NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Side Scan Sonar

Field No. RU-10-01-92

Registry No. FE-375

LOCALITY

State Massachusetts

General Locality Rhode Island Sound

Sublocality Vicinity of Gooseberry Neck

1992

CHIEF OF PARTY
LCDR N.E. Perugini

DIAGRAM 1210-4

Charts

CP-2
31228
13229E
13218
12300
13200
(13009 N.C.)

NOAA FORM 77-28
(11-72)

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

HYDROGRAPHIC TITLE SHEET

REGISTER NO. FE-375SS

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-10-1-92

State Massachusetts

General locality Rhode Island Sound

Locality Vicinity of Gooseberry Neck

Scale 1:10,000 Date of survey 4 June through 6 July, 1992

Instructions dated 12 February, 1992 Project No. OPR-B660-RU-92

Vessel NOAA Ship RUDE (9040)

Chief of party LCDR Nicholas E. Perugini, NOAA

Surveyed by N. E. Perugini, P. L. Schattgen, J. A. Illg, R. T. Brennan, D. E. Williams

Soundings taken by echo sounder, hand lead, pole Pneumatic Gauge

Graphic record scaled by NEP, PLS, JAI, RTB, DEW

Graphic record checked by NEP, PLS, JAI, RTB, DEW

Protracted by N/A Automated plot by ~~N/A~~ Xynetics 1201 Plotter (AMC)

Verification by ~~N/A~~ Atlantic Hydrographic Section

Soundings in ~~fathoms feet~~ Meters at ~~MHW~~ MLLW

REMARKS: All times recorded in UTC

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

AWOLS and SURF chk
1/21/93 MCR

KWW 1/6/93

NOAA FORM 77-28 SUPERSEDES FORM C&GS-537.

U.S. G.P.O. 1972-769-565/519 REG.#6

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A. PROJECT

A.1 This survey was conducted in accordance with Hydrographic Project Instructions OPR-B660-RU, Southern New England Coast, Connecticut and New York.

A.2 The original date of the instructions is February 12, 1992.

A.3 The following changes are relevant to this project:

Change No. 1, dated April 2, 1992, authorized the implementation of the Pilot Partnership Processing Project.

Change No. 2, dated April 14, 1992, states that all AWOIS item surveys shall be at the scale of 1:20,000 when the largest scale chart of the area is smaller than 1:20,000. When the largest scale chart of the area is 1:20,000 or larger, the scale of the survey shall be 1:10,000.

A.4 A sheet letter was not specified in the project instructions.

A.5 Project OPR-B660-RU responds to requests from the Northeast Marine Pilots, Inc., of Newport, Rhode Island, to verify or disprove certain wrecks and obstructions in Long Island, Block Island, and Rhode Island Sounds. The U.S. Navy, as well as state and local governments, have also requested updated bathymetric and hydrographic survey data of the area.

B. AREA SURVEYED

B.1 This survey consists of three AWOIS items located 2 nautical miles South of Gooseberry Neck, 2.3 nautical miles Southwest of Gooseberry Neck, and 3.25 nautical miles West Southwest of Gooseberry Neck, Massachusetts. These items are identified on the chartlet preceding the table of contents of this descriptive report.

B.2 The approximate limits of this survey are within a two mile radius of 41° 27' 00" N and 071° 05' 00" W. The AWOIS item numbers are 1913, 2409, and 3047.

B.3 Data acquisition began on June 4, 1992 (DN 156) and concluded on July 6, 1992 (DN 188).

C. SURVEY VESSELS

C.1 The following vessels were used during this project:

VESSELS	ELECTRONIC DATA PROCESSING NUMBER	PRIMARY FUNCTION
NOAA Ship RUDE (S590)	9040	Hydrography/ Side Scan Operations
RUDE Launch (RU3)	1290	Diving Operations

C.2 No unusual vessel configurations or problems were encountered.

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
SURVEY	6.11	DN 156 - 188
DAS_SURV	6.20	DN 156 - 170
DAS_SURV	6.23	DN 170 - 188
POSTSUR	5.21	DN 156 - 188

D.2 Other software includes VELOCITY 1.11 dated March 9, 1990 used to generate sound velocity corrector tables, and MTEN (dated between 1985 and 1986) for horizontal control verification and establishment.

D.3 No non-standard automated acquisition or processing methods were used.

E. SONAR EQUIPMENT

E.1 Side scan sonar operations were conducted using an EG&G Model 260 slant range corrected side scan sonar recorder, a Model 272-TD (dual frequency) towfish and a Model 272-T (single freq) towfish. All side scan operations were conducted from the RUDE (vessel # 9040). The following list shows equipment serial numbers and corresponding dates used:

Equipment Type	Serial Number	Dates Used
Recorder	0011443	Entire Survey
Towfish	10823 (Dual Freq)	DN 156
	11908 (Single Freq)	DN 157 - 188

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

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

E.4 a) The 100 meter range scale was used to investigate the search radius for all items. Given the depth of water in the search area, this range scale was used to provide optimum contact resolution.

The current FPM specification was used to determine maximum line spacing:

$$LSmax = 2RS - 2ECRmax$$

where RS = range scale (100m)
and ECR = error circle radius

Predicted ECR values were generated using the HDAPS function "Predict ECR" for control station configurations used in this survey. No predicted ECR value was greater than 11 meters for the entire survey area. Thus the maximum line spacing computed by the above equation was 178 meters. RUDE used a 170 meter line spacing which yielded an effective swath overlap of 30 meters. Printouts of "Predict ECR" values supporting the above calculation are included in SEPARATE V.

b) Confidence checks were obtained by noting recognizable bottom characteristics at the edges of the sonar range scale in use.

c) All three items were found within the given search radii, therefore complete side scan coverage of each search areas was not necessary.

d) No other factors affected side scan sonar operations or the quality of the sonar records.

e) The towfish was deployed from the stern during the entire survey.

E.5 Three diver investigations were conducted on each item of this survey. Refer to Separate VI and section N.5 of the individual AWOIS discussion for specific contact development procedures and dive investigation reports.

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

F. SOUNDING EQUIPMENT

F.1 All hydrographic soundings were acquired using a Raytheon 6000N Digital Survey Fathometer (DSF). One DSF 6000N was used during the entire survey: S/N B050N.

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

This gauge was checked each day it was used by comparing it with lead line, s/n RUDE-100-1-1991. Depths recorded from the lead line varies with that recorded from the pneumatic depth gauge more than the specified .5 feet. This disparity can be attributed to large line angles in the lead line (approximately = 10°), choppy sea states and currents on the days dive operations were conducted. Calibration and check documentation for this equipment can be found in Separate IV.

F.3 There were no faults in soundings equipment that affected the accuracy or quality of the data.

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

G. CORRECTIONS TO SOUNDINGS

G.1 a) The velocity of sound through water was determined using a Digibar Sound Velocity Probe (S/N 169), made by Odom. A Data Quality Assurance Test was conducted before each velocity cast to ensure the meter was within tolerance. Velocity casts were conducted every Wednesday. The velocity data from these casts were re-applied to the data collected Monday, Tuesday and Wednesday, and used for on-line data collection Thursday and Friday.

All data were processed using Velocity 1.11 software. The computed velocity correctors were entered into the HDAPS sound velocity table and applied on-line to both high and low frequency soundings. The sound velocity correctors applied to this survey are based on the cast recorded on the following date:

Cast Number	Date	Latitude	Longitude	HDAPS Table #	Applied to Days
06	155	41° 24.9' N	071° 06.9' W	06	156-157
07	162	41° 26.7' N	071° 07.9' W	07	160-164
08	169	41° 25.4' N	070° 59.6' W	08	167-171
09	176	41° 26.5' N	071° 11.1' W	09	174-178
10	183	41° 25.9' N	070° 59.8' W	10	181-188

b) There was no variation in the DSF-6000N instrument initial.

c) No instrument correctors to the DSF-6000N were required.

d) A dual lead line comparison with the DSF-6000N was made in the project area.

DOY 097 at 41° 26.0' N 71° 15.0' W (75 ft depths)

The greatest variation between leadline and DSF soundings was 0.2 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 echosounder was functioning properly. Data from these comparisons are found in Separate IV.

Both of the leadlines used in the leadline to DSF 6000 comparison were calibrated by steel tape prior to the above comparison. An average leadline correction of -0.3 feet was applied in comparisons between the DSF-6000 and the ship's leadlines.

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

f) During the winter 1988 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 2.26 meters (7.4 feet). This draft value was applied to the sounding data via the HDAPS offset table.

g) Settlement and squat correctors for the RUDE were determined on the Elizabeth River, Norfolk, Virginia on March 13, 1991. 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 through the HDAPS offset table.

h) Heave data were acquired by a Datawell heave, roll and pitch sensor (S/N 19128-C), and were applied to soundings in real time. Only the heave corrections were applied to the plotted soundings. Stuck hippy on some data — corrected during processing.

On June 16, 1992 (DN 168) the option 01 card in the Hyflex was replaced in an attempt to resolve the intermittent Hippy communication errors.

See Separate IV for data records.

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

G.3 The sound velocity correctors resulting from velocity casts were reapplied to the data collected on Monday, Tuesday and Wednesday at the end of survey activities. The data collected on Thursday and Friday following a Wednesday velocity cast were collected using the correctors from the Wednesday cast. Section G.1 a) gives the periods that each velocity cast correctors were used for.

G.4 The ship's shallow water (0-70 fsw) pneumatic depth gauge was calibrated on January 16, 1992. This gauge was bought new prior to the start of the 1992 field season and calibrated by the manufacturer. Corrector data from the calibration was not applied to pneumatic depths because it was less than 0.1 meters.

G.5 Generally, sea conditions greater than one meter affected the sounding record, creating a trace of constant peaks and ~~dips~~ 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 magnetic 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 the HDAPS software. The subordinate station for predicted tides was:

NO.	PLACE	POSITION	TIME		HEIGHT	
			High water	Low water	High water	Low water
1145	Westport Harbor	41° 30'N 71° 06'N	+0 09	+0 33	*0.85	*0.85

Tidal correctors were applied on-line using the HDAPS predicted tide tables numbers 16 and 7. Tide table 16 was used for the period DN 156 - 174 and table 7 was used on DN 188 (also see Section IV)

c) Zoning for this project is consistent with the project instructions.

A request for smooth tides was mailed on July 15, 1992.

Approved tides & zoning were applied during office processing.

H. CONTROL STATIONS

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

H.2 The list of Horizontal Control Stations is located in Appendix III.

H.3 No horizontal control stations were established for this survey. Existing NGS stations were used. All horizontal control stations used during this survey are third-order.

H.4 All horizontal control stations are within NGS Quadrants N0410703, N0410711 and N0410712. All are referenced to the NAD 83 Horizontal Datum.

H.5 Verification of horizontal control was accomplished by standard ground survey techniques. Field records have been forwarded to Coastal Surveys Unit in Norfolk.

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 using Falcon Mini-Ranger system and Differential GPS.

I.2 Accuracy requirements were met as specified by the Hydrographic Manual and Field Procedures Manual (FPM).

I.3 Control Equipment:

Mini-Ranger:
Falcon 484 by Motorola Inc.
Serial Numbers:

Baseline Calibration 3, C-O Table 4
DN: 156 - ~~171~~ 168

	S/N	
RPU	F-0244	
R/T	F-3409	
R/S:	F-3296	(code 5)
	D-2123	(code 7)
	F-3217	(code 9)
	E-2915	(code 2)

Baseline Calibration 4, C-O Table 5
DN: 174 - 188

	S/N	
RPU	F-3411	
R/T	E-0138	
R/S:	E-2915	(code 2)
	F-3296	(code 5)
	D-2123	(code 7)
	F-3217	(code 9)
	E-2969	(code 6)

DGPS

Unit A:
Ashtech GPS Sensor
S/N CD0000458766
Receiver Version: TD08 Firmware Version: 1E03

Unit B:
Ashtech GPS Sensor
S/N CD0000458769
Receiver Version: TD08 Firmware Version: 1E03

Magnavox MX50R DGPS Receiver
S/N 036
Correctors received from Montauk, New York radio beacon.

I.4 Calibration procedures and performance checks for the positioning systems are as follows:

FALCON:

As stated in section 3.1.3.3 of the Field Procedures Manual for Hydrographic Surveying, a continuous critical system check is obtained "when data are acquired with three or more LOP's and ECR and maximum residual criteria are being met as required in section 3.1.3.1" (of the same manual). RUDE routinely conducted survey operations using at least three LOP's, and all other positioning criteria were met as required (see section I.2).

Baseline calibrations #3 and #4 were conducted in New Bedford, Mass. on DN's 143 and 171 respectfully. The results of these baseline calibrations can be found in SEPARATE III.

DGPS:

As specified in section 3.4 of the FPM, never during survey activities did the expected positional error (EPE) exceed 13.4 meters. This is within the authorized maximum of 1.5 mm at the scale of the survey or 15 meters for this survey. The HDOP never exceeded 3.3 while the authorized maximum is 3.7 as derived by the formula in the FPM. At all times at least four satellites were used for positioning.

A DGPS system performance check was conducted on DN 162 and DN 189, this procedure was completed near the search radius for this survey in an area with an established Falcon Mini-Ranger network. By using HDAPS' Position Data and Quality Figures program within the Survey environment, three consecutive DGPS performance checks were obtained. All three recorded DGPS/Falcon positions compared to each other within the maximum allowable inverse distance (delta P_{max}) between the two as computed by HDAPS. This performance check is included in Separate III.

I.5 The Falcon system required calibration data to be applied to raw ranges. The range corrector and minimum acceptable signal strength (MASS) for each Mini-Ranger Reference Station was entered into the HDAPS system using the Pre-Survey C-O Table. This table provided the mechanism by which HDAPS automatically applies the proper range corrector and removes from the position computation those LOP's with signal strengths below MASS. Overall, calibration data applied to the raw Mini-Ranger ranges was adequate and effective.

The DGPS system performance check indicated that the system accuracy was within the allowable tolerances.(See Separate III)

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

b) There were isolated occurrences of equipment

malfunctions. However, these occurrences, usually Mini Ranger Reference Station failures, were detected immediately. The solution was to replace the failed station with another reference station from the spares on hand. This occurred twice during this survey to the Cuttyhunk Lighthouse Station, on DN 160 and DN 169. On DN 160 the Mini Ranger at Cuttyhunk Lighthouse (S/N E2915) was down due to a bad fuse and replaced with reference station, code 9 (S/N F3217). On DN 169 the Cuttyhunk Lighthouse reference station (S/N F3217) went down and was replaced with reference station, code 2 (S/N E2915).

c) There were no occurrences of unusual atmospheric conditions that may have affected data quality.

d) There were isolated instances when the ship would run on only two Mini Ranger Stations. The dropout of the third station was attributed to unexplained interference. These station "drop outs" were infrequent, brief in duration (noted only during one selected), and considered inconsequential.

e) No systematic errors were detected that required adjustments.

f) Antenna positions were corrected for offset and layback, and referenced to the position of the DSF 6000N transducer. These correctors were located in the HDAPS Offset table, and applied on-line to the positioning algorithm. Refer to Separate III for a copy of offset table 1.

g) Offset and layback distances for the A-frame (tow point) were located in the HDAPS Offset table and 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.

J. SHORELINE

No field sheets encompassed any shoreline.

K. CROSSLINES

A comparison between north-south and east-west sounding lines was completed. The agreement between soundings on north-south and east-west lines was generally within 0.2 meters with three comparisons differing by 0.3 meters.

L. JUNCTIONS

This survey does not junction with any current surveys.

M. COMPARISON WITH PRIOR SURVEYS

In accordance with Change No. 1 the comparison between soundings from this survey and prior surveys is to be addressed by the Atlantic Hydrographic Section. However, soundings from this survey were compared with presently charted depths on the largest scale charts of the area. This comparison can be found in section **N.11** and **N.12** for each survey area.

N. COMPARISON WITH THE CHART

AWOIS 1913

N.1 The object of this investigation is the wreckage assumed to be that of the Canadian Destroyer, St. FRANCIS which was rammed and sank in 1945 while being towed to a salvage yard.

N.2 Item Location

Geographic position provided was: 41° 27' 37.37" N
71° 06' 15.15" W

N.3 Source of Item

Prior Survey	Year
FE194WD	1964
FE207WD	1967

N.4 Largest Scale Chart Affected

Chart 13228, scale 1:20,000, 8th edition, dated April 14, 1990.

The entire search radius of AWOIS item 1913 falls on chart 13228.

N.5 Investigation Procedures

Survey requirements called for 200% side scan sonar coverage in conjunction with echosounder development in a 200 meter search radius. A diver investigation was conducted, but proved ineffective due to reduced visibility and strong currents.

Two hundred percent side scan coverage was conducted on this item. Although the wreck was located during the first 100% of side scan coverage both the first and second 100% coverage search schemes were completed because the wreck was severely deteriorated and the wreckage was scattered and flattened. The extent of the wreck was also developed by echo sounder using 10 meter~~s~~ line spacing in order to determine a least depth.

N.6 Investigation Results

AWOIS item 1913 was located during this survey and a diver investigation was conducted. The divers were not able to sufficiently cover the wreckage to determine a least depth, height off the bottom or the extent of the wreckage. The area of the wreck the divers did manage to search was jumbled wreckage and severely deteriorated.

The least depth was determined by conducting an echo sounder investigation with 10 meters line spacing. The shoalest sounding information was found at the following position:

Fix No.	40.3 15.6 m = 8 fms
Depth	15.~~5~~6 meters (approved tides applied)
LAT	41° 27' 37.4~~7~~9" N
LON	71° 06' 14.87" W

N.7 Explanation for Position Difference

The position provided in the AWOIS listing differs from the position of the least depth of this survey by 7.2 meters. This small difference can be attributed to further deterioration of the wreck and the accuracy of the positioning system.

N.8 Least Depth Information

The least depth for this item is 15.~~5~~6 meters as determined by echo sounder using ~~predicted~~ approved tides.

N.9 Charting Recommendation

See section 6.B. of the Evaluation Report.

This item should be charted as a dangerous wreck with a least depth of 15.5 meters (pending the application of approved tides), at:

41° 27' 37.4~~7~~9" N
71° 06' 14.87" W.

N.10 Danger to Navigation Report

~~This item is not a danger to navigation and~~ No danger to navigation report was submitted.

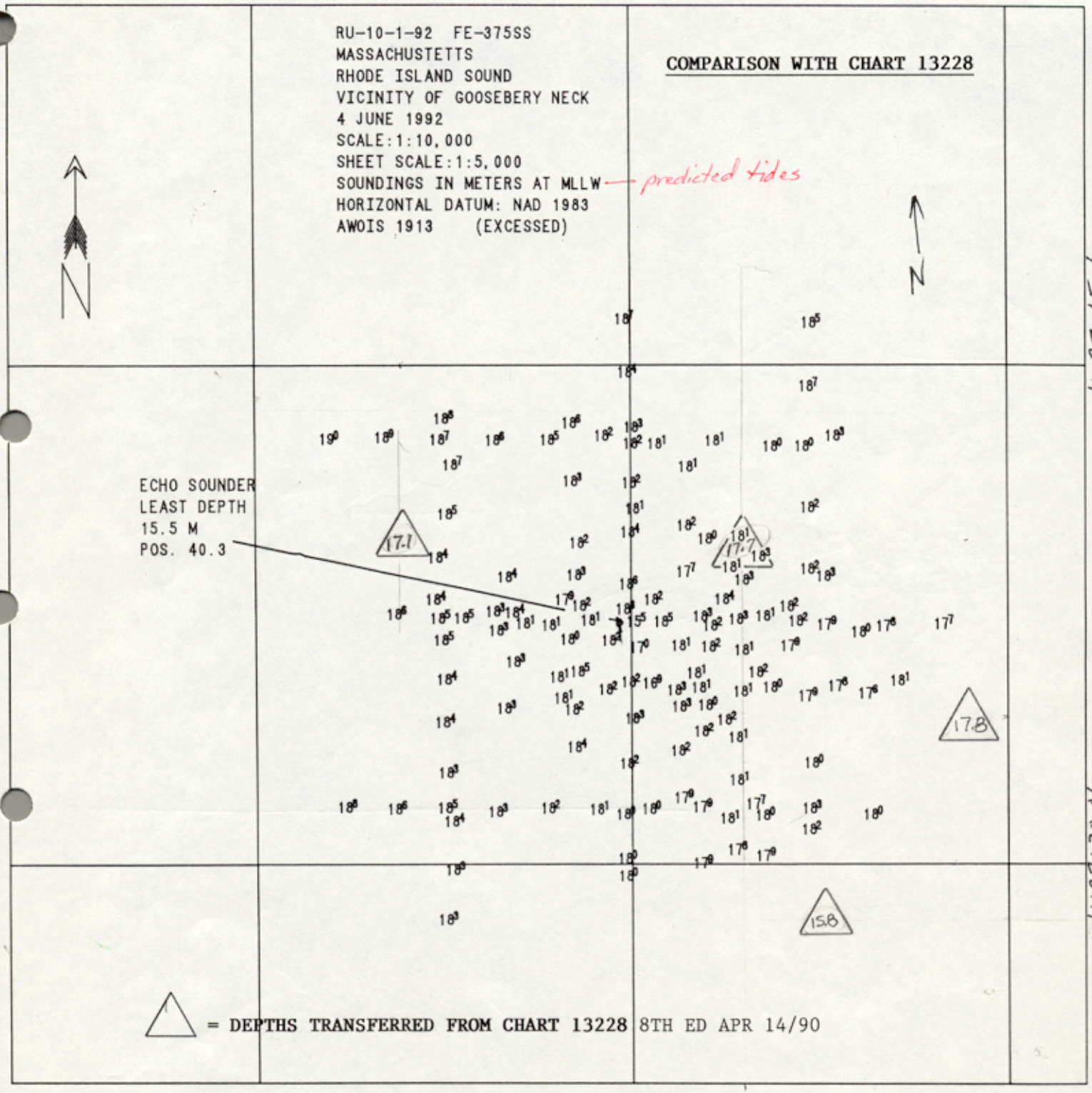
N.11

The area surveyed for AWOIS 1913 was compared to its corresponding charted area on chart 13228 by transferring the charted depths onto a copy of the excessed sounding plot (see next page). The charted depths were converted from feet to meters. Of the four depths transferred only the 17.1 meters depth is between soundings from this survey. This 17.1 meters charted depth is 0.4 meters shoaler than the soundings of this survey.

Field Plot — See the smooth sheet for this item.

RU-10-1-92 FE-375SS
MASSACHUSTETTS
RHODE ISLAND SOUND
VICINITY OF GOOSEBERY NECK
4 JUNE 1992
SCALE:1:10,000
SHEET SCALE:1:5,000
SOUNDINGS IN METERS AT MLLW — predicted tides
HORIZONTAL DATUM: NAD 1983
AWOIS 1913 (EXCESSED)

COMPARISON WITH CHART 13228



△ = DEPTHS TRANSFERRED FROM CHART 13228 8TH ED APR 14/90

N. COMPARISON WITH THE CHART (continued)

AWOIS 2409

N.1 The object of this investigation is the wreck of a 90 ft scalloper resting upright on her keel in 55 ft. of water.

N.2 Item Location

Geographic position provided was: 41° 26' 53.33" N
71° 02' 07.14" W

N.3 Source of Item

NM 8/61 and revised by NM 49/88

~~Source unknown.~~ (see AWOIS listing 2409)

N.4 Largest Scale Chart Affected

Chart 13228, scale 1:20,000, 8th edition, dated April 14, 1990.

The entire search radius of AWOIS item 2409 falls on chart 13228.

N.5 Investigation Procedures

Survey requirements called for 200% side scan sonar coverage in conjunction with echosounder development in a 300 meter search radius. Diver investigations were also required, if appropriate.

Two hundred percent side scan coverage was not completed on this item. The wreck was located during the first 100% of side scan coverage. A dive investigation was conducted on this item and a least depth was determined by pneumatic depth gauge.

N.6 Investigation Results

AWOIS item 2409 was located during this survey and a diver investigation was conducted. The divers were able to sufficiently cover the wreck and determine the least depth. The wreck was a fishing vessel approximately 30 meters in length resting on it's keel ~~in 18.9 meters of water.~~ The wreck was intact although there were holes wasted in the port and starboard bow and one aft of the winch on the main deck. The position of the least depth was determined by positioning the ship at the dive buoy and taking D.P.s on significant echo sounder features. The least depth information is as follows:

Fix No.	230 D.P.
Depth	12.~~2~~1 meters (approved tides applied) (pneuamtic depth gauge)
LAT	41° 26' 53.5~~2~~4" N
LON	71° 02' 07.4~~5~~6" W

N.7 Explanation for Position Difference

The position provided in the AWOIS listing differs from the position of the least depth of this survey by 9.3 meters. This small difference can be attributed to accuracies of the positioning systems used.

N.8 Least Depth Information

The least depth for this item is 12.~~2~~1 meters as determined by pneumatic depth gauge (using ~~predicted~~ approved tides).

N.9 Charting Recommendation

See section 7. a. of the Evaluation Report.

This item should be charted as a dangerous wreck with a least depth of 12.~~2~~1 meters, at:

41° 26' 53.5~~2~~4" N
71° 02' 07.4~~5~~6" W.

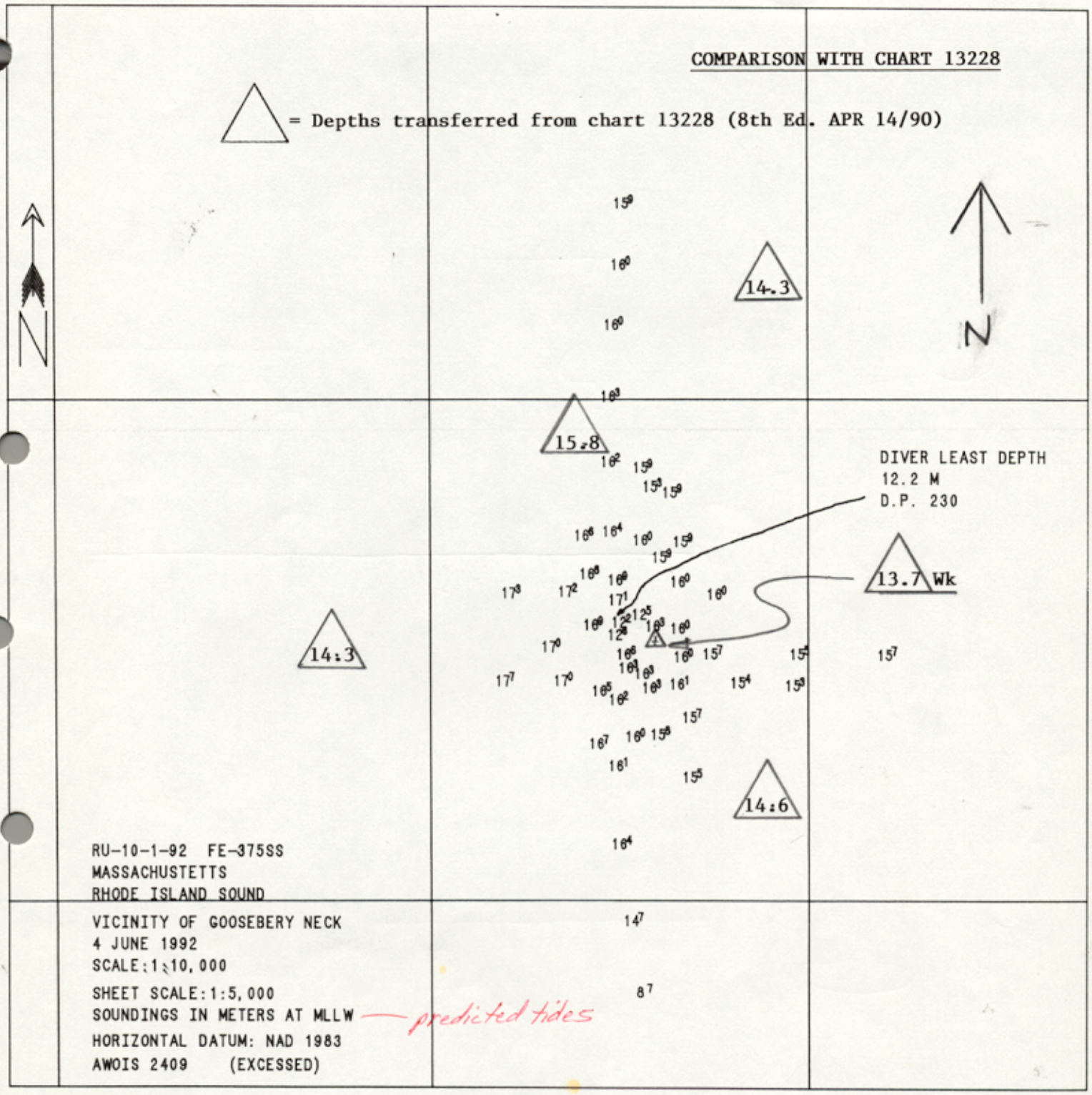
N.10 Danger to Navigation Report

~~This item is not a danger to navigation and~~ No danger to navigation report was submitted.

N.11

The area surveyed for AWOIS 2409 was compared to its corresponding charted area on chart 13228 by transferring the charted depths onto a copy of the excessed sounding plot (see next page). The depths were converted from feet to meters. The 45 ft (15.8 meters) depth with the wreck symbol is 1.5 meters deeper than the least depth of AWOIS 2409 found during this survey. The 15.8 meter sounding at 41° 26.96' N, 71° 02.15' W compares well with the 16.2 and 16.3 meter soundings which lie to the east.

Field Plot – See the Smooth Sheet for this item.



N. COMPARISON WITH THE CHART (continued)

AWOIS 3047

N.1 The object of this investigation is the wreck found during the processing of FE-241SS. The image appeared to be a wreck and the evaluator recommended charting a dangerous wreck.

N.2 Item Location

Geographic position provided was: 41° 26' 07.37" N
71° 04' 45.14" W

N.3 Source of Item

FE-241SS

N.4 Largest Scale Chart Affected

Chart 13228, scale 1:20,000, 8th edition, dated April 14, 1990.

The entire search radius of AWOIS item 3047 falls on chart 13228.

N.5 Investigation Procedures

Survey requirements called for 200% side scan sonar coverage in conjunction with echosounder development in a 300 meter search radius. A diver investigation and echo sounder development were also required, if appropriate.

Two hundred percent side scan coverage was not completed on this item. The wreck was located during the first 100% of side scan coverage. A dive investigation with least depth and echo sounder development were conducted.

N.6 Investigation Results

AWOIS item 3407 was located during this survey and a diver investigation was conducted. The divers sufficiently cover the wreck and determined a least depth of 16.3 meters, using the pneumatic depth gauge. The position of the least depth was determined by positioning the ship at the dive buoy and taking D.P.s on significant echo sounder features. The shoalest D.P. was fix 345.

The wreck was that of a barge, 30 meters long and 10 meters wide, lying upside down ~~in 20.4 meters of water~~. Approximately 80% of the barge's hull has been wasted away exposing the frames. The bow and stern were intact.

Further investigation indicated that an echo sounder depth of 16.2 meters was observed during the development of the wreck. The echo sounder depth is ~~0.1 meters shoaler than~~ the same as the pneumatic depth gauge reading. The positions of these two least depths vary by 4 meters. The echo sounder depth was selected for this items least depth and position. That information is as follows:

Fix No.	332.3
Depth	16.2 meters (approved tides applied) (echo sounder)
LAT	41° 26' 06.~~19~~ 20" N
LON	71° 04' 45.53" W

N.7 Explanation for Position Difference

The position provided in the AWOIS listing differs from the position of the least depth of this survey by 37.5 meters. This difference can be attributed and the accuracy of the positioning system used and the size of the wreck itself (30 X 10 Meters).

N.8 Least Depth Information

The least depth for this item is 16.2 meters as determined by echo sounder, & pneumatic depth gauges, using ~~predicted~~ approved tides.

N.9 Charting Recommendation

See section 6.b. of the Evaluation Report.

~~This item should be charted as a dangerous wreck with a least depth of 16.2 meters at:~~

41° 26' 06.~~19~~ 20"N
71° 04' 45.53"W

Also a ridge to the South Southwest of the wreck with a depth of 13.~~5~~ 6 meters should be charted at: Concur - See section 6.a. of the Evaluation Report.

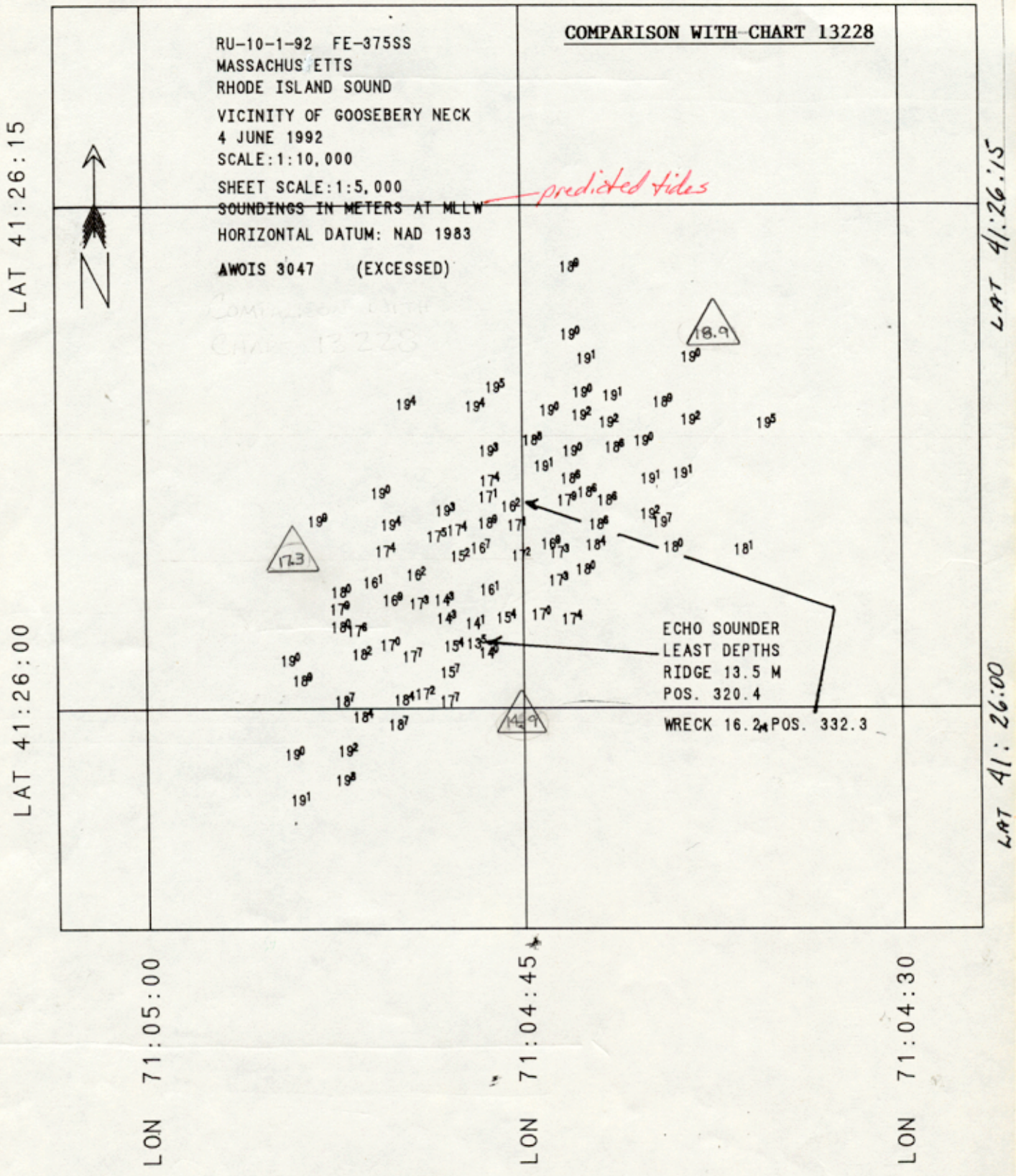
41° 26' 02.1~~1~~ 2" N
71° 06' ~~14.87~~ 46.95" W

N.10 Danger to Navigation Report

~~This item is not a danger to navigation and~~ No dangers to navigation report was submitted.

N.11 The area surveyed for AWOIS 3047 was compared to its corresponding charted area on chart 13228 by transferring the charted depths onto a copy of the excessed sounding plot (see next page). The charted depths were converted from feet to meters. The 18.9 meter sounding in the northeast quadrant of the survey area agrees with the 19.0 meter sounding 10 meters to its southwest. The other two charted depths do not lie near enough to soundings form this survey to compare.

Field Plot — See the Smooth Sheet for this item.



= DEPTHS TRANSFERRED FROM 13228 8TH ED APR 14/90

RU-10-1-92

O. ADEQUACY OF SURVEY

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

O.2 There are no parts of the survey that are considered incomplete or substandard.

P. AIDS TO NAVIGATION

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

P.2 No aids to navigation fell within or near the confines of this survey.

P.3 No aids not already listed in the Light List were located during this survey.

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

P.5 No pipelines or ferry routes are located within the survey area. There is a cable area which runs from Gooseberry Point, Massachusetts to Cuttyhunk Island, Massachusetts, and AWOIS item 2409 lies within this cable area. No investigation of this cable area was made because the search radius of AWOIS does not include any shore line.

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

Q. STATISTICS

Q.1	**a)** Number of positions	
	b) Lineal nautical miles of sounding lines -nautical miles of survey with the use of the side scan sonar	4.3
	-nautical miles of survey without the use of the side scan sonar	6.7
Q.2	**a)** square nautical miles of hydrography -.04 square nautical miles - AWOIS 1903 -.08 square nautical miles - AWOIS 2409 -.01 square nautical miles - AWOIS 3407	0.13
	b) days of production	6
	c) detached positions -3 for diver investigation -1 for developments	4
	d) bottom samples	0
	e) tide stations	1
	f) current stations	0
	g) velocity casts	5
	h) magnetic stations	0
	i) XBT drops	0

R. MISCELLANEOUS

R.1 **a)** 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) The tidal current tables for the area predict currents to be generally one half knot. Observations by divers concur with this.

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

R.2 No bottom samples were obtained during this survey.

S. RECOMMENDATIONS

S.1 No survey inadequacies have been noted.

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

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

T. REFERRAL TO REPORTS

As of the date of completion of this survey, three horizontal control reports have been submitted and forwarded to Atlantic Hydrographic Section via the Coastal Surveys Unit. Each was submitted under separate cover to request verification of horizontal control pertaining to this survey. The dates of these reports are:

May 4, 1992
May 11,1992

The electronic control report pertaining to this survey has been submitted directly to Atlantic Hydrographic Section. Four updates to that report have since been forwarded. The dates of these updates are:

March 16, 1992
April 2, 1992
June 1, 1992
June 26, 1992

APPENDIX I. DANGER TO NAVIGATION REPORTS

No danger to navigation reports were submitted in conjunction with this survey.

APPENDIX III. LIST OF HORIZONAL CONTROL STATIONS

1. See the attached list of horizontal control stations.

2. All MTEN information relevant to the horizontal control stations used for this survey is on file with the Atlantic Hydrographic Section.

CONTROL STATIONS as of 9 Jul 1992

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name
~~121~~	~~F~~	~~041:20:57.711~~	~~071:23:57.797~~	~~20~~	~~250~~	~~0.0~~	~~0.0~~		~~04/01/92~~	~~BEAVERTAIL LIGHT OFFSET, 1869~~
130	F	041:28:37.723	071:14:27.579	17	250	0.0	0.0		04/02/92	SACHUEST, 1940
131	F	041:27:40.811	071:10:19.818	19	250	0.0	0.0	5	04/02/92	WARREN RESET, 1934
132	F	041:24:52.193	070:56:58.452	10	250	0.0	0.0	6	06/17/92	CUTTYHUNK LIGHTHOUSE, 1961
133	F	041:30:26.413	071:05:17.106	10	250	0.0	0.0	7	05/25/92	WESTPORT LIGHT, 1934
200	G	41°04'02.47"	71°57'38.274							MPRB, 1992

RU 20-6-92 AWOIS ITEM 1913
DIVE INVESTIGATION REPORT

DATE: 9 JUNE 1991 DOY: 162 TIME: 1754 UTC

PERSONNEL:

DIVEMASTER\TENDER- ENS BRENNAN DIVERS- LT SCHATTGEN

COXSWAIN\TENDER- J. BRAWLEY - ENS ILLG

VISIBILITY: 2 FEET CURRENT: <1/2 KNOT

MAXIMUM DEPTH: 16.8 METERS BOTTOM TIME: 23 MIN.

METHOD OF POSITION DETERMINATION: ECHO SOUNDER DEVELOPMENT

HDAPS POS. NUMBER: 40.3

EASTING: 169148.9 COMPUTED LATITUDE: 41° 27' 37.49"N

NORTHING: 273221.5 COMPUTED LONGITUDE: 71° 06' 14.87"W

AVERAGE LEAST DEPTH BY ECHO SOUNDER: 15.5 METERS

TIME OF READING: 1913 UTC

ECHO SOUNDER CORRECTOR : 0.0

Approved ~~PREDICTED~~ TIDAL ZONE CORRECTOR: 1.0 METERS

LEAST DEPTH DETERMINED @MLLW 15.6 METERS (51 feet)

NARRATIVE REPORT: The object of this dive investigation was the wreck of a Canadian destroyer. The divers were not able to positively identify or completely investigate the wreckage due to 2 foot visibility and the jumbled nature of the wreckage. The wreckage continually snagged the circle search line. The divers did find what they thought to be the remains of a boiler.

To determine the least depth the wreckage was covered with 5 meter spacing hydro lines. This line spacing scheme of east west lines was run across the access of the wreckage and continued north and south until no trace of the wreckage appeared on the echo gram.

FE-375SS RU-10-1-92
AWOIS ITEM 2409
DIVE INVESTIGATION REPORT

DATE: 06 JULY 92 DOY: 188 TIME: 1836 UTC

PERSONNEL:

DIVEMASTER- LT SCHATTGEN DIVERS- LT SCHATTGEN
ENS ILLG

COXSWAIN- J. BRAWLEY TENDER- ENS BRENNAN

VISIBILITY: 5 METERS CURRENT: <1/2 KNOT

MAXIMUM DEPTH: 18.9 METERS BOTTOM TIME: 18 MIN.

METHOD OF POSITION DETERMINATION: DETACHED POSITION

HDAPS POSITION: FIX 230

EASTING: 174895.3 LATITUDE: 41° 26' 53.5~~2~~4" N

NORTHING: 271883.1 LONGITUDE: 71° 02' 07.4~~5~~6" W

AVERAGE LEAST DEPTH BY PNEUMATIC DEPTH GAUGE: 13.2 METERS

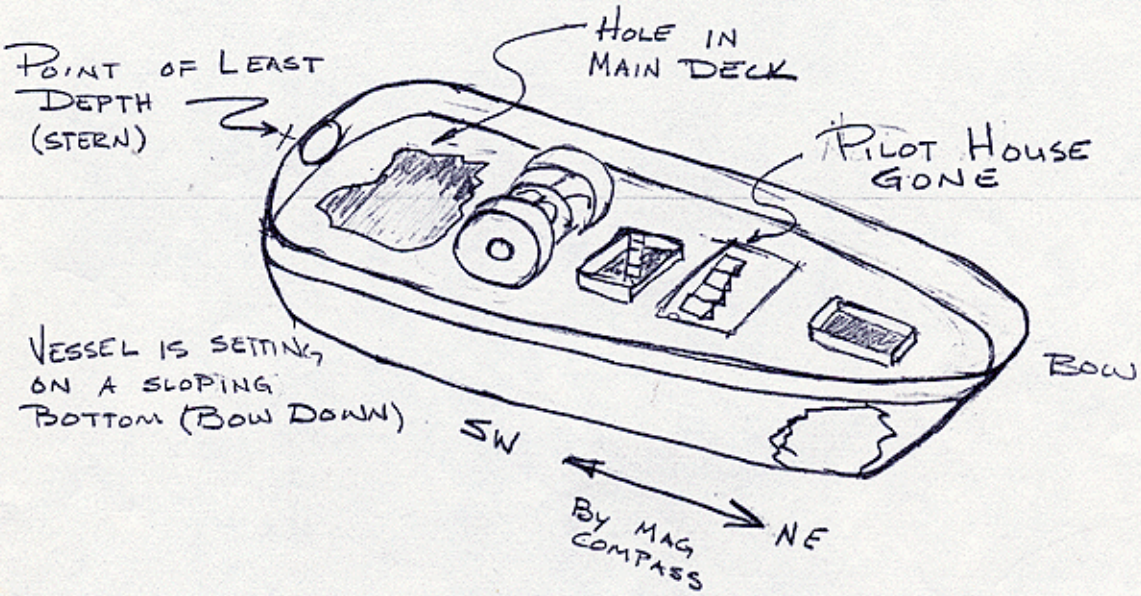
TIME OF READING: 1836 UTC

PNEUMATIC DEPTH GAUGE CORRECTOR: 13.2 METERS

Approved ~~PREDICTED~~ TIDAL ZONE CORRECTOR: 1.~~0~~1 METERS

LEAST DEPTH DETERMINED @MLLW 12.~~2~~1 METERS (39 feet)

NARRATIVE REPORT: The object of this investigation was a fishing boat, possibly the scalloper described in the AWOIS listing. The wreck rests on its keel in 18.9 meters of water on a sloping bottom, bow down. The longitudinal axis of the wreck lies in a NE(bow)-SW orientation. There was a large hole in the aft deck just aft of a large wench. There were also holes in the port and starboard sides of the bow. The least depth was midships on the transom. The second opening aft on the weather deck was apparently were the pilot house used to be located.


POINT OF LEAST DEPTH (STERN)
HOLE IN MAIN DECK
PILOT HOUSE GONE
VESSEL IS SETTING ON A SLOPING BOTTOM (BOW DOWN)
BOW
SW
NE
BY MAG COMPASS

AWOIS 2409

FE-375SS RU-10-1-92
AWOIS ITEM 3047
DIVE INVESTIGATION REPORT

DATE: 06 JULY 92 DOY: 188 TIME: 1523 UTC

PERSONNEL:

DIVEMASTER- LT SCHATTGEN DIVERS- LT SCHATTGEN
ENS ILLG

COXSWAIN- J. BRAWLEY TENDER- ENS BRENNAN

VISIBILITY: 5 METERS CURRENT: <1/2 KNOT

MAXIMUM DEPTH: 20.4 METERS BOTTOM TIME: 17 MIN.

METHOD OF POSITION DETERMINATION: ECHO SOUNDER DEVELOPMENT

HDAPS POSITION: FIX 332.3

EASTING: 171230.5 LATITUDE: 41° 26' 06.~~19~~ 20" N

NORTHING: 270411.1 LONGITUDE: 71° 04' 45.53" W

THIS POSITION FOR COMPARISON ONLY:

METHOD OF POSITION DETERMINATION: D.P. on dive buoy

HDAPS POSITION: FIX 345 LEAST DEPTH CORRECTED: 16.~~3~~ 2 M w/Approved Tide Corrector

EASTING: 171226.6 NORTHING: 270412.1

LEAST DEPTH BY ECHO SOUNDER: ~~16.2~~ 14.0 METERS

~~TIME OF READING:~~

Hippy Corr. -0.1
DDT 2.4
Vel 0.0

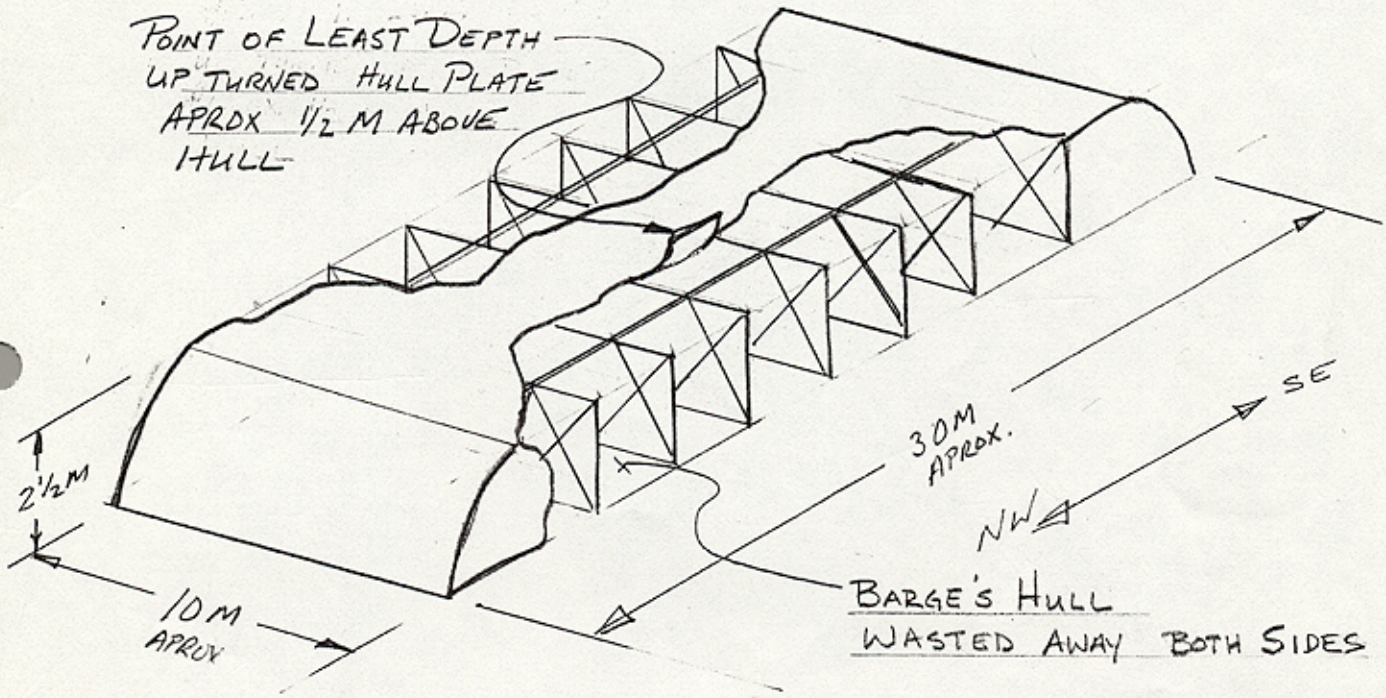
ECHO SOUNDER CORRECTOR: 0.0

~~PREDICTED~~ Approved TIDAL ZONE CORRECTOR: - ~~1~~ 0.1

LEAST DEPTH DETERMINED @MLLW 16.2 METERS (53 feet)

NARRATIVE REPORT: The object of this investigation was a barge lying upside down in 20.4 meters of water on a level bottom. Approximately 80% of the hull plating was wasted away leaving the frames exposed. The divers swam the entire wreck and determined the least depth to be on a piece of hull plate which was bent up away from the frames. This piece of plate extended up 1/2 meter from the hull of the barge. The bow and stern were intact.

The depth obtained from the pneumatic depth gauge after corrections is 0.1 meters deeper than the least depth determined during the echo sounder development. The position of pneumatic depth gauge least depth and the position of the least depth from the echo sounder differ by 4 meters. **The least depth from the echo sounder development was selected for the least depth of this item.** ~~Application of approved tides may effect the final least depth.~~ Smooth Tides have been applied.



AWOIS 3047

APPENDIX VII. APPROVAL SHEET

LETTER OF APPROVAL

REGISTRY NO. FE-375SS

Field operations contributing to the accomplishment of this survey were conducted under my 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 charting.

Nicholas E. Perugini

Nicholas E. Perugini, 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
Rockville, Maryland 20852

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: September 4, 1992

MARINE CENTER: Atlantic

OPR: B660-RU-92

HYDROGRAPHIC SHEET: FE-375SS

LOCALITY: Massachusetts, Rhode Island Sound, Vicinty of Gooseberry Neck

TIME PERIOD: June 4 - July 6, 1992

TIDE STATION USED: 845-2660 Newport, Rhode Island
Lat. 41° 30.3'N Lon. 71° 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

The tide data for Sakonnet Yacht Club, Rhode Island (845-0768) was invalid for part of the time period of FE-375, therefore the data from Newport, Rhode Island (845-2660) is used.

East of 71° 23.0'N Longitude, west of 71° 0.0'W Longitude, south of 41° 30.0'N Latitude and north of 41° 18.0'W Latitude, apply a -6 minute time correction and a x0.85 height ratio to Newport, Rhode Island (845-2660).

Note: Times are tabulated in Eastern Standard Time.

CHIEF, DATUMS SECTION

NOAA FORM 76-155
(11-72)

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

GEOGRAPHIC NAMES

SURVEY NUMBER

FE-375 SS

Name on Survey	A ON CHART NO.	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	
GOOSEBERRY NECK (title)										1
MASSACHUSETTS (title)										2
RHODE ISLAND SOUND (title)										3
										4
										5
										6
										7
										8
										9
										10
										11
										12
										13
										14
										15
				Approved:						16
										17
				Charles E. Harrington						18
				Chief Geographer - N/CG2x5						19
				AUG 12 1992						20
										21
										22
										23
										24
										25

NOAA FORM 76-155 SUPERSEDES C&GS 197

12/30/92

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: FE-375SS

NUMBER OF CONTROL STATIONS	0
NUMBER OF POSITIONS	0
NUMBER OF SOUNDINGS	0

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	43	10/15/92
VERIFICATION OF FIELD DATA	38	12/08/92
ELECTRONIC DATA PROCESSING	9	
QUALITY CONTROL CHECKS	9	
EVALUATION AND ANALYSIS	55	12/28/92
FINAL INSPECTION	8	12/24/92
TOTAL TIME	162	

ATLANTIC HYDROGRAPHIC SECTION APPROVAL 12/28/92

NOAA FORM 61-29
(12-71)

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

REFERENCE NO.

N/CG244-1-93

LETTER TRANSMITTING DATA

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

☐ ORDINARY MAIL ☐ AIR MAIL

☐ REGISTERED MAIL ☐ EXPRESS

☐ GBL *(Give number)* _____

TO:

NOAA/NATIONAL OCEAN SERVICE
Chief, Data Control Section, N/CG243
Bldg. WSC-2, Room 151
6015 Executive Blvd.
Rockville, MD 20852

DATE FORWARDED

5 January 1993

NUMBER OF PACKAGES

Two (2)

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

FE-375SS (RU-20-5-92)
MASSACHUSETTS, RHODE ISLAND SOUND
VICINITY OF GOOSEBERRY NECK

Pkg. 1: (Envelope)
- 1 Original Descriptive Report containing three (3) smooth sheets.
- 1 Envelope containing six (6) smooth Excess Sounding Overlays and three (3) Smooth Position Overlays (for sheets 1 of 3, 2 of 3, and 3 of 3).
- 1 Envelope containing thirteen (13) mylar field sheets (Sounding, Position, Swath, & Contact plots).

Pkg. 2: (Box)
- 1 Accordian Folder containing the raw field data (echograms, sonargrams, and printouts for Year Days 156, 161, 162, 168, 174, and 188) and miscellaneous printouts and notes.
- 1 Envelope containing data removed from the Descriptive Report and the accompanying "Separates".
- 1 Envelope containing Smooth Tide data.
- 1 Envelope containing Final Printouts.
- 1 Envelope containing Horizontal Control Data.

FROM: *(Signature)* Maurice B. Hickson, III
Maurice B. Hickson, III

RECEIVED THE ABOVE
(Name, Division, Date)

Dwayne L. Clark
1/6/93

Return receipted copy to:

Chief, Atlantic Hydrographic Section,
N/CG244
Atlantic Marine Center
439 West York Street
Norfolk, VA 23510-1114

NOAA FORM 61-29 SUPERSEDES FORM C&GS 413 WHICH MAY BE USED.

☆U.S.GPO:1978-0-765-092/1248

COAST AND GEODETIC SURVEY
ATLANTIC HYDROGRAPHIC SECTION
EVALUATION REPORT

SURVEY NO.: FE-375SS FIELD NO.: RU-10-1-92

Massachusetts, Rhode Island Sound, Vicinity of Gooseberry Neck

SURVEYED: June 4 through July 6, 1992

SCALE: 1:10,000 PROJECT NO.: OPR-B660-RU-92

SOUNDINGS: RAYTHEON DSF-6000N Fathometer and Pneumatic Depth Gauge

CONTROL: MOTOROLA Falcon 484 Mini-Ranger (Range/Range), and ASHTECH Global Positioning System (Differential Mode)

Chief of Party.....N. E. Perugini

Surveyed by.....P. L. Schattgen
.....J. A. Illg
.....R. T. Brennan
.....D. E. Williams

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

1. INTRODUCTION

a. This is primarily a side scan sonar survey. A RAYTHEON DSF-6000N fathometer was operated concurrently with the side scan sonar. Fathometer developments were conducted to search for items found on the sonargrams. Positional data gathered during fathometer developments was used to position the items, fathometer data was used to determine the significance, and, in one case, the least depth of the item. The hydrography acquired by this survey is considered adequate for charting.

b. Three page size smooth plots with accompanying overlays were generated during office processing. These plots are considered the final plots or smooth sheets for this survey. The accompanying overlays are filed with the field records.

c. The scale of this survey is 1:10,000. All data is smooth plotted at a scale of 1:5,000 for clarity.

d. Corrections and notes made by the evaluator to the Descriptive Report are in red ink.

2. CONTROL AND SHORELINE

a. Control is adequately discussed in Section H., I., T., and Appendix III. of the Descriptive Report.

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD83). Office processing of this survey is based on these values. The smooth sheet has been annotated with ticks showing the computed mean shift between the North American Datum of 1983 (NAD83) and the North American Datum of 1927 (NAD27).

To place the smooth plots on the NAD27 move the projection lines 0.378 seconds (11.67 meters or 1.17 mm at the scale of 1:10,000 or 2.34 mm at the scale of 1:5,000) north in latitude and 1.854 seconds (43.03 meters or 4.30 mm at the a scale of 1:10,000 or 8.60 mm at the scale of 1:5,000) east in longitude.

b. There is no shoreline within the limits of the smooth plots for this survey.

3. HYDROGRAPHY

a. Where crossings occur, there is adequate agreement.

b. The 15 meter depth curve was drawn in the appropriate areas on the smooth sheets. Depth curves were not drawn in areas where only a single line of hydrography crosses a contour interval.

c. The investigation of features and determination of least depths is considered adequate.

4. CONDITION OF SURVEY

The smooth plots and accompanying overlays, survey records, and reports adequately conform to the requirements of the HYDROGRAPHIC MANUAL, FIELD PROCEDURES MANUAL, and the SIDE SCAN SONAR MANUAL.

5. JUNCTIONS

There are no junctional requirements for this survey.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic

H-5622 (1934-35) 1:10,000
H-6445 (1939) 1:40,000

Prior survey H-5622 (1934-35) is common to the areas of AWOIS Items #1913 and #2409. In both areas investigated, the present survey is deeper than the prior survey.

In the area of AWOIS Item # 1913, Latitude 41°27'37.37"N, Longitude 71°06'15.15"W, present survey depths are generally 0^5 meters (approximately 2 feet) deeper than prior survey depths. The prior survey was conducted prior to existence of this AWOIS Item. The differences between present and prior hydrography within the common area are attributed to a more dense, accurate, and sophisticated present survey, and natural changes occurring due to the passage of time. See Sheet 1 of 3.

In the area of AWOIS Item # 2409, Latitude 41°26'53.33"N, Longitude 71°02'07.14"W, present survey depths are generally 0^3-0^6 meters (1-2 feet) deeper than prior survey depths. The differences in the common area are attributed to a more dense, accurate, and sophisticated present survey, an irregular bottom, and natural changes occurring over time. See Sheet 2 of 3.

Prior survey H-6445 (1939) is common to the areas of AWOIS Items #2409 and #3047. In both areas investigated, the present survey is deeper than this prior survey.

In the area of AWOIS Item # 2409 only seven prior survey depths are common to the present survey area. All but one of these prior survey depths are shoaler than present survey depths within the common area. Three soundings have been brought forward to the present survey from the prior survey since the present survey data indicate that shoals may exist in these areas. The three prior survey soundings are at the edges of the common area where the bottom configuration was not defined by the present survey. The prior survey was conducted prior to existence of this AWOIS item. The differences in the common area are attributed to a more dense, accurate, and sophisticated present survey, an irregular bottom, and natural changes occurring over time. See Sheet 2 of 3.

In the area of AWOIS Item # 3047, present survey depths are generally 0^3 meter (1-foot) deeper than prior hydrography. No evidence of this item (a sunken barge) was noted on prior survey H-6445 (1939). In addition to the wreck

being found during this investigation, a ridge with a least depth of 13^6 meters (44 feet) was also found. This shoal area is indicated on the prior survey by a 49-foot (14^9-meter) sounding in Latitude 41°26'02.12"N, Longitude 71°04'48.95"W. Additionally the present survey found a 15^2-meter depth in Latitude 41°26'04.72N, Longitude 71°04'47.57"W which is in the general area of a prior 53-foot (16^1-meter) sounding. No soundings from H-6445 (1939) were brought forward to the present survey within the common area of AWOIS Item #3047. The differences in the common area are attributed to a more dense, accurate and sophisticated present survey and natural changes occurring due to the passage of time. See Sheet 3 of 3.

The present survey is adequate to supersede both H-6445 (1939) and H-5622 (1934-35) within the common areas with the exception of the three soundings brought forward to the present survey. However, due to the limited extent of the present investigations and the prior hydrography being generally consistently shoaler, it is recommended that only the present critical soundings and limit lines on the wrecks found and the two present shoal soundings noted be charted.

b. Wire Drag

FE-241WD (1982-84) 1:5,000, 1:10,000, & 1:20,000
FE-207WD (1967) 1:40,000
FE-194WD (1963) 1:20,000, 1:40,000, & 1:80,000
H-3668WD (1914) 1:20,000

Prior survey FE-241WD (1982-84) is the source of AWOIS Item #3047. During the evaluation of this prior survey a wreck-like contact was noted and was recommended to be charted as a dangerous sunken wreck. This contact was found by the present survey and is identified as a sunken barge with a least depth of 16^2 meters (53 feet). It is recommended that the sunken barge be charted as a dangerous sunken wreck with a least depth of 16^2 meters (53 feet) in the Latitude 41°26'06.20"N, Longitude 71°04'45.53"W. No additional field work is recommended on this item. See Sheet 3 of 3. See also section N. of the Hydrographer's Report.

Prior surveys FE-194WD (1963) (formerly FE No. 1, 1964) and FE-207WD (1967) (formerly FE No. 3, 1967) are the sources of AWOIS Item #1913. FE-194WD (1963) found this wreck and determined a shoalest sounding of 43 feet (13^1 meters) on this item. FE-207WD (1967), a subsequent investigation of this item, hung the wreck at 48 feet (14^6 meters) and cleared it by 44 feet (13^4 meters). A sounding of 47 feet (14^3 meters)

was also obtained on the wreck. The present survey found wreckage with a least depth of 15^{6} meters (51 feet). The limits of the wreckage are shown on the smooth plot. It is recommended that the charted sunken wreck be revised to wreckage, dangerous to surface navigation with a least depth of 15^{6} meters (51 feet) in Latitude 41°27'37.49"N, Longitude 71°06'14.87"W. No additional field work is recommended on this item. No conflicts exist between prior effective depths and present hydrography within the common area with the exception of the depth over the wreck. The difference in the prior soundings and the present least depth is attributed to deterioration and settling of the wreck. See Sheet 1 of 3. See also section N. of the Hydrographer's Report.

Prior survey H-3668WD (1914) is common to both AWOIS Items #2409 and #3047. No conflicts exist between present hydrography and prior effective depths. No prior survey hangs or groundings are within the common areas. AWOIS Item #2409 was not in existence at the time of this prior survey. AWOIS Item #3047 was found by FE-241WD as an existing unknown wreck. It is doubtful that it was in existence at the time of this prior survey. See Sheets 2 of 3 and 3 of 3.

7. COMPARISON WITH CHART 13228 (8th Edition, April 14, 1990)

a. Hydrography

The charted hydrography originates with the previously discussed prior surveys. The previously addressed prior surveys require no further consideration. Charting recommendations concerning AWOIS Item #1913 and #3047 are adequately discussed in sections 6.a. & b. of this report and section N. of the Hydrographer's Report.

AWOIS Item #2409 is the sunken wreck of the 90-foot F/V HILDA GARSTON which originates with NM 8/61 and revised by NM 49/88. This wreck was found by the present survey and a least depth was obtained. It is recommended that the charted sunken wreck be revised to a dangerous sunken wreck with a least depth of 12^{1} meters (39 feet) in Latitude 41°26'53.54"N, Longitude 71°02'07.46"W. No additional field work is recommended on this item. See Sheet 2 of 3. See also section N. of the Hydrographer's Report.

The present survey is adequate to supersede the prior and charted data within the common areas of the items investigated.

b. Aids to Navigation

No fixed or floating aids to navigation are common to the investigations of this field examination.

8. COMPLIANCE WITH INSTRUCTIONS

This survey adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

This is a very good side scan sonar survey; no additional field work is not recommended.

Maxine Fetterly
Cartographic Technician
Verification of Field Data

For Maurice B. Hickson, III
Cartographer
Evaluation and Analysis

APPROVAL SHEET
FE-375SS

Initial Approvals:

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

Robert G. Roberson Date: 28 December 1992
Robert G. Roberson
Chief, Evaluation and Analysis Team
Atlantic Hydrographic Section

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

Christopher B. Lawrence Date: 30 December 1992
Christopher B. Lawrence, CDR, NOAA
Chief, Atlantic Hydrographic Section

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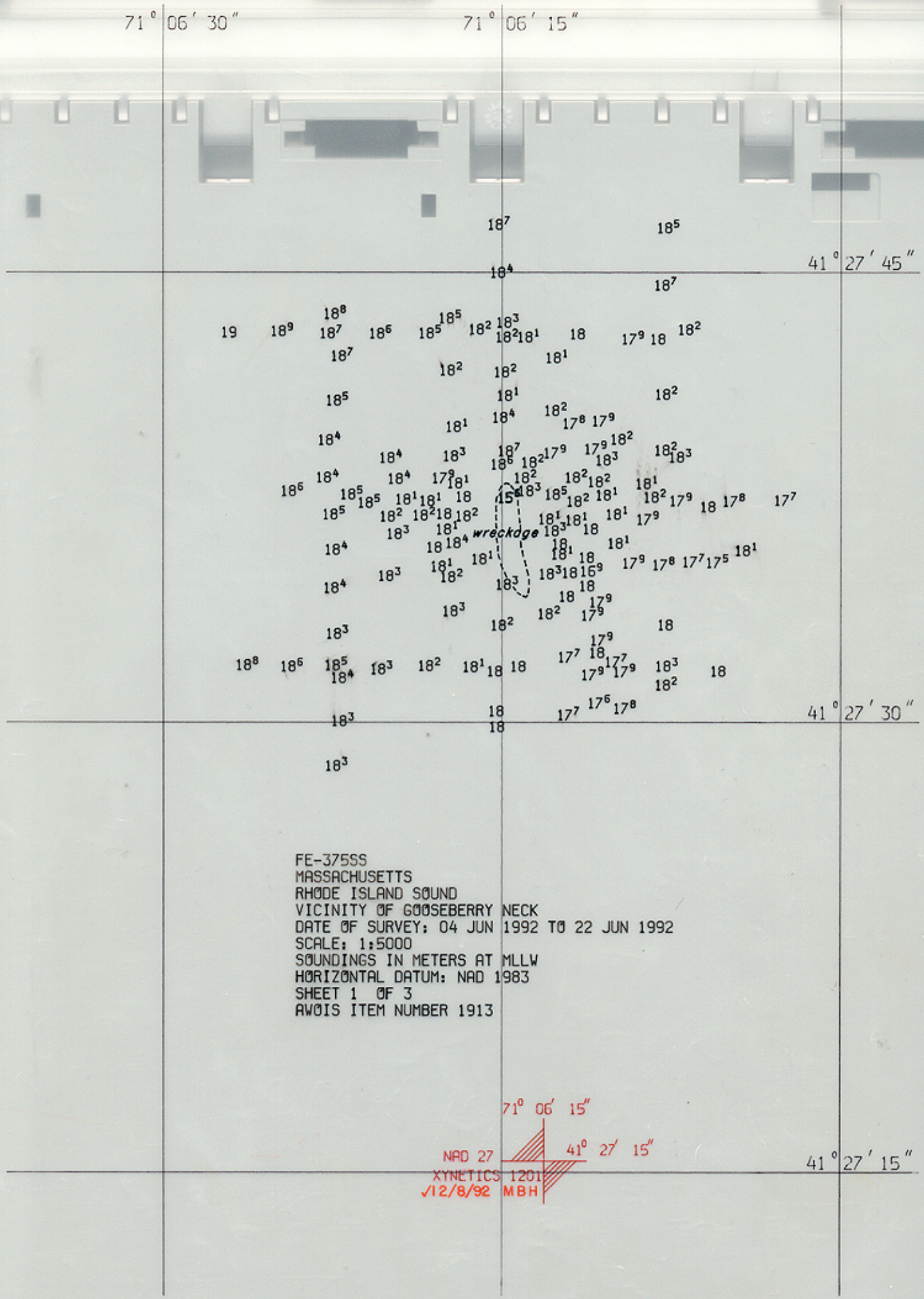
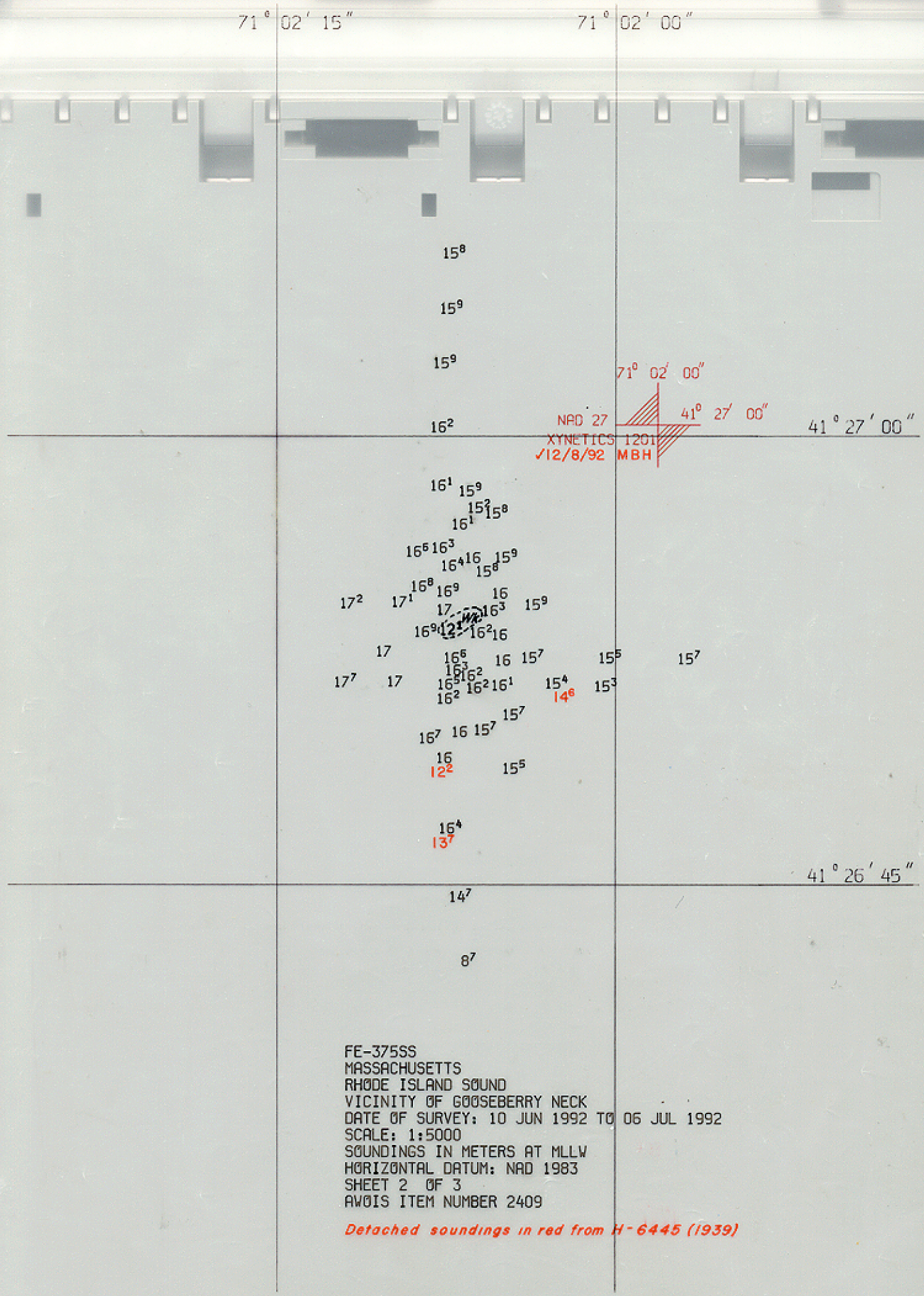
Final Approval:

Approved: J. Austin Yeager Date: 7/18/94
J. Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey



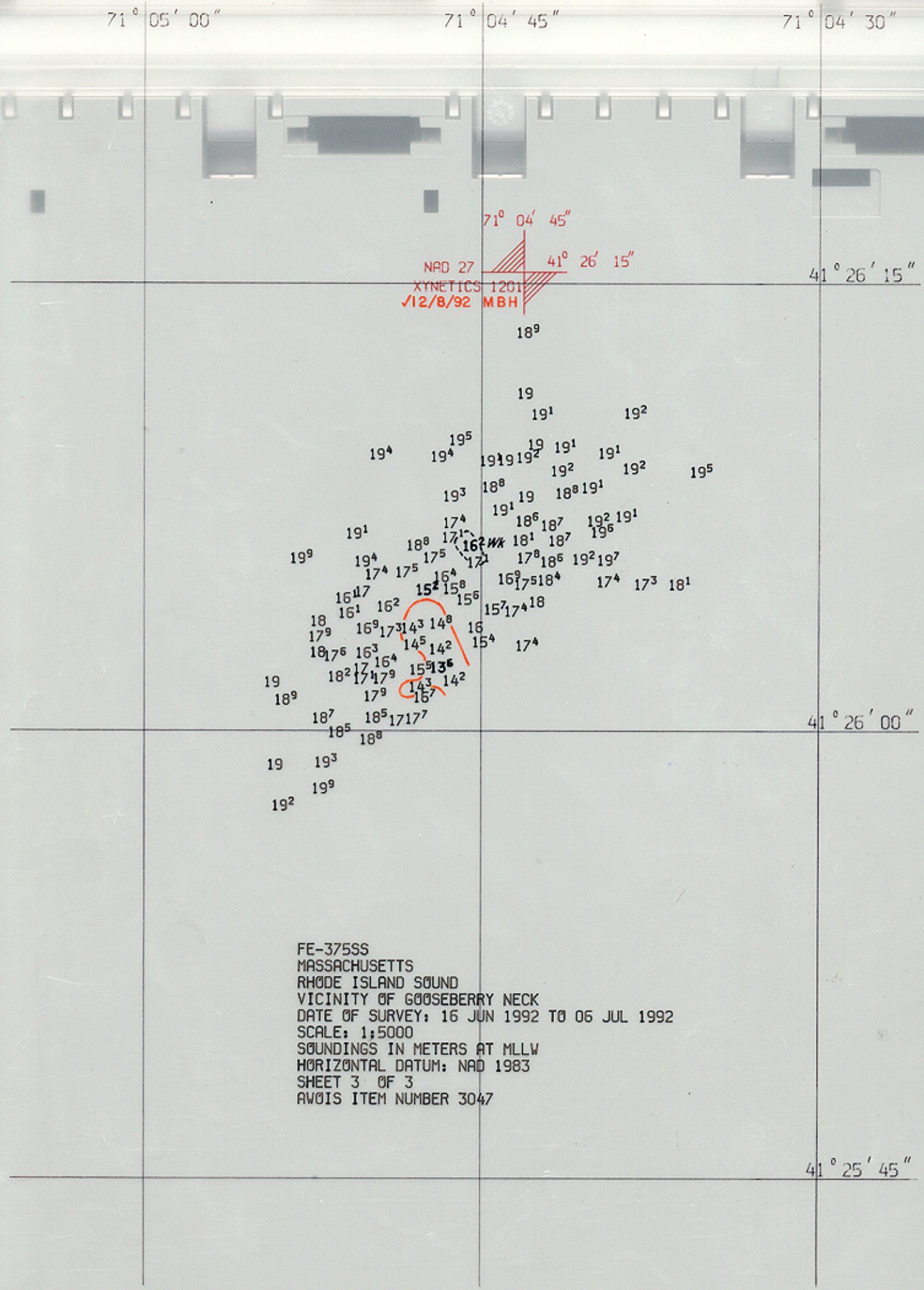
FE-375SS
MASSACHUSETTS
RHODE ISLAND SOUND
VICINITY OF GOOSEBERRY NECK
DATE OF SURVEY: 04 JUN 1992 TO 22 JUN 1992
SCALE: 1:5000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 1 OF 3
AWOIS ITEM NUMBER 1913

71° 06′ 15″
41° 27′ 15″
NAD 27
XYNETICS 1201
✓12/8/92 MBH



FE-375SS
MASSACHUSETTS
RHODE ISLAND SOUND
VICINITY OF GOOSEBERRY NECK
DATE OF SURVEY: 10 JUN 1992 TO 06 JUL 1992
SCALE: 1:5000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 2 OF 3
AWOIS ITEM NUMBER 2409

Detached soundings in red from H-6445 (1939)



FE-375SS
MASSACHUSETTS
RHØDE ISLAND SØUND
VICINITY ØF GØØSEBERRY NECK
DATE ØF SURVEY: 16 JUN 1992 TØ 06 JUL 1992
SCALE: 1:5000
SØUNDINGS IN METERS AT MLLW
HØRIZØNTAL DATUM: NAD 1983
SHEET 3 ØF 3
AWØIS ITEM NUMBER 3047

NOAA FORM 75-96
(10-83)

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

MARINE CHART BRANCH

RECORD OF APPLICATION TO CHARTS

FILE WITH DESCRIPTIVE REPORT OF SURVEY NO. FE-375SS

INSTRUCTIONS

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

CHART	DATE	CARTOGRAPHER	REMARKS
13218	2-8-93	J. J. Bozanich	Full ~~Part Before~~ After Marine Center Approval ~~Signed~~ Via Prior to signature
			Drawing No. #69 Fully App'd [illegible] 2-9-93
12300	2-23-93	J. Barber	Full ~~Part Before~~ After Marine Center Approval Signed Via Prior to signature
			Drawing No. #56 Fully App'd thru cht 13218
13229	2-11-93	Jerry Schumacher	Full ~~Part Before~~ After Marine Center Approval ~~Signed~~ Via ~~Prior to signature~~
			Drawing No. 25
13200	6-14-93	Jerry Schumacher	Full Part Before After Marine Center Approval ~~Signed~~ Via ~~Prior to signature~~
			Drawing No. 38
13228	~~4-13-92~~ 12-19-95	John Barber	Full ~~Part Before~~ After Marine Center Approval Signed Via
			Drawing No. 20 Fully App'd
			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.
			Full Part Before After Marine Center Approval Signed Via
			Drawing No.

SUPERSEDES C&GS FORM 8352 WHICH MAY BE USED.