

10287

10287

Diagram 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 .....  
Field No. .... WH-10-4-88 .....  
Registry No. .... H-10287 .....

### LOCALITY

State ..... New Jersey .....  
General Locality .. Atlantic Ocean .....  
Sublocality ..... Offshore Elberon to .....  
..... Bradley Beach .....  
..... 1988 .....  
CHIEF OF PARTY  
..... CDR D. Seidel .....

### LIBRARY & ARCHIVES

DATE ..... August 1, 1989 .....

CHT  
12324AV  
12326V  
12300V  
13003NC  
13006NC



## HYDROGRAPHIC TITLE SHEET

H-10287

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 10-4-88

State New JerseyGeneral locality Atlantic OceanLocality Offshore Elberon to Bradley BeachScale 1:10,000Date of survey October 11 - November 23, 1988Instructions dated August 22, 1988Project No. OPR-C147-WHVessel NOAA Ship WHITING S329 (Edp# 2930)Chief of party CDR Dean Seidel, NOAASurveyed by Dean R. Seidel, Todd A. Baxter, Samuel P. DeBow, James S. Verlaque,  
Mark R. Skarbeck, Jeffery D. Bear, Peter C. StaufferSoundings taken by echo sounder, ~~hand track, pole~~ DSF 6000Graphic record scaled by SPD, JSV, JDB, PCS, Maxine Fetterly, Felix R. Cruz,  
Gale A. Variot, Patricia Wiggins, John Wilder, Doug Mason,  
Rick Whitfield, Frank Saunders, Bruce Olmstead,Graphic record checked by SPD, JSV, MPS, JDB, PCS, MF, FRC, GAV, PW, JW

Verification by:

~~Processed by~~ C.R. DaviesAutomated plot by PMC Xynetics Plotter

Evaluation by:

~~Verification by~~ C.R. DaviesSoundings in ~~XXXXXX~~ feet at ~~MEW~~ MLLWREMARKS: This survey junctions with Surveys H-10285, H-10290, H-10291

All times UTC. Revisions and marginal notes in black were generated  
during office processing. Some separates have been removed and are filed  
with the hydrographic data, as a result page numbering may be interrupted  
or non-sequential.

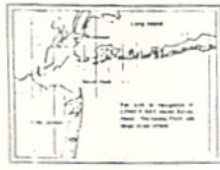
AWOIS/SURF GMSM 8/17/8950129-96XW/WH 3-18-91



INDINGS IN FEET

UNITED STATES - EAST COAST  
NEW YORK - NEW JERSEY

APPROACHES TO NEW YORK  
FIRE ISLAND LIGHT TO SEA GIRT



OPR - CI47-WH  
OFFSHORE N.J. COAST, N.J.

SHEET LAYOUT  
JULY 13, 1988

LIMITS OF HYDROGRAPHY SHOWN  
ALL SHEETS ARE 1:10,000  
SHEETS A,B,C and D are 76cm. X 122 cm.  
SHEETS E and F are 76cm. X 76cm.

APPROVED

NOTES  
1. This chart is a compilation of data from various sources and is not a survey chart.  
2. The chart is based on the latest available data and is subject to change without notice.  
3. The chart is not to be used for navigation purposes without the aid of other charts and information.

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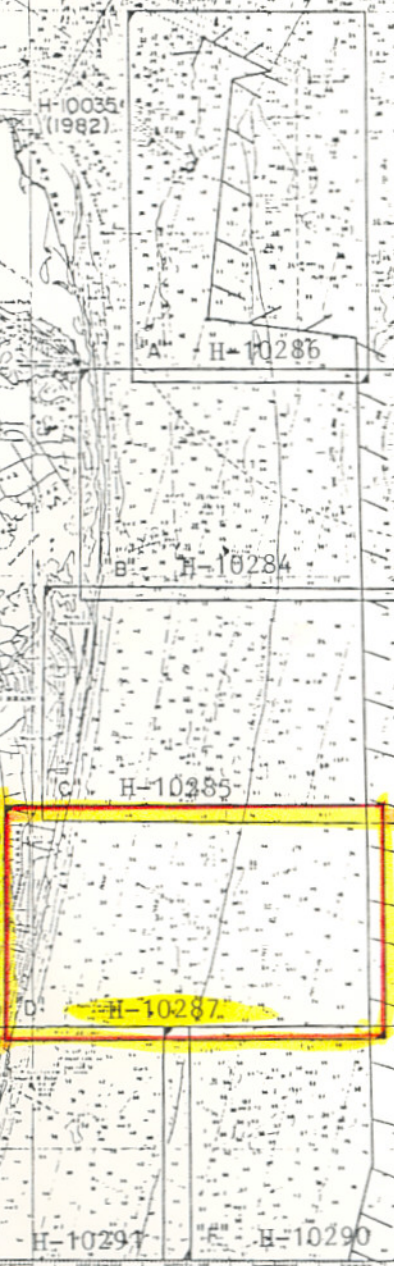
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BARNECA TO ALBROSE TRAFFIC LANE  
SEPARATION ZONE  
ALBROSE TO BARNECA

(Fire Island Light to Sea Girt)

DESCRIPTIVE REPORT TO ACCOMPANY  
HYDROGRAPHIC SURVEY  
OPR-C147-WH  
1988  
WH-10-4-88  
H-10287  
NOAA SHIP WHITING  
CDR Dean R. Seidel  
Commanding Officer

A. PROJECT

General ✓

The purpose of project OPR-C147-WH, sheet D, 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 Sandy Hook 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. The WHITING processed the data to the extent that recommendations were made as to which obstructions warrant further investigations and least depth determinations. A compilation of recommendations for further work has been included in this report. The recommended investigations will be performed by a different field party at a later time (see section 7.1, Project Instructions OPR-C147-WH). The survey data acquired for this survey affects charts 12324, 12326, and 12300.

Survey of Methods ✓

In order to accomplish the 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 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 minimal accepted signal strength are not used in the solution.

The acquisition of MLOP have significantly increased data quantity and quality. The quantity of data has 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 increased dramatically 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 are presented as "residuals". Residuals are the theoretical corrections 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 (ECR). With these tools the hydrographer can readily assess 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 has, for the first time, 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 depth are recorded. All LOP 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.

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 year day, number of tape for that day and a "0" for a raw, or master tape, or 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.

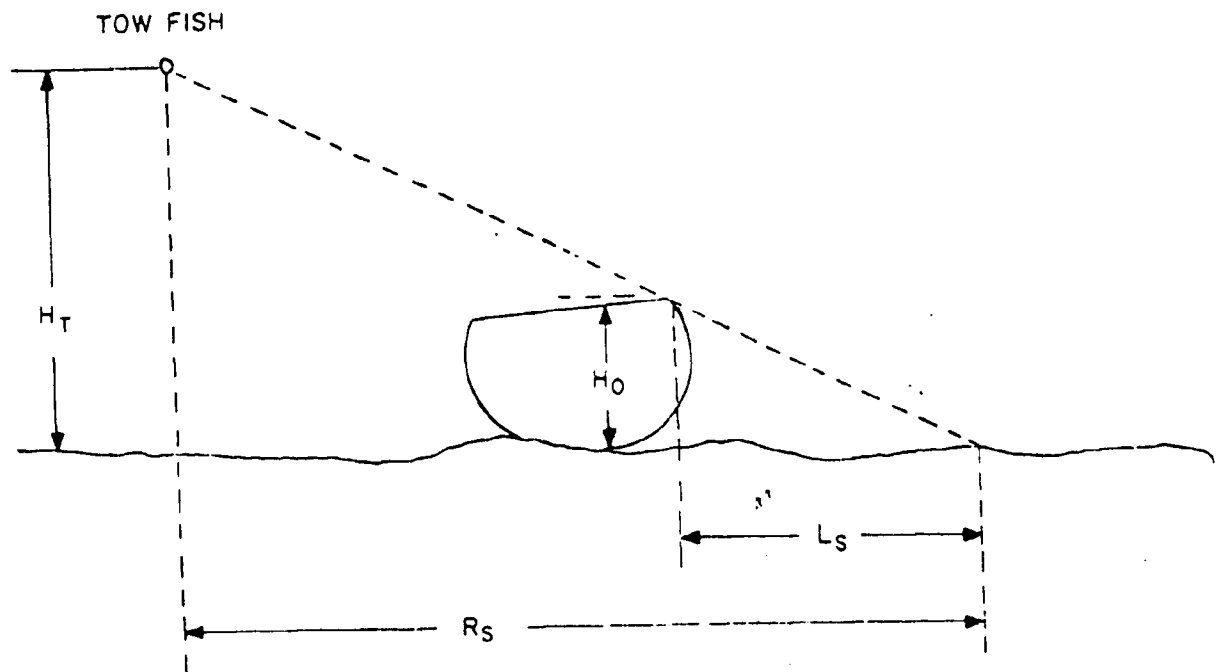
On-line operations were conducted exclusively from WHITING.

24-hour shipboard data acquisition and processing was the mode of operations. 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, per the Provisional Side Scan Sonar Manual, was maintained. 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.

The Project Instructions dictated the inshore limits of the survey to be the 30-foot depth curve. This 30-foot inshore limit was not adhered to because of safe limits for navigation or side scan 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 minimal height of the sonar fish off the bottom is 8 meters (8% of the 100 meter range scale). This would mean the fish had to be towed 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, it was found that 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 "D" sheet extends from offshore Elberon, New Jersey on the north edge (latitude 40-15-~~20~~<sup>45</sup> N) southward to approximately offshore Bradley Beach, New Jersey (latitude 40-12-10 N), and junctions to the east with H-9531 (longitude 73-52-15<sup>0</sup> W). The western limit is the limit of safe navigation, or the minimum effective side scan tow depth of 35 feet. The survey began on October 11, 1988 (Day 285) and was completed on November 23, 1988 (Day 328).



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

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 ( $H_O$ ) = 6 Meters

Figure 1. Object height determination.

## C. SOUNDING VESSELS✓

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

<u>EDP#</u>	<u>Vessel</u>	<u>Hull No.</u>	<u>Days (1988)</u>
2930	WHITING	S329	285 - 287 291 - 295 298 - 299 312 - 313 327 - 328

## D. SOUNDING EQUIPMENT AND CORRECTION TO ECHO SOUNDINGS✓

## 1. SOUNDING EQUIPMENT✓

The ship 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	285 - 287 292 - 295 298 - 299 312 - 313 327 - 328
		Towfish	0011901	285 - 287 292 - 295 298 - 299 312 - 313 327 - 328

A Raytheon DSF 6000N echo sounder was the only sounding equipment used during the 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	285 - 287 291 - 295 298 - 299 312 - 313 327 - 328
2930	WHITING S329	DSF 6000N	A111N	285

In accordance with the Project Instructions, section 6.6.1, the depths recorded with the DSF 6000N echo sounders 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, and any incorrectly digitized soundings were corrected. The effect of sea and swell action on the echograms were also corrected as per section 4.9.8.2 of the Hydrographic Manual.

On days 285, 286, and 287, the echosounder trace exhibited a significant difference between the depth obtained by the high frequency trace and that obtained by the low frequency. Since the echosounder performed properly within other locations throughout the survey area and EDI testing revealed the echosounder was in perfect working order, the existence of a silt bottom was suspect. The phenomenon was observed while running shoreline mainscheme lines inshore. The previous three days of high winds and seas would have caused the silt layer to be suspended in the water column. A suspended silt bottom would cause a difference between the degree of penetration of the bottom between the high and low frequencies. On day 287 this suspicion was confirmed when divers examined the bottom and obtained a sample of the silt bottom. It was decided that the low frequency trace would be used to delineate the characteristics of the bottom.

Figures 2 and 3 depicts the Mini-Ranger antenna positions, the transducer positions, and the 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 Sonar operations were performed by the ship 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, and also allowed for deeper towing depths.

### Methods of Investigation ✓

Side Scan Sonar operations were run at a speed of less than 6 knots with the 100 meter range scale, in depths less than 60 feet, and at less than 4 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. Off-line swath plots were plotted for each 100% of coverage obtained, one set each on a separate sheet, so that analysis of the data was clearer.

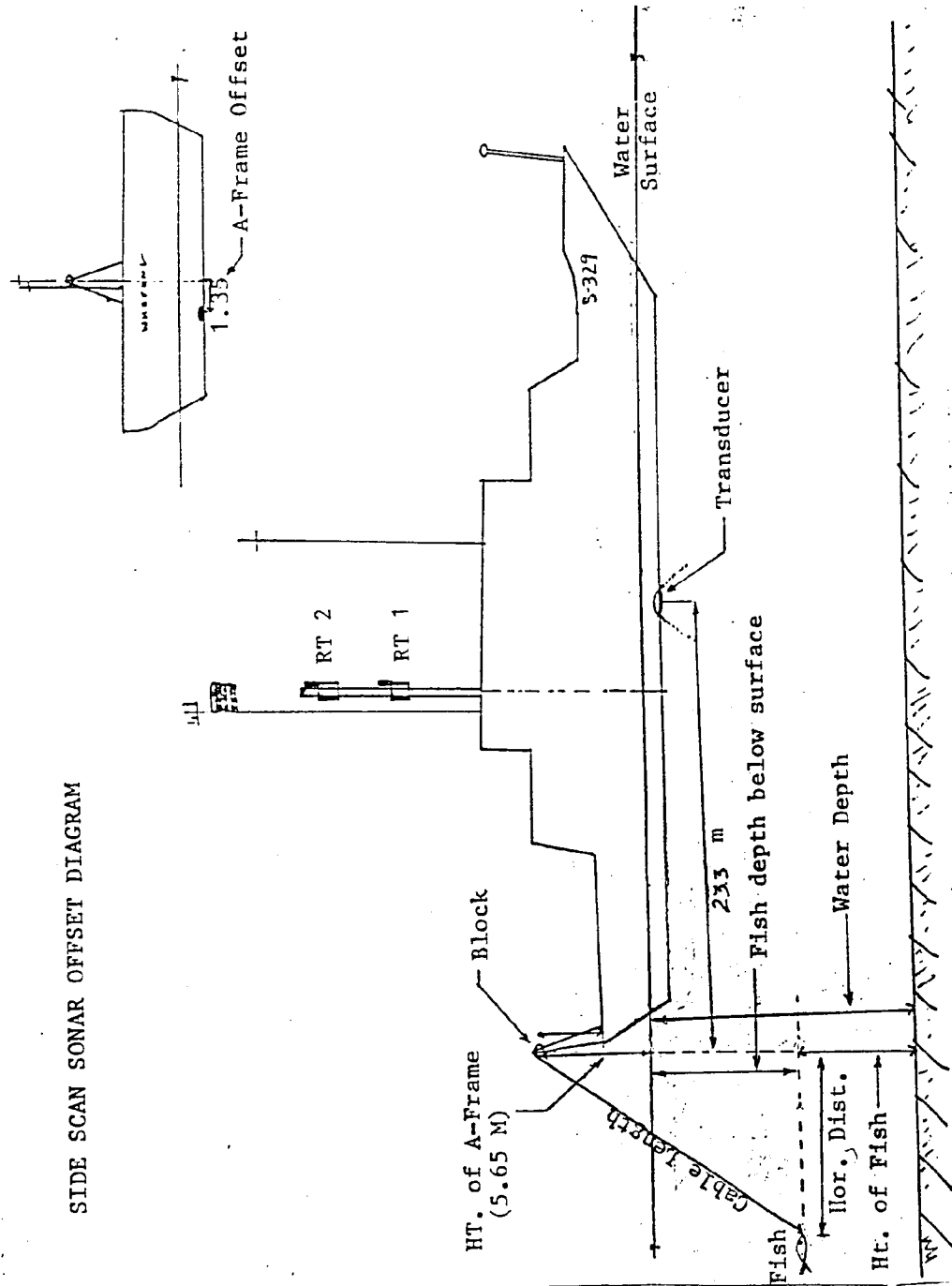
#### Processing Procedures✓

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 (contacts with computed heights rising above the bottom at least 10% of the depth in water depths greater than 66 feet and contacts with computed heights of at least 1 meter in less than 66 feet). Other views of the same contact from adjacent lines were determined by hand plotting the significant contact on the trackline plot, then determining where other views of the same contact should be seen on the sonargrams. All adjacent views were inspected to ensure that they were in fact the same contact. Per section 7.1.1 of the Project Instructions only the most dangerous contact need to be investigated if contacts are closer than 3.3 mm apart using the largest scale chart of the area. Since the largest scale chart of the area is 1:40,000, this would mean that if the adjacent views of the same contact fall within 1.3 cm at the survey scale, only the most significant contact needs to be addressed. Adjacent views of the significant contacts were not numbered but roughly compared on the trackline plot.

Side Scan Sonar records were inspected by Lt. Sam De Bow, Ens. James Verlaque, and Ens. Jeff Bear. Upon scanning the records, all significant contacts were "flagged" with an arrow and given a contact name for processing purposes. If the contact is determined by the scanner to be insignificant, the label "no further investigation necessary" (NFIN) or "no significant height" is assigned to the contact. If the contact is determined to be merely bottom texture as evidenced by a large dark region without any shadow, the label "change in bottom texture" (CIBT) is assigned signifying that no further processing is necessary for the contact. If a series of contacts are concentrated within a certain area, as exemplified by a dumpsite or unusually rocky bottom, the label "Hydrographic Development Area" (HDA) is assigned to signify that the entire area is in need of further hydrographic development by reducing line spacing.

Confidence checks ensuring proper functioning of the side scan sonar unit were obtained on line by inspection of the sonargram. When on-line side scan sonar sonargrams are depicting bottom texture, the requirement for confidence checks is being met. Under these circumstances, additional off-line confidence checks are not required. With a properly functioning sonar unit, a series of sand waves or other bottom characteristics will be recorded clearly on the sonargram. A good trace will display the "mackerel" appearance of these sand waves with good resolution and contrast. These features are annotated as "confidence checks" on the sonargrams.

SIDE SCAN SONAR OFFSET DIAGRAM





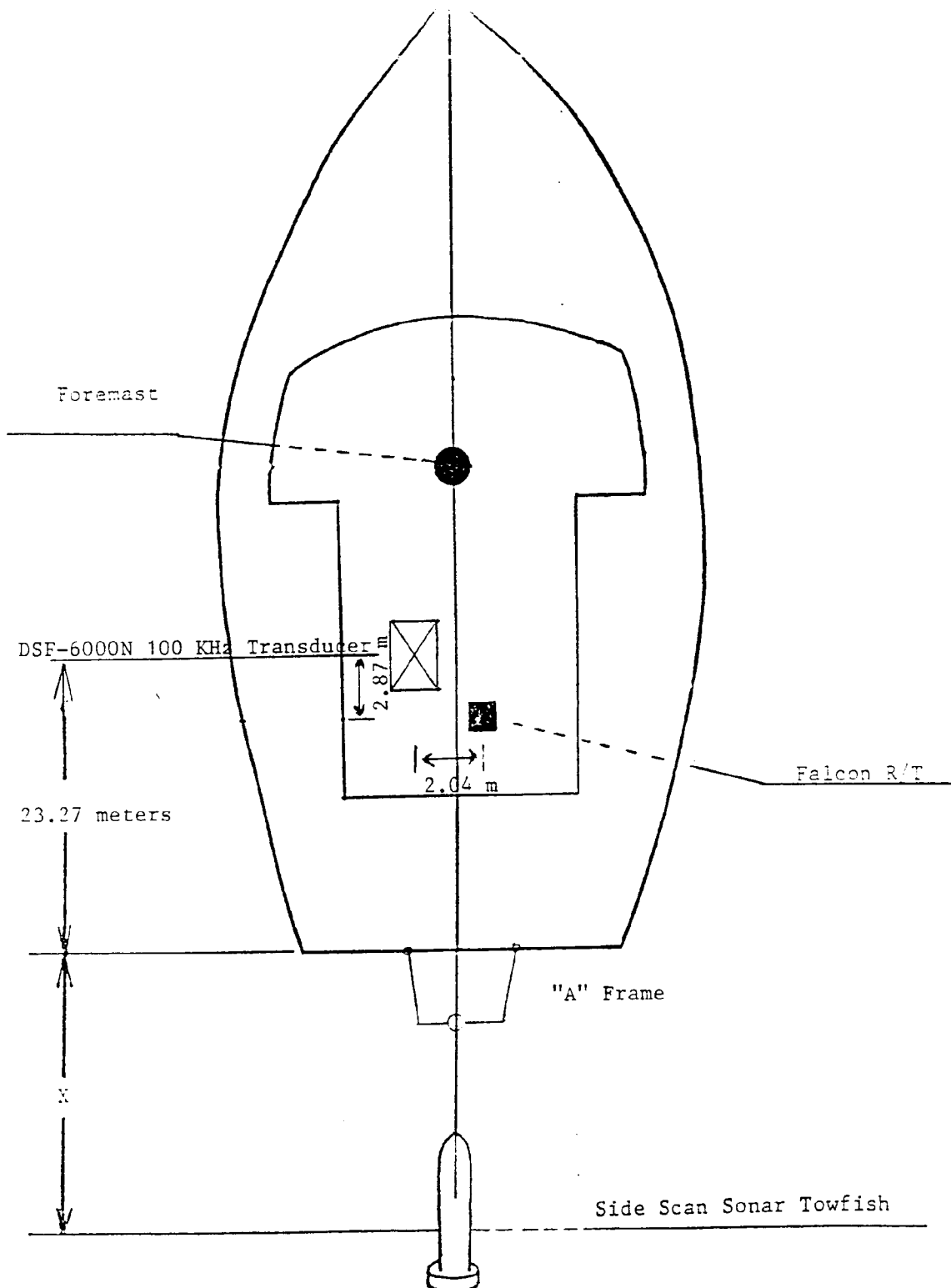


Figure 3

After being identified and numbered on the sonargram, only the significant contacts were listed in the Side Scan Sonar Preprocessing Contact List. The list itemizes the day, the contact number, the contact name (relative to the position number of the contact), the time, the offset from the reference line (negative to Port and positive to Starboard), the shadow length, and the item description and adjacent views. All of this information is necessary as entering parameters for the "Contact Utility Program" in the HDAPS Post Processing Program. The program generates the true contact height off the bottom and the contact position. With this information, contacts were incorporated into a HDAPS signal list and plotted on the Side Scan Sonar 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. Instead, a form titled "Recommended Sonar Contacts for Further Investigation" was created and can be found in separate K. This form lists the contact number, contact name, Easting, Northing, Latitude, Longitude, Height, Water Depth, and Recommendations or Remarks for further investigation.

### 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.

The velocity casts were conducted in the same area where hydrographic data was obtained for the period the computed correctors were to be used. The data collected from each velocity cast was used directly to construct the corresponding velocity table. For example, during the period between JD 263 and 268, hydrographic data was collected for sheets B and C. Therefore, on day 263, velocity cast #2 was performed on the border between sheets B and C so that velocity correctors could be obtained for both 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 JD 268, when velocity cast #3 was performed and velocity table #3 computed. Likewise, velocity cast #4 yielded velocity table #4, etc.. No averaging of any values between two different casts occurred or was required.

The general trend of correctors decreasing throughout the project period corresponds to the seasonal cooling of the water column. The most radical shift occurred between JD 283 (velocity cast #5) and JD 300 (velocity cast #6) when the velocity correctors decreased from 2.2 feet in 85 feet of water to 1.6 feet in 85 feet of water. The water column stabilized sometime between day 308 and 325 as evidenced by the near identical velocity correctors obtained by TDC #7 and TDC #8.

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

<u>Table Applied</u>	<u>Cast</u>	<u>Day</u>	<u>Depth</u>	<u>Time</u>	<u>Location</u>	<u>Days</u>
5	TDC 5	283	26.0 m	11:14Z	40-15.6 N 73-52.7 W	285 - 307
7	TDC 7	308	24.0 m	10:00Z	40-12.1 N 73-52.3 W	308 - 312
8	TDC 8	325	26.0 m	20:33Z	40-09.7 N 73-52.8 W	327 - 328
None	Nansen 1	325	20.0 m	20:50Z	40-09.6 N 73-53.0 W	None

Velocity Cast 5 was taken prior to the commencement of hydrographic operations in order to be incorporated as the Velocity correction in the HDAPS Velocity table. Velocity correction computations were performed automatically by the HDAPS system. All on-line soundings were corrected for velocity during the survey.

On day 325, Nansen 1 was conducted simultaneously with TDC 8 for comparison purposes per section 2.1.2.2 of the Field Procedures Manual For Hydrographic Surveying (1988). The resulting correctors of the separate casts agreed within 0.1 feet, ensuring proper functioning of the Martek TDC (s/n 101) for the project period. Since the Nansen cast served only as a check, the correctors resulting from the cast were not applied to any hydrographic data.

#### 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) was placed on the bottom directly under the transducers 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) are as follows:



Pneumo Depth	Pneumo Corr.	Pneumo Depth + Corr	Draft Via Pneumo	Pneumo - Draft	Echo Sounder Depth + 0.4 vel Corr	DSF 6000 Inst. Error
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

The average instrument error is +0.0 feet.

The pneumatic depth gauge was bench calibrated on 8 June, 1988 and field calibrated against a lead line on Day 268 and a corrector of +0.2 feet was applied to all pneumo readings.

#### 6. DRAFT CORRECTION ✓

The depth of the transducers was measured by divers with the pneumatic depth gauge and found to be 10.6 ft., which agrees with historical data. All field data were acquired with a 10.5 foot draft correction applied. *All smooth soundings were corrected with a TRA correction of 10.7' = 10.6 draft + 0.1 settlement and squat correction. A 10.6 TRA correction was used for bottom samples.*

#### 7. SETTLEMENT AND SQUAT ✓

Settlement and squat correctors for the WHITING (VESNO 2930) were obtained from historical data determined on 4 April 1985 at Puerto Castilla, Honduras (OPR-303-MI/WH-85). No major ship alterations have been completed 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 the ship 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 the 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 sheet were plotted with predicted tide correctors.

The tidal datum for the project was mean lower low water. The operating tide station at Sandy Hook, New Jersey (853-1680), served as control for datum determination. Third-order levels were run from the tide staff to five bench marks on 6 September, 1988. No secondary tide stations were established. Closing levels were run on November 28, 1988.

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 for predicted tides in the 1988 Tide Table is mean low water instead of mean lower low water. As a result, all sounding data acquired in the field were not reduced for the proper tidal datum. *Approved tides was applied to processed data.*

Smooth tides were requested from Chief, Sea and Lake Levels Branch, N/OMA12, in a letter dated 05 December, 1988. A copy of the letter is included in Separate L. The Field Tide Note is also included in Separate B.

#### E. HYDROGRAPHIC SHEETS ✓

The assigned survey scale was 1:10,000. All sheets were produced on board the WHITING with the HDAPS system on the Bruning-Nicolett ZETA plotter. A list of submitted sheets for H-10287 is as follows:

Sheet	Scale	Quantity
Field	1:10,000	4
Edited Sounding	1:10,000	3
Dev. Rough	1:10,000	3
Edited Dev.	1:10,000	3
Raw Trackline	1:10,000	3
Edited Trackline	1:10,000	3
SSS Contact Plot	1:10,000	3
Edited Swath	1:10,000	6
Final Swath	1:10,000	6
Smooth Sounding Plot	1:10,000	6
Master Overlay	1:10,000	3

All field records will be submitted to N/MOP21, Hydrographic Surveys Branch, in Seattle, WA for processing.

#### F. CONTROL STATIONS ✓

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>Signal</u>	<u>Name</u>	<u>Source</u>	<u>Year</u>
001		AMBROSE LIGHT, <sup>1988</sup> (ECC) (Field Position)	AMC	1988
006		SPERMACEITI COVE, CG CUPOLA, 1940 (See Fig. 4)	AMC	1940
010		IMPERIAL, <sup>1988</sup> (Field Position)	AMC	1988
012		ASBURY T, <sup>1988</sup> (Field Position)	AMC	1988
016		BELFISH, <sup>1988</sup> (Field Position)	AMC	1988
019		GIRTY, <sup>1988</sup> (Field Position)	AMC	1988
020		MANASQUAN IN N SKEL TWR NE LEG, <sup>1988</sup> (Field Position)	AMC	1988

For more information concerning the recovery of the geodetic stations used, refer to the Horizontal Control Report which can be found within Supplemental 11.

#### G. HYDROGRAPHIC POSITION CONTROL ✓

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:

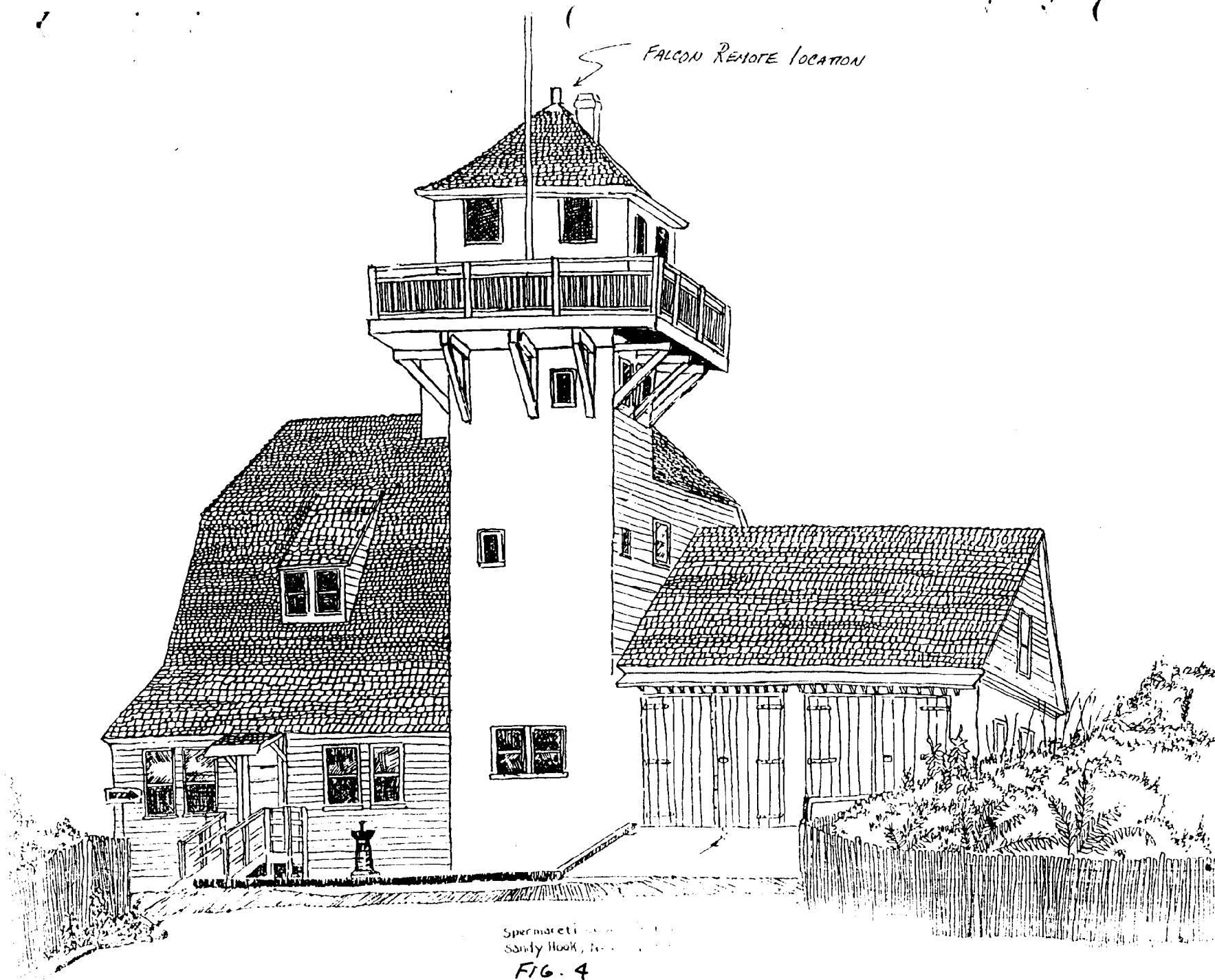
<u>VESNO</u>	<u>Equipment</u>	<u>S/N</u>
2930	RPU *	E0138
	CDU	F0201
	R/T	2967

\* RPU - Range Processing Unit  
CDU - Control Display Unit  
R/T - Receiver/Transmitter

#### Remote Reference Stations

<u>Code</u>	<u>S/N</u>	<u>Station</u>	<u>Days (1988)</u>
2	E2959	001	285-287, 291, 298-299, 328,
6	F3290	006	285-287
9	E2979	010	285-287, 291-295, 298-299, 312-313, 328
7	F3241	012	285-287, 291-295, 298-299, 312-313, 328
8	E2890	016	285-287, 291-295, 298, 312-313,
5	E2976	019	287, 291-295, 298-299, 312-313, 328
4	G3571	020	328





Critical System Check ✓

Three point sextant fix system calibrations were performed on days 269, 287, and 302 (sextant sn's T2989, T2976, T2990, R/T sn 2960). A list of stations and codes used, computed residuals, and days performed follows.

<u>Day</u>	<u>Station</u>	<u>Code</u>	<u>Residual</u>
269	001	2	-4.2
	002	4	-4.9
	003	3	-4.3
	005	5	1.8
287	010	9	2.2
	012	7	-1.4
	016	8	-3.7
	019	5	-3.6
	006	6	2.9
312	020	4	-2.3
	019	5	3.2
	016	8	-3.8
	012	7	-4.5
326	020	4	-5.2
	019	5	3.2
	016	8	0.4
	010	9	-3.0
	001	2	-3.1
	006	6	-1.9

Non-critical System Check: ✓

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

Day	Time	Code2	Code6	Code7	Code8	Code9	Code5	Code4	ECR*
285	011907		-0.22	-3.41	-4.26	-1.51			2.4
285	171041	+0.00	+0.03	-0.57		+1.87			3.2
286	015306	+1.81	-0.63		-2.07	-0.01			2.2
286	042804	+0.04	+0.54		+0.19	+2.60			2.5
286	091729		-1.02		+0.49	+1.40			2.3
286	204456		-1.15	+0.56	+0.88	+0.52			2.3
287	002610	-0.52	-1.80		+1.43	-1.31			2.5
287	062130		-0.72	-1.68		-3.11	+1.75		2.5
287	150754	-0.13		-0.82	-0.13	+1.56			2.7
291	192848	-0.68		-0.57	-0.51	+1.03			3.8
291	200557			-1.38	+0.46	+0.89	+0.83		4.0
291	235417			+0.21	-1.03	+0.29	+0.46		4.0
292	033346			+0.08	-0.12	+0.33	+0.12		4.3
292	140854			+0.75	-0.77	-0.19	-0.02		3.6
293	020105				-0.30	+1.00	+0.20		4.2
293	035026			+2.32	-0.19	-1.07	+0.31		4.0
293	233433			+0.42	-0.65	-0.34	+1.03		4.2
294	041711			+0.18	-1.74	+0.40	+0.88		3.9
294	131132			-0.25	-1.24	+0.15	+1.38		3.8
294	224247			+0.33	-1.11	-0.09	-0.21		4.4
298	191155	-0.24		-0.81		+0.76	+0.78		4.1
299	013535	+1.05		-0.94		-0.21	+1.60		3.7
299	130020	+0.13		+0.91		-----	-0.36		4.0
312	152634			-0.88	+1.13		+0.58		3.8

\*ECR - Size, in meters, of the 95% confidence circle

#### Mini-Ranger Falcon Calibration

Baseline calibrations were performed to the standards of the draft AMC OORDER 86 (Falcon 484 Calibration Procedures and Standard Forms) and Attachment A in the Project Instructions. Opening baseline calibrations were performed on 17 & 18 August, 1988 at Fort Monroe, Virginia, and on 29 August & 6 September, 1988 at Sandy Hook, New Jersey. Only the values computed over the Sandy Hook baseline were utilized as correctors in the HDAPS C-0 table. The only exception to this occurred on days 298 and 299 when the corrector value for code 5 (station 19) was inadvertently changed from 4.6 to 0.0. A corrector value of 0.0 was applied to code 5 for all data collected from fix 4342 to 4550, when the mistake was discovered. All records of these calibrations are included with the survey records in Supplemental 4A. *SEE Final Report Section I*  
*Fixed with raw data. The corrector value of 0.0m was changed back to 4.6m for the remaining data. No significant discrepancies were noted with adjoining data on the smooth sheet.*

Per Attachment A of the Project Instructions, a closing baseline calibration was not performed. The critical system checks performed on Day 269, 287, 312, 326 were within tolerance and MLOP were used 100% of the time on the project.

#### H. SHORELINE ✓

No shoreline lies within the field sheet boundaries. Therefore, delineation of shoreline detail was not applicable to



this survey. Shoreline was transferred to the field sheets from a 1:10,000 scale enlargement of Chart 12326, 38th Ed., and Chart 12324, 24th Ed., for orientation purposes only. *The above charts are on NAD27 datum and the smooth sheet is on NAD 83 with adjustment ticks for NAD 27. Shoreline in brown was drawn on the smooth sheet for orientation purposes only.*

Per Change #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 on the chart. All charted landmarks were found to be adequately positioned on charts 12324 and 12326. *CONCUR*

#### I. CROSSLINES ✓

A total of 44.6 linear nautical miles of crosslines were run on "D" sheet and amounted to of 9.6% the mainscheme hydrography acquired. All soundings at crossings agreed to within 1-2 feet. *CONCUR*

#### J. JUNCTIONS ✓

This sheet junctioned with prior survey H-9531 (1975) to the east. All soundings agreed within 3 feet. Survey lines were run so that at least a two sounding overlap with the junction surveys existed. Junctions with H-10285 (sheet C), H-10291 (sheet E), and H-10290 (sheet F) were also compared with this survey and soundings were found to agree within 1-2 feet. *CONCUR*

#### K. COMPARISON WITH PRIOR SURVEYS *See Encl Report section 6*

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-5300	1:10,000	1933

Representative soundings from these previous surveys were transferred to an overlay and checked against soundings from this survey. *4/* Depths were found to be in agreement within 1-3 ft, except for a *39* foot sounding in *55* feet of water reported by wire drag survey H-6463 located at lat 40-12-10N, long 73-58-40W. *(NAD27)* No such sounding was found and examination of the Side Scan Sonar records revealed that there were no obstructions in the area. The only other discrepancy discovered was a 49 foot sounding resulting from survey H-6190 (lat 40-15-30N, long 73-56-00W) that was found to be *56* feet from this survey. *(NAD 27)*

*54-56* In common areas, the soundings from the current survey should be utilized to update the existing charts. *CONCUR*

## AWOIS 1514

AWOIS 1514 is listed as 75 foot ferry vessel VEGA which sank in 1958 at lat 40-11-39N, long 76-56-49W<sup>(H-10291)</sup>. Dive investigations conducted during project FE221/78-79 verified the item with a least depth of 53 feet and surrounding depth of 64 feet. Project instructions required 200% side scan sonar coverage for a radius of 100 meters.

Ferry vessel VEGA was not found within the limits of this sheet but was found on sheet F<sup>(H-10291)</sup>. Refer to the descriptive report accompanying H-10291<sup>10</sup> for positioning information and recommendations.

## AWOIS 1516

AWOIS 1516 is listed as an unknown obstruction and wreckage found in lat 40-12-06 N, long 73-58-54<sup>(WD27)</sup> W with the shoalest depth of 42 feet. The item was reported wire drag cleared to 35<sup>3</sup> feet by survey WD H-6463 in 1939. Project instructions required 200% side scan sonar coverage for a radius of 100 meters.

No significant contacts were located with 200% side scan sonar coverage in the 100 meter search radius. The Hydrographer recommends this item be removed from the charts.

## AWOIS 1517

AWOIS 1517 is listed as the wreck of the POCOPSON, where a 42 foot sounding was found at lat 40-12-08.4N, long 73-58-57.6W<sup>(WD27)</sup> during Survey H6190/36. WD Survey H6463/39 identified the wreck\* and cleared the item to 39 feet by wire drag. Project instructions required 200% side scan sonar coverage for a radius of 100 meters. *See ENC Report Section 6*

\* with a 41 Ft depth at Lat. 40/12/12 N, long. 73/59/18 W (WD27) *cat. depth of 47 Ft.*  
Side Scan Contact #15 (pos #3752.8p)<sup>(WD27)</sup> was found at lat 40-12-12N, long 73-59-16W and is believed to be the POCOPSON. The hydrographer recommends that diver investigation and least depth determination be accomplished by a future field unit to fully resolve this item. *Concur, see letter dated, MAR 122, 1989*

## AWOIS 1528

AWOIS 1528<sup>(H-10291)</sup> is listed as a barge sunk in 1940 at lat 40-15-00N, long 73-55-00W with a positional accuracy of 1-3 miles. The charted position of the wreck falls in an area cleared to 54 feet by survey FE 101, but the wreck was neither found nor investigated. Project Instructions required 200% side scan sonar coverage for a radius of 3000 meters. ✓

Careful examination of all side scan sonar records within the search radius failed to reveal any contacts with any sort of

resemblance to the barge in question. It is recommended this item be removed from the charts.

*comment*  
See ERM  
Report section 7

See ERM Report, section 7 for AWOIS Item 4286.

#### L. COMPARISON WITH THE CHART *See ERM Report, section 7*

Comparison of data from the present survey was 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 with the charts within 1-3 feet, with the following exceptions.

<u>Source</u>	<u>Year</u>	<u>NAD 27</u>		<u>Charted</u>	<u>Surveyed</u>
		<u>Lat</u>	<u>Long</u>	<u>Depth</u>	<u>Depth</u>
H-5638	1934	40-14-10N	73-59-20W	33 ft	37 ft
H-6190	1936	40-12-32N	73-59-10W	48 ft	53 ft
H-6190	1936	40-13-10N	73-59-10W	42 ft	46 ft
H-6190	1936	40-12-50N	73-58-55W	44 ft	48 ft
H-6190	1936	40-15-25N	73-55-55W	49 ft	52 ft
H-6190	1936	40-14-55N	73-56-10W	47 ft	52 ft
H-6190	1936	40-13-40N	73-57-05W	56 ft	60 ft
H-6190	1936	40-14-20N	73-54-15W	62 ft	72 ft
H-6190	1936	40-14-35N	73-53-40W	65 ft	71 ft
H-6190	1936	40-14-20N	73-54-40W	60 ft	67 ft
H-6463WD	1939	40-12-10N	73-58-40W	39 ft	49 ft

The last charted depth listed previously was a 39 foot sounding that originated from WD Survey 6463. No such sounding was found during this survey. All Side Scan Sonar records were checked for any features within the area and no significant contacts were found. It is recommended the 39 foot sounding be removed.

*comment*

In all cases where this survey's findings differed from the charted soundings by more than 3 feet, the charted depths were shoaler than the present survey findings. This is evidence of a consistently changing bottom, most likely a result of longshore littoral currents in the area. Shoreline erosion has reportedly been a problem for the resort hotels as the beaches continue to erode.

*comment*

AWOIS items 1514, 1516, 1517, and 1528 are all located at positions other than the charted positions. Refer to Section K for additional positioning information. Least depths and accurate positioning for the depths will have to be determined by a future field unit as the WHITING conducted no diver item investigations.

*See ERM Report, section 4 & 7*

The final discrepancy between the findings of this survey and the chart was the existence of a sewer outfall found at lat 40-15-15N and long 73-58-57W. <sup>(AWOIS 1514)</sup> This uncharted outfall lies approximately one and one-half miles north of the already charted Asbury Park sewer outfall. Side scan sonar contacts #376.7s (lat

40-15-18.8N, long 73-58-55.8W), #377.5p&s (lat 40-15-13.5N, long 73-58-56.6W) <sup>(MAD 83)</sup> mark the north and south ends of the outfall respectively and are portrayed on the SSS Contact Overlay.

Splits of mainscheme lines were run over suspected shoal areas on Day 328 after a period of extremely high winds and seas throughout the project area. While rough plotting it was found that a 3-4 foot difference was observed between the mainscheme and development lines. All correctors and systems were checked and found to be normal. A call was placed to Mr. Jim Dixon, Chief, Atlantic Operations Group, to determine if a change was observed in the actual tides during this period. He reported that a 4 1/2 foot drop in the normal tide level was observed throughout the period (refer to figure L-1). Consequently, the development lines (Positions 3754 - 3935) were not smooth plotted in the field but should be plotted when smooth tides are applied to the data. *Positions 3754 to 3935 are plotted on the smooth sheet and no significant discrepancies noted.*

There were no dangers to navigation within the survey area. *concur*

#### M. ADEQUACY OF SURVEY *See Encl Report section 9*

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

#### N. AIDS TO NAVIGATION ✓

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

##### Floating Aids to Navigation ✓

No floating aids to navigation existed within the survey area. *concur*

##### Non-Floating Aids to Navigation ✓

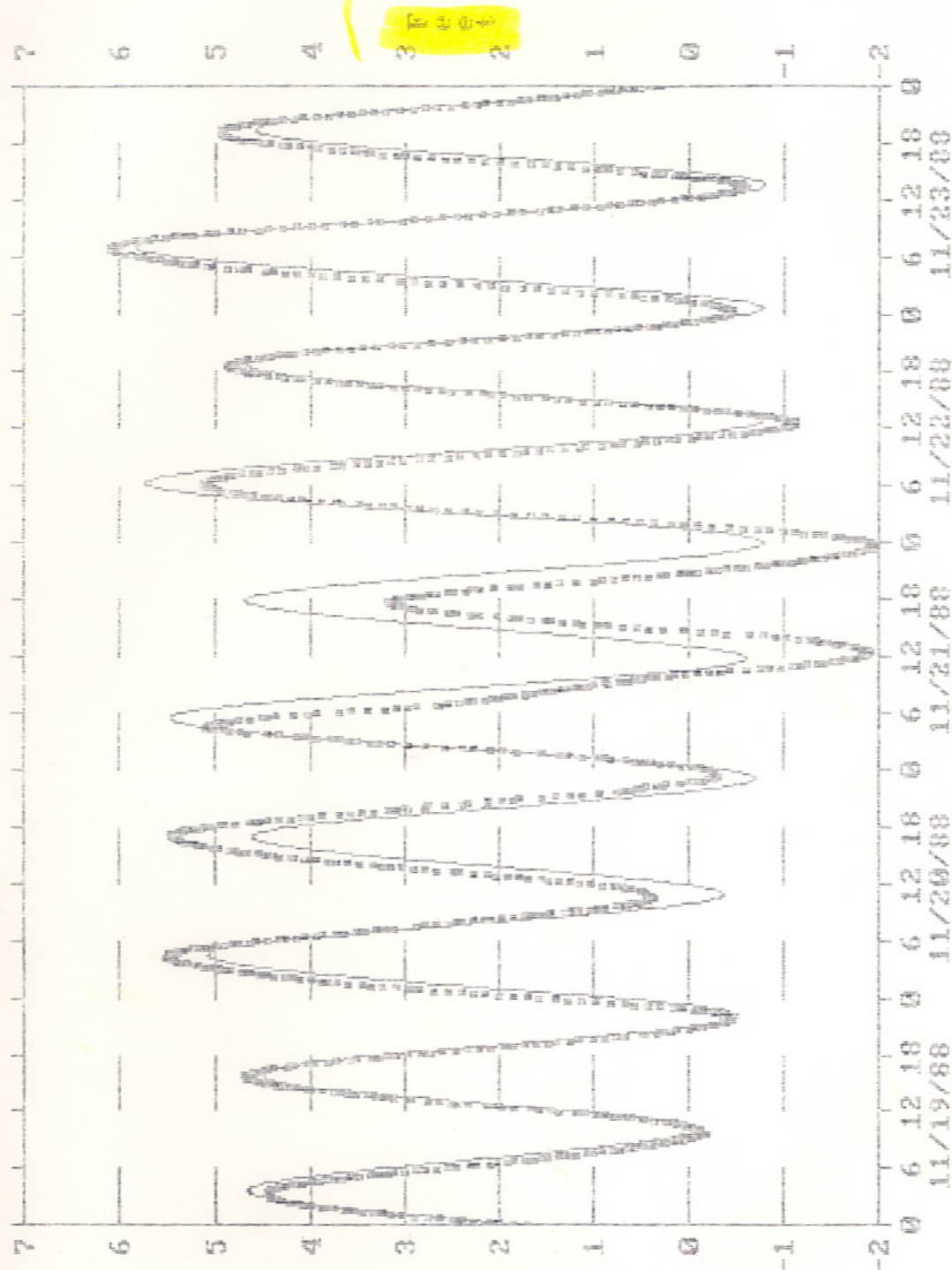
No non-floating aids to navigation existed within the survey area. *concur*

#### O. STATISTICS ✓

No. of Positions	4915
No. of Side Scan Positions	4258
No. of Crossline Positions	417
No. of Development Positions	46
No. of Rejected Positions	103
Linear NM of Sounding Lines	512.4

**NOAA**  
National  
Ocean  
Service

Times EST  
Datum MLLW



Predicted —  
Observed - - - - -

Preliminary Data: 8531680 Sandy Hook, N.J.

FIG. L-1



Linear NM of Side Scan Inv.	465.7
Square NM of Hydrography	12.4
Bottom Samples	19
Detached Positions	0
Omitted Positions	72
Duplicated Positions	0
Dive Investigations	0

#### Additional Statistics

TDC Casts	3
Nansen Casts	1
Tide Stations Levelled	2
Days of Production	16

#### P. MISCELLANEOUS ✓

##### Shipboard Hydrography ✓

Twenty-four 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. The entanglement of the towfish put considerable strain on the side scan connector cable which resulted in damage to the cable requiring it to be "repotted". 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.

##### Bottom Samples ✓

Nineteen 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. Due to a 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 on the sheets by hand. *Bottom samples were plotted on the smooth sheet by hand.*

##### Anomalous Currents ✓

No anomalous currents were observed in the survey area, per section 8.1 of the project instructions.

# Q. RECOMMENDATIONS *See Enc Report section 9*

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

Contact #	Position #	Contact #	Position #
1	7.9p	12	2628.7p
2	85.7s	13	2895.7s
3	388.4p	14	3683.7s
4	376.7s	15	3752.8p
5	377.1s	16	3841.2p
6	377.5p&s	17	4463.1s
7	1436.2s	18	1500.8p&s
8	2043.1s	19	1500.6p
9	2117.5s	20	1500.4p&s
10	2427.3s	21	2968.9p
11	2593.4p		

Descriptive and positioning information on these contacts can be found in separate K.

A copy of the final smooth sheets should be sent to the following personnel 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:

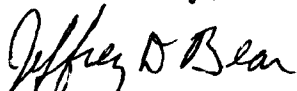
SEAS	Semi-Automatic System, Version 1.5	01/12/85
VELOCITY	Velocity Computations (IBM PC)	
RK 300	Utility Computations	

# S. REFERRAL TO REPORTS ✓

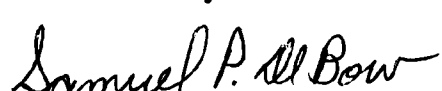
<u>Title</u>	<u>Transmittal Information</u>
Descriptive Report To Accompany Surveys:	Hydrographic Surveys Branch Atlantic Marine Center N/MOA23
H-10285 (C sheet)	Transmittal WH-OPS-82-88 Dated December 16, 1988
H-10291 (E sheet)	Transmittal WH-OPS-01-89 Dated January 17, 1989

H-10290 (F sheet)	Transmittal WH-OPS-02-89 Dated January 17, 1989
Horizontal Control Report	Photogrammetry Branch Atlantic Marine Center N/MOA22  Written by: C.M. Middleton Jr.
Chart Sales Agent Report	Field Surveys Section, N/MOA222 Mr. Kenneth H. Moyer N/CG33  Transmittal WH-OPS-63-88 Dated: November 7, 1988
User Evaluation Report	Program Planning & Requirement Atlantic Marine Center N/MOA2x1  Transmittal WH-OPS-64-88 Dated: November 7, 1988
Chart Inspection Report	Mr. Rudolph D. Sanocki Atlantic Marine Center N/MOA232  Transmittal WH-OPS-73-88 Dated: December 5, 1988
Coast Pilot Report	Mr. Rudolph D. Sanocki Atlantic Marine Center N/MOA232  Transmittal WH-OPS-76-88 Dated: December 6, 1988


Submitted By:

  
ENS Jeffrey D. Bear, NOAA

Reviewed By:

  
LT Samuel P. De Bow, NOAA  
Field Operations Officer

Approved By:

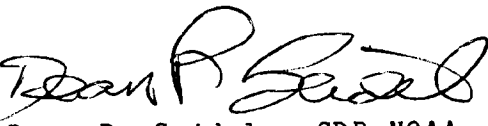
  
CDR Dean R. Seidel, NOAA  
Commanding Officer

APPROVAL SHEET

HYDROGRAPHIC AND  
SIDE SCAN SONAR SURVEY  
OPR-C147-WH  
1988  
WH-10-4-88  
H-10287

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 checked as well.

This survey is complete for the intended purpose of identifying items requiring further investigation by a different field unit.



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

FIELD TIDE NOTE  
HYDROGRAPHIC SURVEY  
OPR-C147-WH  
1988  
OFFSHORE SANDY HOOK TO SEA GIRT

The operating tide gage at Sandy Hook, New Jersey, was used as the primary station for predicted tides during this project. Predicted tide tables were computed by the HDAPS system using the time and height correctors for the survey area as listed in the Project Instructions, section 5.9:

Time Corrector: -30 min

Height Corrector: x 0.94

Predicted tides were applied to all soundings on the final field sheets.

The tide station at Sandy Hook, New Jersey (853-1680), Latitude 40° 28.0' N, Longitude 074° 00.6' W, was the primary tide station and served as the direct control of hydrography for this survey.

The Sandy Hook tide station was maintained by the Atlantic Operations Group. The gage was monitored throughout the survey by the Atlantic Operations Group with no serious problems encountered.

Five bench marks were recovered at the Sandy Hook tide station by the NOAA Ship WHITING. Opening and closing levels for the project were conducted on September 6 and November 28, 1988, respectively. The third order level circuited five of the nine recovered bench marks including the primary bench mark, 1680 A 1979. The other bench marks were: 1680 D 1980, S80 1979, Simpson 2 No. 3, and Simpson 1972. The forward and backward run of the level circuit was within the 0.011 ft. tolerance required.

The only tide gage observations made by the WHITING was at the time of the opening level. Observations were made on the Metercraft and ADR gages indicating the opening date of the survey. All observations were recorded on NOAA form 77-24 which was left with the other tide records in the tide gage house.

Submitted by:



Mark P. Skarbek  
ENS NOAA

Approved by:



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



STATION LIST  
 OPR-C147-WH  
 1988  
 WH-10-4-88  
 H-10287

No.	Lat	Long	Cart	H	Code	Frequency
001	040:27:35.263	073:49:49.999	250	45	2	000000
002	040:27:42.189	074:00:07.226	250	26	4	000000
003	040:25:36.085	073:59:03.266	250	10	3	000000
004	040:21:55.966	073:58:22.996	250	12	4	000000
005	040:21:53.497	073:58:22.585	250	12	5	000000
006	040:19:51.986	073:58:27.117	250	47	6	000000
010	040:16:41.197	073:59:01.833	250	56	9	000000
012	040:13:43.310	073:59:53.482	250	81	-	000000
015	040:11:11.116	074:00:26.109	250	13	-	000000
016	040:11:08.351	074:00:34.846	250	9	8	000000
019	040:08:11.868	074:01:38.854	250	15	-	000000
020	040:06:05.908	074:01:52.935	250	9	4	000000
027	040:20:31.751	073:58:27.051	250	13	7	000000
028	040:22:49.632	073:58:27.337	139	6	-	000000
031	040:21:56.502	073:58:30.569	139	7	-	000000
035	040:08:04.575	074:02:26.770	139	36	-	000000

No.	Name	Source	Year
001	AMBROSE LIGHT (ECC)	AMC	1988
002	SANDY HOOK LT. (ECC)	AMC	1986
003	SPERMACEITI COVE CG CUPOLA	AMC	1940
004	SEA CLUB 2	AMC	1988
005	SEA CLUB 1	AMC	1988
006	ADMIRAL AMC	AMC	1988
010	IMPERIAL	AMC	1988
012	ASBURY T.	AMC	1988
015	SHARK RIVER INLET S BKWTR LT.	AMC	1988
016	BELFISH	AMC	1988
019	GIRTY	AMC	1988
020	MANASQUAN IN N SKEL TWR NE LEG	AMC	1988
027	MONMOUTH NJMP WIND VANE	AMC	1988
028	SEA WALL	AMC	1988
031	SEA BRIGHT	AMC	1988
035	SEA GIRT WHITE TANK	AMC	1988

*gm*

# RECOMMENDED SONAR CONTACTS FOR FURTHER INVESTIGATION

OPR-C147-WH

WH-10-4-88

H-10287

ITEM #	CONTACT	EASTING	NORTHING	LATITUDE	LONGITUDE	HEIGHT	WATER DEPTH	RECOMMENDATIONS & REMARKS
1	7.9p	31949.2	20831.7	40/15/15.303	73/52/05.939	3.0'	82'	NFIN < 10% of depth
2	85.7s	31833.3	20665.1	40/15/09.905	73/52/10.850	2.5'	81'	NFIN < 10% of depth
3	388.4p	21771.9	18266.5	40/13/52.216	73/59/16.553	2.1'	40'	NFIN < 10% of depth
4*	376.7s	22262.2	20946.3	40/15/18.759	73/58/55.782	6.5'	36'	Sewer Pipe North
5*	377.1s	22201.8	20868.0	40/15/15.922	73/58/57.224	?.'?	35'	Sewer Pipe Central
6*	377.5ps	22256.6	20856.4	40/15/13.507	73/58/56.609	5.0'	34'	Sewer Pipe South
7*	1436.2s	24655.8	20300.9	40/14/58.197	73/57/14.564	<del>6.8'</del> 4.3'	63'	Obstr.-Diver L/D, E/S dev.
8	2043.1s	25169.4	14222.5	40/11/41.125	73/56/52.838	3.1'	71'	NFIN < 10% of depth
9	2117.5s	25116.9	14376.5	40/11/46.118	73/56/55.058	5.7'	68'	NFIN < 10% of depth
10	2427.3s	25737.0	16039.1	40/12/40.022	73/56/28.833	1.4'	65'	NFIN < 10% of depth
11	2593.4p	26133.2	16801.8	40/13/04.748	73/56/12.073	2.5'	62'	NFIN < 10% of depth
12*	2628.7p	26302.6	19076.5	40/14/18.497	73/56/04.892	<del>2.6'</del> 3.7'	61'	Obstr.-Diver L/D, E/S dev.
13	2895.7s	26880.7	18830.6	40/14/10.520	73/55/40.438	<del>2.7'</del> 4.0'	66'	NFIN < 10% of depth
14	3683.7s	21378.8	15723.9	40/12/29.775	73/59/33.130	3.0'	43'	NFIN < 10% of depth
15*	3752.8p	21771.4	15183.1	40/12/12.247	73/59/16.519	2.0'	47'	Wreck-AWOIS 1517-Diver L/D
16	3841.2p	22086.7	15291.3	40/12/15.759	73/59/03.188	3.1'	49'	NFIN < 10% of depth
17*	4463.1s	30105.8	15691.5	40/12/28.697	73/53/24.091	3.9'	72'	Possible Wreck-Diver L/D

\* Contacts warranting further investigation

Refer to attached letter dated, March 22, 1989 for further investigation recommendations

[illegible]

**\*\* Contacts warranting further investigation**

Refer to attached letter dated March 22, 1989 for further investigation recommendations

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: February 22, 1989

MARINE CENTER: Pacific

OPR: C147

HYDROGRAPHIC SHEET: H-10287

LOCALITY: New Jersey, Offshore Elberon to Bradley Beach

TIME PERIOD: October 11, 1988 - November 23, 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

## GEOGRAPHIC NAMES

H-10287

Name on Survey NEW JERSEY, ATLANTIC OCEAN OFFSHORE ELBERON TO BRADLEY BEACH	A		B		C		D		E		F		G		H		K	
	ON CHART NO. 12324	ON CHART NO. 12326	ON PREVIOUS SURVEY	NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	GRAND McNALLY ATLAS	U.S. LIGHT LIST								
ALLENHURST	X	X															1	
ASBURY PARK	X	X															2	
BRADLEY BEACH	X	X															3	
DEAL	X	X															4	
ELBERON	X	X															5	
OCEAN GROVE	X	X															6	
NEW JERSEY (TITLE)																	7	
ATLANTIC OCEAN (title)																	8	
																	9	
																	10	
																	11	
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																	25	

Approved:

*Charles E. Harrington*  
Chief Geographer - N/Cg2x5

APR 11 1989



FILE COPY



U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
Pacific Marine Center  
1801 Fairview Avenue East  
Seattle, Washington 98102-3767

MAR 22 1989

MOP211C/JSG

MEMORANDUM FOR: Captain Christian Andreasen, NOAA  
Chief, Nautical Charting Division

FROM: *Sigmund R. Petersen*  
Rear Admiral Sigmund R. Petersen, NOAA  
Director, Pacific Marine Center

SUBJECT: Review of Survey H-10287 Side Scan Sonar Records

The side scan sonar records for hydrographic survey H-10287, Offshore Elberon to Bradley Beach, conducted by NOAA Ship WHITING from October 11 to November 23, 1988, have been reviewed as required by section 6.14.1 of the Project Instructions for OPR-C147-WH, Offshore New Jersey Coast, dated August 22, 1988. The review consisted of checking the sonargrams for additional contacts; checking the contact height and position computations; and correlating the contacts with AWOIS items, charted features and soundings from the field sheet.

The hydrographer initially identified 21 contacts, 10 of which were recommended for additional investigation. No additional contacts were identified during this review.

Six of the ten contacts recommended for further investigation are points on the ends of two sewer lines. The positioning of these features is confirmed by traces on the echograms. The echogram depths and positioning, supplemented by the side scan information, are adequate for the charting of these features. Therefore, additional investigation is not necessary.

The remaining features are either wrecks or obstructions. The wrecks are all candidates for further investigation. The obstructions were evaluated for significance using the criteria contained in section 7.1.1 of the project instructions. The application of this criteria, 10 percent of the depth or one meter at depths shallower than 66 feet, resulted in Contact 7 as the only obstruction requiring additional investigation.

Therefore, the remaining significant side scan sonar contacts recommended for additional investigation are listed below (positions are on NAD83).

<u>CONTACT NUMBER</u>	<u>FEATURE</u>	<u>OBJECT HEIGHT</u>	<u>APPROX DEPTH</u>	<u>LATITUDE</u>	<u>LONGITUDE</u>
7	Obstr	6.3'	57'	40°14'58.2"	73°57'14.6"
15	Wreck*	2.0'	49' 47	40°12'12.2"	73°59'16.5"
17	Wreck**	3.9'	12' 71	40°12'28.7"	73°53'24.1"



\* Contact 15 is located 75 meters northwest of AWOIS Item 1517, a 39-foot cleared depth charted at latitude 40°12'12"N, longitude 73°59'18"W (NAD27).

\*\* Contact 17 is noted as a possible wreck.

These features should be investigated by dives to determine minimum depths and to obtain descriptive information. Contact 17, the possible wreck, may be resolved prior to diving if 200 percent east-west side scan sonar does not confirm a wreck or other significant feature.

Information has been received recently regarding a potential error in soundings obtained with the DSF-6000N echosounder. The error apparently originates only with certain echosounders used with the HDAPS. At this time it is not known if the faulty equipment was, in fact, used during this survey. Until the exact nature of this error is identified and quantified, users of the information contained in this report are cautioned that the depths contained in the column titled "APPROX DEPTH" may be at least six percent greater than the actual depths. *Faulty equipment was not used during this survey.*

A plot of the significant contacts and AWOIS items, a copy of the Side Scan Sonar Data Report, a copy of the pertinent sonargrams relative to each significant contact and applicable excerpts from the Descriptive Report for survey H-10287 will be forwarded to the Commanding Officer, NOAA Ship HECK.

A contact plot at 1:20,000 scale and a contact list has been forwarded under separate cover to the Operations Section, CG241, for use in compiling project instructions.

Separate Cover

Nautical Chart Branch  
7600 Sand Point Way NE  
BIN C15700  
Seattle, Washington 98115-0070

April 4, 1989

MOP211C/TSG

MEMORANDUM FOR: Commanding Officer  
NOAA Ship HECK

*Devin Hill*  
FROM: Lieutenant Commander Pamela Chelgren-Koterba, NOAA  
Chief, Nautical Chart Branch

SUBJECT: Investigation of Side Scan Sonar Contacts for OPR-C147,  
Offshore New Jersey Coast

REFERENCE: PMC letter, Review of Survey H-10287 Side Scan Sonar Records,  
March 22, 1989  
PMC letter, Review of Survey H-10290 Side Scan Sonar Records,  
March 22, 1989  
PMC letter, Review of Survey H-10291 Side Scan Sonar Records,  
March 22, 1989

A data package with items for additional investigation on hydrographic surveys H-10287, H-10290 and H-10291, OPR-C147, Offshore New Jersey Coast, has been forwarded to you previously. N/CG241 has requested that the following items in this package be clarified.

The data package includes a contact plot depicting the side scan sonar contacts and the AWOIS items for each survey. Items requiring additional investigation are symbolized on these contact plots by black squares. These black squares are also shown for AWOIS items that are candidates for disproof, as additional side scan survey coverage was originally requested. This request for additional side scan coverage was deleted at the last moment and the contact plots were not updated. The only items requiring additional investigation are identified in the referenced letters, copies of which are included in the data package. The black squares on the contact plots for the AWOIS items listed below should be disregarded.

H-10287	AWOIS Items 1516, 1528 and 4286
H-10290	AWOIS Items 1510 and 1511
H-10291	AWOIS Items 4282 and 4284

Additional data, such as a copy of the WHITING's Side Scan Sonar Data Report and copies of sonargrams for all the contacts recommended for additional investigation by the WHITING, are included in the data package. This additional data is for informational purposes only, the only items requiring additional investigation are identified in the letters to Chief, Nautical Charting Division, referenced previously.

cc: N/CG241



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NATIONAL OCEAN SERVICE  
OFFICE OF CHARTING AND GEODETIC SERVICES  
ROCKVILLE, MARYLAND 20852

FEB 23 1989

PACIFIC MARINE CENTER

MEMORANDUM FOR: Rear Admiral Ray E. Moses, NOAA  
Director, Atlantic Marine Center

Rear Admiral Sigmund R. Petersen, NOAA  
Director, Pacific Marine Center

FROM: Captain Christian Andreasen, NOAA  
Chief, Nautical Charting Division

SUBJECT: Showing Estimated Side Scan Sonar Depths on  
Smooth Sheets

Action:	Date to MOP
MSD 21	
Orig. MSD 21	MSD 22
MSD 21	MSD 22
Initial	3/6/89
Remarks	

This memorandum is in response to a telephone request by the Hydrographic Surveys Branch, Atlantic Marine Center, for a policy with regard to the portrayal on smooth sheets of depths (obstructions) scaled from side scan sonar records where the estimated depths are not further investigated on that survey. This policy is necessitated by the NOAA Ship WHITING's combined hydrographic/side scan sonar surveys accomplished in 1988 off the New Jersey coast using new item investigation procedures. The significant side scan sonar contacts detected on those surveys will be investigated by the NOAA Ship HECK during the 1989 field season.

The following policy is effective immediately:

Each depth that is scaled from a side scan sonar record and not investigated further, when shown on a smooth sheet, shall be accompanied by a note "obstr (A)," drafted in slanted black lettering in proximity to the depth. Also, in a convenient location on the sheet, preferably near the title block, the following note (plural form shown in the example) shall be added in black vertical lettering.

(A) 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.

In the case of the WHITING surveys off New Jersey, and others done under similar authorized investigation procedures, the following sentence shall be added to the above note.

Refer to subsequent field examinations for more definitive information on these features.



If known, the registry number(s) of the subsequent field examination(s) shall be inserted in the above sentence; for example:

Refer to surveys FE-xxx (19xx) SS and FE-xxx (19xx)  
for more definitive information on these features.

cc:

N/CG2x2 - Armstrong

N/CG22 - Florwick

## HYDROGRAPHIC SURVEY STATISTICS

H-10287

RECORDS ACCOMPANYING SURVEY: To be completed when survey is processed.

RECORD DESCRIPTION		AMOUNT	RECORD DESCRIPTION		AMOUNT
SMOOTH SHEET		1	SMOOTH OVERLAYS: POS., ARC, EXCESS		4
DESCRIPTIVE REPORT		1	FIELD SHEETS AND OTHER OVERLAYS		15
DESCRIP- TION	DEPTH/POS RECORDS	HORIZ. CONT. RECORDS	SONAR- GRAMS	PRINTOUTS	ABSTRACTS/ SOURCE DOCUMENTS
ACCORDION FILES	4				
ENVELOPES					
VOLUMES	1 (in cahier)				
CAHIERS					
BOXES					

## SHORELINE DATA

SHORELINE MAPS (List):

PHOTOBATHYMETRIC MAPS (List):

NOTES TO THE HYDROGRAPHER (List):

SPECIAL REPORTS (List):

NAUTICAL CHARTS (List):

## OFFICE PROCESSING ACTIVITIES

The following statistics will be submitted with the cartographer's report on the survey

PROCESSING ACTIVITY	AMOUNTS		
	VERIFICATION	EVALUATION	TOTALS
POSITIONS ON SHEET			4915
POSITIONS REVISED			
SOUNDINGS REVISED			
CONTROL STATIONS REVISED			
	TIME-HOURS		
	VERIFICATION	EVALUATION	TOTALS
PRE-PROCESSING EXAMINATION			
VERIFICATION OF CONTROL			
VERIFICATION OF POSITIONS	25		25
VERIFICATION OF SOUNDINGS	70		70
VERIFICATION OF JUNCTIONS			
APPLICATION OF PHOTOBATHYMETRY			
SHORELINE APPLICATION/VERIFICATION			
COMPILATION OF SMOOTH SHEET	7		7
COMPARISON WITH PRIOR SURVEYS AND CHARTS		10	10
EVALUATION OF SIDE SCAN SONAR RECORDS			
EVALUATION OF WIRE DRAGS AND SWEEPS			
EVALUATION REPORT		106	106
GEOGRAPHIC NAMES			
OTHER*			
*USE OTHER SIDE OF FORM FOR REMARKS	TOTALS	102	116
102	116	218	
Pre-processing Examination by M. Bradley		Beginning Date 1/30/89	Ending Date 2/23/89
Verification of Field Data by J. Stringham, E. Domingo, C.R. Davies		Time (Hours) 102	Ending Date 5/23/89
Verification Check by B. Olmstead		Time (Hours) 18	Ending Date 5/24/89
Evaluation and Analysis by C.R. Davies, J.S. Green		Time (Hours) 106	Ending Date 6/21/89
Inspection by D. Hill		Time (Hours) 6	Ending Date 6/26/89





**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SERVICE  
OFFICE OF CHARTING AND GEODETIC SERVICES  
ROCKVILLE, MARYLAND 20852

JAN 29 1990

MEMORANDUM FOR: Commander Russell C. Arnold, NOAA  
Chief, Hydrographic Surveys Branch

FROM: *George K. Myers, Jr.*  
George K. Myers, Jr.  
Chief, Standards Section

SUBJECT: Examination of Hydrographic Survey H-10287  
(1988) New Jersey, Atlantic Ocean, Offshore  
Elberon to Bradley Beach

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

An examination of hydrographic survey H-10287 (1988) was accomplished to monitor the survey with respect to data acquisition, conformance to applicable project instructions, including side scan search requirements, delineation of the bottom, navigational hazards, junctions, sounding line crossings, smooth plotting, shoreline transfer, 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.

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



PACIFIC MARINE CENTER  
Evaluation Report  
H-10287

1. INTRODUCTION

Survey H-10287 is a basic hydrographic and side scan sonar survey accomplished by the NOAA Ship WHITING under the following Project Instructions.

OPR-C147-WH, dated August 22, 1988  
Change No. 1, dated September 26, 1988  
Change No. 2, dated November 22, 1988

This survey occurred offshore of New Jersey and covers the area between the towns of Elberon and Bradley Beach. The surveyed area extends from latitude 40°11'45"N to latitude 40°15'45"N, longitude 73°52'10"W to longitude 74°00'00"W. The survey area is characterized by a gentle, sloping bottom. The bottom consists of sand, pebbles and shells. Depths range from 32 to 85 feet.

This survey is a combined hydrographic and side scan survey accomplished at the request of the New York and New Jersey Sandy Hook Pilots' Association. Two hundred per cent side scan sonar coverage of the entire survey area was required and has been accomplished. The WHITING was equipped with the new Hydrographic Data Acquisition and Processing System (HDAPS) for data collection and field processing. The HDAPS results in significant improvements in the amount of data collected, the automated data acquisition and field processing of side scan sonar data, survey positioning by use of multiple lines of position and assists in field processing. Section A of the hydrographer's report provides an overview of the HDAPS and its utilization in the processing of side scan sonar data.

The project instructions specified that the investigation of significant side scan sonar contacts be deferred to a different field unit on a future project. The side scan data was reviewed at the Pacific Marine Center and contacts/obstructions were evaluated for significance using the criteria contained in section 7.1.1 of the project instructions. Recommendations for additional investigations were submitted to CG241 and to the NOAA Ship HECK (see attached letters, Review of Survey H-10287 Side Scan Sonar Records, March 22, 1989 and Investigation of Side Scan Sonar Contacts for OPR-C147, Offshore New Jersey Coast, April 4, 1989).

This survey has been processed before the results of the requested additional investigations are available, therefore, the approximate minimum depths for the significant contacts are shown on the smooth sheet according to the attached letter, Showing Estimated Side Scan Depths on Smooth Sheet, dated February 23, 1989.

Predicted tides for Sandy Hook, New Jersey were used for the reduction of soundings during field processing. Approved hourly heights zoned from Sandy Hook, New Jersey, gage 853-1680, were used during office processing.

The field sheet parameters have been revised to center the hydrography on the smooth sheet and to change the projection to polyconic. TRA and velocity correctors are adequate. An accompanying computer printout contains the parameters and these correctors. The electronic control correctors are adequate, except for Days 298 and 299 (fixes 4352 to 4550) when the corrector value for Code 5 was 0 rather than 4.6 meters. With four lines of position diluting the effect of this error, the residuals for this period are less than 5 meters. This data appears consistent with adjoining data and time/distance checks (vessel tracks), it has therefore been accepted.

A digital file, generated for this survey, includes categories of information required to comply with CG2 Hydrographic Survey Guideline No. 23, Completion of Digital Hydrographic Surveys, September 7, 1983. Certain descriptive information, however, may not be in the digital record due to the restrictions of the presently available cartographic codes. The user should refer to the smooth sheet for complete information.

## 2. CONTROL AND SHORELINE

Sections F and G of the hydrographer's report contain adequate discussions of horizontal control and hydrographic positioning.

The use of multiple lines of position for electronic control by the HDAPS has significant benefits in improving the accuracy of positions for the survey, however, the availability of redundant information raises questions which require resolution. In the case of a range-range survey such as this one, a "residual" is defined as the difference between the range computed from a computed position to each control station and the observed value from that station. The magnitude of the "residual" is an indicator of how well all of the data fit together. HDAPS records the maximum "residual" for a position. Attachment A to the project instructions states that maximum residual should not consistently (5 minutes) exceed 5 meters for a

survey of this scale. The smooth listing for this survey often shows residuals that exceed 5 meters (0.5 millimeters at survey scale). Residuals exceeding 5 meters did not extend for 5 minutes consecutively during this survey, however, there are five cases where residuals greater than 5 meters persist significantly for periods greater than 5 minutes. The software for the processing of HDAPS data at the marine center is very limited at this time. The capability to identify and reject an apparently weak range and to recompute the position does not presently exist at the marine center. The soundings in these areas where the large residuals persist are consistent with adjacent lines and cross lines, however, the ocean bottom is very flat and relatively featureless in the entire survey area, so this information is not conclusive. The vessel track in three of the five cases is straight, indicating that the positioning is accurate by not requiring a course change when the residuals return to within the criteria. In the other two cases the vessel tracks follow a smooth curve departing about 20 meters either side of the vessel track projected from the positions with residuals within the criteria. Two hundred per cent side scan sonar coverage is still provided since a 20 meter overlap was provided to ensure coverage. It would have been desirable to be able to examine all the residuals in these cases and, if an erroneous range could be identified, the position recomputed with the valid data. For this survey this is not possible, the data has been accepted as the effect of the large residuals on the survey appear to be within acceptable limits.

Positions of horizontal control stations used during hydrography are 1988 field values based on NAD 83. These values were used during office processing for the computation of positions. The smooth sheet and accompanying overlays are annotated with NAD 27 adjustment ticks based on values determined by CG121. Geographic positions based on NAD 27 may be plotted on the smooth sheet utilizing the NAD 83 projection by applying the following corrections.

Latitude: 0.403 seconds (12.4 meters)  
Longitude: -1.503 seconds (-35.5 meters).

The year of establishment of control stations shown on the smooth sheet originates with the hydrographer's signal list.

There are no shoreline maps applicable to this survey. Shoreline depicted on the smooth sheet originates with chart 12324, 24th edition, and is to be used for orientation only.

### 3. HYDROGRAPHY

Except for the additional work recommended in the letter dated March 22, 1989, hydrography is adequate to:

- a. delineate the bottom configuration, determine least depths, and draw the standard depth curves;
- b. reveal there are no significant discrepancies or anomalies requiring further investigation; and
- c. show the survey was properly controlled and soundings are correctly plotted.

### 4. CONDITION OF SURVEY

The hydrographic records and reports received for processing are adequate and conform to the requirements of the Hydrographic Manual, 4th Edition, revised through Change No. 3; the Hydrographic Survey Guidelines; the Provisional Side Scan Sonar Manual; and the AMC OPORDER.

### 5. JUNCTIONS

Survey H-10287 junctions with the following surveys.

<u>Survey</u>	<u>Year</u>	<u>Scale</u>	<u>Area</u>
H-9531	1975	40,000	east
H-10285	1988	10,000	north
H-10290	1988	10,000	southeast
H-10291	1988	10,000	southwest

The junction with survey H-9531 has not been formally completed since that survey was previously processed and forwarded for charting. The junction comparison was made using a copy. Soundings are in good agreement.

The junctions with contemporary surveys H-10285, H-10290 and H-10291 have been formally completed. Some soundings have been transferred from survey H-10291 to survey H-10287 to better portray shoaling in the common area.

### 6. COMPARISON WITH PRIOR SURVEYS

H-5300 (1933) 1:10,000  
H-5638 (1934) 1:10,000

Survey H-5300 covers a small area in the southwest of the present survey. One prior sounding is in the common area and the comparison is satisfactory.

Survey H-5638 covers the western portion of the present survey. The comparison is satisfactory with the prior survey being 1 to 2 feet shoaler.

H-6190 (1936) 1:40,000

Survey H-6190 covers the complete area of the present survey. Soundings from the prior survey appear to be generally 2-3 feet shoaler than those on the present survey.

Survey H-10287 is adequate to supersede the prior surveys within the common area.

H-6463WD (1939) 1:40,000

Survey H-6463WD covers the complete area of the present survey. The comparison with this prior survey is satisfactory.

The following wire drag depths from survey H-6463WD have been disproven by 200 percent side scan sonar coverage. See section K of the hydrographer's report for additional discussion under AWOIS item 01516

	<u>NAD 27</u>	
<u>Prior Depth</u>	<u>Latitude(N)</u>	<u>Longitude(W)</u>
*39 ft grounding	40°12'06"	73°59'02"
*35 ft sounding	40°12'06"	73°58'55"
39 ft sounding	40°12'13"	73°58'42"
* AWOIS Item 1516		

AWOIS item 1517 is a 39-foot cleared depth over a wreck charted at latitude 40°12'12"N, longitude 73°59'18"W (NAD27). Indications of a wreck on the side scan sonar records were found at latitude 40°12'12.2"N, longitude 73°59'16.5"W (NAD83). An estimated depth of 47 feet was determined and an additional investigation has been requested, see attached letter, dated March 22, 1989. In the interim, a 41-foot sounding on a wreck has been carried forward from prior survey H-6463WD.

## 7. COMPARISON WITH CHART

Chart 12324, 24th Edition, dated Nov. 15, 1986;  
scale 1:10,000  
Chart 12326, 38th Edition, dated Feb. 22, 1986;  
scale 1:80,000

### a. Hydrography

Charted hydrography originates with prior surveys H-5300, H-5638, H-6190, H-6463WD and miscellaneous sources.

Survey H-10287 is adequate to supersede charted hydrography within the common area.

b. AWOIS

AWOIS Items 1528 and 4286 originate from miscellaneous sources.

An unidentified obstruction was detected at latitude 40°14'58.2"N, longitude 73°57'14.6"W (NAD83), just beyond the 3000-meter search area specified for AWOIS 1528. Although the AWOIS wreck has been technically disproven by reason of completion of the required search it is felt the discovered obstruction is sufficiently close to the reported AWOIS wreck position to be considered related. Should a diver investigation reveal the obstruction to be a barge matching the characteristics specified in the AWOIS record it is recommended that the results of the investigation be appended to the AWOIS item 1528 records and disproven status be deleted.

AWOIS Item 4286, barge NEWPORT, reported sunk in 1946 at latitude 40°13'58"N, longitude 73°54'36"W, was investigated with 200 percent side scan sonar coverage for a radius of 3000 meters. This AWOIS item was not assigned to this project but was located within the survey limits. After reviewing the survey data, there is no indication that the wreck exists within the search area. It is recommended that the charted obstruction with a cleared depth of 57 feet be removed from the chart. ✓ outside chart 12324

c. Controlling Depths

There are no charted channels with controlling depths within the area of this survey.

d. Aids to Navigation

There are no fixed or floating aids located within the area of this survey.

e. Geographic Names

Names appearing on the smooth sheet and in the survey title have been approved by the Chief Geographer.

f. Dangers to Navigation

No reports of dangers to navigation were generated during the survey or office processing.

8. COMPLIANCE WITH INSTRUCTIONS

Survey H-10287 adequately complies with the Project Instructions.

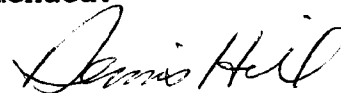
9. ADDITIONAL FIELD WORK

This is an excellent hydrographic survey. Additional field work is recommended on two wrecks and one obstruction, see the letter, dated March 22, 1989 (attached to this report).



C. R. Davies  
Cartographer

This survey has been examined and it meets Charting and Geodetic Services' standards and requirements for use in nautical charting. Approval is recommended.



Dennis Hill  
Chief, Hydrographic Section



APPROVALS

I have reviewed the smooth sheet, accompanying data, and reports associated with hydrographic survey H-10287. This survey meets or exceeds Charting and Geodetic Services' standards for products in support of nautical charting.

*Dennis Hill* 6-26-89  
Chief, Nautical Chart Branch (Date)

After review of the smooth sheet and accompanying reports, I hereby certify this survey is accurate, complete, and meets appropriate standards.

*Sigmund R. Petersen* 6/26/89  
Director, Pacific Marine Center (Date)

YORK

LONG ISLAND

SANDY  
HOOK

See Diagram No. 1215-3

H-10287

40°0'

4°30'0"

-73°40'0"

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10287

EXAMINED FOR NM

GDBU *APP'd*

9-28-89 E.B.

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