

FE365

Diagram No. 1210-4

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey ... Field Examination
Field No. RU-10-6-91
Registry No. FE-365SS

LOCALITY

State Rhode Island
General Locality .. Rhode Island Sound
Sublocality Zero Point Five to Eleven
..... NM East of Block Island
.....
..... 1991
.....
CHIEF OF PARTY
..... LCDR N.E. Perugini

LIBRARY & ARCHIVES

DATE December 17, 1993

FE365

EXAMINED FOR NM

CP-2
13217
13215
13205
13218
12300
13006

HYDROGRAPHIC TITLE SHEET

FE-365SS

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-10-6-91

State ^{Rhode} Rhode Island

General locality Rhode Island Sound

Locality Zero Point Five to Eleven Nautical Miles East of Block Island

Scale 1:10,000 Date of survey September 3 to Sept 24, 1991

Instructions dated March 11, 1991 Project No. OPR-B660

Vessel NOAA Ship RUDE (9040)

Chief of party LCDR Nicholas E. Perugini

Surveyed by N. Perugini, P.L. Schattgen, M.J. Oberlies, J.A. Illg, D.E. Williams

Soundings taken by echo sounder, _____ pneumatic gauge

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

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

Protracted by NA Automated plot by ^{XYNETICS 1201 PLOTTER (AHS)} NA

Verification by NA

Soundings in _____ meters at _____ MLLW _____

REMARKS: All times recorded in UTC

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

SURF and AWDIS chk

1/31/94 MCR

UNITED STATES - EAST COAST
MASSACHUSETTS - RHODE ISLAND
**MARTHA'S VINEYARD
TO
BLOCK ISLAND**

Mercator Projection
Scale 1:80,000 at Lat. 41°27'
North American Datum of 1983
(World Geodetic System 1984)

SOUNDINGS IN FEET
AT MEAN LOWER LOW WATER

Unexploded depth charge
May 1945
depth charge
1952 PA

(JOINS CHART 13237)

OPR-B600-RU-91
FE-365SS (1991)
RU-10-6-91

30th Ed., July 7/90

13218

LORAN-C OVERPRINTED

RW "A"
Mo (A) H
Racon
129

(CONTINUED ON CHART 12300)

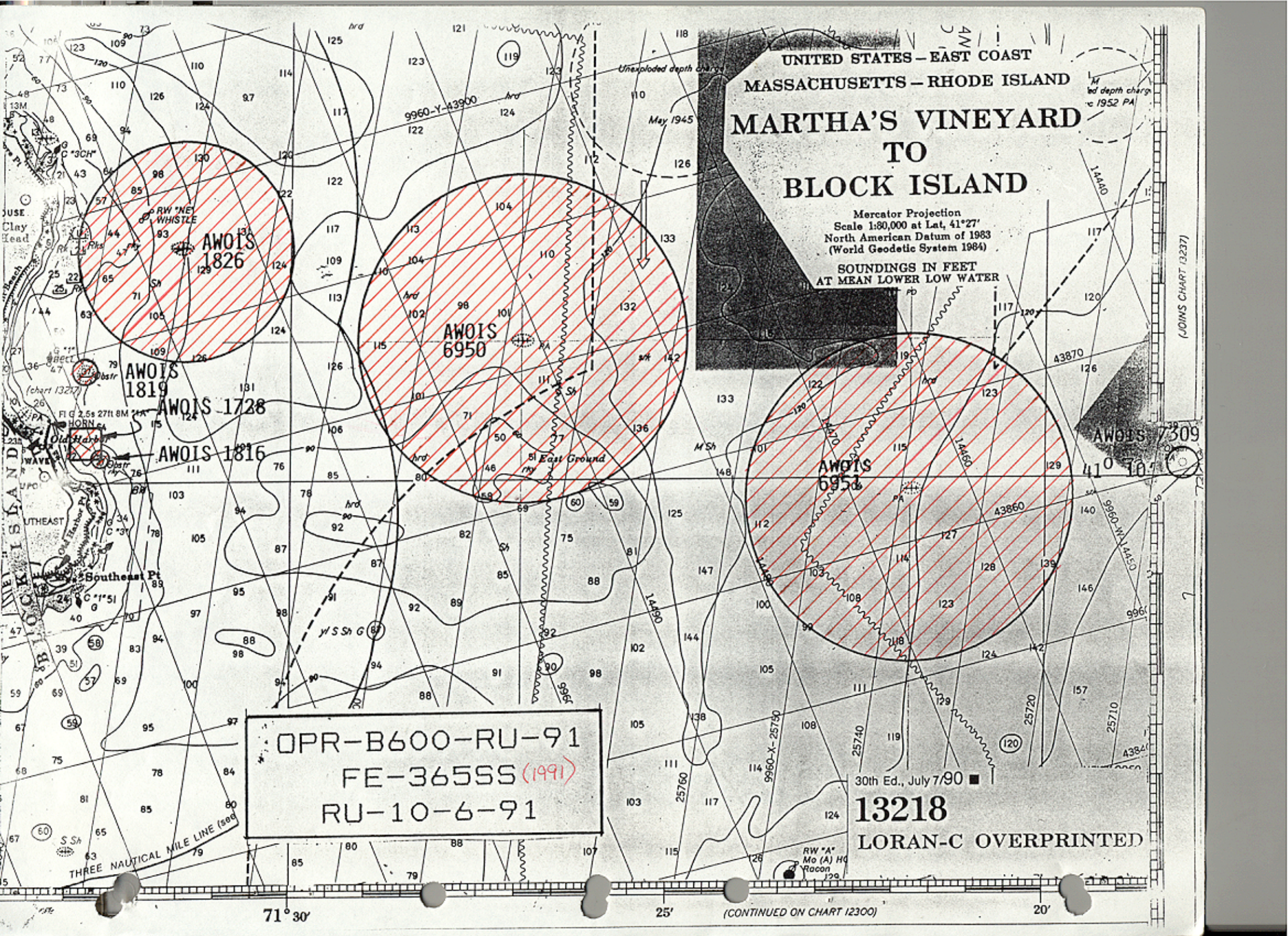


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A. PROJECT

A.1 This survey was conducted in accordance with Hydrographic Project Instructions OPR-B660-RU-91, Southern New England Coast, Connecticut and New York.

A.2 The original date of the instructions is March 11, 1991.

A.3 The following changes to the original instructions are relevant to this survey:

Change # 1	August 8, 1991
Change # 2	September 3, 1991
Change # 3	October 11, 1991*

* This change, although dated after the conclusion of this survey, is relevant. It granted permission to conduct survey operations East of the 71°20.0' West meridian without the use of a tide gauge at Sakonnet Point, Rhode Island as specified in the original project instructions. AWOIS item 7309 is located East of the aforementioned meridian.

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

A.5 Project OPR-B660-RU-91 responds to requests from the Northeast Marine Pilots, Inc., of Newport, Rhode Island to disprove or verify and provide least depths for certain wrecks and obstructions in Long Island, Block Island, and Rhode Island Sounds. Also, the U.S. Navy, as well as state and local governments have requested updated bathymetric and hydrographic survey data of this area for use in proposed studies and in the construction of new charts.

B. AREA SURVEYED

B.1 This survey is located East of Block Island, Rhode Island. Existing depths in this survey area are between 17 and 150⁺ feet (5⁸ to 48⁺ meters). The project consists of seven AWOIS items; three obstructions, one dumping ground and two sunken vessels (a barge and the F/V MISS JENNIFER). The MISS JENNIFER, accounted for two AWOIS items. One was its originally charted position from which it was salvaged and another was the position it sank while under tow for salvage.

The primary traffic in the area is deep draft vessels heading into or out of Narragansett Bay. Also, there is a significant amount of ferry traffic between the East side of Block Island, Rhode Island and Point Judith, Rhode Island. Small pleasure craft are also abundant in the area.

B.2 The items are identified on the pre-survey review chart, extending from approximately latitude 41° 08.0' to 41° 13.0' North and from longitude 071° 18.0' to 071° 34.0' West.

B.3 Data acquisition began on September 3, 1991 (DOY 246) and concluded on September 24, 1991 (DOY 267).

C. SURVEY VESSELS

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

<u>VESSELS</u>	<u>ELECTRONIC DATA PROCESSING NUMBER</u>	<u>PRIMARY FUNCTION</u>
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	6.03	Sept 3 - Sept 24
DAS_SURV	6.04	Sept 3 - Sept 24
POSTSUR	5.14	Sept 3 - Sept 24

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 There were no nonstandard automated acquisition or processing methods 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 and either a Model 272-T (single frequency) or 272-TD (dual frequency) 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	0012105	Entire Survey
Towfish	0011908 (Single Freq)	Entire Survey

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) Generally, the water depth was adequate to allow the use of the 100 meter range scale for side scan sonar operations. This provided for excellent imagery. Only in shallow depths and for contact development was a range scale of 50 or 75 meters used.

b) Daily confidence checks were obtained by either towing the fish past a previously located feature, or by noting recognizable bottom characteristics at the edges of the sonar range scale in use.

c) Refer to section "N", the individual AWOIS descriptions, for side scan sonar coverage.

d) No other factors effected side scan sonar operations.

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

E.5 Significant contacts that were either suspected of being the object of the AWOIS investigation or contacts that merited further investigation were investigated by echosounder development and multiple side scan sonar passes. There was one diver investigation conducted during this survey. Refer to section N.5 of the individual AWOIS discussions for specific contact development procedures.

E.6 Overlap was checked on-line using the real-time plot and the edited swath plot for holidays. All holidays were reconciled by running additional side scan sonar lines.

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 A106N.

F.2 One diver investigation was conducted during this survey and that dive was on an insignificant feature on AWOIS 1816. The diver determined least depth was measured with a pneumatic depth gauge. RUDE is equipped with two 3-D Instruments, Inc. Precision Direct Drive Depth Gauges:

- | | |
|--------------------------------|-------------|
| 1) 0- 70 fsw (feet salt water) | S/N 142697 |
| 2) 0-140 fsw | S/N 8606822 |

The 0-70 fsw gauge was used for this dive; calibration and check documentation can be found in Separate IV. *DATA FILED WITH FIELD RECORDS*

F.3 There were no faults in soundings equipment that affected the accuracy/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.

All data were processed using Velocity 1.11 software. The computed velocity correctors were entered into the HDAPS sound velocity tables and applied on-line to both high and low frequency soundings. Sound velocity correctors applied to this survey were obtained on the following dates:

Cast Number	Date	Latitude	Longitude	HDAPS Table #	Applied to Days
13	8-29-91	41° 01.7' N	71° 32.9' W	13	246-254
14	9-24-91	41° 10.2' N	71° 18.3' W	14	255-267

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

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

d) Two dual lead line comparisons with the DSF-6000N were made:

April 25, 1991	at	41° 35.6'N	71° 21.3'W	(25 ft depths)
July 22, 1991	at	41° 20.9'N	71° 29.1'W	(35 ft depths)

The greatest variation between leadline and DSF soundings was less than 0.2 meters for both comparisons. Considering the ship's motion and the scope in the leadline from current, this is excellent agreement and provides an adequate check that the echosounder was functioning properly. Also, comparisons between diver determined least depth by pneumatic depth gauge and DSF soundings over particular items (with prominent features) were normally within 0.5 meters after correctors were applied. Data from these comparisons are found in Separate IV. *DATA FILED WITH FIELD RECORDS*

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.

However, the actual corrector values derived from these data were computed incorrectly and consequently used for this survey. This problem was resolved by using the HDAPS program "REAPPLY". See section G.2 for a detailed explanation of this situation.

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.

See Separate IV for data records. *DATA FILED WITH FIELD RECORDS*

G.2 The HDAPS program "Reapply" was used to reapply corrector tables to soundings. An evaluation of the most appropriate tables for each day's data was made, and compared to the tables actually used. New tables were then applied to those days which differed.

As stated in section G.1.g settlement and squat values were computed incorrectly and entered into the HDAPS offset table. The "REAPPLY" program was used to correct this problem. Offset table #3 was changed to show the adjusted settlement and squat correctors, and then the table was reapplied to all soundings acquired during this survey.

G.3 As stated in paragraph G.2, corrector tables were reapplied to soundings during processing, so that the most relevant correctors were applied to plotted soundings. The corrected offset table #3 was reapplied to all soundings.

G.4 The ship's shallow water (0-70 fsw) and deep water (0-140 fsw) pneumatic depth gauges were calibrated by Instruments East, Inc. of Norfolk, VA on January 31, 1991. Corrector data from the calibrations were plotted graphically, but were not applied to pneumatic depths because they were less than 0.1 meters (see plots in Separate IV). *DATA FILED WITH FIELD RECORDS.*

Periodic system checks were performed on the gauges as illustrated in HSG 55. Rarely did the gauges check when substantial currents were present. Since the currents in the survey area were fairly strong and seemingly constant, it became practice to perform system checks on the gauges during times of ideal conditions. Therefore, days of use do not correspond to days on which the checks were performed.

In October, the ship's 0-70 fsw gauge (S/N 142697) was damaged. Both gauges were sent back to Instruments East, Inc. in Norfolk, VA; the 0-70 fsw for repairs and the 0-140 fsw for a critical system check. The shallow water gauge was found to be beyond repair. The deep water gauge (S/N 8606822) tested within 0.25 of

one percent of the full-face reading (0.35 feet), meeting the accuracy requirement prescribed in HSG 55. This gauge was recalibrated after it was tested.

Overall agreement between the pneumatic depth gauges, diver console depth gauge, and echosounder least depths was excellent, generally less than 0.3 meters. Considering this agreement and the closing critical system check on the 0-140 fsw gauge, the RUDE is confident that all least depths determined by pneumatic depth gauge are correct.

G.5 Generally, sea conditions greater than one meter affected the fathogram, creating a trace of constant peaks and dips. But the 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. Data for predicted tides were provided on floppy magnetic disk before the start of the project.

b) The height and time correctors listed below were taken 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:

NO.	PLACE	TIME		HEIGHT	
		High water	Low water	High water	Low water
1195	Block Island (Old Harbor)	-17 min	+12 min	* 0.83	* 0.86

Tidal correctors were applied on-line using the HDAPS predicted tide table number 9. *APPROVED TIDES WERE APPLIED DURING OFFICE PROCESSING*

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

A request for smooth tides was mailed on December 6, 1992¹.

H. CONTROL STATIONS *SEE ALSO SECTION 2c. OF THE EVALUATION REPORT.*

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. *DATA APPENDED TO THIS REPORT.*

H.3 Newly established horizontal control stations were surveyed using standard NGS approved surveying techniques; primarily the Geodetic Direct and Resection procedures. These data were then entered into the NGS software "MTEN", which produced the Latitude and Longitude of the new station using the NAD 83 ellipsoid.

Existing stations were verified by comparing observed horizontal angles and distances (to known stations) with angles and distances provided by inverse computations using "MTEN".

All horizontal control stations used during this survey are Third-order.

H.4 All horizontal control stations are within the NGS Quadrants 410712 and 410713. All are referenced to the NAD 83 Horizontal Datum.

H.5 Refer to the Horizontal Control Report (submitted to N/CG 233 under separate cover) for specific procedures and sites surveyed by the RUDE.

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

I. HYDROGRAPHIC POSITION CONTROL *SEE ALSO SECTION 22. OF THE EVALUATION REPORT.*

I.1 Two different systems were used for vessel positioning during the survey; Falcon Mini-Ranger and the Differential Global Positioning System (DGPS). A detailed discussion of DGPS navigation is contained in Section "I.4". The following table illustrates which positioning system was utilized throughout the survey:

DOY	Falcon (position #'s)	DGPS (position #'s)	HDAPS Sheet #
246	1-3	4-6	30
	7-10	-	30
247	-	All Day	30
248	-	All Day	30
	-	All Day	31
252	All Day	-	31
253	-	1073-1093	31
	1094-1118	1119-1231	31
254	-	1232-1258	31
	1259-1397	-	31
255	1398-1434	1435-1587	31
256	All Day	-	32
260	-	All Day	31
261	-	All Day	30
	-	All Day	33
262	-	All Day	31
267	-	All Day	32
	-	All Day	33

I.2 Accuracy requirements were met when either positioning system was primary, as specified by the Hydrographic Manual, Field Procedures Manual (FPM), and change # 2 to the project instructions regarding DGPS.

I.3 Control Equipment:

Mini-Ranger:

Falcon 484 by Motorola Inc.
Serial Numbers:

RPU F-0246
R/T F-3409
R/S: F-3241 (code 4)
E-2907 (code 3)
E-2926 (code 8)
F-3244 (code 5)
E-2969 (code 6)
F-3297 (code 2)

GPS:

Both by Magnox: MX 4200D Differential GPS Receiver
S/N 199
MX 50R DGPS Receiver (correctors)
S/N 036

I.4 Calibration descriptions for each of the two positioning systems follow:

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).

A pre-project baseline calibration of the Mini-Ranger system was conducted at the Atlantic Marine Center on March 6, 1991. Two more baseline calibrations were conducted in Bristol, RI on June 2 and July 14, 1991 and one in Newport, R.I. on October 19, 1991. See the Electronic Control Report submitted under separate cover for the data records of the calibrations.

GPS

As stated in section 6.2 of the Project Instructions (change No. 2 dated 3 September 1991), "Differential GPS ... can be used for this project as the primary positioning system" with the following 1:10,000 scale accuracy requirements:

1. As a DGPS system check, at least one Falcon range is to be recorded twice daily in a static mode, and must agree within 5 meters of the DGPS position.
2. During data acquisition, at least one Falcon range must be recorded and the computed residual must be less than 10 meters.
3. Survey operations may not be conducted when the HDOP exceeds 3.0.

4. Four satellites must be used for the DGPS position computation.

Extreme care was taken by the RUDE to insure the above requirements were met. The following are some observations on the acquisition procedures and actual performance of the DGPS system:

1. On DOY 246 and 247, the HDOP and the number of satellites (visible and tracked) were manually recorded at the top of the raw data printout at the start of every survey line. The printout and daily abstract was also annotated to make it clear that GPS was the primary means of position control.

On DOY 248, the HDAPS program (DAS_SURV) was modified by LCDR Perugini so that the HDOP was recorded and printed out with every selected sounding. Also, an extra line was added to the header information preceding each survey line, stating that DGPS is the primary positioning system. This information is found on the raw data printout.

2. Generally, 2 to 3 Falcon ranges were recorded simultaneously with all data acquired when DGPS was the primary positioning system. There were times when only one or two Falcon ranges were recorded for a selected sounding. However, these periods were of a very short duration. The maximum residual of these ranges was recorded on the raw data printout (as well as electronically), and scanned off-line for residuals greater than 10 meters. Normally, the maximum residual was below 5 meters and never consistently exceeded 10 meters.

3. Survey operations were suspended when the HDOP value exceeded 3.0. Generally, whenever this value exceeded 2.5 the position would begin to deteriorate. High HDOP value was not a significant problem, as the duration was relatively short (several seconds) and the condition would correct itself.

4. Whenever less than four satellites were being tracked by the DGPS unit, the HDOP would normally rise above 3.0, the residuals would climb, and the position would generally degrade. Normally, 5 to 6 satellites were visible and the same number were used in the position solution. Too few satellites never caused a substantial problem.

5. Overall, it was obvious when the DGPS position was in error, because any (usually several) of the following conditions would occur: the position would jump, the HDOP would climb, the residuals would climb, the number of satellites would drop below four, or the DGPS system would switch from "NAV" (navigating) to "TRK" (tracking). However, these conditions were not common, and rarely did a positioning problem with this system cause substantial

"downtime". Whenever poor DGPS positioning was persistent, the Falcon system was selected as primary or operations were suspended until the DGPS system was operational.

Also, never did the DGPS system fail and not independently warn the operator that the position was in error or the system was not functioning. The residuals between the Falcon ranges and the DGPS position would rise as well when the DGPS position was bad, but these residuals were not usually the "flag" that DGPS was down.

See Separate III for all positioning calibration data. *DATA FILED WITH FIELD RECORDS*

I.5 Only 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-0 Table. These tables 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.

I.6 a) See section I.4 for DGPS operating procedures and adequacy standards.

b) There were no occurrences of equipment malfunctions or substandard operation.

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

d) There were no occurrences of weak signals or poor geometric configurations of a duration to significantly compromise data quality.

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 3, which was the only table used during this survey.*

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 offset table 3. *

* DATA FILED WITH FIELD RECORDS

J. SHORELINE

No field sheets encompassed any shoreline. *SEE SECTION 2.6. OF THE EVALUATION REPORT*

K. CROSSLINES *SEE ^{ALSO} SECTION 3.2. OF THE EVALUATION REPORT*

Particular AWOIS items in this survey underwent considerable investigation, either by echosounder development alone or in conjunction with side scan sonar. In these cases, there were ample data to facilitate comparisons between mainscheme (North-South) soundings and crossline (East-West) soundings. The results of these comparisons is summarized below.

AWOIS 7288: This dumping ground underwent significant echosounder investigation with the scheme running in an East-West direction. There were three lines run in a North-South direction which provided opportunities for sounding comparisons. The agreement between adjacent soundings was excellent, generally within 0.3 meters. There were some that compared outside 0.3 meters, but given the scale of the plot (1:5,000) and the irregular bottom these anomalies are not considered to be indicative of equipment or survey protocol deficiencies.

AWOIS 1819: This obstruction underwent 400% side scan sonar coverage which allowed ample opportunities for comparison of mainscheme/crossline agreement. The results of these comparisons, including the explanation for anomalies, are the same as for AWOIS 7288.

AWOIS 1816: This obstruction underwent significant echosounder development provided ample opportunities for comparison of mainscheme/crossline agreement. The results of these comparisons, including the explanation for anomalies, are the same as for AWOIS 7288.

AWOIS 1826: This charted wreck underwent 200% side scan sonar coverage providing many opportunities for a comparison of mainscheme/crossline agreement. Overall, the agreement between soundings was excellent. There were however some soundings that differed by more than 1.0 meter within a 0.5 cm radius. Given the scale of the plot (1:10,000), where 0.5 cm equates to 50 meters, and also taking into account the irregular bottom of the survey area, these occasional disagreements between soundings are considered insignificant and not indicative of a problem.

AWOIS 6950: This charted wreck (PA) was found very early in the investigation. Therefore, there is not enough soundings to facilitate a proper comparison of mainscheme/crossline agreement.

AWOIS 7309: This obstruction (PA) underwent 200% side scan sonar coverage which provided many opportunities for comparisons. The agreement was excellent between adjacent soundings, generally within 0.5 meters.

L. JUNCTIONS *SEE ALSO SECTION 5 OF THE EVALUATION REPORT*

This survey does not junction with any current surveys.

M. COMPARISON WITH PRIOR SURVEYS *SEE ALSO SECTION 6 OF THE EVALUATION REPORT*

M.1 Applicable prior surveys are:

Hydrographic Survey No. 6442
Rhode Island
East of Long Island
Block Island
July - August 1939
Scale 1:10,000

-pertains to AWOIS 1816, 1819, and 7288

Hydrographic Survey No. 6443
Connecticut - Rhode Island - New York
East of Long Island
Block Island Sound
May - August 1939
Scale 1:40,000

-pertains to AWOIS 1826 and 6950

Hydrographic Survey No. 6444
Rhode Island
East of Block Island
Approaches to Narragansett Bay
May - September 1939
Scale 1:40,000

-pertains to AWOIS 6950, 6951, and 7309

M.2 AWOIS item investigations are discussed in Section "N".

M.3 Soundings from this survey were compared to the above prior survey, and the findings are as follows.

AWOIS items 1816, 1819 and 7288: The soundings from this survey consistently compared within 0.3 meters with the soundings from applicable prior surveys. Furthermore, the results of a comparison of soundings from this survey to depths presently charted on chart 13217 show further evidence that the depths presently charted remain accurate.

AWOIS 1826: The soundings from this survey never exceeded a difference of 0.5 meters with the soundings from the applicable prior survey. Furthermore, the results of a comparison of soundings from this survey to depths presently charted on 13218 show further evidence that the depths presently charted remain accurate.

AWOIS 6950: The soundings from this survey consistently compared within 0.3 meters with the soundings from the applicable prior survey. Given the difference in scale between surveys and the difficulties in comparing one specific soundings from this survey to a specific sounding from a prior survey, the quality of agreement is considered excellent. Because this item was found early in the investigation there were no soundings corresponding to depths on chart 13218 to facilitate comparison.

AWOIS 6951: This item was never investigated since it was disproved through salvage documentation.

AWOIS 7309: The soundings from this survey consistently compared within 0.3 meters with the soundings from the applicable prior survey. Because of the relatively small search radius of this item (300 meters), no charted depths (from chart 13218) fall within the area. Therefore, no comment is made on the quality of agreement between this survey and the chart.

M.4 AWOIS items: 1816, 1819, 7288 (all HDAPS sheet 30),
6950 (sheet 32), and
7309 (sheet 33)

do not cover enough area to reveal general trends.

However, AWOIS item 1826 (sheet 31) covers a significant area (2000 meter search radius), but the overlay generated for chart 13217 shows no significant trends (shoaling etc.).

M.5 No significant features or depths from prior surveys have been disproved during this survey.

M.6 Charted along the Western limits of the survey area are three dangerous rock symbols showing cleared depths of 17, 21, and 22 feet. None of these features were found during this survey, although thorough investigations of the specific features were not conducted. *NO CHANGE IN CHARTING IS RECOMMENDED.*

M.7 The RUDE is aware of no authoritative non-NOS surveys of the area.

N. COMPARISON WITH THE CHART *SEE ALSO SECTION 7c. OF THE EVALUATION REPORT*

NOTE: Paragraphs N.11 and N.12 are not discussed in this section. Refer to section M.3 for comparisons with prior surveys and charts 13217 and 13218.

AWOIS 1816

N.1 The object of this investigation is an unidentified obstruction presently charted as 27 feet. *(8.2m)*

N.2 Item Location

Geographic position provided was: 41° 10' 14.07" N
71° 32' 33.29" W

N.3 Source of Item

1918 Wire Drag Survey H4041WD

N.4 Largest Scale Chart Affected

Chart 13217, scale 1:15,000, edition 11 dated February 10, 1990.

N.5 Investigation Procedures

Survey requirements called for 400% side scan sonar coverage in conjunction with echosounder development in a 200 meter search radius. A diver investigation was also required, if appropriate. No side scan sonar investigation was conducted for this item due to the shallow depth of the water, the rocky nature of the bottom and especially the extremely close proximity of the shoreline to the item. Numerous lobster pots within the search radius also contradicted the use of side scan sonar. An intensive echosounder investigation and a dive investigation was conducted instead.

For the echosounder investigation, cross lines were spaced 10 meters apart and along lines were spaced 20 meters apart. The AWOIS listing for this item describes it as a wire drag hang at 27 feet *(8.2m)*. However, the sounding actually obtained on the item during that survey was 32 feet, *(9.7m)*.

The results of the diver investigation are not to be considered for least depth purposes. At the completion of the dive a comparison was made between the position of the dive DP and the position originally computed for the object. It became apparent that because of unanticipated sea and wind conditions the buoy drop on the item was poor. In fact, the least depth obtained from the diver investigation corresponds to a feature over 300 meters away. ~~This Dive Investigation Report for this dive is not submitted as it pertains to only an insignificant contact in the search radius.~~ *SEE PAGE 32 OF THIS REPORT FOR CHARTING RECOMMENDATIONS.*

N.6 Investigation Results

A least depth for this item was determined by echosounder.
Least depth information for this item is as follows:

FIX	8.4
LATITUDE	41° 10' 14. ⁹⁸ 97 " N
LONGITUDE	71° 32' 32.82" W
LEAST DEPTH (MLLW)	9. ⁷ 8 meters (31. ⁷ 2 feet)

N.7 Explanation for Position Difference

The position difference is insignificant at the scale of the chart (approximately 35 meters).

N.8 Least Depth Information

See section "N.6".

N.9 Charting Recommendation

Delete the 27 foot depth and obstruction notation and supersede with a 3⁷~~2~~ foot depth.
(9.7m) CONCUR

N.10 Danger to Navigation Report

This item was not reported as a danger to navigation.

AWOIS 7288

N.1 The object of this investigation was a discontinued Army Corps of Engineers (COE) dumping ground, approximately 500 meters square.

N.2 Item Location

Geographic position provided was: 41° 10' 19.37" N
71° 32' 42.19" W

N.3 Source of Item

COE BP73683/68 and following COE bid information (originally from CL345/68).

N.4 Largest Scale Chart Affected

Chart 13217, scale 1:15,000, edition 11 dated February 10, 1990.

N.5 Investigation Procedures

Survey requirements called for echosounder investigation. If an obstruction(s) was found side scan sonar and diver investigations were to be conducted. An echosounder investigation was conducted in an East-West direction with 45 meter line spacing. These sounding lines were then split evenly at 23 meters and again run. Three lines were run in a North-South direction with an average of 240 meter spacing.

N.6 Investigation Results

No obstructions were found within the search area (dumping ground). The bottom is relatively flat with a general trend of shoaling towards the western and southern borders of the dumping ground as it nears the shore of Block Island.

N.7 Explanation for Position Difference

No position difference noted.

N.8 Least Depth Information

Not applicable.

N.9 Charting Recommendation

Delete the dumping ground charted in this location and supersede the presently charted depths with soundings from this survey.

CONCUR

N.10 Danger to Navigation Report

This item was not reported as a danger to navigation.

AWOIS 1819

N.1 The object of this investigation is an unidentified obstruction cleared by wire drag to 37 feet, thought to be an anchor.

N.2 Item Location

Geographic position provided was: 41° 11' 08.37" N
71° 32' 45.89" W

N.3 Source of Item

1918 Wire Drag Survey H4041WD

N.4 Largest Scale Chart Affected

Chart 13217, scale 1:15,000, edition 11 dated February 10, 1990.

N.5 Investigation Procedures

Survey requirements called for 400% side scan sonar coverage in conjunction with echosounder development about a 200 meter search radius. A diver investigation was also required, if found. This item underwent 400% side scan sonar and echosounder investigation. No diver investigation was conducted.

N.6 Investigation Results

This item has been disproved. No obstruction approaching 37 feet was found within the search area. In fact, the least depth encountered within the search area was 15.9 meters (52 feet) located at the western edge of the search area. This depth is to be expected as it's representative of the general shoaling to the west seen as Block Island is approached. There were no significant contacts detected within the search radius during this survey. *CONCUR*

N.7 Explanation for Position Difference

Not applicable.

N.8 Least Depth Information

Not applicable.

N.9 Charting Recommendation

Delete the obstruction symbol and 37 foot sounding from the chart, *AND REPLACE WITH DATA FROM PRESENT SURVEY.*

N.10 Danger to Navigation Report

This item was not reported as a danger to navigation.

AWOIS 1826

N.1 The object of this investigation is a barge which sunk in 1942.

N.2 Item Location

Geographic position provided was: 41° 12' 20.37" N
71° 31' 28.19" W

N.3 Source of Item

ND 11/12/42, then a 1946 Notice to Mariners.

N.4 Largest Scale Chart Affected

Chart 13217, scale 1:15,000, edition 11 dated February 10, 1990 is the largest scale chart affected. However, the entire search radius is not encompassed by this chart. Chart 13218, scale 1:80,000, edition 30 dated July 7, 1990 encompasses the entire search area.

N.5 Investigation Procedures

Survey requirements called for 200% side scan sonar coverage in conjunction with echosounder development in a 2000 meter search radius. A diver investigation was also required, if appropriate. This item underwent 200% side scan sonar and echosounder investigation. No diver investigation was conducted. While no contact resembling a barge was located, several (9) contacts were deemed significant enough to merit further investigation. Further investigation was conducted by either of two methods.

The first method involved deploying the towfish in the vicinity of the computed position to get another look and computed height and position on the contact. These positioning lines were run at a reduced range scale, either 50 or 75 meters. If the contact's computed height was considered significant, the towfish was recovered. Then the computed position was entered into HDAPS as a target and the PGU used in the target mode. The ship would then be positioned directly over the contact and by use of the DP mode several good fixes would be obtained for the contact. This method was used for developments 1 - 6 and for development 9.

The second method was used when a position of high confidence was already known for a particular contact. In these cases the ship proceeded directly over the contact using the PGU in the target mode. Fixes were then obtained by use of detached positions once the contact appeared on the sonargram. This method was used for developments 7 and 8.

N.6 Investigation Results

The AWOIS item has been disproved. No contacts resembling a barge were detected on side scan sonar. As previously mentioned, there were nine features developed. Of these nine, after further investigation, six were deemed to be significant as they exceeded 10% of the water depth. These contacts will be dealt with collectively and all are recommended for charting as soundings.

Development numbers 3, 4, and 5 were considered insignificant after 50-meter range side scan sonar passes, so echosounder developments were not conducted. Least depth information is not given below.

	Fix #	Position	Least Depth (MLLW)
Development 1:	1686	41° 12' 38.94 ⁶ " N 71° 32' 42.78" W	9.9 meters 32.5 feet 31
Development 2:	1700	41° 12' 47.34 ⁵ " N 71° 32' 40.74 ⁵ " W	9.9 ^{10.0} meters 32.5 feet 33.0
Development 6:	1721	41° 12' 41.10 ² " N 71° 31' 46.74" W	25.7 meters 84.3 feet
Development 7:	1724	41° 12' 19.08 ^{18.96} " N 71° 32' 15.96 ^{16.00} " W	12.3 meters 40.4 feet 41.0
Development 8:	1727	41° 11' 57.18 ²⁰ " N 71° 31' 53.10 ¹¹ " W	21.2 ³ meters 69.6 feet 70.0
Development 9:	1790	41° 13' 25.80 ⁸ " N 71° 31' 41.10" W	32.0 ³¹ meters 105.0 feet 101.0

N.7 Explanation for Position Difference

Not applicable.

N.8 Least Depth Information

See section "N.6".

N.9 Charting Recommendation

~~Supersede the presently charted depths with the soundings from this survey. The developments are recommended to be charted as soundings rather than bottom features.~~

RECOMMEND DELETING THE PRESENTLY CHARTED DANGEROUS SUNKEN WRECK, AND DANGER CURVE, AND CHART AREA AS SHOWN ON PRESENT SURVEY.

N.10 Danger to Navigation Report

This item was not reported as a danger to navigation.

AWOIS 6950

N.1 The object of this investigation was the 83' fishing vessel MISS JENNIFER. It was originally sunk in another position (AWOIS 6951), then raised and while under tow sank in the position corresponding to this AWOIS listing.

N.2 Item Location

Geographic position provided was: 41° 11' 24.37" N
71° 26' 54.18" W

N.3 Source of Item

Local Notice to Mariners 48/84, position reported by Hull and Cargo Surveyors, Inc.

N.4 Largest Scale Chart Affected

Chart 13218, scale 1:80,000, edition 30 dated July 7, 1990.

N.5 Investigation Procedures

Survey requirements called for 200% side scan sonar coverage in conjunction with echosounder development in a 3000 meter search radius. A diver investigation was also required, if appropriate. The item was found on the first line run over the reported position with side scan sonar. Further investigation involved echosounder development to delineate the extent of the wreck. Once an accurate position was computed, detached positions were obtained for least depth purposes. No diver investigation was conducted given the depth of water was in excess of 100 feet.

N.6 Investigation Results

A least depth for this item was determined by echosounder.

Least depth information for this item is as follows:

FIX	2031
LATITUDE	41° 11' 26.6 ³ 2 " N
LONGITUDE	71° 26' 53.4 ⁸ 7 " W
LEAST DEPTH (MLLW)	28. ⁵ 8 meters (93. ⁵ 8 feet)

N.7 Explanation for Position Difference

The position difference is insignificant.

N.8 Least Depth Information

See section "N.6".

N.9 Charting Recommendation

Delete the dangerous wreck (depth unknown) symbol PA and add a wreck (least depth known by sounding only) symbol with a depth of 94³ feet* based on the above survey data. *CONCUR*

* (28⁵m), 28⁵Wk,

N.10 Danger to Navigation Report

This item was not reported as a danger to navigation.

AWOIS 6951

N.1 The object of this investigation was an unknown steel hulled fishing vessel, 83 feet in length. Through conversations with Timothy Morgan of Coastal Diving Services, Inc., the RUDE learned that the wreck described in AWOIS 6951 was the same wreck listed as the "Miss Jennifer" (AWOIS 6950). The two different positions correspond to the original sinking (AWOIS 6951) and a second sinking after the vessel had been raised (AWOIS 6950).

Further investigation supported this discovery with letters and other salvage documentation, listing the two different positions.

N.2 Item Location

Geographic position provided was: 41° 09' 54.38" N
71° 21' 46.17" W

N.3 Source of Item

Local Notice to Mariners 9/84.

N.4 Largest Scale Chart Affected

Chart 13218, scale 1:80,000, edition 30 dated July 7, 1990.

N.5 Investigation Procedures

Survey requirements called for 200% side scan sonar coverage in conjunction with echosounder development in a 3000 meter search radius. A diver investigation was also required, if appropriate. This item was never investigated, however it was disproved through salvage documentation.

N.6 Investigation Results

Disproved through salvage documentation. Mr. Richard R. Miner, Principal Surveyor for Hull and Cargo Surveyors, Inc. met with RUDE personnel concerning the MISS JENNIFER. The company he represents sponsored the salvage of the vessel. Hull and Cargo, Inc. personnel were present for the salvage, towing and subsequent loss of the vessel due to the rupture of a critical number of salvage air bags employed to keep the MISS JENNIFER afloat for towing. His account of the events surrounding the loss of the vessel is considered to be very reliable. The position he provided is approximately 100 meters from the position computed for it through this survey's efforts. The complete salvage documentation is included in Appendix VI, Supplemental Correspondence.*

N.7 Explanation for Position Difference

Not applicable.* CONCUR, DATA APPENDED TO THIS REPORT

N.8 Least Depth Information

Not applicable.

N.9 Charting Recommendation

Delete the dangerous wreck (depth unknown) symbol PA. *CONCUR*

N.10 Danger to Navigation Report

This item was not reported as a danger to navigation.

AWOIS 7309

N.1 The object of this investigation is an obstruction charted as PA, discovered by the NOAA Ship Albatross IV.

N.2 Item Location

Geographic position provided was: 41° 10' 09.98" N
71° 18' 08.96" W

N.3 Source of Item

CL262/89 and Local Notice to Mariners 24/89.

N.4 Largest Scale Chart Affected

Chart 13218, scale 1:80,000, edition 30 dated July 7, 1990.

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 was also required, if appropriate. This item underwent 200% side scan sonar and echosounder investigation. No diver investigation was conducted.

N.6 Investigation Results

This item has been disproved. No contacts were detected during this investigation. In fact, the bottom is extremely flat with little to no relief. There were also numerous lobster traps in the area.

N.7 Explanation for Position Difference

Not applicable.

N.8 Least Depth Information

Not applicable.

N.9 Charting Recommendation

Delete the obstruction symbol PA, AND CHART AREA AS SHOWN ON PRESENT SURVEY.

N.10 Danger to Navigation Report

This item was not reported as a danger to navigation.

O. ADEQUACY OF SURVEY *SEE ALSO SECTION 9. OF THE EVALUATION REPORT.*

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

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

P. AIDS TO NAVIGATION *SEE ALSO SECTION 7.6. OF THE EVALUATION REPORT.*

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

P.2 No aids to navigation were investigated for positioning during this survey. However, buoy R W "NE" was located within the search radius of AWOIS 1826. This aid is identified as #18265 in the Atlantic Coast Light List, Volume 1, 1991. There is no position provided, but the characteristics listed agree with those observed.

P.3 No other aids were located during the survey.

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

P.5 A submarine cable is presently charted running through the search radius for both AWOIS 6950 and 6951. They are shown to originate at Green Hill Point, Rhode Island. Both cables continue to the southern border of chart 13218 and are not shown to continue on chart 12300, the adjacent chart. The existence of these cables were not verified.

The principal ferry route between Old Harbor, Block Island, RI and Point Judith, RI is not shown on charts 13218 or 13217. Ferry traffic transits through the search radii of AWOIS 1826 and possibly AWOIS 1819. This route sees considerable ferry traffic, especially so during the warmer months.

No pipelines are charted or known to be located within the survey area.

P.6 No ferry terminals are located within the survey area. However, a ferry terminal is located in Old Harbor, Block Island and identified on chart 13217.

Q. STATISTICS

Q.1	a) Number of positions	1125
	b) Lineal nautical miles of sounding lines	
	-nautical miles of survey with the use of the side scan sonar	114.7
	-nautical miles of survey without the use of the side scan sonar	12.7
Q.2	a) square nautical miles of hydrography	N/A
	b) days of production	11
	c) detached positions	9
	-one for diver investigation	
	-eight for contact development	
	d) bottom samples	0
	e) tide stations	1
	f) current stations	0
	g) velocity casts	1
	h) magnetic stations	0
	i) XBT drops	0

R. MISCELLANEOUS

R.1 There is no other information of scientific or practical value resulting from this survey that has not been covered in previous sections.

R.2 Bottom samples were not required for this project.

S. RECOMMENDATIONS *SEE ALSO SECTION 9. OF THE EVALUATION REPORT*

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 Provided that the application of approved tides will not substantially alter survey data, no further investigation of the survey area is recommended. The existing charted depths adequately represent current soundings (see section N), and a basic survey of any of the area covered is not recommended.

T. REFERRAL TO REPORTS

RUDE Electronic Control Report - 1991 Field Season
(submitted to N/CG244 concurrent with this survey)

Horizontal Control Report - 1991 Field Season
(submitted by N/CG23322)

RU6-91 AWOIS ITEM 1816
DIVE INVESTIGATION REPORT

DATE: 18 SEPT 1991 DOY: 261 TIME: 1345Z

PERSONNEL:

DIVEMASTER\TENDER- LTJG OBERLIES DIVERS- LT SCHATTGEN

COXSWAIN\TENDER- P. KEANE - ENS ILLG

VISIBILITY: 30 FEET CURRENT: 0

MAXIMUM DEPTH: 11.3 METERS BOTTOM TIME: 40 MIN.

METHOD OF POSITION DETERMINATION: DETACHED POSITIONS

HDAPS POS. NUMBER: 225

EASTING: 132503.0 LATITUDE: 41-10-07.20N

NORTHING: 240816.8 LONGITUDE: 71-32-30.60W

AVERAGE LEAST DEPTH BY PNEUMATIC DEPTH GAUGE: 09.0 METERS

TIME OF READING: 1345Z

PNEUMATIC DEPTH GAUGE CORRECTOR: 0.0

PREDICTED TIDAL ZONE CORRECTOR: -0.3

LEAST DEPTH DETERMINED @MLLW 08.7 METERS

NARRATIVE REPORT: The object of this investigation was the shoalest point on a ridge trending NW to SE. As the ridge progresses Northward, the water depth decreases and its shoalest point is on top of a one meter high boulder. It was here that a least depth was determined by use of a pneumofathometer and three consecutive readings. This depth was 9.0 meters at the time of the survey. Diver's depth gauges found this same point to be 31 feet (9.4 meters) and the base of the boulder to be at 35 feet (10.6 meters). The entire ridge is very irregular presenting a ragged appearance studded with boulders of various sizes.

IT IS RECOMMENDED THAT A ROCK WITH A KNOWN DEPTH OF 8⁸ METERS (29 FT.), 8⁸ RK, AND A DANGER CURVE, BE CHARTED IN PRESENT SURVEY LOCATION.



RICHARD R. MINER
PRINCIPAL SURVEYOR

MARINE/SURVEYORS
& CONSULTANTS

HULL & CARGO SURVEYORS
P.O. BOX 268
MILTON, MASS. 02186
(617) 472-8803
FAX (617) 788-8607

OFFICE LOCATION: 40 WILLARD ST., QUINCY, MASS.

CONTROL STATIONS as of 25 Feb 1992

No	Type	Latitude	Longitude	H	Cart	Freq	Vel	Code	MM/DD/YY	Station Name
202	A	041:09:10.210	071:33:02.013	0	250	1646.7	299670.0	2	06/26/91	BLOCK IS. SE LIGHTHOUSE OFFSET, 1991
201	A	041:27:42.566	071:10:22.144	0	250	1646.7	299670.0	1	06/26/91	HARREN OFFSET, (AT HARREN PT)
111	F	041:21:15.270	071:30:26.176	0	250	0.0	0.0	0	07/15/91	MAIN BKWTR CTR LT 2 1948 *
112	F	041:21:32.562	071:29:34.315	0	250	0.0	0.0	06/26/91	06/26/91	PT JUDITH EAST BKWTR LT - NEW **
113	F	041:21:33.621	071:28:53.024	20	250	0.0	0.0	8	07/15/91	PT JUDITH LIGHT OFFSET 2, 1991
114	F	041:13:30.514	071:34:33.030	0	250	0.0	0.0	6	07/15/91	BLOCK ISLAND N LIGHT OFFSET, 1991
116	F	041:21:54.865	071:35:42.107	8	250	0.0	0.0	4	07/15/91	GREEN HILL BEACH, 1991
117	F	041:18:14.045	071:51:30.689	18	250	0.0	0.0	3	07/16/91	WATCH HILL LIGHT OFFSET #2, 1991
118	F	041:09:09.918	071:33:06.592	61	250	0.0	0.0	5	08/08/91	BLOCK ISLAND SE LIGHT OFFSET 2, 1991
119	F	041:04:15.499	071:51:25.373	9	250	0.0	0.0	2	08/12/91	MONTAUK POINT LIGHT OFFSET, 1991
120	F	041:21:39.717	071:28:52.946	20	250	0.0	0.0	8	09/23/91	PT JUDITH LIGHT OFFSET 3, 1991

- * 111 MAIN BR C LT 2 1948
- * 112 PT JUD EAST RRK LT NEW

12 March 1984

Marine Office of America Company
c/o Hull & Cargo Surveyors
P. O. Box 268
Milton, Massachusetts 02186

Dear Mr. Minor:

The following is a report of the daily activities that we engaged in on the on-location survey of the F/V MISS JENNIFER that sank February 26, 1984 approximately 7 miles east of Block Island, Rhode Island.

On March 3, 1984 we disembarked from Newport, Rhode Island at approximately 7:30 AM on the Tug Beavertail. The crew on board was Captain - Fred Peese, U/W Photographer - Bill Campbell, Deckhand - Steve Monroe, Head Diver, Coordinator - Timothy M. Morgan, Diver - Steven Brady, Side-scan Operator - Charlie Beckers, and Hull & Cargo Surveyor - David Wiggin. Upon arriving on site the weather was not favorable to work and the decision was made to layover in Old Harbour, Block Island.

On March 4, 1984 we disembarked Old Harbour at 7:30 AM and arrived on site at approximately 8:30 AM. At this time we prepared for the side-scan search and lowered the transducer into the water whereby a problem occurred and a faulty spring was discovered in the unit. At approximately 9:00 AM a decision was made to leave the site since repairs could not have been effected immediately.

March 5 through 9 the weather was not favorable for the search.

On March 10, 1984 we left Newport aboard the F/V Hillbilly. The crew on board was Owner of the MISS JENNIFER, Alan P. Gelfuso, Captain - Bruce Harvey, Head Diver - and Coordinator - Timothy M. Morgan, Side-scan Operator - Alan Bieber, and Hull & Cargo Surveyor - David Wiggin. With the Tug Beavertail standing by in Jamestown with Captain Fred Peese, Deckhand - Steve Monroe, U/W Photographer - Bill Campbell, and Diver - Donald Gunning. We arrived on the scene at 1:08 PM and deployed the side-scan sonar at 1:10 PM. Contact was first made at approximately 1:45 PM and buoy was dropped at 4:15 PM in approximate area of target. The Beavertail arrived on the scene at 4:30 PM.

At 4:40 PM Head Diver, Tim Morgan and Diver, Donald Gunning entered the water, descended down the buoy line and made contact with the MISS JENNIFER. We noticed that the vessel was sitting on the keel and starboard chine with approximately a 30 degree list to the starboard. At this time we secured a temporary down line to the superstructure of the vessel and did not notice any evident damage to the superstructure, outriggers, or the wheelhouse of the vessel. The depth of the water was 120 Ft.

The divers reached the surface at 4:46 PM. Head Diver, Tim Morgan and Bill Campbell entered the water at 5:19 PM to take photographs of the vessel. We descended down the down line to the superstructure and proceeded to the forward bit of the MISS JENNIFER and secured a permanent down line. Then we lowered ourselves over the port bow and took photographs of pressure damage of approximately a 6 ft. x 8 ft. area and concaved approximately 12 to 15 inches in the area of the collision bulkhead. Then swimming along the hull on the port side below the water line we could not see at this time any other damage to the hull. We then photographed the name on the transom and took photographs of the rudder, propeller and nozzle, noticing that the rudder was hard to starboard breaking the binder chains. We proceeded around the starboard side of the vessel swimming towards the bow not noticing any more structural damage. We did not have a chance to check the starboard bow and descended to the deck of the vessel. There we took a series of photographs of the deck hatches, winches and wheelhouse and lazaret. We took photographs of the forward bulkhead in the fish hold where we noticed a separation of approximately 1 1/2 inches where the deck meets the bulkhead. At this time we had to ascend to a depth of 10 Ft. where we had to decompress and came to the surface at 5:39 PM.

We did not have enough time on these dives to determine why the vessel sank, and in our estimation it would take at least one more day to determine what the causes were for the sinking of the MISS JENNIFER.

If any additional information is required, please feel free to contact us at AC (401) 847-6766, or in writing to P. O. Box 3103, Newport, Rhode Island 02840.

Very truly yours,

COASTAL DIVING SERVICES, INC.

Timothy M. Morgan, Pres.

TMM:ts



HULL AND CARGO SURVEYORS, INC.

MARINE SURVEYORS AND CONSULTANTS

OFFICE LOCATION: 40 WILLARD STREET, QUINCY, MASS. • (617) 847-1650
MAILING ADDRESS: P.O. BOX 268, MILTON, MASS. 02186

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LOS ANGELES
SAN FRANCISCO
VANCOUVER, B.C.

March 19, 1984

Operations Officer
COMMSUB GROUP 2
Operations, Building #1
Naval Submarine Base - New London
Groton, Ct. 06340

Dear Sir:

We are the surveyors for underwriters on a fishing vessel, the "MISS JENNIFER" which sank off Block Island on February 26, 1984.

Since the sinking the United States Coast Guard has been broadcasting a "NOTICE TO MARINERS."

The vessel has now been located on the bottom and divers have confirmed her position in one hundred twenty (120) feet of water.

The position and loran coordinates are as follows:

Lat: 41-09.19N
Long: 71-21.8W

Loran coordinates:
14465.4
43864.1
25739.4

It is estimated that the vessel has approximately sixty (60) feet of water over the top of the rigging and thus it should not pose a hazard to surface vessels ordinarily transiting Buzzards Bay, Block Island Sound or Narragansett Bay.

It may however pose a hazard to submarines operating in the area and we therefore wish to draw your attention to the matter.

The "NOTICE TO MARINERS" reference is as follows:

Charts: 13218
13205

Reference LNM 09 (LG BOSTON) 28 February 1984.

- 2 -

Yours truly,



Richard R. Miner
Principal Surveyor
Hull & Cargo Surveyors, Inc.

cc: P.O. Dudamine
USCG-MSO-Providence

RRM:db



HULL AND CARGO SURVEYORS, INC.

MARINE SURVEYORS AND CONSULTANTS

OFFICE LOCATION: 40 WILLARD STREET, QUINCY, MASS. • (617) 847-1650
MAILING ADDRESS: P.O. BOX 268, MILTON, MASS. 02186

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SAN FRANCISCO
VANCOUVER, B.C.

NOTICE OF INSURANCE SALVAGE SALE

NAME: F/V "MISS JENNIFER"

DESCRIPTION OF VESSEL:

Subject vessel is of an all welded steel constructed fishing trawler design hull. A single steel deckhouse with wheel house forward is fitted to the flush main deck. The vessel is single screw, diesel powered. Her stem is raked and her stern is square and notched. Bulwarks of steel plating are provided about the outer periphery of the main deck. Mast, boom, outriggers and associated fishing gear are provided and installed topside.

PARTICULARS:

Official #663637.
Registered length: 74.3' (LOA 83') 75
Registered breadth: 22.0'
Registered depth: 11.1'
Gross tonnage: 110
Net tonnage: 75
Builder: Borsarge Marine, Inc., Bayou Le Batre, Alabama in 1983.

MAJOR EQUIPMENT:

General Motors 12V92 diesel engine rated at approx. 450 HP with Twin Disc Reduction Gear.
General Motor 3-71 aux. driving a 30 KW "Kato" generator.
Split 24" x 42" trawl winch with MRH 270 radial head piston motors.
Pullmaster H-10 cargo winch.
Net drum powered by 2-MRH 70 radial head piston motors.
10" double head winch stand.

LOCATION :

Vessel sank on February 26, 1984, off Block Island, Rhode Island.
Approximate position: 41°-09.9N. 71°-21.8W.
Approximate coordinates: 14465.4 x 43864.1 x 25739.4.
Depth of water: 120'
Vessel lying upright and on the stbd. side of bottom and chine, approximately 15 degree list to starboard.

KNOWN DAMAGE:

Top of fish hold forward bulkhead fractured and distorted approximately 1½" wide opening. Bow collapsed in the portside and indented inwards approximately 15" area measures approx. 6' x 8'.
Port and starboard side of the stern/lazarette area distorted. ~~207 736 97 50~~
~~700 526 64 24~~

Al Steclabaker
7893073

8249000

TERMS OF SALE:

- 1) Vessel is sold "as is - where is." No guarantees as to condition and location of vessel are expressed or implied by owners, underwriters, or their representatives.
- 2) Owner/underwriters reserve the right to reject any or all bids for whatever reason.
- 3) Bids will close at 1600 hours on May 25, 1984. Bids may be hand delivered, mailed, or sent by telegram. Oral bids will not be accepted. Only bids received at the Hull & Cargo Surveyors, Inc., P.O. Box #268, Milton, Mass. 02186 (location: 40 Willard Street, Quincy, Mass.) by 1600 hours on May 25, 1984, will be considered.
- 4) Successful bidder will be responsible for obtaining all necessary federal, state or local permits as required by law or regulation.
- 5) Underwriters reserve the right to inspect vessel at any time prior to salvage, during salvage, or upon successful salvage for the purpose of determining the cause of sinking. Salvor agrees to cooperate with such efforts. To such extent as underwriters actions put salvor to additional expense compensation will be arranged on mutually agreeable terms.
- 6) Vessel will be delivered to successful bidder free of any encumbrances.
- 7) Bids must be clearly marked "SALVAGE BIDS".

Sunken fishing boat found 120 feet down

By KAREN LEE ZINER
Journal-Bulletin Staff Writer

A private commercial diving company has located the Miss Jennifer, an 83-foot fishing boat that sank Feb. 26 in 120 feet of water about seven miles east of Block Island.

Timothy Morgan, one of the owners of Coastal Diving Services Inc. of Newport, said yesterday that divers went down late Sunday afternoon "after we had gotten an image of the boat through sidescan sonar."

Morgan said the divers "didn't get a good enough look" to tell how much damage the three-month-old vessel sustained or exactly why the boat went down. "At that depth of water, and at 5:30 in the evening, all we could do was identify it," Morgan said yesterday.

"It's sitting upright on the bottom. . . . The next acceptable day we're going to take another dive, if the insurance company wants us to," he said.

Five fishermen were plucked safely from the sea the morning the

Miss Jennifer capsized in high winds.

The crew members had all donned survival suits — thick, foam-rubber suits with built-in flotation rings. Those helped them withstand the 38-degree water temperature for approximately 20 minutes until the Coast Guard rescued them. None of the crew sustained any injuries from exposure.

Morgan said yesterday that his company had been hired through the owner's insurance company. "We've been contracted to locate the boat, dive on it and see how much damage has been done," he said. "Then the insurance company decides if they want to raise it."

The Miss Jennifer foundered in the water for about 12 hours before sinking, and was within sight of another fishing vessel when she went down.

That vessel got some coordinates to mark where the Miss Jennifer went down, Morgan said, but "even if you knew within 100 yards, it could still take three weeks" to find the boat.

< PAGE #2 OF SALVAGE REPORT FROM HULL AND CARGO SURVEYORS, INC. THIS COPY CAME FROM RICHARD MINER (OF HULL AND CARGO) — THE FIRST PAGE CONTAINED NAMES AND INFORMATION HE DID NOT WISH US TO SUBMIT. >

Each dive ranged approximately seventy minutes in duration. Divers required approx. fifty three minutes of decompression in chamber on deck of "TIOGA."

Salvors had approximately 10 days of rigging preparation prior to vessel's refloating on November 25, 1984.

TIOGA appears to be adequately outfitted for diving and salvage operations of this type provided that necessary precautions are taken onboard.

We consider this type of salvage operation (using inflatable air salvage bags) to be adequate, provided that depths of water do not exceed 120'. As the depth of water increases and protected or sheltered areas are distant, possibility of salvage using salvage bags decreases.

The following factors play a major role in salvage operations of this type:

- A) Depth of water and duration of "Bottom Time" available.
- B) Potential hazard of divers sustaining the "BENDS".
- C) Conditions and adequate capacity of salvage bags.
- D) Sea and wind conditions.
- E) Divers and salvors experience
- F) Salvage equipment.
- G) Submerged vessel's altitude on bottom.

Ocean Services Inc., are mobile and can respond to a vessel in distress within a reasonable period of time.

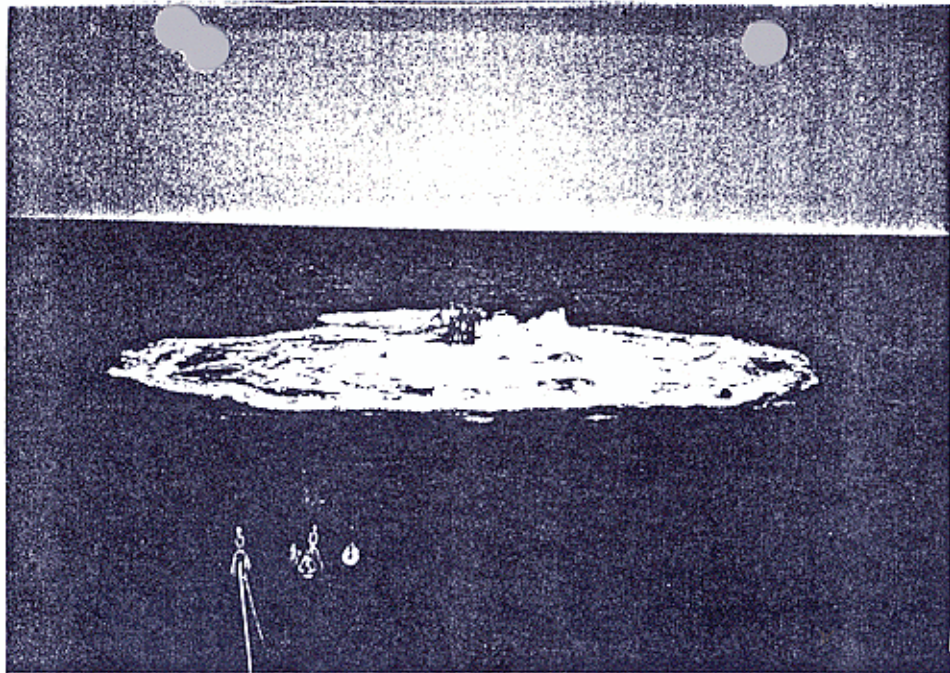
For the most part, we do not consider salvage operations (using inflatable air salvage bags) in water depths exceeding 120' to be practical.

F/V "MISS JENNIFER" sank at 0245 hours November 26, 1984 due to chafe and subsequent rupture of six air salvage bags when the vessel was in tow to Old Harbor, Block Island. Salvage operations have been suspended until January/1985 when repairs have been affected to the damaged salvage bags.

Vessel's approximate new submerged position: 41 degrees 11.24N, 71 degrees 26.56W in 100 feet of water

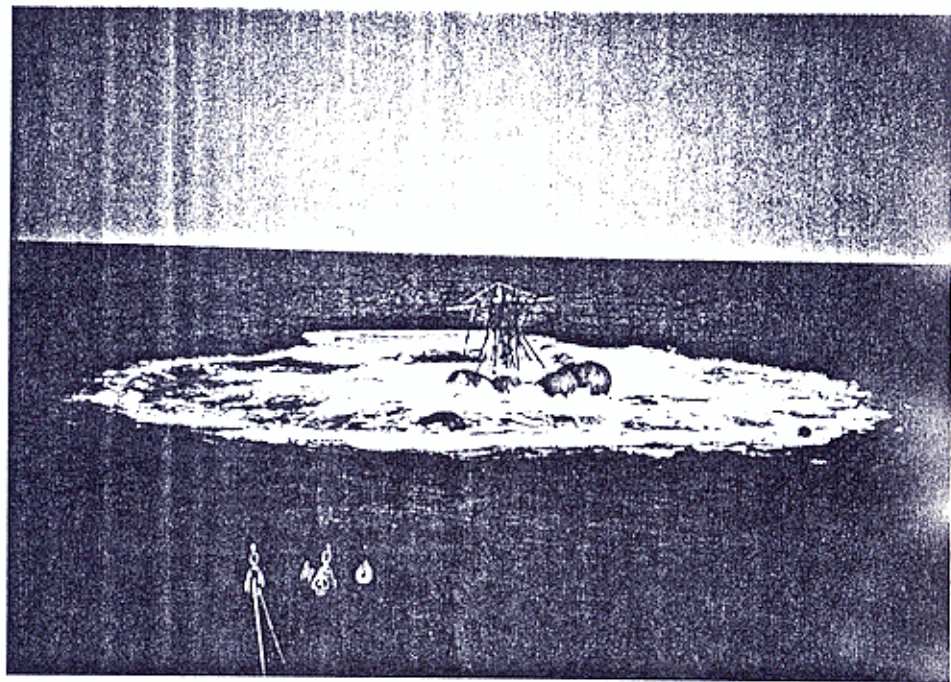
United States Coast Guard, Aids to Navigation was notified of F/V new submerged position on November 27, 1984. Information has been broadcasted over VHF-FM Notice to Mariners and is to be published in USCG Local Notice to Mariners.

← AWOIS
6950
POSITION
REPORTED
THROUGH
LNM 48/84
ON 11/27/84



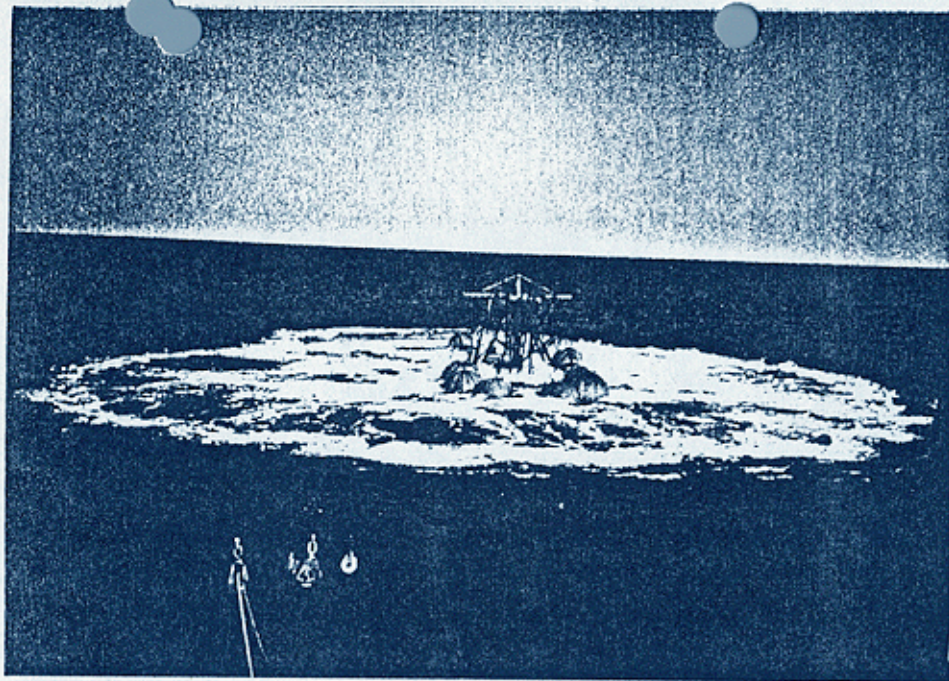
11

(11 & 12) Vessel breaking surface

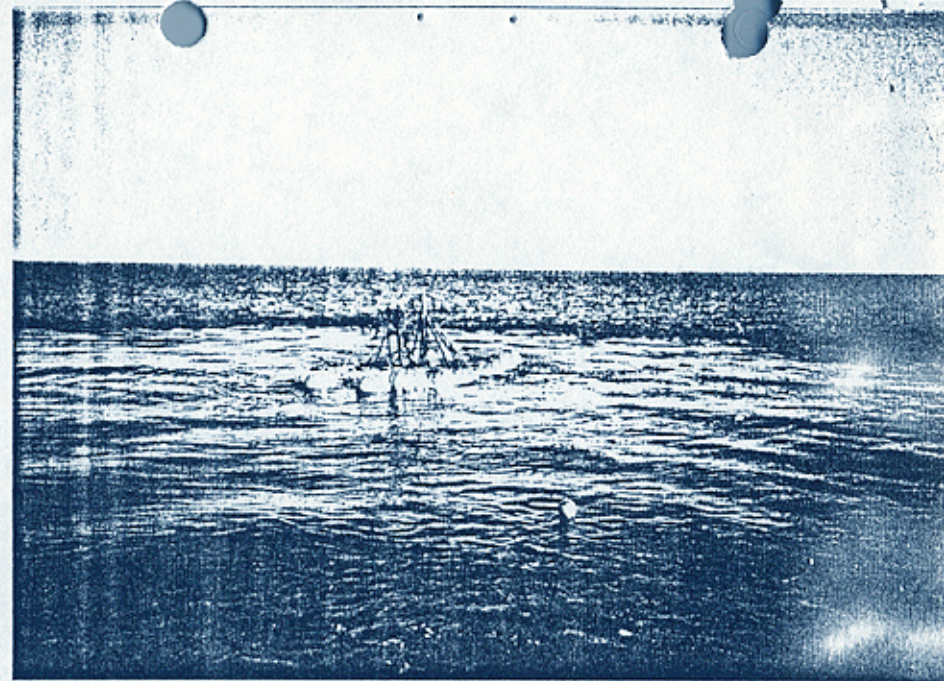


12

(7)

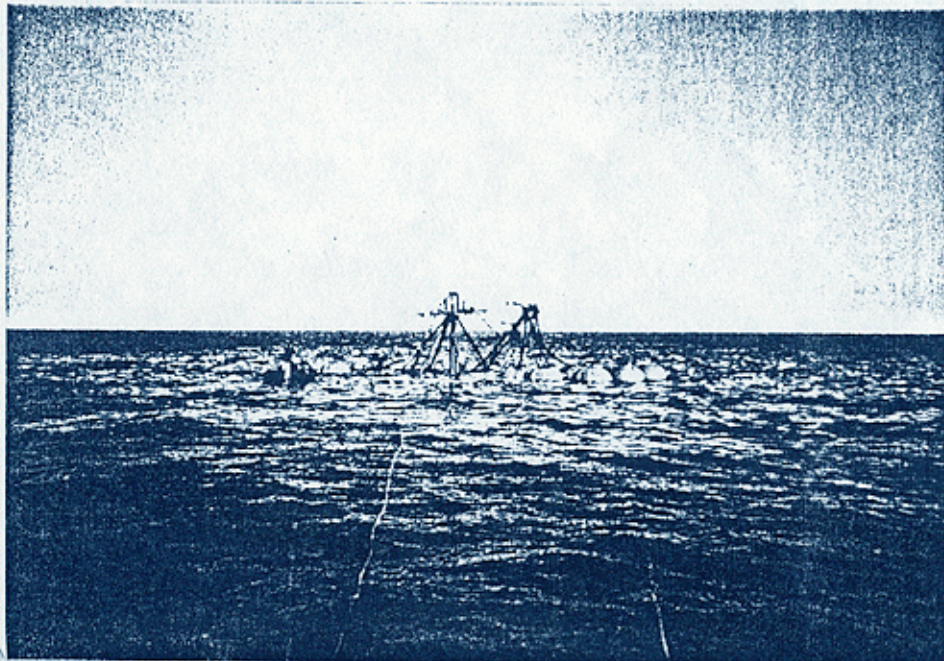


13



14

(13 & 14) MISS JENNIFER afloat



(15) Inspection of F/V by lead diver

12

11

APPENDIX VII. APPROVAL SHEET

LETTER OF APPROVAL

REGISTRY NO. FE-365SS

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, LCDR NOAA
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: February 11, 1992

MARINE CENTER: Atlantic

OPR: B660-RU-91

HYDROGRAPHIC SHEET: FE-365SS

LOCALITY: Rhode Island, Rhode Island Sound, Zero Point Five to
Eleven Nautical Miles East of Block Island

TIME PERIOD: September 3 - September 24, 1991

TIDE STATION USED: 845-5083 Point Judith, Rhode Island
Lat. $41^{\circ} 21.8'N$ Lon. $71^{\circ} 29.4'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 6.34 ft.

HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 3.2 ft.

REMARKS: RECOMMENDED ZONING

Apply a -15 minute time correction and a x0.94 height ratio to
Point Judith, Rhode Island (845-5083).

Note: Times are tabulated in Eastern Standard Time.

for Brian L. ...

CHIEF, DATUMS SECTION *el*



GEOGRAPHIC NAMES

FE-365 SS

Name on Survey	Source of Name										
	A	B	C	D	E	F	G	H	K		
	ON CHART NO.	ON PREVIOUS SURVEY NO.	ON U.S. QUADRANGLE MAPS	FROM LOCAL INFORMATION	ON LOCAL MAPS	P.O. GUIDE OR MAP	GRAND McNALLY ATLAS	U.S. LIGHT LIST			
RHODE ISLAND (title)											1
RHODE ISLAND SOUND (title)											2
											3
											4
											5
											6
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Approved

Charles P. Harrington

Chief Geographer - NCG2x5

SEP 17 1993

11/22/93

HYDROGRAPHIC SURVEY STATISTICS
REGISTRY NUMBER: FE-365SS

NUMBER OF CONTROL STATIONS	7
NUMBER OF POSITIONS	1025
NUMBER OF SOUNDINGS	4881

	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	76	08/31/92
VERIFICATION OF FIELD DATA	175	09/23/92
ELECTRONIC DATA PROCESSING	58	
QUALITY CONTROL CHECKS	46	
EVALUATION AND ANALYSIS	36	09/14/93
FINAL INSPECTION	31	10/26/93
TOTAL TIME	422	
ATLANTIC HYDROGRAPHIC SECTION APPROVAL		11/08/93

**COAST AND GEODETIC SURVEY
ATLANTIC HYDROGRAPHIC SECTION
EVALUATION REPORT**

SURVEY NO.: FE-365SS

FIELD NO.: RU-10-6-91

Rhode Island, Rhode Island Sound, Zero Point Five to Eleven
NM East of Block Island

SURVEYED: 03 September through 24 September 1991

SCALE: 1:10,000

PROJECT NO.: OPR-B660-RU-91

SOUNDINGS: EG&G Model 260 Side Scan Sonar, Pneumatic Depth
Gauge, and RAYTHEON DSF-6000N Fathometer

CONTROL: CUBIC WESTERN DM-54 ARGO (Range/Range), MOTOROLA
Falcon 484 Mini-Ranger (Range/Range), MAGNAVOX
MX4200D Differential GPS Receiver/MAGNAVOX MX50R
Beacon Receiver (Differential Global Positioning
System)

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

Surveyed by.....P. L. Schattgen

.....J. A. Illg

.....M. J. Oberlies

.....D. E. Williams

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

1. INTRODUCTION

a. This is primarily a side scan sonar item investigation survey. A RAYTHEON DSF-6000N fathometer was operated concurrently with the side scan sonar. Side scan sonar contacts located by the present survey during hydrographic operations were not all investigated by the present survey. In cases where the side scan sonar was used to determine the estimated depth of a feature, the item is shown on the present survey with the upper case letter 'A' in parenthesis. This note is shown on the present survey smooth sheet in proximity to the title block. See also memorandum titled "Showing Estimated Side Scan Sonar Depths on Smooth Sheets, dated 23 February 1989, for an explanation of the note shown on the survey smooth sheet. Depths on these obstructions were estimated by scaling heights off the bottom from side scan sonar records. Positions were determined by computing offsets from the vessel's track.

b. Five 1:10,000 scale page size smooth plots with accompanying overlays were generated during office processing. These plots are considered the smooth sheet and final plots for this survey.

c. No unusual problems were encountered during office processing.

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

2. CONTROL AND SHORELINE

a. Control is adequately discussed in sections H. and I. of the Descriptive Report.

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 survey datum and the North American Datum of 1927 (NAD 27).

To place the smooth plots on NAD 27 move the projection lines 0.379 seconds (11.68 meters or 1.168 mm at the scale of the survey) north in latitude, and 1.821 seconds (42.450 meters or 4.245 mm at the scale of the survey) east in longitude.

b. There is no shoreline within the limits of the present survey.

3. HYDROGRAPHY

a. Where applicable, soundings at crossings are in adequate agreement.

b. Where applicable, the standard depth curves were drawn on the smooth sheets.

c. The development of the bottom configuration and determination of least depths is considered adequate.

4. CONDITION OF SURVEY

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

5. JUNCTIONS

There are no contemporary surveys that junction with the present survey.

6. COMPARISON WITH PRIOR SURVEYS

a. Hydrographic

H-6442 (1939) 1:10,000
 H-6443 (1939) 1:40,000
H-6444 (1939) 1:40,000

Prior survey H-6442 (1939) is common to Automated Wreck and Obstruction Information System (AWOIS) Items #1816, #1819, and #7288. Present survey depths are 0 to 0³ meters (0 to 1 feet) shoaler than prior survey depths.

Prior survey H-6443 (1939) is common to AWOIS Items #1826, and #6950. Present survey depths are 0 to 0⁵ meters (0 to 2 feet) deeper than prior survey depths.

Prior survey H-6444 (1939) is common to AWOIS Items #6950, #6951, and #7309. Present and prior survey depths are in good agreement.

The present survey is adequate to supersede the above prior surveys in the common areas.

b. Wire Drag

H-4041WD (1918-1919) 1:20,000

One hang and one grounding, AWOIS Item #1816 and #1819, respectively, originate with prior survey H-4041WD (1918-19). These items are adequately discussed in section N., pages 18-21, of the Descriptive Report and require no further discussion.

There are no conflicts between the present survey depths and prior survey effective clearance depths.

7. COMPARISON WITH CHART 13217 (11th Edition, Feb. 10/90) 13218 (30th Edition, July 7/90)

a. Hydrography

The charted hydrography within the common areas originates with the previously discussed prior surveys and sources not readily available and requires no further discussion. The items investigated by this survey are adequately discussed and appropriate charting recommendations have been made in section N. of the Descriptive Report. The following should be noted:

Two significant side scan sonar contacts were noted during office processing. The positions and heights were scaled from side scan sonargrams.

<u>CONTACT / (m/ft)</u>	<u>LATITUDE (N)</u>	<u>LONGITUDE (W)</u>
rock 15 ⁷ /51	41°12'10.15"	71°32'28.47"
rock 14 ¹ /46	41°12'16.48"	71°32'40.20"

It is recommended that these rocks be charted as shown on the present survey. Additional work to verify or disprove the rocks is recommended at an opportune time.

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

b. Aids to Navigation

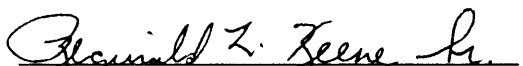
The hydrographer located one (1) floating aid to navigation. This aid appears adequate to serve its intended purpose.


8. COMPLIANCE WITH INSTRUCTIONS

This survey adequately complies with the Project Instructions.

9. ADDITIONAL FIELD WORK

This is an adequate side scan sonar survey. Additional field work is recommended in section 7.a. of this report.

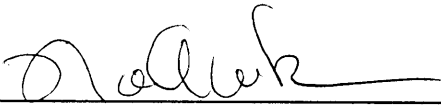

 Reginald L. Keene, Sr.
 Cartographic Technician
 Verification of Field Data


 Sr. Leroy G. Cram
 Supervisory Cartographer
 Verification Check
 Evaluation and Analysis

APPROVAL SHEET
FE-365SS

Initial Approvals:

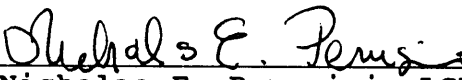
The completed survey has been inspected with regard to survey coverage, delineation of depth curves, development of critical depths, cartographic symbolization, and verification or disproof of charted data. The digital data have been completed and all revisions and additions made to the smooth sheet during survey processing have been entered in the magnetic tape record for this survey. 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.



N. A. Wike
Cartographer
Atlantic Hydrographic Section

Date: 11/4/93

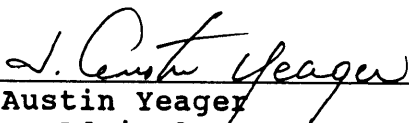
I have reviewed the smooth sheet, accompanying data, and reports. This survey and accompanying digital data meet or exceed NOS requirements and standards for products in support of nautical charting except where noted in the Evaluation Report.



Nicholas E. Perugini, LCDR, NOAA
Chief, Atlantic Hydrographic Section

Date: 11-8-93

Final Approval:

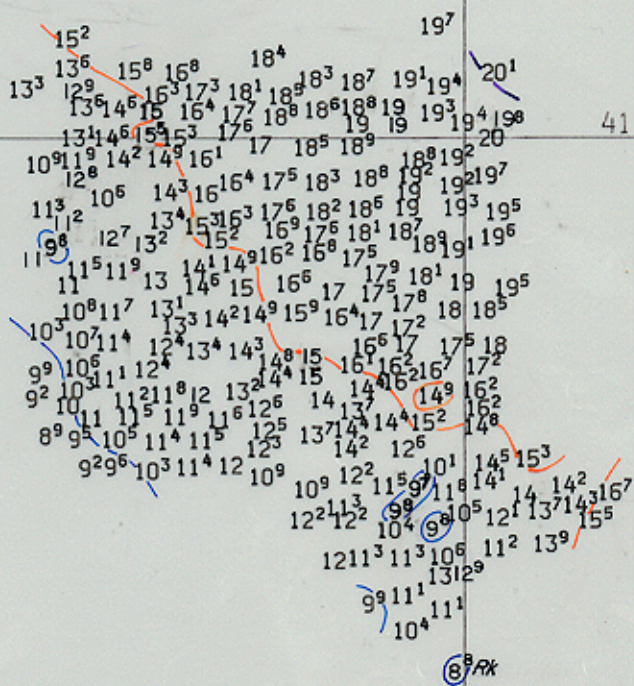
Approved: 

J Austin Yeager
Rear Admiral, NOAA
Director, Coast and Geodetic Survey

Date: 2/9/94

71° 33' 00"

71° 32' 30" 41° 11' 00"



41° 10' 30"

71° 33' 00"

NAD 27
 XYNETICS 1201
 D.V.M. 8-12-92 ✓

41° 10' 00"

FE-365SS
 RHODE ISLAND
 RHODE ISLAND SOUND
 0.5 TO 11 NM EAST OF BLOCK ISLAND
 DATE OF SURVEY: 3 SEP 1991 TO 5 SEP 1991
 SCALE: 1:10000
 SOUNDINGS IN METERS AT MLLW
 HORIZONTAL DATUM: NAD 1983
 SHEET 1 OF 5
 AWOIS ITEM NUMBERS 1816, 7288

+

71° 33' 00"

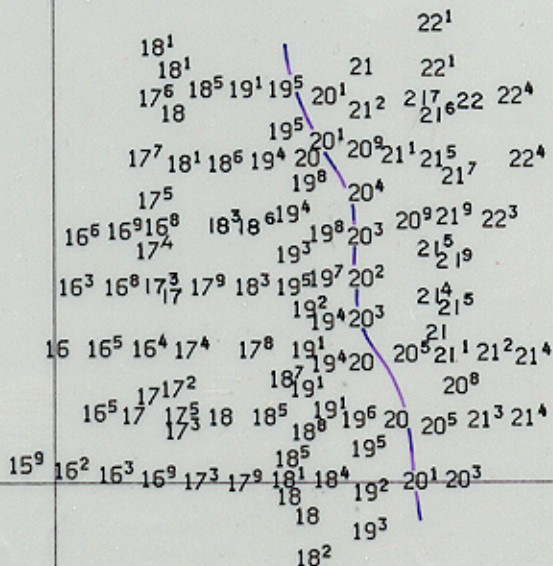
71° 32' 30"

71° 33' 00"

41° 11' 30"

NAD 27
XYNETICS 1201
8/24/92 D.V.M ✓

41° 11' 30"

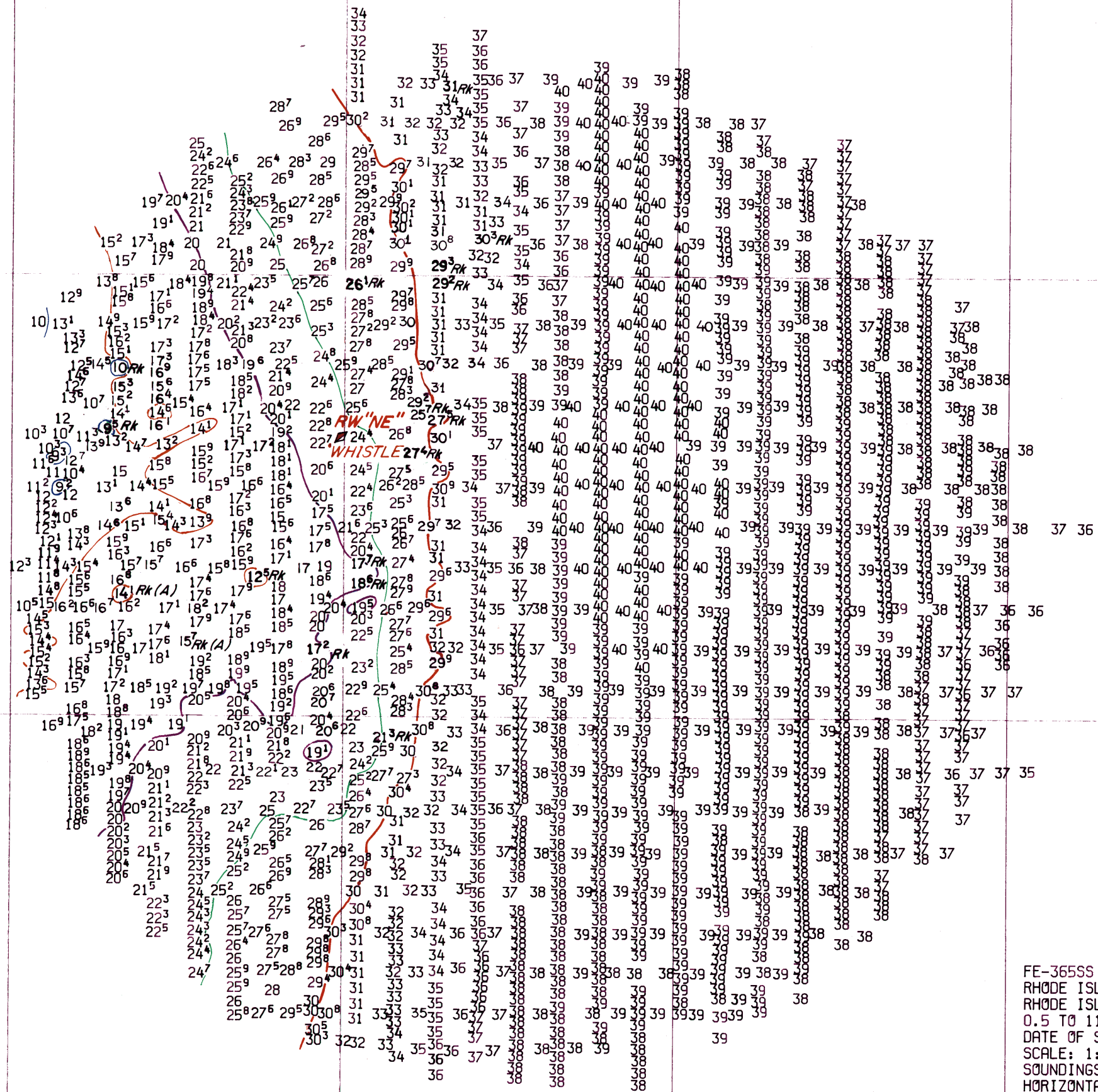


41° 11' 00"

FE-365SS
RHODE ISLAND
RHODE ISLAND SOUND
0.5 TO 11 NM EAST OF BLOCK ISLAND
DATE OF SURVEY: 5 SEP 1991
SCALE: 1:10000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 2 OF 5
AVOIS ITEM NUMBER 1819

41° 10' 30"

+



NAD 27
 XYNETICS 1201
 D.V.M. 8/27/92

FE-365SS
 RHODE ISLAND
 RHODE ISLAND SOUND
 0.5 TO 11 NM EAST OF BLOCK ISLAND
 DATE OF SURVEY: 5 SEP 1991 TO 19 SEP 1991
 SCALE: 1:20000
 SOUNDINGS IN METERS AT MLLW
 HORIZONTAL DATUM: NAD 1983
 SHEET 3 OF 5
 AWOIS ITEM NUMBER 1826
 (A) Depths on these obstructions were estimated by scaling heights off the bottom from side scan sonar records. Positions were determined by computing offsets from the vessels track.

41° 13'

41° 12'

41° 11'

71° 27'

71° 26'

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71° 26' 00"

NAD 27
XYNETICS 1201
D.V.M.9/2/92 ✓

41° 13' 00" 41° 13'

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41° 12'

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"MISS JENNIFER"

FE-365SS
RHODE ISLAND
RHODE ISLAND SOUND
0.5 TO 11 NM EAST OF BLOCK ISLAND
DATE OF SURVEY: 13 SEP 1991 TO 24 SEP 1991
SCALE: 1:20000
SOUNDINGS IN METERS AT MLLW
HORIZONTAL DATUM: NAD 1983
SHEET 4 OF 5
AWOIS ITEM NUMBER 6950

41° 11'

+

