scanning the DSF 6000N analog records, any significant peaks or deeps which occurred between soundings, as well as any missed depths on the records, were inserted during Post Processing on the HDAPS system. Also during post-processing, any incorrectly digitized soundings and the effects of sea and swell action on the echograms were corrected.

Figures 2 and 3 depict the Mini-Ranger antenna positions, transducer position, and layback configuration of the side scan sonar towfish for the WHITING. All of these corrections are incorporated in the "Offset" table for the HDAPS, Supplemental 3E. By HDAPS convention, the "Offset" is defined as the left/right displacement of the sensor, positive to the right when facing the bow of the vessel. "Layback" is defined as the fore/aft displacement of the sensor, positive aft. "Height" is the up/down displacement of the sensor from the static waterline, positive down. The location of the high frequency DSF-6000N transducer was used as the starting point (0,0) for the on-board coordinate system.

2. SIDE SCAN SONAR

Side scan operations were performed on WHITING by fitting a custom made pulley block and A-frame support to the after deck. A heavily armored side scan sonar towing cable was used for this project which reduced the number of times the fish snagged on lobster pot lines as well as allowing for deeper towing depths.

Methods of Investigation

Side scan sonar operations were run at speeds of less than six knots with the 100 meter range scale, in depths less than 60 feet, and at speeds of less than four knots with the 150 meter range scale in greater depths. Sonar swath plots were generated on-line to insure the required swath coverage (2 mm at the scale of the survey) was obtained. Analysis of the data was clearer by plotting off-line swath plots for each 100% of coverage obtained on separate field sheets.

Processing Procedures

Inspection of the sonargrams was the initial step of processing the side scan sonar. Inspection involved checking the records for complete annotation and identifying and numbering each of the significant contacts (as per section 7.1.1 of the Project Instructions, those contacts with computed heights rising above the ocean bottom at least 10% of the depth in water depths greater than 66 feet or those contacts with computed heights of at least one meter in less than 66 feet of water). Other views of the same contact from adjacent lines were determined by hand plotting the significant contact on the Trackline plot, then determining where others views of the same contact should be seen on the sonargrams. All adjacent views were inspected to ensure that they were the same

SIDE SCAN SONAR OFFSET DIAGRAM

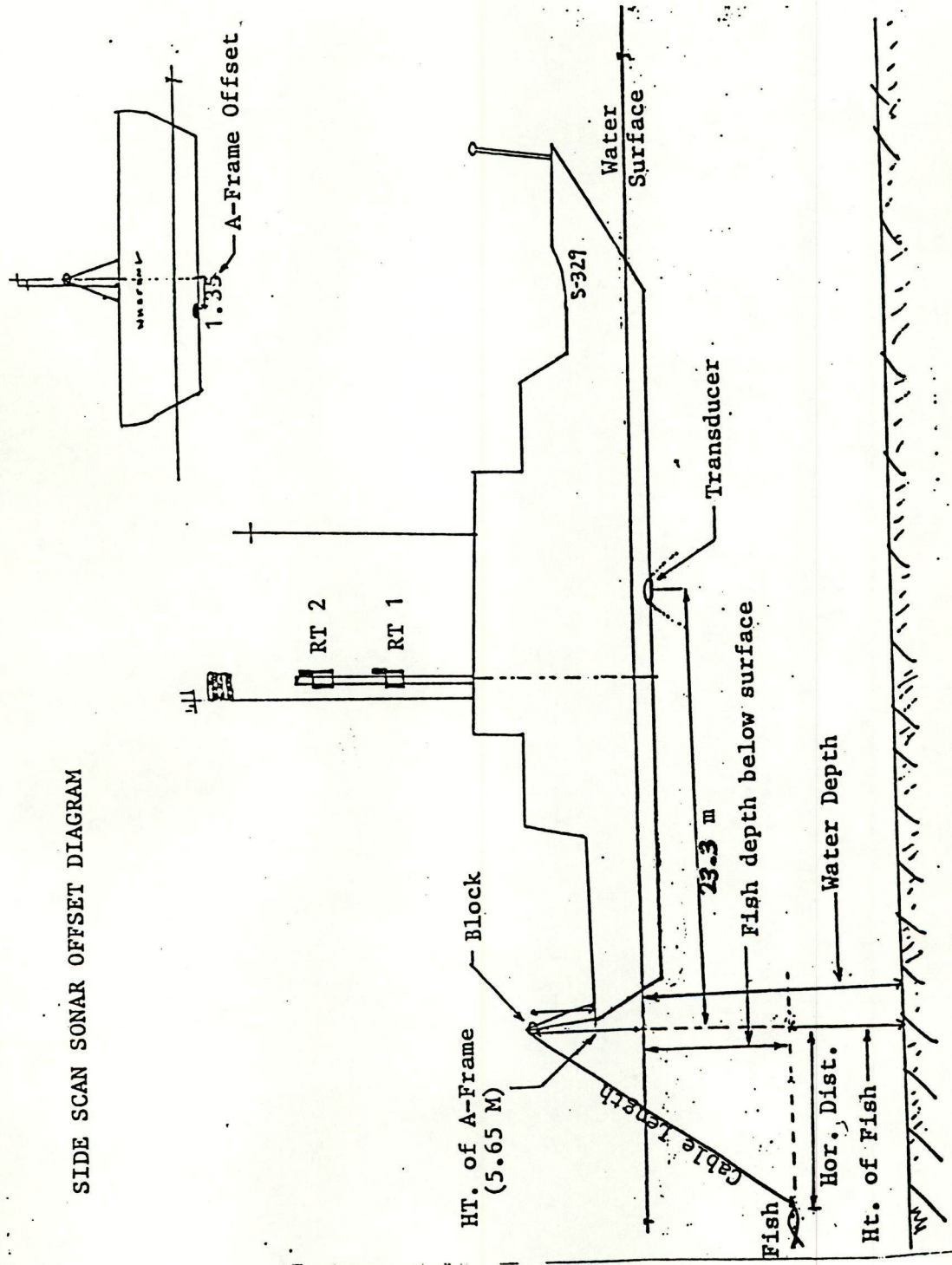


Figure 2.

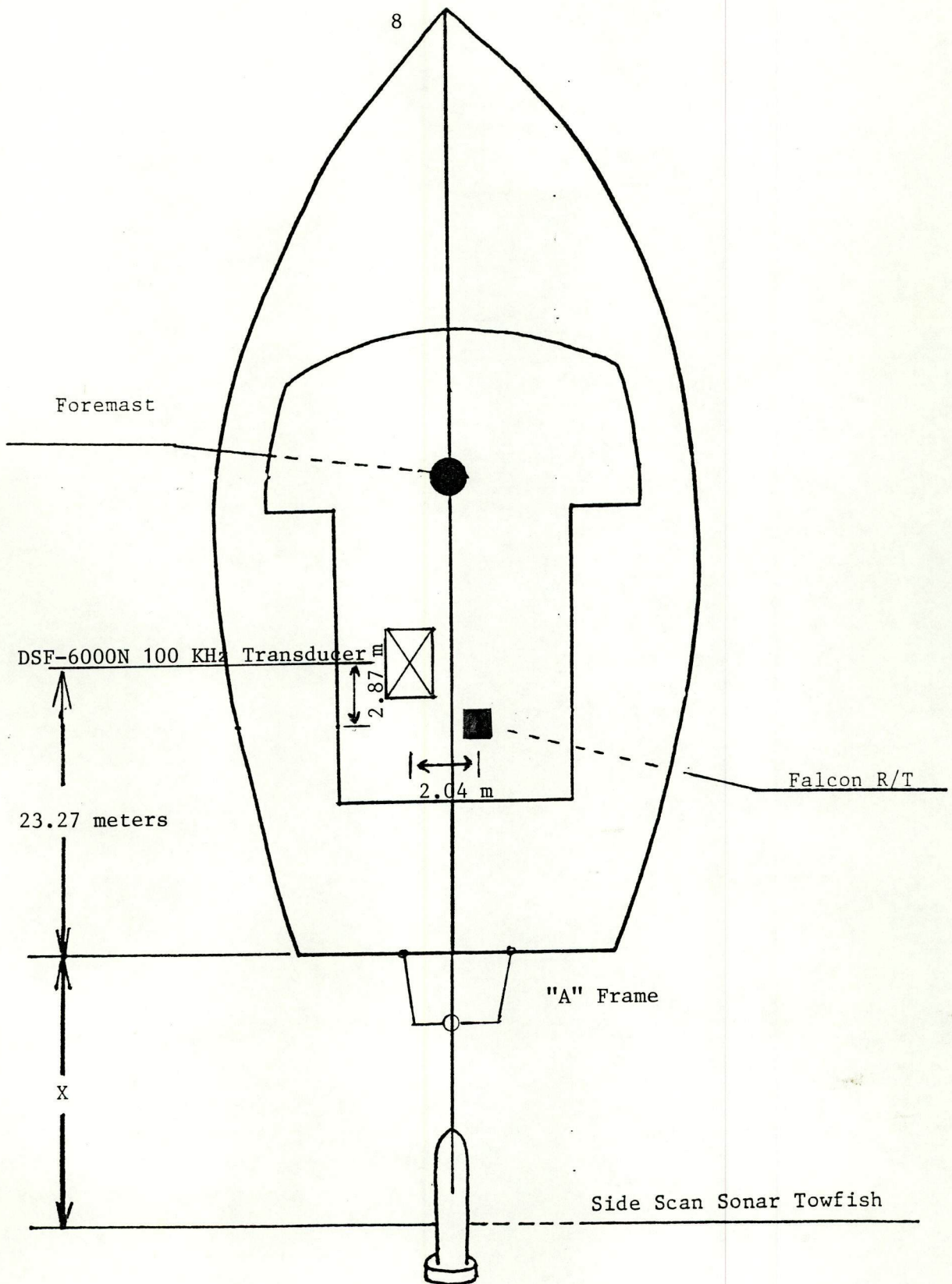


Figure 3

contact. Per section 7.1.1. of the Project Instructions, if contacts were closer than 3.3 mm apart using the largest scale chart of the area, only the most significant contact need be investigated. Since the largest scale chart of the area is 1:40,000, if adjacent views of the same contact fall within 1.3 cm at the survey scale, only the most significant contact would need to be addressed. Contacts within 1.3 cm of one another are circled with a dotted line in pencil on the SSS Contact plot. If two different items with similar descriptions were located within 1.3 cm of each other, near an AWOIS item, each item was recommended for further investigation to readily identify the AWOIS item. Otherwise, the most significant contact in the respective circle was recommended for further investigation listed in the SSS Post Processing Contact List. Adjacent views of significant contacts were not numbered but were roughly compared on the Trackline plot and listed on the Preprocessing Contact List.

After being identified and numbered on the sonargrams, the significant contacts were listed in the Side Scan Sonar Preprocessing Contact List by day, contact number, contact name (relative to the position number of the contact), time, offset from the reference line (negative to port and positive to starboard), shadow length, item description and adjacent views. All of this information is necessary as entering parameters for the "Contact Utility" program in the HDAPS Post Processing menu. The program generates the true contact height off the bottom by similar triangles and computes the contact position in Easting and Northing by inputting the aforementioned parameters. With this information, the significant contacts were incorporated into an HDAPS signal list and plotted on the Side Scan Sonar Contact plot. A listing of all significant contacts may be found in Supplemental 5. ~~A listing of all significant contacts may be found in Supplemental 5 and a diskette with the contact list is included with the survey data.~~

Two areas within the survey limits had a very irregular bottom. The echogram trace for both areas showed 5-6 foot peaks in depths of 40 feet. Inspection of the sonargrams revealed rocky areas without distinct shape or size preventing contact heights from being determined. As a result, the areas listed below were labeled "Rocky Area-HDA" on the sonargrams for further development:

<u>Latitude</u>	<u>Longitude</u>	<u>Radius of Development</u>
40-16-45 N	073-58-15 W	700M
40-18-10 N	073-57-30 W	800M

A Hydrographic Development Area (HDA) is an area which may warrant further development to obtain a more accurate representation of the ocean floor due to spurious peaks and troughs which may not be depicted from running the required line spacing for a basic hydrographic survey. On days 300-302, 40-meter splits were run over these "Hydrographic Development Areas" to delineate the ocean bottom. By performing these splits, the hydrographer is confident that an accurate representation of the ocean floor has been

** Filed with original field records*

acquired. The extended area of rocky bottom may be seen by a dotted red line on the SSS Contact Plot.

Since the purpose of this project was to identify significant side scan sonar contacts for further investigation by another field unit, a Sonar Contact Examination Record was not completed. However, a form titled "SSS POSTPROCESSING CONTACT LIST", found in Separate K, accounts for all of the significant contacts with asterisks by those recommended for further investigation. This form lists the contact number, contact name, Easting, Northing, Latitude, Longitude, Height, Water Depth, and Recommendations or Remarks for further investigation. Additional computations for side scan sonar positions may be found in Supplemental 5.*

3. VELOCITY CORRECTIONS

Corrections for sound velocity in water were calculated from data obtained from a Martek Mark VII TDC module and sensor assembly, s/n 101. Program "Velocity" was used for velocity correction computations.

Velocity casts were conducted in the same area where hydrographic data was obtained for the period that the computed correctors were to be applied. The data collected from each velocity cast was used directly to construct the corresponding velocity table. For example, between days 263 and 268, hydrographic data was collected for sheets B and C. The temperature and conductivity values given by cast #2 were used in computing velocity table #2. This velocity table was used until day 268 at which time velocity cast #3 was conducted and velocity table #3 generated. Likewise, velocity cast #4 yielded velocity table #4, etc. No averaging between two casts occurred nor was required.

As a general trend, the correctors decreased throughout the project, corresponding to the seasonal cooling of the water column. The most radical shift occurred between day 283 (velocity cast #5) and day 300 (velocity cast #6) where the velocity correctors decreased from 2.2 feet to 1.6 feet in 85 feet of water. The water column stabilized between days 308 and 325 as seen by the similar velocity correctors acquired during velocity casts #7 and #8.

All velocity tables were applied on-line by the HDAPS system and are found in Supplemental 3.*

<u>Table</u>	<u>Cast</u>	<u>Day</u>	<u>Depth</u>	<u>Time</u>	<u>Location</u>	<u>Days Applied</u>
1	TDC 2	263	28.0 m	1620Z	40-22-30 N 73-52-42 W	263-268
4	TDC 4	268	24.0 m	1700Z	40-16-21 N 73-53-08 W	268-282
5	TDC 5	283	26.0 m	1114Z	40-16-24 N 73-53-12 W	283-297

* Filed with original field records

Velocity Cast 2 was taken prior to the commencement of hydrographic operations in order to be incorporated into the HDAPS Velocity table for on-line use. Velocity correctors were applied automatically by the HDAPS system during hydrography. TDC casts 4 and 5 were taken at two week intervals and applied to the on-line soundings acquired during that respected time period. A Nansen cast was performed on day 325 at the conclusion of the project. Per section 2.1.2.2 of the Field Procedures Manual for Hydrographic surveying (1988), comparisons were conducted on day 235 between TDC cast 8 and the Nansen cast. Temperature values agreed within 0.1°C and velocity measurements were within 2 meters/second which satisfies the criteria found in the Field Procedures Manual. Velocity tables are included in Supplemental 3B.*

All on-line soundings were corrected for velocities during the survey.

4. BAR CHECKS

No bar checks were taken from the WHITING. Daily echo simulator checks were performed so that the narrow and wide beam returns compared within one-tenth of a foot.

5. VERTICAL CASTS

Shipboard echo sounder/pneumatic depth gauge comparisons were conducted on day 268, while the ship was at anchor off Sandy Hook, New Jersey.

A pneumatic depth gauge (s/n 545-22HBC) orifice was placed on the ocean bottom directly under the transducer and the depth readings recorded concurrently with the analog readings from the DSF-6000N echo sounder (s/n A116N). Readings from the echo sounder and the pneumatic depth gauge were compared. The results (in feet) of these findings follow:

<u>Pneumo Depth</u>	<u>Pneumo Corr.</u>	<u>Pneumo Depth + Corr</u>	<u>Draft by Pneumo</u>	<u>Pneumo - Draft</u>	<u>Echo Sounder Depth + 0.4 Vel Corr</u>	<u>DSF 6000 Inst. Error</u>
33.0	+0.2	33.2	10.6	22.6	22.9	-0.3
33.2	+0.2	33.4	10.6	22.8	22.8	+0.0
33.2	+0.2	33.4	10.6	22.8	22.8	+0.0
33.2	+0.2	33.4	10.6	22.8	22.7	+0.1
33.2	+0.2	33.4	10.6	22.8	22.7	+0.1
----	----	----	----	----	----	----
33.2	+0.2	33.4	10.6	22.8	22.8	+0.0

* Filed with original field records.

The average instrument error with velocities applied is +0.0 feet.

The pneumatic depth gauge was bench calibrated on June 8, 1988 and field calibrated against a lead line on Day 268 and a corrector of +0.2 feet was applied to all pneumo readings. Calibration sheets may be found in Supplemental 3D.*

6. DRAFT CORRECTION

The depth of the ship's transducers was measured on day 268 by divers with the pneumatic depth gauge and found to be 10.6 feet, which agrees with historical data. On-line data was acquired with a draft of 10.56 feet.

7. SETTLEMENT AND SQUAT

Settlement and squat correctors for the WHITING (VESNO 2930) were obtained from historical data determined on April 4, 1985 at Puerto Castilla, Honduras (OPR-303-MI/WH-85). No major ship alterations have been performed that would affect the accuracy of these settlement and squat correctors. A 0.1 foot corrector was determined for all engine speeds between all ahead "2's" and all ahead "5's". A 0.2 foot corrector was determined for all ahead "6's" and a 0.5 foot corrector was determined for all ahead "7's". All data was collected by WHITING at speeds between all ahead "2's" and all ahead "7's". This historical settlement and squat data was applied to all soundings obtained by WHITING. Historical data is included in Supplemental 3A.*

8. TIDE CORRECTORS

Predicted tide correctors were applied on-line by HDAPS to all soundings that were acquired with the DSF 6000N, except as noted in the Field Tide Note, Separate B.* All echo sounding data plotted on the final field sheets were plotted with predicted tide correctors. *Approved tides have been applied to the smooth sheet during office processing.*

The tidal datum for this project was mean lower low water. The operating tide station at Sandy Hook, New Jersey (853-1680), served as the only control for datum determination. Opening and closing third-order levels were run from the tide staff to five bench marks on September 6 and November 28, 1988, respectively.

Predicted tides were calculated using Sandy Hook, New Jersey, as the reference station. The time and height correctors were given in the Project Instructions, section 5.9, for the project area (a -30 minute time correction, and a 0.94 range ratio, north of latitude 40-10.0 N). The datum determination for predicted tide determination in the 1988 Tide Table is mean low water instead of mean lower low water.

** Filed with original field records.*

Smooth tides were requested from Chief, Sea and Lake Levels Branch, N/OMA12, in a letter dated November 21, 1988, referenced as Separate M. The Field Tide Note is included as Separate B.*

E. HYDROGRAPHIC SHEETS *(Field)*

The assigned survey scale was 1:10,000. All sheets were produced on WHITING with the HDAPS system on the Bruning-Nicolett ZETA 824 plotter. A list of submitted sheets for H-10285 follows:

<u>Sheet</u>	<u>Scale</u>	<u>Quantity</u>
Field (swath,XL)	1:10,000	4
Raw Trackline	1:10,000	3
Edited Plot (swath)	1:10,000	4
Edited Plot (trackline)	1:10,000	2
Edited Plot (soundings)	1:10,000	3
Semi-Smooth (swath)	1:10,000	4
Smooth Sounding Plot	1:10,000	4
SSS Contact Plot	1:10,000	2
Master Overlay	1:10,000	4

All survey sheets were submitted with the descriptive report to N/MOA23, Hydrographic Surveys Branch, Atlantic Marine Center in Norfolk, Virginia.

F. CONTROL STATIONS *See Section 2.a. of the Evaluation Report.*

The horizontal control datum for this project was the North American Datum of 1983. The following stations were used as Falcon Mini-Ranger shore stations during this survey:

<u>No.</u>	<u>Name</u>	<u>Source</u>	<u>Year</u>
001	AMBROSE LIGHT (ECC)	AMC <i>WHITING</i>	1988
003	SPERMACEITI COVE CG CUPOLA	AMC <i>NSS</i>	1988 <i>1926</i>
005	SEA CLUB 1	AMC	1988
006	ADMIRAL	AMC	1988
010	IMPERIAL	AMC	1988
012	ASBURY T	AMC	1988
016	BELFISH	AMC	1988

Stations 005, 006, 010, 012, and 016 were established using third order - class one traverse methods in August by Clifford S. Middleton Jr., Party Chief from Coastal Survey Unit, N/MOA2222, Atlantic Marine Center, Norfolk, Virginia. The position for station 001 was recomputed using NAD 83 in place of NAD 27. A copy of the Horizontal Control Report may found in ~~Separate L.~~ *Supplement 11 **

** Filed with the original field records.*

G. HYDROGRAPHIC POSITION CONTROL *See section 2.6. of the Evaluation Report.*

Hydrographic position control was accomplished using the Mini-Ranger Falcon 484 system which provided accuracy adequate to exceed 1:10,000 scale survey requirements. Only range/range positioning, using 4 stations simultaneously, was used during this project. A survey network was set up to allow four reference stations to be accessed simultaneously by HDAPS. The following MOTOROLA Mini-Ranger equipment was used:

<u>Vesno</u>	<u>Equipment</u>	<u>S/N</u>
2930	RPU*	E0138
	CDU	F0201
	R/T	E2960

Remote Reference Stations:

<u>Code</u>	<u>S/N</u>	<u>Station</u>	<u>Days (1988)</u>
2	E2959	001	263-267, 269-271, 278, 284, 291, 293, 299-302
3	E2075	003	264
5	E2976	005	263-267, 269-271, 278, 280-281, 284
6	F3290	006	263-267, 269-271, 278, 280-281, 284, 291, 293, 299-302
9	E2979	010	280-281, 284, 291, 293, 299-302
7	F3241	012	263-267, 269-271, 278, 280-281, 284, 291, 293, 299-302
8	E2890	016	284

Critical System Check:

An EDM range/azimuth calibration, using an HP-9810 Total Station, s/n 60584, was performed on September 15 (Day 259) for code 6 using RPU E0138 and RT E2967 from station Sea Club 1. Critical checks with sextants were used on September 25 (Day 269) for codes 2 and 5 and on October 13 (Day 287) for codes 7, 8 and 9 with the same R/T - RPU combination. Serial numbers for the sextants were as follows:

S/N
T2989
T2976
T2990

All critical check values were less than 5 meters which is within the required limits as stated in OPODER 86. Results of the calibrations are included in Supplemental 4.*

Non-critical System Checks:

Non-critical system checks were performed at least twice daily. Per Attachment A of the Project Instructions, noncritical checks

* Filed with original field records

were documented by stopping the vessel and invoking the DUMP GRAPHICS and DUMP ALPHA commands in "page 3" of the "SURVEY" program. Screen Dumps of "page 3" are included with the on-line printout in the daily records. An abstract of the observed residuals may be found in Supplemental 4.*

Mini-Ranger Falcon Calibration:

Baseline calibrations were performed to the standards of the draft AMC OPORDER 86 (Falcon 484 Calibration Procedures and Standard Forms) and Attachment A in the Project Instructions. Opening baseline calibrations were performed on August 17 and 18 at Fort Monroe, Virginia, and on August 29 and September 6 at Sandy Hook, New Jersey. Only the values computed over the Sandy Hook baseline were utilized as correctors in the HDAPS C-0 table. When an R/T Falcon Mini-Ranger was recalibrated, the new baseline values were incorporated into a new C-0 table so that only the most recent baseline correctors were applied to on-line data. Each C-0 table has a date written on it's respective printout to differentiate one table from another. All records of these calibrations are included with the survey records in Supplemental 4.*

Per Attachment A of the Project Instructions, a closing baseline calibration was not performed. The critical system checks performed on days 259, 269, and 287 were within tolerance and MLOP were used 100% during the project.

H. SHORELINE *See Section 3.c. of the Evaluation Report*

No shoreline lies within the project boundaries or field sheet limits. Therefore, delineation of shoreline detail was not applicable to this survey. Shorelines were transferred to the field sheets from a 1:10,000 blow-up of chart 12326 and from a 1:10,000 blow-up of chart 12324 for the smooth sheets for orientation purposes only. Per Change No. 1 to the Project Instructions, charted landmarks were verified during the course of the survey by taking visual cuts from the ship's alidades and checking their position with the chart. All charted landmarks were found to be adequately positioned on charts 12324 and 12326.

I. CROSSLINES *See section 3.a. of the Evaluation Report.*

A total of 32 linear nautical miles of crosslines were run on "C" sheet which amounts to 8.5% of the mainscheme hydrography acquired. In accordance with the Project Instructions, section 6.5.1, crosslines were run at 1000-meter intervals.

The crossline soundings agreed to within ^{1.00}2 feet of the mainscheme soundings. This complies with the allowable discrepancies as stated in the Hydrographic Manual, section 4.6.1.

** Filed with original field records*

J. JUNCTIONS *See Section 5 of the Evaluation Report*

This sheet junctions to the north with H-10284, to the east with ~~prior survey~~ H-9531 and to the south with H-10287.

Junction soundings with H-10287 and H-10284 agreed ^{0 to 1} ~~within two~~ feet whereas the survey conducted in 1975, H-9531, agreed within ~~three~~ ^{0 to 3} feet of the depths acquired during this survey.

K. COMPARISON WITH PRIOR SURVEYS *See section 6 of the Evaluation Report*

Soundings from this sheet were compared with the following surveys:

Registry #	Scale	Year Surveyed
H-6463 WD	1:40,000	1939
H-6190	1:40,000	1936
H-5638	1:10,000	1934
H-9531	1:40,000	1975

Representative soundings from these previous surveys were transferred to an overlay and checked against soundings from this survey. Depths were found to be in agreement within 3 feet for H-6190. Soundings from H-5638 varied up to 4 feet with the current survey soundings. Comparisons with H-9531 agreed within 2 feet.

Comparisons of soundings from H-6463WD cannot be accurately performed until diver least depths have been acquired on those wrecks and obstructions located in the survey area. Actual soundings from H-6463WD were only acquired over wrecks and obstructions in the survey area which have not been fully investigated during this project.

The 3-4 foot difference in survey depths should not be considered unusual for the following reasons:

1. The above prior surveys were performed approximately 50 years ago. Positioning consisted of visual cuts using sextants and soundings taken by leadline. Modern survey methods tend to be more accurate.

2. The survey area has a reputation of constantly shifting shoals and sand bottoms from strong currents and storms, hence, bottom configurations could have easily changed in the 50 years since the survey was performed.

In common areas, the soundings from the current survey should be utilized to update the existing charts.

AWOIS 4288

AWOIS 4288 is listed as an unknown obstruction in which a 31 foot sounding was taken at lat 40-16-45.6 N, long 73-58-04.8 W by H6190/36. A rock was found with a 26 foot sounding at lat 40-16-48 N, lon 73-58-00W by H6463/39WD and the item was reported wire drag cleared to 24 feet. AWOIS requirements were 200% side scan scan sonar coverage for a radius of 100 meters.

AWOIS 4288 is located in a rocky area where inspection of the sonargrams showed many shadows due to boulders or ledges. As a result, 40 meter splits were run on day 301 in the AWOIS area to get a better representation of the ocean bottom. The shoalest peak was found outside the 100 meter radius of AWOIS 4288 as a 31 foot sounding at lat 40-16-41.5⁸N, long 73-58-07.5²W (position 3745+1). This ~~least~~ depth was located 250 meters southwest of the reported AWOIS position with surrounding depths of 42-43 feet.

The hydrographer recommends that an echo sounder development be conducted over the surveyed least depth. A diver investigation and least and depth determination should be conducted over the least depth found from performing that echo sounder development by a future field unit to fully resolve this item.

See section G.b. of the Evaluation Report.

AWOIS 4289

AWOIS 4289 is listed as a 29 foot⁹⁵ sounding on a rock at lat 40-16-48N, long 73-58-12W in 36-38 feet of water by H6463/39W. AWOIS requirements were 200% side scan sonar coverage for a radius of 100 meters.

AWOIS 4289 is located 300 meters from AWOIS 4288 and is also located in the same rocky area.² This area was developed with 40 meter splits on day 301 and a 3² foot sounding was found directly over the reported AWOIS position at lat 40-16-34.2⁹²N, long 73-58-02.6⁹W (position 3870).
^{11.25} ³⁸⁶⁹⁺⁶

The hydrographer recommends that an echo sounder development be conducted over the surveyed least depth. A diver investigation and least depth determination should be conducted over the least depth found from performing that echo sounder development by a future field unit to fully resolve this item. *Concord. See also Section G.b. of the Evaluation Report*

AWOIS 4290

AWOIS 4290 is listed as an obstruction at lat 40-17-18N, long 73-58-06W with a least depth of 26-27ft and cleared to 24 feet. AWOIS requirements were 400% side scan sonar coverage for a radius of 100 meters.

Since there were no side scan contacts found within the 100 meter radius circle during the initial 200% coverage, 400% coverage

was obtained of the area. Contact #18 (SSS position #2862.6p&s) was an obstruction found 220 meters southeast of the reported AWOIS position with a computed least depth comparable to that of the AWOIS listing. This obstruction had an approximate height of 10 feet in 42 feet of water at lat 40-17-07.610N, long 73-58-01.467W.

The hydrographer recommends that a diver investigation and least depth determination be performed by a future field unit on contact #18 to fully resolve this item.

AWOIS 4291

AWOIS 4291 is listed as a 40 foot sounding over boulders at lat 40-18-18N, long 73-57-00W. AWOIS requirements were 200% side scan sonar coverage for a radius of 100 meters.

AWOIS 4291 is located in an irregular rocky area where return on the sonargrams did not depict any specific contact. This rocky area extended eastward to lat 40-18-15N, long 73-56-45W. As a result, 40 meter splits were run on day 302 to give a better representation of the ocean floor. Contact #20 (SSS position #3646.2p) is believed to be a rock with an approximate height of 8 feet in 45 feet of water at lat 40-18-18.179N, long 73-56-55.223W. This contact is located ^{outside} within the 100 meter circle and is believed to be the AWOIS item.

The hydrographer recommends that a diver investigation and least depth determination be performed on contact #20 by a future field unit to fully resolve this item. *Concur See also section 6.6 of the Evaluation Report.*

AWOIS 4292

AWOIS 4292 is reported in LNM46/71--3RD as a sailboat which was reported afire and sunk in 55 feet of water at position approximate lat 40-19-00N long 73-56-00W. AWOIS requirements were 200% side scan sonar coverage for a search radius of 3000 meters.

Several contacts were located within the required 3000 meter circle radius, however, none of the items had characteristics of the AWOIS item nor were any of the contacts located in 55 feet of water.

As a result, the hydrographer recommends that this item has been disproven and the wreck symbol should be removed from the charts. *Concur. See ^{also} section 7.1 of the Evaluation Report.*

AWOIS 1531

AWOIS 1531 was reported as an obstruction where a 44 foot sounding was taken during H6463/39WD at position lat 40-16-12N 73-56-30W. The obstruction felt like wreckage with evidence of rust

present. AWOIS requirements were 400% side scan sonar coverage for a radius of 100 meters.

Since there were no contacts found within the required 100 meter circle radius, 400% side scan sonar coverage was acquired. ~~Approximately 200~~²⁵³ meters southwest of the reported AWOIS position, contact #9 (SSS position #2524.5s) was found with an approximate height of 2 feet in ~~54~~⁴⁷ feet of water at lat 40-16-07.913N, long 73-56-35.198W. This contact had wrecklike characteristics on the sonargram and is believed to be the AWOIS item.

Although the height of the contact is not significant, it does have wrecklike characteristics. As a result, the hydrographer recommends that a diver investigation and least depth determination be conducted on contact #9 by a future field unit to fully resolve this item. *See Section 6.6 of the Evaluation Report.*

AWOIS 1537

AWOIS 1537 is listed as a 49 foot sounding taken over a wreck at position lat 40-16-54N long 73-56-24W. AWOIS requirements were 200% side scan sonar coverage for a radius of 100 meters.

A contact was found ~~450~~²⁵⁸ meters northwest of the reported AWOIS position with wrecklike characteristics and listed in the side scan sonar contact list as contact #23 (SSS position #2300.3p&s). Echosounder height of the contact is 5 feet in ~~54~~⁶¹⁻⁶² feet of water at lat 40-17-01.968N, long 73-56-26.539W. There were no contacts identified inside the 100 meter circle radius.

The hydrographer recommends that a diver investigation and least depth determination be accomplished on contact #23 by a future field unit to fully resolve this item. *Concur. See also Section 6.6 of the Evaluation Report*

AWOIS 1538

AWOIS 1538 is listed as a 43 foot sounding taken over an obstruction in 52-55 feet water. The obstruction is believed to be wreckage at lat 40-17-00N, long 73-57-00W. AWOIS requirements were 400% side scan sonar coverage for 100 meters.

Since there were no contacts found with the initial 200% side scan sonar coverage inside the 100 meter circle, 400% coverage of the area was obtained. Approximately 220 meters southeast of the reported AWOIS position, a contact was found with height of 8 feet in 50 feet of water at lat 40-16-58.406N, long 73-56-49.616W. The contact has characteristics of a dumpsite and is labeled as contact #12 (SSS position #2670.9p&s) in the side scan sonar contact list.

The hydrographer recommends that a diver investigation and least depth determination be accomplished on contact #12 by a future field unit to fully resolve this item. *Concur. See also Section 6.b. of the Evaluation Report.*

AWOIS 1543

AWOIS 1543 is listed as 36 foot sounding over an obstruction at lat 40-18-24N, long 73-56-30W by H6463/WD. AWOIS requirements were 400% side scan sonar coverage for a radius of 100 meters.

A contact was found on the perimeter of the 100 meter radius circle for the reported AWOIS position. The contact has a 7 foot peak in 49⁸ feet of water at lat 40-18-23.229N, long 73-56-33.079W with wrecklike characteristics and is labeled as contact #8 (SSS position #2497.4p&s) in the side scan sonar contact list.

The hydrographer recommends that a diver investigation and least depth determination be accomplished on contact #8 by a future field unit to fully resolve this item. *Concur. See also section 6.b. of the Evaluation Report.*

Further details on the side scan sonar data may be found in Supplemental 5.* Recommendations for items requiring additional investigation are included in Section Q.

L. COMPARISON WITH THE CHART *See Section 7. of the Evaluation Report.*

Comparisons of data from the present survey were made during the course of data acquisition with a 1:10,000 scale enlargement of Chart 12324, 24th edition, dated November 15, 1986, and Chart 12326, 38th edition, dated February 22, 1986 per section 6.11 of the Project Instructions. All soundings agreed within 1-2 feet for chart 12324 and within 2-3 feet for chart 12326 with the following exception:

Certain areas on the charts had either wire drag depths or danger to navigation symbols over wrecks or obstructions. Comparisons with these soundings cannot be accurately determined without diver investigations performed on these items. A future field unit is expected to conduct dive operations to fully resolve the items at which time comparisons between wrecks and obstructions may be conducted.

There were no dangers to navigation within the survey area.

M. ADEQUACY OF SURVEY

This survey was conducted in accordance with the Project Instructions, Hydrographic Survey Guidelines, AMC OPORDERS, and the Hydrographic Manual. This survey is a complete basic hydrographic survey with the exception that contacts identified by 200% side scan

** Filed with original field records*

sonar coverage have been left for further investigation and least depth determination by a different field unit at a future date.

N. AIDS TO NAVIGATION *See section 7.c. of the Evaluation Report.*

Visual cuts were taken from the ships gyroscopic alidade which confirmed that the landmark positions for this sheet are adequately and accurately charted.

Floating Aids to Navigation

No floating aids to navigation were within the survey limits.

Non-Floating Aids to Navigation

One non-floating aid to navigation nearby the survey area was Ambrose Light (Light List # 730) which was positioned to third order accuracy for survey H-10224 in 1986 (See Horizontal Control Report submitted with H-10224, 1986).

Four new fixed landmarks located along the shoreline were positioned to class I - third order accuracy in August by Coastal Surveys Unit, N/MOA 2222. Non-floating Aids to Navigation forms, 76-40, are included with this report and may be found in Separate J. A detailed description of these aids may be found in the Horizontal Control Report included as Supplemental 11. *

O. STATISTICS

No. of Positions	4379
No. of Side Scan Positions	3360
No. of No Smooth Plots	40
No. of Crossline Positions	321
No. of Development Positions	169
No. of Rejected Positions	26
Linear NM of Sounding Lines	407
Linear NM of Side Scan Inv.	354
Square NM of Hydrography	19
Bottom Samples	17
Detached Positions	0
Omitted Positions	144
Duplicated Positions	1
Dive Investigations	0

Additional Statistics

TDC Casts	3
Nansen Casts	0
Tide Stations Levelled	1
Days of Production	20

** Filed with the original field report*

P. MISCELLANEOUS

1. Shipboard Hydrography

Conducting 24-hour mainscheme hydrographic operations were advantageous in obtaining the complete coverage of the survey area. However, there were several factors which impeded operations significantly. The area was densely populated with lobster traps ("pots") which occasionally entangled the side scan sonar cable so that operations had to be delayed until the lines entangling the sonar could be severed. Snagging lobster pots with the towfish put considerable strain on the side scan connector cable, which resulted in damage to the cable requiring it to be "re~~po~~tted". Heavy traffic within the work area also presented problems. Operations were occasionally delayed due to traffic situations. Finally, numerous survey lines had to be rerun due to side scan sonar coverage busts.

2. Bottom Samples

Bottom samples were taken for submission to the Smithsonian Institution, as directed in Section 6.7 of the Project Instructions and section 5 of Change No. 1. Seventeen bottom samples were transmitted on September 23, 1988. Due to an HDAPS software deficiency, detached positions cannot be digitally recorded on the magnetic tape, so the positions were recorded only on the master printout and plotted by entering the position on the station list in the presurvey mode of HDAPS.

3. Anamalous Currents

No anomalous currents were observed in the survey area.

4. Anamalous Echo Sounder Trace

In one area along the inshore limits of the survey, latitude 40-19-00N, longitude 73-57-30W, approximately 3 nautical miles of echo sounder data resulted in a separation of the narrow and wide beam traces. A dive investigation performed on day 287 determined that the separation of echo sounder traces was caused by a sediment layer of "unconsolidated fluff" suspended over a hard sand bottom. Since the narrow beam trace raised above the wide beam trace by up to three feet, depths were taken from the wide beam trace which appeared to give an accurate representation of the ocean floor. A sewage outfall is positioned on chart 12324, 24th edition in the vicinity of the sediment layer. WHITING is confident that the separation of the narrow and wide beam traces is a result of this suspended sediment layer and not due to an echo sounder malfunction.

Q. RECOMMENDATIONS

The hydrographer recommends that further investigation be required for each of the AWOIS items listed in section K of this report.

The following side scan sonar contacts are recommended for further investigation:

<u>Contact #</u>	<u>Position #</u>
1	212.5s
2	289.2s
5	1313.3p
6	1755.8p
8	2497.4p&s
9	2524.5s
11	2607.5p&s
12	2670.9p&s
14	2815.3p&s
15	2814.9s
17	2932.1s
18	2862.6p&s
19	3590.8s
20	3646.2p
21	3844.9p
22	3872.5s
23	2300.3p&s

Descriptive and positioning information on these contacts can be found in separate K. *See also section 7.2. of the Evaluation Report.*

A copy of the final smooth sheets should be sent to the following who greatly supported survey operations:

Mr. Guy Wilbanks
P.O. Box 3066
Sea Bright, NJ 07760

R. AUTOMATED DATA PROCESSING

In addition to the HDAPS system, the following non-HDAS computer programs were used:

VELOCITY	Velocity Computations (IBM PC)	01/01/88
RK 300	Utility Computations	10/21/80

S. REFERRAL TO REPORTS

<u>Title</u>	<u>Transmittal Information</u>
Descriptive Report To Accompany Survey	Hydrographic Surveys Branch Atlantic Marine Center N/MOA23
H-10284	Transmittal: WH-OPS-77-88 Dated: December 14, 1988

H-10287

Horizontal Control Report
for HC-8804

Chart Sales Agent Report

User Evaluation Report

Chart Inspection Report

Coast Pilot Report

Submitted By:

James S. Verlaque, ENS NOAA
ENS James S. Verlaque, NOAA

Approved By:

Dean R. Seidel
CDR Dean R. Seidel, NOAA
Commanding Officer

Transmittal: WH-OPS- -88
Dated: December , 1988

Photogrammetry Branch
Atlantic Marine Center
N/MOA22

Written by: C.M. Middleton Jr.

Dated: October 3, 1988

Field Surveys Section, N/MOA222
Mr. Kenneth H. Moyer
N/CG33

Transmittal: WH-OPS-63-88
Dated: November 7, 1988

Program Planning & Requirement

Atlantic Marine Center
N/MOA2x1

Transmittal: WH-OPS-64-88
Dated: November 7, 1988

Mr. Rudolph D. Sanocki
Atlantic Marine Center
N/MOA232

Transmittal: WH-OPS-74-88
Dated: December 5, 1988

Transmittal: WH-OPS-76-88
Dated: December 6, 1988

Reviewed By:


Samuel P. DeBow, LT NOAA
LT Samuel P. DeBow, NOAA
Field Operations Officer

APPROVAL SHEET

HYDROGRAPHIC AND
SIDE SCAN SONAR SURVEY
OPR-C147-WH
H-10-2-88
H-10285
1988

This combined hydrographic and side scan sonar survey was conducted in accordance with the Project Instructions for OPR-C147-WH, the Hydrographic Manual, the AMC OPORDERS, and the Hydrographic Survey Guidelines. The survey and reports were completed under daily supervision. All boat sheets and final transmitted sheets were reviewed in their entirety and all supporting records were also checked.

This survey is a complete basic hydrographic survey with the exception that contacts identified by 200% side scan sonar coverage have been left for further investigation and least depth determination by a different field unit at a future date.


Dean R. Seidel, CDR NOAA
Commanding Officer
NOAA Ship WHITING

STATION LIST
 OPR-C147-WH
 WH-10-2-88
 H-10285
 1988

No.	Lat	Long	Cart	H	Code	Frequency
001	040:27:35.321	073:49:49.992	250	45	2	000000
003	040:25:36.085	073:59:03.266	250	15	3	000000
005	040:21:53.497	073:58:22.585	250	10	5	000000
006	040:19:51.985	073:58:27.117	250	48	6	000000
010	040:16:41.196	073:59:01.833	250	56	9	000000
012	040:13:43.310	073:59:53.482	250	81	7	000000
016	040:11:08.351	074:00:34.846	250	9	8	000000
019	040:08:11.867	074:01:38.853	250	15	-	000000

No.	Name	Source	Year
001	AMBROSE LIGHT (ECC)	AMC	1988
003	SPERMACEY COVE CG CUPOLA	AMC	1988
005	SEA CLUB 1	AMC	1988
006	ADMIRAL	AMC	1988
010	IMPERIAL	AMC	1988
012	ASBURY T	AMC	1988
016	BELFISH	AMC	1988
019	GIRTY	AMC	1988

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

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

ORIGINATING ACTIVITY

- ☐ HYDROGRAPHIC PARTY
☒ GEODETIC PARTY
☒ PHOTO FIELD PARTY
☐ COMPILATION ACTIVITY
☐ FINAL REVIEWER
☐ QUALITY CONTROL & REVIEW GRP.
☐ COAST PILOT BRANCH
(See reverse for responsible personnel)

REPORTING UNIT
(Field Party, Ship or Office)

- ☒ TO BE CHARTED
☐ TO BE REVISED
☐ TO BE DELETED

NOAA Ship WHITING

NEW JERSEY

LOCALITY

MONMOUTH

DATE

8-27-88

The following objects HAVE ☒ BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.

OPR PROJECT NO.

JOB NUMBER

HAVE ☒ BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.

SURVEY NUMBER

DATUM

POSITION

WH-10-4-88

NAD 1983

LONGITUDE

OFFICE

METHOD AND DATE OF LOCATION
(See instructions on reverse side)

CHARTING NAME

DESCRIPTION

(Record reason for deletion of landmark or aid to navigation.
Show triangulation station names, where applicable, in parentheses)

LATITUDE

LONGITUDE

FIELD

CHARTS
AFFECTED

✓ L-131 (92)
HOTEL

Center of 26 story building
position is aircraft warning
light on roof. (ASBURY T -#012)

40 13

43.32

73 59

53.52

F-2-6-L
8-27-88

12326
12324

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	CDR Dean R. Seidel, NOAA Ship WHITING
POSITIONS DETERMINED AND/OR VERIFIED	Clifford S. Middleton Jr., Coastal Surveys Unit
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	<div> <div> <input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify) </div> <div> FIELD ACTIVITY REPRESENTATIVE OFFICE ACTIVITY REPRESENTATIVE <input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE </div> </div>
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION' (Consult Photogrammetric Instructions No. 64,	
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982
FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75 *FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

NOAA FORM 76-40
(8-74)

Replaces C&GS Form 567.

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

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

ORIGINATING ACTIVITY

- ☐ HYDROGRAPHIC PARTY
☒ GEODETIC PARTY
☐ PHOTO FIELD PARTY
☐ COMPILATION ACTIVITY
☐ FINAL REVIEWER
☐ QUALITY CONTROL & REVIEW GRP.
☐ COAST PILOT BRANCH
 (See reverse for responsible personnel)

REPORTING UNIT
(Field Party, Ship or Office)

- ☒ TO BE CHARTED
☐ TO BE REVISED
☐ TO BE DELETED

NOAA Ship WHITING

NEW JERSEY

LOCALITY

MONMOUTH COUNTY

DATE

8-27-88

The following objects HAVE ☒ BEEN INSPECTED FROM SEAWARD TO DETERMINE THEIR VALUE AS LANDMARKS.

OPR PROJECT NO.

OPR-C147-WH

JOB NUMBER

WH-10-1-88

DATUM

NAD 1983

SURVEY NUMBER

WH-10-1-88

POSITION

LATITUDE

LONGITUDE

DESCRIPTION
(Record reason for deletion of landmark or aid to navigation.
Show triangulation station names, where applicable, in parentheses)

Center of Brown Condominium,
16 stories (ADMIRAL-#006)

☐ / ☐ D.M. Meters
☐ / ☐ D.P. Meters

40 19 51.99 73 58 27.12

METHOD AND DATE OF LOCATION
(See instructions on reverse side)

FIELD

F-2-6-L
8-27-88

CHARTS
AFFECTED

12326
12324

CHARTING
NAME

L-12326/88
HOTEL

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	CDR Dean R. Seidel, NOAA Ship WHITING
POSITIONS DETERMINED AND/OR VERIFIED	Clifford S. Middleton Jr., Coastal Surveys Unit
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	
<div style="text-align: right;"> <input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify) </div>	
<div style="text-align: right;"> FIELD ACTIVITY REPRESENTATIVE OFFICE ACTIVITY REPRESENTATIVE <input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE </div>	
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION' (Consult Photogrammetric Instructions No. 64,	
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982 II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

[illegible]

RESPONSIBLE PERSONNEL	
TYPE OF ACTION	NAME
OBJECTS INSPECTED FROM SEAWARD	CDR Dean R. Seidel, NOAA Ship WHITING
POSITIONS DETERMINED AND/OR VERIFIED	Clifford S. Middleton Jr., Coastal Surveys Unit
FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES	
INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION' <i>(Consult Photogrammetric Instructions No. 64,</i>	

ORIGINATOR	
<input type="checkbox"/> PHOTO FIELD PARTY <input checked="" type="checkbox"/> HYDROGRAPHIC PARTY <input type="checkbox"/> GEODETIC PARTY <input type="checkbox"/> OTHER (Specify)	
FIELD ACTIVITY REPRESENTATIVE	
OFFICE ACTIVITY REPRESENTATIVE	
<input type="checkbox"/> REVIEWER <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE	
OFFICE I. OFFICE IDENTIFIED AND LOCATED OBJECTS Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object. EXAMPLE: 75E(C)6042 8-12-75	FIELD (Cont'd) B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object. EXAMPLE: P-8-V 8-12-75 74L(C)2982
FIELD I. NEW POSITION DETERMINED OR VERIFIED Enter the applicable data by symbols as follows: F - Field L - Located V - Verified 1 - Triangulation 2 - Traverse 3 - Intersection 4 - Resection 5 - Field identified 6 - Theodolite 7 - Planetable 8 - Sextant A. Field positions* require entry of method of location and date of field work. EXAMPLE: F-2-6-L 8-12-75 *FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.	II. TRIANGULATION STATION RECOVERED When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery. EXAMPLE: Triang. Rec. 8-12-75 III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH Enter 'V-Vis.' and date. EXAMPLE: V-Vis. 8-12-75 **PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: February 22, 1989

MARINE CENTER: Atlantic

OPR: C147

HYDROGRAPHIC SHEET: H-10285

LOCALITY: New Jersey, Offshore Monmouth Beach to Elberon

TIME PERIOD: September 19, 1988 - October 28, 1988

TIDE STATION(S) USED: 853-1680 Sandy Hook, NJ

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 2.27 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.9 ft.

REMARKS: RECOMMENDED ZONING

1. Apply a -0 hr 30 minute time correction and a X0.94 range ratio to all heights.


CHIEF, TIDAL DATUM QUALITY
ASSURANCE SECTION

NOAA FORM 76-155 (11-72)		U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION						SURVEY NUMBER H-10285		
GEOGRAPHIC NAMES										
Name on Survey	<div> <div>A</div> <div>B</div> <div>C</div> <div>D</div> <div>E</div> <div>F</div> <div>G</div> <div>H</div> <div>K</div> </div>									
	ON CHART NO.	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	RAND McNALLY ATLAS	U.S. LIGHT LIST		
ATLANTIC OCEAN (title)									1	
ELBERON (title)									2	
MONMOUTH BEACH (title)									3	
NEW JERSEY (title)									4	
									5	
									6	
									7	
									8	
									9	
									10	
									11	
									12	
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									17	
									18	
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									20	
									21	
									22	
									23	
									24	
									25	

01/24/91

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H-10285

NUMBER OF CONTROL STATIONS

0

NUMBER OF POSITIONS

0

NUMBER OF SOUNDINGS

0

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	73	/ /
VERIFICATION OF FIELD DATA	177	08/16/89
ELECTRONIC DATA PROCESSING	17	
QUALITY CONTROL CHECKS	73	
EVALUATION AND ANALYSIS	126	12/20/90
FINAL INSPECTION	16	12/14/90
TOTAL TIME	482	
ATLANTIC HYDROGRAPHIC SECTION APPROVAL		01/07/91

N/CG244-75-90

LETTER TRANSMITTING DATA

TO:

Chief, Data Control Section, N/CG243
NOAA/National Ocean Service
Room 151, WSC-1
Rockville, MD 20852

L

DATA AS LISTED BELOW WERE FORWARDED TO YOU
BY (Check):☐ ORDINARY MAIL☐ AIR MAIL☒ REGISTERED MAIL☐ EXPRESS☐ GBL (Give number) _____

DATE FORWARDED

24 January 1991

NUMBER OF PACKAGES

three (3)

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-10285

New Jersey, Atlantic Ocean, Offshore Monmouth Beach to Elberon

Pkg #1 (tube): 1 Original Descriptive Report

- 1 Smooth Sheet
- 2 Smooth Excess Overlays
- 1 Smooth Position Overlay
- 4 Smooth Field Sheets (2 mainscheme, 2 overlays)

Pkg #2 (box): 1 Cahier with final sounding printout

- 1 Envelope with Velocity Tables and Corrector Abstracts
- 1 Envelope with miscellaneous data removed from the original descriptive report
- 1 Envelope with supplemental data removed from the printouts
- 2 Accordion files containing fathograms sonograms and daily printouts for:
VESNO 2930 JD's: 278, 278 (bottom samples), 280 (5 parts), 281 (2 parts), 284 (7 parts), 291, 293, 299, 300 (2 parts) 301, and 302

Pkg #3 (box): 1 Accordion file containing Supplementals 1 through 12
1 Accordion file containing fathograms, sonograms and daily printouts

- for:
VESNO 2930 JD's: 263-264 (crosslines), 264 (4 parts), 265 (2 parts), 266 (3 parts), 267 (3 parts), 269 (3 parts), 270 (2 parts), and 271 (2 parts)

1 Cahier with final Position Printout and Control Listing

FROM: (Signature)

Richard H. Whitfield

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Atlantic Hydrographic Section, N/CG244
439 W. York Street
Norfolk, VA 23510-1114

L

J



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Coast and Geodetic Survey
Rockville, Maryland 20852

DEC 3 1991

MEMORANDUM FOR: *Dean R. Seidel*
Captain Dean R. Seidel, NOAA
Chief, Hydrographic Surveys Branch

FROM: George K. Myers
Chief, Standards Section

SUBJECT: Examination of Hydrographic Survey H-10285,
(1988), New Jersey, Atlantic Ocean, Monmouth
Beach to Elberon

Chief of Party.....D. R. Seidel
Field Unit.....NOAA Ship WHITING
Processed by.....Atlantic Marine Center
Examined byG. K. Myers

An examination of hydrographic survey H-10285 (1988) was accomplished to monitor the survey for adequacy with respect to data acquisition, conformance with applicable project instructions, delineation of the bottom, determination of least depths, navigational hazards, junctions, sounding line crossings, smooth plotting, digital data standards, decisions made and actions taken by the evaluator, and the cartographic presentation of data.

Cartographic deficiencies and constructive comments are noted on a 1/2-scale copy of the survey smooth sheet which will be forwarded to the marine center. Digital data and/or programming deficiencies are identified on a full-scale plot made from the magnetic tape transmitted by the marine center. This plot will also be forwarded to the Atlantic Hydrographic Section.

In general, the survey was found to conform to National Ocean Service standards and requirements except as stated in the Evaluation Report and as follows:

1. Discrepancies exist for a 41-foot sounding plotted at lat. 40°18'23.41"N, long. 73°56'32.93"W (Position 249701) on the smooth sheet and a 37-foot sounding at lat. 40°18'23.23"N, long. 73°56'33.08"W (Position 439500) noted from a Rockville check plot of the accompanying SDDEF tape. The 41 is excessed in



the final sounding listing while the 37 is listed to be smooth plotted. An intensive examination of survey records revealed the 41-foot depth to originate from side scan sonar records of the survey. The 37-foot depth was not found and is considered to be in error. The final sounding listing should note the 41 to be plotted. The 37 should be expunged from the survey tapes.

2. A sounding obstruction code (CC 272) listed in the final sounding listing at lat. 40°17'04.66"N, long. 73°58'07.33"W (Position 239200) and lat. 40°17'03.61"N, long. 73°58'07.51"W (Position 374200) is depicted as "rky" on the smooth sheet. Evidence from the survey records indicates these items were processed as rocky areas from the sonargrams, and therefore should have been appropriately marked as such in the sounding listing.

3. The 16 numbered positions (Position 43800 through Position 439500) filed at the end of the final sounding listing which identify estimated depths at obstructions as calculated from the sonargrams are incorrectly recorded to have been observed after the survey was completed. The information should be corrected.

4. Bottom characteristics shown on the smooth sheet for the survey do not appear in the final sounding listing.

It is recommended that a new digital tape and final sounding listing be made by the marine center for Headquarters which will correctly reflect the survey data as shown on the smooth plot.

Attachment

cc: N/CG244 - C. Lawrence

**OFFICE OF CHARTING AND GEODETIC SERVICES
ATLANTIC HYDROGRAPHIC SECTION
EVALUATION REPORT**

SURVEY NO.: H-10285

FIELD NO.: WH-10-2-88

New Jersey, Atlantic Ocean, Offshore Monmouth Beach to
Elberon

SURVEYED: 19 September through 28 October 1988

SCALE: 1:10,000

PROJECT NO.: OPR-C147-WH-88

SOUNDINGS: RAYTHEON DSF-6000N Fathometer and EG&G Model 260
Side Scan Sonar

CONTROL: MOTOROLA Falcon 484 Mini-Ranger (Range/Range)

Chief of Party.....D. R. Seidel

Surveyed by.....T. A. Baxter
.....S. P. DeBow
.....J. S. Verlaque
.....M. P. Skarbek
.....J. D. Bear
.....P. C. Stauffer

Automated plot by.....XYNETICS 1201 Plotter (AHS)

1. INTRODUCTION

a. This is a combined basic hydrographic/side scan sonar survey. Side scan sonar was operated simultaneously with the fathometer during survey operations. Side scan sonar contacts located by the field unit during hydrographic operations were investigated by the field unit and resolved using side scan sonar and/or fathometer for least depth determination. In cases where the side scan sonar was used to determine the estimated depth of an item or object, the item is shown on the present survey with the upper case letter 'A' in parenthesis. Depths on these obstructions were estimated by scaling heights off the bottom from side scan sonar records. Positions were determined by computing offsets from the vessel's track. This survey has been processed before the results of the recommended additional investigations are available. Refer to subsequent survey FE-331SS (1989) for more definitive information on these features. This note is shown on the present survey smooth sheet in proximity to the title block. See also the memorandum titled: "Showing Estimated Side Scan Sonar Depths on Smooth Sheets", dated 23 February 1989, for an explanation of the note shown on the survey smooth sheet.

b. No unusual problems were encountered during office processing.

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

2. CONTROL AND SHORELINE

a. Control is adequately discussed in sections F., G., and S. of the Descriptive Report.

b. Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD83). 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 survey datum and the North American Datum of 1927 (NAD27). To place this survey on the NAD27 datum, move the projection lines 0.387 seconds (11.9 meters or 1.19 mm at the scale of the survey) north in latitude, and 1.503 seconds (35.4 meters or 3.54 mm at the scale of the survey) east in longitude.

All geographic positions listed from sources other than the present survey are on the NAD27 unless otherwise specified. All inverse distance computations are made after geographic positions have been converted to the survey datum, NAD83.

c. There is no shoreline within the area surveyed.

3. HYDROGRAPHY

a. Soundings at crossings agree within the criteria stated in sections 4.6.1. and 6.3.4.3. of the HYDROGRAPHIC MANUAL and section 6.6. of the Project Instructions.

b. The standard thirty (30), sixty (60) and supplemental thirty-six (36) foot curves could be drawn in their entirety. Dashed and brown curves were added to better show bottom topography.

c. Development of bottom configuration and determination of least depths is considered adequate except for the following:

1) The legibility of the final field sheets is excellent. Isolated shoal soundings shown on field development overlay sheets were not brought forward to the main scheme field sheet. This can be seen as numerous depth curves indicating shoals with no soundings.

2) Bottom samples were not taken on numerous shoal

features as required by section 6.7 of the Project Instructions and section 4.5.9.2. of the HYDROGRAPHIC MANUAL.

4. CONDITION OF SURVEY

The smooth sheets and accompanying overlays, hydrographic records and reports are adequate and conform to the requirements of the HYDROGRAPHIC MANUAL and the SIDE SCAN SONAR MANUAL.

5. JUNCTIONS

H-9531 (1975) to the east
H-10284 (1988) to the north
H-10287 (1988) to the south

Excellent junctions were effected between the present survey and prior surveys H-10284 (1988).

The smooth sheets for surveys H-9531 (1975) and H-10287 (1988) are archived at National Ocean Service (NOS) headquarters, Rockville, Maryland and a standard junction could not be made. In this case, the note "ADJOINS" has been shown on the present survey smooth sheet. Depths agree to within one (1) foot. Any adjustments to the depth curves will have to be made during chart compilation.

There are no contemporary surveys to the west of the present survey. The charted depths and present survey depths are in harmony to the west.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic

H-5638 (1934) 1:10,000
H-6190 (1936) 1:40,000

Prior survey H-5638 (1934) covers the western edge of the present survey. Soundings on this survey are in good agreement with the present survey with soundings varying plus or minus (+/-) two (2) feet.

With the exception of the area covered by prior survey H-5638 (1934), prior survey H-6190 (1936) covers the remaining area of the present survey. The location of shoals and deeps on the prior survey are in harmony with the present survey. Prior survey soundings agree with the present survey depths within plus or minus (+/-) two (2) feet. The differences in

soundings can be attributed to shifting of the sandy bottom in the area of the present survey.

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

b. Wire Drag

⁶³
H-6436WD (1939)

Nine hangs or groundings originating with the prior survey are in the area of the present survey. Eight are presently charted, and one is uncharted. The following should be noted:

AWOIS item #1531 is a charted dangerous sunken wreck with a wire drag clearance depth of 42 feet in Latitude 40°16'12.0"N, Longitude 73°56'30.0"W originating with the prior wire drag survey. A leadline 44-ft sounding was taken on a wreck and subsequently cleared by wire drag with an effective depth of 42 feet. During hydrographic and side scan sonar operations, no indication of any contacts were found at the position of the AWOIS item. A side scan sonar contact (contact #9) with wreck-like characteristics and an estimated depth of 55 feet in present survey depths of 57 to 60 feet was found 143 meters southwest of the AWOIS position in Latitude 40°16'07.913"N, Longitude 73°56'35.198"W. It is believed this obstruction is the AWOIS item. The obstruction is included in the recommendation for additional investigation and should be charted as a submerged obstruction in accordance with Cartographic Order 004/89, dated July 3, 1989 in the position determined by the present survey until resolved by the subsequent field work. It is also recommended AWOIS item #1531 be removed from the chart.

AWOIS item #1537 is a charted dangerous sunken wreck with a wire drag clearance depth of 45 feet in Latitude 40°16'54.0"N, Longitude 73°56'24.0"W originating with the prior wire drag survey as a 49-foot sounding on a wreck and subsequently cleared by a wire drag effective depth of 45 feet. During hydrographic and side scan sonar operations, no indication of any contacts were found in the position of the AWOIS item. An obstruction (contact #23) with wreck-like characteristics was found 258 meters north of the AWOIS position in Latitude 40°17'01.968"N, Longitude 73°56'26.539"W with a fathometer depth of 57 feet in present survey depths of 61 to 62 feet. The obstruction is considered to be the AWOIS item. The obstruction is included in the recommendation for additional investigation and should be charted as a submerged

obstruction with a depth of 57 feet (57 Obstr) in the position determined by the present survey until resolved by the subsequent field work. It is also recommended that AWOIS item #1537 be removed from the chart.

AWOIS item #1538 is a charted dangerous sunken wreck with a wire drag clearance depth of 42 feet in Latitude 40°17'00.0"N, Longitude 73°57'00.0"W originating with the prior wire drag survey as a 43-foot sounding on a wreck and subsequently cleared by a wire drag effective depth of 42 feet. During hydrographic and side scan sonar operations, no indication of any contacts were found in the position of the AWOIS item. An obstruction (contact #12) with wreck-like characteristics was found 279 meters east of the AWOIS position in Latitude 40°16'58.94"N, Longitude 73°56'49.71"W with a fathometer depth of 47 feet in present survey depths of 53 to 55 feet. The obstruction is considered to be the AWOIS item. The obstruction is included in the recommendation for additional investigation and should be charted as a submerged obstruction with a depth of 47 feet (47 Obstr) in the position determined by the present survey until resolved by the subsequent field work. It is also recommended that AWOIS item #1538 be removed from the chart.

AWOIS item #1543 is a charted dangerous submerged obstruction with a wire drag clearance depth of 34 feet in Latitude 40°18'24.0"N, Longitude 73°56'30.0"W originating with the prior wire drag survey as a 36-foot sounding on an obstruction and subsequently cleared by wire drag with an effective depth of 34 feet. A side scan sonar contact (contact #8) was found 38 meters east of the AWOIS position in Latitude 40°18'23.299"N, Longitude 73°56'33.079"W with an approximate depth of 41 feet in present survey depths of 47 to 48 feet. The obstruction is considered to be the AWOIS item. The obstruction is included in the recommendation for additional investigation and should be charted as a submerged obstruction in accordance with Cartographic Order 004/89, dated July 3, 1989 in the position determined by the present survey until resolved by the subsequent field work. It is also recommended AWOIS item #1543 be removed from the chart. 4395

AWOIS item #4288 is a charted dangerous submerged rock with a wire drag clearance depth of 24 feet in Latitude 40°16'48.0"N, Longitude 73°58'00.0"W. The item was found by prior survey H-6190 (1936) in Latitude 40°16'45.6"N, Longitude 73°58'04.8"W as a 31 foot sounding. Additional work was recommended. Two obstructions presently recommended for additional investigation were found in the vicinity of the AWOIS item. Contact #24 is an obstruction with an echosounder

depth of 33 feet (33 Obstr) 100 meters south of the AWOIS position in Latitude 40°16'44.50"N, Longitude 73°58'02.76"W. Contact #25 is a side scan sonar contact shown on the present survey as an obstruction with an estimated depth of 22 feet in Latitude 40°16'42.60"N, Longitude 73°58'02.20"W, 155 meters to the south. Due to the scale of the chart and the distance between these two contacts it is not recommended that the submerged obstruction with a depth of 33 feet be charted. It is recommended that a dangerous submerged obstruction with an estimated depth of 22 feet be charted in accordance with Cartographic Order 004/89, dated July 3, 1989 in the position determined by the present survey until resolved by the subsequent field work. It is also recommended that the dangerous submerged rock with a wire drag clearance depth of 24 feet (AWOIS item #4288) be removed from the chart.

AWOIS item #4289 is a charted dangerous submerged rock with a wire drag clearance depth of 24 feet in Latitude 40°16'48.0"N, Longitude 73°58'12.0"W originating with the prior wire drag survey as a 29-foot grounding on a rock and subsequently cleared by wire drag with an effective depth of 24 feet. A 32 foot sounding was located by the present survey 57 meters northeast of the AWOIS position in Latitude 40°16'48.32"N, Longitude 73°58'11.25"W. Additionally, a side scan sonar contact (contact #26) was found 165 meters south of the AWOIS position in Latitude 40°16'42.60"N, Longitude 73°58'11.10"W with an estimated depth of 19 feet. This obstruction is included in the recommendation for subsequent investigation and should be charted as a submerged obstruction in accordance with Cartographic Order 004/89, dated July 3, 1989 in the position determined by the present survey until resolved by the subsequent field work. AWOIS item #4289 should be removed from the chart, and the 32-ft sounding should be charted in the position determined by the present survey.

AWOIS item #4290 is a charted dangerous submerged rock with a wire drag clearance depth of 24 feet in Latitude 40°17'18.0"N, Longitude 73°58'06.0"W originating with the prior wire drag survey as a 27 foot sounding on an obstruction and subsequently cleared by wire drag with an effective depth of 24 feet. AWOIS item #1539 is an uncharted sunken wreck with a 24-foot depth over the wreck in Latitude 40°17'12.0"N, Longitude 73°58'12.0"W. This AWOIS item is cross referenced to AWOIS #4290 in the AWOIS listing. Present hydrographic investigations and 400% side scan sonar insonification indicate that these items are not at the charted or listed positions. It is recommended that AWOIS item #4290 be removed from the chart. It is also recommended that AWOIS item #1539

remain uncharted.

AWOIS item #4291 is a charted 40-ft sounding on a rock (40 Rk) in Latitude 40°18'18.0"N, Longitude 73°57'00.0"W originating with the prior wire drag survey. A side scan sonar contact (contact #20) was found 149 meters east of the AWOIS position in Latitude 40°18'18.18"N, Longitude 73°56'55.22"W with an approximate depth of 37 feet. This obstruction is included in the recommendation for additional investigation and should be charted as a submerged obstruction in accordance with Cartographic Order 004/89, dated July 3, 1989 in the position determined by the present survey until resolved by subsequent field work. AWOIS item #4291 should be removed from the chart.

There are no conflicts between effective depths of prior wire drag survey H-6463WD (1939) and the present survey depth.

7. COMPARISON WITH CHARTS 12324 (24th Ed., Nov 15/86)
12326 (38th Ed., Feb 22/86)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys and needs no further discussion. The following should be noted:

1) AWOIS item #4292 is a charted dangerous sunken wreck, PA in Latitude 40°19'00.0"N, Longitude 73°56'00.0"W originating with Local Notice to Mariners 46 of 1971 (LNM46/71). No evidence was found by the present survey. It is recommended that the dangerous sunken wreck, PA, AWOIS item #4292, be deleted from the chart.

2) The hydrographer initially located 23 uncharted obstructions, of which 17 were recommended for further investigation. During office processing 3 contacts were not considered significant enough to warrant further investigation; contact (#13), not considered significant by the hydrographer, was added to the list of contacts for further investigation. Three contacts (#24, #25, and #26), not mentioned by the hydrographer are considered significant and recommended for further investigation. Of the 19 contacts recommended for further investigation, eight contacts (#8, #9, #12, #20, #23, #24, #25, and #26) are discussed and have charting recommendations in section 6.b. of this report. Eleven (11) contacts shown on the present survey are recommended for further investigation and are listed as

follows:

<u>Contact No.</u>	<u>Depth/Feature</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
2	70 Obstr (A)	40°16'29.386"	73°52'20.267"
11	41 Obstr	40°18'20.110"	73°56'43.180"
13	40 Obstr (A)	40°17'08.752"	73°57'49.384"
14	37 Obstr	40°17'08.910"	73°57'57.690"
15	38 Obstr (A)	40°17'06.988"	73°57'56.560"
16	37 Obstr (A)	40°17'11.847"	73°57'59.622"
17	33 Obstr (A)	40°17'56.176"	73°58'05.197"
18	32 Obstr (A)	40°17'07.610"	73°58'01.467"
19	42 Obstr (A)	40°19'29.062"	73°57'01.940"
21	32 Obstr (A)	40°16'35.553"	73°58'13.281"
22	33-ft sounding	40°17'04.660"	73°58'07.330"

It should be noted that side scan sonar contact #22 is in the vicinity of a rock outcrop, and is shown as a 33-foot sounding. The note "rky" was applied to the present survey during office processing. It is recommended that a depth of 33 feet with the note "rky" be charted in the position shown on the present survey.

With the exception of contact #22 it is recommended that further discussion and charting recommendations of these items be deferred until the completion of office processing of survey FE-331SS (1989) and the final disposition of the investigated items have been made.

3) AWOIS item #1534 is a charted dangerous sunken wreck with a wire drag clearance depth of 47 feet in Latitude 40°16'30.0"N, Longitude 73°56'00.0"W, originating with Chart Letter 237 of 1928 (CL237/28) as a sunken dredge. The item was not found by H-6463 (1939) and recommended for deletion. The item was recharted as a 47 foot basket sounding in accordance with CL347/58. No evidence of the wreck was found by the present survey. It is recommended that AWOIS item #1534 be deleted from the chart.

4) AWOIS ITEM #1541 is a charted dangerous sunken wreck with a wire drag clearance depth of 46 feet in Latitude 40°17'48.0"N, Longitude 73°56'30.0"W, originating with Chart Letter 178 of 1929 (CL178/29) as a dangerous sunken wreck PD. The reported position was cleared to 46 feet by H-6463 (1939) and recommended for deletion. The item was recharted as a 46 foot basket sounding in accordance with CL347/58. No evidence of the wreck was found by the present survey. It is recommended that AWOIS item #1541 be deleted from the chart.

5) AWOIS item #1545 is a charted dangerous sunken

wreck with a wire drag clearance depth of 64 feet in Latitude 40°18'54.0"N, Longitude 73°53'24.0"W originating with Notice to Mariners 37 of 1945 (NM37/45) that is within the limits of the present survey. This item was not assigned to nor was it discussed by the hydrographer. With 100% side scan sonar coverage over the area, it is considered disproved. It is recommended that AWOIS item #1545 be deleted from the chart.

6) An uncharted obstruction with rock-like characteristics on the side scan sonargrams was located by the hydrographer in Latitude 40°17'58.32"N, Longitude 73°58'09.48"W. A fathometer depth of 25 feet was obtained on the obstruction. It is recommended that a rock with a depth of 25 feet (25 Rk) be charted in the position determined by the present survey.

7) Two uncharted obstructions noted by the hydrographer are shown on the present survey. Both contacts were scaled from the side scan sonar records, and are not considered significant.

Contact	Latitude (N)	Longitude (W)	Estimated Depth	Present Depths
Obstr (A)	40°18'56.07"	73°54'25.99"	66ft	65-69ft
Obstr (A)	40°19'37.96"	73°56'32.07"	51ft	53-54ft

#9706
AWOIS #9698

No change in charting status is recommended.

8) The hydrographer located an uncharted submerged obstruction with a depth of 42 feet in Latitude 40°18'19.68"N, Longitude 73°56'39.66"W. The obstruction is 84 meters east of an obstruction (contact #11) which is recommended for further investigation. It is recommended that charting action be deferred until completion of survey FE-331SS (1989) and the final disposition of the investigated items have been made.

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

c. Aids to Navigation

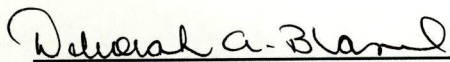
There are no fixed or floating aids to navigation within the limits of this survey.

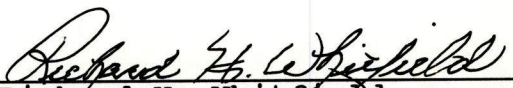
8. COMPLIANCE WITH INSTRUCTIONS

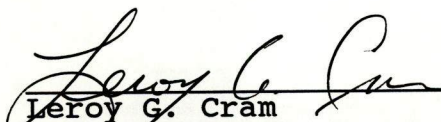
This survey adequately complies with the Project Instructions except as noted in this report.

9. ADDITIONAL FIELD WORK

This is a good basic hydrographic/side scan sonar survey. With the exception of the items listed in section 7.a. of this report, no other field work is recommended.


Deborah A. Bland
Cartographic Technician
Verification of Field Data


Richard H. Whitfield
Cartographer
Evaluation and Analysis


Leroy G. Cram
Supervisory Cartographic Technician
Verification Check

APPROVAL SHEET
H-10285

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 disapproval 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. Final control, position, and sounding printouts of the survey have been made. The survey records and digital data comply with NOS requirements except where noted in the Evaluation Report.

Robert G. Roberson
Robert G. Roberson
Chief, Evaluation and Analysis Team
Atlantic Hydrographic Section

Date: 20 December 1990

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.

Christopher B. Lawrence
Christopher B. Lawrence, CDR, NOAA
Chief, Atlantic Hydrographic Section

Date: 7 January 1991

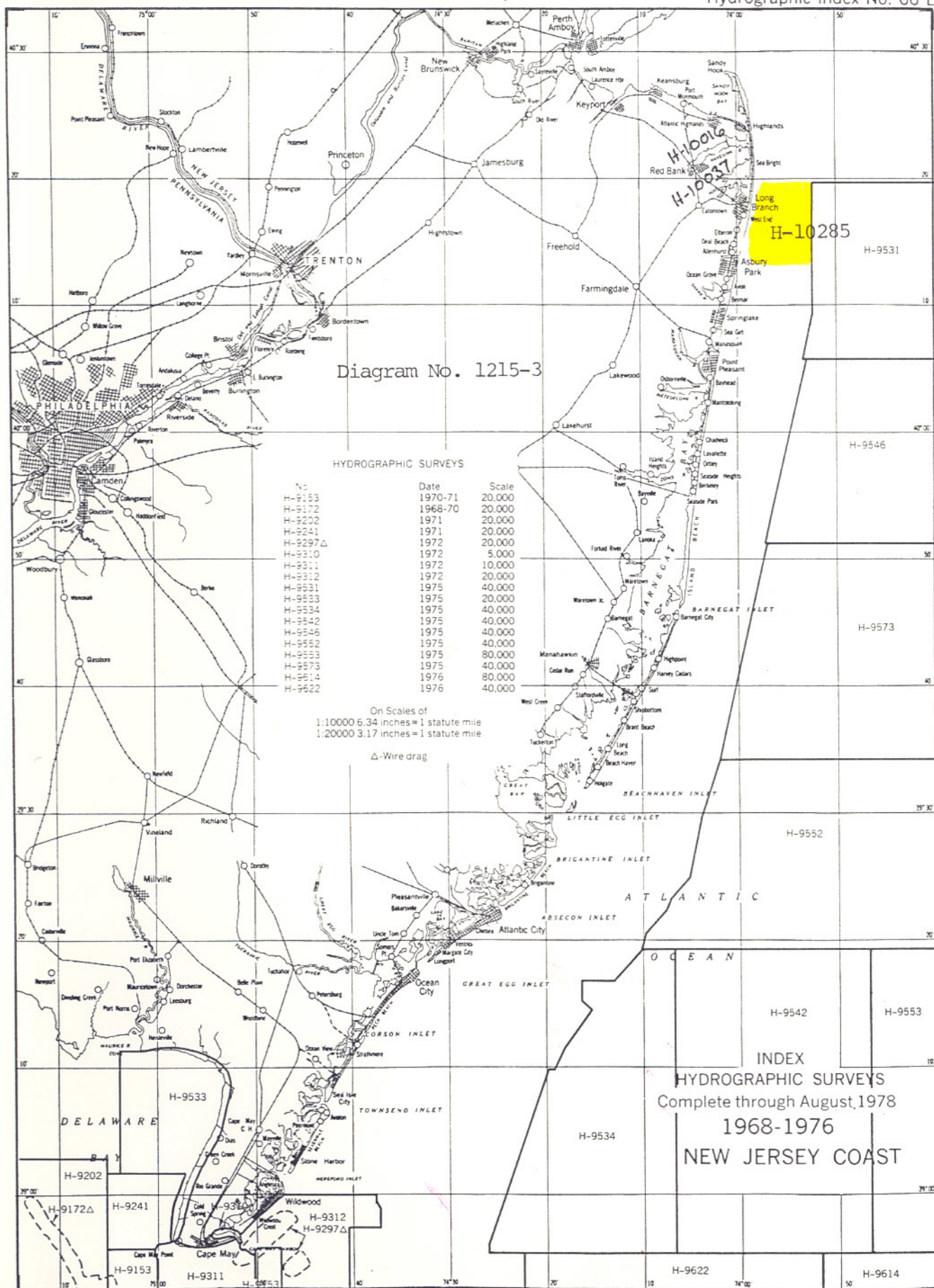
Final Approval:

Approved: J. Austin Yeager
J. Austin Yeager
Rear Admiral, NOAA
Director, Charting and Geodetic Services

Date: 2/15/91

DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey
Rockville, Maryland

Hydrographic Index No. 66 L



FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10285

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.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.