

H-DRG

H10530

NOAA FORM 78-35A

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

## DESCRIPTIVE REPORT

*Type of Survey* . HYDROGRAPHIC/SIDE SCANN SONAR

*Field No.* ..... RU-10-2-94 .....

*Registry No.* ..... H-10530 .....

### LOCALITY

*State* ..... MASSACHUSETTS .....

*General Locality* . BUZZARDS BAY .....

*Sublocality* ..... 3.0 NM. SSW. OF SCOTICUT .....

NECK

19 94

### CHIEF OF PARTY

..... LCDR. D. R. HERLIHY, NOAA .....

### LIBRARY & ARCHIVES

*DATE* ..... JUL 19 1995 .....

REGISTER NO.  
  
H-10530

**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-10-2-94

State Massachusetts

General locality Buzzards Bay

Locality 3.0 NM SSW of Sconticut Neck

Scale 1:10,000 Date of survey April 7 - Sept. 6, 1994

Instructions dated February 23, 1994 Project No. OPR-B616-RU-94

Vessel NOAA Ship RUDE S590

Chief of party LCDR D.R. Herlihy

Surveyed by LCDR D.R. Herlihy, LTJG R.T. Brennan, ENS T.A. Haupt, ENS S.R. Williams

Soundings taken by: (echo sounder, hand lead, pole) Raytheon DSF-6000N Echosounder & ST E.T. Hardison

Graphic record scaled by DRH, RTB, TAH, SRW & ETH

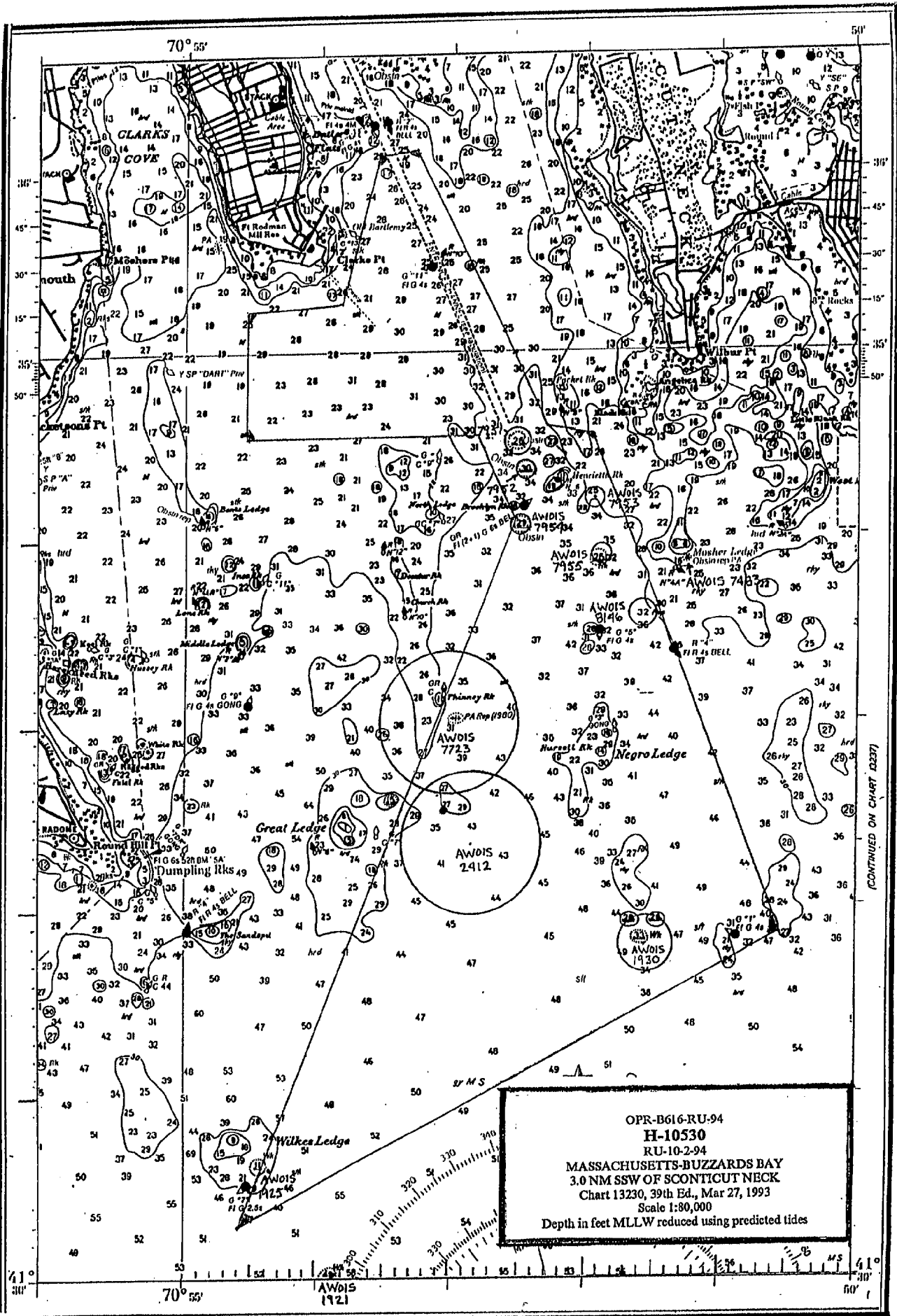
Graphic record checked by DRH, RTB, TAH, SRW & ETH

Protracted by NA Automated plot by ENCAD NOVA JET III PLOTTER

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 was used as the primary sounding instrument, however,  
as warranted, the SEABAT 9001 shallow-water multi-beam sonar system  
was employed for distinct item investigations and is documented  
as such.  
Notes in the Descriptive Report were  
made in red during office processing  
AWOIS and SURF 8/95 RWD



CONTINUED ON CHART 13231

OPR-B616-RU-94  
**H-10530**  
 RU-10-2-94  
 MASSACHUSETTS-BUZZARDS BAY  
 3.0 NM SSW OF SCONTIGUT NECK  
 Chart 13230, 39th Ed., Mar 27, 1993  
 Scale 1:80,000  
 Depth in feet MLLW reduced using predicted tides

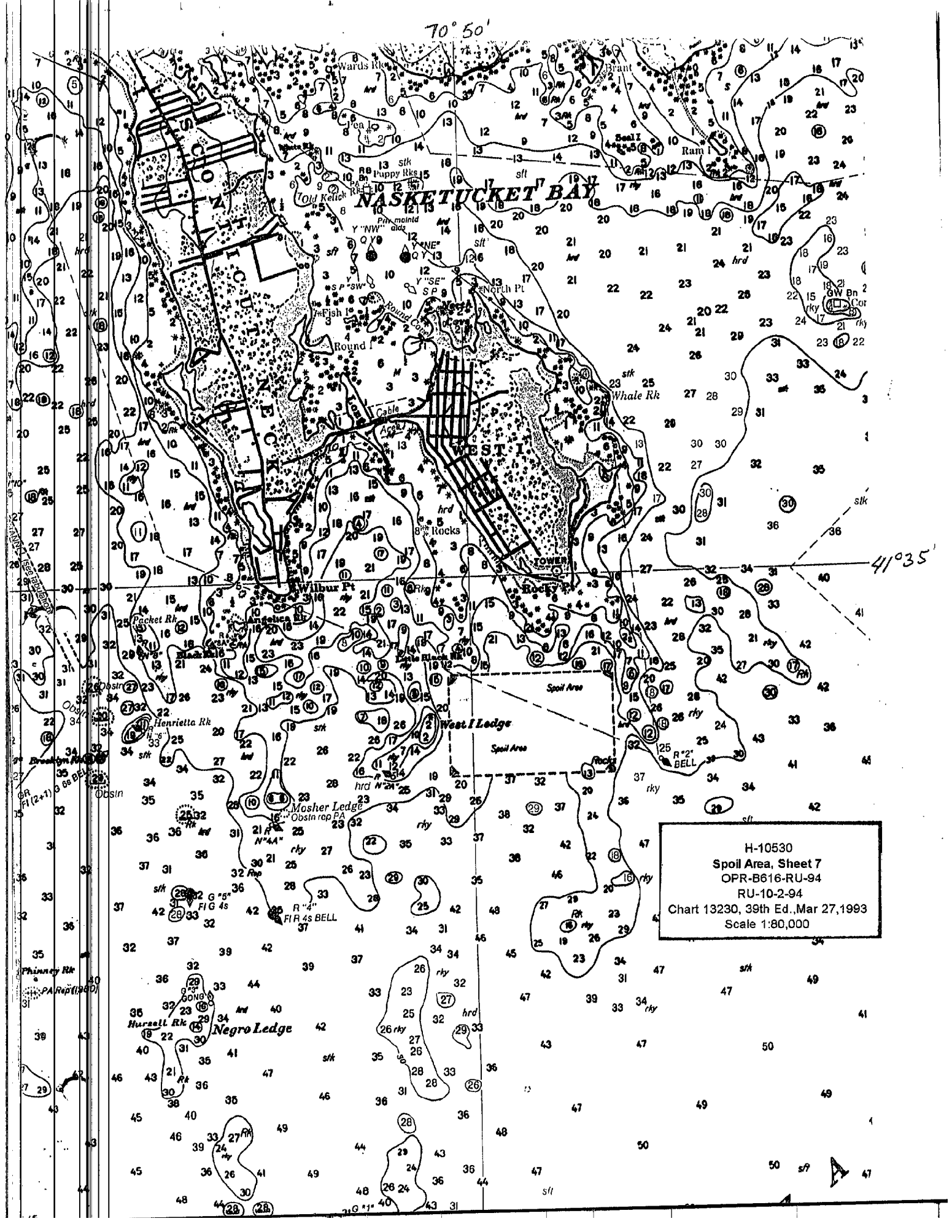
SOUNDINGS IN FEET

70° 50'

# NASKETUCKET BAY

41° 35'

H-10530  
 Spoil Area, Sheet 7  
 OPR-B616-RU-94  
 RU-10-2-94  
 Chart 13230, 39th Ed., Mar 27, 1993  
 Scale 1:80,000



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**A. PROJECT**

**A.1** This survey was conducted in accordance with Hydrographic Project Instructions OPR-B616-RU, Buzzards Bay, Nantucket and Vineyard Sounds, Massachusetts.

**A.2** The original instructions are dated February 23, 1994.

**A.3** There has been two changes to these instructions:

- Change No. 1 dated March 9, 1994
- Change No. 2 dated July 29, 1994

**A.4** This Descriptive Report covers the navigable area survey conducted on sheet "T" of project OPR-B616-RU/WH, approaches to the New Bedford Entrance Channel, as specified by the Project Instructions.

**A.5** This portion of project OPR-B616-RU/WH responds to requests from the Northeast Marine Pilots for updated chart information and identification of shoals and obstructions in the approaches to New Bedford, Massachusetts.

**B. AREA SURVEYED**

This survey encompasses an irregularly-shaped area in Buzzards Bay, Massachusetts centered approximately 3.0 nautical miles south southwest of Sciticut Neck, which comprises the main approaches to the New Bedford Entrance Channel, including the designated Spoil Area located just south of West Island. This survey junctions with survey H-10461 to the south, conducted by RUDE during the 1993 field season. The exact boundaries of the Navigable Area Survey (NAS) are delineated by the following coordinates, starting at the southeastern-most corner and proceeding clockwise:

41°31'50"N	070°50'26"W
41°30'19"N	070°54'36"W
41°34'05"N	070°52'32"W
41°34'35"N	070°52'50"W
41°34'35"N	070°54'35"W
41°35'15"N	070°54'35"W
41°35'15"N	070°53'49"W
41°36'01"N	070°53'34"W
41°36'08"N	070°53'13"W
41°34'35"N	070°52'19"W
41°34'35"N	070°52'03"W
41°31'50"N	070°50'26"W

The exact boundaries for the West Island Spoil Area are delineated by the the following coordinates, starting at the norhtwest corner and proceeding clockwise:

41°34'30"N	070°50'09"W
41°34'30"N	070°49'03"W
41°34'00"N	070°49'03"W
41°34'00"N	070°50'09"W
41°34'30"N	070°50'09"W

Data collection for this survey began on April 7, 1994 (DN 097) and concluded on September 6, 1994 (DN 249).

### **C. SURVEY VESSELS**

**C.1** The following vessels were used during this survey:

Vessel	EDP Number	Primary Function
NOAA Ship RUDE (S590)	9040	Hydrography, Side Scan Operations and SEABAT Investigations
RUDE Launch (RU3)	1290	Diving Operations
AHP Launch 770	770	Hydrography and Diving Operations

C.2 During the ship's January 1994 dry-dock period, RUDE was outfitted with a pivoting armature to carry the transducers for the Reson SEABAT 9001 shallow-water multi-beam sonar system. This armature was mounted on the port side of the ship, approximately midway along the ship's length. The arm was designed to be detachable and ride in a cradle on the boat deck when not in use for extended periods. Since the transducers were not designed for permanent deployment, the arm was typically installed only when the SEABAT system was to be used, and rotated into the down, or operating position, only during times of data acquisition.

#### D. AUTOMATED DATA ACQUISITION AND PROCESSING

D.1 Survey data acquisition and processing were accomplished using the HDAPS system with the following software versions:



Program	Version	Dates Used
BACKUP	2.00	097-249
BLKEDIT	2.02	097-249
CARTO	2.11	097-102
	2.13	102-249
CLASSIFY	1.05	097-249
CONTACT	2.32	097-102
	2.34	102-249
CONVERT	3.54	097-249
DAS_SURV	6.63	097-102
	6.70	102-249
DP	2.14	097-249
EXCESS	4.21	097-249
FILESYS	3.21	097-102
	3.24	102-249
GRAFEDIT	1.06	097-249
LSTAWOIS	3.06	097-102
	3.07	102-249
MAN_DATA	2.01	097-249
OSWEGO	3.30	097-249
NEWPOST	6.01	097-249
PLOTALL	2.25	097-102
	2.27	102-249
PREDICT	2.01	097-249
PRESURV	7.07	097-102
	7.08	102-249
QUICK	2.04	097-102
	2.05	102-249
RAMSAVER	1.02	097-249
REAPPLY	2.10	097-249
ZOOMEDIT	2.22	097-102
	2.24	102-249

D.2 Other software includes program **VELOCITY 2.10**, dated March 15, 1994, which generates sound velocity corrector tables for HDAPS data, including the program's **REFRACT** option, which corrects SEABAT multiple slant range depths for sound velocity and position of soundings (cross track distance) for refraction.

D.3 SEABAT multi-beam data were acquired exclusively on the SEABAT 9001 data acquisition 486 personal computer, using the Coastal Oceanographics **HYPACK** software package (Version 1.0, dated March 1, 1994), receiving gyro and predicted tide input from HDAPS and direct heave/roll/pitch data from the Datawell HRP sensor and positioning input from the Ashtech GPS receivers. SEABAT data was processed on one of two personal computers equipped with the NOAA **LSTRUD** (Version 2.2, dated July 15, 1994) post-processing software. A single least depth was generated for each SEABAT investigation and later entered into HDAPS via the **MANUAL DATA ENTRY** program.

**E. SONAR EQUIPMENT**

E.1 Side scan sonar operations were conducted using an EG&G Model 260 image corrected side scan sonar recorder and a Model 272-T single frequency towfish. All side scan operations were conducted from the RUDE (vessel # 9040). The following side scan equipment was utilized on the dates specified:

Equipment Type	Serial Number	Dates Used
Recorder	10884	161 - 170
	12106	171 - 249
Towfish	16696	161 - 187
	16700	188 - 198
	16696	199 - 249

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

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

E.4 a. The 100-meter, 75-meter and 50-meter range scales were used for this survey. Choice of range scale was based primarily on water depth and the goal of maximizing area coverage while providing optimum contact resolution.

Negro Ledge and the northern portion of this survey (north of the "bottle-neck" formed by the survey limits), contained depths shoaler than those found in the rest of the survey. The 75-meter and 50-meter range scales were utilized in these areas to attain the proper side scan coverage. All side scan coverage was ultimately checked with a smooth plot to ensure proper overlap between consecutive lines.

The current Field Procedures Manual (FPM) specification was used to determine maximum line spacing with Differential GPS:

$$LS_{\max} = 2RS - 2EPE_{\max}$$

where: RS = range scale (50, 75 or 100 meters)

EPE = expected position error

For a 1:10,000-scale survey, a maximum EPE of 15 meters is permitted. Using this value in the above equation, a maximum line spacing of 170 meters for RS = 100 meters, 120 meters for RS = 75 meters and 70 meters for RS = 50 is authorized. Data collected with an EPE of 15 or greater was either rejected or smoothed in the post processing phase of the survey, so the maximum line spacing was never exceeded. In addition, the actual line spacing for the side scan sonar coverage acquired with the 100-meter range scale during this survey was 160 meters. This line spacing was chosen to give an added margin on coverage and to allow an even number of hydro lines to be run in between each mainscheme line.

The actual line spacing for the 75 and 50-meter range scales were the authorized 120 meters and 70 meters respectively.

Erroneous Expected Position Error (EPE) values in excess of the 15 meters may be seen throughout the raw data printouts, most typically ranging between 408.2 and 409.2. These values were not considered in the line spacing calculations shown above due to their acceptable, corresponding Horizontal Dilution of Precision (HDOP) values. These excessive values were investigated in the HDAPS Graphic Sounding Edit program and consistently found to be erroneous when accompanied by an acceptable HDOP value. The high EPE values appear to be caused by an HDAPS software deficiency.

b. Confidence checks were obtained by noting recognizable bottom characteristics at the edges of the sonar range scale in use. Features such as sand waves, buoy anchors and trawl door scours were commonly used for this purpose.

c. Two hundred percent side scan sonar coverage was completed for the majority of this survey. There were two areas within the sheet limits in which the ship could not safely conduct side scan sonar operations due to shoal water depths and restricted room for maneuverability. The first is a small area surrounding Henrietta Rock (see first and second 100% smooth swath plots for actual coverage). HDAPS Sheet 50 was created to delineate the area surrounding Henrietta Rock, and was echo sounder developed at 10 and 5 meter line spacing as necessary. The exact boundaries of HDAPS Sheet 50 are as follows, starting at the northwest corner and proceeding clockwise:

41°34'45.56"N	070°52'28.16"W
41°34'45.56"N	070°51'44.90"W
41°34'06.73"N	070°51'44.90"W
41°34'06.73"N	070°50'28.16"W
41°34'45.56"N	070°50'28.16"W

The second location in which ship side scan sonar operations was deemed unsafe is the designated Spoil Area just south of West Island. These areas were fully developed with echo sounder at line spacing no greater than 10 meters and often as tight as 5 meters.

d. Small areas of the bottom in this survey consisted of soft silt and sand. Due to the inherent characteristics of this bottom composition and the lack of contacts found there, there are segments of data with gaps between confidence checks. It is the opinion of the hydrographer that this data is acceptable due to an abundant number of confidence checks seen before and after these barren areas.

All side scan sonar records acquired during this survey were clear with excellent returns. There were several instances of the side scan sonar towfish becoming entangled in lobster trap buoy lines, temporarily whitening out the sonogram. On these occasions, the towfish was brought on board, inspected and serviced as necessary, with all affected data subsequently being rejected and re-run.

e. The towfish was deployed exclusively from the stern during this survey.

**E.5** As authorized by the Project Instructions (6.15.1), a 400-meter grid was developed to overlay this survey. The most significant contacts within each of these 400-meter "cells" were investigated by intensive echo sounder investigation. Tight line spacing, routinely as close as five meters, was used to conduct these investigations. Contacts warranting more precise depth determination were investigated using the SEABAT 9001 multi-beam sonar system. The data for these investigations are summarized in the Development Abstract and SEABAT Development Addendum in Section N of this report.

**E.6** Overlap was checked on line using the real-time swath plot, with the edited swath plot used to identify holidays.

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

**F.1** All standard hydrographic soundings were acquired using a Raytheon 6000N Digital Survey Fathometer (DSF-6000N) and an Innerspace Model 448 Survey Fathometer. Vessels, equipment serial numbers and corresponding dates used are as follows:

<b>Vessel Number</b>	<b>Equipment Type</b>	<b>Serial Number</b>	<b>Dates Used</b>
RUDE S590	DSF-6000N	A107	097 - 098 161 - 249
AHP LAUNCH 770	Innerspace Model 448	188	216, 229, 236 & 243

**F.2** When diver investigations were conducted, least depths were measured with a 3-D Instruments, Inc. precision direct drive depth gauge:

0 - 70 fsw (feet salt water) s/n 201637 12

This gauge was checked each day it was used by comparing it with a leadline. Depths recorded by the leadline varied with that recorded from the pneumatic depth gauge at times by more than the allowed 0.5 feet. This disparity can be attributed to wire angles in the leadline (approximately 10°), choppy sea states and significant currents on the day dive operations were conducted. Calibration and check documentation for this equipment is found in Separate IV.\*

*\* Data filed with the original field records*

**F.3** There were no faults in sounding equipment which affected the accuracy or quality of the data.

**F.4** Both high (100 kHz) and low (24 kHz) frequency sounding data were recorded during data acquisition. Only high frequency soundings were plotted.

**F.5** As authorized by the Project Instructions, the Reson SEABAT 9001 shallow-water multi-beam sonar system was used to determine 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 and updates at a rate of 7 times per second in 25 meters of water, thus acquiring 420 soundings per second. SEABAT slant ranges and quality factors for each of the 60 beams are acquired through the Coastal Oceanographics **HYPACK** data acquisition system on an IBM-compatible 486 personal computer.

Prior to beginning SEABAT data collection on this survey, a RUDE SEABAT-specific offset table/file was created to define the physical relationship between the various components that comprise the system, including the SEABAT transducer head,

Hippy sensor and GPS antenna. In addition, this offset file contains heave, roll and pitch biases determined during a "Patch Test" conducted in Buzzards Bay on July 1, 1994.

A copy of the SEABAT offset table is contained in Separate III.\*

*\* Data filed with the original field records*

During post-processing using the LSTDRUD software, SEABAT position and Hippy data are first viewed graphically and edited as necessary for data quality. Once this has been accomplished, the software attaches a position to each of the SEABAT data records. The various heading, Hippy 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 this 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.

Once the sounding data has been reviewed and edited as necessary, the LSTDRUD software selects a subset of the approximate 14,000 minimum depths contained within the total data set being processed, following which a file containing the 15 least depths found within the subset of 14,000 minimum depths is generated. It is from this file that the single least depth for each SEABAT investigation was obtained for manual data entry into HDAPS.

A summary of all SEABAT investigations conducted for this survey is contained in the SEABAT 9001 Development Addendum in Section N. Copies of all 15 least depth listings associated with these investigations are included in Separate V.\*

*\* Data filed with the original field records*

**G. CORRECTIONS TO SOUNDINGS**

**G.1 a.** The velocity of sound through water was determined using an Odom Digibar Sound Velocity Probe (s/n 169). A Data Quality Assurance Test was conducted before each velocity cast to ensure the meter was operating within tolerance. Generally, velocity casts were conducted weekly with few exceptions.

All data were processed using program **Velocity 2.10**. The computed velocity correctors were entered into the HDAPS sound velocity table and applied on line to both high and low frequency soundings. SEABAT refraction correctors were created using the **REFRACT** subroutine and applied during post-processing. The sound velocity correctors applied to this survey are based on the casts recorded on the following dates:

Cast Number	DN	Latitude	Longitude	HDAPS Table	Applied to Days
5	102	41°30.5'N	070°54.0'W	5	097-104
13	164	41°29.8'N	070°52.3'W	13	161-168
15	182	41°31.0'N	070°52.9'W	15	179-182
18	195	41°30.0'N	070°53.4'W	18	195-196
19	199	41°30.5'N	070°52.4'W	19	199-203
20	206	41°28.7'N	070°51.7'W	20	208-210
22	213	41°29.9'N	070°53.1'W	22	213-217
42	213	41°29.9'N	070°53.1'W	42	216
					← LAUNCH 770
24	221	41°30.3'N	070°53.3'W	24	221-224
25	227	41°30.0'N	070°52.7'W	25	227-231
45	227	41°30.0'N	070°52.7'W	45	229
					← LAUNCH 770
26	237	41°30.2'N	070°52.3'W	26	234-236
46	237	41°30.2'N	070°52.3'W	46	236
					← LAUNCH 770
28	243	41°30.0'N	070°52.9'W	28	241-243
48	243	41°30.0'N	070°52.9'W	48	243
					← LAUNCH 770
30	249	41°30.4'N	070°52.5'W	30	249



b. There was no variation in either the DSF-6000N or Innerspace Model 448 instrument initial.

c. No instrument correctors to the DSF-6000N or Innerspace Model 448 were required.

d. A dual leadline comparison with the DSF-6000N was conducted during special project S-B902 in Long Island Sound:

DN 160 at 41°00'25"N and 070°32'59"W (27 ft depths)

The greatest variation between leadline and DSF soundings was 0.1 meters. Considering the ship's motion and the wire angle in the leadline from current (approximately 5°), this is excellent agreement and provides an adequate check that the echo sounder was functioning properly. Data from these comparisons can be found in Separate IV.\*

*\* Data filed with the original field records*

Two types of lead line were used during the leadline to DSF-6000N comparison. The starboard leadline was a steel surveyor's tape graduated in feet with a fixed 5lb weight at its end. A leadline corrector of 0.0 was assumed for this leadline. The port leadline was a traditional leadline made of cotton tiller with a stainless steel cable core. This lead line had a corrector of 0.0 up to its 30 foot mark, yielding an average leadline corrector of 0.0 to be applied in the comparison with the DSF-6000N.

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

f. 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 height above the waterline was determined for this point. The ship's static draft was thereby calculated to be exactly 2.12 meters (7.0 feet). This draft corrector was applied to sounding data collected by the RUDE via HDAPS Offset Table #1. The static draft of Launch 770 was determined to be 0.3 meters (1.0 feet) by the NOAA Ship MT. MITCHELL on September 27, 1993. This draft corrector was applied to sounding data collected by Launch 770 via HDAPS Offset Table #2.

**g.** Settlement and squat correctors for the RUDE were determined on the Elizabeth River, Norfolk, Virginia on March 3, 1993. 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 toward and away runs were averaged and applied to soundings collected by the RUDE through HDAPS Offset Table #1. Settlement and squat correctors for Launch 770 were determined by the NOAA Ship MT. MITCHELL in St. Thomas, USVI on September 27, 1993 using a similar procedure.

**h.** Heave data were acquired by a Datawell heave, roll and pitch sensor (s/n 19128-C) located on the RUDE (9040), and were applied to those soundings collected by the RUDE in real time. Only the heave corrections were applied to the plotted soundings. Launch 770 did not have a heave sensor, therefore no heave correctors were applied to data acquired aboard it.

**G.2** There were no unusual or unique methods or instruments used for correcting echo soundings.

**G.3** Generally, sound velocity correctors resulting from weekly velocity casts were re-applied to the data acquired that entire week. Section G.1 a) gives the periods during which each set of velocity cast correctors were used.

**G.4** The ship's two pneumatic depth gauges were calibrated by Instruments East, Inc., Norfolk, VA. on February 2, 1994. Corrector data from the calibration was not applied to measured depths because it was less than 0.1 meters.

A system check was performed each day the pneumatic depth gauge was employed, as a means of ensuring the validity of the gauge's measurements. However, on August 30 (DN 242) no system check was performed due to over pressurization of the gauge immediately following readings taken for DIVE 242/1. The readings taken for this dive were assumed to be valid due to the agreement between HDAPS and SEABAT least depths of the same item. System checks are included in Separate IV. \*

*\* Filed with the original field records*

Hydrographic Survey Guideline No. 55 mandates that agreement between the leadline and observed gauge values must not exceed 0.5 feet. However, there were occasions when observed readings did exceed this limit. On these occasions, the observed wire angle of the leadline and pneumatic depth gauge hose was unavoidably excessive and, therefore, the comparison values were viewed with suspicion. As a result, no correctors were applied to measured pneumatic depth gauge values.

**G.5** Generally, sea conditions greater than one meter affected the sounding record, creating a trace of constant peaks and deeps. Application of heave correctors to raw echo soundings appeared to accurately represent true depths.

**G.6 a.** The tidal datum for this project is Mean Lower Low Water. The operating tide station at Newport, Rhode Island (845-2660) served as direct control for datum determination. This station also served as the reference station for predicted tides. Data for predicted tides were provided on floppy disk before the start of the project.

**b.** Tidal data used during data acquisition 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. The subordinate station for predicted tides was:

NO.	PLACE	POSITION	TIME		HEIGHT	
			High Water	Low Water	High Water	Low Water
1103	Penikese Island	41°27'N 70°55'W	-0 17	-0 16	*0.97	*0.97

Tidal correctors were applied on line using HDAPS predicted tide table numbers 4, 6, 7, 8 and 9. Tide table 4 was used for the month of April, 6 for June and so on. All data submitted is reduced to Mean Lower Low Water using predicted tides.

**c.** Zoning for this project is consistent with the Project Instructions.

A request for smooth tides was mailed on September 10, 1994. *Approved Tides and Zoning were applied during office processing*

**H. CONTROL STATIONS** *See also the Evaluation Report*

H.1 The horizontal datum for this project is the North American Datum of 1983 (NAD 83).

H.2 This survey was conducted exclusively using Differential GPS, which precluded the need for any shore based horizontal control stations.

H.3 No horizontal control stations were used or established for this survey.

H.4 No horizontal control stations were used or established for this survey.

H.5 Verification of horizontal control was not necessary since no land-based horizontal control stations were used.

H.6 There are no photogrammetric problems, positioning problems or unconventional survey methods pertinent to this survey.

**I. HYDROGRAPHIC POSITION CONTROL**

I.1 This survey was conducted exclusively using Differential GPS positioning.

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 collection. The allowable HDOP limit for the Portsmouth, New Hampshire radio beacon is 3.35 and 3.75 for the closer Montauk Point, New York radio beacon. It was standard practice on the RUDE to use the more conservative HDOP limit of 3.35 for both beacons during this survey. When these allowable limits (HDOP = 3.35, EPE = 15) were exceeded, survey operations were suspended until the Differential GPS improved. If the positioning degraded beyond the acceptable limits while on line, the data were either smoothed or rejected, depending upon the extent of the affected data.

**I.3 Control Equipment:**

Differential GPS:

RUDE (9040) Unit A

Ashtech GPS Sensor  
s/n 700417B1083  
Firmware Version 1E11D-P  
Magnavox MX50R  
DGPS Receiver s/n 078

RUDE (9040) Unit B

Ashtech GPS Sensor  
s/n 700417B1003  
Firmware Version 1E11D-P  
Magnavox MX50R  
DGPS Receiver s/n 160

AHP LAUNCH (770)

Ashtech GPS Sensor  
s/n 700417B1070  
Firmware Version 1E11D-P  
CSI DGPS Receiver s/n X1251

**I.4** Correctors were received from both the Montauk, New York and Portsmouth, New Hampshire radio beacons for the entire survey.

**I.5** The Differential GPS system requires no calibrations to its equipment from outside sources. However, to check the position accuracy of the DGPS system, a daily performance check was conducted whenever both radio beacons were operational. The Shipboard Data Integrity Monitor (version 1.2), or "SHIPDIM", program was utilized to conduct these performance checks. See SHIPDIM PERFORMANCE CHECKS in Separate III for weekly system checks. There is a gap in the daily performance checks (August 3, DN 215 - August 24, DN 236), due to the Montauk radio beacon experiencing operational problems. Differential correctors were received exclusively from the Portsmouth, N.H. beacon during this time.

For a DGPS performance check, section 3.4.5 of the FPM states that a DGPS performance check may be conducted using "SHIPDIM" when "two independent reference beacons are receivable, and two remote receivers are available on the ship. Each remote receives correctors from a different reference, then the

computed positions are compared." The computed inverse between the check receiver and the reference receiver must not exceed  $\Delta P_{\max}$ , where:

$$\Delta P_{\max} = \text{SQRT} [ (\text{EPE})^2 + (\text{ECR})^2 ]$$

$\Delta P_{\max}$  = Maximum allowable inverse distance between the DGPS and check position

EPE = Expected Position Error of the DGPS position

ECR = Error Circle Radius of the check position

"SHIPDIM" compares four sample positions from both the check and reference receivers and compares them. Three of the four checks must be less than the  $\Delta P_{\max}$  for a successful performance check.

Performance checks for Launch 770 were accomplished by maneuvering the launch alongside RUDE and securing a remote GPS satellite antenna next to Launch 770's GPS satellite antenna. The remote antenna was then connected to the ship's GPS Unit A system. Launch 770 was initialized to the Montauk, N.Y. radio beacon as the RUDE was initialized to the Portsmouth, N.H. radio beacon. Several concurrent positions were recorded and compared. A successful performance check was achieved by acquiring at least three position checks with an inverse distance less than  $\Delta P_{\max}$ , with  $\Delta P_{\max}$  equal to 1.5 mm at the scale of the survey (i.e. 15 meters for a 1:10,000-scale survey).

**I.6** No calibration data were required to be applied to the raw positioning data because DGPS was the primary positioning system.

**I.7 a.** There were no unusual methods used to calibrate or operate the electronic positioning equipment.

**b.** No shipboard DGPS malfunctions were experienced during the times of hydrography for this survey.

c. During times of heavy rains and/or thunderstorms, both vessels would experience periods of intermittent service from either the Montauk, N.Y. or Portsmouth, N.H. radio beacons, or both, depending on the location of the degraded weather at the time. During such instances, control would be switched to the reference beacon sending the strongest, most interference-free signal. If both the Montauk and Portsmouth beacons were experiencing periods of degraded weather, survey operations were suspended until such time as service from one or both beacons had resumed.

d. During the periods when local weather affected the DGPS radio beacons as described in section I.6.c, the on-line positioning would unexpectedly "drop out". These instantaneous outages were associated only with weather related beacon interference. During times of poor satellite coverage or geometry, there would be a steady deterioration of the HDOP which could be continuously monitored. Such weather-related outages could occur often, sometimes every few minutes, making it nearly impossible to begin or complete a survey line. The duration of these outages ranged from half an hour to several hours.

e. No systematic errors were detected which required adjustments.

f. Antenna positions were corrected for offset and layback, and referenced to the position of the DSF-6000N or Innerspace fathometer transducers. This was done for both the ship (RUDE S590) and the launch (770). The correctors for the ship are located in HDAPS Offset Table #1, and were applied on line to the positioning algorithm. The correctors for the launch are located in HDAPS Offset Table #2, and were re-applied to data after converting it from the PC-DAS format to HDAPS format. Refer to Separate III\* for a copies of Offset Tables #1 and #2.

g. Offset and layback distances for the A-frame (tow point) on RUDE are located in HDAPS Offset Table #1 and were applied on line. 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. Refer to Separate III\* for a copy of Offset Table #1.

\* Data filed with the original field records

**J. SHORELINE**

No shoreline is contained within the boundaries of this survey.

**K. CROSSLINES**

A total of 12.4 nautical miles of crosslines were obtained for this survey, which represents 11.1% of the first 100% side scan mainscheme coverage.

An un-excessed plot of mainscheme soundings with crosslines superimposed 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, especially in areas of flat or slightly sloping relief. The majority of soundings compared fell within one foot of each other, with only an occasional difference of two feet noted. Most often these larger differences were observed in steeply rising shoal areas characterized by an irregular bottom consisting of large boulders.

*Concur*

**L. JUNCTIONS *See Also Section L. in The Evaluation Report***

**L.1** This survey junctions along its southern boundary with survey H-10461, scale 1:10,000, which was completed by RUDE during the 1993 field season.

**L.2** Agreement at the junction of surveys H-10461 and H-10530 is excellent. Agreement between soundings were typically within one foot when compared to other soundings within a 30 to 40-meter radius, and only occasionally differing by two feet within a similar radius of investigation.

**L.3** There are no significant junction discrepancies to be reconciled.

**L.4** No recommendations for adjustments to soundings, features or depth curves are appropriate.



**M. COMPARISON WITH PRIOR SURVEYS**

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

**N. ITEM INVESTIGATION REPORTS**

**N.1.1 Area of Investigation**

✓ AWOIS 1930

Buzzards Bay

Reported Position:

41°31'48.38"N

070°51'34.12"W

Datum: NAD83

Reported Depths: Charted 33 foot sounding. Hung at 35 feet cleared by 33 feet, actual depth 36 feet (survey FE-194WD/63).

Feature: Wreck

**N.2.1 Description and Source of Item**

AWOIS 1930, the wreck of the 110-foot converted wooden dragger UNCLE JOHN, was first reported as a fishing vessel sunk in 48 feet of water approximately two miles southeast of Dumpling Rocks (NM48/47). During survey FE194WD/63 (FE1/64WD), a hang cleared to 33 feet was encountered in position 41°31'48"N and 070°51'36"W. The obstruction was reported to look like a wreck on the fathogram. Two additional hangs, at 31 and 35 feet, were encountered during this survey, approximately 300 meters to the north. These two hangs were both wire drag cleared to 28 feet.

**N.3.1 Survey Requirements**

This item required 200% side scan coverage, echo sounder development and diver investigation. Salvage documentation would be sufficient for disproof. The two additional hangs to the north also required investigation to discredit them.

#### N.4.1 Method of Investigation

Two hundred percent side scan sonar coverage was achieved over the entire AWOIS 1930 search radius, as well as over the two wire drag depths associated with this item. Many significant contacts were logged within the search radius. All significant contacts were investigated with echo sounder developments, with the contact most likely to be a wreck determined to be 683.11P. This contact was subsequently developed with both SEABAT and diver investigation. Search radii of 100 meters centered around the two additional wire drag hangs were employed. These search radii were developed by echo sounder with 10-meter line spacing.

#### N.5.1 Results of Investigation

The echo sounder development 21K6 centered on contact 683.11P yielded a least depth of 10.0 meters (32.8 feet) in position 41°31'48.754"N and 070°51'34.763"W. The SEABAT development of the same contact yielded a least depth of 9.8<sup>9</sup> meters (32.2<sup>5</sup> feet) in position 41°31'48.699"N and 070°51'34.694"W. Dive 242/1 revealed three large boulders, but no sign of a wreck. The subsequent pneumatic depth gauge reading yielded a least depth of 9.8<sup>9</sup> meters (32.2<sup>5</sup> feet) in position 41°31'48.757"N and 070°51'34.758"W. AWOIS 1930, the wreck of the UNCLE JOHN was not located. However, a large boulder was found, and is considered to be the most potentially hazardous item within the search radius.

The two wire drag hangs were addressed during developments 21K3 and 21K4. Development 21K3 was centered on the 28-foot wire drag hang charted in position 41°31'56"N and 070°51'41"W. This development yielded a least depth of 12.3 meters (40.3 feet) in position 41°31'51.581"N and 070°51'30.976"W. Development 21K4 was centered on the 28-foot wire drag hang charted in position 41°31'56"N and 070°51'29"W. This development yielded a least depth of ~~9.9~~<sup>10.0</sup> meters (32.8<sup>8</sup> feet) in position 41°31'56.892"N and 070°51'38.170"W. All survey depths given have been reduced to MLLW using ~~predicted~~ tides.

*Approved*

**N.6.1 Comparison with Prior Surveys** See Section "O" in the  
*Evaluation Report*

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

**N.7.1 Comparison with Chart and Charting Recommendations**

Largest scale chart of this portion of the survey area:

Chart 13230  
"Buzzards Bay"  
39th ed. March 27, 1993  
Scale: 1:40,000

*Chart # 13232  
New Bedford Harbor  
2nd Ed. 15 May 1993  
Scale 1:20,000*

AWOIS 1930, a wreck charted in position  $41^{\circ}31'48.38''N$  and  $070^{\circ}51'34.12''W$  was not found. However, a large boulder with a ~~SEABAT~~<sup>depth gauge</sup> least depth of  $9.8^9$  meters ( $32.2^5$  feet), considered to be the most hazardous object within the AWOIS 1930 search radius, was found in position  $41^{\circ}31'48.699''N$  and  $070^{\circ}51'34.694''W$ .  
*.757* *.758*

It is the recommendation of the hydrographer that the wreck charted in position  $41^{\circ}31'48.38''N$  and  $070^{\circ}51'34.12''W$  be deleted, and replaced by a dangerous rock with an <sup>Approved</sup> predicted tide corrected least depth of 32 feet in position  $41^{\circ}31'48.757''N$  and  $070^{\circ}51'34.758''W$  (fix 15015). It is also the recommendation of the hydrographer that the two 28-foot wire drag depths in positions  $41^{\circ}31'56''N$ ,  $070^{\circ}51'41''W$  and  $41^{\circ}31'56''N$ ,  $070^{\circ}51'29''W$  be deleted, and replaced by <sup>Approved</sup> predicted tide corrected depths from this survey, of ~~40 feet~~ in position  $41^{\circ}31'51.581''N$  and  $070^{\circ}51'30.976''W$  and 32 feet in position  ~~$41^{\circ}31'56.892''N$  and  $070^{\circ}51'38.170''W$ .~~

*Concur*

*Also addressed in H10461/93*

✓ **N.1.2 Area of Investigation**

AWOIS 2412

Buzzards Bay

Reported Position:

41°32'21.00"N

070°52'53.00"W

Datum: NAD83

Reported Depths: 41-44 foot depths exist in the  
vicinity

Feature: Wreck

**N.2.2 Description and Source of Item**

AWOIS 2412 is identified as the wreck of the USS YANKEE, a passenger liner converted to a Navy auxiliary cruiser and later recommissioned as a training ship. During training exercises on September 23, 1908, the ship ran aground on Hens and Chickens Reef in a dense fog. The ship was refloated some time later, but on the way back to New Bedford, a tow line broke and heavy seas caused one of the weakened parts of the hull to give way, resulting in the ship taking on water and eventually settling into 40 feet of water. In 1920, dynamite charges were used to blow up the hull, scattering wreckage about the area. The wreck is reported to lie in 40 feet of water south of Phinney Rock in position 41°32'21.00"N and 070°52'53.00"W.

**N.3.2 Survey Requirements**

This item required 200% side scan coverage, echo sounder development and diver investigation. Salvage documentation would be sufficient for disapproval.

**N.4.2 Method of Investigation**

Two hundred percent side scan sonar coverage was achieved over the entire AWOIS 2412 search radius. Many significant contacts were logged within the search radius, including obvious signs of scattered wreckage. Developments 18G1

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(contact 422.07P) and 19G1 (contact 1779.25S) were conducted at the two primary areas of wreckage concentration. Both of these areas were heavily developed by echo sounder, with contact 422.07P also being the subject of a diver investigation based on its potential for providing the least depth over the entire wreckage site.

#### **N.5.2 Results of Investigation**

The most significant portion of AWOIS 2412 was logged on side scan sonar as contact 422.07P, and was found by divers (dive 222/2) to be a section of the bow of the USS YANKEE, approximately 55 feet in length, with an <sup>Approved</sup> predicted tide corrected pneumatic depth gauge least depth of 11.2 meters (36.7 feet) in position 41°32'30.819"N and 070°52'44.820"W. Divers confirmed that the YANKEE had been dynamited as described in the AWOIS listing from the explosive tears in the hull.

#### **N.6.2 Comparison with Prior Surveys** *See Section O. in the Evaluation Report*

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

#### **N.7.2 Comparison with Chart and Charting Recommendations**

Largest scale chart of this portion of the survey area:

Chart 13230  
"Buzzards Bay"  
39<sup>th</sup> ed. March 27, 1993  
Scale: 1:40,000

*Chart 13232  
New Bedford Harbor  
2nd. Ed. 15 May 1993  
Scale 1:20,000*

AWOIS 2412, the wreck of the USS YANKEE charted in position 41°32'21.00"N and 070°52'53.00"W, was proved to exist as scattered wreckage over a wide area. The most significant portion of the wreck, a 55-foot section of the bow, with a predicted tide corrected pneumatic depth gauge least depth of 11.2 meters (36.7 feet), was located in position 41°32'30.819"N and 070°52'44.820"W.

It is the opinion of the hydrographer that the wreck charted in position 41°32'21.00"N and 070°52'53.00"W be retained, with its geographic position updated to 41°32'30.819"N and 070°52'44.820"W, acquired during dive 222/2 (fix #12081).

*See Section N. in the Evaluation Report Do Not Concur*

### **N.1.3 Area of Investigation**

AWOIS 7723

Buzzards Bay

Reported Position:

41°33'00.00"N

070°53'01.18"W

Datum: NAD~~27~~<sup>83</sup>

Reported Depths: Wreck reported sunk in 28 feet of water, with a 30-foot ~~spike~~<sup>SPIT</sup> existing in the vicinity.

Feature: Wreck

### **N.2.3 Description and Source of Item**

AWOIS 7723 is identified as the wreck of the HECKLER, a schooner reported sunk in 28 feet of water in position 41°32'59.62"N and 070°53'03.06"W. A 30-foot ~~spike~~<sup>SPIT</sup> was found in the vicinity during survey H9628/1976-77, but the item was unreviewed.

### **N.3.3 Survey Requirements**

This item required 200% side scan coverage, echo sounder development and diver investigation

### **N.4.3 Method of Investigation**

Two hundred percent side scan sonar coverage was achieved over that portion of the AWOIS 7723 search radius that lies within the sheet limits of this survey. Many significant contacts were logged within the search radius, and all were investigated. Three contacts were found with computed heights significantly greater than the others within the search

radius. One of the three, Phinney Pock (1623.14P), is a charted obstruction marked by a buoy. The other two, 1641.40P and 1689.16P, were considered possible wreck sites and were the subject of echo sounder developments 17E1 and 16F1 respectively. Contact 1689.16P proved to be the more significant contact and was further developed by SEABAT and diver investigation.

### N.5.3 Results of Investigation

Development 16F1 centered on contact 1689.16P yielded an echo sounder <sup>Approved</sup> predicted tide corrected least depth of 7.7<sup>6</sup> meters (25.2<sup>6</sup> feet) in position 41°32'58.994"N and 070°52'58.631"W and a SEABAT <sup>Approved</sup> predicted tide corrected least depth of 7.4<sup>5</sup> meters (24.3<sup>6</sup> feet) in position 41°32'59.010"N and 070°52'58.822<sup>4</sup>"W. Dive 229/5 revealed a rocky ridge with one well defined boulder, with an <sup>Approved</sup> predicted tide corrected pneumatic depth gauge least depth of 7.7<sup>6</sup> meters (23<sup>4</sup>.9 feet) in position 41°32'59.046"N and 070°52'58.652"W. AWOIS 7723, the wreck of the HECKLER, was not found and thus proven not to exist within that portion of the search radius that falls within the confines of this survey.

### N.6.3 Comparison with Prior Surveys See Section O. in The Evaluation Report

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

### N.7.3 Comparison with Chart and Charting Recommendations

Largest scale chart of this portion of the survey area:

Chart 13230  
"Buzzards Bay"  
39th ed. March 27, 1993  
Scale: 1:40,000

Chart 13232  
New Bedford Harbor  
2nd Ed. 15 May 1993  
Scale 1:20,000

AWOIS 7723, a wreck charted in position 41°33'00.00"N and 070°53'01.18"W, was proven not to exist within that portion of the search radius that falls within the confines of this survey. However, a large boulder with an <sup>Approved</sup> predicted tide

corrected pneumatic depth gauge least depth of 7.7<sup>5</sup> meters  
(25.6<sup>4</sup> feet), considered to be the most potentially hazardous  
item within the developed area, was discovered in position  
41°32'59.046<sub>018</sub>"N and 070°52'58.652<sub>821</sub>"W.

It is the opinion of the hydrographer that the wreck charted  
in position 41°33'00.00"N and 070°53'01.18"W be deleted from  
that portion of the AWOIS 7723 search radius investigated  
during this survey, and that a dangerous rock, with a  
predicted tide corrected least depth of 24 feet, be charted in  
position 41°32'59.046"N and 070°52'58.652"W (fix 12090).

*Do Not Concur - See Also the Evaluation Report<sup>3003</sup>*

#### **N.1.4 Area of Investigation**

##### AWOIS 7951

Buzzards Bay

Reported Position:

41°34'31.37"N

070°52'31.12"W

Datum: NAD27

Reported Depths: Charted 26 foot wire drag depth;  
32-33 foot depths exist in the  
vicinity.

Feature: Trawl Door

#### **N.2.4 Description and Source of Item**

AWOIS 7951 was first encountered during survey FE207WD/1966 as  
a hang on two strips at 26 and 29 feet, cleared with wire drag  
to 26 feet in position 41°34'31"N and 070°52'33"W, and  
identified by divers as a trawl door. Evaluator recommended  
charting an obstruction with a cleared depth of 26 feet.  
A subsequent COE survey (CL373/70) indicated that this area  
was supposedly swept to 30 feet at MLW, but the office review  
by N/CG241 determined that the 26-foot obstruction was outside  
the area swept. COE hydro data revealed a 31.7-foot depth  
corrected at MLW at the given position. During survey  
H9628/76, a 100-foot diver circle search was conducted without  
located this object, however the office review did not consider  
this search adequate enough to disprove the existence of the

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obstruction. Echo sounder least depths of 32 feet were obtained in the area of the obstruction.

#### N.3.4 Survey Requirements

This item required 200% side scan coverage, echo sounder development and diver investigation. Salvage documentation would be sufficient for disapproval.

#### N.4.4 Method of Investigation

Two hundred percent side scan coverage was achieved over the entire AWOIS 7951 search radius. No side scan contacts were logged within the search radius. The area was then fully echo sounder and SEABAT developed with 10 and 5 meter line spacing during development 9H1. There was no indication either by echo sounder or SEABAT to support the existence of a trawl door within the search radius.

#### N.5.4 Results of Investigation

AWOIS 7951, a trawl door obstruction, was proven not to exist within its 150-meter search radius. The side scan records for this area showed evidence of numerous trawl door scours, but no evidence of an obstruction. In addition, the echo sounder development revealed a flat bottom with no depths in the 26-foot range. <sup>Approved</sup> Predicted tide corrected depths of 32-33 feet<sup>0</sup> were acquired in this area. (9.4-10.1m)

#### N.6.4 Comparison with Prior Surveys *See Section O. in The Evaluation Report*

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

#### N.7.4 Comparison with Chart and Charting Recommendations

Largest scale chart of this portion of the survey area:

Chart 13230  
"Buzzards Bay"  
39th ed. March 27, 1993  
Scale: 1:40,000

Chart 13232  
New Bedford Harbor  
2nd. Ed 15 May 1993  
Scale 1:20,000

AWOIS 7951, a 26-foot least depth obstruction charted in position 41°34'31.37"N and 070°52'31.12"W, was proven not to exist within the designated 150-meter search radius.

It is the opinion of the hydrographer that the 26-foot wire drag obstruction charted in position 41°34'31.37"N and 070°52'31.12"W, be replaced with a representative 32-foot depths acquired during this survey. *CONCUR*

#### N.1.5 Area of Investigation

##### AWOIS 7952

Buzzards Bay

Reported Position:

41°34'22.37"N

070°52'28.12"W

Datum: NAD27

Reported Depths: Area wire drag cleared to 30 feet,  
with an echo sounder least depth of  
31.8 feet.

Feature: Obstruction

#### N.2.5 Description and Source of Item

AWOIS 7952 was first encountered during survey FE207WD/1966 (FE3/67) as a temporary grounding at 26 feet, cleared with wire drag to 24 feet in position 41°34'22"N and 070°52'30"W. COE survey CL373/1970 indicated that the area was swept to 30 feet and echo sounded to a depth of 31.8 feet. The cleared depth of 30 feet was accepted and charted. Survey H-9628/1976 addressed no specific investigation for this area, but yielded depths of 32-33 feet in the area taken from 50-meter line spacing.

#### N.3.5 Survey Requirements

This item required 200% side scan coverage, echo sounder development and diver investigation. Salvage documentation would be sufficient for disapproval.

#### N.4.5 Method of Investigation

Two hundred percent side scan coverage was achieved over the entire AWOIS 7952 search radius, with no contacts being logged. The search radius was then echo sounder and SEABAT developed with 10 and 5 meter line spacing during development 9H2. No indication of an obstruction was seen in either the echo sounder or SEABAT data.

#### N.5.5 Results of Investigation

AWOIS 7952, a 30-foot least depth charted obstruction, was proven not to exist within the designated 100-meter search radius. Although the side scan data revealed numerous trawl door scours, no contacts or obstructions were seen. In addition, the echo sounder development displayed a flat bottom with no evidence of a 30-foot obstruction. <sup>Approved</sup> Predicted tide corrected depths of 32-34 feet were acquired in this area.  
(9.7-10.5m)

#### N.6.5 Comparison with Prior Surveys *See Section O. in the Evaluation Report*

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

#### N.7.5 Comparison with Chart and Charting Recommendations

Largest scale chart of this portion of the survey area:

Chart 13230  
"Buzzards Bay"  
39th ed. March 27, 1993  
Scale: 1:40,000

*Chart 13232  
New Bedford Harbor  
2nd. Ed. 15 May 1993  
Scale 1:20,000*

AWOIS 7952, a 30-foot least depth wire drag obstruction, charted in position 41°34'22.37"N and 070°52'28.12"W, was proven not to exist within the designated 100-meter search radius.

It is the opinion of the hydrographer that the 30-foot least depth wire drag obstruction charted in position 41°34'22.37"N and 070°52'28.12"W, be<sup>deleted and</sup> replaced with a ~~representative 33-foot~~ depth acquired during this survey. *Concur*

**N.1.6 Area of Investigation**

✓ AWOIS 7953

Buzzards Bay

Reported Position:

41°34'13.38"N

070°51'58.12"W

Datum: NAD27

Reported Depths: Charted 25 foot sounding; grounding occurred at 25 feet, not cleared. Depths of 28-29 feet exist in the area.

Feature: Sounding

**N.2.6 Description and Source of Item**

AWOIS 7953 was first encountered during survey FE207WD/1966 (FE3/67) as a hang in position 41°34'13"N and 070°52'00"W, and again as a grounding at 25 feet. This depth was not cleared. Depths of 28-29 feet were found to exist in the area taken from 50-meter line spacing during survey H-9628/1976, with a recommendation to retain the 25-foot charted sounding.

**N.3.6 Survey Requirements**

This item required 200% side scan coverage, echo sounder development and diver investigation.

**N.4.6 Method of Investigation**

Two hundred percent side scan coverage was achieved over the entire AWOIS 7953 search radius, with no contacts being logged. The northern half of this search radius was then developed with echo sounder at 10 and 5-meter line spacing as part of hydro coverage on HDAPS Sheet 50. The southern half was developed with echo sounder at 80-meter line spacing as part of the side scan sonar mainscheme coverage. No distinct echo sounder spikes were logged within the AWOIS 7953 100-meter search radius.

**N.5.6 Results of Investigation**

AWOIS 7953, a 25-foot sounding, was proven to exist as charted. The echo sounder development of this area revealed a gently sloping bottom, with predicted tide corrected depths in the 24 to 32-foot range. The charted 25-foot sounding associated with AWOIS 7953 accurately represents the depth at its charted position. Considering the prevailing survey depths in this area, this charted sounding should not be viewed as a hazard.

**N.6.6 Comparison with Prior Surveys**

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

**N.7.6 Comparison with Chart and Charting Recommendations**

Largest scale chart of this portion of the survey area:

Chart 13230  
"Buzzards Bay"  
39<sup>th</sup> ed. March 27, 1993  
Scale: 1:40,000

Chart 13232  
New Bedford Harbor  
2nd. Ed. 15 May 1993  
Scale 1:20,000

AWOIS 7953, a 25-foot sounding charted in position 41°34'13.38"N and 070°51'58.12"W, was proven to accurately represent the survey depths in this area.

It is the opinion of the hydrographer that the 25-foot sounding charted in position 41°34'13.38"N and 070°51'58.12"W, be retained in its present position. It is also the opinion of the hydrographer that considering the prevailing depths in the area, this 25-foot charted sounding not be considered a special hazard.

*Do not Concur  
see section N. in The Evaluation Report*

**N.1.7 Area of Investigation**

✓ AWOIS 7954

Buzzards Bay

Reported Position:

41°34'03.38"N

070°52'30.12"W

Datum: NAD27

Reported Depths: Charted 29-foot sounding; grounding occurred at 31 feet, cleared by 29 feet. Depths of 35 feet exist in the vicinity.

Feature: Obstruction

**N.2.7 Description and Source of Item**

AWOIS 7954 was first encountered during survey FE207WD/1966 (FE3/67) as a temporary grounding at 31 feet in position 41°34'03"N and 070°52'32"W. This depth was wire drag cleared to 29 feet, which resulted in the evaluator recommending a charted obstruction cleared to 29 feet. Depths of 35 feet were found to exist in the area based on 50-meter line spacing run during survey H-9628/1976.

**N.3.7 Survey Requirements**

This item required 200% side scan coverage, echo sounder development and diver investigation.

**N.4.7 Method of Investigation**

Two hundred percent side scan coverage was achieved over the entire AWOIS 7954 search radius, with no contacts being logged. The search radius was then echo sounder and SEABAT developed on two separate occasions with 10 and 5-meter line spacing. A review of all echo sounder and SEABAT records indicated no evidence of an obstruction within the search radius. All hydro development of this item is grouped together and designated as development 11H1.

**N.5.7 Results of Investigation**

(9.8 m)

AWOIS 7954, a 29-foot charted obstruction, was proven not to exist with the designated 100-meter search radius. A review of all side scan sonar data collected in this area revealed trawl door scours, but little else. In addition, the echo sounder development indicated a flat bottom and no evidence of a 29-foot obstruction. <sup>(9.9 m)</sup> ~~Predicted~~ <sup>Approved</sup> tide corrected depths of 3<sup>2</sup>8-3<sup>6</sup>8 feet were acquired in this area. (9.9-10.9 m)

**N.6.7 Comparison with Prior Surveys See section O. in the Evaluation Report**

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

**N.7.7 Comparison with Chart and Charting Recommendations**

Largest scale chart of this portion of the survey area:

Chart 13230  
"Buzzards Bay"  
39th ed. March 27, 1993  
Scale: 1:40,000

Chart 13232  
New Bedford Harbor  
2nd. Ed. 15 May 1993  
Scale 1:20,000

AWOIS 7954, a 29-foot wire drag obstruction charted in position 41°34'03.38"N and 070°52'30.12"W, was proven not to exist within the designated 100-meter search radius.

It is the opinion of the hydrographer that the 29-foot sounding charted in position 41°34'03.38"N and 070°52'30.12"W be deleted, and replaced with a 3<sup>2</sup>8-foot depth acquired during this survey in position 41°34'0<sup>5</sup>3<sup>36</sup>.7<sup>7</sup>7"N and 070°52'2<sup>8</sup>8.4<sup>34</sup>90"W (fix 4436-0) 829.1

X

Concur

**N.1.8 Area of Investigation**

✓ AWOIS 7955

Buzzards Bay

Reported Position:

41°33'53.78"N

070°51'53.32"W

Datum: NAD27

Reported Depths: Charted 25-foot sounding; grounding  
at 28 feet, cleared to 25 feet.

Depths of 34 feet exist in the area.

Feature: Obstruction

**N.2.8 Description and Source of Item**

AWOIS 7955 was first encountered during survey FE207WD/1966 (FE3/67) as a rock hang in position 41°33'53.4"N and 070°51'55.2"W, grounded at 28 feet and cleared by wire drag to 25 feet. The evaluator recommended charting a rock with a 25-foot cleared depth. Depths of 34 feet were found to exist in the vicinity during survey H-9628/1976, but the area was not developed.

**N.3.8 Survey Requirements**

This item required 200% side scan coverage, echo sounder development and diver investigation.

**N.4.8 Method of Investigation**

Two hundred percent side scan coverage was achieved over the entire AWOIS 7955 search radius, with no significant contacts being logged. The search radius was then echo sounder developed with 10 and 5-meter line spacing during development 12J3. One significant echo sounder spike was found at fix 5097.2. This item was further echo sounder developed down to 2-meter line spacing, and by subsequent SEABAT investigation.



**N.5.8 Results of Investigation**

(7.6m)  
AWOIS 7955, a 25-foot rock ~~obstruction~~ charted in position 41°33'53.78"N and 070°51'53.32"W, was not found during side scan sonar, echo sounder or SEABAT investigations. However, echo sounder development 12J3 did yield a significant spike, with an <sup>Approved</sup> ~~predicted~~ tide corrected least depth of 8.7<sup>5</sup> meters (27.7<sup>3</sup> feet) in position 41°33'52.783"N and 070°51'51.943"W (fix 5097.2), a very narrow, single point feature located in a gently rolling bottom. The subsequent SEABAT investigation yielded an 8.5 meter (27.9 foot) <sup>Approved</sup> ~~predicted~~ tide corrected depth in position 41°33'52.712"N and 070°51'51.793"W.

**N.6.8 Comparison with Prior Surveys** *See Section O. in The Evaluation Report*

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

**N.7.8 Comparison with Chart and Charting Recommendations**

Largest scale chart of this portion of the survey area:

Chart 13230  
"Buzzards Bay"  
39th ed. March 27, 1993  
Scale: 1:40,000

Chart 13232  
New Bedford Harbor  
2nd. Ed. 15 May 1993  
Scale 1:20,000

AWOIS 7955, a 25-foot rock ~~obstruction~~ charted in position 41°33'53.78"N and 070°51'53.32"W, was not found. However, a single rock feature with an <sup>Approved</sup> ~~predicted~~ tide corrected echo sounder depth of 8.7<sup>5</sup> meters (27.7<sup>9</sup> feet) was discovered within the stated AWOIS search radius in position 41°33'52.783"N and 070°51'51.943"W.

It is the opinion of the hydrographer that the 25-foot rock ~~obstruction~~ charted in position 41°33'53.78"N and 070°51'53.32"W be deleted, and replaced by the 27-foot rock ~~obstruction~~ discovered during this survey in position 41°33'52.783"N and 070°51'51.943"W (fix 5097.2). *Concur ✓*

*Chart a dangerous submerged rock w/ danger curve at the above noted locations with a least depth of 28ft (8.5m) (28RK)*

**N.1.9 Area of Investigation**

AWOIS 8146

Buzzards Bay

Reported Position:

41°33'35.18"N

070°51'37.12"W

Datum: NAD27

Reported Depths: Controlling depth of 32 feet reported;  
34-37 foot depths exist in the  
vicinity.

Feature: Sounding

**N.2.9 Description and Source of Item**

AWOIS 8146 was first encountered during survey FE207WD/1966 as the 9-foot wreck of the tanker DYNAFUEL, reported sunk in position 41°33'34.8"N and 070°51'39"W, and subsequently salvaged in Notice to Mariner 49/1967. During COE survey CL1412/1967, 32-foot depths were reported to be common in this area. Depths of 34-37 feet were found to exist in the vicinity during survey H-9628/1976-77, when the area was developed with 50-meter line spacing.

**N.3.9 Survey Requirements**

Echo sounder development only.

**N.4.9 Method of Investigation**

Two hundred percent side scan coverage was achieved over the entire AWOIS 8146 search radius, with two significant contacts (917.24P and 2027.56P) being logged. These two contacts were echo sounder developed during developments 13K2 and 13K1 respectively.

**N.5.9 Results of Investigation**

Two significant side scan contacts (917.24P and 2027.56P) were logged within the AWOIS 8146 150-meter search radius. Contact 2027.56P proved to be the most significant and yielded an echo sounder <sup>Approved</sup> predicted tide corrected least depth of 8.7<sup>4</sup> meters (27.9<sup>6</sup> feet) in position 41°33'39.253"N and 070°51'38.541"W during development 13K1. This depth is located close to the (9.7m) 32-foot Rep sounding charted in position 41°33'35.18"N and 070°51'37.12"W. It is unclear by echo sounder development alone whether this item is the remains of a salvaged tanker sunk in 1966 or a large boulder. In either case, it was the most potentially hazardous item discovered within the search radius.

**N.6.9 Comparison with Prior Surveys See Section C in the Evaluation Report**

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

**N.7.9 Comparison with Chart and Charting Recommendations**

Largest scale chart of this portion of the survey area:

Chart 13230  
"Buzzards Bay"  
39th ed. March 27, 1993  
Scale: 1:40,000

Chart 13232  
New Bedford Harbor  
2nd. Ed. 15 May 1993  
Scale 1:20,000

Contact 2027.56P, with an <sup>Approved</sup> predicted tide corrected 8.7<sup>4</sup> meter (27.9<sup>6</sup> feet) least depth in position 41°33'39.253"N and 070°51'38.541"W, is a potentially more hazardous item than the 32-foot Rep sounding associated with AWOIS 8146. It is unclear whether this item is the salvaged remains of the tanker DYNAFUEL or a boulder. In either case, it is the most significant object discovered within the given search radius.

It is the opinion of the hydrographer that the 32-foot Rep sounding charted in position 41°33'35.18"N and 070°51'37.12"W be deleted, and a 28-foot <sup>(8.4m)</sup> obstruction found during this survey be charted in position 41°33'39.253"N and 070°51'38.541"W (fix 3148.2). ✓  
Concur

N.10

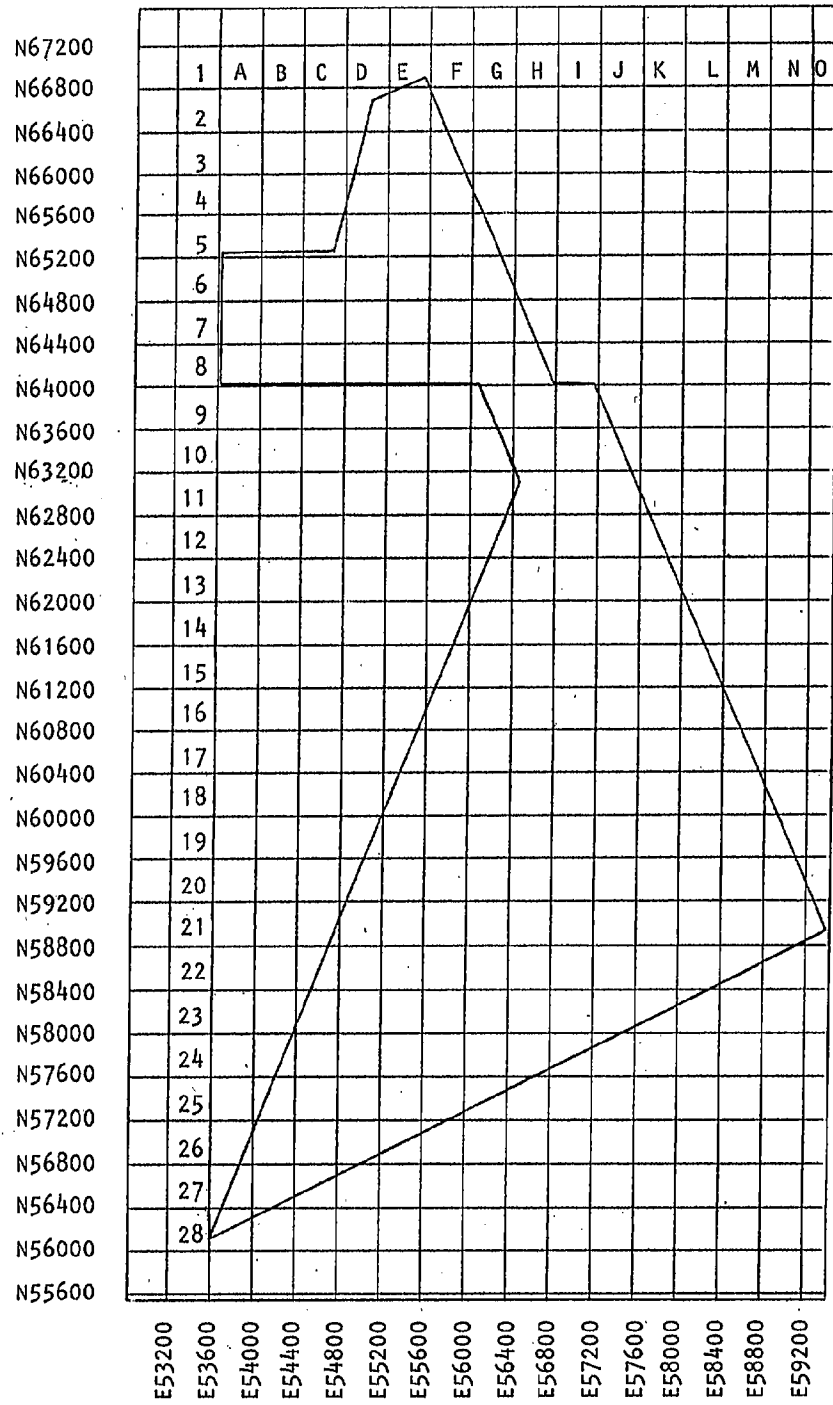
An unknown sunken wreck located just north of Wilkes Ledge was logged as contact 324.06P during the first 100% side scan coverage, and later as contacts 327.19P, 342.23P and 1666.55P during additional side scan coverage. Echo sounder development 26B1, centered about this item using the computed position of contact 1666.55P, yielded an <sup>Approved</sup> ~~predicted~~ tide corrected least depth of 11.3<sup>4</sup> meters (37.1<sup>4</sup> feet) in position 41°30'52.266"N and 070°54'08.692"W (fix 2674.2). During dive 222/5, divers found the wreck to be a small wooden fishing vessel sitting upright on a sandy flat bottom, with a <sup>Approved</sup> ~~predicted~~ tide corrected pneumatic depth gauge least depth of 11.6<sup>7</sup> meters (38.0<sup>4</sup> feet) in position 41°30'52.305"N and 070°54'08.606"W (fix 12084). This wreck is not associated with any AWOIS item.

It is the hydrographer's opinion that a wreck be charted in position 41°30'52.305<sup>216</sup>"N and 070°54'08.606<sup>82</sup>"W (fix 12084<sup>216</sup>) with a least depth of 37 feet.

Concur

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Information pertaining to the hydrographic development of significant side scan sonar contacts, including SEABAT 9001 multi-beam sonar investigations, is contained in the following Development Abstract and SEABAT Development Addendum.



Survey H-10530 400-Meter Contact Development Grid

DEVELOPMENT ABSTRACT  
H-10530

NOAA Ship RUDE  
OPR-B616-RU-94

DEV	Side Scan Contact Number	Hydro Dev Positions	Least Depth (m)	ID Pos	Geographic Position	Remarks
2D1	17-FOOT CHARTED SOUNDING	4457-4554	7.52	4467.2	41°35'59.285"N 70°53'31.368"W	
2E1	1209.54S	3048-3053	6.75	<del>3052.3</del> 3050.1	41°35'58.007"N 70°53'19.405"W	RK
2E2	2264.48S	3054-3059	<del>7.0</del> 6.8	3056.78	41°35'55.003"N 70°53'17.455"W	RK
2E3	19-FOOT SURVEY SOUNDING	4555-4570	6.9	<del>4559.1</del> 4555.1	41°35'59.572"N 70°53'20.443"W	RK
2E4	19-FOOT CHARTED SOUNDING	4571-4596	7.3	4573.3	41°36'00.590"N 70°53'20.694"W	
2F1	1236.21S	3060-3067	5.73	3064.3	41°36'01.426"N 70°53'08.547"W	RK
3E1	1234.48S	3068-3073	7.87	3070.1	41°35'47.400"N 70°53'14.624"W	
3E2	25-FOOT CHARTED SOUNDING	5251-5256	8.85	5253.4	41°35'39.275"N 70°53'20.123"W	
3F1	2233.12S	3074-3081	5.43	3078.2	41°35'52.021"N 70°53'03.379"W	RK
4C1	1171.45P	3082-3085	6.88	3082.2	41°35'28.996"N 70°53'45.554"W	
4D1	1171.33S	3086-3091	8.1	3091.0	41°35'27.717"N 70°53'43.809"W	
4E1	1252.41P	3092-3095	7.9	3094.2	41°35'27.487"N 70°53'10.566"W	
4F1	1276.09P	3096-3103	6.5	3101.0	41°35'34.236"N 70°52'54.389"W	RK
4F2	2226.03P	3104-3111	7.5	3110.0	41°35'33.167"N 70°52'54.656"W	
4G1	1278.14P	3112-3113	5.8	3112.1	41°35'28.448"N 70°52'52.316"W	
5A1	2323.52P	4216-4227	5.47	4226.2	41°35'13.570"N 70°54'28.990"W	RK
5D1	2316.35S	4138-4147	6.85	4138.1	41°35'18.268"N 70°53'38.653"W	RK
5F1	1260.01P	4194-4201	9.85	4198.1	41°35'23.500"N 70°53'03.789"W	

DEV	Side Scan Contact Number	Hydro Dev Positions	Least Depth (m)	ID Pos	Geographic Position	Remarks
6C1	2376.53P	4154-4159	8.2	4155.0	41°35'02.753"N 70°53'46.695"W	
6C2	1155.53P	4160-4167	7.76	4166.4	41°35'12.889"N 70°53'52.218"W	
6D1	1138.29S	4148-4153	7.98	4148.2	41°35'10.080"N 70°53'43.848"W	
6G1	2175.05S	4092-4099	<del>6.9</del> 9.0	4093.0	41°35'03.980"N 70°52'40.823"W	
6G2	2180.13S	4100-4103	7.7	4102.2	41°35'12.546"N 70°52'43.385"W	RK
7E1	1048.16P	4168-4175	8.76	4170.2	41°34'48.380"N 70°53'16.177"W	
8C1	23-FOOT CHARTED SOUNDING	4789-4820	7.43	4810.0	41°34'43.081"N 70°53'58.581"W	
8D1	24-FOOT CHARTED SOUNDING	4731-4768	7.96	<del>4741.3</del> 2487.4	41°34'38.437"N 70°53'38.297"W	RK
8D2	23-FOOT CHARTED SOUNDING	4769-4778	6.9	4775.4	41°34'42.248"N 70°53'35.287"W	
8F1	1006.03P	4176-4185	7.65	4182.3	41°34'40.832"N 70°53'07.299"W	
8F2	991.49S	4186-4193	<del>8.54</del> 8.1	4192.3 4190.3	41°34'38.259"N 70°53'06.788"W	
8F3	23-FOOT CHARTED SOUNDING	4699-4730	8.2	4701.1	41°34'40.533"N 70°53'09.457"W	
9G1	2132.50S	3632-3641	9.4	3632.1	41°34'24.956"N 70°52'43.632"W	
9H1	26-FOOT CHARTED SOUNDING	4655-4698	9.58	4669.2	41°34'31.271"N 70°52'32.715"W	AWOIS 7951
9H2	30-FOOT CHARTED SOUNDING	4613-4654	<del>10.0</del> 9.9	4642.0	41°34'22.996"N 70°52'31.855"W	
9I1	2170.57P	3658-3671	8.44	3668.3	41°34'23.507"N 70°52'17.762"W	
9I2	N/A	4054-4075	<del>5.9</del> 4.4	<del>4066.1</del> 1203.2	41°34'29.941"N 70°52'15.573"W	15' Uncharted Rock Dive 229/3, SEABAT
10H1	728.23S	3642-3657	5.98	<del>3650.2</del> 1300.7	41°34'09.268"N 70°52'33.983"W	18' Sndg - Brooklyn Rock Dive 229/1, SEABAT

DEV	Side Scan Contact Number	Hydro Dev Positions	Least Depth (m)	LD Pos	Geographic Position	Remarks
10I1	2170.12S	3521-3563	3.5-2	3544.2	41°34'19.275"N 70°52'11.811"W	11' Sndg - Henrietta Rk RK Dive 222/6, SEABAT
10I2	2187.54S	4076-4078	6.5-7	4083-0 12097	41°34'16.403"N 70°52'14.490"W	19' Sndg - Henrietta Rk RK Dive 229/2, SEABAT
10J1	2033.09S	4207-4213	6.8-2	4212.3	41°34'19.219"N 70°51'54.399"W	RK
11H1	29-FOOT CHARTED SOUNDING	4421-4436	10.2 9.7	4436-0 929.1	41°34'00.777"N 70°52'29.790"W	AWOIS 7954
11I1	22-FOOT CHARTED SOUNDING	4597-4612	6.5-6	4601.2	41°34'08.387"N 70°52'01.451"W	RK
12I1	1200.46S	3934-3943	9-7 10.0	3940.2	41°33'53.423"N 70°52'06.643"W	RK
12J1	2064.25P	3322-3331	10.4-5	3328.2	41°33'45.904"N 70°51'52.345"W	
12J2	2064.45S	3332-3337	9.5-3	3332.3 914.5	41°33'51.328"N 70°51'47.985"W	
12J3	25-FOOT CHARTED SOUNDING	4403-4420 5059-5110	8.2-5	5097.2	41°33'52.783"N 70°51'51.943"W	RK AWOIS 7955 SEABAT
13I1	2115.30S	3918-3923	10.9 11.2	3918.2	41°33'34.533"N 70°52'04.424"W	
13I2	820.12S	3924-3933	9.8-1	3930.3 1813.5	41°33'31.762"N 70°52'02.661"W	RK
13J1	2098.50P	3152-3157	9.8	3154.2	41°33'55.290"N 70°51'59.146"W	RK
13J2	840.21P	3158-3163	10.6-7	3162.0	41°33'32.175"N 70°52'00.331"W	
13K1	2027.56P	3140-3151 5111-5144	8.5-4	3148.2	41°33'39.253"N 70°51'38.541"W	AWOIS 8146 Obstr
13K2	917.24P	3164-3169	10.4-2	3166.2	41°33'32.295"N 70°51'34.843"W	RK
14I1	819.50S	2938-2949	8.8-7	2938.2	41°33'26.609"N 70°52'00.885"W	RK
14J1	1815.46P	3118-3127	8.8-7	3118.3	41°33'20.717"N 70°51'59.035"W	RK
14L1	949.11S	3128-3131	9.2-1	3129.0	41°33'25.137"N 70°51'20.336"W	



DEVELOPMENT ABSTRACT  
H-10530

NOAA Ship RUDE  
OPR-B616-RU-94

DEV	Side Scan Contact Number	Hydro Dev Positions	Least Depth (m)	LD Pos	Geographic Position	Remarks
15F1	1623.14P	4287-4298	3.83	4297.2 13013	41°33'08.430"N/70°53'05.180"W 41°33'07.829"N/70°52'36.367"W	11' Sndg - Phinney Rock RK Dive 229/6, SEABAT
15G1	1725.17P	2910-2915	11.84	2914.0 ii	41°33'16.209"N/70°52'14.835"W 41°33'15.779"N/70°51'24.062"W	RK
15H1	32-FOOT CHARTED SOUNDING	4397-4402	9.9	4833.2 4574	41°32'58.994"N/70°52'18.631"W 41°32'52.237"N/70°52'21.263"W	RK 3.5M SSS Contact Dive 229/5, SEABAT
15L1	919.44P	3132-3139	11.7	3138.2	41°32'52.237"N/70°52'21.263"W	3.8M SSS Contact SEABAT
16F1	1689.16P	2894-2899	7.75	2894.2 13003	41°32'55.543"N/70°51'51.009"W 41°32'53.988"N/70°51'57.399"W	16' Sndg - Negro Ledge Dive 222/4, SEABAT
16H1	1809.15S	2916-2924	9.84	2918.2	41°32'53.988"N/70°51'57.399"W	RK
16J1	16-FOOT CHARTED SNDG NEGRO LDGE	N/A	5.4 4.9	12083 12014	41°32'53.988"N/70°51'57.399"W	RK
16J2	625.48S	4299-4308	5.74	4303.3	41°32'53.988"N/70°51'57.399"W	RK
16J3	614.28P	4309-4314	6.30	4309.1	41°32'53.988"N/70°51'57.399"W	RK
16K1	2094.12P	3564-3571	11.9 10.9	3566.2 3564.2	41°32'53.988"N/70°51'57.399"W	RK
16L1	894.42P	3572-3579	11.81	3574.2	41°32'56.012"N/70°51'24.339"W	RK
16M1	946.19S	3580-3585	11.3	3580.2	41°32'59.098"N/70°51'06.429"W	RK
17E1	1641.40P	2856-2867	8.85	2858.2	41°32'39.880"N/70°53'11.219"W	RK
17F1	1706.05S	2868-2877	11.46	2874.2	41°32'41.728"N/70°53'03.014"W	RK
17F2	309.53S	2878-2883	10.84	2883.0	41°32'45.200"N/70°53'09.058"W	RK
17F3	310.17S	2884-2893	11.73	2884.1	41°32'43.612"N/70°53'08.901"W	RK
17F4	27-FOOT CHARTED SOUNDING	4315-4324	11.65	4323.5	41°32'37.902"N/70°53'04.983"W	RK
17H1	500.41P	2930-2937	11.0	2930.6	41°32'45.979"N/70°52'18.369"W	RK

DEVELOPMENT ABSTRACT  
H-10530

NOAA Ship RUDE  
OPR-B616-RU-94

DEV	Side Scan Contact Number	Hydro Dev Positions	Least Depth (m)	LD Pos	Geographic Position	Remarks
17I1	1324.14P	3904-3917	5.42	<del>3906.2</del> 13010	41°32'47.552"N 70°52'13.231"W 41°32'48.9793"N	19' Sndg - Negro Ledge RK Dive 229/4, SEABAT
17J1	14-FOOT CHARTED SNDG NEGRO LEDGE	N/A	4.62	<del>13000</del> 13000	70°51'53.552"W 41°32'48.858"N	14' Sndg - Negro Ledge RK Dive 222/3, SEABAT
17J2	607.05S	3944-3953	4.7	3944.1	70°51'53.599"W	
17J3	611.04S	3954-3961	<del>7.8</del> 8.2	3958.4	41°32'41.368"N 70°51'50.985"W	RK
17K1	846.09S	3616-3621	10.7	3616.3	41°32'49.109"N 70°51'35.767"W	RK
17M1	2043.23S	3586-3591	<del>12.0</del> 11.9	3586.2	41°32'44.082"N 70°50'59.292"W	RK
18E1	1617.17P	2796-2801	9.87	2801.0	41°32'31.239"N 70°53'23.167"W	
18E2	1616.39S	2802-2811	7.73	<del>2802.3</del> 287.6	41°32'30.2160"N 70°53'22.217"W	RK
18F1	1707.12S	2812-2833	5.52	<del>2832.2</del> 13008	41°32'31.324"N 70°53'08.386"W	16' Uncharted Rock RK Dive 222/1, SEABAT
18F2	29-FOOT CHARTED SOUNDING	4273-4278	9.2	4277.1	41°32'32.954"N 70°52'54.404"W	RK
18F3	27-FOOT CHARTED SOUNDING	4279-4286	<del>11.0</del> 10.9	4280.0	41°32'30.613"N 70°53'03.739"W	
18G1	422.07P	2834-2845	11.53	<del>2834.2</del> 12081	41°32'30.559"N 70°52'45.066"W	AWOIS 2412 - USS YANKEE Dive 222/2
18G2	1778.33S	3858-3885 3900-3903	12.45	3868.2	41°32'30.459"N 70°52'45.273"W	AWOIS 2412 - USS YANKEE
18I1	1856.21P	3242-3249	11.3	3248.3	41°32'31.430"N 70°52'11.729"W	
18I2	595.48P	3250-3257	8.6	3252.4	41°32'34.984"N 70°52'08.396"W	RK
18I3	628.03S	3258-3265	9.1	3264.2	41°32'33.463"N 70°52'08.356"W	
18J1	1885.47S	3266-3275	8.2	3272.1	41°32'33.094"N 70°51'58.959"W	
18J2	1886.45P	3276-3285	9.37	3280.2	41°32'26.523"N 70°51'59.801"W	

DEV	Side Scan Contact Number	Hydro Dev Positions	Least Depth (m)	LD Pos	Geographic Position	Remarks
18J3	639.13S	3286-3295	8.45	3288.6	41°32'31.735"N 70°51'59.385"W	
18K1	564.57P	3294-3305	11.24	3304.2	41°32'37.448"N 70°51'40.223"W	
18K2	848.15S	3962-3969	12.25	3964.2	41°32'33.860"N 70°51'26.458"W	RK
18K3	35-FOOT CHARTED SOUNDING 849.13S	4387-4396	10.76	4390.0	41°32'22.171"N 70°51'41.670"W	
18L1	848.46S	3306-3313	13.68	3310.2	41°32'26.471"N 70°51'21.822"W	
18L2	943.42S	3314-3321	12.8 13.0	3318.2	41°32'31.125"N 70°51'22.264"W	RK
18M1	2044.28S	3592-3597	12.2	3592.3	41°32'39.013"N 70°50'52.448"W	
18M2	286.57S	3598-3603	12.21	3598.2 343.3	41°32'34.559"N 70°50'53.102"W	RK
19E1	374.18P	2786-2795	8.45	2788.2	41°32'21.835"N 70°53'24.398"W	RK
19F1	1779.25S	2846-2855	11.7 12.8	2846.5 2954.4	41°32'21.652"N 70°53'03.877"W	
19G1	1887.17P	2267-2312	11.4	2299.5	41°32'23.124"N 70°52'51.118"W	AWOIS 2412 - USS YANKEE WK
19I1	1939.29P	3236-3241	11.54	3236.3	41°32'21.479"N 70°52'01.218"W	RK
19J1	587.20P	3218-3225	8.64	3218.2	41°32'17.837"N 70°51'44.870"W	RK
19J2	24-FOOT CHARTED SOUNDING 1947.01S	3226-3235	10.76	3226.3	41°32'12.425"N 70°51'51.847"W	RK
19J3	27-FOOT CHARTED SOUNDING 2019.08P	4381-4386 5233-5250	7.7 8.4	5237.4	41°32'13.617"N 70°51'42.646"W	RK
19K1		3212-3217	8.87	3216.3	41°32'13.957"N 70°51'42.081"W	
19K2		5191-5232	7.9 8.6	5192.0	41°32'12.467"N 70°51'40.713"W	
19N1		3604-3609	12.5 11.2	3604.3 10.4	41°32'16.7246"N 70°50'48.655"W	RK

DEV	Side Scan Contact Number	Hydro Dev Positions	Least Depth (m)	LD Pos	Geographic Position	Remarks
19N2	931.07P	3610-3615	11.32	3610.4	41°32'17.218"N 70°50'47.586"W	RK
20D1	1614.13P	2746-2757	5.87	2750.2	41°32'11.171"N 70°53'36.433"W	RK 3.2M SSS Contact SEABAT
20E1	1710.29S	2758-2769	9.34	2764.2	41°32'00.681"N 70°53'25.509"W	RK
20F1	451.09P	2770-2785	11.34	2778.2	41°32'05.016"N 70°52'55.009"W	RK
20J1	1920.10P	3188-3193	13.2 12.1	3197.2 0.3	41°32'06.758"N 70°51'55.995"W	
20J2	1919.59P	3194-3201	11.65	3196.3	41°32'07.718"N 70°51'53.713"W	
20K1	1947.22P	3202-3209	9.21	3206.3	41°32'11.194"N 70°51'37.537"W	
20M1	851.51P	3038-3047	14.7 13.7	3046.2 851.6	41°32'06.477"N 70°51'05.754"W	RK
20N1	26-FOOT CHARTED SOUNDING	4331-4336 4981-5008	8.82	4993.2	41°32'01.622"N 70°50'33.165"W	
21D1	316.55S	2712-2723	8.68	2716.2	41°31'51.832"N 70°53'38.550"W	RK
21D2	2159.24P	2724-2731	9.87	2724.2	41°31'48.984"N 70°53'28.613"W	RK
21D3	24-FOOT CHARTED SOUNDING	4259-4272	8.3	4271.3	41°31'51.854"N 70°53'38.503"W	RK
21E1	1710.51P	2732-2743	9.81	2734.2 13005	41°31'56.056"N 70°53'23.517"W	RK 3.6M SSS Contact SEABAT
21H1	557.01P	2944-2949	13.45	2946.2	41°31'51.626"N 70°52'18.410"W	
21J1	662.36S	3182-3187	15.21	3184.0	41°31'51.642"N 70°51'45.639"W	
21K1	1972.59P	3026-3031	10.22	3026.3	41°31'52.031"N 70°51'34.113"W	RK
21K2	1983.11S	3032-3037	11.23	3034.2	41°31'46.735"N 70°51'32.126"W	
21K3	28-FOOT CHARTED SOUNDING	4903-4932	12.34	4924.0	41°31'51.581"N 70°51'30.976"W	

DEV	Side Scan Contact Number	Hydro Dev Positions	Least Depth (m)	LD Pos	Geographic Position	Remarks
21K4	28-FOOT CHARTED SOUNDING	4933-4966	9.9 10.0	4935.1	41°31'56.892"N 70°51'38.170"W	
21K5	33-FOOT SURVEY SOUNDING	4349-4356	12.2 10.8	4356.0 4949.1	41°31'53.443"N 70°51'37.461"W	34' Rock Pinnacle SEABAT
21K6	683.11P	4357-4376 4879-4902	10.0 9.9	4893.3 12092	41°31'48.754"N 70°51'34.763"W	33' Rock Pinnacle Dive 242/1, SEABAT
21L1	688.47P	3018-3025	13.2	3018.2	41°31'50.782"N 70°51'23.487"W	RK
21M1	859.08P	3000-3007	8.4 7.9	3004.1 859.1	41°31'52.441"N 70°50'56.570"W	RK
21M2	2126.30P	3008-3015	6.8	3008.3 3012.3	41°31'47.824"N 70°50'57.734"W	RK
21M3	2007.18S	3016-3017	9.8	3016.2	41°31'52.102"N 70°50'59.909"W	
21N1	935.37S	2982-2987	10.4	2985.0	41°31'56.987"N 70°50'35.222"W	
21N2	862.41S	2990-2999	12.3	2992.2	41°31'48.315"N 70°50'45.712"W	RK
21N3	32-FOOT CHARTED SOUNDING	5145-5190	10.7 11.0	5188.0	41°31'44.146"N 70°50'52.104"W	
21O1	2016.12P	2962-2971	9.8	2962.1	41°31'48.618"N 70°50'28.764"W	RK
21O2	1329.55S	2972-2981	8.8	2978.3	41°31'50.825"N 70°50'29.178"W	RK
22C1	283.05S	2688-2695	11.8 12.0	2690.3	41°31'41.707"N 70°53'47.060"W	
22E1	1733.40S	2696-2703	11.8	2696.2	41°31'45.216"N 70°53'25.918"W	RK
22E2	1734.10P	2704-2711	13.9 14.1	2711.0	41°31'35.529"N 70°53'28.015"W	
22J1	1961.50S	3170-3181	14.2	3178.2	41°31'44.268"N 70°51'44.630"W	RK
22M1	2012.45P	2956-2961	10.0	2957.0	41°31'41.493"N 70°50'57.543"W	
22M2	24-FOOT CHARTED SOUNDING	4325-4330 4967-4980	7.3	4975.4	41°31'43.986"N 70°50'55.706"W	

DEVELOPMENT ABSTRACT  
 H-10530

NOAA Ship RUDE  
 OPR-B616-RU-94

DEV	Side Scan Contact Number	Hydro Dev Positions	Least Depth (m)	ID Pos	Geographic Position	Remarks
23D1	380.55S	2678-2687	13.8	2679.0	41°31'25.552"N 70°53'40.221"W	
23K1	1999.38S	2950-2955	11.1	2950.3	41°31'28.337"N 70°51'28.901"W	RK
25B1	1596.48P	2640-2649	14.0	2649.0	41°30'50.159"N 70°54'19.221"W	
26B1	1666.55P	2650-2677	11.3	2674.2	41°30'52.266"N 70°54'08.692"W	Wilkes Ledge Wreck Dive 222/5, SEABAT
28B1	40-FOOT CHARTED SOUNDING	4247-4258 5009-5020	12.3	5020.0	41°30'26.591"N 70°54'19.428"W	

DESCRIPTION	CONTACT	FILE	VELOC	DEV.	FIX #	DN	GMT	DEPTH	RAW	TIDE	CORR.	DEPTH	LATITUDE	LONGITUDE
NEGRO LDG 14' SOUNDING	n/a	2034062M	94199141	17J1	13000	203	120351	5.5	-1.2	4.2	41°32'48.693"N	070°51'53.662"W		
NEGRO LDG 16' SOUNDING	n/a	2034405M	94199141	16J1	13001	203	122045	6.2	-1.2	5.0	41°32'55.274"N	070°51'50.733"W		
3.8M SSS CONTACT	1809.15S	22078053	94220133	16H1	13002	220	214141	10.1	-0.5	9.5	41°32'52.188"N	070°52'21.108"W		
3.5M SSS CONTACT	1689.16P	2214554M	94220133	16F1	13003	220	215131	8.0	-0.5	7.5	41°32'59.010"N	070°52'58.828"W		
3.2M SSS CONTACT	1614.13P	2214645M	94220133	20D1	13004	220	221700	6.3	-0.5	5.7	41°32'11.019"N	070°53'36.360"W		
3.6M SSS CONTACT	1710.51P	2214860M	94220133	21E1	13005	220	222747	9.8	-0.7	9.1	41°31'55.924"N	070°53'23.624"W		
HENRIETTA RK 11' SOUNDING	2170.12S	2235751M	94221140	10I1	13006	223	160352	4.5	-1.2	3.2	41°34'19.318"N	070°52'11.870"W		
BROOKLYN RK 18' SOUNDING	728.23S	2244658M	94221140	10H1	13007	224	131134	6.3	-0.5	5.5	41°34'09.132"N	070°52'34.014"W		
16' LD UNCHARTED ROCK	1707.12S	2276045M	94227131	18F1	13008	227	165800	5.9	-1.0	4.9	41°32'31.195"N	070°53'08.378"W		
WILKES LEDGE WRECK	1666.55P	2285108M	94227131	26B1	13009	228	143427	11.5	-0.2	11.3	41°30'52.299"N	070°54'08.718"W		
NEGRO LDG 19' SOUNDING	1324.14P	2285508M	94227131	17I1	13010	228	153152	5.3	-0.4	4.9	41°32'47.650"N	070°52'13.168"W		
15' LD UNCHARTED ROCK	n/a	2287123M	94227131	9I2	13011	228	195530	6.0	-1.3	4.7	41°34'30.013"N	070°52'15.598"W		
HENRIETTA RK 19' SOUNDING	2187.54S	2287235M	94227131	10I2	13012	228	201330	7.8	-1.3	6.5	41°34'16.335"N	070°52'14.558"W		
PHINNEY RK 11' SOUNDING	1623.14P	2344704M	94227131	15F1	13013	234	131924	4.6	-1.3	3.3	41°33'08.181"N	070°53'05.042"W		
34' LD ROCK PINNACLE	n/a	2354616M	94227131	21K5	13014	235	124947	11.6	-1.2	10.4	41°31'52.006"N	070°51'34.224"W		
33' LD ROCK PINNACLE	683.11P	2417211M	94237130	21K6	13015	241	204430	10.5	-0.7	9.8	41°31'48.699"N	070°51'34.694"W		
25' CHARTED SOUNDING	n/a	2436801M	94243163	12J3	13016	243	191516	9.5	-1.0	8.5	41°33'52.712"N	070°51'51.793"W		

NOTE: ALL DEPTHS ARE IN METERS.

\* Changes due to Smooth Tide Application

O. COMPARISON WITH THE CHART See Also Section O. in The Evaluation Report

O.1 Charts affected by this survey are:

Chart 13218

"Block Island to Martha's Vineyard"

32<sup>nd</sup> ed. June 26, 1993

Scale: 1:80,000

Chart 13229 SC

"South Coast of Cape Cod and Buzzards Bay"

25<sup>th</sup> ed. March 27, 1993

Scale: 1:40,000

Chart 13230

"Buzzards Bay"

39<sup>th</sup> ed. March 27, 1993

Scale: 1:40,000

Chart 13232

New Bedford Harbor  
2<sup>nd</sup> Ed. 15 May 1993

Scale 1:20,000

O.2 Three separate Danger to Navigation Reports, dated August 10, August 18 and October 1, 1994, were sent to the Commander, First Coast Guard District in Boston, MA. outlining charting discrepancies found during this survey. The details of these reports are compiled in the two tables that follow.

A complete copy of each Danger to Navigation Report can be found in Appendix I.



REPORT OF DANGER TO NAVIGATION

\* THESE UPDATED DEPTHS AFFECT THE FOLLOWING CHARTS:

Chart 13229 (25<sup>th</sup> ed. March 27, 93)

Chart Scale 1:40,000

Chart 13230 (39<sup>th</sup> ed. March 27, 93)

Chart Scale 1:40,000

Chart 13218 (32<sup>nd</sup> ed. June 26, 93)

Chart Scale 1:80,000

** DEPTH (MLLW)	LATITUDE	LONGITUDE
167ft	41°-32'-31.3"N	070°-53'-08.4"W
157ft	41°-34'-30.0"N	070°-52'-15.6"W
227ft	41°-35'-55.9"N	070°-53'-17.4"W
187ft	41°-35'-14.9"N	070°-54'-24.8"W
207ft	41°-35'-11.3"N	070°-54'-36.2"W
22 ft	41°-35'-06.1"N	070°-53'-38.3"W
257ft	41°-34'-50.2"N	070°-53'-21.6"W
27 dt	41°-34'-54.1"N	070°-52'-28.3"W
301 ft	41°-34'-43.4"N	070°-52'-21.6"W
29 ft	41°-34'-34.0"N	070°-52'-19.6"W
30 29 ft	41°-33'-31.8"N	070°-52'-02.7"W
222ft	41°-33'-32.1"N	070°-51'-25.0"W
25 ft	41°-33'-27.4"N	070°-51'-56.3"W
268ft	41°-33'-24.3"N	070°-51'-24.0"W
234ft	41°-32'-59.0"N	070°-52'-58.6"W
41 39 ft	41°-32'-59.3"N	070°-51'-26.0"W
18 ft	41°-32'-54.0"N	070°-51'-57.4"W
31 ft	41°-32'-52.2"N	070°-52'-21.1"W
278ft	41°-32'-39.9"N	070°-53'-11.2"W
41 39 ft	41°-32'-33.9"N	070°-51'-26.4"W
24 ft	41°-32'-29.5"N	070°-53'-22.2"W
37 ft	41°-32'-23.1"N	070°-52'-51.1"W
376ft	41°-32'-17.2"N	070°-50'-47.6"W
37 ft	41°-32'-05.0"N	070°-52'-55.0"W
445ft	41°-32'-06.0"N	070°-51'-05.9"W
343ft	41°-31'-52.0"N	070°-51'-34.2"W
30 29 ft	41°-31'-55.9"N	070°-53'-23.6"W

\* Updated depths should be viewed as preliminary information, subject to office review.

\*\* Depths reduced to MLLW using <sup>Approved</sup> ~~predicted~~ tides.

SOUNDINGS TO BE DELETED FROM THE FOLLOWING CHARTS:

Chart 13229 (25<sup>th</sup> ed. March 27, 93)  
Chart Scale 1:40,000

Chart 13230 (39<sup>th</sup> ed. March 27, 93)  
Chart Scale 1:40,000

Chart 13218 (32<sup>nd</sup> ed. June 26, 93)  
Chart Scale 1:80,000

DEPTH (MLLW)	LATITUDE	LONGITUDE
25 ft	41°-35'-55.5"N	070°-53'-17.3"W
22 ft	41°-35'-14.7"N	070°-54'-20.8"W
25 ft	41°-35'-10.0"N	070°-54'-32.6"W
29 ft	41°-35'-08.1"N	070°-53'-38.4"W
30 ft	41°-34'-54.4"N	070°-52'-30.3"W
32 ft	41°-34'-43.2"N	070°-52'-23.2"W
32 ft	41°-34'-34.1"N	070°-52'-20.6"W
28 ft	41°-33'-29.3"N	070°-51'-58.0"W
31 ft	41°-32'-57.8"N	070°-53'-00.2"W
23 ft	41°-32'-54.4"N	070°-51'-57.2"W
44 ft	41°-33'-01.2"N	070°-51'-29.0"W
27 ft	41°-32'-38.5"N	070°-53'-03.3"W
47 ft	41°-32'-34.9"N	070°-51'-24.7"W
49 ft	41°-32'-05.3"N	070°-51'-07.6"W
27 ft	41°-34'-30.8"N	070°-52'-15.3"W
28 ft	41°-32'-27.5"N	070°-53'-25.7"W

0.3 The overall correlation between charted soundings and survey depths is excellent, with average differences of approximately one foot in flat and slightly sloping areas and no more than two to three feet in areas of irregular bottoms.

0.4 The correlation between charted shoal areas and corresponding soundings from this survey is excellent. See Section 0.2 for discrepancies and additions to the chart.

O.5 Chart 13230 (39th ed. March 27, 1993) and Chart 13228 (9th ed. June 13, 1992) are the main operating charts used by fishermen in this section of Buzzards Bay. Since the primary navigation system in the Bay is still LORAN-C, it would be beneficial to have the LORAN-C time delay grid overlaid on these charts. In addition, the latitude and longitude scales in their present format are cumbersome to use, since they are only broken down into whole minutes, rather than tenths of minutes.

**P. ADEQUACY OF SURVEY**

P.1 All items investigated during this survey have been addressed.

P.2 This survey is complete and contains no substandard data. AWOIS investigations were limited to the confines of the navigable area corridor and survey limits.

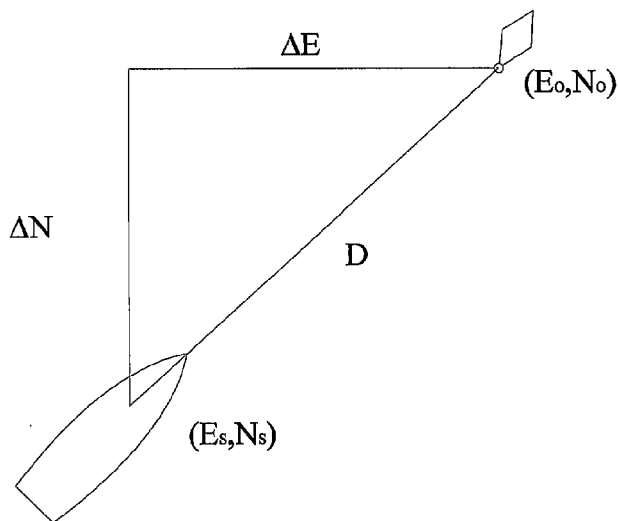
**Q. AIDS TO NAVIGATION**

Q.1 The RUDE conducted no correspondence with the U.S. Coast Guard regarding floating aids to navigation.

Q.2 There are 13 floating aids to navigation within this survey. Since only three of the aides (G"7" - 16045, GR - 16740 and C"7" - 16935) have published positions in the U.S. Coast Guard Light List - Volume 1, the following is a table comparison of the computed survey positions to the charted positions of these aids. The Light List designator for these aids is listed under "Light No." in the table below.

Light No.	Buoy No.	Charted Position	Surveyed Position	DP Number	Inverse Distance (m)
16780	C "13"	041°35'38.0"N 070°53'45.0"W	041°35'38.504"N 070°53'43.582"W	11030	36.3
16770	G "11"	041°35'27.5"N 070°53'10.0"W	041°35'28.791"N 070°53'09.713"W	11031	40.4
16775	N "10"	041°35'30.5"N 070°53'05.5"W	041°35'30.268"N 070°53'04.852"W	11032	16.6
16760	N "8"	041°34'39.0"N 070°52'11.0"W	041°34'38.150"N 070°52'10.669"W	11033	27.3
16745	N "6"	041°34'17.0"N 070°52'11.0"W	041°34'16.335"N 070°52'11.754"W	11034	26.9
16740	"GR"	041°34'09.0"N 070°52'31.0"W	041°34'10.064"N 070°52'28.243"W	11035	71.8
16725	G "5"	041°33'28.2"N 070°51'54.5"W	041°33'28.760"N 070°51'53.960"W	11037	21.3
16720	R "4"	041°33'21.5"N 070°51'21.0"W	041°33'22.554"N 070°51'20.827"W	11038	32.7
16715	G "3"	041°32'56.0"N 070°51'46.7"W	041°32'56.937"N 070°51'47.157"W	11039	30.8
16940	"GRC"	041°33'08.0"N 070°53'04.0"W	041°33'07.847"N 070°53'04.657"W	11040	15.9
16935	C "7"	041°32'24.2"N 070°53'34.7"W	041°32'22.784"N 070°53'33.165"W	11041	56.3
16045	G "7"	041°30'30.2"N 070°54'31.0"W	041°30'29.153"N 070°54'31.539"W	11042	34.6
16710	G "1"	041°31'50.4"N 070°50'53.0"W	041°31'49.828"N 070°50'52.692"W	11043	19.1

The observed characteristics of these buoys agreed with their published characteristics. As for their position verification, detached positions were obtained for all of the buoys. This was completed by maneuvering RUDE as close as possible to the buoy and then taking several detached positions. At the same time the distance and bearing of the ship's bow was estimated to the aid. This distance was corrected for the position of the transducer and applied to the detached position to compute a 'true' position.



$\Delta E$  = The difference between the easting of the ship and easting of the object.

$\Delta N$  = The difference between the northing of the ship and northing of the object.

$D$  = The distance from the bow of the ship to the object plus 10.13M (10.13M is the distance from the GPS antennae to the bow.)

$(E_S, N_S)$  = The easting and northing of the ship.

$(E_O, N_O)$  = The easting and northing of the object.

$\Theta$  = The angle measured from the ship's position (North or South,  $0^\circ - 90^\circ$ ) to the position of the object.

$$E_O = \Delta E + E_S \\ = D \sin \Theta + E_S$$

$$N_O = \Delta N + N_S \\ = D \cos \Theta + N_S$$

Q.3 There were no aids other than those listed in the Light List found within the boundaries of this survey.

Q.4 No bridges, overhead cables or overhead pipelines are located within the survey area.

Q.5 No pipelines or designated ferry routes are located within the survey area. *Do not concern*

*See Also Section Q.5. in The Evaluation Report*

Q.6 No ferry terminals are located within the survey area.

**R. STATISTICS**

**R.1 a.** Number of Position . . . . . 5228

**b.** Lineal Nautical Miles of Sounding Lines:

    Nautical Miles of Survey With the Use  
    of Side Scan Sonar . . . . . 257.94

    Nautical Miles of Survey Without the Use  
    of Side Scan Sonar . . . . . 180.85

**R.2 a.** Square Nautical Miles of Hydrography  
per 100% of Coverage . . . . . 7.40

**b.** Days of Production . . . . . 49

**c.** Detached Positions . . . . . 54

    - 13 for Diver Investigations

    - 13 for Floating Aids to Navigation

    - 0 for Non-Floating Aids to Navigation

    - 28 for Bottom Samples

**d.** Bottom Samples . . . . . 28

**e.** Tide Stations . . . . . 1

**f.** Current Stations . . . . . 0

**g.** Velocity Casts . . . . . 16

**h.** Magnetic Stations . . . . . 0

**i.** XBT Drops . . . . . 0

**S. MISCELLANEOUS**

- S.1a.** No evidence of silting was found during this survey.
- b.** No evidence of unusual submarine features was found during this survey.
- c.** No evidence of anomalous tidal conditions was found during this survey.
- d.** No observations of unusual currents were recorded during this survey.

e. No evidence of magnetic anomalies was found during this survey.

S.2 Twenty-eight (28) 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.

**T. RECOMMENDATIONS**

T.1 See section O.2 for dangers to navigation noted during this survey.

T.2 RUDE is aware of no construction or dredging that will affect results of this survey.

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

**U. REFERRAL TO REPORTS**

No reports have been published which are not contained within this Descriptive Report.

APPENDIX III

LIST OF HORIZONTAL CONTROL STATIONS

No horizontal control stations were needed for this survey as Differential GPS was employed exclusively for all positioning control. The geographic positions for the two Differential GPS radio beacons used during this survey are as follows:

Montauk Point, N.Y.	41°01'02.05"N
	071°51'38.27"W

Portsmouth, N.H.	43°04'12.00"N
	070°42'30.00"W



APPENDIX I

DANGER TO NAVIGATION REPORTS

Three Danger to Navigation Reports are attached.



**U.S. 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**

August 10, 1994

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

Dear Sir:

During the course of NOAA Ship RUDE's hydrographic survey of the area in Buzzards Bay between the Wilkes Ledge "G7" buoy, the "G1" buoy 3.0 nautical miles to the ENE, and north to the New Bedford Entrance Channel, a discrepancy was found on chart 13230 (39<sup>th</sup> ed. 27 March 93). It is requested that this discrepancy, a large uncharted rock with a least depth of 16.4 feet, which is located in an area with a shoalest charted sounding of 27 feet, be published in the Local Notice to Mariners.

This updated depth is outlined in the attached table. This item should be viewed as preliminary information subject to office review. In addition, there is a chartlet enclosed with the boundaries of the survey outlined.

This survey depth was determined during preliminary hydro investigation using a Raytheon DSF-6000N survey fathometer, and verified with the Reson SEABAT-9001 shallow-water multi-beam sonar system and a diver investigation pneumatic depth gauge reading. The depth has been reduced to Mean Lower Low Water (MLLW) by applying predicted tide corrections. The horizontal datum is NAD 83.

This investigation was performed in support of the following hydrographic survey.

REPORT OF DANGER TO NAVIGATION

Hydrographic Survey Registry No.....H-10530  
State.....Massachusetts  
General Locality.....Buzzards Bay  
Locality.....3.0 NM SSW of Sconticut Neck  
Project Number.....B616-RU-94  
Surveyed by.....NOAA Ship RUDE



\* THIS DEPTH AFFECTS THE FOLLOWING CHARTS:

Chart 13230 (39<sup>th</sup> ed. 27 March 93)  
Chart Scale 1:40,000

** DEPTH (MLLW)	LATITUDE	LONGITUDE
<del>16.4</del> Feet	41°32'31.28"N	070°53'08.39'W

17.1 ~~14.2~~

\* Updated depths should be viewed as preliminary information, subject to office review.

\*\* Depth reduced to MLLW using <sup>Approved</sup> predicted tides.

Contact either of the following personnel for further information:

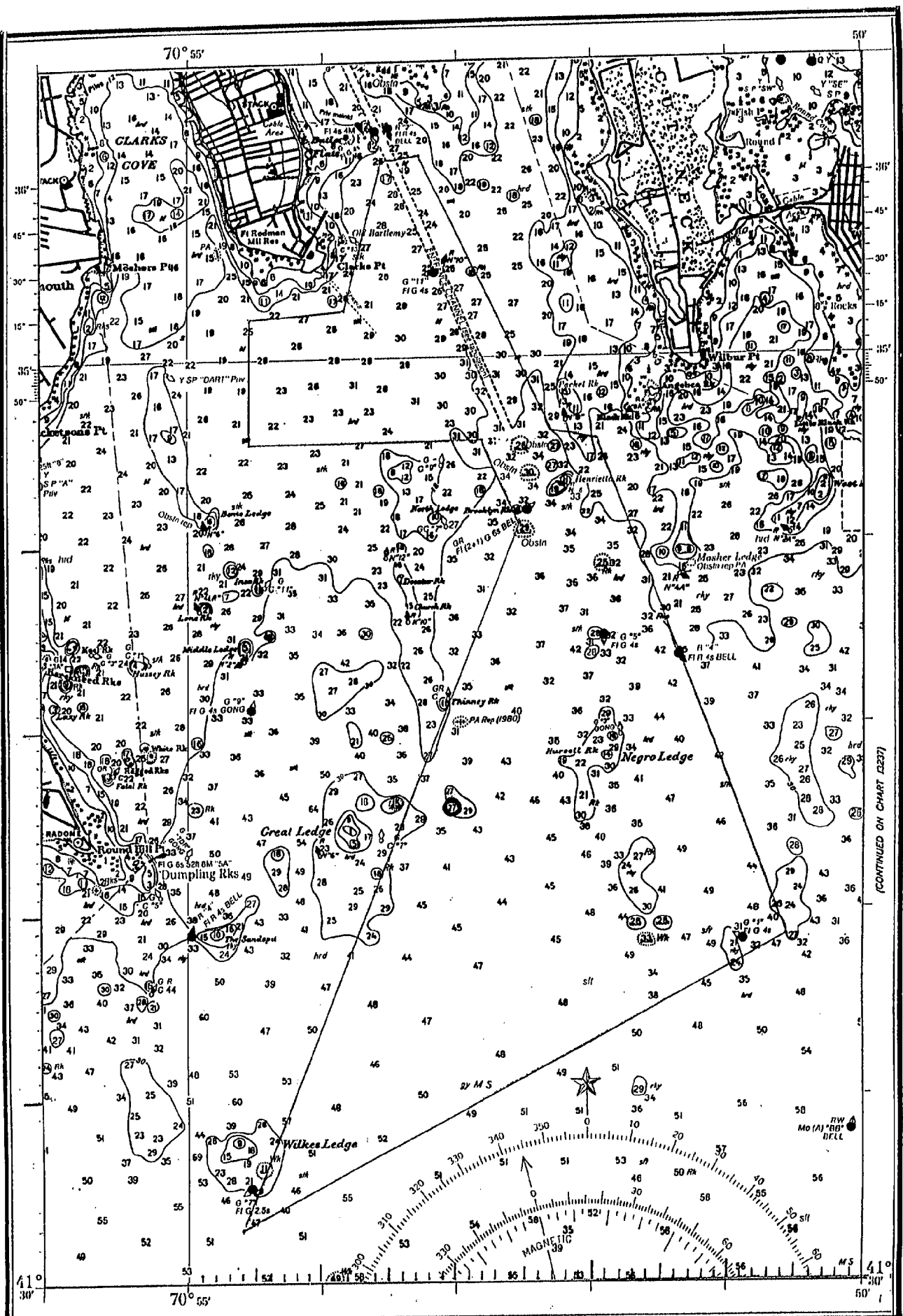
Commanding Officer  
NOAA Ship RUDE  
16 Sconticut Neck Rd.  
#244  
Fairhaven, MA. 02719  
508-979-0600

Chief, Atlantic Hydrographic Section  
Atlantic Marine Center  
439 W. York St.  
Norfolk, VA. 23510  
804-441-6746

Sincerely,

*Daniel R. Herlihy*

Daniel R. Herlihy  
Lieutenant Commander, NOAA  
Commanding Officer, NOAA Ship RUDE



SOUNDINGS IN FEET

(CONTINUED ON CHART 1237)



**U.S. 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**

August 18, 1994

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

Dear Sir:

During the course of NOAA Ship RUDE's hydrographic survey of the area in Buzzards Bay between the Wilkes Ledge "G7" buoy, the "G1" buoy 3.0 nautical miles to the ENE, and north to the New Bedford Entrance Channel, a significant discrepancy was found on chart 13230 (39<sup>th</sup> ed. 27 March 93). It is requested that this discrepancy, a large rock pinnacle with a 15.4-foot least depth, located in an area directly adjacent to a 27-foot charted sounding, be published in the Local Notice to Mariners.

This updated depth is outlined in the attached table. This item should be viewed as preliminary information subject to office review. The attached chartlet depicts the boundaries of the survey in question and location of the updated depth.

This survey depth was determined during preliminary hydro investigation using a Raytheon DSF-6000N survey fathometer, and verified with the Reson SEABAT-9001 shallow-water multi-beam sonar system and a diver investigation pneumatic depth gauge reading. The depth has been reduced to Mean Lower Low Water (MLLW) by applying a predicted tide correction. The horizontal datum is NAD 83.

This investigation was performed in support of the following hydrographic survey:

REPORT OF DANGER TO NAVIGATION

Hydrographic Survey Registry No.....H-10530  
State.....Massachusetts  
General Locality.....Buzzards Bay  
Locality.....3.0 NM SSW of Scotcut Neck  
Project Number.....B616-RU-94  
Surveyed by.....NOAA Ship RUDE



\* THIS DEPTH AFFECTS THE FOLLOWING CHARTS:

Chart 13230 (39<sup>th</sup> ed. 27 March 93)  
Chart Scale 1:40,000

** DEPTH (MLLW)	LATITUDE	LONGITUDE
15 <sup>4</sup> Feet	41°34'30.01"N	070°52'15.59"W

\* Updated depths should be viewed as preliminary information, subject to office review.

\*\* Depth reduced to MLLW using <sup>Approved</sup> ~~predicted~~ tides.

Contact either of the following personnel for further information:

Commanding Officer  
NOAA Ship RUDE  
16 Sconticut Neck Rd.  
#244  
Fairhaven, MA. 02719  
508-979-0600

Chief, Atlantic Hydrographic Section  
Atlantic Marine Center  
439 W. York St.  
Norfolk, VA. 23510  
804-441-6746

Sincerely,



Daniel R. Herlihy  
Lieutenant Commander, NOAA  
Commanding Officer, NOAA Ship RUDE





U.S. 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 6, 1994

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

Dear Sir:

Following the completion of NOAA Ship RUDE's hydrographic survey of the area in Buzzards Bay between the Wilkes Ledge "G7" buoy, the "G1" buoy 3.0 nautical miles to the ENE, and north to the New Bedford Entrance Channel, several discrepancies have been identified on chart 13230 (39<sup>th</sup> ed. March 27, 93). The sounding discrepancies outlined in this report are in addition to those previously reported by RUDE in this survey area. It is requested that these new discrepancies be published in the Local Notice to Mariners.

The updated depths are outlined in the attached table. These items should be viewed as preliminary information subject to office review. In addition, there is a chartlet enclosed with the boundaries of the survey outlined.

All survey depths were determined during preliminary hydro investigation using a Raytheon DSF-6000N survey fathometer. Some of the depths were then verified with the Reson SEABAT-9001 shallow-water multi-beam sonar system and diver investigation pneumatic depth gauge reading. The depths have been reduced to Mean Lower Low Water (MLLW) by applying predicted tide corrections. The horizontal datum is NAD 83.

These investigations were performed in support of the following hydrographic survey.

REPORT OF DANGER TO NAVIGATION

Hydrographic Survey Registry No.....H-10530  
State.....Massachusetts  
General Locality.....Buzzards Bay  
Locality.....3.0 NM SSW of Scoticut Neck  
Project Number.....B616-RU-94  
Surveyed by.....NOAA Ship RUDE





\* THESE UPDATED DEPTHS AFFECT THE FOLLOWING CHARTS:

Chart 13229 (25<sup>th</sup> ed. March 27, 93)  
Chart Scale 1:40,000

Chart 13230 (39<sup>th</sup> ed. March 27, 93)  
Chart Scale 1:40,000

Chart 13218 (32<sup>nd</sup> ed. June 26, 93)  
Chart Scale 1:80,000

** DEPTH (MLLW)	LATITUDE	LONGITUDE
22 ft	41°-35'-55.9"N	070°-53'-17.4"W
<del>18</del> 19 ft	41°-35'-14.9"N	070°-54'-24.8"W
<del>20</del> 21 ft	41°-35'-11.3"N	070°-54'-36.2"W
22 ft	41°-35'-06.1"N	070°-53'-38.3"W
<del>25</del> 27 ft	41°-34'-50.2"N	070°-53'-21.6"W
27 ft	41°-34'-54.1"N	070°-52'-28.3"W
<del>30</del> 31 ft	41°-34'-43.4"N	070°-52'-21.6"W
<del>30</del> 29 ft	41°-34'-34.0"N	070°-52'-19.6"W
<del>30</del> 29 ft	41°-33'-31.8"N	070°-52'-02.7"W
<del>21</del> 22 ft	41°-33'-32.1"N	070°-51'-25.0"W
25 ft	41°-33'-27.4"N	070°-51'-56.3"W
<del>28</del> 28 ft	41°-33'-24.3"N	070°-51'-24.0"W
<del>28</del> 24 ft	41°-32'-59.0"N	070°-52'-58.6"W
<del>41</del> 39 ft	41°-32'-59.3"N	070°-51'-26.0"W
18 ft	41°-32'-54.0"N	070°-51'-57.4"W
31 ft	41°-32'-52.2"N	070°-52'-21.1"W
<del>27</del> 28 ft	41°-32'-39.9"N	070°-53'-11.2"W
<del>41</del> 39 ft	41°-32'-33.9"N	070°-51'-26.4"W
24 ft	41°-32'-29.5"N	070°-53'-22.2"W
37 ft	41°-32'-23.1"N	070°-52'-51.1"W
<del>37</del> 36 ft	41°-32'-17.2"N	070°-50'-47.6"W
37 ft	41°-32'-05.0"N	070°-52'-55.0"W
<del>44</del> 45 ft	41°-32'-06.0"N	070°-51'-05.9"W
<del>34</del> 33 ft	41°-31'-52.0"N	070°-51'-34.2"W
<del>30</del> 29 ft	41°-31'-55.9"N	070°-53'-23.6"W

\* Updated depths should be viewed as preliminary information, subject to office review.

\*\* Depths reduced to MLLW using predicted tides.

SOUNDINGS TO BE DELETED FROM THE FOLLOWING CHARTS:

Chart 13229 (25<sup>th</sup> ed. March 27, 93)  
Chart Scale 1:40,000

Chart 13230 (39<sup>th</sup> ed. March 27, 93)  
Chart Scale 1:40,000

Chart 13218 (32<sup>nd</sup> ed. June 26, 93)  
Chart Scale 1:80,000

DEPTH (MLLW)	LATITUDE	LONGITUDE
25 ft	41°-35'-55.5"N	070°-53'-17.3"W
22 ft	41°-35'-14.7"N	070°-54'-20.8"W
25 ft	41°-35'-10.0"N	070°-54'-32.6"W
29 ft	41°-35'-08.1"N	070°-53'-38.4"W
30 ft	41°-34'-54.4"N	070°-52'-30.3"W
32 ft	41°-34'-43.2"N	070°-52'-23.2"W
32 ft	41°-34'-34.1"N	070°-52'-20.6"W
28 ft	41°-33'-29.3"N	070°-51'-58.0"W
31 ft	41°-32'-57.8"N	070°-53'-00.2"W
23 ft	41°-32'-54.4"N	070°-51'-57.2"W
44 ft	41°-33'-01.2"N	070°-51'-29.0"W
27 ft	41°-32'-38.5"N	070°-53'-03.3"W
47 ft	41°-32'-34.9"N	070°-51'-24.7"W
49 ft	41°-32'-05.3"N	070°-51'-07.6"W
27 ft	41°-34'-30.8"N	070°-52'-15.3"W
28 ft	41°-32'-27.5"N	070°-53'-25.7"W

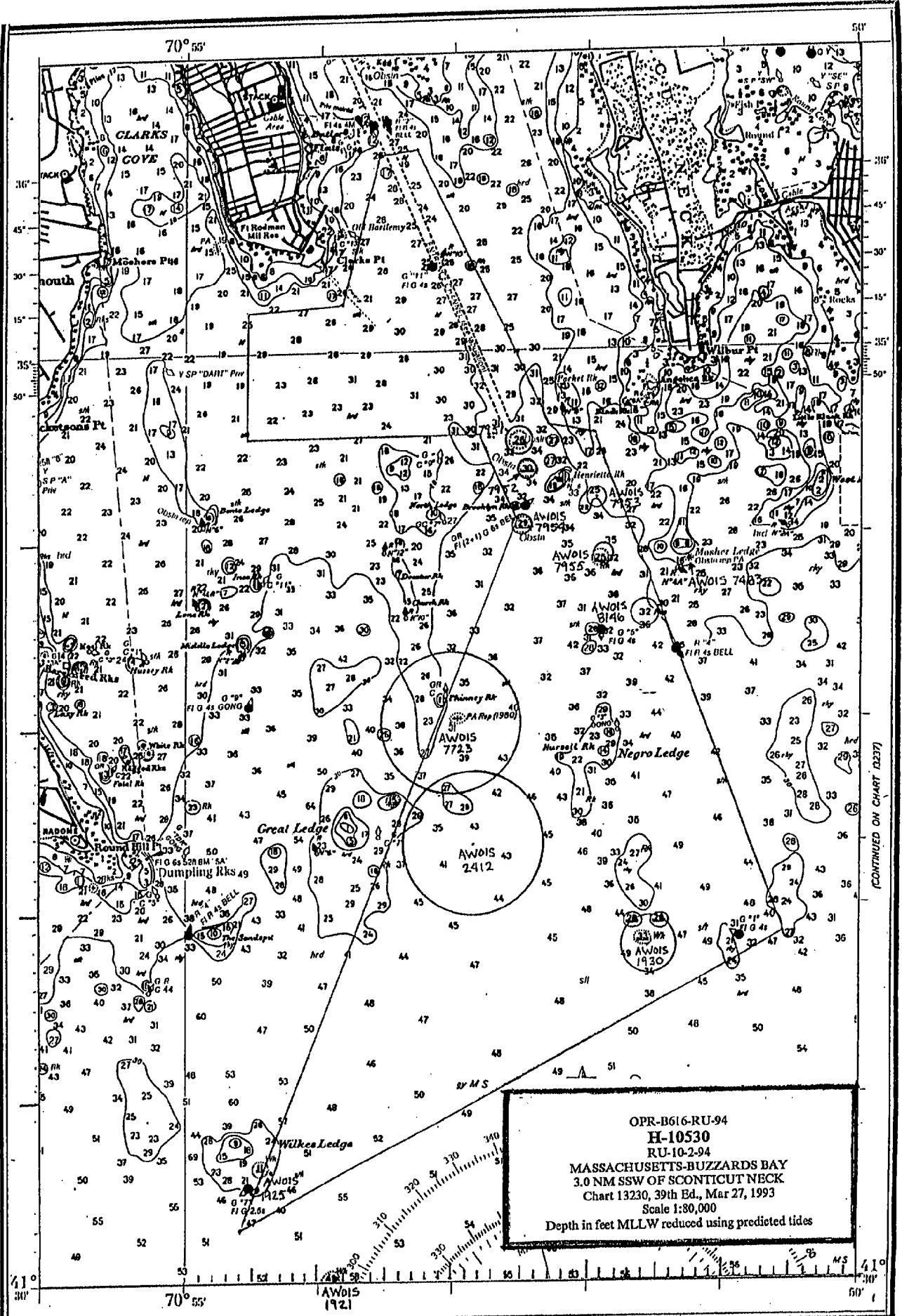
Contact either of the following personnel for further information:

Commanding Officer  
NOAA Ship RUDE  
16 Sconticut Neck Rd.  
#244  
Fairhaven, MA. 02719  
508-979-0600

Chief, Atlantic Hydrographic Section  
Atlantic Marine Center  
439 W. York St.  
Norfolk, VA. 23510  
804-441-6746

Sincerely,

*Daniel R. Herlihy*  
Daniel R. Herlihy  
Lieutenant Commander, NOAA  
Commanding Officer, NOAA Ship RUDE



B616-RU-94  
H-10530  
DIVE INVESTIGATION REPORT  
16-Foot Least Depth Uncharted Rock Hazard  
HDAPS Fix 2812.2  
DIVE 222/1

DATE: August 10, 1994 DN: 222

DIVEMASTER\TENDER - ENS WILLIAMS

DIVERS - LCDR HERLIHY

COXSAIN\TENDER - SS BRAWLEY

- ENS HAUPT

VISIBILITY: 10 FEET

CURRENT: 1.0 KTS

MAXIMUM DEPTH: 38 FEET

BOTTOM TIME: 15 MIN.

METHOD OF POSITION DETERMINATION: DETACHED POSITION

HDAPS POSITION: DSF FIX - 12001

PNEUMATIC DEPTH GAUGE FIX - 12080

EASTING: 55633.6

NORTHING: 60196.7

LATITUDE: 041°32'31.282"N

LONGITUDE: 070°53'08.386"W

AVERAGE LEAST DEPTH BY PNEUMATIC DEPTH GAUGE:

6.2 meters

TIME OF READING:

1257 UTC

PNEUMATIC DEPTH GAUGE CORRECTOR:

0.0 meters

*Approved*  
~~PREDICTED~~ TIDAL ZONE CORRECTOR:

*.9*  
~~-1.2~~ meters

LEAST DEPTH DETERMINED AT MLLW:

*3*  
~~5.0~~ meters

NARRATIVE REPORT: The object of this dive was side scan sonar contact 1707.12S, which was investigated by echo sounder and SEABAT during development 18F1. This contact was not associated with an AWOIS item.

The dive buoy was dropped in position E=55633.3 and N=60197.0, taken from HDAPS fix number 2812.2. Divers descended to find a large rock with a circular, flat, sloping top, approximately 30 feet in diameter and covered with marine growth. The base of the rock was approximately 50 feet in diameter, rose approximately 17 feet off the surrounding flat, sandy bottom, and has ~~an~~ *Approved* predicted tide corrected pneumatic depth gauge least depth of 5.0 meters (16.4 feet). The Detached Position (fix #12001) was taken immediately following the dive. This position and least depth were entered into HDAPS via the Manual Data Entry program as fix #12080.

*Sea Bat L.D 5.2 m (17.1ft)*

B616-RU-94  
H-10530  
DIVE INVESTIGATION REPORT  
AWOIS 2412 / Wreck YANKEE  
HDAPS Fix 2834.2  
DIVE 222/2

DATE: August 10, 1994 DN: 222

DIVEMASTER\TENDER - ENS WILLIAMS

DIVERS - LCDR HERLIHY

COXSAIN\TENDER - SS BRAWLEY

- ENS HAUPT

VISIBILITY: 10 FEET

CURRENT: 1.0 KTS

MAXIMUM DEPTH: 51 FEET

BOTTOM TIME: 18 MIN.

METHOD OF POSITION DETERMINATION: DETACHED POSITION

HDAPS POSITION: DSF FIX - 12003

PNEUMATIC DEPTH GAUGE FIX - 12081 ✓

EASTING: 56179.8

NORTHING: 60182.1

LATITUDE: 041°32'30.819"N

LONGITUDE: 070°52'44.820"W

AVERAGE LEAST DEPTH BY PNEUMATIC DEPTH GAUGE:

12.5 meters

TIME OF READING:

1344 UTC

PNEUMATIC DEPTH GAUGE CORRECTOR:

0.0 meters

*Approved*  
~~PREDICTED~~ TIDAL ZONE CORRECTOR:

-1.<sup>2</sup>/<sub>8</sub> meters

LEAST DEPTH DETERMINED AT MLLW:

<sup>3</sup>  
11.<sup>3</sup>/<sub>4</sub> meters

NARRATIVE REPORT: The object of this dive was side scan sonar contact 422.07P, which was echo sounder and SEABAT investigated during development 18G1. This contact is associated with AWOIS 2412, the wreck of the USS YANKEE.

The dive buoy was dropped in position E=56174.1 and N=60174.1, taken from HDAPS fix number 2834.2. Divers descended to find the bow portion of the YANKEE wreckage lying roughly in the east-west direction. Divers swam the length of this portion and estimated it to be 45 to 55 feet long and 25 feet wide, lying in a sandy bottom covered with pebbles. It was obvious that the hull had been blown apart as described in its AWOIS description. *Approved*  
A predicted tide corrected pneumatic least depth of 11.<sup>2</sup>/<sub>8</sub> meters (36.7 feet) was taken on a rectangular metal fixture located toward one end of the wreckage. The Detached Position (fix #12003) was taken immediately following the dive, and later entered along with the least depth into HDAPS via the Manual Data Entry program as fix #12081.

B616-RU-94  
H-10530  
DIVE INVESTIGATION REPORT  
Negro Ledge 14-Foot Charted Sounding  
DIVE 222/3

DATE: August 10, 1994 DN: 222

DIVEMASTER\TENDER - ENS WILLIAMS

DIVERS - LCDR HERLIHY

COXSAIN\TENDER - SS BRAWLEY

- ENS HAUPT

VISIBILITY: 15 FEET

CURRENT: 0.5 KTS

MAXIMUM DEPTH: 32 FEET

BOTTOM TIME: 10 MIN.

METHOD OF POSITION DETERMINATION: DETACHED POSITION

HDAPS POSITION: DSF FIX - 12005

PNEUMATIC DEPTH GAUGE FIX - 12082

EASTING: 57368.3

NORTHING: 60736.1

LATITUDE: 041°32'48.793"N

LONGITUDE: 070°51'53.552"

AVERAGE LEAST DEPTH BY PNEUMATIC DEPTH GAUGE:

5.9 meters

TIME OF READING:

1425 UTC.

PNEUMATIC DEPTH GAUGE CORRECTOR:

0.0 meters

*Approved*  
~~PREDICTED~~ TIDAL ZONE CORRECTOR:

-1.3 meters

LEAST DEPTH DETERMINED AT MLLW:

4.6 meters

NARRATIVE REPORT: The object of this dive was a 14-foot charted sounding within Negro Ledge, which was echo sounder and SEABAT developed as part of the delineation of this significant shoal feature located in the middle of survey H-10530.

The dive buoy was dropped in position E=57362.0 and N=60733.0, taken from the SEABAT least depth investigation of this area. Divers descended to find a broad, rocky shoal area surrounded by a rocky bottom. Divers investigated the limits of the feature and found no prominent peaks. The ~~Predicted~~ *Approved* tide corrected least depth by pneumatic depth gauge was 4.6 meters (15.1 ft). The Detached Position (fix #12005) was taken immediately following the dive, and later entered along with the least depth into HDAPS via the Manual Data Entry program as fix #12082.

Sea Bat L.D. 4.2 m (<sup>14</sup>/~~13.8~~ ft)

B616-RU-94  
H-10530  
DIVE INVESTIGATION REPORT  
Negro Ledge 16-Foot Charted Sounding  
DIVE 222/4

DATE: August 10, 1994 DN: 222

DIVEMASTER\TENDER - ENS WILLIAMS

DIVERS - LCDR HERLIHY

COXSAIN\TENDER - SS BRAWLEY

- ENS HAUPT

VISIBILITY: 15 FEET

CURRENT: 0.0 KTS

MAXIMUM DEPTH: 30 FEET

BOTTOM TIME: 13 MIN.

METHOD OF POSITION DETERMINATION: DETACHED POSITION

HDAPS POSITION: DSF FIX - 12014

PNEUMATIC DEPTH GAUGE FIX - 12083

EASTING: 57427.3

NORTHING: 60944.3

LATITUDE: 041°32'55.543"N

LONGITUDE: 070°51'51.009"W

AVERAGE LEAST DEPTH BY PNEUMATIC DEPTH GAUGE:

6.7 meters

TIME OF READING:

1447 UTC

PNEUMATIC DEPTH GAUGE CORRECTOR:

0.0 meters

*Approved*  
~~PREDICTED~~ TIDAL ZONE CORRECTOR:

-1.3 meters

LEAST DEPTH DETERMINED AT MLLW:

5.4 meters

NARRATIVE REPORT: The object of this dive was a 16-foot charted sounding within Negro Ledge, which was echo sounder and SEABAT developed as part of the delineation of this significant shoal feature located in the middle of survey H-10530.

The dive buoy was dropped in position E=57418.0 and N=60936.0, taken from the SEABAT least depth investigation of this area. Divers descended to find a broad, rocky shoal area surrounded by a rocky bottom. Divers investigated the limits of the feature and found no prominent peaks. The ~~predicted~~ <sup>*Approved*</sup> tide corrected least depth by pneumatic depth gauge was 5.4 meters (17.6 feet). The Detached Position (fix #12014) was taken immediately following the dive, and later entered along with the least depth into HDAPS via the Manual Data Entry program as fix #12083.

*SeaBat h.D. 4.9m (16.1ft)*

*Pos# 13001*

B616-RU-94  
H-10530  
DIVE INVESTIGATION REPORT  
Side Scan Contact 1666.55P  
Wreck in vicinity of Wilkes Ledge  
DIVE 222/5

DATE: August 10, 1994 DN: 222

DIVEMASTER\TENDER - ENS HAUPT DIVERS - LTJG BRENNAN

COXSAIN\TENDER - SS BRAWLEY - ENS WILLIAMS

VISIBILITY: 15 FEET CURRENT: 0.0 KTS

MAXIMUM DEPTH: 50 FEET BOTTOM TIME: 22 MIN.

METHOD OF POSITION DETERMINATION: DETACHED POSITION

HDAPS POSITION: DSF FIX - 12019 PNEUMATIC DEPTH GAUGE FIX - 12084

EASTING: 54235.4 NORTHING: 57144.2

LATITUDE: 041°30'52.305"N LONGITUDE: 070°54'08.606"W

AVERAGE LEAST DEPTH BY PNEUMATIC DEPTH GAUGE: 12.4 meters

TIME OF READING: 1654 UTC

PNEUMATIC DEPTH GAUGE CORRECTOR: 0.0 meters

*Approved*  
~~PREDICTED~~ TIDAL ZONE CORRECTOR: -0.<sup>7</sup>/<sub>8</sub> meters

LEAST DEPTH DETERMINED AT MLLW: 11.<sup>7</sup>/<sub>8</sub> meters

NARRATIVE REPORT: The object of this dive was a wreck first encountered as side scan sonar contact 1666.55P, which was later echo sounder and SEABAT investigated during development 26B1. This wreck was not associated with an AWOIS item.

The dive buoy was dropped in position E=54233.4 and N=57143.0, taken from HDAPS fix number 2674.2. Divers descended to find the wreck of a small wooden fishing vessel lying roughly in the east - west direction, sitting up-right on a sandy bottom. Divers swam the length of the wreck and estimated it to be approximately 65 to 70 feet long and approximately 20 feet wide. The ~~predicted~~ *Approved* tide corrected pneumatic depth gauge least depth of 11.<sup>7</sup>/<sub>8</sub> meters (38.05 feet) was taken on a deck vent near the bow of the wreck. The Detached Position (fix #12019) was taken immediately following the dive, and later entered along with the least depth into HDAPS via the Manual Data Entry program as fix #12084.

*L.D. 11.4 m (37.4 ft) pos # 2674.2*



B616-RU-94  
H-10530  
DIVE INVESTIGATION REPORT  
Henrietta Rock 11-Foot Charted Sounding  
DIVE 222/6

DATE: August 10, 1994 DN: 222

DIVEMASTER\TENDER - ENS HAUPT                      DIVERS - LTJG BRENNAN

COXSAIN\TENDER        - SS BRAWLEY                      - ENS WILLIAMS

VISIBILITY: 10 FEET                      CURRENT: 0.0 KTS

MAXIMUM DEPTH: 20 FEET                      BOTTOM TIME: 40 MIN.

METHOD OF POSITION DETERMINATION: DETACHED POSITION

HDAPS POSITION: DSF FIX - 12022                      PNEUMATIC DEPTH GAUGE FIX - 12085

EASTING: 56938.7                      NORTHING: 63526.9

LATITUDE: 041°34'19.249"N                      LONGITUDE: 070°52'12.139"W

AVERAGE LEAST DEPTH BY PNEUMATIC DEPTH GAUGE:                      3.9 meters

TIME OF READING:                      2114 UTC

PNEUMATIC DEPTH GAUGE CORRECTOR:                      0.0 meters

*Approved*  
~~PREDICTED~~ TIDAL ZONE CORRECTOR:                      0.0 meters

LEAST DEPTH DETERMINED AT MLLW:                      3.9 meters

NARRATIVE REPORT: The object of this dive was Henrietta Rock, a charted 11-foot sounding near buoy R "6" at the south end of the New Bedford Entrance Channel. The dive buoy was dropped using a GPS target (E = 56941.2 and N = 63530.8) and the fathometer. This was accomplished by driving Launch 770 over the area using the GPS target to get close and dropping the dive buoy when the bottom peaked on the fathometer. The launch was anchored on this rock, near the dive buoy, and divers descended the anchor line to the top of the rock.

This feature was found to be a large, steeply sloped shoal area with no pronounced peaks. The top was relatively flat and covered with grass and marine growth, and yielded an ~~unpredicted~~ *Approved* tide corrected pneumatic depth gauge reading of 3.8 meters (12.5 feet). Due to Differential GPS problems, no detached positions were taken at the time of the dive. The dive buoys were secured to the bottom at the point of the least depth and the Detached Position (fix # 12022) was obtained the following day (DN 223) by the ship. This position was entered with the least depth into HDAPS via the Manual Data Entry program as fix #12085.

*Sea Bat L.D. 3.2 m (10.5 ft)*

*Pos# 13006*

B616-RU-94  
H-10530  
DIVE INVESTIGATION REPORT  
Side Scan Contact 728.23S  
Brooklyn Rock 18-Foot Charted Sounding  
DIVE 229/1

DATE: August 17, 1994 DN: 229

DIVEMASTER\TENDER - ENS WILLIAMS DIVERS - LCDR HERLIHY

COXSAIN\TENDER - SS BRAWLEY - ENS HAUPT

VISIBILITY: 5 FEET CURRENT: 0.0 KTS

MAXIMUM DEPTH: 42 FEET BOTTOM TIME: 13 MIN.

METHOD OF POSITION DETERMINATION: DETACHED POSITION

HDAPS POSITION: DSF FIX - 12024 PNEUMATIC DEPTH GAUGE FIX - 12086

EASTING: 56439.4 NORTHING: 63201.1

LATITUDE: 041°34'08.681"N LONGITUDE: 070°52'33.684"W

AVERAGE LEAST DEPTH BY PNEUMATIC DEPTH GAUGE: 6.1 meters

TIME OF READING: 1250 UTC

PNEUMATIC DEPTH GAUGE CORRECTOR: 0.0 meters

~~PREDICTED~~ <sup>Approved</sup> TIDAL ZONE CORRECTOR: -0.<sup>2</sup> meters

LEAST DEPTH DETERMINED AT MLLW: 5.<sup>9</sup> meters

NARRATIVE REPORT: The object of this dive was Brooklyn Rock, a charted 18-foot sounding marked by the Brooklyn Rock buoy at the south end of the New Bedford Entrance Channel. Brooklyn Rock was first encountered as side scan sonar contact 728.23S, and later developed by echo sounder and SEABAT during development 10H1.

The dive buoy was dropped in position E=56432.5 and N=63219.2, taken from HDAPS fix number 3650.2. Divers descended to find a very large rock with a defined peak, surrounded by a flat, sandy bottom. The shoaler of the two peaks was well defined as the rock expanded to a broad base, approximately 30 to 40 feet across, and yielded ~~an~~ <sup>Approved</sup> predicted tide corrected pneumatic depth gauge least depth of 5.<sup>9</sup> meters (19.0 feet). The Detached Position (fix #12024) was taken immediately following the dive, and later entered with the least depth into HDAPS via the Manual Data Entry program as fix #12086.

Sea Bat L.D. 5.8m (19.0ft)  
Pos# 13007

During further investigation of this feature with SEABAT, Brooklyn Rock was found to contain two separate peaks, approximately 17 meters apart. The second peak found was determined to be shoaler than the peak where the dive Detached Position was taken. A full SEABAT investigation was conducted over the entire feature. The inability of the divers to discover both peaks is attributed to visibility and current at the time of the dive and distance between the two peaks. This serves as a good example of the advantage of the SEABAT system. It was decided that the final least depth and position for Brooklyn Rock come from the SEABAT investigation of this item.

B616-RU-94  
H-10530  
DIVE INVESTIGATION REPORT  
HDAPS FIX 4083.0  
Henrietta Rock 19-Foot Charted Sounding  
DIVE 229/2

DATE: August 17, 1994 DN: 229

DIVEMASTER\TENDER - ENS WILLIAMS

DIVERS - LCDR HERLIHY

COXSAIN\TENDER - SS BRAWLEY

- ENS HAUPT

VISIBILITY: 15 FEET

CURRENT: 0.0 KTS

MAXIMUM DEPTH: 32 FEET

BOTTOM TIME: 15 MIN.

METHOD OF POSITION DETERMINATION: DETACHED POSITION

HDAPS POSITION: DSF FIX - 12029

PNEUMATIC DEPTH GAUGE FIX - 12087 ✓

EASTING: 56885.3

NORTHING: 63440.4

LATITUDE: 041°34'16.445"N

LONGITUDE: 070°52'14.443"W

AVERAGE LEAST DEPTH BY PNEUMATIC DEPTH GAUGE:

6.6 meters

TIME OF READING:

1318 UTC

PNEUMATIC DEPTH GAUGE CORRECTOR:

0.0 meters

~~PREDICTED~~ <sup>Approved</sup> TIDAL ZONE CORRECTOR:

-0.2 meters

LEAST DEPTH DETERMINED AT MLLW:

6.4 meters  
(21.0 ft)

NARRATIVE REPORT: The object of this dive was a peak associated with Henrietta Rock, which was echo sounder and SEABAT investigated during development 10I2. Due to the water depth in the vicinity of Henrietta Rock, no side scan sonar data was collected in this area.

The dive buoy was dropped in position E=56884.2 and N=63439.1, taken from HDAPS fix number 4083.0. Divers descended to find an extensive boulder field with a large rock in the center. The rock had a flat top approximately 5 feet across, rose 9 feet off the surrounding bottom, and was covered with marine growth. The ~~predicted~~ <sup>Approved</sup> tide corrected pneumatic depth gauge least depth of this rock was 6.4 meters (21.0 feet). The Detached Position (fix #12029) was taken immediately following the dive, and later entered with the least depth into HDAPS via the Manual Data Entry program as fix #12087.

B616-RU-94  
H-10530  
DIVE INVESTIGATION REPORT  
HDAPS FIX 4066.1  
15-Foot Least Depth Uncharted Rock Hazard  
DIVE 229/3

DATE: August 17, 1994 DN: 229

DIVEMASTER\TENDER - ENS WILLIAMS

DIVERS - LCDR HERLIHY

COXSAIN\TENDER - SS BRAWLEY

- ENS HAUPT

VISIBILITY: 15 FEET

CURRENT: 0.0 KTS

MAXIMUM DEPTH: 32 FEET

BOTTOM TIME: 14 MIN.

METHOD OF POSITION DETERMINATION: DETACHED POSITION

HDAPS POSITION: DSF FIX - 12032

PNEUMATIC DEPTH GAUGE FIX - 12088

EASTING: 56861.8

NORTHING: 63857.1

LATITUDE: 041°34'29.951"N

LONGITUDE: 070°52'15.465"W

AVERAGE LEAST DEPTH BY PNEUMATIC DEPTH GAUGE:

4.9 meters

TIME OF READING:

1338 UTC

PNEUMATIC DEPTH GAUGE CORRECTOR:

0.0 meters

*Approved*  
~~PREDICTED~~ TIDAL ZONE CORRECTOR:

5  
-0.2 meters

0

LEAST DEPTH DETERMINED AT MLLW:

4  
4.8 meters

NARRATIVE REPORT: The object of this dive was an uncharted rock first encountered during mainscheme hydro, and later echo sounder and SEABAT investigated during development 9I2. Due to the water depth in this area near Henrietta Rock, no side scan sonar data was collected at this location.

The dive buoy was dropped in position E=56859.3 and N=63857.7, taken from HDAPS fix number 4066.1. Divers descended to find a large rock outcropping with several obvious peaks rising above the surrounding smaller rocks. The shoalest of these peaks was well defined, covered with marine growth and determined by divers depth gauge to rise 15 feet above the surrounding smaller rocks. The ~~predicted~~ *approved* tide corrected pneumatic depth gauge least depth over this feature was 4.8 meters (15.7 feet). The Detached Position (fix #12032) was taken immediately following the dive, and later entered with the least depth into HDAPS via the Manual Data Entry program as fix #12088.

B616-RU-94  
H-10530  
DIVE INVESTIGATION REPORT  
Side Scan Contact: 1324.14P  
Negro Ledge 19-Foot Charted Sounding  
DIVE 229/4

DATE: August 17, 1994 DN: 229

DIVEMASTER\TENDER - ENS HAUPT                      DIVERS - LTJG BRENNAN

COXSAIN\TENDER - SS BRAWLEY                      - ENS WILLIAMS

VISIBILITY: 15 FEET                      CURRENT: 0.0 KTS

MAXIMUM DEPTH: 33 FEET                      BOTTOM TIME: 15 MIN.

METHOD OF POSITION DETERMINATION: DETACHED POSITION

HDAPS POSITION: DSF FIX - 12037                      PNEUMATIC DEPTH GAUGE FIX - 12089

EASTING: 56913.4                      NORTHING: 60700.8

LATITUDE: 041°32'47.643"N                      LONGITUDE: 070°52'13.179"W

AVERAGE LEAST DEPTH BY PNEUMATIC DEPTH GAUGE:                      5.7 meters

TIME OF READING:                      1642 UTC

PNEUMATIC DEPTH GAUGE CORRECTOR:                      0.0 meters

*Approved*  
~~PREDICTED~~ TIDAL ZONE CORRECTOR:                      -0.<sup>1</sup>/<sub>2</sub> meters

LEAST DEPTH DETERMINED AT MLLW:                      5.<sup>6</sup>/<sub>2</sub> meters

NARRATIVE REPORT: The object of this dive was first encountered as side scan sonar contact 1324.14P, which was later echo sounder and SEABAT developed during development 17I1.

The dive buoy was dropped in position E=56915.6 and N=60705.7, taken from HDAPS fix number 3906.2. Divers descended to find a large shoal area with a relatively flat top of approximately 80 feet by 50 feet. The bottom surrounding this feature was sandy with small rocks. *Approved* ~~AN~~ predicted tide corrected pneumatic depth gauge least depth of 5.<sup>6</sup>/<sub>2</sub> meters (17.<sup>8</sup>/<sub>5</sub> ft) was obtained at the top of this feature. The Detached Position (fix #12037) was taken immediately following the dive, and later entered with the least depth into HDAPS via the Manual Data Entry program as fix #12089.

*Seabat L.D. 5.2 m (17.1 ft)  
pos# 13010*

B616-RU-94  
H-10530  
DIVE INVESTIGATION REPORT  
Side Scan Contact 1689.16S  
DIVE 229/5

DATE: August 17, 1994 DN: 229

DIVEMASTER\TENDER - ENS HAUPT DIVERS - LTJG BRENNAN

COXSAIN\TENDER - SS BRAWLEY - ENS WILLIAMS

VISIBILITY: 10 FEET CURRENT: 0.0 KTS

MAXIMUM DEPTH: 36 FEET BOTTOM TIME: 17 MIN.

METHOD OF POSITION DETERMINATION: DETACHED POSITION

HDAPS POSITION: DSF FIX - 12042 PNEUMATIC DEPTH GAUGE FIX - 12090

EASTING: 55859.7 NORTHING: 61053.1

LATITUDE: 041°32'59.046"N LONGITUDE: 070°52'58.652"W

AVERAGE LEAST DEPTH BY PNEUMATIC DEPTH GAUGE: 7.8 meters

TIME OF READING: 1719 UTC

PNEUMATIC DEPTH GAUGE CORRECTOR: 0.0 meters

<sup>Approved</sup>  
~~PREDICTED~~ TIDAL ZONE CORRECTOR: -0.<sup>2</sup>/<sub>3</sub> meters

LEAST DEPTH DETERMINED AT MLLW: 7.<sup>6</sup>/<sub>3</sub> meters

NARRATIVE REPORT: The object of this dive was first encountered as side scan sonar contact 1689.16S, which was later echo sounder and SEABAT investigated during development 16F1. This contact was located within the search radius of AWOIS 7723, the wreck of the "HECKLER".

The dive buoy was dropped in position E=55855.6 and N=61049.5, taken from HDAPS fix number 2894.2. Divers descended to find a rocky ridge with one well defined pinnacle which rose approximately 8 feet off the surrounding sandy bottom. A circle search was made in the vicinity of this ridge to locate wreckage of the "HECKLER". No wreckage was found. <sup>Approved</sup>~~Predicted~~ tide corrected pneumatic depth gauge least depth of 7.3 meters (23.9 ft) was obtained at the top of the pinnacle. The Detached Position (fix #12042) was taken immediately following the dive, and later entered with the least depth into HDAPS via the Manual Data Entry program as fix #12090.

SeaBat L.D 7.5 m (24.6 ft)

Pos# 13003

B616-RU-94  
H-10530  
DIVE INVESTIGATION REPORT  
Phinney Rock 11-Foot Charted Sounding  
DIVE 229/6

DATE: August 17, 1994 DN: 229

DIVEMASTER\TENDER - ENS HAUPT DIVERS - LTJG BRENNAN

COXSAIN\TENDER - SS BRAWLEY - ENS WILLIAMS

VISIBILITY: 10 FEET CURRENT: 0.0 KTS

MAXIMUM DEPTH: 36 FEET BOTTOM TIME: 16 MIN.

METHOD OF POSITION DETERMINATION: DETACHED POSITION

HDAPS POSITION: DSF FIX - 12045 PNEUMATIC DEPTH GAUGE FIX - 12091

EASTING: 55712.7 NORTHING: 61344.2

LATITUDE: 041°33'08.479"N LONGITUDE: 070°53'05.003"W

AVERAGE LEAST DEPTH BY PNEUMATIC DEPTH GAUGE: 4.2 meters

TIME OF READING: 1756 UTC

PNEUMATIC DEPTH GAUGE CORRECTOR: 0.0 meters

*Approved*  
~~PREDICTED~~ TIDAL ZONE CORRECTOR: -0.<sup>3</sup>/<sub>4</sub> meters

LEAST DEPTH DETERMINED AT MLLW: 3.<sup>6</sup>/<sub>5</sub> meters

NARRATIVE REPORT: The object of this dive was the 11-foot charted sounding at Phinney Rock. This contact was located within the search radius of AWOIS 7723, but obviously not associated with a wreck.

The dive buoy was dropped in position E=55705.0 and N=61300.0, the charted position of Phinney Rock. Divers descended to find one large boulder with a well defined pinnacle, which rose approximately 21 feet above the surrounding sandy bottom. The *Approved* ~~predicted~~ tide corrected pneumatic depth gauge least depth of 3.<sup>6</sup>/<sub>5</sub> meters (1<sup>7</sup>/<sub>8</sub> ft) was obtained on top of the pinnacle. The Detached Position (fix #12045) was taken immediately following the dive, and later entered with the least depth into HDAPS via the Manual Data Entry program as fix #12091.

SeaBat L.D 3.3 m (11ft)  
Pos # 13013



B616-RU-94  
H-10530  
DIVE INVESTIGATION REPORT  
33-Foot Rock Hazard  
SSS Contact 683.11P  
DIVE 242/1

DATE: August 30, 1994 DN: 242

DIVEMASTER\TENDER - ST HARDISON

DIVERS - ENS WILLIAMS

COXSAIN\TENDER - SS BRAWLEY

- ENS HAUPT

VISIBILITY: 15 FEET CURRENT: 0.0 KTS

MAXIMUM DEPTH: 42 FEET BOTTOM TIME: 26 MIN.

METHOD OF POSITION DETERMINATION: DETACHED POSITION

HDAPS POSITION: DSF FIX - 12047 PNEUMATIC DEPTH GAUGE FIX - 12092

EASTING: 57803.3

NORTHING: 58883.8

LATITUDE: 041°31'48.757"N

LONGITUDE: 070°51'34.758"W

AVERAGE LEAST DEPTH BY PNEUMATIC DEPTH GAUGE: 10.8 meters

TIME OF READING: 1945 UTC

PNEUMATIC DEPTH GAUGE CORRECTOR: 0.0 meters

*Approved*  
~~PREDICTED~~ TIDAL ZONE CORRECTOR: ~~-1.0~~ <sup>-0.9</sup> meters

LEAST DEPTH DETERMINED AT MLLW: 9.8 meters

NARRATIVE REPORT: The object of this dive was first encountered as side scan sonar contact 683.11P, which was later echo sounder and SEABAT investigated during development 21K6. This contact is located within the search radius of AWOIS 1930, the wreck of the fishing vessel UNCLE JOHN.

The dive buoy was dropped in position E=57803.2 and N=58883.7, taken from HDAPS fix number 4893.3. Divers descended to find three large rocks roughly aligned in an east-west direction, with a spacing between the rocks of approximately 10 meters. One rock was obviously the shoalest, rising approximately 10 feet above the surrounding flat, sandy bottom, with a ~~predicted~~ <sup>*Approved*</sup> tide corrected pneumatic depth gauge least depth of 9.8<sup>8</sup> meters (32.2<sup>5</sup> feet). A circle search was made in the vicinity of the rocks to locate wreckage of the "UNCLE JOHN". No wreckage was found. The Detached Position (fix #12047) on the rock was taken immediately following the dive, and later entered with the least depth into HDAPS via the Manual Data Entry program as fix #12092.

*SeaBat L.D. 9.9m (32.5ft)  
post# 13015*

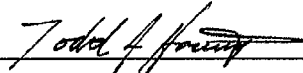
APPENDIX VII

APPROVAL SHEET

LETTER OF APPROVAL

REGISTRY NO. H-10530

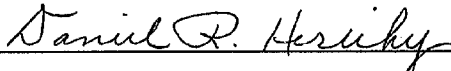
This report and the accompanying field sheets are respectfully submitted.



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Todd A. Haupt, ENS, NOAA  
Field Operations Officer  
NOAA Ship RUDE

Field operations contributing to the accomplishment of this survey were conducted under my direct supervision with frequent personal checks of progress and adequacy. This report and field sheets have been closely reviewed and are considered complete and adequate for nautical charting.



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Daniel R. Herlihy, LCDR, 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: November 9, 1994

MARINE CENTER: Atlantic

HYDROGRAPHIC PROJECT: OPR-B616

HYDROGRAPHIC SHEET: H-10530

LOCALITY: Massachusetts, Buzzards Bay 3.5 Nautical Miles Southwest  
of Sconticut Neck

TIME PERIOD: April 7 - September 6, 1994

TIDE STATION USED: 844-8248 Penikese Island, Ma.  
Lat.  $41^{\circ} 27.0'N$  Lon.  $70^{\circ} 55.3'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 2.64 ft.  
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.6 ft.

TIDE STATION USED: 845-2660 Newport, R.I.  
Lat.  $40^{\circ} 30.3'N$  Lon.  $71^{\circ} 19.6'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 1.67 ft.  
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.7 ft.

REMARKS: RECOMMENDED ZONING

1. South of  $41^{\circ} 32.0'N$  times and heights are direct on Penikese Island, Ma. (844-8248). When data is not available for Penikese Island, times and heights are direct using Newport, R.I. (845-2660).
2. North of  $41^{\circ} 32.0'N$ , and south of  $41^{\circ} 34.0'N$ , apply a +12 minute time correction and heights are direct on Penikese Island, Ma. (844-8248). When data is not available for Penikese Island, apply a +12 minute time correction and heights are direct on Newport, R.I. (845-2660).

Page 1 of 2



3. North of  $41^{\circ} 34.0'N$ , apply a +12 minute time correction and a X1.04 range ratio to all heights using Penikese Island, Ma. (844-8248). When data is not available for Penikese Island, Ma., apply a +12 minute time correction, and a X1.04 range ratio to heights using Newport, R.I. (845-2660).

Notes: Times are tabulated on Greenwich Mean Time. The data for Newport, R.I. (845-2660) is stored in the Next Generation Water Level System temporary file # 645-2660.

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

GEOGRAPHIC NAMES

H-10530

Name on Survey	A ON CHART NO. 13232 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										
	BROOKLYN ROCK	X		X							
BUZZARDS BAY	X		X								2
GREAT LEDGE	X		X								3
HENRIETTA ROCK	X		X								4
HURSELL ROCK	X		X								5
MASSACHUSETTS (title)	X		X								6
MOSHER LEDGE	X		X								7
NEGRO LEDGE	X		X								8
NEW BEDFORD HARBOR	X		X								9
NORTH LEDGE	X		X								10
OLD BARTLEMY (rock)	X		X								11
PHINNEY ROCK	X		X								12
SCONTICUT NECK (title)	X		X								13
WEST ISLAND LEDGE	X		X								14
WILKES LEDGE	X		X								15
											16
											17
											18
											19
											20
											21
											22
											23
											24
											25

Approved

*Chris Clay*  
Chief Geographer

APR 20 1995

07/18/95

HYDROGRAPHIC SURVEY STATISTICS  
REGISTRY NUMBER: H-10530

NUMBER OF CONTROL STATIONS	2
NUMBER OF POSITIONS	5228
NUMBER OF SOUNDINGS	24936

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	180	02/09/95
VERIFICATION OF FIELD DATA	189	07/14/95
QUALITY CONTROL CHECKS	19	
EVALUATION AND ANALYSIS	34	
FINAL INSPECTION	5	07/14/95
COMPILATION	16	07/13/95
TOTAL TIME	443	
ATLANTIC HYDROGRAPHIC BRANCH APPROVAL		07/17/95

**ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT FOR H-10530 (1994)**

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

The area surveyed is very rocky and especially in the vicinity of rocky shoals. The bottom characteristic "rky" is used extensively on the smooth sheet due to cartographic limitations which prohibit labeling all rocks found in these areas. Rocks shown on the smooth sheet are considered the most significant identified during field and office processing.

**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. The smooth sheet has been annotated with ticks showing the computed mean shift between the NAD 83 and the North American Datum of 1927 (NAD 27).

To place the smooth plots on the NAD 27, move the projection lines 0.381 seconds (11.762 meters or 1.18 mm at the scale of the survey) north in latitude and 1.873 seconds (43.412 meters or 4.34 mm at the scale of the survey) east in longitude.

**L. JUNCTIONS**

H-10461 (1993) to the south

A standard junction was effected with H-10461 (1993). There are no junctions to the north, east or west; present survey depths are in harmony with charted depths in these areas.

**N. ITEM INVESTIGATIONS**

**N.7.2.** AWOIS item #2412, the wreck of the USS YANKEE is not charted, but was located by the field unit. It is recommended that a dangerous sunken wreck, with a known depth

of 37-ft (11<sup>3</sup> m), (37 Wk), and a danger curve, be charted in Latitude 41°32'30.819"N, Longitude 70°52'44.820"W.

**N.7.3.** Automated Wreck and Obstruction Information System (AWOIS) Item #7723, a charted dangerous submerged wreck, PA rep (1980), in Latitude 41°33'00.00"N, Longitude 70°53'01.18"W, originates with Local Notice to Mariners 30 of 1980 (LNM 30/80). Approximately 60% of the required search area was investigated by the field unit using side scan sonar and fathometer with negative results. The field unit did not investigate the entire search area due to shallow water constraints. A rock with a depth of 24-ft (7<sup>5</sup> m), in Latitude 41°32'59.01"N, Longitude 70°52'50.82"W, was located during this investigation. It is the opinion of the hydrographer that this charted dangerous submerged wreck, PA, rep (1980), does not exist within the portion of the search radius completed; however, additional work is recommended to ascertain the disposition of the charted feature. It is recommended that the charted dangerous submerged wreck, PA, rep (1980), be revised to a dangerous submerged wreck, PA in the charted position. It is also recommended the a rock located by the field unit be charted as shown on the present survey.

**N.7.6.** AWOIS item #7953, an uncharted 25-foot depth in Latitude 41°34'13.38"N, Longitude 70°51'58.12"W is considered disproved by the present survey. A 25 foot depth, in Latitude 41°34'14.567"N, Longitude 70°51'54.776"W, was located by the present survey. The 25-ft depth located by the field unit is 86 meters ENE of the charted depth. It is recommended that the charted 25-ft depth be deleted, and a 25-ft depth be charted as shown on the present survey.

**O. COMPARISON WITH CHARTS**

<u>13232</u>	( <u>2<sup>nd</sup> Edition, May 15/93</u> )
<u>13230</u>	( <u>39<sup>th</sup> Edition, Mar. 27/93</u> )
<u>13229SC</u>	( <u>25<sup>th</sup> Edition, Mar. 27/93</u> )
<u>13218</u>	( <u>32<sup>nd</sup> Edition, Jun. 26/93</u> )

The charted hydrography originates with prior surveys and unascertainable sources which require no further consideration. Attention is directed to the following:



The charted Spoil Area (discontinued) in the vicinity of Latitude 41°34'30.0"N, Longitude 70°49'30.0"W, was investigated by the present survey. It is recommended that depths from the present survey be charted in this area.

The present survey is adequate to supersede the charted hydrography in the common area, except where noted in this report.

**O.3. CONTROLLING DEPTHS**

There are no conflicts between the present survey depths and the charted tabulation for New Bedford Harbor Entrance Channel.

**P. ADEQUACY OF SURVEY**

This is an adequate side scan sonar survey. Additional work is recommended for AWOIS Item 7723, which is discussed in sections N~~1~~.3. of this report.

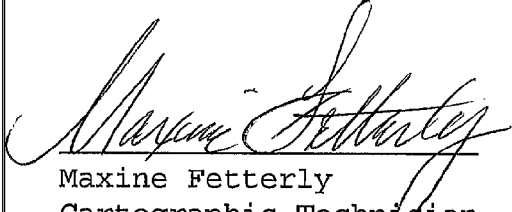
**Q. AIDS TO NAVIGATION**

**Q.5.** The charted submerged sewer pipeline located in the vicinity of Latitude 41°35'18"N, Longitude 70°53'54"W, was neither verified or disproved by the field unit. No change in charting status is recommended.

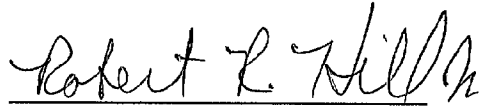
**S. MISCELLANEOUS**

Chart compilation using the present survey data was done by Atlantic Hydrographic Branch personnel in Norfolk, Virginia. Compilation data will be forwarded to headquarters upon completion of the project.

**RUDE Processing Team**



Maxine Fetterly  
Cartographic Technician  
Verification of Field Data



Robert R. Hill, Jr.  
Cartographer  
Evaluation and Analysis

APPROVAL SHEET  
H-10530

Initial Approvals:

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



Robert G. Roberson  
Cartographer  
Atlantic Hydrographic Branch

Date: July 17, 1995

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




Nicholas E. Perugini, CDR, NOAA  
Chief, Atlantic Hydrographic Branch

Date: July 17, 1995

\*\*\*\*\*

Final Approval:

Approved: 

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

Date: July 17, 1995

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

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. H-10530

**INSTRUCTIONS**

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

CHART	DATE	CARTOGRAPHER	REMARKS
13232	7/17/95	Robert Hill	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No.
13232	7/25/95	L. Ankema PS	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No. 3, Then H-DWG
13229E	7/26/95	L. Ankema PS	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No. 26 - <del>THRU</del>
13229F	8/8/95	L. Ankema PS	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No. 26 - THRU 13230 DRG # 51
13230	7/20/95	L. Ankema PS	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No. 51 Then 13229E & 13232
13278	8/9/95	L. Ankema PS	Full <del>Part Before</del> After Marine Center Approval Signed Via Drawing No. Then 13229E & F
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.
			Full Part Before After Marine Center Approval Signed Via Drawing No.