

NOAA FORM 76-35A

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

## DESCRIPTIVE REPORT

*Type of Survey* BASIC HYDROGRAPHIC

*Field No.* .....

*Registry No.* H11321

### LOCALITY

*State* RHODE ISLAND

*General Locality* BUZZARDS BAY and RHODE ISLAND SOUND

*Sublocality* 7.5 NM South of Lands End

2004

CHIEF OF PARTY

LT Todd A. Haupt, NOAA

### LIBRARY & ARCHIVES

DATE .....

## HYDROGRAPHIC TITLE SHEET

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

FIELD No.

State RHODE ISLANDGeneral Locality BUZZARDS BAY and RHODE ISLAND SOUNDSub-Locality 7.5 NM South of Lands EndScale 1:10000 Date of Survey 5/18 - 7/7, 20Instructions dated March 26, 2004 Project No. S-B912-RU-04Vessel NOAA Ship RUDE s590Chief of Party LT Todd A. Haupt, NOAASurveyed by LCDR Schattgen, LT Haupt, LT Zorub, LTJG Yees, ENS Edmondson, SSI Kitt, SI StephensSoundings by echo sounder, hand lead, pole CIDOM E-6000, METWMBE3, Eoson SeaBat S111, SWMBGraphic record scaled by RUDE PersonnelGraphic record checked by RUDE Personnel Automated Plot N/AVerification by Atlantic Hydrographic BranchSoundings in fathoms feet at MLW MLLW feet at MLLWREMARKS: All times in UTCAll soundings corrected with verified tidesMap Projection is UTM zone 19

**TABLE of CONTENTS**

A. Area Surveyed ..... 1

B. Data Acquisition and Processing ..... 3

    Equipment ..... 3

    Quality Control ..... 4

    Corrections to Echo Soundings ..... 5

C. Vertical and Horizontal Control ..... 5

D. Results and Recommendations ..... 5

E. Approval Sheet ..... 7

## **DESCRIPTIVE REPORT**

To accompany

### **HYDROGRAPHIC SURVEY H11321**

Scale of Survey: 1:10000  
Year of Survey: 2004  
NOAA Ship RUDE  
LT Todd A. Haupt, Commanding

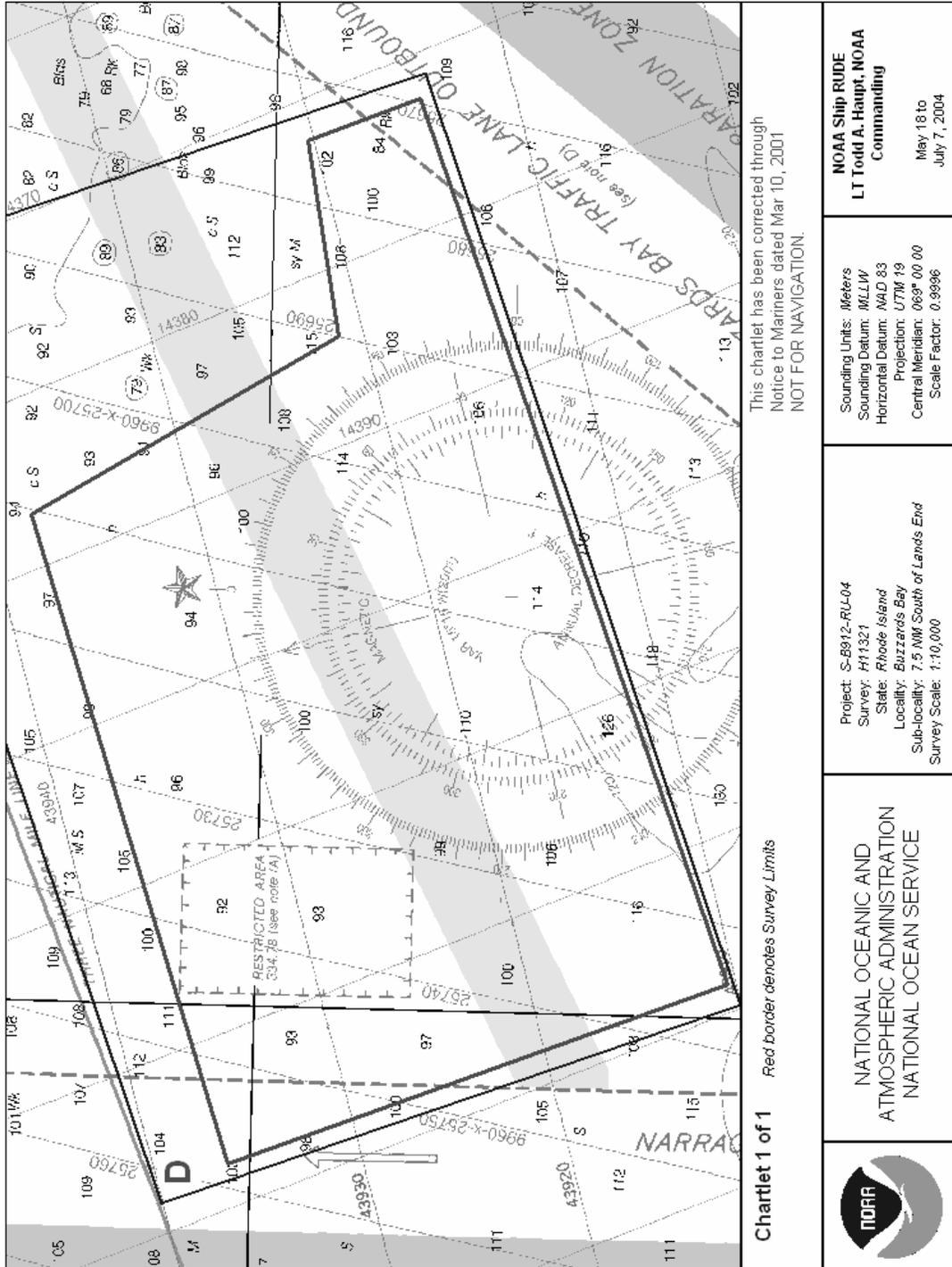
#### **A. Area Surveyed**

This hydrographic survey was conducted in accordance with Hydrographic Survey Letter of Instructions for project OPR-B912-RU updated March 26, 2004.

This project was conducted to provide side scan sonar and/or multibeam data in support of National Ocean Service (NOS) nautical charts, as a response to a request from the Northeast Marine Pilots. Survey H11321 was performed in accordance with NOS requirements for side scan sonar and multibeam data acquisition and processing.

Full bottom coverage, consisting of 200% side scan sonar, was achieved throughout the limits of hydrography. Items of interest were further developed by 100% multibeam.

For complete survey limits, please see the chartlet on the following page.



This chartlet has been corrected through  
 Notice to Mariners dated Mar 10, 2001  
 NOT FOR NAVIGATION.

**Chartlet 1 of 1** Red border denotes Survey Limits

<p><b>NOAA Ship RUDE</b>  <b>LT Todd A. Haupt, NOAA</b>  <b>Commanding</b></p> <p>May 18 to          July 7, 2004</p>	<p>Sounding Units: Meters          Sounding Datum: MLLW          Horizontal Datum: NAD 83          Projection: UTM 19          Central Meridian: 069° 00' 00"          Scale Factor: 0.9996</p>	<p>Project: S-8912-RU-04          Survey: H11321          State: Rhode Island          Locality: Buzzards Bay          Sub-locality: 7.5 NM South of Leads End          Survey Scale: 1:10,000</p>	<p>NATIONAL OCEANIC AND          ATMOSPHERIC ADMINISTRATION          NATIONAL OCEAN SERVICE</p>	
---	---	--	---	---

## **B. DATA Acquisition and Processing Equipment** *See also the Evaluation Report*

### **B.1 EQUIPMENT**

Data were acquired by NOAA Ship RUDE (s-590). The RUDE is 90 feet in length with a 22-foot beam and 7-foot draft.

Vertical-beam echo sounding data were acquired with an Odom Echotrac DF3200 MKII dual beam echo sounder (24 and 200 kHz). Vertical-beam data was used in conjunction with side scan sonar to ensonify objects on the bottom not apparent at side scan nadir and also for crossline checks with the mainscheme lines. No vertical-beam data were acquired during multibeam development operations. All data is included in the final data set.

RUDE acquired all side scan sonar data using a Klein 5500 towfish set to the 100-meter range scale which was appropriate for depths throughout the survey area. The data was recorded digitally using Triton ISIS software and archived in Extended Triton Format (.xtf).

Single frequency (455 kHz) multi-beam data were acquired with a Reson SeaBat 8125 shallow water swath sonar system. Positioning and attitude were determined with a TSS POS/MV and using a Trimble DSM-212L DGPS receiver.

\*Sound velocity data were acquired using a Sea-Bird SBE 19 SEACAT Conductivity, Temperature, and Depth (CTD) profiler.

No unusual vessel configurations or problems were encountered. Please refer to the \*2004 Data Acquisition and Processing Report (DAPR) previously submitted for detailed equipment and vessel configurations. *\*Data filed at the Atlantic Hydrographic Branch.*

## B.2 QUALITY CONTROL

### Side Scan Sonar Quality Control

Daily confidence checks were made by observing the outer ranges of the side scan sonar images. A good check consisted of distinguishing contacts, i.e. lobster pots, drag scours, or sand waves across the entire range of the side scan trace. Under conditions of questionable data quality due to high refraction or surface noise, these confidence checks were conducted as often as possible. Side scan data acquisition was suspended when targets approximately one cubic meter in size could not be resolved to the edge of the range scale.

### Shallow Water Multibeam Quality Control

There were no faults with the shallow water multibeam system which would affect data integrity in this survey. Confidence checks were provided by comparing nadir sounding data to the vertical-beam echo sounder and ensonification of side scan contacts picked for development. Please refer to the *\*2004 DAPR* for detailed discussion of SWMB system calibrations, patch test, data acquisition, and data processing. *\*Data filled at the Atlantic Hydrographic Branch.*

### Crosslines

The total distance of crosslines where they intersect mainscheme data is 37.77 linear nautical miles which is equal to 8.8% of mainscheme mileage. Crossline to mainscheme line comparison was conducted by using MapInfo 6.5 and visually inspecting the resulting sounding plot printout. Comparison is adequate, with the majority of differences being one foot or less. An Excel Spreadsheet of the comparison may be found in *\*Separates V. \*Data filled with field records.*

### Junctions *See also the Evaluation Report*

Survey H11321 junctions with survey H11320 (2004) to the east and survey H11322 (2004) to the west. Both surveys were part of the same project, S-B912-RU, started and completed during 2004, and are under review. Junctions were inspected visually using MapInfo and found to be adequate, generally within one to two feet with sounding neighbors. Variations greater than two feet is attributed to dense rocky areas common to the adjacent survey sheets. A complete autonomous MapInfo workspace and tables may be found under folder "Descriptive Report", sub-folder "MapInfo Files", sub-folder "Survey Junctions."

### **B.3 CORRECTIONS TO ECHO SOUNDINGS**

There were no deviations in corrections to echo soundings from the method explained in the \*2004 DAPR. Patch tests, dynamic draft, offsets, etc. are explained in depth in the aforementioned document. *\*Data filled at the Atlantic Hydrographic Branch.*

### **C. VERTICAL AND HORIZONTAL CONTROL**

The reference tide station for H11321 was Newport, Rhode Island (845-2660) and referenced to MLLW. For near-immediate processing, six-minute interval preliminary tides were obtained via the Internet (when available) or through TIDEBOT. This gauge was monitored daily when possible. Final soundings were corrected using verified tides downloaded through the CO-OPs website.

Zoning was provided on the project CD. No changes to zoning, time correctors, or range ratios were made by field personnel. *Approved tides were re-applied to survey in Caris during office processing.*

Horizontal datum and projection used for this survey was NAD83, UTM zone 19. *See also the Evaluation Report*

Differential positioning was provided by USCG DGPS stations Acushnet, MA, with Portsmouth, NH as the backup. There were no interruptions in DGPS availability on this survey.

### **D. RESULTS AND RECOMMENDATIONS *See also the Evaluation Report***

#### **D.1 Chart Comparison**

H11321 is encompassed by the following chart as per Letter of Instructions:

13218 1:80,000      39<sup>th</sup> Ed., JUN /04      NM JUN      12/04 LNM MAY 25/04

Agreement with chart 13218 was excellent, with current soundings within plus or minus 2 feet by visual inspection of soundings overlaid on the chart in the PSS.

No AWOIS items were assigned to this survey. However, AWOIS #7445 was later assigned to RUDE as Field Examination F00498. This item was not located within the survey limits of any sheet but lied between S-B912 and S-B301 just outside of the entrance to Narragansett Bay. The item is resolved and may be found in \*Appendix VI to this report. *\* Data removed from this report and appended to F00498 (2004) Descriptive Report.*

No shoreline verification, aids to navigation, nor charted wrecks were present on this sheet. An area of interest on H11321 is at the east end where there is a charted 84 Rk. The entire east edge of H11321 and the west edge of its adjacent sheet, H11320, is rocky. The charted "84 Rk" was developed with 100% multibeam and the results show there is a least depth of 85 feet at that position (verified tides applied). Complete records, remarks, and recommendations concerning this feature and others may be found in the digital preliminary smooth sheet, H11321.pss in the folder labeled "PSS." *Concur, See also the Evaluation Report Section D.1.*

**E. APPROVAL SHEET**

**S-B912-RU  
Buzzards Bay and Rhode Island Sound  
Rhode Island**

**7.5 NM South of Lands End  
Survey Registry No. H11321**

Field operations for this basic hydrographic survey were conducted under my daily supervision with frequent checks of progress and adequacy. All field sheets, this Descriptive Report, and all accompanying records and data are approved.

This survey is adequate to supersede all prior surveys in common areas and for application to the relevant NOS nautical charts.

Respectfully,

Submitted:



Wesley G. Kitt  
Senior Survey Technician, NOAA Ship RUDE

Approved:



LT Todd A. Haupt, NOAA  
Commanding Officer, NOAA Ship RUDE



TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE: March 1, 2005

HYDROGRAPHIC BRANCH: Atlantic  
HYDROGRAPHIC PROJECT: S-B912-RU-2004  
HYDROGRAPHIC SHEET: H11321

LOCALITY: 7.5 nm south of Lands End  
Buzzards Bay, RI

TIME PERIOD: May 18 - July 7, 2004

TIDE STATION USED: 845-2660 Newport, RI  
Lat. 41° 30.3'N Lon. 71° 19.6'W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters  
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.099 meters

REMARKS: RECOMMENDED ZONING

Use zone(s) identified as: NA627 & NA629

Refer to attachments for zoning information.

Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the new 1983-2001 National Tidal Datum Epoch (NTDE).

*Thomas V. Mero 3/8/05*

CHIEF, REQUIREMENTS AND DEVELOPMENT DIVISION



**LETTER TRANSMITTING DATA**

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

- ORDINARY MAIL
- AIR MAIL
- REGISTERED MAIL
- EXPRESS
- GBL (Give number) \_\_\_\_\_

**TO:**

• CHIEF, DATA ACQUISITION AND CONTROL •  
 NOAA, NOS, OCS, HSD  
 1315 EAST-WEST HIGHWAY  
 SSMC3, STATION 6704,  
 • SILVER SPRING, MARYLAND 20910-3282 •

DATE FORWARDED 08/17/2005

NUMBER OF PACKAGES 1

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

H11321

RHODE ISLAND, BUZZARDS BAY AND RHODE ISLAND SOUND, 7.5NM SOUTH OF LANDS END

**ONE TUBE CONTAINING THE FOLLOWING:**

- 1 SMOOTH SHEET MYLAR PLOT FOR SURVEY H11321
- 1 MYLAR H-DRAWING PLOT FOR NOS CHART 13218
- 1 RECORD OF APPLICATION TO CHART FORM FOR SURVEY H11321

**FROM:** (Signature)

*Dilworth a. Blane*

**RECEIVED THE ABOVE**  
(Name, Division, Date)

**Return receipted copy to:**

• NOAA \ NATIONAL OCEAN SERVICE •  
 ATLANTIC HYDROGRAPHIC BRANCH N/CS33  
 439 WEST YORK STREET  
 NORFOLK, VA. 23510-1114 •

**ATLANTIC HYDROGRAPHIC BRANCH  
EVALUATION REPORT FOR H11321 (2004)**

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.

**B. DATA ACQUISITION AND PROCESSING**

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

Hydrographic Processing System  
MicroStation J, version 07.01.04.16  
I/RAS B, version 07.01.000.18  
MapInfo, version 6.5  
CARIS HIPS/SIPS 5.3  
PYDRO, version 3.7.1

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

**JUNCTIONS**

H11320           (2004) to the east  
H11322           (2004) to the west

A standard junction was effected between the present survey and H11320 (2004) to the east and H11322 (2004) to the west.

There are no contemporary surveys to the north or south of the present survey. Present survey depths are in harmony with the charted hydrography to the north and south.

**C. HORIZONTAL CONTROL**

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD83), UTM Zone 19N. Office processing of this survey is based on these values.

**D. RESULTS AND RECOMMENDATIONS**

**COMPARISON WITH Chart    13218 (39<sup>TH</sup> Edition, Jun/04)**  
Corrected through NM Jun 12/04  
Corrected through LNM May 25/04

Hydrography

The charted hydrography originates with the prior surveys and requires no further consideration. A comparison with prior surveys was not done during office processing in accordance with section 4. of the memorandum titled, "Changes to Hydrographic Survey Processing", dated May 24, 1995. The hydrographer makes adequate chart comparisons in section D. of the Descriptive Report. The following should be noted:

1) The charted rock with a depth of 84 ft, in Latitude 41°19'18.78"N, Longitude 75°12'17.92"W, originates with an unknown source and was investigated by the field unit with side scan sonar and a 100% multibeam development. A rock with a depth of 85 feet, in Latitude 41°19'19.06"N, Longitude 71°12'16.55"W was located. It is recommended that the charted feature be deleted and a rock be charted as shown on the present survey. It is further recommended that the area be updated with present survey data and the note rky be charted.

2) An uncharted rock with a depth of 90 feet in Latitude 41°20'03.23"N, Longitude 71°18'45.93"W, was located by the field unit. It is recommended that a this feature be charted as shown on the present survey.

3) The following areas were determined to be rocky during the present survey:

<u>Latitude (N)</u>	<u>Longitude (W)</u>
41°18'52.70"	71°18'55.71"
41°20'46.03"	71°18'24.07"
41°20'40.67"	71°18'20.69"
41°20'01.53"	71°15'02.26"
41°19'07.02"	71°12'20.46"
41°19'00.90"	71°12'19.68"

It is recommended that the charts be updated and annotated as rocky in these areas, where chart scale permits.

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

MISCELLANEOUS

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

13218 (39<sup>TH</sup> Edition, Jun/04)  
Corrected through NM Jun 12/04  
Corrected through LNM May 25/04

**ADEQUACY OF SURVEY**

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

H11321

Deborah A. Bland

Deborah A. Bland

Cartographer

Verification of Field Data

Evaluation and Analysis

APPROVAL SHEET  
H11321

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. 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.

Deborah A. Bland  
Deborah A. Bland  
Cartographer,  
Atlantic Hydrographic Branch

Date 15 August 2005

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.

Approved:

P. Tod Schattgen  
P. Tod Schattgen,  
Lieutenant Commander, NOAA  
Chief, Atlantic Hydrographic Branch

Date: 15 August 2005

