H10686

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. RU-10-4-96

Registry No. H10686

LOCALITY

State New York - New Jersey

General Locality Approaches to New York Harbor

Locality 2.5 NM East Of Sandy Hook

1996

CHIEF OF PARTY
CDR S.P. De Bow

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(11-72)

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

REGISTER NO.
H 10686
H#10686

HYDROGRAPHIC TITLE SHEET

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.
RU-10-4-96

State New York - NEW JERSEY

General locality Approaches to New York Harbor

Locality ~~Entrance to Sandy Hook Channel~~ 2.5 NM EAST OF SANDY HOOK

Scale 1:10,000 Date of survey 15 May - 17 July, 1996

Instructions dated March 4, 1996 Project No. OPR-C399-RU-96

Vessel NOAA Ship RUDE, EDP 9040

Chief of party CDR ~~Samuel~~ S. P. De Bow

Surveyed by CDR S.P. De Bow, LT C.L. Thacker, LTJG J.M. Klay, LTJG N.L. Hill, ENS J.J.Walker

Soundings taken by:(echo sounder,hand lead,pole, Raytheon DSF-6000N Echosounder, Seabat 9001

Graphic record scaled by SPD, CLT, JMK, NLH, JJW, ST M.T. Lathrop, ST C.A. Neely

Graphic record checked by SPD, CLT, JMK, NLH, JJW, MTL, CAN

Protracted by Automated plot by HP DESIGNJET 350C ~~Bruning Zeta model 936~~

Verification by ATLANTIC HYDROGRAPHIC BRANCH PERSONNEL

Soundings in (fathoms, feet, or meters at MLW or MLLW) FEET ~~meters~~ at MLLW

REMARKS: All times recorded in UTC
The DSF-6000N echosounder was used as the primary sounding instrument; however,as warranted,
The Seabat 9001 shallow water multibeam sonar system was
employed for distinct item investigations and is documented
as such.

NOTES IN THE ORIGINAL DESCRIPTIVE REPORT
WERE MADE IN RED DURING OFFICE PROCESSING.
AWS/SURF - 7/16/98 SSI

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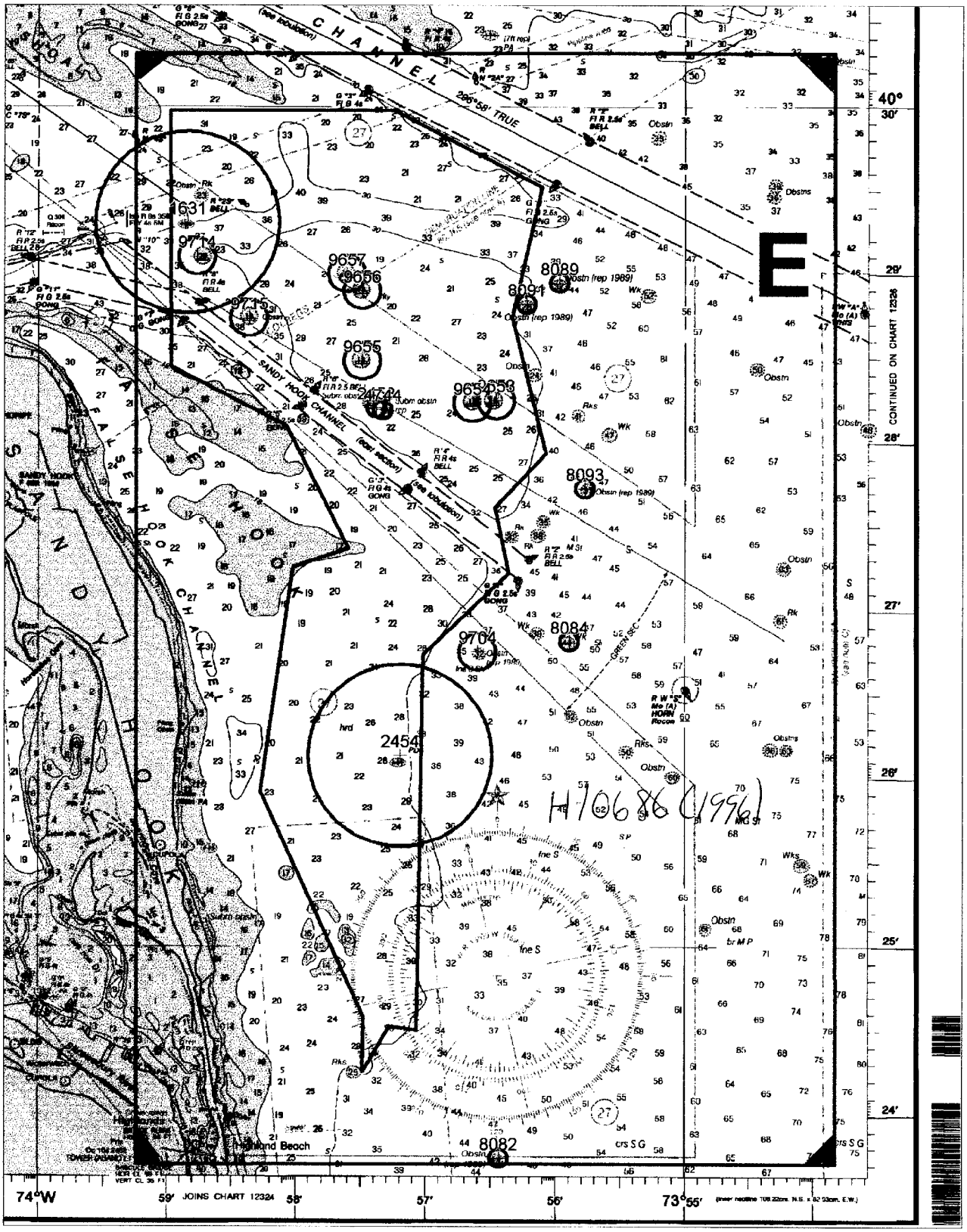
* (DATA FILED WITH ORIGINAL FIELD RECORDS)


CHANNEL
286°59' TRUE
SANDY HOOK CHANNEL
(rear subdivision)
(front subdivision)
SANDY HOOK
Highland Beach
CONTINUED ON CHART 12326
JOINS CHART 12324
74°W
59'
58'
57'
56'
73°55'
40°
30'
29'
28'
27'
26'
25'
24'
9631
9714
9657
9656
9715
8089
8094
9655
9654
9653
8093
8084
9704
2454
8082
E
H10686 (1996)

A. PROJECT

A.1 This survey was conducted in accordance with Hydrographic Project Instructions OPR-C399-RU-96, Approaches to New York Harbor, New York and New Jersey.

A.2 The original instructions are dated March 4, 1996.

A.3 There have been no changes to the original instructions.

A.4 This Descriptive Report covers the Hydrographic / Side Scan survey conducted on sheet "E" of project OPR-C399-RU-96 in the Atlantic Ocean Approaches to New York Harbor, as specified in the Project Instructions.

A.5 This portion of OPR-C399-RU-96 responds to requests from the U.S. Coast Guard, Port Authority of New York and New Jersey, and the United Pilots Benevolent Associations of New York and New Jersey (Sandy Hook Pilots). This survey was requested due to the large volume of deep draft (42-foot) traffic using the approaches to New York Harbor. The area was last surveyed by the Coast and Geodetic Survey between 1950 and the late 1980's.

B. AREA SURVEYED

B.1 This survey covers an area of the Atlantic Ocean Approaches to New York Harbor, approximately 2.5nm east of Sandy Hook. The survey area covered the approaches to Sandy Hook Channel and the seaward portion of Swash Channel, a natural channel frequently used by tug and barge traffic.

B.2 The survey comprises one sheet with the following approximate boundaries:

NE Corner - 40°30'08"N, 073°54'13"W
NW Corner - 40°30'08"N, 073°59'20"W
SW Corner - 40°23'23"N, 073°59'20"W
SE Corner - 40°23'23"N, 073°54'13"W

B.3 Data acquisition for this survey began on 15 May, 1996 (DN 136) and ended on 17 July, 1996 (DN 199).

B.4 At the request of the Sandy Hook Pilots channel lines were run from the sea buoy (Scotland Buoy) to buoys 1 and 2 in Sandy

Hook Channel. These channel lines extend seaward of the survey limits but fall within the sheet limits.

C. SURVEY VESSELS

C.1 The following vessel was used during this survey:

Vessel	EDP Number	Primary Function
NOAA Ship RUDE (S590)	9040	Hydrography, Side Scan Operations and **SEABAT** Investigations

C.2 During the RUDE's January 1994 dry-dock period, the ship was outfitted with a pivoting armature to carry the transducers for the Reson **SEABAT** 9001 shallow-water multibeam sonar system. This armature was mounted on the port side, approximately amidships. Since the transducers were not designed for permanent deployment, the arm was rotated into the down, or operating, position only during times of data acquisition.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

SEE ALSO THE EVALUATION REPORT

D.1 Coastal Oceanographics' **HYPACK for Windows** (Version 5.9) was used for data acquisition on this survey. The following HDAPS software versions were used for data processing:

Program	Version	Program	Version
BACKUP	2.00	LSTAWOIS	3.12
BLKEDIT	2.03	MAINMENU	1.30
CARTO	2.18	MAN_DATA	3.05
CLASSIFY	2.14	NEWPOST	6.13
CONTACT	2.49	PLOTALL	2.37
CONVERT	3.67	PREDICT	2.01
DAS_SURV	6.83	PRESURV	7.14
DP	2.19	QUICK	2.09
EXCESS	4.33	RAMSAVER	1.02
FILESYS	3.46	REAPPLY	2.13
GRAFEDIT	1.10	ZOOMEDIT	2.36
INVERSE	2.02		

D.2 The SEABIRD SBE-19 sound velocity profile unit was utilized with **SEASOFT 3.3M** and **SEACAT 2.0** software. The program **VELOCITY** (Version 2.11, September 21, 1994) was used to process the acquired data and calculate velocity corrections. The **REFRACT** subroutine was used to correct **SEABAT** multiple slant-range depths for sound velocity, and position of soundings (cross track distance) for refraction.

D.3 Triton Corporation's **ISIS** software (Versions 2.11, 2.14 and 2.16) was used to acquire **SEABAT** multibeam and digital side scan sonar data. **SEABAT** data was processed onboard the RUDE using the XTFRUDE software developed by HTP. A single least depth was generated for each **SEABAT** investigation and later entered into HDAPS via the **HSDUtils** Convert **15 Point Files Program.** Some least depth files were processed with incorrect tide tables, and have no tides applied. Tides were reapplied to all **SEABAT** DPs in HDAPS during post processing. Graphic plots of the **SEABAT** imagery were created using **SURFER for Windows** (Version 6.02), a commercial off-the-shelf package.

The conversion software to translate HYPACK data into HDAPS-compatible format was supplied by NOAA's Hydrographic Surveys Division. The **HSDUtils Convert Hypack Data** program was revised numerous times during the course of the survey.

E. SONAR EQUIPMENT

E.1 The RUDE conducted all side scan sonar operations using an EG&G Model 260 image-corrected side scan sonar recorder and a 100 kHz Model 272-T towfish.

E.2 The towfish was configured with a 20° beam depression, which is the normal setting and yields the optimum beam correction.

E.3 The 100 kHz frequency was used throughout the survey.

E.4 a. Given the average depth of water in the survey area, the 50-meter range scale was used at a line spacing of 80 meters to obtain complete area coverage for each 100%, and provide optimal contact resolution. Although the 80-meter line spacing was 10 meters more than the value specified in section 7.3.2.1 of the Field Procedures Manual (FPM), it was chosen to allow an even number of lines to be run during hydro splits. Data acquired with an EPE of 15 or greater were either rejected

or smoothed during post-processing, so the maximum line spacing was never exceeded.

b. Confidence checks were obtained whenever features such as buoys or sand waves were encountered. These features were routinely annotated on the sonar grams.

c. Two hundred percent side scan coverage was completed for this survey. Areas of reduced coverage occasionally occurred when the ship was forced to maneuver for traffic or obstacles in the water. These areas were easily recognized because the swath plot clearly showed the lack of overlap between adjoining swaths. Holiday coverage was run to fill in these gaps, and all side scan coverage was ultimately checked with edited swath plots to ensure proper overlap between adjoining lines.

d. Some degraded data returns were experienced during this survey due to shallow water conditions and rough seas. These data were rejected and reacquired under better conditions ensuring appropriate coverage.

e. The towfish was deployed exclusively from the stern.

E.5 Investigations of significant side scan sonar contacts were conducted using both the echo sounder and the **SEABAT** to acquire data. The use of dual sounding instruments allowed an efficient means of conducting developments, since the **SEABAT** imagery enabled the operator to "see" a contact even if it was not directly beneath the echo sounder. The next line could then be chosen accordingly.

As per the Project Instructions, a 400-meter grid was developed to overlay this survey. The most significant contacts within each of the 400-meter "cells" were investigated by simultaneous echo sounder and **SEABAT** developments. The **SEABAT** developments were processed with software provided by the NCRDL which selected the 15 least depths from each survey line. The data for these investigations are summarized in the Development Abstract.

Since the accuracy of the **SEABAT** unit was verified in previous field seasons through rigorous echo sounder/**SEABAT** comparisons, a greater reliance was placed upon the unit during this survey. If the imagery showed that a contact had been fully ensonified by the **SEABAT**, the investigation would typically be called complete, without an exhaustive echo sounder development. The data for these investigations are summarized in the Development

Abstract and the DP Remarks Listing in Separate VI* of this report.

E.6 In general, side scan contacts with an HDAPS-computed height of one meter or greater were deemed significant and subsequently investigated. Within the limits of Sandy Hook Channel the hydrographer decided to develop each contact with a height of 0.5 m or greater.

F. SOUNDING EQUIPMENT

F.1 All hydrographic soundings were acquired using a Raytheon Model 6000N Digital Survey Echosounder (DSF-6000N). As authorized by the Project Instructions, the Reson **SEABAT** 9001 shallow-water multibeam sonar system was used to obtain precise least depths over significant contacts discovered during routine side scan sonar operations.

The Reson **SEABAT** 9001 produces sixty 1.5 degree beams per swath, yielding an included swath angle of 90 degrees and a swath width which is approximately twice the surrounding water depth. The system operates at a frequency of 455 kHz. It updates at a rate of 13 times per second in 25 meters of water, thus acquiring 780 soundings per second.

Prior to beginning **SEABAT** data acquired on this survey, the RUDE **SEABAT**-specific offset table/file was updated to define the physical relationship between the various components that comprise the system, including the **SEABAT** transducer head, TSS motion sensor, and GPS antenna. In addition, this offset file contains heave, roll, and pitch biases determined during a "Patch Test" conducted in Raritan Bay, NY on April 12, 1996. A copy of the **SEABAT** offset table is contained in Separate III.*

During post-processing using the **XTFRUDE** software, a position is attached to each of the **SEABAT** data records. The various heading, motion, and sound velocity refraction correctors are then applied to the **SEABAT** slant range values to create a data record for each individual **SEABAT** beam (60 data records for each **SEABAT** swath). The 60 records contain computed positions and depths, cross track distances, and beam quality codes. After the expanded file is created, the data are viewed graphically in three different perspectives to check the consistency of the sounding data, with the option of editing any erroneous or questionable soundings that may exist.

* DATA FILED WITH ORIGINAL FIELD RECORDS.

Once the sounding data have been reviewed and edited as necessary, the XTFRUDE software selects a subset of approximately 14,000 minimum depths contained within the total data set being processed. A file containing the 15 least depths found within that subset is then generated. The single least depth for each **SEABAT** investigation was obtained from this file and converted into HDAPS scaled DP format. Some least depth files were processed with incorrect tide tables, and have no tides applied. Tides were reapplied to all **SEABAT** DPs in HDAPS during post processing.

After entering the **SEABAT** data into HDAPS, it was discovered that there were a few discrepancies between **SEABAT** and HDAPS corrected least depths. It is attributed to a 0.1 meter difference in one of two different correctors: tides or settlement and squat.

A summary of all **SEABAT** investigations conducted for this survey is contained in the Development Abstract in Separate VI.* Copies of all 15 least depth listings, DP remarks and any associated 3-D graphic images are included in Separate VI.*

F.2 During dive investigations, least depths were measured with a MOD III diver gauge (s/n 68336) supplied by the Electronic Engineering Division at the Atlantic Marine Center.

F.3 Both high (100 kHz) and low (24 kHz) frequency sounding data were recorded during data acquisition. Only high frequency soundings were plotted.

G. CORRECTIONS TO SOUNDINGS

G.1 a. Sound Velocity Correctors

The velocity of sound through water was measured using a Sea-Bird SBE 19 Seacat Profiler (s/n 1251). Velocity casts were conducted weekly without exception. Seacat Data Quality Assurance Tests were conducted after each respective velocity cast to ensure that the unit was operating within tolerance.

All sound velocity data were processed using program **VELOCITY**. Computed velocity correctors were entered into the HDAPS sound velocity table and re-applied during post-processing to both high and low frequency soundings. **SEABAT** sound velocity and refraction correctors were generated through the **REFRACT** subroutine and applied during post-processing.

* DATA FILED WITH ORIGINAL FIELD RECORDS

The following velocity casts supplied correctors for this survey:

Cast Number	DN	HDAPS Table	Applied to Days
14	145	14	136, 143-144
17	154	17	154-155, 157
20	168	20	162-165, 168-172
23	176	23	176-180
25	182	25	183-185
27	190	27	190-195
28	199	28	198-199

b. Leadline Comparison

A dual leadline comparison with the DSF-6000N was conducted during this project on:

DN 142 at 40°31.05'N and 073°51.27'W (41 ft depths)

The greatest variation between leadline and DSF soundings was 0.44 meters, and averaged .19 meters. Considering the ship's motion and the wire angle (approximately 5°) in the leadline from the current, this was a good agreement value and provided an adequate check that the echo sounder was functioning properly. Data from these comparisons can be found in Separate IV.*

Both leadlines were traditional leadlines made of cotton tiller with a stainless steel core. Refer to separate IV* for data records on leadline correction values.

c. Static Draft

During the ship's winter 1994 dry-dock period, an exact vertical measurement was taken from the DSF transducer to a fixed point on the bridge wing. After the ship was re-floated, the point's height above the waterline was measured. The ship's static draft was calculated to be exactly 2.12 meters (7.0 feet). Refer to Separate IV* for data records. Measurements taken on May 14, 1996 confirmed the accuracy of

* DATA FILED WITH ORIGINAL FIELD RECORDS

this draft value. This draft corrector was applied to all sounding data through the HDAPS offset table.

d. Dynamic Draft (Settlement and Squat Correctors)

Settlement and squat correctors for the RUDE were determined on the Elizabeth River, Norfolk, VA on January 25, 1996. An observer, stationed with a level on a pier, measured changes in relative height by sighting to a staff held at the longitudinal position of the ship's transducer. The ship steamed directly toward and then away from the observer. The values obtained from the toward and away runs were averaged and applied to soundings through the HDAPS Offset Table #1. Refer to Separate IV* for data records.

e. Heave, Roll, and Pitch Correctors

Heave, roll, and pitch data were acquired by a **TSS Model 335B Motion Sensor (s/n 542)**. Heave corrections were applied to HYPACK soundings during the HYPACK-to-HDAPS conversion. Heave, roll and pitch correctors were applied to all **SEABAT** soundings during post-processing. Refer to Separate IV* for data records.

* DATA FILED WITH ORIGINAL FIELD RECORDS

f. Tide Correctors

The tidal datum for this project is Mean Lower Low Water. The operating tide station at Sandy Hook, NJ served as both control for datum determination and as the reference station for predicted tides. Data for predicted tides were provided on floppy disk before the start of the project. These data were obtained from Table 2 of the East Coast of North and South America Tide Predictions and applied to the digital tide data using HDAPS software. Tidal correctors were applied in post processing using HDAPS predicted tide tables numbers.

One set of time and height correctors was supplied for this sheet. A -30 minute time difference and a x0.94 range ratio were applied to the predicted tides at Sandy Hook.

A request for smooth tides was mailed on 23 October, 1996.

The RUDE employed no unusual or unique methods or instruments to correct echo soundings.

All sounding correctors were applied to both the narrow (100 kHz) and wide (24 kHz) DSF-6000N beams. Zoning for this project is consistent with the Project Instructions. **

** APPROVED TIDES AND ZONING WERE APPLIED DURING OFFICE PROCESSING.

H. CONTROL STATIONS SEE ALSO THE EVALUATION REPORT

The horizontal datum for this survey is the North American Datum of 1983 (NAD 83). No horizontal control stations were used or established for this survey.

I. HYDROGRAPHIC POSITION CONTROL

I.1 This survey was conducted exclusively using the Global Positioning System (GPS) corrected by the U.S. Coast Guard Differential GPS reference station network. Differential correctors were supplied from the USCG radiobeacon transmitter at Sandy Hook, NJ, precluding the need for shore-based horizontal control stations.

I.2 Accuracy requirements were met as specified by the Hydrographic Manual and Field Procedures Manual (FPM). The Horizontal Dilution of Precision (HDOP) and Expected Position Error (EPE) specified by the FPM were monitored during on-line data acquisition. If the positioning degraded beyond the acceptable limits while on-line, the data were either smoothed or rejected, depending on the extent of the affected data.

I.3 Differential GPS Equipment:

Unit A	Unit B
Ashtech GPS Sensor	Ashtech GPS Sensor
s/n 700417B1083	s/n 700417B1003
Firmware Version 1E89D-P	Firmware Version 1E89D-P
Magnavox MX50R	Magnavox MX50R
DGPS Receiver s/n 078	DGPS Receiver s/n 080

Correctors were received from the Montauk, NY, and Sandy Hook, NJ radiobeacons for the entire survey.

I.4 Daily performance checks were conducted using the Shipboard Data Integrity Monitor program (**"SHIPDIM"**, Version 2.1), according to section 3.4.5 of the FPM. See SHIPDIM PERFORMANCE CHECKS in Separate III* for daily system checks.

* DATA FILED WITH ORIGINAL FIELD RECORDS

I.5 The application of calibration data to the raw positioning data was not required, since DGPS was the primary positioning system.

I.6 a. There were no unusual methods used to operate or calibrate electronic positioning equipment.

b. There were no equipment malfunctions.

c. DGPS reception from the Sandy Hook, NJ beacon was good for the entire survey operation.

d. The maximum allowed HDOP value of 3.74 was exceeded occasionally when GPS flyers occurred. This was generally at the beginning or end of a line, and the data was rejected.

e. Antenna positions were corrected for offset and layback, and referenced to the position of the DSF-6000N echo sounder transducer. These correctors are located in HDAPS Offset Table #1, and were applied during post-processing. A copy of Offset Table #1 is contained in Separate III. DATA FILED WITH ORIGINAL FIELD RECORDS

f. Offset and layback distances for the A-frame (tow point) are located in HDAPS Offset Table #1 and were applied during post-processing. These offsets, along with the cable length, towfish height, and depth of water, were used by the HDAPS system to compute the position of the towfish.

J. SHORELINE

No shoreline is contained within the boundaries of this survey.

K. CROSSLINES

A combined total of 13.16 nautical miles of crosslines was acquired for this survey, representing 6.4% of the 205.8 nautical miles of the first 100% side scan mainscheme coverage.

An excessed plot of mainscheme soundings, superimposed with crosslines, was used to conduct mainscheme-to-crossline comparisons. Soundings at intersections were compared to all other soundings within a 5 mm (50 meter) radius. Based on this procedure, agreement between mainscheme and crossline soundings was found to be excellent. The majority of compared soundings fell within one foot of each other, with only an occasional difference of two feet noted.

L. JUNCTIONS SEE ALSO THE EVALUATION REPORT

L.1 H-10686 junctions with one contemporary survey: H-10675, a 1:10,000 scale survey started by the Rude in 1996, abuts the western edge.

L.2 The overall agreement of this junctions was not checked due to the partial nature of H-10675.

M. COMPARISON WITH PRIOR SURVEYS SEE ALSO THE EVALUATION REPORT

A comparison with prior surveys will be performed by the Atlantic Hydrographic Branch as part of the office verification process.

N. ITEM INVESTIGATION REPORTS SEE ALSO SECTION O. OF THE EVALUATION REPORT

N.1.1 Area of Investigation

AWOIS 1631

Approaches to New York Harbor

Reported Position:
40°29'18.38"N
073°58'52.49"W

Datum: NAD 83

Feature: Anne D II

N.2.1 Description and Source of Item

Wreck of 22 ft Chris Craft "ANNE D II" sunk in Swash Channel with unknown least depth. See the Automated Wreck and Obstruction Information System (AWOIS) listing of project OPR-C399-RU-96 in Separate VI* for a detailed description.
* DATA FILED WITH ORIGINAL FIELD RECORDS

N.3.1 Survey Requirements

A full investigation was required using sonar development, 200% side scan, or diver investigation over a 1000 meter radius.

N.4.1 Method of Investigation

AWOIS 1631 was investigated using 200% side scan sonar at a line spacing of 80 meters, hydro splits offset from the 200% lines at a line spacing of 80 meters, and 26 **SEABAT** developments at a line spacing of 5 meters in a 50 meter radius circle.

N.5.1 Results of Investigation

Various items were investigated in the 1000m radius with nothing resembling the description of AWOIS 1631. The least depth within this area was ~~20~~ 19 feet at fix # 908 (sss contact #10494.2s) and THIS appears to be the rock charted as a 23 feet ROCK ~~Obstruction~~ at 40-29.43′ N, 073-58.70′ W (unassigned AWOIS 4745). SEE SECTION 0.1 OF EVALUATION REPORT

N.6.1 Comparison with Chart and Charting Recommendations

Charted soundings do not adequately depict the least depths in the area. It is the recommendation of the hydrographer that the charted symbol for a PA Wreck dangerous to surface navigation be removed and soundings from this survey supersede any and all prior surveys in common areas. CONCUR

N.1.2 Area of Investigation

AWOIS 2454

Approaches to New York Harbor

Reported Position:
40°26′08.38″N
073°57′12.49″W

Datum: NAD 83

Feature: Barge

N.2.2 Description and Source of Item

AWOIS 2454 marks the site of a reported sunken barge which has a position listed as doubtful and no least depth known. See

the Automated Wreck and Obstruction Information System (AWOIS) listing of project OPR-C399-RU-96 in Separate VI* for a detailed description. * DATA FILED WITH ORIGINAL FIELD RECORDS

N.3.2 Survey Requirements

A full investigation was required by sonar development, 200% side scan, or diver investigation, over a 1000 meter search radius.

N.4.2 Method of Investigation

AWOIS 2454 was investigated using 200% side scan sonar at a line spacing of 80 meters, hydro splits at a line spacing of 80 meters, and ONE **SEABAT** development at a line spacing of 5 meters in a 50 meter radius circle.

N.5.2 Results of Investigation

One item was located in the investigation of AWOIS 2454 with 200% side scan sonar and was further developed with **SEABAT.** No item resembles the description of AWOIS 2454. The least depth within this area was 2~~0~~2 feet at fix # 817 from side scan sonar contact 4333.5s on what appears to be a rock.

N.6.2 Comparison with Chart and Charting Recommendations

Since nothing resembling a sunken barge was found during the course of this survey it is the recommendation of the hydrographer that the charted position doubtful wreck be removed from the chart. The least depth of 2~~0~~2 feet surrounded by the danger curve should be charted at 40/25/57.018 N, 073/57/14.135 W and annotated as an obstruction. CONCUR

CHART 22 OBSTN

N.1.3 Area of Investigation

AWOIS 2458

Approaches to New York Harbor

Reported Position:
40°28'12.38"N
073°57'23.49"W

Datum: NAD 83

Feature: Unknown

N.2.3 Description and Source of Item

AWOIS 2458 marks the site of a reported sunken barge covered by 20 feet. See the Automated Wreck and Obstruction Information System (AWOIS) listing of project OPR-C399-RU-96 in Separate VI* for a detailed description.
* DATA FILED WITH ORIGINAL FIELD RECORDS

N.3.3 Survey Requirements

A full investigation was required by sonar development, 200% side scan, or diver investigation, over a 100m search radius.

N.4.3 Method and Results of Investigation

The area of the AWOIS item was covered with 200% side scan sonar at a line spacing of 80 meters, mainscheme hydrography splits at a line spacing of 80 meters, and two **SEABAT** developments at a line spacing of 5 meters within a 50 meter radius. This coverage resulted in the location of what appears to be two spoil piles, contacts #9806.7p and #9807.6p, with least depths of ~~10~~ 18 (Fix 843) and ~~20~~ 19 (Fix 851) feet. Nothing in the area resembles the item described in AWOIS 2458.

N.5.3 Comparison with Chart and Charting Recommendations

The hydrographer recommends that the least depth of ~~10~~ 18 feet at LAT 40/28/14.933 N, LONG 073/57/24.989 W and ~~20~~ 19 feet at LAT 40/28/15.851 N, LONG 073/57/26.537 W, should be charted an an obstruction surrounded by the danger curve. CONCUR WITH CLARIFICATION SEE SECTION 0.4 OF THE EVALUATION REPORT

N.1.4 Area of Investigation

AWOIS 4744

Approaches to New York Harbor

Reported Position:
40°28'11.70"N
073°57'20.52"W

Datum: NAD 83

Feature: Obstruction

N.2.4 Description and Source of Item

AWOIS 4744 marks the spot of a reported spike on an echogram from the WHITING in 1982. Divers found a least depth of 19 feet on rocks and concrete. See the Automated Wreck and Obstruction Information System (AWOIS) listing of project OPR-C399-RU-96 in Separate VI* for a detailed description.
* DATA FILED WITH ORIGINAL FIELD RECORDS

N.3.4 Survey Requirements

A full investigation was required by sonar development, 200% side scan, or diver investigation, over a 100m search radius.

N.4.4 Method of Investigation

AWOIS 4744 was investigated using 200% side scan sonar at a line spacing of 80 meters, hydro splits at a line spacing of 80 meters, and two **SEABAT** developments at a line spacing of 5 meters within a 50 meter radius

N.5.4 Results of Investigation

Two contacts were detected and developed in the immediate area with SEABAT. Each had a least depth of 1~~0~~8 feet (Fix # 841 and 844), and appear to be the spoil piles.

N.6.4 Comparison with Chart and Charting Recommendations

The hydrographer recommends that the Submerged Obstruction Reported be removed from the chart. Since numerous spoil piles exist in this vicinity it is the recommendation of the hydrographer that the item should **not** be charted as a fish haven as stated in the AWOIS description. The two least depths of 1~~0~~8 feet at LAT 40/28/10.193 N, LONG 073/57/18.246 W and LAT 40/28/12.146 N, LONG 073/57/21.403 W should be charted as obstructions surrounded by the danger curve. CONCUR WITH CLARIFICATION
SEE ALSO SECTION ~~0.6~~ 0.4 OF THE EVALUATION REPORT

N.1.5 Area of Investigation

AWOIS 8089

Approaches to New York Harbor

Reported Position:
40°28'56.60"N
073°55'58.50"W

Datum: NAD 83

Feature: Obstruction

N.2.5 Description and Source of Item

AWOIS 8089 marks the site of a contact found on a prior survey and charted as a 37 foot sounding surrounded by a danger curve with "Obstn (rep 1989)" attached. See the Automated Wreck and Obstruction Information System (AWOIS) listing of project OPR-C399-RU-96 in Separate VI* for a detailed description.
* DATA FILED WITH ORIGINAL FIELD RECORDS

N.3.5 Survey Requirements

A full investigation was required by sonar development, 200% side scan, or diver investigation, over a 100m search radius.

N.4.5 Method of Investigation

AWOIS 8089 was investigated using 200% side scan sonar at a line spacing of 80 meters and hydro splits at a line spacing of 80 meters.

N.5.5 Results of Investigation

Nothing resembling the item described in AWOIS 8089 was found. No contacts were logged in the area of AWOIS 8089. Depths within the search radius ranged from 3~~4~~3 feet on the western side of the 100 meter circle to 4~~4~~3 feet on the eastern side of the circle.

N.6.5 Comparison with Chart and Charting Recommendations

It is the recommendation of the hydrographer that the charted sounding of 37 feet surrounded by a danger curve with "Obstn (rep 1989)" attached be removed and replaced with sounding data from the present survey. CONCUR

N.1.6 Area of Investigation

AWOIS 8091

Approaches to New York Harbor

Reported Position:
40°28'49.20"N
073°56'13.80"W

Datum: NAD 83

Feature: Obstruction

N.2.6 Description and Source of Item

AWOIS 8091 marks the site of a reported sonar contact with a reported depth of 26 feet surrounded by a danger curve with "Obstn (rep 1989)" attached. See the Automated Wreck and Obstruction Information System (AWOIS) listing of project OPR-C399-RU-96 in Separate VI* for a detailed description.

* DATA FILED WITH ORIGINAL FIELD RECORDS

N.3.6 Survey Requirements

A full investigation was required by sonar development, 200% side scan, or diver investigation, over a 100m search radius.

N.4.6 Method of Investigation

AWOIS 8091 was investigated using 200% side scan sonar at a line spacing of 80 meters, hydro splits at a line spacing of 80 meters. One **SEABAT** development was conducted within the search radius of this AWOIS item.

N.5.6 Results of Investigation

One contact #15124.7p was logged and developed with SEABAT within the AWOIS search radius. A least depth of 30 feet (Fix 874) was found on a spoil pile rising 5 feet off the sea floor at the location of the charted 26 foot sounding. Depths in the immediate vicinity of the search radius ranged from 28 feet on the western limit to 34 feet to the east.

N.6.6 Comparison with Chart and Charting Recommendations

It is the recommendation of the hydrographer that 30 foot least depth at LAT 40/28/49.064 N and LONG 073/56/13.583 W be charted as an obstruction surrounded by the danger curve. The (rep 1989) notation should be removed. DO NOT CONCUR

SURROUNDING DEPTHS ARE 29 TO 32 FEET. IT IS RECOMMENDED THAT THE 26 OBSTN ~~NOT~~ (REP 1989) BE DELETED AND THE 30 OBSTN NOT BE CHARTED. CHART AREA AS SHOWN ON PRESENT SURVEY.

N.1.7 Area of Investigation

AWOIS 8093

Approaches to New York Harbor

Reported Position:
40°27'43.47"N
073°55'46.94"W

Datum: NAD 83

Feature: Obstruction

N.2.7 Description and Source of Item

AWOIS 8093 marks the site of a dangerous submerged obstruction with a reported least depth of 37 feet surrounded by a danger curve with "Obstn (rep 1989)" attached. See the Automated Wreck and Obstruction Information System (AWOIS) listing of project OPR-C399-RU-96 in Separate VI* for a detailed description. * DATA FILED WITH ORIGINAL FIELD RECORDS

N.3.7 Survey Requirements

A full investigation was required by sonar development, 200% side scan, or diver investigation, over a 100m search radius.

N.4.7 Method of Investigation

AWOIS 8093 was investigated using 200% side scan sonar at a line spacing of 80 meters, hydro splits at a line spacing of 80 meters, and one **SEABAT** development at a line spacing of 5 meters within a 50 meter radius.

N.5.7 Results of Investigation

One significant contact #15183.2p was detected in the immediate area and appears to be a pile of debris. Results of the SEABAT development found a least depth of 35 feet (Fix 919).

N.6.7 Comparison with Chart and Charting Recommendations

The hydrographer recommends that the 35 feet least depth found at LAT 40/27/43.615 N, 073/55/47.082 W should be charted as an obstruction surrounded by the danger curve. The (rep 1989) notation should be removed. CONCUR

N.1.8 Area of Investigation

AWOIS 9653

Approaches to New York Harbor

Reported Position:
40°28'15.00"N
073°56'28.00"W

Datum: NAD 83

Feature: Sounding

N.2.8 Description and Source of Item

AWOIS 9653 marks the site of a 16 foot sounding cleared by wire drag to 18 feet. See the Automated Wreck and Obstruction Information System (AWOIS) listing of project OPR-C399-RU-96 in Separate VI* for a detailed description.

* DATA FILED WITH ORIGINAL FIELD RECORDS

N.3.8 Survey Requirements

A full investigation was required by 200% side scan, and echosounder or diver investigation, over a 200m search radius.

N.4.8 Method of Investigation

AWOIS 9653 was investigated using 200% side scan sonar at a line spacing of 80 meters, hydro splits at a line spacing of 80 meters, and one **SEABAT** development at a line spacing of 5 meters within a 50 meter radius.

N.5.8 Results of Investigation

Investigation of this AWOIS item with the **SEABAT** 9001 revealed a 17 feet ~~predicted~~ APPROVED tides least depth, contact #10824.4s and **SEABAT** fix #846 on what appears to be a debris pile.

N.6.8 Comparison with Chart and Charting Recommendations

The hydrographer recommends that the 17 foot least depth at LAT 40/28/14.949 N, LONG 073/56/27.565 W, should be charted as an obstruction surrounded by the danger curve. The hydrographer also recommends that the wire drag symbol be removed from the sounding. CONCUR WITH CLARIFICATION - SEE SECTION 0.4 OF THE EVALUATION REPORT

N.1.9 Area of Investigation

AWOIS 9654

Approaches to New York Harbor

Reported Position:
40°28′14.00″N
073°56′39.00″W

Datum: NAD 83

Feature: Sounding

N.2.9 Description and Source of Item

AWOIS 9654 marks the site of a 17 foot sounding cleared by wire drag to 18 feet. See the Automated Wreck and Obstruction Information System (AWOIS) listing of project OPR-C399-RU-96 in Separate VI* for a detailed description.

* DATA FILED WITH ORIGINAL FIELD RECORDS

N.3.9 Survey Requirements

A full investigation was required by 200% side scan, echo sounder or diver investigation, over a 200m search radius.

N.4.9 Method of Investigation

AWOIS 9654 was investigated using 200% side scan sonar at a line spacing of 80 meters, hydro splits at a line spacing of 80 meters and one **SEABAT** development with a line spacing of 10 meters within a 50 meter radius.

N.5.9 Results of Investigation

Investigation of AWOIS 9654 with the **SEABAT** 9001 revealed a ~~20~~ 19 foot least depth, contact #10566.5s and ~~**SEABAT**~~ HRAPS fix ~~#847~~ 18693.1 on what appears to be a debris or spoil pile.

N.6.9 Comparison with Chart and Charting Recommendations

The hydrographer recommends that the ~~20~~ 19 foot least depth at LAT 40/28/13.~~553~~ 538 N, LONG 073/56/43.~~035~~ 036 W, should be charted as an obstruction surrounded by the danger curve. The hydrographer also recommends that the wire drag symbol be removed from the sounding. CONCUR WITH CLARIFICATION - IT IS RECOMMENDED THAT THE CHARTED 18FT WIRE DRAG CLEARANCE DEPTH BE DELETED. IT IS ALSO RECOMMENDED THAT THE 19 OBSTR NOT BE CHARTED AND THE AREA CHARTED AS SHOWN ON PRESENT SURVEY.

N.1.10 Area of Investigation

AWOIS 9655

Approaches to New York Harbor

Reported Position:
40°28'29.00"N
073°57'30.00"W

Datum: NAD 83

Feature: Sounding

N.2.10 Description and Source of Item

AWOIS 9655 marks the site of an 18 foot sounding cleared by wire drag to 18 feet. See the Automated Wreck and Obstruction Information System (AWOIS) listing of project OPR-C399-RU-96 in Separate VI* for a detailed description.

* DATA FILED WITH ORIGINAL FIELD RECORDS

N.3.10 Survey Requirements

A full investigation was required by 200% side scan, echo sounder or diver investigation, over a 200m search radius.

N.4.10 Method of Investigation

AWOIS 9655 was investigated using 200% side scan sonar at a line spacing of 80 meters, hydro splits at a line spacing of 80

meters, and four **SEABAT** developments at a line spacing of 10 meters within a 50 meter radius.

N.5.10 Results of Investigation

Investigation of AWOIS 9655 with the **SEABAT** 9001 revealed a 20 foot sounding, contact #2660.6s and **SEABAT** fix #861 on what appears to be a debris pile.

N.6.10 Comparison with Chart and Charting Recommendations

The hydrographer recommends that the 20 foot least depth at LAT 40/28/29.776 N, LONG 073/57/29.348 W, should be charted as an obstruction surrounded by the danger curve. The hydrographer also recommends that the wire drag symbol be removed from the sounding. CONCUR WITH CLARIFICATION – IT IS RECOMMENDED THAT THE CHARTED 18 FT WIRE DRAG CLEARANCE DEPTH BE DELETED. IT IS ALSO RECOMMENDED THAT THE 20 OBSTR NOT BE CHARTED BECAUSE IT IS DREDGE SPOIL. CHART AREA AS SHOWN ON PRESENT SURVEY.

N.1.11 Area of Investigation

AWOIS 9656

Approaches to New York Harbor

Reported Position:
40°28′54.00″N
073°57′30.00″W

Datum: NAD 83

Feature: Sounding

N.2.11 Description and Source of Item

AWOIS 9656 marks the site of a 16 foot sounding cleared by wire drag to 18 feet. See the Automated Wreck and Obstruction Information System (AWOIS) listing of project OPR-C399-RU-96 in Separate VI* for a detailed description.

N.3.11 Survey Requirements

A full investigation was required by 200% side scan, echo sounder or diver investigation, over a 200m search radius.

* DATA FILED WITH ORIGINAL FIELD RECORDS

N.4.11 Method of Investigation

AWOIS 9656 was investigated using 200% side scan sonar at a line spacing of 80 meters, hydro splits at a line spacing of 80 meters, and one **SEABAT** development at a line spacing of 10 meters within a 50 meter radius.

N.5.11 Results of Investigation

Investigation of AWOIS 9656 with the **SEABAT** 9001 revealed a least depth of 16 feet, contact #10965.9p and **SEABAT** fix #869 on what appears to be a debris pile.

N.6.11 Comparison with Chart and Charting Recommendations

The hydrographer recommends that the 16 foot least depth at LAT 40/28/55.742 N, LONG 073/57/31.531 W, should be charted as an obstruction surrounded by the danger curve. The hydrographer also recommends that the wire drag symbol be removed from the sounding. CONCUR WITH CLARIFICATION - SEE ALSO SECTION 0.4 OF THE EVALUATION REPORT

N.1.12 Area of Investigation

AWOIS 9657

Approaches to New York Harbor

Reported Position:
40°29'00.00"N
073°57'37.00"W

Datum: NAD 83

Feature: Sounding

N.2.12 Description and Source of Item

AWOIS 9657 marks the site of an 18 foot sounding cleared by wire drag to 18 feet. See the Automated Wreck and Obstruction Information System (AWOIS) listing of project OPR-C399-RU-96 in Separate VI* for a detailed description.
* DATA FILED WITH ORIGINAL FIELD RECORDS

N.3.12 Survey Requirements

A full investigation was required by 200% side scan, echo sounder or diver investigation, over a 200m search radius.

N.4.12 Method of Investigation

AWOIS 9657 was investigated using 200% side scan sonar at a line spacing of 80 meters, hydro splits at a line spacing of 80 meters, and one **SEABAT** development at a line spacing of 10 meters within a 50 meter radius.

N.5.12 Results of Investigation

Investigation of AWOIS 9657 with the **SEABAT** 9001 revealed an 1~~8~~7 foot sounding, contact #4909.9s and **SEABAT** fix #868 on what appears to be a debris pile.

N.6.12 Comparison with Chart and Charting Recommendations

The hydrographer recommends that the 1~~8~~7 foot least depth at LAT 40/29/01.761 N, LONG 073/57/34.665 W, should be charted as an obstruction surrounded by the danger curve. The hydrographer also recommends that the wire drag symbol be removed from the sounding. CONCUR WITH CLARIFICATION - SEE ALSO SECTION 0.4 OF THE EVALUATION REPORT

N.1.13 Area of Investigation

AWOIS 9714

Approaches to New York Harbor

Reported Position:
40°29'06.38"N
73°58'46.49"W

Datum: NAD 83

Feature: Obstruction

N.2.13 Description of Item

AWOIS 9714 marks the site of an 28 foot hang cleared by wire drag to 23 feet. See the Automated Wreck and Obstruction Information System (AWOIS) listing of project OPR-C399-RU-96 in Separate VI* for a detailed description.
* DATA FILED WITH ORIGINAL FIELD RECORDS

N.3.13 Method of Investigation and Survey Requirements

Sonar development, 200% side scan and diver investigation are required for this item. A full investigation using 200% side

scan at a line spacing of 80 meters, hydro splits at a line spacing of 80 meters, and one **SEABAT** development at a line spacing of 5 meters within a 50 meter radius.

N.4.13 Results of Investigation

Investigation of AWOIS 9714 with the **SEABAT** 9001 revealed a 28 foot sounding, contact #2397.6s and HDAPS fix # 19255.1 on a feature which rises off the sea floor about 5 feet.

N.5.13 Comparison with Chart and Charting Recommendations

The hydrographer recommends that the 28foot least depth at LAT 40/29/0~~0.000~~ 8.736 N, LONG 073/58/~~37.875~~ 51.137 W, should be charted as an obstruction surrounded by the danger curve. The hydrographer also recommends that the 33 FT wire drag CLEARANCE symbol be removed from the sounding. CONCUR CHART 128. OBSTN

N.1.14 Area of Investigation

AWOIS 9715

Approaches to New York Harbor

Reported Position:
40°28'44.38"N
73°58'22.49"W

Datum: NAD 83

Feature: Obstruction

N.2.14 Description of Item

The description for AWOIS 9715 describes that a 24 foot hang cleared by wire drag to 13 feet. However, the chart shows a wire drag cleared depth of 18 feet. See the Automated Wreck and Obstruction Information System (AWOIS) listing of project OPR-C399-RU-96 in Separate VI* for a detailed description.

* DATA FILED WITH ORIGINAL FIELD RECORDS

N.3.14 Method of Investigation and Survey Requirements

Sonar development, 200% side scan and diver investigation are required for this item. A full investigation using 200% side scan at a line spacing of 80 meters, hydro splits at a line

spacing of 80 meters, and three **SEABAT** developments at a line spacing of 5 meters within a 50 meter radius.

N.4.14 Results of Investigation

Investigation of AWOIS 9715 with the **SEABAT** 9001 revealed a 27 foot sounding, contact #9840.2s and **SEABAT** fix #936 on what appears to be a small debris pile.

N.5.14 Comparison with Chart and Charting Recommendations

While investigating the area, the hydrographer found no evidence of a least depth of 18 feet. It is the recommendation of the hydrographer that 27 foot least depth at LAT 40/28/49.555 N, LONG 073/58/21.838 W, should be charted as an obstruction surrounded by the danger curve. The hydrographer also recommends that the wire drag symbol be removed from the sounding. CONCUR WITH CLARIFICATION - IT IS RECOMMENDED THAT THE CHARTED OBSTRUCTION WITH 18FT WIRE DRAG CLEARANCE BE DELETED.

N.1.15 Area of Investigation

CHART 27. OBSTN

Contact #2902.4S

Approaches to New York Harbor

Position:
40°27'59.78"N
73°56'28.13"W

Datum: NAD 83

Feature: Side Scan Sonar Contact

N.2.15 Description of Item

Item appears to be a spoil or debris pile.

N.3.15 Method of Investigation

A full investigation using 200% side scan at a line spacing of 80 meters, hydro splits at a line spacing of 80 meters, and two **SEABAT** developments at a line spacing of 5 meters within a 50 meter radius.

N.4.15 Results of Investigation

Further investigation of Contact #2902.4S with the **SEABAT** 9001 revealed a 17 6 foot sounding, **SEABAT** DP fixes #835 & #836 on what appears to be a debris/spoil pile. See 15 least depth file and surface plot in separate VI. DATA FILED WITH ORIGINAL FIELD RECORDS

N.5.15 Comparison with Chart and Charting Recommendations

It is the recommendation of the hydrographer that data from this survey supersede all prior surveys, and the least depths of 17 16 feet at LAT 40/27/59.787 N, LONG 073/56/28.138 W, and LAT 40/27/59.715 N, LONG 073/56/28.219 W should be charted as an obstruction surrounded by the danger curve. CONCUR WITH CLARIFICATION IT IS RECOMMENDED THAT THE 16 FT OBSTN NOT BE CHARTED BECAUSE IT IS DREDGE SPOIL. CHART AREA AS SHOWN ON PRESENT SURVEY.

N.1.16 Area of Investigation

Contact #2919.6P

Approaches to New York Harbor

Position:
40°27'52.63"N
73°56'11.80"W

Datum: NAD 83

Feature: Side Scan Sonar Contact

N.2.16 Description of Item

Item appears to be a spoil or debris pile

N.3.16 Method of Investigation and Survey Requirements

A full investigation using 200% side scan at a line spacing of 80 meters, hydro splits at a line spacing of 80 meters, and one

SEABAT development at a line spacing of 5 meters within a 50 meter radius.

N.4.16 Results of Investigation

Further investigation of Contact #2919.6P with the **SEABAT** 9001 revealed a 19 foot sounding, **SEABAT** fix #829 on what appears to be a debris/spoil pile.

N.5.16 Comparison with Chart and Charting Recommendations

It is the recommendation of the hydrographer that data from this survey supersede all prior surveys, and the least depth of 19 feet at LAT 40/27/52.636 N, LONG 073/56/11.802 W, should be charted as an obstruction surrounded by the danger curve. CONCUR

CHART 19 OBSTN

N.1.17 Area of Investigation

Contact #2499.1S

Approaches to New York Harbor

Position:
40°27'44.16"N
73°56'24.25"W

Datum: NAD 83

Feature: Side Scan Sonar Contact

N.2.17 Description of Item

Item appears to be a small rock

N.3.17 Method of Investigation and Survey Requirements

A full investigation using 200% side scan at a line spacing of 80 meters, hydro splits at a line spacing of 80 meters, and one **SEABAT** development at a line spacing of 5 meters within a 50 meter radius.

N.4.17 Results of Investigation

Further investigation of Contact #2499.1S with the **SEABAT** 9001 revealed a 19 foot sounding, **SEABAT** fix #828 on what appears to be a rock on a debris/spoil pile.

N.5.17 Comparison with Chart and Charting Recommendations

It is the recommendation of the hydrographer that data from this survey supersede all prior surveys, and the least depth of 19 feet at LAT 40/27/44.165 N, LONG 073/56/24.259 W, should be charted as an obstruction surrounded by the danger curve. CONCUR WITH CLARIFICATION - IT IS RECOMMENDED THAT THE 19 FT OBSTRUCTION NOT BE CHARTED BECAUSE IT IS DREDGE SPOIL. CHART AREA AS SHOWN ON PRESENT SURVEY.

N.1.18 Area of Investigation

Contact #7754.4P

Approaches to New York Harbor

Position:
40°24'50.19"N
73°57'35.26"W

Datum: NAD 83

Feature: Side Scan Sonar Contact

N.2.18 Description of Item

Item appears to be small debris.

N.3.18 Method of Investigation and Survey Requirements

A full investigation using 200% side scan at a line spacing of 80 meters, hydro splits at a line spacing of 80 meters, and one **SEABAT** development at a line spacing of 5 meters within a 50 meter radius.

N.4.18 Results of Investigation

Further investigation of Contact #7754.4P with the **SEABAT** 9001 revealed a 22 foot sounding, **SEABAT** DP fix #826 on what appears to be a small item of debris.

N.5.18 Comparison with Chart and Charting Recommendations

It is the recommendation of the hydrographer that data from this survey supersede all prior surveys, and the least depth of 22 feet at LAT 40/24/50.191 N, LONG 073/57/35.261 W, should be charted as an obstruction surrounded by the danger curve. CONCUR

CHART 21 OBSTN

N.1.19 Area of Investigation

Contact #10367.2p

Approaches to New York Harbor

Position:
40°27'57.8"N
73°56'27.~~1~~4"W

Datum: NAD 83

Feature: Side Scan Sonar Contact

N.2.19 Description of Item

Item appears to be a rock on a pile of debris.

N.3.19 Method of Investigation and Survey Requirements

A full investigation using 200% side scan at a line spacing of 80 meters, hydro splits at a line spacing of 80 meters, and one **SEABAT** development at a line spacing of 5 meters within a 50 meter radius.

N.4.19 Results of Investigation

Investigation of Contact #10367.2P with the **SEABAT** 9001 revealed a 1~~8~~7foot sounding, **SEABAT** DP fix #830 on what appears to be a rock on a pile of debris.

N.5.19 Comparison with Chart and Charting Recommendations

It is the recommendation of the hydrographer that data from this survey supersede all prior surveys, and the least depth of 1~~8~~7feet at LAT 40/27/57.854 N, LONG 073/56/27.418 W, should be charted as an obstruction surrounded by the danger curve.
CONCUR WITH CLARIFICATION - IT IS RECOMMENDED THAT THE 17 FT OBSTN NOT BE CHARTED BECAUSE IT IS DREDGE SPOIL. CHART AREA AS SHOWN ON PRESENT SURVEY.

O. COMPARISON WITH THE CHART SEE ALSO THE EVALUATION REPORT

O.1 Six charts are affected by this survey:

Chart 12300
"Approaches to New York, Nantucket Shoals to Five Fathom Bank"
36th Ed. ~~26 June 1993~~ 7 OCTOBER 1995
Scale: 1:400,000

CHART 12324SC → "SANDY HOOK TO LITTLE EGG HARBOR"
27th Ed., 11 JUNE 1994
SCALE 1:40,000

Chart 12326
"Fire Island Light to Sea Girt"
43rd Ed. 18 November 1995
Scale: 1:80,000

Chart 12327
"New York Harbor"
88th Ed. 5 August 1995
Scale: 1:40,000

Chart 12401
"New York Lower Bay Southern part"
4th Ed. 8 Oct. 1995
Scale 1:15,000

Chart 13003
"Cape Sable to Cape Hatteras"
41st Ed. 22 July 1995
Scale: 1:200,000

Chart 13006
"West Quoddy Head to New York"
28th Ed. 5 March 1994 NOT AFFECTED
Scale: 1:675,000

O.2 No Danger to Navigation reports were submitted for this survey.

O.3 a. The overall correlation between charted soundings and survey depths is good. Numerous previously uncharted features were found within the survey limits. These discrepancies are isolated manmade features. Please refer to the Item Investigation Reports in section N and separate VI* for further information. Otherwise, differences average approximately one foot in flat and sloping areas, and no more than two to three feet in areas with irregular bottoms.

* DATA FILED WITH ORIGINAL FIELD RECORDS

b. Some shoaling trends were found near the western end,(south side) of Sandy Hook Channel in the vicinity of False Hook. Deepening trends were found on the north side of Sandy Hook Channel and also in the area south west of the western edge of the channel survey area, and at the southern end of the sheet limits, possibly due to dredging for beach renourishment.

P. ADEQUACY OF SURVEY SEE ALSO THE EVALUATION REPORT

This survey is complete and fully adequate to supersede prior survey data in common areas.

Q. AIDS TO NAVIGATION

There were nine floating aids to navigation within the limits of this survey. All were positioned through DP acquisition. No nonfloating aids to navigation exist within the survey limits.

R. STATISTICS

R.1 a. Number of Positions. 19,280

b. Lineal Nautical Miles of Sounding Lines: 477.87

Nautical Miles of Survey With the Use of Side Scan Sonar 411.60

Nautical Miles of Survey Without the Use of Side Scan Sonar 66.27

R.2 a. Square Nautical Miles of Hydrography per 100% of Coverage 7.4

b. Days of Production 34

c. Detached Positions 167

d. Bottom Samples 27

e. Tide Stations 1

g. Velocity Casts. 7

j. **SEABAT** Item Investigations 175

S. MISCELLANEOUS SEE ALSO THE EVALUATION REPORT

S.1 a. Some evidence of shoaling near the tip of Sandy Hook was found during this survey.

b. No evidence of anomalous tides or tidal current conditions was found during this survey.

S.2 Twenty seven bottom samples were obtained during this survey. As directed by the Project Instructions, all bottom samples were inspected and recorded, but none were submitted to the Smithsonian Institution.

S.3 Sixteen Secchi Disc observations were conducted during the survey. Detailed information is contained in Separate II* with the Bottom Sample forms.

* DATA FILED WITH ORIGINAL FIELD RECORDS

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

T.1 No additional field work is required.

T.2 The hydrographer is aware of no construction that will affect results of this survey. The Hydrographer is aware of dredging offshore in the southern area of sheet limits at time of survey.

T.3 No further investigation of the survey area is recommended.

U. REFERRAL TO REPORTS

Reference is made in section F to the Descriptive Report for H-10605 for an explanation of the **SEABAT** system.

Title	Transmittal Information
Landmarks and Nonfloating Aids to Navigation Report, New York Harbor	Atlantic Hydrographic Branch N/CG244 Atlantic Marine Center Transmittal RU-101-96 Dated 1 October 1996

This report and the accompanying field sheets are respectfully submitted.

Charles A. Neely, ST, NOAA

Jonathan M. Klay, LTJG, NOAA
Field Operations Officer
NOAA Ship RUDE

APPENDIX III

LIST OF HORIZONTAL CONTROL STATIONS

No horizontal control stations were needed for this survey since Differential GPS was employed exclusively for all positioning control. The geographic position for the Differential GPS radio beacon used during this survey is as follows:

Sandy Hook, NJ	40°28'~~28.902~~ 17.3412"N 074°00'~~69.571~~ 41.7426"W
Montauk Point, NY	41°04'02.~~046~~ .10814"N 071°51'38.~~268~~ .4588"W

APPENDIX VII

APPROVAL SHEET

LETTER OF APPROVAL

REGISTRY NO. H-10686

Field operations contributing to the accomplishment of this Navigable Area survey were conducted under my direct supervision with frequent personal checks of progress and adequacy. All field sheets and reports were reviewed in their entirety and all supporting records were checked as well.

This survey was completed with 200% side scan sonar coverage and is more than adequate to supersede ALL prior surveys in common areas. The survey is considered complete and adequate for nautical charting.

Samuel P. De Bow, CDR, NOAA

Samuel P. De Bow, CDR, NOAA
Commanding Officer
NOAA Ship RUDE

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: December 13, 1996

HYDROGRAPHIC BRANCH: Atlantic

HYDROGRAPHIC PROJECT: OPR-C399-RU

HYDROGRAPHIC SHEET: H-10686

LOCALITY: New York, Approaches to New York Harbor, Entrance to Sandy Hook Channel

TIME PERIOD: May 15 - July 17, 1996

TIDE STATION USED: 853-1680 Sandy Hook, N.J.
Lat. 40° 28.0'N Lon. 74° 00.6'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.481 meters

REMARKS: RECOMMENDED ZONING
Use zone(s) identified as: zone# SH1 and zone# SH2
Refer to attachments for zoning information

Note: Times are tabulated in Greenwich Mean Time.

CHIEF, TIDAL ANALYSIS BRANCH

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

H-10686

Name on Survey	A ON CHART NO. 1227, 12324, 12401	B ON PREVIOUS SURVEY NO.	C ON U.S. QUADRANGLE MAPS	D FROM LOCAL INFORMATION	E ON LOCAL MAPS	F P.O. GUIDE OR MAP	G RAND MCNALLY ATLAS	H U.S. LIGHT LIST	K	
AMBROSE CHANNEL	X		X							1
FALSE HOOK (bar)	X		X							2
FALSE HOOK CHANNEL	X		X							3
NEW JERSEY (title)	X		X							4
NEW YORK (title)	X		X							5
NEW YORK HARBOR (title)	X		X							6
NORTH ATLANTIC OCEAN	X		X							7
ROMER SHOAL	X		X							8
SANDY HOOK (title)	X		X							9
SANDY HOOK CHANNEL	X		X							10
SWASH CHANNEL	X		X							11
										12
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										25

Approved:

Chief Cartographer

JUN 15 1998

NOAA FORM 76-155 SUPERSEDES C&GS 197

NOAA FORM 61-29
(12-71)

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

LETTER TRANSMITTING DATA

REFERENCE NO.
N/CS33-61-98

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

- [ ] ORDINARY MAIL
- [ ] AIR MAIL
- [ ] REGISTERED MAIL
- [X] EXPRESS
- [ ] GBL *(Give number)* _____

TO:

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

DATE FORWARDED
9 JULY 1998

NUMBER OF PACKAGES
ONE TUBE

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

H-10686

NEW YORK - NEW JERSEY, APPROACHES TO NEW YORK HARBOR, 2.5 NM EAST OF SANDY HOOK

1 (ONE) Tube containing the following:

1 MYLAR SMOOTH SHEET (H-10686)
2 Composite Drawings for chart #12401
2 Composite Drawings for chart #12327
1 H-Drawing (on mylar) for chart #12401
1 H-Drawing (on mylar) for chart #12327
1 Descriptive Report for H-10686
1 Drawing History Form #76-71 for chart #12401
1 Drawing History Form #76-71 for chart #12327

FROM: *(Signature)*
Robert R. Hill Jr. Robert R. Hill

RECEIVED THE ABOVE
(Name, Division, Date)

Return receipted copy to:

Atlantic Hydrographic Branch
N/CS33
439 West York Street
Norfolk, VA 23510-1114

This form was electronically produced by ELite Federal Forms' Forms Manager

07/07/98

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: H10686

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	19280
NUMBER OF SOUNDINGS	19280

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	129	02/12/97
VERIFICATION OF FIELD DATA	318	06/12/98
EVALUATION AND ANALYSIS	47	
FINAL INSPECTION	33	06/05/98
COMPILATION	60.50	07/07/98
TOTAL TIME	599	

ATLANTIC HYDROGRAPHIC BRANCH APPROVAL 06/12/98

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR H-10686 (1996)

This Evaluation Report has been written to supplement and/or clarify the original Descriptive Report. Sections in this report refer to the corresponding sections of the Descriptive Report.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

The following software was used to process data at the Atlantic Hydrographic Branch:

Hydrographic Processing System
NADCON, version 2.10
SiteWorks, version 2.01
MicroStation, version 5.05
I/RAS B, version 5.01

The smooth sheet was plotted using an Hewlett Packard DesignJet 350C plotter.

H. CONTROL STATIONS

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

To place the survey on the NAD 27 datum, move the projection lines 0.388 seconds (11.974 meters or 1.19 mm at the scale of the survey) north in latitude and 1.505 seconds (35.475 meters or 3.54 mm at the scale of the survey) east in longitude.

L. JUNCTIONS

H-10675 (1996-97) west

A standard junction was effected between the present survey and the junctional survey.

There are no other junctional surveys to the north, south or east. Present survey depths are in harmony with the charted hydrography to the north, south, and east.

M. COMPARISON WITH PRIOR SURVEYS

A comparison with prior surveys was not done during office processing in accordance with section 4. of the

memorandum titled, "Changes to Hydrographic Survey Processing", dated May 24, 1995.

O. COMPARISON WITH CHARTS 12300 (36th Edition, Oct. 7/95)
12324 (27th Edition, June 11/94)
12326 (44th Edition, Feb. 1/97)
12327 (90th Edition, Dec. 21/96)
12401 (28th Edition, Oct. 28/95)
13003 (41st Edition, July 22/95)

Hydrography

The charted hydrography originates with prior surveys and miscellaneous sources. An adequate comparison is made in section 0.of the Descriptive Report and needs no further discussion. Attention is directed to the following:

1. Automated Wreck and Obstruction Information System (AWOIS) Item #4745, a charted rock with a depth of 23 feet (7 m), in Latitude 40°29'27.60"N Longitude 73°58'47.85"W, originates with prior survey H-10035 (1982). A Q-drawing was supplied to Marine Chart Division (MCD) prior to approval of the present survey. A rock with a depth of 20 feet (6^1 m), in Latitude 40°29'27.47"N, Longitude 73°58'47.97"W, was charted from the Q-drawing. The rock originating with AWOIS Item #4745 was deleted. During office processing approved tides were applied to the survey data, and the depth of the rock from the present survey was revised to 19 feet (5^8 m). It is recommended that the depth of the charted rock be revised to 19 feet (5^8 m).

2. AWOIS item #8092, a charted obstruction with a depth of 24 feet (7^3 m) in Latitude 40°28'23.93"N Longitude 73°56'09.91"W, originates with prior survey FE-327SS (1989). A Q-drawing was supplied to MCD prior to approval of the present survey, and an obstruction with a depth of 23 feet (7 m), in Latitude 40°28'22.16"N, Longitude 73°56'10.64"W, located by the field unit was charted. Approved tides were applied to the survey data during office processing, and the depth for the obstruction was 23 feet (7 m). During office processing it was determined that this obstruction was dredge spoil, and An E-mail from LT Rick Sipos in Silver Spring, Maryland instructed this office to chart spoil mounds as depths not obstructions in this situation. It is recommended that the charted obstruction be deleted, and the area be charted as shown on the present survey.

3. A charted rock with a depth of 31 ft (9^4 m), in

Latitude 40°27'26"N, Longitude 73°56'20"W, originates with an unknown source. A rock with a depth of 31 feet (9^4 m), in Latitude 40°27'27.16"N, Longitude 73°56'21.58"W, was located by the field unit. No change in the charting status is recommended.

4. A Q-drawing prepared by the Atlantic Hydrographic Branch addressing numerous charted and uncharted items was forwarded to MCD for chart application. The items were applied to National Ocean Service (NOS) charts 12327 (92nd Edition, Dec. 20/97) and 12401 (5th Edition, Oct. 25/97). An E-mail from LT Rick Sipos in Silver Spring, Maryland instructed this office to chart spoil mounds as depths not obstructions in this situation. A copy of the e-mail is appended to this report. As a result, the following list of obstructions should be charted as depths:

Charted Feature	Latitude (N)	Longitude (W)	Depth (ft/m)
19 Obstn	40°28'15.85"	73°57'26.53"	$19/5^8$
18 Obstn	40°28'14.93"	73°57'24.99"	$18/5^5$
18 Obstn	40°28'12.15"	73°57'21.40"	$18/5^5$
18 Obstn	40°28'10.19"	73°57'18.26"	$18/5^5$
16 Obstn	40°28'14.95"	73°56'27.56"	$16/4^9$
16 Obstn	40°28'55.74"	73°57'31.53"	$16/4^9$
17 Obstn	40°29'01.76"	73°57'34.66"	$17/5^2$
16 Obstn	40°28'09.21"	73°56'43.37"	$16/4^9$
23 Obstn	40°28'22.16"	73°56'10.63"	23/7

5. A charted 8-ft (2^4 m) depth, in Latitude 40°24'57"N, Longitude 73°57'19"W, on chart 12327 (92nd Edition, Dec. 20/97) is not correct. Previous editions of this chart showed a 28-ft (8^5 m) depth in this location. Present survey depths in the area are 28 feet (8^5 m). It is recommended that the area be charted as shown on the present survey.

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

P. ADEQUACY OF SURVEY

This is an adequate hydrographic/side scan sonar survey. No additional work is recommended.

S. MISCELLANEOUS

Chart compilation using the present survey data was done by Atlantic Hydrographic Branch personnel in Norfolk, Virginia. Compiled data will be forwarded to Hydrographic

Survey Division, Silver Springs, Maryland upon completion of the project.

RUDE Processing Team

Richard W. Blevins

Richard W. Blevins
Cartographer
Verification of Field Data
Evaluation and Analysis

To: Nicholas E Perugini@NCG244@noaa
Cc: Robert G Roberson@NCG244@noaa
Bcc:
From: Rick Sipos@HYDRO@NCG24
Subject: CH 12327/ spoil mounds
Date: Monday, April 28, 1997 8:44:51 EDT
Attach:
Certify: N
Priority: Normal
Defer until:
Expires:
Forwarded by: Nicholas E Perugini@NCG244@noaa

Forwarded to: Richard W Blevins@NCG244@noaa
cc: Robert R Hill@NCG244@noaa
Robert G Roberson@NCG244@noaa
Maxine Fetterly@NCG244@noaa
Forwarded date: Monday, April 28, 1997 10:00:33 EDT
Comments by: Nicholas E Perugini@NCG244@noaa
Comments:

Regular soundings...

---------- [Original Message] ----------

You had asked if spoil mounds in NY harbor should be charted as obstr vs. regular soundings. Captain Armstrong's answer is regular soundings.

APPROVAL SHEET
H-10686

Initial Approvals:

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

Date: 12 JUN 98

Norris A. Wike
Cartographer
Atlantic Hydrographic Branch

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

Date: 12 JUN 98

Andrew L. Beaver
Lieutenant Commander, NOAA
Chief, Atlantic Hydrographic Branch

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Final Approval:

Approved: Date: Aug 19, 1998

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

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10686

INSTRUCTIONS

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

CHART	DATE	CARTOGRAPHER	REMARKS
12401	6-24-98	Norris Wilke	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No.
12327	7-2-98	Robert Hill	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED