

H10628

NOAA FORM 76-35A

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

## DESCRIPTIVE REPORT

Type of Survey . Hydrographic/Side Scan Sonar..

Field No. .... RU-10-4-95 .....

Registry No. .... H-10628 .....

### LOCALITY

State ..... Rhode Island .....

General Locality..... Narragansett Bay .....

Sublocality .. 0.3 NM South of Bristol Point...

19 95

### CHIEF OF PARTY

CDR S. P. De Bow .....

### LIBRARY & ARCHIVES

DATE ..... DEC 5 1996 .....

**DIAGRAM 353-1**

**Charts**

CP2

13223

13226

13224

13221

13006MC

**HYDROGRAPHIC TITLE SHEET**

H-10628

**INSTRUCTIONS** - The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

FIELD NO.

RU-10-4-95

State Rhode Island

General locality Narragansett Bay

Locality 0.3nm South of Bristol Point

Scale 1:10,000 Date of survey July 26-September 11, 1995

Instructions dated February 16, 1995 Project No. OPR-B302-RU-95

Vessel NOAA Ship RUDE S590 *YESNO 9040*

Chief of party CDR S.P. De Bow

Surveyed by CDR S.P. De Bow, LT C.L. Callahan, ENS T.A. Haupt, ENS J.J. Walker, ST M.T.

Soundings taken by:(echo sounder,hand lead,pole) Raytheon DSF-6000N Echosounder , *RESON SEABAT 9001*

Graphic record scaled by SPD, CLC, TAH, JJW, & MTL

Graphic record checked by SPD, CLC, TAH, JJW, & MTL

Protracted by \_\_\_\_\_ Automated plot by ENCAD NOVAJET III

Verification by ATLANTIC HYDROGRAPHIC BRANCH PERSONNEL

Soundings in (fathoms, feet, or meters at MLW or MLLW) <sup>FEET</sup> Meters at MLLW

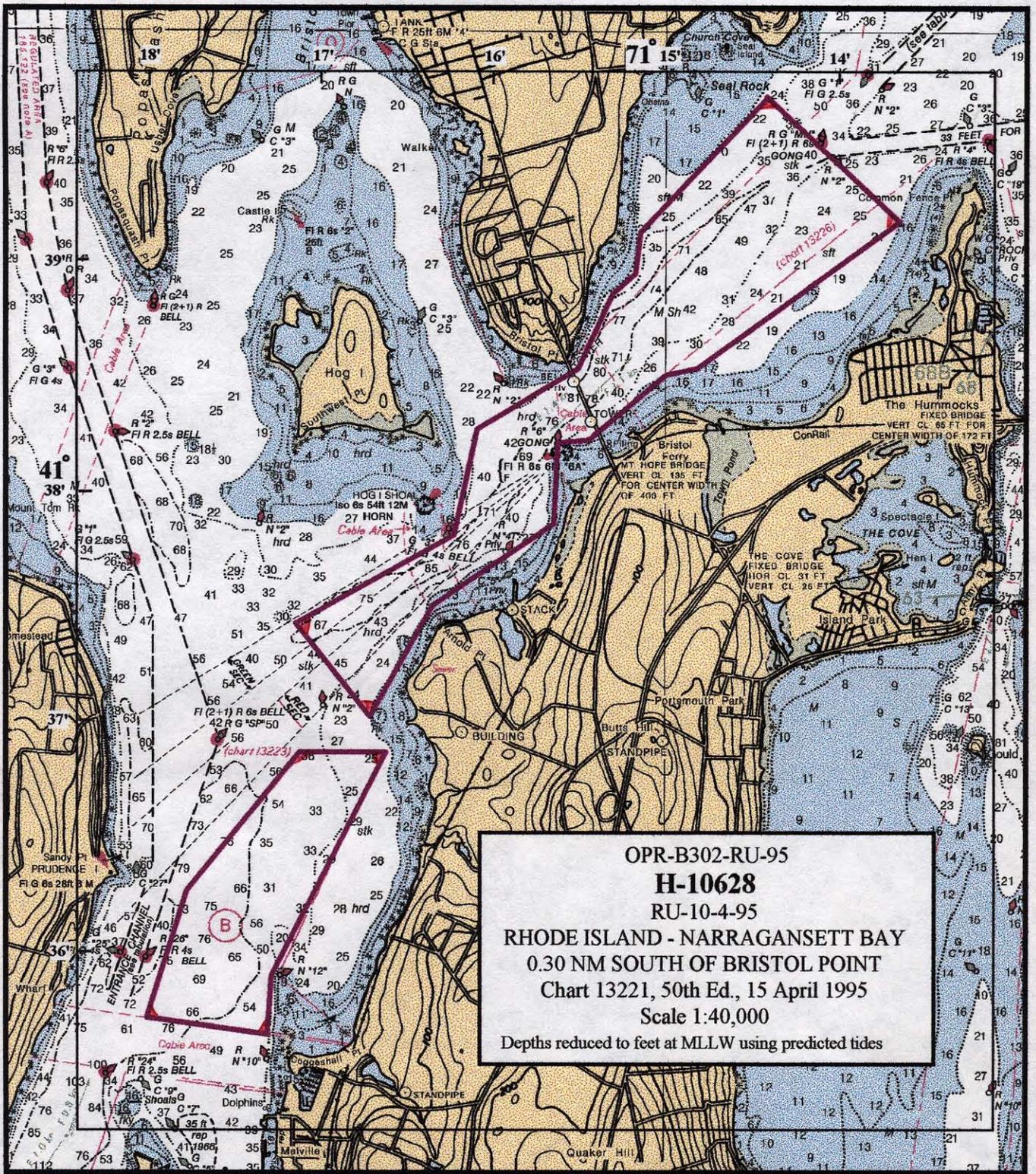
REMARKS: All times recorded in UTC.

The DSF-6000N was used as the primary sounding instrument; however, as  
the SEABAT 9001 shallow-water multibeam sonar system was employed for distinct  
contact investigations and is documented as such.

*NOTES IN RED FOUND IN THE DESCRIPTIVE REPORT WERE*  
*MADE DURING OFFICE PROCESSING*

*DSC 12-6-96*

*AWOIS/SURF 11/19/96*  
*MCR*



OPR-B302-RU-95  
**H-10628**  
 RU-10-4-95  
 RHODE ISLAND - NARRAGANSETT BAY  
 0.30 NM SOUTH OF BRISTOL POINT  
 Chart 13221, 50th Ed., 15 April 1995  
 Scale 1:40,000  
 Depths reduced to feet at MLLW using predicted tides

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SEPARATES — *DATA FILED WITH ORIGINAL FIELD RECORDS*

## A. PROJECT

This survey was conducted in accordance with Hydrographic Project Instructions OPR-B302-RU, Rhode Island Sound Corridor, Rhode Island and Massachusetts. The original instructions are dated February 16, 1995. There have been two changes to the original instructions which affect this survey: Change No. 1, dated ~~May 10,~~ 1995, and Change No. 2, dated ~~July 13,~~ 1995.

*APRIL 27,*

*JUNE 26,*

This Descriptive Report covers the navigable area survey conducted on sheet "H" of project OPR-B302-RU in Narragansett Bay as specified in the Project Instructions. This portion of OPR-B302-RU responds to requests from the Northeast Marine Pilots to survey anchorage areas and non-maintained channels in Narragansett Bay. The areas have been deemed critical by the Pilots for the safe navigation of PANAMAX-size ships that deliver coal and oil to the New England Power Authority at Fall River, Massachusetts.

The area was last surveyed by the Coast and Geodetic Survey between 1949 and the mid-1960's.

## B. AREA SURVEYED

The area surveyed was federal anchorage "B", north of the Navy fuel Depot in Melville, Rhode Island, and an additional area in the vicinity of Mount Hope Bridge, from Hog Island Shoal to Mt. Hope Point, south of Bristol, RI.

The survey is comprised of one sheet which covers two survey areas. The following approximate boundaries exist for each survey area:

### Survey Area 1 - Anchorage

NW Corner - 41°36.9'N, 071°17.2'W

NE Corner - 41°36.9'N, 071°16.6'W

~~SE~~<sup>W</sup> Corner - 41°35.7"N, 071°18.0'W

~~SW~~<sup>E</sup> Corner - 41°35.6'N, 071°17.3'W

### Survey Area 2 - Vicinity of Mt. Hope Bridge

NW Corner - 41°39.7'N, 071°14.4'W

NE Corner - 41°39.2'N, 071°13.6'W

SE Corner - 41°37.0"N, 071°16.7'W

SW Corner - 41°37.4'N, 071°17.2'W

Section 1.8 of the Project Instructions stipulated the inshore limit of hydrography to be the 18-foot curve. This inshore limit was achieved whenever practical. However, the operational constraints of maneuvering a 90-foot ship with a draft of 7-feet, in rapidly shoaling water, in close proximity to a rocky shore, made this impossible for the most part. Since the Command did not have a small boat acquisition platform for use on this project, discretion opted for the safety of the vessel at all times.

Data collection for this survey began on July 26, 1995 (DN 207) and ended on September 11, 1995 (DN 254).

### C. SURVEY VESSELS

The following vessels were used during this survey:

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

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

D. AUTOMATED DATA ACQUISITION AND PROCESSING *SEE ALSO THE EVALUATION REPORT*

The following HDAPS software versions were used for data acquisition and processing on this survey:

Program	Version	Program	Version
BACKUP	2.00	LSTAWOIS	3.10
BLKEDIT	2.02	MAINMENU	1.20
CARTO	2.17	MAN_DATA	3.03
CLASSIFY	2.12	NEWPOST	6.13
CONTACT	2.48	PLOTALL	2.32
CONVERT	3.65	PREDICT	2.01
DAS_SURV	6.80	PRESURV	7.11
DP	2.18	QUICK	2.07
EXCESS	4.32	RAMSAVER	1.02
FILESYS	3.31	REAPPLY	2.12
GRAFEDIT	1.06	ZOOMEDIT	2.33
INVERSE	2.02		

Other software used during the 1995 field season was the program **VELOCITY 2.11**, dated September 21, 1994. Included in the software was the **REFRACT** subroutine, which corrects SEABAT multiple slant range depths for sound velocity and corrects position of soundings (cross track distance) for refraction. In addition, the SEABIRD SBE-19 sound velocity profile unit was utilized in conjunction with the following software: **SEASOFT 3.3M**, **SEACAT 2.0**, and **VELOCITY 2.11**.

SEABAT multibeam data were acquired exclusively on the SEABAT 9001 data acquisition 486 personal computer using the Coastal Oceanographics **HYPACK** software package (Version 1.0, dated March 1, 1994). Gyro and predicted tide input were received from HDAPS, heave/roll/pitch data were received directly from the Datawell HRP sensor, and positioning input was received from the Ashtech GPS receivers. SEABAT data were processed on one of two personal computers equipped with the NOAA **LSTDRUD** (Version 3.0, 1995) post-processing software. A single least depth was generated for each SEABAT investigation and later entered into HDAPS via the **MANUAL DATA ENTRY** program. Three dimensional graphic plots of the SEABAT imagery were created using a commercial-off-the-shelf software package called **SURFER** for Windows, Version 5.03.

E. SONAR EQUIPMENT

Side scan sonar operations were conducted using an EG&G Model 260 image corrected side scan sonar recorder and a 100 kHz Model 272-T towfish. All side scan operations were conducted

from the RUDE (vessel # 9040). The side scan sonar towfish was configured with a 20° beam depression, which is the normal setting and yields the optimum beam correction.

Given the average depth of water in the survey area, the 75-meter, or 50-meter, range scale was used in order to obtain area coverage and provide optimal contact resolution.

Areas of reduced coverage occasionally occurred when the ship was forced to avoid buoys or lobster pots. These areas were easily recognized because the swath plot clearly showed the lack of overlap between adjoining swaths. Holiday coverage was run to fill in these gaps, and all side scan coverage was ultimately checked with smooth plots to ensure proper overlap between adjoining lines.

When using the 75 meter range scale a line spacing of 120 meters was used, as specified in section 7.3.2.1 of the Field Procedures Manual (FPM). When using the 50 meter range scale a line spacing of 80 meters was used. Although this is 10 more than the maximum allowable in the FPM, the EPE rarely exceed 5 meters and the required overlap was attained on all side scan lines. Data collected with an EPE of 15 or greater were either rejected or smoothed in the post-processing phase of the survey, so the maximum line spacing was never exceeded.

Confidence checks were maintained whenever features such as bridge abutments, sand waves, buoy anchors and lobster pots were encountered. These features are routinely annotated on the sonar grams.

Two hundred percent side scan coverage was completed for this survey.

There were occasions when the side scan sonar towfish became entangled in lobster trap buoy lines, temporarily whiting out the sonar gram. On these occasions, the towfish was brought on board, inspected, and serviced as necessary. All affected data were subsequently rejected and re-run. The towfish was deployed exclusively from the stern during this survey.

Significant side scan sonar contacts were investigated using conventional hydrographic "splits" routinely run at 2 meter line spacing to ensure 100% vertical echo sounder coverage. Many of the contacts are rocks of various dimensions which required a number of lines to fully develop the item. By using the SEABAT in the passive mode the operator was able to "see" on either side of each split. This capability was used to determine efficiently which way to turn when a small contact is

not shown directly below the single beam echosounder. Contacts warranting even more precise depth determination were then investigated using the SEABAT multibeam sonar system in acquisition mode. Since the system acquires data at such an enormous rate it is only brought on-line approximately 50 meters before the contact and turned off immediately after the contact has passed. The data for these investigations are summarized in the SEABAT Development Addendum in Section N of this report.

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

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

All hydrographic soundings were acquired using a Raytheon Model 6000N Digital Survey Echosounder (DSF-6000N).

Diver investigations were conducted on three wrecks which had the possibility of being hazardous to surface navigation. The remaining significant contacts were investigated using 100% echo sounder coverage and the SEABAT sonar system to obtain precise least depths over all potentially hazardous bottom features (See section E). In general, all contacts which rose above the seafloor by more than 1 meter were fully developed.

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

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

As authorized by the Project Instructions, the Reson SEABAT 9001 shallow-water multibeam sonar system was used to determine precise least depths over significant contacts discovered during routine side scan sonar operations. Refer to the Descriptive Report for H-10605, section F.5, for a detailed description of the SEABAT system.

A summary of the six (6) SEABAT investigations conducted for this survey is contained in the SEABAT 9001 Development Addendum in Section N. Copies of all 15 least depth listings, along with 3-D graphic images created with SURFER for Windows, associated with these investigations are included in\*Separate V.

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## G. CORRECTIONS TO SOUNDINGS

The velocity of sound through water was determined using a Sea-Bird SBE 19 Seacat Profiler (s/n 1448). Seacat Data Quality Assurance Tests were conducted before each respective velocity cast to ensure that the units were operating within tolerance. Velocity casts were conducted weekly without exception.

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

Sound velocity correctors applied to this survey were obtained from the following casts:

Cast Number	DN/Year	HDAPS Table	Applied to Days
24	207/95	24	207-209
25	212/95	25	212-216
26	220/95	26	219-220 222-223
28	226/95	28	226-229
34	249/95	34	249, 254

A dual leadline comparison with the DSF-6000N was conducted during special project S-B900-RU-95 on:

DN 82 at 41°21.53'N and 070°46.91'W (<sup>45</sup>41 ft depths)

The greatest variation between leadline and DSF soundings was 0.1<sup>3</sup>/<sub>8</sub> meters. Considering the ship's motion and the wire angle (approximately 5°) in the leadline from the current, this was an excellent value agreement and provided an adequate check that the echo sounder was functioning properly. Data from these comparisons can be found in <sup>\*</sup>Separate IV.

Two types of leadline were used during the leadline-to-DSF-6000N comparison. The starboard leadline was a steel surveyor's tape graduated in feet with a fixed 5 lb weight at its end. A leadline corrector of 0.0 meters was assumed for this leadline. The port leadline was a traditional leadline made of cotton tiller with a stainless steel cable core. This

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leadline had a corrector of 0.25 feet up to the 45 foot mark and 0.26 feet for depths greater than 45 feet. Refer to \*Separate IV for data records.

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

During the ship's winter 1994 dry-dock period, an exact vertical measurement was taken from the DSF transducer to a fixed point on the bridge wing. After the ship was re-floated, the point's height above the waterline was determined. The ship's static draft was thereby calculated to be exactly 2.12 meters (7.0 feet). Refer to \*Separate IV for data records. This draft corrector was applied to all sounding data via the HDAPS offset table.

Settlement and squat correctors for the RUDE were determined on the Elizabeth River, Norfolk, Virginia on January 25, 1995. An observer, stationed with a level on a pier, measured changes in relative height by sighting to a staff held at the longitudinal position of the ship's transducer. The ship steamed directly toward and then away from the observer. The values obtained from the toward and away runs were averaged and applied to soundings through the HDAPS Offset Table #1. Refer to \*Separate IV for data records.

Heave data were acquired by a Datawell heave, roll and pitch sensor (s/n 19128-C), and applied to HDAPS soundings in real time. Only the heave corrections were applied to the plotted soundings. Heave, roll and pitch correctors were collected on line and applied to all SEABAT soundings during post-processing. Refer to \*Separate IV for data records.

A Mod III Diver Least depth gauge (S/N 68338 or 68336) was used for this survey to determine a least depth the wrecks in Mt. Hope Bay. The gauge was operated in accordance with section 7.2.2 of the FPM. Copies of the Data quality assurance tests can be found in \*Separate IV.

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

The tidal datum for this project is Mean Lower Low Water. The operating tide station at Newport, R.I. (845-2660) served as both direct control for datum determination and as the reference station for predicted tides. Data for predicted

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tides were provided on floppy disk before the start of the project.

Tidal data used during data acquisition were obtained from Table 2 of the East Coast of North and South America Tide Predictions and applied to the digital tide data using HDAPS software. Two separate time and height correctors were supplied for the sheet. North of 41°38.25'N, a +12 minute time correction and a x1.16 range corrector was to be used. South of 41°38.25'N, a +6 minute time correction and a x1.12 range corrector was to be used. Instead of splitting the survey into two sheets to accommodate these predicted tide corrections, the correctors were averaged so that a +9 minute time correction and a x1.14 range ratio was used for the entire survey.

The subordinate station for predicted tides was:

NO.	PLACE	POSITION	TIME		HEIGHT	
			High Water	Low Water	High Water	Low Water
845-1929	Bristol Harbor	41°40.13'N 71°16.75'W	+12 min		X1.14	

Tidal correctors were applied on line using HDAPS predicted tide tables.

Zoning for this project is consistent with the Project Instructions.

*APPROVED TIDES AND ZONING WERE APPLIED DURING OFFICE PROCESSING*  
A request for smooth tides was mailed on September 15, 1995.

#### H. CONTROL STATIONS *SEE ALSO THE EVALUATION REPORT*

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

#### I. HYDROGRAPHIC POSITION CONTROL

This survey was conducted exclusively using the Global Positioning System (GPS) corrected by the United States Coast Guard (USCG) Differential GPS reference station network. Differential correctors were supplied via USCG radiobeacon transmitters thus precluding the need for shore-based horizontal control stations.

Accuracy requirements were met as specified by the Hydrographic Manual and Field Procedures Manual. The Horizontal Dilution of Precision (HDOP) and Expected Position Error (EPE) specified by the FPM were monitored during on-line data collection. When the allowable limits were exceeded, survey operations were suspended until the Differential GPS improved. If the positioning degraded beyond the acceptable limits while on line, the data were either smoothed or rejected, depending on the extent of the affected data.

Differential GPS Equipment:

<u>Unit A</u>	<u>Unit B</u>
Ashtech GPS Sensor	Ashtech GPS Sensor
s/n 700417B1083	s/n 700417B1003
Firmware Version 1E89D-P	Firmware Version 1E89D-P
Magnavox MX50R	Magnavox MX50R
DGPS Receiver s/n 078	DGPS Receiver s/n 160

Correctors were received from both the Montauk, NY and Chatham, MA, radio beacons for the entire survey.

Daily performance checks were conducted using the Shipboard Data Integrity Monitor, or "SHIPDIM", (version 1.2), per section 3.4.5 of the FPM. See SHIPDIM PERFORMANCE CHECKS in \*Separate III for weekly system checks.

The program **MONITOR** (Ver 3.0) was used on July 4, 1995 to test the differential reference station at Montauk, NY. Data were collected for a continuous period of 24 hours. The final statistics showed an excellent correspondence between the received signal and the actual position. The results of this test are contained in \*Separate III.

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

There were no unusual methods used to calibrate or operate the electronic positioning equipment.

During times of heavy rains and/or thunderstorms, the ship would also experience periods of intermittent service from the Montauk, NY, and Chatham, MA beacons. During such instances, survey operations were suspended until such time as service from the beacon resumed.

During times of poor satellite coverage or geometry, there was a steady deterioration of the HDOP which could be continuously

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monitored. When local weather affected the DGPS radio beacons the on-line positioning would unexpectedly "drop out" for a couple of minutes. The outages were separated by only a few minutes of strong signal reception, making it nearly impossible to begin or complete a survey line. These periods of sporadic positioning difficulties occurred infrequently and were associated only with weather-related beacon interference.

No systematic errors were detected which required adjustments.

Antenna positions were corrected for offset and layback, and referenced to the position of the DSF-6000N echosounder transducer. These correctors are located in HDAPS Offset Table #1, and were applied on line to the positioning algorithm. A copy of Offset Table #1 is contained in\*Separate III.

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

**J. SHORELINE** *SEE ALSO THE EVALUATION REPORT*

No shoreline is contained within the boundaries of this survey. However, shoreline information was transferred from the largest scale chart of the area to the field sheet for orientation purposes only.

**K. CROSSLINES**

A combined total of 8.3 nautical miles of crosslines were acquired for this survey, which represents 16% of the 51.3 nautical miles of the first 100% side scan mainscheme coverage.

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

**L. JUNCTIONS** *SEE ALSO THE EVALUATION REPORT*

H-10628 does not junction with any contemporary survey. *amem*

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

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

N. ITEM INVESTIGATION REPORTS

No AWOIS items were assigned for this survey.

Information pertaining to the hydrographic development of significant side scan sonar contacts using SEABAT 9001 multibeam sonar is contained in the following SEABAT 9001 Development Addendum

FIX #	Contact	DEV	FILE	VELCAST	DN	GMT	RAW DEPTH	*TIDE CORR.	*LEAST DEPTH	LATITUDE	LONGITUDE	* FEET
13001	787.55 S	2	2225970M	95220122	222	163811	3.37	-0.01	3.37	41-39-27.610 N	71-14-35.490 W	10
13003	318.45 S	22	2296400M	95226161	229	175018	<del>17.16.59</del>	-1.34	15.29 <sup>16</sup>	41-38-36.716 N	71-15-16.874 W	54
13004	314.28 P	23	22964498	"	"	175508	<del>17.20.03</del>	-1.34	18.73 <sup>19</sup>	41-38-36.078 N	71-15-24.350 W	65
13002	320.24 P	12A	22963038	"	"	173100	<del>17.16.28</del>	-1.34	44.98 <sup>14</sup>	41-38-48.978 N	71-15-03.264 W	53
13005	177.01 P	53	22965285	"	"	180817	<del>17.8.90</del>	-1.3	7.60 <sup>8</sup>	41-37-40.048 N	71-16-12.098 W	29
13006	900.02 S	59	22965586	"	"	181311	<del>17.15.69</del>	-1.3	14.39 <sup>15</sup>	41-37-30.224 N	71-16-39.116 W	51

\* CORRECTED FOR APPROVED TIDES

O. COMPARISON WITH THE CHART *See also the Evaluation Report*

O.1 Charts affected by this survey are as follows:

Chart 13221  
"Narragansett Bay"  
50<sup>th</sup> ed. April 15, 1995  
Scale: 1:40,000

Chart 13223  
"Narragansett Bay Including Newport Harbor"  
34<sup>th</sup> ed. January 28, 1995  
Scale: 1:20,000

Chart 13224  
"Providence River"  
34<sup>th</sup> ed. February 12, 1994  
Scale: 1:20,000

Chart 13226  
"Mount Hope Bay"  
3<sup>rd</sup> ed. December 12, 1992  
Scale: 1:20,000

O.2 Dangers to Navigation

Two Danger to Navigation Reports were sent to the Commander, First Coast Guard District, on August 29, 1995 and on September 15, 1995, regarding the wrecks in Mt. Hope Bay. A copy of these reports are enclosed in Appendix I. Refer to section O.4 and \*Separate VI for detailed discussion on these items.

O.3 Comparison of Soundings

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

The correlation between charted shoal areas and corresponding soundings from this survey is excellent.

Captain Bruce Fisher of the Northeast Pilots Association had expressed his concern about the present status of Hog Island Shoal, south west of the Mt. Hope Bridge. This area is a choke point for large vessels with respect to the main channel, in the vicinity of Green buoy #3. Twelve additional hydrographic development lines at 10 meter spacing were run on Day 249 to

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better delineate the shoal. Comparison with the chart showed excellent agreement between the charted soundings and contour lines with the current survey. Green Buoy # 3 adequately delineates the southern extent of the shoal.

*CONCUR*

**0.4 Comparison of non-soundings features**

Three previously uncharted wrecks were discovered during the course of the survey, one of which is dangerous to surface navigation. Detailed results of each investigation are listed below:

**0.4.1 - Area of Investigation**

Uncharted Wreck  
Mt. Hope Bay

**Description and Source of Item**

The uncharted wreck was discovered during mainscheme side scan sonar coverage.

**Results of Investigation**

An uncharted sunken wreck discovered during mainscheme side scan sonar coverage at fix # 787.55S, was found by divers to be a sunken steel-hulled vessel lying on its keel in approximately 25 feet of water, on a flat sandy bottom. A detailed diver investigation report is attached in <sup>\*</sup>Separate VI.

Results from development 2 and the diver investigation are tabulated below:

METHOD	DEPTH ** (m)	DEPTH ** (FT)	FIX #	LATITUDE (N)	LONGITUDE (W)
ECHO SOUNDER	3.60	11.8	1736+2	41°39'27.555"	71°14'35.337"
SEABAT	3.37	11.0 <i>10.5</i>	13001	41°39'27.610"	71°14'35.490" <i>488</i>
L.D. DIVER	2.868	8.8 <i>9.2</i>	12010	41°39'27.555"	71°14'35.449"

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\*\* CORRECTED FOR APPROX TIDES

## Comparison with Chart and Charting Recommendations

Largest scale chart of this portion of the survey area:

Chart 13226

"Mount Hope Bay"

3<sup>rd</sup> ed. December 12, 1992

Scale: 1:20,000

This previously uncharted wreck constitutes the greatest hazard to navigation on this survey. Although it lies well inshore of the main shipping channel, in approximately 28 feet of water, the least depth of 9 feet poses a hazard to smaller fishing vessels and sailboats which frequently transit the area. The least depth was determined by divers at the bow of the wreck.

It is the recommendation of the hydrographer that an <sup>approved</sup> predicted tide corrected depth of 9 feet should be charted in position (2.8m) 41°39'27.555" N and 71°14'35.449" W, surrounded with a danger curve and annotated as a wreck (Wk). *Concur*

LORAN-C Rates:	9960-W	14312.7
	9960-X	25762.7
	9960-Y	44057.8
	9960-Z	60197.5

### 0.4.2 Area of Investigation

Uncharted Wreck  
Mt. Hope Bay

#### Description and Source of Item

The uncharted wreck was discovered during mainscheme side scan sonar coverage.

#### Results of Investigation

An uncharted sunken wreck discovered during mainscheme side scan sonar coverage at fix # 318.45S, was found by divers to be a sunken wooden-hulled vessel lying on its keel in approximately 70 feet of water, on a hard sandy bottom. A detailed diver investigation report is attached in <sup>\*</sup>Separate VI.

*\* DATA FILED WITH ORIGINAL FIELD RECORDS*

Results from development 22 and the diver investigation are tabulated below:

METHOD	*DEPTH (m)	*DEPTH (FT)	FIX #	LATITUDE (N)	LONGITUDE (W)
ECHO SOUNDER	17.0	55.8	1822+02	41°38'37.215"	71°15'16.899"
L.D. SEABAT	16.85	54.81	13003	41°38'36.716"	71°15'16.874"
DIVER	17.050	55.88	12011	41°38'37.147"	71°15'16.653"

\* CORRECTED FOR APPROVED TIDES

Comparison with Chart and Charting Recommendations

Largest scale chart of this portion of the survey area:

Chart 13226

"Mount Hope Bay"

3<sup>rd</sup> ed. December 12, 1992

Scale: 1:20,000

Although this previously uncharted wreck does not pose a hazard to surface navigation, it does lie in the middle of the main shipping channel, north of the Mt. Hope Bridge. The wreck is in approximately 70 feet of water with a least depth of 55 feet. The least depth was determined by SEABAT since divers were unable to fully investigate the wreck.

It is the recommendation of the hydrographer that an <sup>approved</sup> predicted tide corrected depth of 58 <sup>(16.5m)</sup> feet should be charted in position 41°38'36.716" N and 71°15'16.874" W, surrounded with a danger curve and annotated as a wreck (Wk).

*Concur*

LORAN-C rates: 9960-W 14320.3  
 9960-X 25765.3  
 9960-Y 44053.4  
 9960-Z 60195.5

0.4.3 Area of Investigation

Uncharted Wreck  
 Mt. Hope Bay

Description and Source of Item

The uncharted wreck was discovered during mainscheme side scan sonar coverage.

Results of Investigation

An uncharted sunken wreck discovered during mainscheme side scan sonar coverage at fix # 314.28P, was found by divers to be a sunken wooden-hulled vessel lying on its keel in approximately 80 feet of water, on a sloping hard sandy bottom. A detailed diver investigation report is attached in\*Separate VI.

Results from development 23 and the diver investigation are tabulated below:

LD →

METHOD	DEPTH ** (m)	DEPTH ** (FT)	FIX #	LATITUDE (N)	LONGITUDE (W)
ECHO SOUNDER	19.6	64.3	1834+2	41°38'35.949"	71°15'24.420"
SEABAT	<del>18.73</del> 19.9	<del>61.5</del> 65.3	13004	41°38'36. <del>048</del> <sup>050</sup> "	71°15'24.350"
DIVER	19.8 <del>0</del>	65. <del>10</del>	12012	41°38'35.888"	71°15'24.606"

\*\* CORRECTED FOR APPROVED TIDES

Comparison with Chart and Charting Recommendations

Largest scale chart of this portion of the survey area:

Chart 13226

"Mount Hope Bay"

3<sup>rd</sup> ed. December 12, 1992

Scale: 1:20,000

This previously uncharted wreck does not pose a hazard to surface navigation, lying outside of the main shipping channel, north of the Mt. Hope Bridge. The wreck is in approximately 80 feet of water with a least depth of 6~~1~~<sup>4</sup> feet. The least depth was determined by ~~SEABAT~~<sup>ECHO SOUNDER</sup> since divers were unable to fully investigate the wreck.

It is the recommendation of the hydrographer that an <sup>approved</sup> predicted tide corrected depth of 6~~1~~<sup>4</sup> feet should be charted in position (19.6m) 41°38'3~~6~~<sup>5</sup>.~~948~~<sup>949</sup>"N and 71°15'24.~~350~~<sup>420</sup>"W, surrounded with a danger curve and annotated as a wreck (Wk). *Concur*

LORAN-C rates: 9960-W 14321.2  
 9960-X 25766.4  
 9960-Y 44053.5  
 9960-Z 60195.5

The southern portion of the survey was in a Naval and General Anchorage area off the fuel Pier at Melville, RI. A number of contacts were found near the shoal area at the southeastern

\* DATA FILED WITH ORIGINAL FIELD RECORDS

NOAA Ship RUDE

Descriptive Report

H-10628

extent of the anchorage, just north of buoy R "12". None poses more of a danger to surface navigation than the shoal itself. Four contacts were detected in the middle of the anchorage in 40-50 foot depths. All of the contacts were developed fully (Developments 66-68B) and none rose off the bottom by more than 3 feet.

The stack shown at 41°37.48'N, and 071°15.88'W, as well as the large building centered at 41°37.5'N, and 071°15.78'W, no longer exist and should be removed from the chart. This information is contained on NOAA Form 76-40 attached, ~~in Appendix II.~~ (APPENDED TO THIS REPORT)

O.5 No changes to the scale, coverage, or format of the published charts for this area are recommended.

P. ADEQUACY OF SURVEY SEE ALSO THE EVALUATION REPORT

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

Q. AIDS TO NAVIGATION

Non- Floating

Two non-floating aids to navigation ~~area which~~ were not physically located during this survey, exist adjacent to the outside limits of the survey.

The first is Hog Island Shoal Light (Light List # 18145) which adequately marks the offshore limit of Hog Island Shoal.  
\* (HOG ISLAND SHOAL LIGHTHOUSE, 1956)

The second is Musselbed Shoals Light 6A, (Light List # 1815<sup>6</sup>) and Musselbed Shoals Directional Light, (Light List # 1815<sup>5</sup>) which are co-located on the same skeleton tower and adequately portray the offshore limit of Musselbed Shoals.

\* (MUSSEL BED SHOALS LIGHTHOUSE, 1956)

Floating

Detached positions were taken on 16 floating aids to navigation located in, or near, the boundaries of this survey. A comparison was made between the detached positions, the 1995 edition of Light List, Volume I, Atlantic Coast, and the largest scale chart of the area. No floating aid was found to deviate from its published or charted position by more than a few meters. All floating aids adequately serve the apparent purpose for which they were established.

The privately maintained Terminal Approach Buoy 4T (Light List #18146) located at 41° 37.7' N, 071° 15.9' W is shown on Charts

\* POSITIONS PLOTTED ON SMOOTH SHEET ARE NGS THIRD ORDER POSITIONS

NOAA Ship RUDE

Descriptive Report

H-10628



The hydrographer is aware of no construction or dredging that will affect results of this survey.

No further investigation of the survey area is recommended.

U. REFERRAL TO REPORTS

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

APPENDIX III

LIST OF HORIZONTAL CONTROL STATIONS

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

Montauk Point, NY (MPRB)

41°04'02.04<sup>7</sup>"N  
071°51'38.268"W  
.274

Chatham, MA

41°40'16.297"N  
069°57'00.162"W

NOAA FORM 76-40  
(8-74)

Replaces C&GS Form 567.

- TO BE CHARTED
- TO BE REVISED
- TO BE DELETED

REPORTING UNIT  
(Field Party, Ship or Office)

NOAA SHIP RUDE

STATE

RHODE ISLAND

LOCALITY

NARRAGANSETT BAY

DATE

8-17-95

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

NONFLOATING AIDS OR LANDMARKS FOR CHARTS

The following objects HAVE  HAVE NOT  been inspected from seaward to determine their value as landmarks.

OPR PROJECT NO.

B302 - RU - 95

JOB NUMBER

H-10628

DATUM

NAD 83

POSITION

DESCRIPTION  
(Record reason for deletion of landmark or aid to navigation.  
Show triangulation station names, where applicable, in parentheses)

STACK NO LONGER EXISTS AND IS NOT VISIBLE FROM SEAWARD  
BUILDING NO LONGER EXISTS AND IS NOT VISIBLE FROM SEAWARD

LATITUDE LONGITUDE  
D.M. Meters // D.P. Meters

41° 37' 29" 071° 15' 53"  
41° 37' 30" 071° 15' 47"

METHOD AND DATE OF LOCATION  
(See instructions on reverse side)

OFFICE

FIELD

V-VIS 13223  
8-15-95 13226  
V-VIS 13223  
8-15-95 13226

CHARTS  
AFFECTED

ORIGINATING ACTIVITY

- HYDROGRAPHIC PARTY
- GEODETIC PARTY
- PHOTO FIELD PARTY
- COMPILATION ACTIVITY
- FINAL REVIEWER
- QUALITY CONTROL & REVIEW GRP.
- COAST PILOT BRANCH

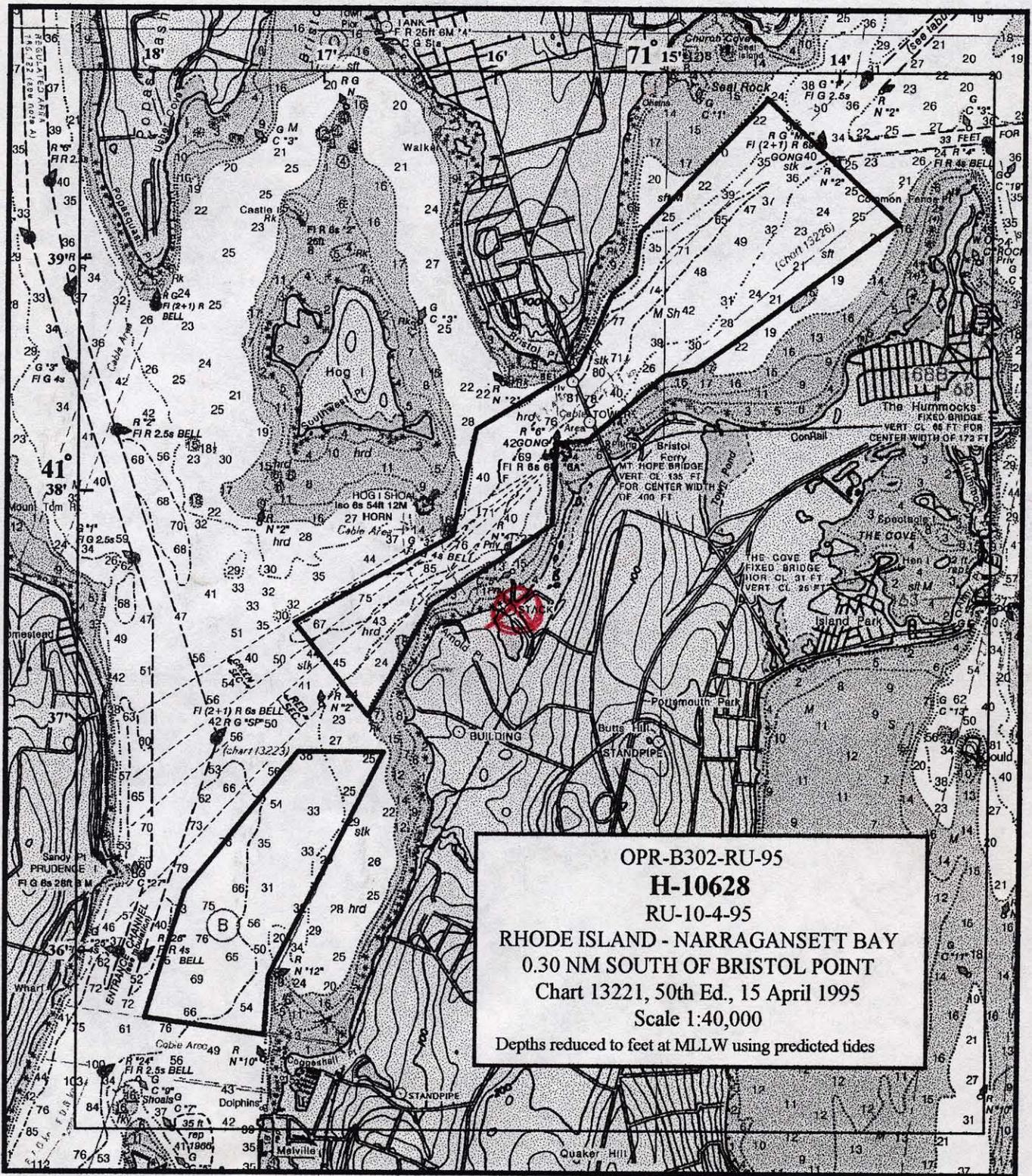
(See reverse for responsible personnel)

RESPONSIBLE PERSONNEL

<p><b>TYPE OF ACTION</b></p> <p>OBJECTS INSPECTED FROM SEAWARD</p>	<p><b>NAME</b></p> <p><i>A. P. DeBow</i> <i>S. P. DeBow, CDR, NOAA</i></p>	<p><b>ORIGINATOR</b></p> <p><input type="checkbox"/> PHOTO FIELD PARTY  <input type="checkbox"/> HYDROGRAPHIC PARTY  <input type="checkbox"/> GEODETIC PARTY  <input type="checkbox"/> OTHER (Specify)</p>
<p>POSITIONS DETERMINED AND/OR VERIFIED</p>		<p>FIELD ACTIVITY REPRESENTATIVE</p>
<p>FORMS ORIGINATED BY QUALITY CONTROL AND REVIEW GROUP AND FINAL REVIEW ACTIVITIES</p>		<p>OFFICE ACTIVITY REPRESENTATIVE</p> <p><input type="checkbox"/> REVIEWER  <input type="checkbox"/> QUALITY CONTROL AND REVIEW GROUP REPRESENTATIVE</p>

INSTRUCTIONS FOR ENTRIES UNDER 'METHOD AND DATE OF LOCATION'  
 (Consult Photogrammetric Instructions No. 64.)

<p><b>OFFICE</b></p> <p><b>I. OFFICE IDENTIFIED AND LOCATED OBJECTS</b>          Enter the number and date (including month, day, and year) of the photograph used to identify and locate the object.          EXAMPLE: 75E(C)6042          8-12-75</p> <p><b>FIELD</b></p> <p><b>I. NEW POSITION DETERMINED OR VERIFIED</b>          Enter the applicable data by symbols as follows:          P - Field          L - Located          V - Visually          1 - Triangulation          2 - Traverse          3 - Intersection          4 - Resection</p> <p><b>A. Field positions* require entry of method of location and date of field work.</b>          EXAMPLE: F-2-6-L          8-12-75</p> <p>*FIELD POSITIONS are determined by field observations based entirely upon ground survey methods.</p>	<p><b>FIELD (Cont'd)</b></p> <p><b>B. Photogrammetric field positions** require entry of method of location or verification, date of field work and number of the photograph used to locate or identify the object.</b>          EXAMPLE: P-8-V          8-12-75          74L(C)2982</p> <p><b>II. TRIANGULATION STATION RECOVERED</b>          When a landmark or aid which is also a triangulation station is recovered, enter 'Triang. Rec.' with date of recovery.          EXAMPLE: Triang. Rec.          8-12-75</p> <p><b>III. POSITION VERIFIED VISUALLY ON PHOTOGRAPH</b>          Enter 'V-Vis.' and date.          EXAMPLE: V-Vis.          8-12-75</p> <p>**PHOTOGRAMMETRIC FIELD POSITIONS are dependent entirely, or in part, upon control established by photogrammetric methods.</p>
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**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
**Office of NOAA Corps Operations**  
**NOAA Ship RUDE S-590**  
**439 W. York Street**  
**Norfolk, VA 23510-1114**

August 28, 1995

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

**REPORT OF DANGER TO NAVIGATION**

Dear Sir:

The NOAA Ship RUDE recently completed a hydrographic survey centered approximately 0.30 nautical miles south of Bristol Point, Narragansett Bay, Rhode Island. During the course of this survey, a wreck was found which is not shown on the two charts which affect the area: chart 13226 (3rd Ed. 12 December 1992) and chart 13221 (50th Ed. 15 April 1995). It is requested that this discrepancy be published in the Local Notice to Mariners.

The updated depth is given in the following table. The attached chartlet shows the survey boundaries and the plotted position of the depth. The least depth should be depicted as shown on the chartlet, surrounded by the "danger curve" with a "Wk" symbol attached. All information is preliminary and subject to office review.

This item was subject to hydrographic development using a Raytheon DSF-6000N survey echo sounder, a Reson SEABAT 9001 shallow-water multibeam sonar system, and a dive investigation using a diver least depth gauge. The resultant least depth was obtained from the dive investigation. All depths have been reduced to Mean Lower Low Water (MLLW) by applying predicted tide corrections. The horizontal datum is NAD 83.

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

Hydrographic Survey Registry No....H-10628  
State.....Rhode Island  
General Locality.....Narragansett Bay  
Locality.....0.3 NM South of Bristol Point  
Project Number.....B302-RU-95  
Surveyed by.....NOAA Ship RUDE



\* THIS DEPTH AFFECTS THE FOLLOWING CHARTS:

Chart 13226 (3<sup>rd</sup> Ed. 12 December 92)  
Chart Scale 1:20,000

Chart 13221 (50<sup>th</sup> Ed. 15 April 95)  
Chart Scale 1:40,000

** DEPTH (ft)	LATITUDE	LONGITUDE
9 <i>Wk</i>	41°39'27.56"	071°14'35.45"

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

\*\* Depth reduced to feet at MLLW using predicted tides.

Contact either of the following personnel for further information:

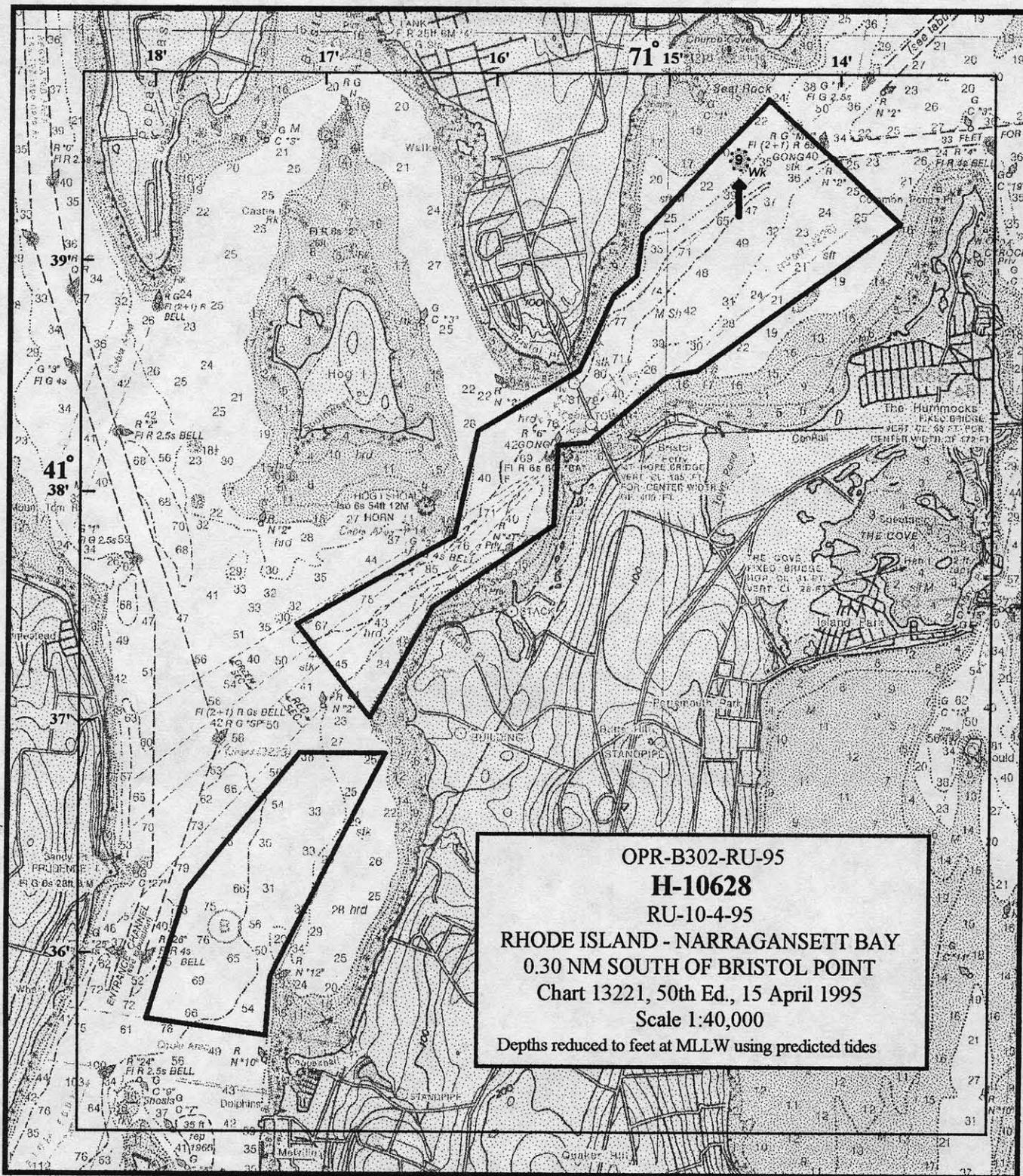
Commanding Officer  
NOAA Ship RUDE  
P.O. Box 5238  
Newport, R.I. 02841  
401-524-1260

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

Sincerely,

*Samuel P. De Bow*

Samuel P. De Bow  
Lieutenant Commander, NOAA  
Commanding Officer, NOAA Ship RUDE



OPR-B302-RU-95  
**H-10628**  
RU-10-4-95  
RHODE ISLAND - NARRAGANSETT BAY  
0.30 NM SOUTH OF BRISTOL POINT  
Chart 13221, 50th Ed., 15 April 1995  
Scale 1:40,000  
Depths reduced to feet at MLLW using predicted tides

12352	26th ed., 05/07/94 LAST LNM 35/95 NAD 83 (TEMP) NEW YORK - LONG ISLAND - SOUTH OYSTER BAY	(CGD01)	36/95
	Relocate West End Boat Basin Buoy1 from (40°35'34.0"N, 73°33'21.0"W) to	40°35'32.3"N 073°33'19.2"W	
12353	28th ed., 06/18/94 LAST LNM 35/95 NAD 83 WATCH HILL TO NEW HAVEN HARBOR (LONG ISLAND SOUND)	(CGD01)	36/95
	Change Old Saybrook North Cove Buoy 1 to green can (Priv maint) Old Saybrook North Cove Buoy 3 to green can (Priv maint)	41°17'24.5"N 072°21'19.5"W 41°17'24.0"N 072°21'32.2"W	
12375	20th ed., 05/06/95 LAST LNM 27/95 NAD 83 CONNECTICUT RIVER - LONG ISLAND SOUND TO DEEP RIVER	(CGD01)	36/95
	Change Old Saybrook North Cove Buoy 1 to green can (Priv maint) Old Saybrook North Cove Buoy 3 to green can (Priv maint)	41°17'24.5"N 072°21'19.5"W 41°17'24.0"N 072°21'32.2"W	
12377	12th ed., 05/19/90 LAST LNM 26/95 NAD 83 CONNECTICUT - LONG ISLAND SOUND - CONNECTICUT RIVER	(CGD01)	36/95
	Change Connecticut River Light 98 to height 15 ft	41°36'00.1"N 072°37'30.6"W	
12402	4th ed., 05/20/95 LAST LNM 30/95 NAD 83 NEW YORK LOWER BAY (NORTHERN PART)	(CGD01)	36/95
	Add Coney Island Channel Light 8, FI R 2.5s, TR dayboards, range 4M	40°34'10.3"N 074°00'11.6"W	
	Delete Coney Island Channel Temporary Buoy 8 (Previously Temp Relocated 10/95)	40°34'09.2"N 074°00'06.6"W	
13003	40th ed., 02/05/94 LAST LNM 26/95 NAD 83 CAPE SABLE TO CAPE HATTERAS	(CGD01)	36/95
	Change Block Island Southeast Light to FI G 5s (Previously Temp Changed 02/95)	41°09'10.4"N 071°33'04.2"W	
13006	28th ed., 03/05/94 LAST LNM 26/95 NAD 83 WEST QUODDY HEAD TO NEW YORK	(CGD01)	36/95
	Change Block Island Southeast Light to FI G 5s (Previously Temp Changed 02/95)	41°09'10.4"N 071°33'04.2"W	
13205	31st ed., 09/18/93 LAST LNM 35/95 NAD 83 BLOCK ISLAND SOUND	(CGD01)	36/95
	Add symbol for submerged wreck in (PA) (36-ft White Trojan, "My Bonnie")	41°18'48.0"N 071°28'00.0"W	
	Change Block Island Southeast Light to FI G 5s (Previously Temp Changed 02/95)	41°09'10.4"N 071°33'04.2"W	
13215	14th ed., 11/13/93 LAST LNM 24/95 NAD 83 BLOCK ISLAND SOUND - POINT JUDITH TO MONTAUK POINT	(CGD01)	36/95
	Change Block Island Southeast Light to FI G 5s (Previously Temp Changed 02/95)	41°09'10.4"N 071°33'04.2"W	
13217	13th ed., 10/30/93 LAST LNM 24/95 NAD 83 BLOCK ISLAND	(CGD01)	36/95
	Change Block Island Southeast Light to FI G 5s (Previously Temp Changed 02/95)	41°09'10.4"N 071°33'04.2"W	
13218	32nd ed., 03/20/93 LAST LNM 34/95 NAD 83 MARTHA'S VINEYARD TO BLOCK ISLAND	(CGD01)	36/95
	Add symbol for submerged wreck in (PA) (36-ft White Trojan, "My Bonnie")	41°18'48.0"N 071°28'00.0"W	
	Change Block Island Southeast Light to FI G 5s (Previously Temp Changed 02/95)	41°09'10.4"N 071°33'04.2"W	
13221	50th ed., 04/15/95 LAST LNM 34/95 NAD 83 NARRAGANSETT BAY	(NOAA RUDE)	36/95
	Add danger curve with wreck symbol with least known depth of 9 ft centered in	41°39'27.6"N 071°14'35.4"W	

13226	3rd ed., 12/12/92 LAST LNM 17/95 NAD 83 MOUNT HOPE BAY Add danger curve with wreck symbol with least known depth of 9 ft centered in	(NOAA RUDE) 41°39'27.6"N 071°14'35.4"W	36/95
267	26th ed., 01/01/94 LAST LNM 26/95 NAD 83 MASSACHUSETTS BAY Add symbol for submerged wreck in (PA) (32-ft pleasure craft, "Plan B", white superstructure)	(CGD01) 42°25'00.6"N 070°51'24.6"W	36/95
13274	21st ed., 06/18/94 LAST LNM 34/95 NAD 83 PORTSMOUTH HARBOR TO BOSTON HARBOR Add symbol for submerged wreck in (PA) (32-ft pleasure craft, "Plan B", white superstructure)	(CGD01) 42°25'00.6"N 070°51'24.6"W	36/95
13275	26th ed., 10/09/93 LAST LNM 24/95 NAD 83 SALEM AND LYNN HARBORS Add symbol for submerged wreck in (PA) (32-ft pleasure craft, "Plan B", white superstructure)	(CGD01) 42°25'00.6"N 070°51'24.6"W	36/95
13288	34th ed., 02/11/95 LAST LNM 17/95 NAD 83 MONHEGAN ISLAND TO CAPE ELIZABETH Add buoy symbol and label: R N "6" light dot and flare with characteristics: Fl (2) 6s 59ft 12M HORN Change buoy label to: R N "2" Delete buoy, G C "1" PA	(NOS SILVER SPRING, MD) 43°55'55.3"N 069°23'30.1"W 43°46'46.8"N 069°38'59.9"W 43°41'16.0"N 070°06'25.0"W 43°53'15.0"N 069°25'53.2"W	36/95
14782	23rd ed., 06/13/92 LAST LNM 26/95 NAD 83 CUMBERLAND HEAD TO FOUR BROTHERS ISLANDS Change Burlington Breakwater South Light to range of 9 St Miles Delete Collymer Point Buoy (Priv maint) Shelburne Bay Lighted Buoy (Priv maint)	(CGD01) 44°28'11.8"N 073°13'32.7"W 44°25'00.0"N 073°14'30.0"W 44°24'57.0"N 073°14'29.0"W	36/95
14783	18th ed., 11/30/93 LAST LNM 20/95 NAD 83 LAKE CHAMPLAIN - NEW YORK - VERMONT - FOUR BROTHERS ISLAND HARBOR Delete Collymer Point Buoy (Priv maint) Shelburne Bay Lighted Buoy (Priv maint)	(CGD01) 44°25'00.0"N 073°14'30.0"W 44°24'57.0"N 073°14'29.0"W	36/95
14785	16th ed., 06/30/90 LAST LNM 21/95 NAD 83 BURLINGTON HARBOR Change Burlington Breakwater South Light to range of 9 St Miles	(CGD01) 44°28'11.8"N 073°13'32.7"W	36/95

**V ADVANCE NOTICES** Contains advance notice of approved projects or forthcoming temporary changes such as dredging, etc.

**ME - SEACOAST - BAY OF FUNDY TO CAPE COD (Revised Notice)** - On or about Sept. 30, 1995, Monhegan Island Light (LLNR 20/4925) will change to Fl W 15s with a nominal range to 20 nm. Chart(s): 13003, 13006, 13009, 13260, 13288, 13301, 13302. LNM 25/95 (CGD1)

**ME - MUSCONGUS BAY - PENOBSCOT BAY AND APPROACHES** - A granite barge will be making continuous transits between Long Cove and Criehaven Harbor beginning Jul. 20, 1995, and continuing until Nov. 1, 1995. The following aids to navigation will be temporarily established to mark the turns along the barge's course:

- Add Yellow spar with diamond radar reflector in PA 43.58 18N, 069 11 24W
- Add Yellow spar with diamond radar reflector in PA 43 58 12N, 069 11 30W
- Add Yellow spar with diamond radar reflector in PA 43 57 48N, 069 10 48W
- Add Yellow spar with diamond radar reflector in PA 43 56 36N, 069 05 42W
- Add Yellow spar with diamond radar reflector in PA 43 51 06N, 068 58 48W

Mariners should transit the area with caution.  
Chart(s): 13301, 13305. LNM 29/95 (CGD1)

**ME - FRENCHMAN BAY AND MOUNT DESERT ISLAND - SOMES SOUND (Revised Notice)** - The Coast Guard will be making the following change on or about Sept. 15, 1995.

**Change** Middle Rock Buoy 5 (LLNR 2195) to Middle Rock Lighted Buoy 5, Fl G 2.5s, green.

Chart(s): 13318, 13321. LNM 33/95 (CGD1)

**ME - WELLS HARBOR** - Beginning on or about Sept. 15, 1995 work will commence to raise the height of Wells Harbor South Jetty Light 1 (LLNR 8215) to approximately 15 ft. Mariners should monitor Broadcast Notice to Mariners for the latest information concerning status of the light or temporary interruptions in service. Chart(s): 13286. LNM 36/95 (CGD1)



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

September 15, 1995

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

**REPORT OF DANGER TO NAVIGATION**

Dear Sir:

The NOAA Ship RUDE recently completed a hydrographic survey centered approximately 0.30 nautical miles south of Bristol Point, Narragansett Bay, Rhode Island. During the course of this survey, two additional wrecks were found which are not shown on the two charts which affect the area: chart 13226 (3rd Ed. 12 December 1992) and chart 13221 (50th Ed. 15 April 1995). It is requested that these discrepancies be published in the Local Notice to Mariners.

The updated depths are given in the following table. The attached chartlet shows the survey boundaries and the plotted position of the depths. The least depths should be depicted as shown on the chartlet, surrounded by the "danger curve" with a "Wk" symbol attached. All information is preliminary and subject to office review.

These items were subject to hydrographic development using a Raytheon DSF-6000N survey echo sounder, a Reson SEABAT 9001 shallow-water multibeam sonar system, and a diver investigation. All depths have been reduced to Mean Lower Low Water (MLLW) by applying predicted tide corrections. The horizontal datum is NAD 83.

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

Hydrographic Survey Registry No....H-10628  
State.....Rhode Island  
General Locality.....Narragansett Bay  
Locality.....0.3 NM South of Bristol Point  
Project Number.....B302-RU-95  
Surveyed by.....NOAA Ship RUDE



\* THESE DEPTHS AFFECT THE FOLLOWING CHARTS:

Chart 13226 (3<sup>rd</sup> Ed. 12 December 92)  
Chart Scale 1:20,000

Chart 13221 (50<sup>th</sup> Ed. 15 April 95)  
Chart Scale 1:40,000

** DEPTH (ft)	LATITUDE (N)	LONGITUDE (W)
54 Wk	41°38'36.72"	071°15'16.87"
61 Wk	41°38'36.05"	071°15'24.35"

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

\*\* Depth reduced to feet at MLLW using predicted tides.

Contact either of the following personnel for further information:

Commanding Officer  
NOAA Ship RUDE  
P.O. Box 5238  
Newport, R.I. 02841  
401-524-1260

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

Sincerely,



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





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

September 15, 1995

Director  
Defense Mapping Agency  
Hydrographic/Topographic Center  
Attention: MCNM (Mail Stop D-44)  
6500 Brookes Lane  
Washington, DC 20315-0030

Dear Sir:

Enclosed please find a copy of two Danger To Navigation Reports issued by the NOAA Ship RUDE to the Commander, First Coast Guard District in Boston, MA.

A handwritten signature in cursive script that reads "Samuel P. De Bow".

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

Attachments



APPENDIX VII

APPROVAL SHEET

LETTER OF APPROVAL

REGISTRY NO. H-10628

This report and the accompanying field sheets are respectfully submitted.

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

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

*Samuel P. De Bow, CDR, NOAA*

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



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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: March 20, 1996

HYDROGRAPHIC BRANCH: Atlantic

HYDROGRAPHIC PROJECT: OPR-B302

HYDROGRAPHIC SHEET: H-10628

LOCALITY: Rhode Island, Narragansett Bay 0.3 Nautical Miles South  
of Bristol Point

TIME PERIOD: July 26 - September 11, 1995

TIDE STATION USED: 845-1929 Bristol Harbor, R.I.  
Lat.  $41^{\circ} 40.1'N$  Lon.  $71^{\circ} 16.7'W$

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 3.24 ft.  
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 4.2 ft.

REMARKS: RECOMMENDED ZONING

1. In Mount Hope Bay (east of the Mount Hope Bridge), times are direct, and apply a X1.03 range ratio to heights using Bristol Harbor, R.I. (845-1929).
2. In the vicinity of Hog Island, north of  $41^{\circ} 38.3'N$ , west of the Mount Hope Bridge, times are direct, and apply a X0.98 range ratio to heights using Bristol Harbor, R.I. (845-1929).
3. East of Prudence Island, and south of  $41^{\circ} 38.3'N$ , times are direct, and apply a X0.95 range ratio to heights using Bristol Harbor, R.I. (845-1929).

- Notes:
1. Times are tabulated in Greenwich Mean Time.
  2. Data for Bristol Harbor, R.I. (845-1929) are temporarily stored in file #645-1929.
  3. Zoning is not provided in the Sakonnet River.

*William W. Wilson*  
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CHIEF, DATUMS SECTION



GEOGRAPHIC NAMES

H-10628

Name on Survey	A ON CHART NO. 13221, 13223, 13226 B ON PREVIOUS SURVEY C ON U.S. QUADRANGLE MAPS D FROM LOCAL INFORMATION E ON LOCAL MAPS F P.O. GUIDE OR MAP G GRAND MCNALLY ATLAS H U.S. LIGHT LIST K									
	A	B	C	D	E	F	G	H	K	
ARNOLD POINT	X		X							1
BRISTOL FERRY	X		X							2
BRISTOL NECK	X		X							3
BRISTOL POINT	X		X							4
COMMON FENCE POINT	X		X							5
HOG ISLAND	X		X							6
HOG ISLAND SHOAL	X									7
MOUNT HOPE BAY	X		X							8
MOUNT HOPE POINT	X		X							9
MUSSELBED SHOALS	X		X							10
NARRAGANSETT BAY (title)	X		X							11
PRUDENCE ISLAND	X		X							12
RHODE ISLAND	X		X							13
										14
										15
										16
										17
										18
										19
										20
										21
										22
										23
										24
										25

Approved

*Chris Clay*  
Chief Geographer

JUL 12 1996

11/12/96

HYDROGRAPHIC SURVEY STATISTICS  
REGISTRY NUMBER: H-10628

NUMBER OF CONTROL STATIONS		2
NUMBER OF POSITIONS		2233
NUMBER OF SOUNDINGS		12036
	TIME-HOURS	DATE COMPLETED
PREPROCESSING EXAMINATION	28	11/15/95
VERIFICATION OF FIELD DATA	82.50	07/22/96
QUALITY CONTROL CHECKS	0	
EVALUATION AND ANALYSIS	25.50	
FINAL INSPECTION	4	07/17/96
COMPILATION	35	11/06/96
TOTAL TIME	175	
ATLANTIC HYDROGRAPHIC BRANCH APPROVAL		08/29/96

**ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT FOR H-10628 (1995)**

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

**D. AUTOMATED DATA ACQUISITION AND PROCESSING**

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

Hydrographic Processing System  
AutoCAD, Release 12  
QUICKSURF, version 5.1  
NADCON, version 2.10  
MicroStation, version 5.0  
I/RAS B, version 5.01

The smooth sheet was plotted using an ENCAD NovaJet III plotter.

**H. CONTROL STATIONS**

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

To place this survey on the NAD 27 datum, move the projection lines 0.368 seconds (11.339 meters or 1.13 mm at the scale of the survey) north in latitude and 1.824 seconds (42.223 meters or 4.22 mm at the scale of the survey) east in longitude.

**J. SHORELINE**

The brown shoreline originates with NOS chart 13221 (50<sup>th</sup> Edition, April 15, 1995) and is for orientation purposes only.

**L. JUNCTIONS**

There are no junctional surveys adjacent to the present survey. Present survey depths are in general harmony with the charted depths in the junctional areas.

**M. COMPARISON WITH PRIOR SURVEYS**

A comparison with prior surveys was not made in accordance with section 4. of the memorandum titled, "Changes to Hydrographic Survey Processing," dated May 24, 1995.

**O. COMPARISON WITH CHARTS 13221 (50<sup>th</sup> Edition, Apr 15/95)  
13223 (34<sup>th</sup> Edition, Jan 28/95)  
13224 (34<sup>th</sup> Edition, Feb 12/94)  
13226 ( 3<sup>rd</sup> Edition, Dec 12/92)**

The charted hydrography originates with prior surveys and miscellaneous sources. An adequate comparison with the charted depths is made by the hydrographer in section O. of the Descriptive Report and requires no further consideration. Attention is directed to the following:

1. The following obstructions were located by the field unit using side scan sonar and a fathometer. It is recommended that these obstructions be charted as shown on the present survey. Additional work is recommended at an opportune time.

<u>Depth</u>	<u>Latitude (N)</u>	<u>Longitude (W)</u>
30 feet (9 <sup>1</sup> m)	41°38'22.67"N	71°15'46.22"W
28 feet (8 <sup>7</sup> m)	41°36'53.54"N	71°17'01.01"W

2. Terminal Approach Buoy 4T, a privately maintained aid, in Latitude 41°37'44.49"N, Longitude 71°15'55.50"W, is not currently shown on charts 13224 and 13226. This buoy is shown on charts 13221 and 13223. It is recommended that this buoy be shown on future editions of charts 13224 and 13226.

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

**P. ADEQUACY OF SURVEY**

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

**S. MISCELLANEOUS**

Chart compilation was done by Atlantic Hydrographic Branch personnel in Norfolk, Virginia. Compiled data will be forwarded to Marine Chart Division, Silver Spring, Maryland.

**RUDE Processing Team**

*Richard W. Blevins*

**Richard W. Blevins**  
Cartographer  
Verification of Field Data

*Maxine Fetterly*

**Maxine Fetterly**  
Cartographer  
Evaluation and Analysis

APPROVAL SHEET  
H-10628

Initial Approvals:

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

Robert G. Roberson Date: August 29, 1996  
Robert G. Roberson  
Cartographer  
Chief, Cartographic 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.

Nicholas E. Perugini Date: August 29, 1996  
Nicholas E. Perugini  
Commander, NOAA  
Chief, Atlantic Hydrographic Branch

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Final Approval:

Approved: Andrew A. Armstrong, III Date: Nov 22, 1996  
Andrew A. Armstrong, III  
Captain, NOAA  
Chief, Hydrographic Surveys Division

