F00455

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Hydrographic /
Type of Survey Side Scan Sonar / Multibeam

Field No. RU-05-04-99

Registry No. F00455

LOCALITY

State New York

General Locality North Atlantic Ocean

Locality Fire Island to Staten Island

1999

CHIEF OF PARTY
LCDR James S. Verlaque

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DATE JAN 29 2001

NOAA FORM 77-28 (11-72)

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

REGISTER NO.

F-00455

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-05-04-99

State: New York

General locality: North Atlantic Ocean

Locality: Fire Island to Staten Island

Scale: 1:5,000 Date of survey: October 12 - 13, ~~2000~~ 1999

Instructions dated: November 2, 1999 Project No.: S-C906-RU-99

Vessel: NOAA Ship RUDE s590, EDP# 9040

Chief of party: LCDR J. Verlaque

Surveyed by: LCDR J. Verlaque, LT E. Berkowitz, ENS K. Slover, ENS B. Goodwin, ST S. Rooney, ST M. Chandler

Soundings taken by:(echo sounder,hand lead,pole): Reson SeaBat 9003 SWMB

Graphic record scaled by: RUDE Personnel

Graphic record checked by: RUDE Personnel

Protracted by: N/A Automated plot by: HEWLETT PACKARD DESIGNJET HP 2500CP (OFFICE)

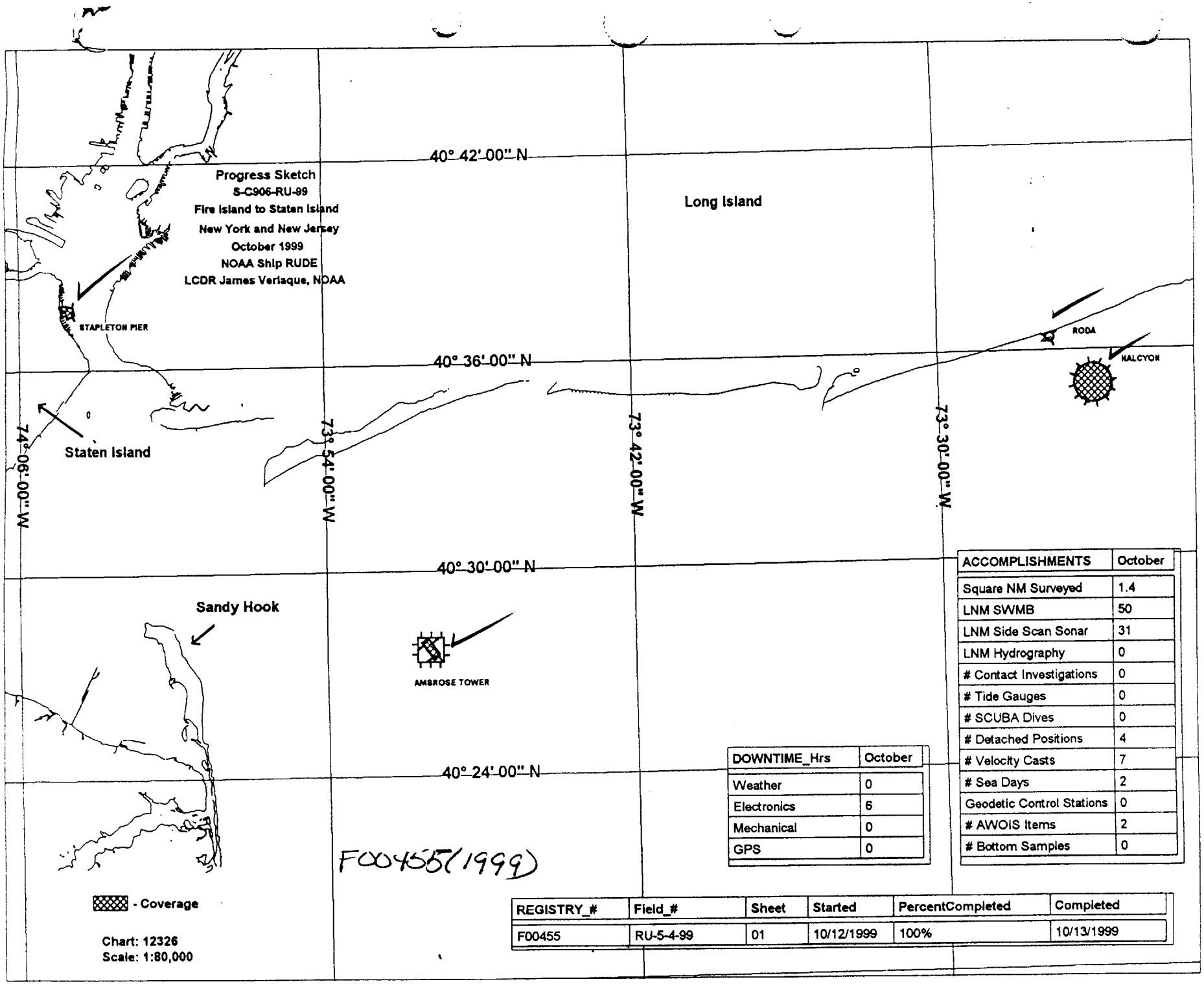
Verification by: ATLANTIC HYDROGRAPHIC BRANCH PERSONNEL

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

REMARKS: Field Examination,. All times recorded in UTC. Survey data corrected using preliminary unverified tides.

HAND WRITTEN NOTES IN DESCRIPTIVE REPORT WERE MADE DURING OFFICE PROCESSING.

RUDE/SURF / 12/5/00 SJV



F00455(1999)

ACCOMPLISHMENTS	October
Square NM Surveyed	1.4
LNM SWMB	50
LNM Side Scan Sonar	31
LNM Hydrography	0
# Contact Investigations	0
# Tide Gauges	0
# SCUBA Dives	0
# Detached Positions	4
# Velocity Casts	7
# Sea Days	2
Geodetic Control Stations	0
# AWOIS Items	2
# Bottom Samples	0

DOWNTIME_Hrs	October
Weather	0
Electronics	6
Mechanical	0
GPS	0

REGISTRY_#	Field_#	Sheet	Started	PercentCompleted	Completed
F00455	RU-5-4-99	01	10/12/1999	100%	10/13/1999

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* DATA FILED WITH FIELD RECORDS.

A. PROJECT

A.1 This survey was conducted in accordance with Hydrographic Project Instructions S-C906-RU, Fire Island to Staten Island, New York.

A.2 The original instructions are dated November 2, 1999.

A.3 There are no amendments to the instructions.

A.4 This survey is designated registry number F00455.

A.5 This project responds to requests from the Sandy Hook Pilots Association, the U.S. Coast Guard, and the Department of the Navy. The Pilots Association has requested a full bottom survey in the vicinity of the recently dismantled Ambrose Tower and the 41-foot "RK" charted approximately one quarter mile northwest of the Tower.

The U.S. Coast Guard has requested that the wreck of the "*RODA*" be accurately positioned on the south shore of Long Island, New York, as it presents a hazard to small craft navigation in the area. In addition the Coast Guard has requested the verification or disproval of the submerged wreck of the "*HALCYON*".

The U.S. Navy has requested a hydrographic survey in the vicinity of Stapleton Pier on Staten Island, New York. This facility will be used to berth large naval vessels (aircraft carriers) during the Naval Review 2000 (INR2000).

B. AREA SURVEYED

B.1a Survey FOO455 is a field examination survey. It is comprised of four item investigations, containing two AWOIS items. The first item is the wreck of the *RODA* (AWOIS 1660) located at 40°36'29.29"N, 073°25'30.35"W.

B.1b The second item investigation encompasses a 1,000 meter search radius centering on the wreck of the *HALCYON* (AWOIS 10448) at 40°35'00.37"N, 073°23'58.44"W.

B.1c The third item investigation is the dismantled *Ambrose Tower* (Light List Number 720, 40°27'36"N, 073°49'48"W) and the 41-foot "RK" charted approximately one quarter mile northwest of the former tower.

B.1d The fourth item investigation is located in the vicinity of *Stapleton Pier* at 40°37'47"N, 074°04'15"W.

B.2 Survey F00455 is comprised of four item investigations, containing two AWOIS items, with the following approximate boundaries, each starting at the southeast corner and proceeding clockwise:

SURVEY LIMITS Sheet 01 RODA AWOIS #1660		SURVEY LIMITS Sheet 02 HALCYON AWOIS #10448	
LATITUDE	LONGITUDE	LATITUDE	LONGITUDE
40°36'12.84"N	073°25'28.25"W	40°34'23.95"N	073°23'06.42"W
40°36'11.52"N	073°25'58.83"W	40°34'23.73"N	073°24'47.62"W
40°36'20.48"N	073°26'00.39"W	40°35'37.77"N	073°24'47.34"W
40°36'22.87"N	073°25'30.69"W	40°35'37.77"N	073°23'06.14"W

SURVEY LIMITS Sheet 03 AMBROSE Light		SURVEY LIMITS Sheet 04 Stapelton Piers	
LATITUDE	LONGITUDE	LATITUDE	LONGITUDE
40°27'21.20"N	073°49'33.88"W	40°37'29.15"N	074°03'44.13"W
40°27'21.30"N	073°50'20.50"W	40°37'29.02"N	074°04'22.21"W
40°28'03.39"N	073°50'20.35"W	40°37'56.31"N	074°04'22.05"W
40°28'03.33"N	073°49'33.88"W	40°37'56.43"N	074°03'44.21"W

B.3 Data acquisition for this survey began on October 12, 1999 (DN 285) and ended on October 13, 1999 (DN 286).

C. SURVEY VESSELS

C.1 Hydrography, side scan, and multibeam investigations were conducted from NOAA Ship RUDE, S-590, EDP# 9040. General functions include side scan sonar and multibeam sounding operations, velocity of sound determinations, and navigational aid positioning.

C.2 The transducer for the multibeam sonar was deployed on a pivoting arm mounted on the port side, approximately amidships. The arm was rotated into the operating position only during times of data acquisition.

D. AUTOMATED DATA ACQUISITION AND PROCESSING

SE ALSO EVALUATION REPORT.

D.1a Coastal Oceanographics' HYPACK for Windows Version 8.9 (06/06/99) was used for data acquisition on this survey. Post processing included the use of HPTools Version 9.4.1

(08/01/99) for all Hypack data conversion data. Data processing was conducted using Hydrographic Processing System (HPS) Version 8.9 (09/98) supplied by Atlantic Hydrographic Branch Computer Support Group on the HydroSoft CD (version 9.4). MapInfo Version 5.0 (08/18/98) was utilized for data display during the evaluation process and completion of the field sheet. All software versions used for data processing are listed in Appendix H. DATA FILED WITH FIELD RECORDS.

D.1b Triton Corporation's ISIS software Versions 4.32 (06/01/99) was used to acquire SeaBat multibeam and digital side scan sonar data. SeaBat data was processed on the CARIS-HIPS System Version 4.2.7 (01/17/97).

D.1c The SEABIRD SBE-19 sound velocity profiler unit was utilized with SEASOFT 3.3M (11/27/89) and SEACAT 3.1 (02/25/98) software. The program VELWIN Version 4.0 (03/1/99) was used to process the acquired data and calculate velocity corrections.

D.2a Multibeam and side scan sonar data (XTF Format) conversion within the CARIS-HIPS System entailed specific conversion selections. Conversion selection for origin of sensor information differs between the two types of data. Multibeam data conversion utilized the standard or default selections. Default selections with CARIS software included "Ship Nav" from Sensor; "Ship Gyro" from Attitude; "Fish Nav" from Sensor; "Fish Gyro" from Attitude. Data decimation was not selected and image correction was selected during conversion.

Side scan sonar data conversion entailed selecting "Ship Nav" from Sensor; "Ship Gyro" from Ship or Attitude; "Fish Nav" from Ship; "Fish Gyro" from Ship or Attitude. Data decimation was not selected and image correction was selected during conversion.

D.2b SeaBat depth data were monitored using ISIS during acquisition and processed utilizing CARIS-HIPS multibeam data cleaning programs. Digital multibeam depth profiles were visually reviewed and fliers were identified and manually flagged as "rejected"; no SeaBat quality flags were used to automatically "reject" data. Vessel navigation data from DGPS and attitude data from heave, pitch, roll, and gyro sensors were displayed and manually cleaned (see Sections G and I).

D.2c After reviewing and cleaning, the depth, navigation, and attitude data were merged with sound velocity, tide, and

vessel configuration data to compute the true depth and position of each sonar beam footprint.

D.2d For 100% multibeam item investigations (*Ambrose Light Tower* and *Stapleton Pier*), coverage was determined by importing the data into a workfile with the following parameters:

Sounding attributes	Extended (no Key)
Use Caris Status:	<unchecked ("no")>
Grouping:	"Group by Beam Number"
HDCS Sounding Status:	"Accepted, Examined and Outstanding"
Convert to feet:	"No"
Line Name as Source ID:	"Yes"
Transfer:	"Soundings"
Data Thinning:	"Shallow Biased"
Grid Size (m):	"3"
Line by Line Thinning:	"Yes"

Using the CARIS "DTM Generation", a reference surface of the data contained in the work file was created. In the CARIS "Interactive Edit" mode, the display scope was set to display all data in the work file. Switching to "DTM Generation", a regular DTM was created using the following parameters:

Data to use:	"Visible Area"
Resolution:	"5mm" (5 meters)
Radius:	"1x resolution"
Create IPV file?:	"Yes"
Sun illuminated images:	"45 North-East" and "315 North-West"

This creates MapInfo tables that can easily be reviewed within MapInfo and analyzed for 100% multibeam coverage.

D.2e For 100% and 200% side scan sonar item investigations, (*RODA* and *HALCYON*), coverage was determined by plotting the HPS side scan sonar data in MapInfo. The plotted tables then were visually inspected to ensure coverage. DTM's were not created for 100% and 200% side scan sonar item investigations.

D.3a For multibeam sounding data evaluation, the above workfiles were suppressed using the CARIS Workfile Processing "Sounding Suppression" routine. The following parameters were used to suppress the workfile:

Area:	"Entire Area"
Constant Term:	"10.0m"
Linear Term:	"0.0"
Squared Term:	"0.0"
Bias:	"Shoal Bias"

Returning to interactive edit, the display scope was changed to display "background" soundings only. From here, the data were exported using the CARIS Workfile Processing to "Export NOAA Soundings" using the following parameters:

Soundings to export:	"Visible soundings"
Output File Name:	"Name" (usually left as default selection)

This procedure creates two files, a data (.dat) and a text (.txt) file which contain the edited multibeam data. Using HPTools, the "Name".dat file is converted to HPS data. This data is then imported into MapInfo tables and used during sounding evaluation.

CARIS Workfile Processing for cross-line comparisons (see Section J.2) was conducted for the Ambrose Light and Stapleton Pier investigations. Cross-data comparisons were not conducted for *RODA* and *HALCYON* investigations, as crossline comparisons are not required for field examination surveys limited to item investigations. Finally, the CARIS Workfile Processing soundings were transferred into HPS (using HPTools) and MapInfo databases.

D.3b For data submission to Atlantic Hydrographic Branch (N/CS33) Final sounding plots were created by creating a separate workfile as described above except a grid size of 7.5 meters was specified. In interactive edit, the display scope was set to display "all" data. During the export routine the soundings to export were specified as "all soundings". This data was then converted to HPS data and used to create the final field sounding plots that contain multibeam and scaled data for detached positions.

Trackline and SSS swath plots were created from the original singlebeam HPS data.

D.3c Final plots were created in MapInfo, a PC-based GIS package, with assistance from HPS-MI MapInfo tools supplied by NOAA's Hydrographic Survey Division (HSD). These tools produced depth, track and swath plots from HPS data and allowed plotting on a 2500CM and 750CP DesignJet plotter. Data could also be overlaid on a raster image of the applicable chart.

D.3d The total number of multibeam soundings used and processed during post processing evaluation does not reflect the total number of multibeam soundings provided to N/CS33. Sounding used for verification purposes were grided at 7.5 meters with no sounding suppression at a 1:1,000 scale.

Sounding excessing will be conducted during the verification process using HPS.

E. SONAR EQUIPMENT

E.1 All side scan sonar data were acquired with an Edgetech (EG&G) model 272 towfish (S/N 11591) and an Edgetech Model 260-TH slant-range correcting side scan sonar recorder (S/N 11591). Additionally, all side scan sonar data were recorded digitally using the Triton ISIS software and archived in the Extended Triton Format (*.XTF) files.

E.2 The side scan towfish used a 50° vertical beam width tilted down 20° from horizontal.

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

E.4a For the *RODA* item investigation both the 50-meter and the 75-meter range scales were utilized. Since the wreck was visible at the time of survey, lines were run based on visual location of the wreck.

E.4b The *HALCYON* item investigation, utilized the 75-meter range scale with line spacing of 80 and 120 meters, to obtain 100% coverage. During survey operations in the southern half of the search radius the side scan sonar slip rings began to fail. This resulted in making the starboard channel of the side scan sonar unit inoperable. To compensate for this lines were run twice, on reciprocal headings to ensure 100% coverage. Coverage was checked to ensure 100% side scan sonar coverage.

E.4c The *Ambrose Light Tower* item investigation utilized the 100-meter range scale with line spacing of 150 meters.

E.4d The *Stapleton Pier* investigation conducted a reconnaissance side scan sonar line utilizing the 75-meter range scale along the pier face.

E.5 Confidence checks were conducted by means of verifying identifiable benthic features. These features included submerged rocks, piers, and anchor scours. Graphic record annotations identify these features from inner to outer limits of the range scale. The hydrographer's confidence in side scan sonar area coverage was continuously verified.

E.6 The towfish was deployed exclusively from the stern. An electronic cable counter (M/D Totco) was employed to

determined the amount of side scan cable deployed.

E.7 Sonar records were monitored on-line and reviewed by two persons during processing to identify contacts. Contact offsets and shadow heights were measured on analog sonar records, checked, and entered into the HPS Contact Table to compute contact heights and positions.

E.8 All side scan contacts with computed heights equal to or greater than 1.0 meter off the bottom in water depths less than or equal to 20 meters were deemed significant. In water depths greater than 20 meters, contacts with computed heights greater than 10% of the water depth and all contacts, which appeared man-made, were deemed significant. All significant contacts were developed with multibeam sonar coverage.

F. SOUNDING EQUIPMENT

F.1a Single-frequency (455 kHz) multibeam data were acquired with a Reson SeaBat 9003 (S/N 10496-447020) shallow-water sonar system. The 9003's combined transmit and receive beams yield forty (40) soundings per ping, each formed from a 3° crosstrack x 1.5° alongtrack bottom footprint. During multibeam data processing, the outermost two beams on each side of the swath (beam numbers 1, 2, 39, and 40) were not processed, reducing the effective swath width to 108° (3° x 36 beams). Proper overlap between multibeam sonar coverage lines was verified using a conservative swath width assumption of 100°.

F.1b SeaBat 9003 (455 kHz) multibeam data were continuously recorded during data acquisition and served as a primary source for *RUDE's* digital soundings. Sounding depths ranged from 11 to 87 feet of water utilizing multibeam range scales of 10, 25, and 50 meters. Item investigation line spacing was based upon contact positions for nadir beam development.

F.1c Vessel speed during the mainschmeme sounding collection consisted of maintaining standards for side scan operations. Multibeam development included vessel speeds between 4 and 7 knots; item and contact investigation speeds were generally slower (3 to 5 kts); slower speeds increase the data density along track over the feature.

F.2a Dual-frequency (24 and 100 kHz) vertical beam echo sounding data were acquired with a Odom Echotrac echo sounder. The *RUDE's* Echotrac echo sounder S/N 9643 was

used from beginning through survey completion. Echo-sounder S/N 9643 did not record the low frequency depths; survey data using this echo sounder recorded only high frequency returns. **Note: Single-beam data is not included in the final data set.**

F.2b High (100 kHz) frequency vertical single beam data were recorded during data acquisition. Single beam echograms were monitored on-line. Anomalous echogram traces were immediately cross-referenced to the ISIS multibeam acquisition display online.

F.2c Manual edits were made to single-beam crossline data only. No edits were made during all main scheme single beam data field processing. Vertical correctors were applied to the raw single beam digital soundings (see Section G). The archived HPS fixes of single beam soundings do not represent the entire character of the seafloor because not all shoal bias inserts were selected; graphic records were not scanned for depth edits unless utilized as cross line comparison. **Single-beam data should NOT be included on the final field sheet; all final soundings originate from multibeam data.**

F.3 No diver investigations were performed during this survey.

G. CORRECTIONS TO SOUNDINGS

G.1a Sound velocity correctors were computed from a SeaBird SBE19 SEACAT Profiler (S/N 1912514-1991). Data quality assurance tests using the CAT program were performed once a week. The profiler is calibrated at the beginning and end of each field season. See Appendix I for data records. DATA FILED WITH FIELD RECORD.

The following velocity casts were used for this survey:

CAST #	DAY NUMBER
1,2	287
3-7	288

Sound velocities were applied to the SeaBat data in HIPS (incorporating the Nautical Charting Development Lab REFRACT algorithm). Sound velocity correctors for the vertical beam soundings were computed using VELWIN and applied to the single beam data using HPS.

G.1b ODOM-leadline direct comparisons were not conducted as no

single beam data will be used in the final product of this survey.

G.1c Sensor offsets and transducer static drafts were measured during the December 1996 dry-dock period. Sensor offsets were stored in the CARIS-HIPS Vessel Configuration File and HPS Offset Table for use in data processing. See Appendix E* for data records.

G.1d Transducer dynamic draft was measured for the NOAA Ship *RUDE* on March 5, 1999 (DN 064) during the opening calibration "Patch Test" utilizing the Real Time Kinematic On The Fly settlement and squat method. Dynamic draft correctors were stored in the CARIS-HIPS Vessel Configuration File and HPS Offset Table for use in data processing. HPS Offset Table for the *RUDE* is Table 03, See Separate IV* for data records.

G.1e NOAA Ship *RUDE's* heave, pitch, and roll data were acquired with a Seatex Seapath Motion Reference Unit (MRU-5) (S/N 0544). Heave, pitch, and roll data were applied to SeaBat multibeam data; only heave data were applied to vertical single beam data during post processing.

G.1f Heading data ($INHTD message "gyro input") were acquired with the Seatex Seapath and applied to determine both multibeam transducer and side scan towfish position. Prior to the commencement of S-C906-RU-99, the Reson Seabat 9003 was sent to Reson for repairs to Beam #8. Multibeam heave, pitch, roll, and heading sensor data were adjusted using biases as determined during a patch test on September 8th, 10th, and 12th (DN's 251, 253, 255). See the CARIS-HIPS Vessel Configuration File in Appendix E* for data records.

G.2 No unusual or unique methods or instruments were used to correct sounding data.

G.3 Tide zoning for this survey is consistent with the Project Instructions. During data collection tide station Sandy Hook, New Jersey (853-1680) was used as the reference station for hydrography in the areas south of Fire Island Inlet, NY to Ambrose Light, NY. For the area around Stapleton Pier, NY, The Battery, New York (851-8750) was used as the reference station.

Tide zone correctors were developed to resolve possible differing tidal characteristics due to topographic and bathymetric features. Tide zones were developed by

* DATA FILED WITH FIELD RECORDS.

applying time correctors and range correctors to the preliminary unverified tides at Sandy Hook, New Jersey (853-1680) and The Battery, New York (851-8750), respectively. Preliminary unverified tides were downloaded from the National Ocean Service OPSD web site (www.opsd.nos.noaa.gov) and were computed in CARIS-HIPS and HPS for re-application to multibeam and single beam data.

The following table indicates the tide zones that were applied during post-processing application of unverified water levels:

Tide Station 853-1680, Sandy Hook, New Jersey		
Zone #	ATL509	ATL517
Time Corrector	-36 minutes	-30 minutes
Range Corrector	X 0.79	X 0.97

Tide Station 851-8750, The Battery, New York	
Zone #	NY18
Time Corrector	-24 minutes
Range Corrector	X 1.02

G.4 The diver least depth gage was not used for this survey.

G.5 No significant systematic errors were detected.

G.6a The vertical reference surface for this survey is Mean Lower Low Water (MLLW).

G.6b Tide data was acquired at Sandy Hook, New Jersey (853-1680) and The Battery, New York (851-8750)by N/OES231. A request for verified tides was mailed to N/OPS1 on November 10, 1999. This data will replace the unverified tide data during verification by N/CS33. (see Section G.6d)

G.6c Note that multibeam data processing was accomplished using preliminary unverified tide values post processing (downloaded from the NOS OPSD web-site).

Zone Station time and height tidal correctors provided by N/CS31, with the project instructions, were applied to all tidal correctors relative to reference stations Sandy Hook, New Jersey (853-1680) and The Battery, New York (851-8750)

G.6d **DO NOT REAPPLY ANY CORRECTORS to multibeam data in HPS, including verified smooth tides. Note that only preliminary unverified tide values have been applied to S-C906 data. Verified smooth tide values and correctors need to be applied to the entire multibeam data set in CARIS-HIPS prior to conversion to HPS.**

Upon receipt of approved tides, do not apply tide values and correctors in HPS. If necessary, all vertical correctors and horizontal offsets should be reapplied to multibeam data using CARIS software only. APPROVED TIDES AND ZONES WERE APPLIED IN CARIS-HIPS DURING OFFICE PROCESSING.

H. HYDROGRAPHIC POSITION CONTROL SEE ALSO THE EVALUATION REPORT.

H.1 The horizontal reference surface for this survey is the North American Datum of 1983 (NAD 83). No horizontal control stations were established for this survey.

H.2 Positioning for this survey was obtained from the NAVSTAR Global Positioning System (GPS) augmented with the U.S. Coast Guard Differential GPS (DGPS) service. The following USCG reference station beacon was used:

USCG DGPS RadioBeacon Broadcast Site	Freq kHz	Rate BPS	Latitude N	Longitude W	Range nm	Beacon ID #
Sandy Hook, NJ	286	200	40°28.29′	074°00.71′	100	804

H.3 Accuracy requirements were met as specified by the Hydrographic Manual, sections 1.3 and 3.1, and Field Procedures Manual, section 3.4.

H.4 GPS and DGPS signals were acquired with the following hardware equipment:

GPS and DGPS Hardware	SERIAL #
Seatex SeaPath 200	0347
MRU-5	0544
StarLink Model MBA2	4202

H.5 The GPS Horizontal Dilution of Precision (HDOP) was recorded during survey operations and manually checked via the Detailed Data Abstract in HPS, raw data printout, and queried within MapInfo. The maximum allowable HDOP value of 4.0 was rarely exceeded. Anomalous position data were either manually smoothed or flagged "rejected", depending

on the extent of the affected data. Instantaneous vessel speed was manually cleaned in CARIS with an event tolerance of 1.0 knot to aid in the manual cleaning of multibeam navigation data.

DGPS performance checks were not conducted during survey operations. The necessity for control checks is eliminated when using the Seatex Seapath 200; quality positioning is supported by the continuous calibration routine inherent of SeaPath.

DGPS monitor and scatter plots for USCG beacons are not required as per guidelines mentioned in FPM 3.2.2.1

H.6 Calibration data are not required for differential GPS.

H.7a There were no unusual methods while operating the positioning equipment during S-C906-RU-99.

H.7b There were no unusual atmospheric conditions noted which might have affected data quality.

H.7c Offsets for the GPS antenna were applied from the CARIS-HIPS Vessel Configuration File (VCF) to compute the position of the SeaBat transducer. See Appendix E* for CARIS-HIPS VCF and HPS Echotrac offset data records.
* DATA FILED WITH FIELD RECORDS.

H.7d A-frame position (tow point), cable length, towfish height, and depth of water were applied to navigation data to compute the position of the towfish. This correction is applied in HPS via Offset Table and Reapply Sounding Corrections.

I. SHORELINE SEE ALSO EVALUATION REPORT.

Shoreline verification was not conducted during survey S-C906-RU-99.

J. CROSSLINE COMPARISONS

J.1a A total of .44 nm of crosslines were acquired for the *Ambrose Light* item investigation; equating to 5% of the total hydro miles.

J.1b A total of .59 nm of crosslines were acquired for the *Stapleton Pier* item investigation; equating to 5% of the total hydro miles.

J.2 Crosslines were not run for the *RODA* item investigation. Crosslines are not required for field examination surveys limited to item investigations.

J.3 Crosslines were not run for the *HALCYON* item investigation. Crosslines are not required for field examination surveys limited to item investigations.

J.4a Crosslines were run for *Ambrose Light tower.* Processed SeaBat crossline soundings excised as a checkline at 3 meters x 3 meters were compared to a digital terrain model (DTM) surface binned at 3 meters x 3 meters in CARIS Workfile Processing. Comparison of the digital terrain model (DTM) to a checkline file resulted in a standard deviation of 0.0 meters in 4,578 comparisons.

J.4b Main scheme multibeam soundings were visually compared to cross line multibeam soundings yielding excellent agreement. Sounding variance was between zero and one foot except where the profile was steep and irregular.

J.5a Crosslines were run for *Stapleton Pier.* Processed SeaBat crossline soundings excised as a checkline at 3 meters x 3 meters were compared to a digital terrain model (DTM) surface binned at 3 meters x 3 meters in CARIS Workfile Processing. Comparison of the digital terrain model (DTM) to a checkline file resulted in a standard deviation of 0.0 meters in 60,723 comparisons.

J.5b Mainscheme multibeam soundings compared to cross line multibeam soundings yielded excellent agreement. Sounding variance was between zero and one foot except where the profile was steep and irregular.

J.6 No anomalous crossline comparisons were noted.

J.7 The mainscheme and crossline data were collected with the same suite of survey equipment used on this survey.

K. JUNCTIONS

Survey H00455 does not junction with any other surveys.

L. COMPARISON WITH PRIOR SURVEYS

SEE ALSO EVALUATION REPORT

Comparisons with prior surveys are not required for field examination surveys limited to item investigations (*RODA* and *HALCYON* Item investigations). Field-examination items are addressed in section N, comparison with the

chart. Refer to Section L of *NOS Hydrographic Surveys Specifications and Deliverables.*

Comparisons with prior surveys are not required when 200 percent (or greater) side scan sonar coverage is acquired over the entire survey area (*AMBROSE Lght Tower* and *Stapleton Pier* Items). Refer to Section L of *NOS Hydrographic Surveys Specifications and Deliverables.*

M. ITEM INVESTIGATION REPORTS

M.1 Survey F00455 contains two AWOIS items within the survey limits. All side scan contacts with measurable shadows and all contacts which appeared manmade were deemed significant. All significant contacts were developed with one hundred percent shallow water multibeam near-nadir sonar coverage.

M1 AWOIS NO: 10448

Item Description: HALCYON
Source: NM39/62
AWOIS Position: 40°35'00.37"N 073°23'58.44"W
Required Investigation: SD, S2, DI **Radius:** 0
Charts Affected: 12352, 12326

INVESTIGATION

Date(s): October 13-14, 1999 (DN285-286)
HPS Position Number: N/A
Investigation Used: SD, S1, SWMB
Survey Position(s): N/A
Position Determined By: Differential GPS

Investigation Summary:
AWOIS 10448 was not located. A 1,000-meter search radius centered on AWOIS 10448 was covered with 100% side scan sonar. During survey operations in the southern half of the search radius the slip rings began to fail. This resulted in making the starboard channel of the side scan sonar unit inoperable. To compensate for this, lines were run twice on reciprocal headings to ensure 100% coverage. No significant side scan sonar contacts were found. Due to the electronic failure of the side scan sonar equipment and operational requirements, a second 100% side scan was not acquired.

CHARTING RECOMMENDATION

Recommendation: AWOIS# 10448 was not resolved. The hydrographer recommends retaining the symbol "dangerous wreck, least depth unknown" at position 40°35'00.37"N, 073°23'58.44"W. CONCUR WITH CLARIFICATION

DELETE NOTATION MAST, PA
CHART ~~:+++:~~ ED
SEE ALSO THE EVALUATION REPORT

M2 AWOIS NO: 1660

Item Description: RODA
Source: NM 39/62 and 40/62
AWOIS Position: 40°36′~~29.29~~ 21.67"N 073°25′~~30.35~~ 43.06"W
Required Investigation: SD, VS, DI **Radius:** 250m
Charts Affected: 12352, 12326

INVESTIGATION

Date(s): October 13, 1999 (DN285)
HPS Position Number: Fix number 2020
Investigation Used: S1, SWMB, VS
Survey Position(s): 40°36′~~29.29~~ 20.88"N 073°25′~~30.35~~ 40.12"W
Position Determined by: Differential GPS

Investigation Summary:
AWOIS 1660 was visually identified and side scan sonar was used to positively identify the extent of the wreckage. Side scan sonar contact 2012.1s was determined to be the sunken wreck. The hydrographer observed a portion of the bow above the surface of the water at the time of the survey. The height was determined by measuring the exposed portion of the bow with a sounding pole on DN 285. A detached position (DP) was taken on DN 285. Fix number 2020 was assigned to the DP, and entered into the HPS Features Editors. Using HP_Tools, the observed height of -1.1 meters (3.6 feet) was corrected with preliminary observed tides, and result in a ~~least depth~~ HEIGHT of ~~-6~~ 5 feet. The position was determined to be 40°36′~~29.29~~ 20.88"N 073°25′~~30.35~~ 40.12".

CHARTING RECOMMENDATION

Recommendation: The hydrographer recommends removing the symbol "dangerous wreck, least depth unknown" from Charts 12352 and 12326. In addition, the hydrographer recommends adding the symbol "wreck showing any portion of the hull or superstructure at level of chart datum" at position 40°36′~~29.29~~ 20.88"N 073°25′~~30.35~~ 40.12" with a charted depth of -6 feet. CONCUR WITH CLARIFICATION

SHOWN ON BOTH CHARTS. RETAIN AS CHARTED

DELETE DANGEROUS SUNKEN WRECK AND NOTATION MAST SHOWN ON CHART 12326

M.2 An uncharted wreck was located on DN 285 during side scan sonar operations. Side scan sonar contacts 2000.0s and 2025.0s were determined to be the uncharted wreck. A least depth of 16 feet (5.0 meters) was determined using Subset

Mode within CARIS-HIPS HDCS. The wreck was determined to be laying in an east-northeast to west-southwest orientation. The hydrographer recommends adding symbol "dangerous wreck, least depth known by sounding only" to Chart 12326 and Chart 12352 at position 40°36'14.15"N, 073°25'49.19"W with a sounding of 16 feet. CONCUR WITH CLARIFICATION RETAIN AS CHART ON 12352 REVISE 16 ON CHART 12326 TO 16 WK

N. COMPARISON WITH THE CHART

N.1 Five charts are affected by this survey:

- Chart 12327 92nd ed, December 20, 1997
- Chart 12333 30th ed, December 13, 1997
- Chart 12334 63rd ed, December 6, 1997
- Chart 12326 46th ed, November 14, 1998
- Chart 12352 27th ed, February 3, 1996

N.2 Chart 12327 has six soundings charted in the surveyed area; survey depths agree with 83% of the charted soundings. A sounding of 33 feet is charted at 40°37'50.24"N, 074°04'16.93"W. Survey depths position several 27 feet soundings in this immediate area. In addition, the 36-foot contour in this area is encroaching seaward on a bearing of 090° true and a distance of 150 meters from its currently charted position. See Danger to Navigation letter (Appendix A)* for further information. Agreement with the remaining soundings is excellent, between zero and two feet. The hydrographer recommends updating Chart 12327 with survey soundings in common areas. * APPENDED TO THIS REPORT.

N.3a Chart 12333 has twenty six soundings charted in the surveyed area; survey depths agree with 73% of the charted soundings. Seven soundings from Chart 12333 have agreement greater than two feet. A general shoaling trend (encompassing six of these seven sounding) is occurring north of the Stapelton Pier in the vicinity of a charted 43 foot sounding at 40°37'48.03"N, 074°04'14.92"W. Survey depths position a sounding of 30 feet in the immediate area. In addition the 36-foot contour in this area is encroaching seaward on a bearing of 090° true and a distance of 150 meters from its currently charted position. ~~See Appendix A for further information.~~ IT IS RECOMMENDED THAT THE CHARTED DEPTHS BE SUPERSEDED BY PRESENT SURVEY.

N.3b A sounding of 55 feet is charted at 40°37'36.67"N, 074°03'52.67"W. Survey depths position a sounding of 51 feet in the immediate area. The hydrographer recommends updating Chart 12333 with survey soundings in these common

areas.

N.4 Chart 12334 has 46 soundings charted in the surveyed area; survey depths agree with 85% of the charted soundings. A sounding of 43 feet is charted at 40°37'47.76"N, 074°04'14.83"W. Survey depths position several 30-foot soundings in the immediate area. In addition the 36-foot contour in this area is encroaching seaward on a bearing of 090° true and a distance of 150 meters from its currently charted position. The hydrographer recommends revising the soundings within the common area with survey soundings. Agreement with the remaining soundings is excellent, between zero and two feet.

N.5 Chart 12326 has seven soundings charted in the surveyed area; survey depths agree with all charted soundings within zero to two feet.

N.5a Ambrose Light Tower (LLNR 720) has been replaced. See section P.1a for details.

One hundred percent side scan sonar and one hundred percent multi-beam sonar was acquired over the area of the old Ambrose Light tower. Side scan sonar records indicate that no remnants of the former tower remain. Survey depths within the area concur with side scan sonar records, with no soundings indicating the feature. The hydrographer recommends updating Chart 12326 with F-00455 survey depths in the common area.

N.5b A charted "shoal sounding on isolated rock or rocks" with a least depth of 41 feet is charted at 40°27'~~51.2~~ 49.63" N, 073°50'~~03.8~~ 05.26" W. One hundred percent side scan and one hundred percent multi-beam was acquired over this feature. Survey depths indicate a least depth of 43 feet at 40°27'49.7" N, 073°50'05.4" W. The U.S. Coast Guard placed buoy R "2A" to mark this feature. Survey records concur with the position of 40°27'45.0 N, 073°50'06.6 W as noted in the Notice to Mariners (No. 42/99). The hydrographer recommends removing the charted "shoal soundings on isolated rock or rocks" with a least depth of 41 feet from position at 40°27'~~51.2~~ 49.63" N, 073°50'~~03.8~~ 05.26" W. The hydrographer further recommends the addition of a "shoal sounding on isolated rock or rocks" with a least depth of 43 feet at position 40°27'49.7" N, 073°50'05.4" W. CONCUR

AWOIS #752

DELETE 41' RK
CHART 43' RK

N.5c A charted "dangerous wreck, least depth unknown"at 40°36'~~29.29~~ 21.67"N, 073°25'~~30.35~~ 43.06"W was designated as AWOIS

number 1660. Investigation of this AWOIS item was conducted using 100% side side scan and shallow water multibeam sonar. For furthur information on the investigation, refer to Section M.2. The hydrographer recommends removing the charted "dangerous wreck, least depth unknown." In addition, the hydrographer recommends adding the symbol "~~dangerous wreck, least depth known by sounding only~~" VISIBLE WRECK at position 40°36'~~29.29~~"N, 073°25'~~30.35~~"W with a ~~least depth~~ HEIGHT of ~~6~~ 5 feet.* 20.88 CONCUR WITH 40.12 CLARIFICATION
* SEE SECTION M.2. OF THIS REPORT FOR CHARTING RECOMMENDATION

N.5d An unidentified wreck was observed during side scan sonar operations on DN 285 at position 40°36'14.15"N, 073°25'49.19"W. Side scan contact numbers 2000.0s and 2025.0s positively identify the wreck. For further information on this uncharted wreck, refer to Section M.2. The hydrographer recommends adding symbol "dangerous wreck, depth known by sounding only" on Chart 12326 at position 40°36'14.15"N, 073°25'49.19"W with a sounding of 16 feet. CONCUR WITH CLARIFICATION .SEE SECTION M.2. OF THIS REPORT FOR CHARTING RECOMMENDATION

N.5e A 1,000 meter search radius centered on AWOIS 10448 location (40°35'00.37"N, 073°23'58.44"W) was covered with 100% side scan sonar. No significant side scan sonar contacts were found. Due to operational requirements a second 100% side scan was not conducted. The hydrographer recommends retaining the charted wreck. CONCUR WITH CLARIFICATION SEE SECTION M.1. OF THIS REPORT FOR CHARTING RECOMMENDATION.

N.6 Chart 12352 has fourteen soundings charted in the surveyed area; survey depths agree with 93% of the charted soundings. A sounding of 40 feet is charted at 40°34'49.92"N, 073°24'17.36"W. Survey depths position 45-foot soundings in the immediate area. Agreement with the remaining soundings is excellent, between zero and two feet. CONCUR

N.6a Ambrose Light tower (LLNR 720) has been replaced. See section P.1a for details.

N.6b A charted "dangerous wreck, least depth unknown at 40°36'~~29.29~~ 21.67"N, 073°25'~~30.35~~ 43.06"W was designated as AWOIS number 1660. Investigation of this AWOIS item was conducted using 100% side side scan and shallow water multibeam sonar. For furthur information on the investigation, refer to Section M.2. The hydrographer recommends replacing the charted "dangerous wreck, least depth unknown." with "~~dangerous wreck, least depth known by sounding only~~" VISIBLE WRECK at position 40°36'~~29.29~~"N, 07325'~~30.35~~"W with a ~~sounding~~ HEIGHT of ~~6~~ 5 feet.* 20.88 40.12

* CONCUR WITH CLARIFICATION SEE M.2., PAGE 18 FOR CHARTING RECOMMENDATION

N.6c An unidentified wreck was observed during side scan sonar operations on DN 285 at position 40°36'14.15"N, 073°25'49.19"W. Side scan contact numbers 2000.0s and 2025.0s positively identify the wreck. For further information on this uncharted wreck, refer to Section M.2. The hydrographer recommends adding symbol "dangerous wreck, depth known by sounding only" on Chart 12352 at position 40°36'14.15"N, 073°25'49.19"W with a sounding of 16 feet. CONCUR WITH CLARIFICATION SEE SECTION M.2. OF THIS REPORT FOR CHARTING RECOMMENDATION.

N.6d A 1,000 meter search radius centered on AWOIS 10448 location (40°35'00.37"N, 073°23'58.44"W) was covered with 100% side scan sonar. No significant side scan sonar contacts were found. Due to operational constraints, the second 100% side scan was not conducted. The hydrographer recommends retaining the symbol "dangerous wreck, least depth unknown" at position 40°35'00.37"N, 073°23'58.44"W on Chart 12352. CONCUR WITH CLARIFICATION SEE SECTION M.1. OF THIS REPORT FOR CHARTING RECOMMENDATION

N.7 All soundings from survey S-C906-RU-99 are recommended to supercede charted soundings.

O. ADEQUACY OF SURVEY SEE ALSO EVALUATION REPORT

O.1 The *HALCYON* item investigation failed to locate AWOIS item 10448. The search area was covered with 100% side scan sonar. Refer to section M1 for additional details. It is recommended that the wreck symbol be retained and the charted soundings be superseded by present survey soundings. CONCUR WITH CLARIFICATION SEE SECTION M.1. OF THIS REPORT FOR CHARTING RECOMMENDATION.

O.2 All other item investigations have been resolved for this survey.

O.3 It is recommended that S-C906-RU-99 data supersede all prior surveys in common areas.

P. AIDS TO NAVIGATION

P.1 A comparison of floating aids were made between the detached positions of navigational aids and the largest scale chart of the area.

Nav Aid	Light List #	Light List Position	Survey Position
Ambrose Light	720	PA 40°27.00' N 073°48.00' W	40°27'00.55" N 073° 48' 00.67" W Bearing 140° Distance 15 M

P.1a Ambrose Light Tower (Light List Number 720) has been replaced. A new tower(LLNR 720), described as "one red square on three red piles with large tube in center, worded *AMBROSE*" is located at "PA" 40°27.00'N, 073°48.00'W according to the Local Notice to Mariners. During the survey, it's location was noted to be 040°27'00.55"N, 073° 48'00.67"W bearing 140° at a distance of 15 meters.

P.1b All other navigational aids adequately serve the apparent purpose for which they were established. All navigational aids were considered "on station".

P.2 There were no submarine or overhead pipelines, cables, tunnels, bridges, or ferry routes found in the survey area.

Q. STATISTICS

Q.1a Lineal Nautical Miles of Sounding Lines. 80

Q.1b Lineal Nautical Miles of Side Scan Sonar 31

Q.1c Square Nautical Miles of Hydrography 1.4

Q.2a Days of Production 2

Q.2b Number of detached positions. 4

Q.2c Bottom Samples 0

Q.2d Velocity Casts 7

Q.2e Tide Stations 0

R. MISCELLANEOUS SEE ALSO EVALUATION REPORT

R.1 A general shoaling trend is occurring north of the Stapelton Pier at 40°37'48"N, 074°04'14"W. In addition, the 36-foot contour in this area is encroaching seaward on a bearing of 090° true and a distance of 150 meters from its currently charted position. See Appendix A for

further information.

No evidence of silting or magnetic anomalies were detected during this survey. No unusual submarine features were observed during this survey.

R.2 Bottom samples were not required per project instructions.

S. RECOMMENDATIONS

AWOIS 10448 was not located. A second 100% side scan sonar is required for item resolution. The hydrographer recommends a second 100% side scan sonar run on a north south orientation to disprove the item. CONCUR

T. REFERRAL TO REPORTS

A copy of the Coast Pilot Report, User Evaluation and Chart Inspection reports are included in the Separates.

This report and the accompanying field sheets are respectfully submitted.

Sean Charles Rooney
for Survey Technician
NOAA Ship RUDE

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
Office of NOAA Corps Operations
NOAA Ship RUDE S-590
439 W. York Street
Norfolk, VA 23510-1114
October 28, 1999

Commander
First Coast Guard District
Aids to Navigation Office
408 Atlantic Avenue
Boston, Massachusetts 02110-3350

REPORT OF DANGER TO NAVIGATION

Dear Sir:

The NOAA Ship RUDE has recently completed a Field Examination survey from Fire Island, New York to Staten Island, New York:

Hydrographic Survey Registry No.	F00455
State	New York
General Locality	North Atlantic Ocean
Sublocality	Fire Island to Staten Island
Project Number	S-C906-RU

During the course of multibeam and sidescan sonar operations, three dangers to navigation were discovered which merit immediate publication in to the Local Notice to Mariners. This information affects the following chart(s):

Chart 12327	92nd ed, December 20, 1997
Chart 12333	30th ed, December 13, 1997
Chart 12334	63rd ed, December 6, 1997
Chart 12326	46th ed, November 14, 1999
Chart 12352	27th ed, February 3, 1996

Feature	Depth*(feet)	Latitude (NAD83)	Longitude (NAD 83)	Charts Affected
Wreck	16	40° 36' 14.15" N	073° 25' 49.19" W	12326, 12352
Wreck	-6	40° 36' 20.88" N	073° 25' 40.12" W	12326, 12352

The 36-foot contour is encroaching seaward on a bearing of 090° true and a distance of 150 meters from its currently charted position. This affects charts 12327, 12333, 12334.

* Updated depths are reduced to feet at MLLW using predicted tides and should be viewed as preliminary information, subject to office review.

Contact either of the following personnel for further information:

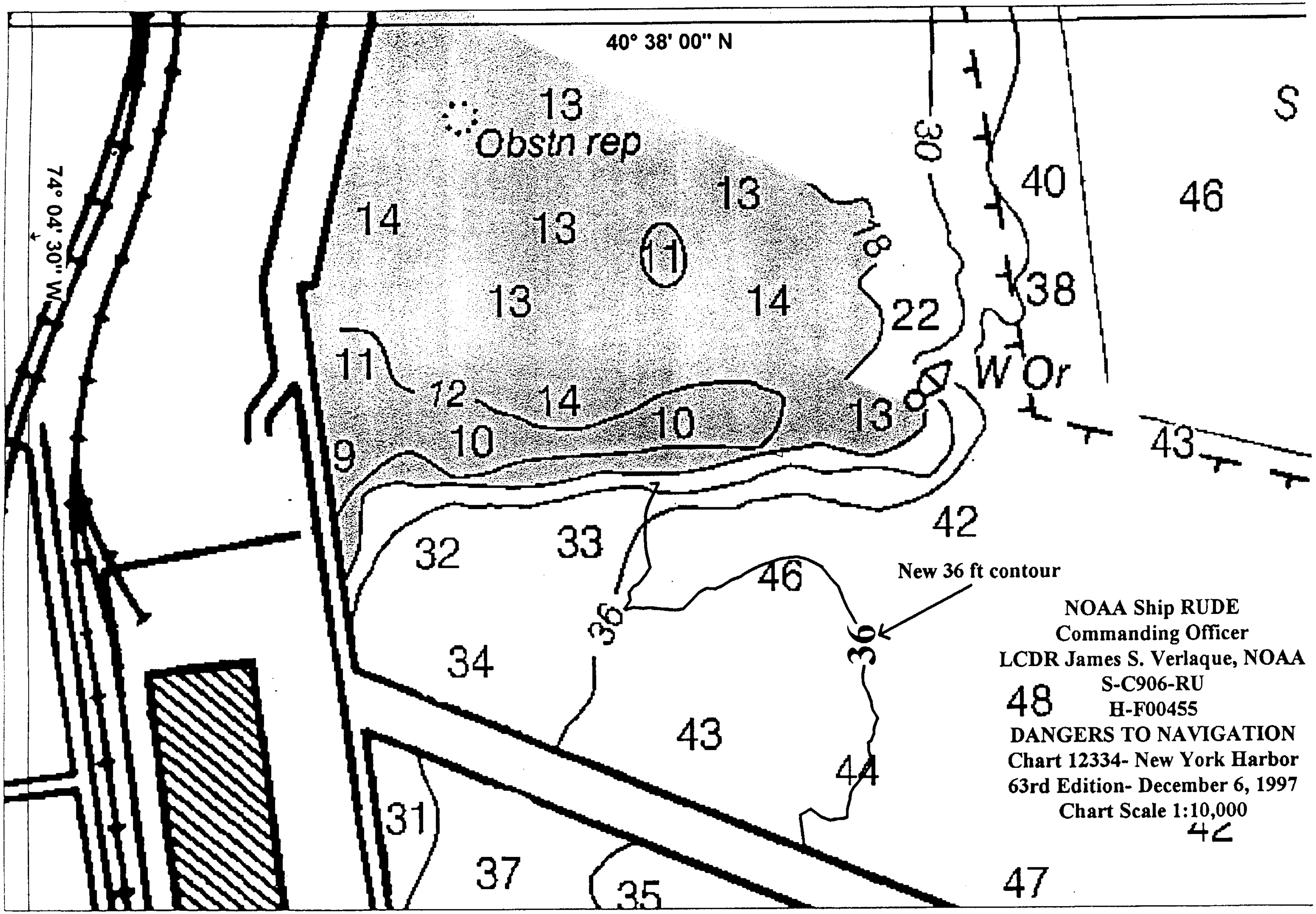
Commanding Officer
NOAA Ship RUDE (757) 615-6465
439 West York Street
Norfolk, VA 23510-1145

Chief, Atlantic Hydrographic Branch
Atlantic Marine Center (757) 441-6746
439 W. York Street
Norfolk, VA 23510-115

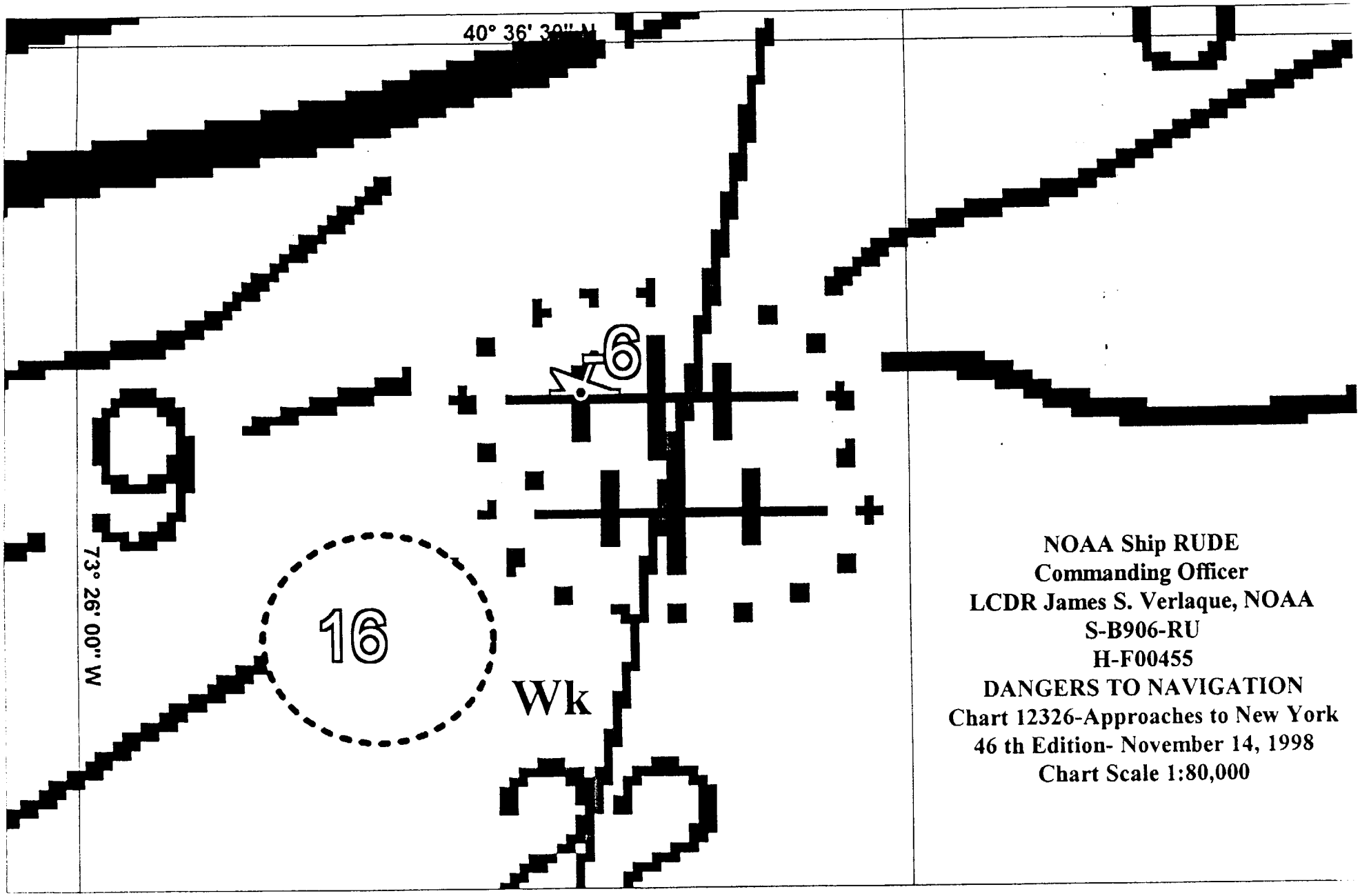
Sincerely,

Lieutenant Commander James S. Verlaque, NOAA
Commanding Officer, NOAA Ship RUDE

Attachment
cc: AHB, NIMA, N/CS, N/CS3



40° 38' 00" N
74° 04' 30" W
Obstn rep
W Or
New 36 ft contour
NOAA Ship RUDE
Commanding Officer
LCDR James S. Verlaque, NOAA
S-C906-RU
H-F00455
DANGERS TO NAVIGATION
Chart 12334- New York Harbor
63rd Edition- December 6, 1997
Chart Scale 1:10,000



NOAA Ship RUDE
Commanding Officer
LCDR James S. Verlaque, NOAA
S-B906-RU
H-F00455
DANGERS TO NAVIGATION
Chart 12326-Approaches to New York
46 th Edition- November 14, 1998
Chart Scale 1:80,000

APPENDIX K

APPROVAL SHEET

LETTER OF APPROVAL
FOR
DESCRIPTIVE REPORT TO ACCOMPANY
HYDROGRAPHIC SURVEY, F00455
S-C906-RU-99
FIELD NUMBER: RU-5-4-99
SCALE: 1:5,000
NOAA SHIP RUDE
Commanding Officer
LCDR James S. Verlaque, NOAA

Field operations contributing to the accomplishment of this Field Examination 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 is more than adequate to support survey H10867 data in common areas. This survey is considered complete and adequate for nautical charting.

James S. Verlaque, LCDR, NOAA
Commanding Officer
NOAA Ship RUDE

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
Silver Spring, Maryland 20910

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: February 10, 2000

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: S-C906-RU-99
HYDROGRAPHIC SHEET: F00455

LOCALITY: North Atlantic Ocean-
Fire Island to Staten Island
TIME PERIOD: October 12-13, 1999

TIDE STATION USED: 851-8750 The Battery, NY
Lat. 40° 42.0'N Lon. 74° 0.9'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.457 meters

TIDE STATION USED: 853-1680 Sandy Hook, NJ
Lat. 40° 28.0'N Lon. 74° 0.6'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: ATL509, ATL510, ATL517 & NY18.

Refer to attachments for zoning information.

Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time.

For ----------
CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

F00455

Name on Survey	A On Chart No. 12326, 12327, 12334	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	
JONES BEACH ISLAND (title)	X		X							1
NEW YORK (title)	X		X							2
NORTH ATLANTIC OCEAN	X		X							3
STAPLETON	X		X							4
STATEN ISLAND	X		X							5
THE NARROWS	X		X							6
										7
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										24
										25

Approved:

Dennis J Romesburg

Chief Geographer

MAY 15 [illegible]

NOAA FORM 76-155 SUPERSEDES C&GS 197

11/29/2000

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: F00455

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	86748
NUMBER OF SOUNDINGS	86748

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	5.0	04/20/2000
VERIFICATION OF FIELD DATA	63.0	10/06/2000
QUALITY CONTROL CHECKS	0.0	
EVALUATION AND ANALYSIS	7.0	
FINAL INSPECTION	64.0	11/01/2000
COMPILATION	109.0	11/20/2000
TOTAL TIME	248.0	

ATLANTIC HYDROGRAPHIC BRANCH APPROVAL 09/15/2000

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT FOR F00455 (1999)

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
MicroStation 95, version 5.05
I/RAS B, version 5.01
CARIS HIPS/SIPS

The smooth sheet was plotted using a Hewlett Packard DesignJet 2500CP plotter.

H. CONTROL STATIONS

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD 83). Office processing of this survey is based on these values. Four page size plots have been annotated with tick marks showing the computed mean shift between NAD 83 and the North American Datum of 1927 (NAD 27).

(1) To place sheet 1 of 4 (scale 1:5,000) on NAD 27, move the projection lines 0.367 seconds (11.306 meters or 2.26 mm at the scale of the survey) north in latitude, and 1.553 seconds (36.517 meters or 7.30 mm at the scale of the survey) east in longitude.

(2) To place sheet 2 of 4 (scale 1:10,000) on NAD 27, move the projection lines 0.367 seconds (11.326 meters or 1.13 mm at the scale of the survey) north in latitude, and 1.556 seconds (36.596 meters or 3.66 mm at the scale of the survey) east in longitude.

(3) To place plot 3 of 4 (scale 1:2,500) on NAD 27, move the projection lines 0.387 seconds (11.930 meters or 4.77 mm at the scale of the survey) north in latitude, and 1.517 seconds (35.735 meters or 14.29 mm at the scale of the survey) east in longitude.

(4) To place sheet 4 of 4 (scale 1:5,000) on NAD 27, move the projection lines 0.374 seconds (11.542 meters or 2.31 mm at the scale of the survey) north in latitude, and 1.492 seconds (35.065 meters or 7.01 mm at the scale of the survey) east in longitude.

I. SHORELINE

Brown shoreline originates with National Ocean Service (NOS) chart 12334 64th Edition, Aug. 12/00 and is for orientation purposes only.

L. COMPARISON WITH PRIOR SURVEYS

H9568 (1975) 1:10,000

Prior survey comparison was done in the area of the present survey not covered with 200% side scan sonar. This is in accordance with section 4. of the memorandum titled Changes to Hydrographic Survey Processing, dated May 24, 1995. H09568 (1975) covers the search area of Automated Wreck and Obstruction Information Systems (AWOIS) Item #10448 and is discussed below.

AWOIS Item #10448, a charted dangerous sunken wreck, Mast PA, in Latitude 40°35'00.37"N, Longitude 73°23'58.44"W, originates with Notice to Mariners 39 of 1962 (NM 39/62). The item was not investigated during 1975 survey operations. The investigation for this feature was not completed during 1999 survey operations. Present survey depths are 1 foot shoaler than prior survey depths. No mast was seen during 1999 survey operations. It is recommended that the charted dangerous sunken wreck, Mast PA, be revised to a dangerous sunken wreck, ED.

Except as noted above the present survey is adequate to supersede the prior survey within the common area.

N. COMPARISON WITH CHARTS

12326 (47th Edition, Jan. 22/00)
12327 (93rd Edition, Jan. 15/00)
12333 (30th Edition, Dec. 13/97)
12334 (63rd Edition, Dec. 6/97)
12352 (27th Edition, Feb. 3/96)

1. Hydrography

The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in sections N. and O. of the Descriptive Report. Attention is directed to the following:

A charted dangerous sunken wreck, in Latitude 40°36'18.00"N, Longitude 73°25'37.00"W, originates with an unknown source. No evidence of the wreck was observed during side scan sonar operations. The wreck is considered disproved. It is recommended that the charted dangerous sunken wreck be deleted from all affected charts.

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

2. Dangers to Navigation

A Danger to Navigation report was submitted to Commander, First Coast Guard District, Aids to Navigation Office, Boston, MA. for inclusion in the Local Notice to Mariners, and to the Marine Chart Division, N/CS3x1, Silver Spring, Maryland. A copy of this report is appended to the Descriptive Report.

O. ADEQUACY OF SURVEY

This is an adequate hydrographic/side scan sonar survey. Additional field work is recommended for items discussed in sections L. and N. of this report.

R. MISCELLANEOUS

Chart compilation was done by Atlantic Hydrographic Branch personnel, in Norfolk, Virginia. Compilation data will be forwarded to Marine Chart Division, Silver Spring, Maryland. The following NOS Charts were used for compilation of the present survey:

12326 (47th Edition, Jan. 22/00)
12334 (64th Edition, Aug. 12/00)
12352 (28th Edition, May 6/00)

Robert Snow
Cartographic Technician
Verification of Field Data
Evaluation and Analysis

APPROVAL SHEET
F00455

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: 11/2/00

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: 11/2/00

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

****

Final Approval:

Approved: Samuel P. De Bow, Jr. Date: January 29, 2001

Samuel P. De Bow, Jr.
Captain, NOAA
Chief, Hydrographic Surveys Division

73° 26' 00" 73° 25' 45" 73° 25' 30"

73°25'45"W

NAD 27 — 40°36'30"N

40° 36' 30"

CHECKED BY: RS
4/27/00

(5)

NORTH ATLANTIC OCEAN

40° 36' 15"

16 MK

F00455
NEW YORK
NORTH ATLANTIC OCEAN
JONES BEACH ISLAND
SCALE: 1:5,000
OCTOBER 1999
NORTH AMERICAN DATUM OF 1983
SOUNDINGS IN FEET AT MLLW
SHEET 1 OF 4
AWOIS ITEM *1660

40° 36' 00"

73° 26' 00" 73° 25' 45" 73° 25' 30"

73° 24' 30"
73° 24' 00"
73° 23' 30"
73° 23' 00"
73° 22' 30"
40° 35' 30"
40° 35' 00"
40° 34' 30"

73°23'00"W
NAD 27
40°35'30"N

CHECKED BY: RS
4/27/00

NORTH ATLANTIC OCEAN

F00455
NEW YORK
NORTH ATLANTIC OCEAN
JONES BEACH ISLAND
SCALE: 1:10,000
OCT. 1999
NORTH AMERICAN DATUM OF 1983
SOUNDINGS IN FEET AT MLLW
SHEET 2 OF 4
AWOIS ITEM *10448

73° 50' 20" 73° 50' 10" 73° 50' 00" 73° 49' 50" 73° 49' 40" 73° 49' 30" 73° 49' 20" 73° 49' 10"

40° 28' 00"

NORTH ATLANTIC OCEAN

73° 49' 30"W
NAD 27
40° 27' 50"N

CHECKED BY: RS
4/27/00

40° 27' 50"

40° 27' 40"

"2A" BELL

F00455
NEW YORK
NORTH ATLANTIC OCEAN
IN THE VICINITY OF OLD AMBROSE LIGHT
SCALE: 1:2,500
OCT. 1999
NORTH AMERICAN DATUM OF 1983
SOUNDINGS IN FEET AT MLLW
SHEET 3 OF 4
AWOIS ITEM #752

40° 27' 30"

73° 50' 20" 73° 50' 10" 73° 50' 00" 73° 49' 50" 73° 49' 40" 73° 49' 30" 73° 49' 20" 73° 49' 10"

74° 04' 15" 74° 04' 00" 74° 03' 45" 74° 03' 30" 74° 03' 15"

40° 38' 00"

THE NARROWS

40° 37' 45"

STAPLETON

STAPLETON PIER

STATEN ISLAND

F00455
NEW YORK
THE NARROWS
IN THE VICINITY OF STAPLETON PIER
SCALE: 1:5,000
OCT. 1999
NORTH AMERICAN DATUM OF 1983
SOUNDINGS IN FEET AT MLLW
SHEET 4 OF 4

74°0415"W
NAD 27
40°37'30"N

CHECKED BY: RS
4/27/00

40° 37' 30"

74° 04' 15" 74° 04' 00" 74° 03' 45" 74° 03' 30" 74° 03' 15"

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. F00455

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
12334	11/8/00	[signature]	Full ~~Part Before~~ After Marine Center Approval Signed Via APPLICATION OF
		NORRIS WIKE	Drawing No. CURVES AND SOUNDINGS FROM SMOOTH
			SHEET
12352	11/17/00	[signature]	Full ~~Part Before~~ After Marine Center Approval Signed Via APPLICATION OF
			Drawing No. CURVES AND SOUNDINGS FROM SMOOTH
			SHEET
12326	11/21/00	[signature]	Full ~~Part Before~~ After Marine Center Approval Signed Via APPLICATION OF
			Drawing No. CURVES AND SOUNDINGS FROM SMOOTH
			SHEET THRU 12352
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
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			Full Part Before After Marine Center Approval Signed Via
			Drawing No.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.