

H11929

<p>NOAA FORM 76-35A</p> <p>U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION NATIONAL OCEAN SURVEY</p> <p>DESCRIPTIVE REPORT</p>	
<i>Type of Survey:</i>	Basic Navigable Area
<i>Registry Number:</i>	H11929
<p>LOCALITY</p> <p><i>State:</i> Rhode Island</p> <p><i>General Locality:</i> Providence</p> <p><i>Sub-locality:</i> Providence River & North Narragansett Bay</p>	
<p>2008</p> <p>CHIEF OF PARTY LT(jg) Matthew Jaskoski, NOAA</p>	
DATE	LIBRARY & ARCHIVES

NOAA FORM 77-28 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER: <p style="text-align: center; font-size: 1.2em;">H11929</p>	
<p style="font-size: 1.2em; margin: 0;">HYDROGRAPHIC TITLE SHEET</p>			
INSTRUCTIONS: The Hydrographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.			
State:	<p style="margin: 0;">Rhode Island</p>		
General Locality:	<p style="margin: 0;">Narragansett Bay</p>		
Sub-Locality:	<p style="margin: 0;">Providence River to North Narragansett Bay</p>		
Scale:	<p style="margin: 0;">1:10,000</p>	Date of Survey:	<p style="margin: 0;">07/09/08 to 08/15/08</p>
Instructions Dated:	<p style="margin: 0;">07/02/08</p>	Project Number:	<p style="margin: 0;">OPR-B301-NRT5-08</p>
Change No.1 Dated:	<p style="margin: 0;">N/A</p>		
Change No.2 Dated:	<p style="margin: 0;">N/A</p>		
Vessel:	<p style="margin: 0;">NOAA NRT-5, S3002</p>		
Chief of Party:	<p style="margin: 0;">LT(jg) Matthew Jaskoski, NOAA</p>		
Surveyed by:	<p style="margin: 0;">NOAA Navigation Response Team 5 Personnel</p>		
Soundings by:	<p style="margin: 0;">Kongsberg Simrad EM 3000 multibeam echosounder</p> <p style="margin: 0;">Odom Echotrac CV/200 verticalbeam echosounder</p>		
Graphic record checked by:	<p style="margin: 0;">N/A</p>		
Protracted by:	<p style="margin: 0;">N/A</p>	Automated Plot:	<p style="margin: 0;">N/A</p>
Verification by:	<p style="margin: 0;">Atlantic Hydrographic Branch Personnel</p>		
Soundings in:	<p style="margin: 0;">Meters at MLLW</p>		
Remarks:			
<p style="margin: 0;">1) All Times are UTC.</p> <p style="margin: 0;">2) This is a Basic Navigable Area Hydrographic Survey.</p> <p style="margin: 0;">3) Projection is UTM Zone 19.</p> <p style="margin: 0;"><i>Red, bold, italic comments were added during office review.</i></p>			

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DESCRIPTIVE REPORT
to accompany
HYDROGRAPHIC SURVEY H11929

Scale of Survey: 1:10,000
Year of Survey: 2008
NOAA Navigation Response Team 5
LT(jg) Matthew Jaskoski, OIC

A. AREA SURVEYED

This hydrographic survey was conducted in accordance with Hydrographic Survey Letter Instructions for project OPR-B301-NRT5-08*, H11929, Providence, Rhode Island. The original instructions are dated July 2, 2008. **Filed with original field records.*

This Descriptive Report pertains to an area of approximately 7.5 SNM, of North Narragansett Bay from the Providence River in the north, to Prudence Island in the South. The assigned registry number for this sheet is H11929, as prescribed in the Letter Instructions*. **Filed with original field records.*

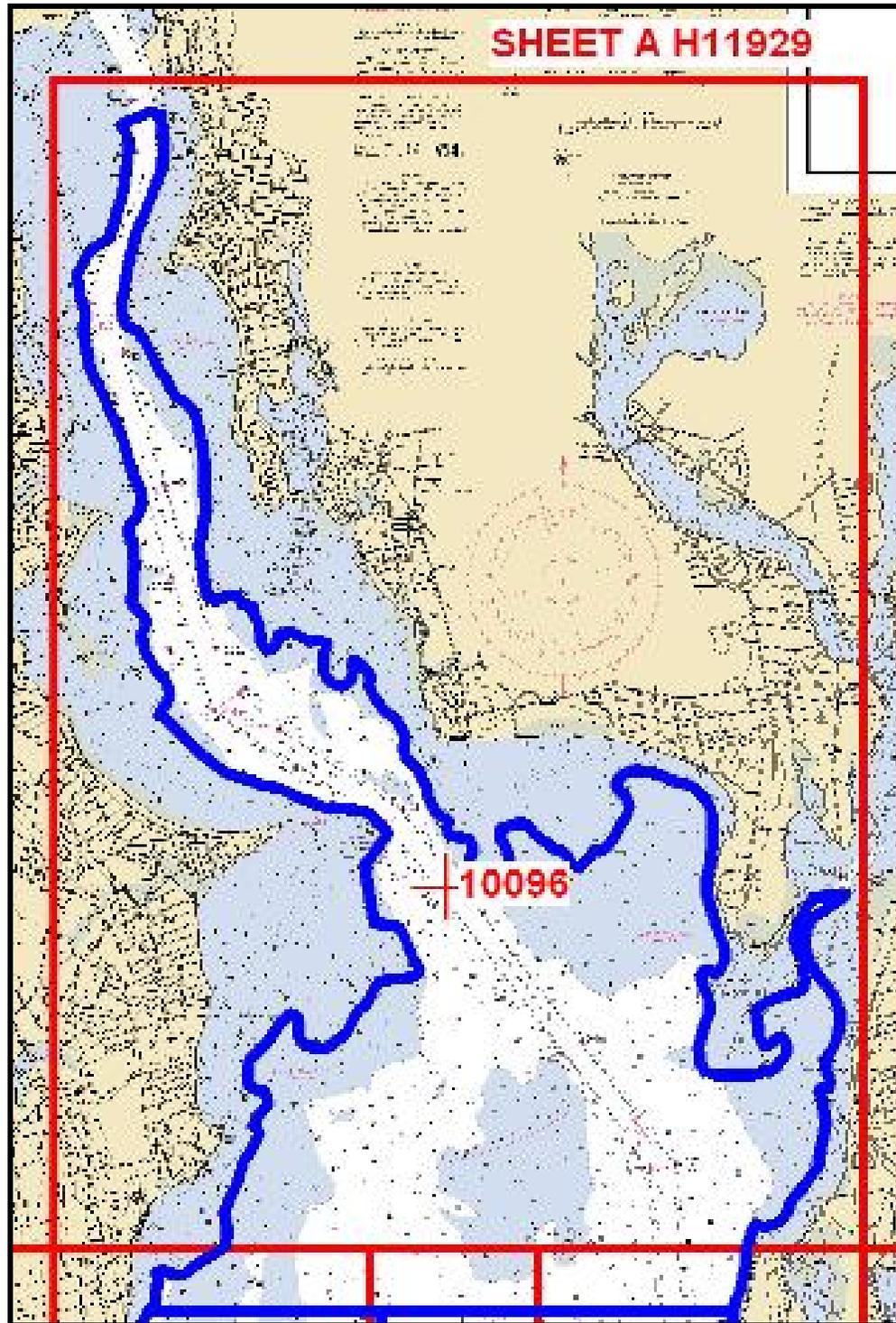
The purpose of the CY 2008 operations in this area were to provide contemporary surveys to update National Ocean Service (NOS) nautical charts as the Port of Providence and Narragansett Bay have been designated critical survey areas.

For complete survey limits, see figure A-1 on the following page.

Linear nautical miles of single beam only sounding lines - mainscheme only	265.1
Linear nautical miles of side scan sonar only lines - mainscheme only	259.9
Linear nautical miles of any combination of the above techniques	259.9
Linear nautical miles of crosslines from single beam and multibeam combined	27.7
Linear nautical miles of developments other than mainscheme lines	28.1
Linear nautical miles of shoreline/nearshore investigation	0.0
Number of bottom samples collected	0
Number of items investigated that required additional time/effort in the field beyond the above survey operations	0
 Total square nautical miles	 7.5

Dates of acquisition: July 9, 2008 to August 15, 2008

Figure A-1: Outline of survey area



B. DATA ACQUISITION AND PROCESSING

B.1 EQUIPMENT

Data were acquired by NOAA NRT-5 S3002. NOAA Survey Vessel S3002 is an approximately 9-m aluminum SeaArk outboard driven vessel with an average multibeam transducer draft of 1.3 meters.

NOAA S3002 acquired both bathymetry and imagery data in the project area. Side scan sonar data were acquired with a towed Klein 3000 sonar system (SSS). Bathymetry data were acquired with both an Odom Echotrac C/V 200 verticalbeam echosounder (VBES), and a Kongsberg Simrad EM 3000 multibeam echosounder (MBES). Positioning and attitude were determined with a TSS POS/MV 320 (version 4) GPS aided inertial navigation system

B.2 QUALITY CONTROL

B.2.1 Side Scan Sonar Quality Control

Daily confidence checks were made by observing the outer ranges of the side scan sonar image trace. A good check consisted of distinguishing linear contacts across the entire range of the side scan trace. Navigation data were reviewed, fliers were rejected with interpolation. In shallow water, refraction was noticeable in the outer one-third to outer one-half of the range on both the starboard and port return. Drags marks from clam rakes were visible through the refraction waves, but additional SSS line splits were conducted where the refraction was particularly pronounced.

In accordance with the project instructions, 200% SSS bottom coverage was collected for this survey at 75m range scale. A SSS image mosaic was created at 1-m resolution for submission (Table B-2).

B.2.2 Multibeam Echosounder Quality Control

Multibeam echosounder data were acquired at 100% coverage for SSS contact development, and areas deemed navigationally significant by the hydrographer. In order to successfully operate the EM3000 with the SIS software, casts were completed at the start of survey day and manually entered into the SIS program. This was resultant of SIS' inability to connect to the surface sound velocity meter that is mounted at the MBES transducer head. Bathymetry data collected in this fashion were acceptable and the method was approved by the Chief of AHB (see correspondences). However, a marked sound speed artifact was noted in the data. Based on Caris generated QC report, the outer beams 1-8 and 123-127 were filtered out of the data set, and were not applied to surfaces. Other than the above, there were no faults with the MBES system which adversely affected data integrity. Navigation data were reviewed; any fliers were rejected

with interpolation. For detailed discussion of MBES system calibrations, data acquisition, and data processing refer to this project’s DAPR*. **Filed with original field records.*

B.2.3 Total Propagated Error

Total Propagated Error (TPE) parameters for sound speed and tide data for H11929 are shown in table B-1. The estimated tidal error contribution to the total survey error budget in the vicinity of Narragansett Bay is included in the TCARI grid. Sound speed TPE values were used in accordance with HSTP guidelines regarding frequency of surface and water column sound speed measurements.

Table B-1. Total Propagated Error parameters as applied in Caris.

Total Propagated Error Values			
Tide Values		Sound Speed Values	
Measured	Zoning	Measured	Surface
0.0	0.00	4.0	0.2

B.2.4 Fieldsheets and Navigation Surfaces

Caris HIPS uncertainty weighted BASE surfaces were created for this project. For MBES data surfaces were created and submitted at 0.50m resolution. An uncertainty weighted BASE surface was created for VBES data at 2.00m resolution. Based on Caris generated QC reports (see sec B.2.5) beams 1-8 and 123-127 were filtered out of the processed data, and are not included in the BASE surfaces. The MBES BASE surface finalized weighted grid is included in the PSS. Table B-2 lists all surfaces submitted with this survey.

B.2.5 Single Beam Quality Control

Navigation data were reviewed, fliers were rejected with interpolation. There were no unusual events associated with the collection of VBES data for this project.

Refer to this project’s DAPR* for detailed discussion of VBES system calibrations, data acquisition, and data processing. **Filed with original field records.*

Table B-2: H11929 Bathymetry surfaces and Side Scan mosaic resolutions.

H11929 Bathymetry Surfaces and SSS Mosaic			
Fieldsheet	Surface/Mosaic Name	Grid Type	Resolution
H11929	H11929_MBES_BASE_50cm	Uncertainty Weighted	0.50m
H11929	H11929_MBES_BASE_50cm_Final	Uncertainty Weighted	0.50m
H11929	H11929_VBES_BASE_2m	Uncertainty Weighted	2.00m
H11929	H11929_VBES_BASE_2m_Final	Uncertainty Weighted	2.00m
H11929	H11929_SSS_1m	SSS Mosaic	1.00m

B.2.6 Crosslines

For this survey 27.7 linear NM of crosslines were acquired, this is approximately 10% of the mainscheme VBES bathymetry linear NM. A visual examination of approximately 10% of crossline-mainsheme common areas showed general agreement between crosslines and mainscheme lines to within 1-2 feet. Similarly, 2.97 LNM of MBES Crosslines were run; this was 12% of the total LNM of MBES data acquired. Caris generated QC reports (Figure B.1) showed that the outer beams namely 1-8 and 123-127 did not meet 90% IHO order oneness and were filtered from the dataset. For a list of all crosslines acquired for this project, tabulated by DN and line file name, please refer to the processing logs located in the separates section* of the DR submission package. **Filed with original field records.*

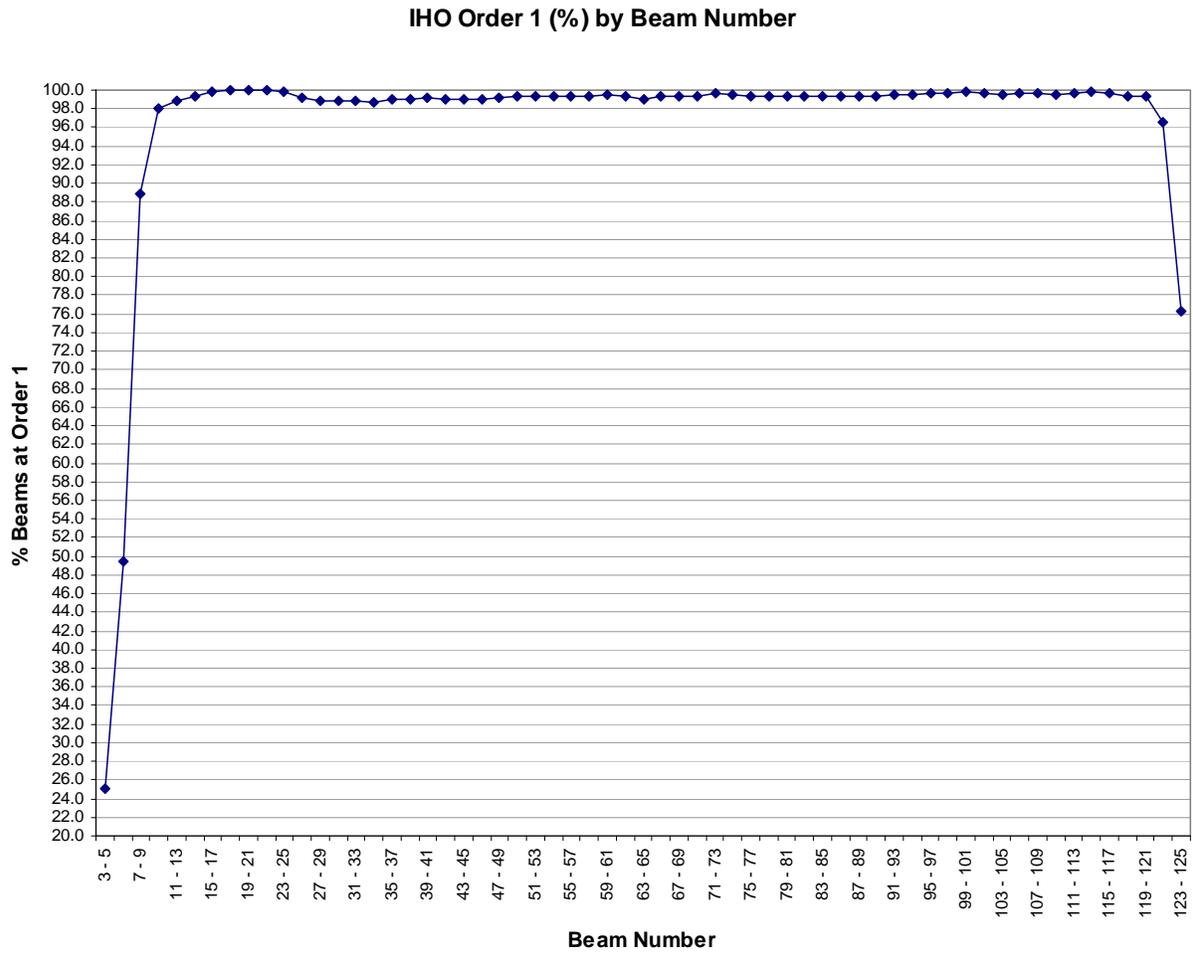
B.2.7 Junctions

Survey H11929 junctions with contemporary survey H11988. Visual examination of all junction areas showed agreement between bathymetry data to within 1-2ft.

B.3 CORRECTIONS TO ECHO SOUNDING

All methods or instruments used were as described in the project DAPR*. All sound velocity casts are included in the PSS. **Filed with original field records.*

Figure B-1: Caris QC report, IHO order oneness v Beam Number. Note outer beams: 1-8, and 123-127, these beams were filtered from the dataset.



C. VERTICAL AND HORIZONTAL CONTROL

C.1 VERTICAL CONTROL

The tidal datum for this project is Mean Lower Low Water (MLLW). The operating National Water Level Observation Network (NWLON) stations at Providence, RI (845-4000) and Newport, RI (845-2660) served as datum control for the survey area including determination at each subordinate station. The operating stations at Providence, RI (845-4000), Conimicut Light, RI (845-2944), Quonset Point, RI (845-4049) and Newport, RI (845-2660) provided residuals for this project. A Request for Approved Tides was sent to N/OPS1 on September 10, 2008 (Appendix III*). Verified tides from the N/OPS1 CO-OPS website were downloaded and applied to all sounding data via TCARI. **Appended to this report.*

C.2 HORIZONTAL CONTROL

The horizontal datum used for this survey is the North American Datum of 1983 (NAD 83), projected using UTM zone 19.

Sounding positional control was determined using the Global Positioning System (GPS) corrected by U.S. Coast Guard differential GPS (DGPS) beacon stations. The DGPS beacon used for this survey was Acushnet, MA. No horizontal control stations were established for this survey.

Horizontal dilution of precision (HDOP) was monitored during acquisition, and did not exceed 4.00. Adequate satellite coverage was maintained throughout the survey period.

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON *See Evaluation Report.*

The charts affected by this survey are:

<i>Chart Number</i>	<i>Edition</i>	<i>Edition Date</i>	<i>Scale</i>
13221	57 th	02/01/2008	1:40000
13224	38 th	11/01/2006	1:20000
13225	33 rd	12/01/2005	1:10000

<i>ENC Cell Name</i>
US5RI23M
US5RI24M

D.1.1 General Agreement with Charted soundings

Sounding data generally agreed with charted depths to within 1-2 feet, navigationally significant differences from charted depths are addressed in Appendix II* of this report. **Appended to this report.*

D.1.2 AWOIS Items and Significant Contacts

There was one AWOIS item (AWOIS# 10096) within the survey limits of H11929. The search area was covered with 200% SSS and 100% MBES, no item matching the description of AWOIS 10096 was noted in the SSS trace or the bathymetry data. The hydrographer recommends that AWOIS 10096 be removed from the database, see Appendix II*. *Concur. *Appended to this report.*

D.1.3 Dangers to Navigation

There were no DToNs submitted for survey H11929.

D.1.4 Charted Features

Hydrographer recommended changes to charted items are listed in Appendix II* of this report as well as in the PSS. All charted items not specifically addressed in Appendix II* are recommended to be retained as charted by the hydrographer. *Concur.*

**Appended to this report.*

D.1.5 Charting Recommendations

Hydrographer recommendations for discreet items are included in Appendix II* of this report as well as in the PSS. Survey H11929 is complete and adequate to supersede charted soundings in their common areas. *Concur.*

**Appended to this report.*

D.2 ADDITIONAL RESULTS

D.2.1 Aids to Navigation

An uncharted cairn was noted within the survey limits of H11929, the object is a whitewashed stone and brick masonry structure located outside the channel on a shoal. Due to the objects location it was determined by the hydrographer not to represent a hazard to safe navigation and was not submitted as DToN. No other AToNs within the survey limits of H11929 were found to be significantly off station. See Appendix V*, section V.3. *See Evaluation Report.*

**Appended to this report.*

D.2.2 Bridges and Overhead Cables

There are no bridges or overhead cables in the survey area.

D.2.3 Submarine Cables and Pipelines

There are no charted submarine cable or pipeline areas in the survey area.

E. APPROVAL SHEET**OPR-B301
Providence
Rhode Island****Providence River and North Narragansett Bay
Survey Registry No. H11929**

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

Submitted in association with this descriptive report has been a series of reports and data:

2008 Data Acquisition and Processing Report (submitted with this report)
2008 HSRR Memo (submitted with this report)

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

Respectfully,



Bert Ho
2008.12.15 14:39:19 -05'00'

Bert Ho, PST/NOAA
NRT-5



Matthew Jaskoski
2008.12.15 14:20:22
-05'00'

LT(jg) Matthew Jaskoski, NOAA
OIC NRT-5

APPENDIX I

DANGERS TO NAVIGATION REPORT

There were no DToN's submitted for survey H11929.

APPENDIX II

SURVEY FEATURES REPORT

H11929 Features Report

Registry Number: H11929
State: Rhode Island
Locality: Providence
Sub-locality: Providence River and North Narragansett Bay
Project Number: OPR-B301-NRT5-08
Survey Dates: 7-9-2008 - 8-15-2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
13225	33rd	12/09/2000	1:10,000 (13225_1)	[L]NTM: ?
13224	38th	11/01/2006	1:20,000 (13224_1)	USCG LNM: 10/23/2007 (03/11/2008) CHS NTM: None (01/25/2008) NGA NTM: 11/02/2002 (03/15/2008)
13221	57th	02/01/2008	1:40,000 (13221_1)	USCG LNM: 05/27/2008 (05/27/2008) CHS NTM: None (05/30/2008) NGA NTM: 11/15/2003 (06/07/2008)
13221	57th	02/01/2008	1:40,000 (13221_2)	[L]NTM: ?
13006	34th	05/01/2007	1:675,000 (13006_1)	[L]NTM: ?
5161	13th	10/01/2003	1:1,058,400 (5161_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?

* Correction(s) - source: last correction applied (last correction reviewed--"cleared date")

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Charted Subm log	GP	[None]	41° 42' 55.4" N	071° 19' 11.4" W	---
1.2	Charted Subm stake	GP	[None]	41° 42' 53.4" N	071° 19' 08.8" W	---
2.1	Wreck	Wreck	4.91 m	41° 42' 32.2" N	071° 19' 29.6" W	---
2.2	Rock	Rock	2.83 m	41° 43' 06.9" N	071° 20' 16.5" W	---
2.3	Wreck	Wreck	5.24 m	41° 43' 35.7" N	071° 21' 55.8" W	---
2.4	Obstruction	Obstruction	6.24 m	41° 45' 18.0" N	071° 22' 22.9" W	---
2.5	Wreck	Wreck	4.77 m	41° 43' 00.9" N	071° 18' 36.7" W	---
2.6	Wreck	Wreck	5.57 m	41° 40' 49.3" N	071° 20' 25.8" W	---

2.7	Wreck	Wreck	7.82 m	41° 40' 46.9" N	071° 20' 51.9" W	---
2.8	Wreck	Wreck	6.52 m	41° 41' 17.0" N	071° 20' 55.0" W	---
2.9	Wreck	Wreck	5.93 m	41° 41' 19.3" N	071° 21' 00.0" W	---
2.10	Wreck	Wreck	4.25 m	41° 41' 13.8" N	071° 21' 40.3" W	---
2.11	Obstruction	Obstruction	2.91 m	41° 41' 32.5" N	071° 21' 28.7" W	---
2.12	Wreck	Wreck	5.86 m	41° 41' 33.6" N	071° 21' 01.2" W	---
2.13	Obstruction	Obstruction	5.86 m	41° 42' 00.3" N	071° 19' 55.8" W	---
2.14	Rocky area	Rock	3.87 m	41° 41' 02.9" N	071° 18' 05.5" W	---
2.15	Cairn	Daybeacon (open)	[None]	41° 46' 35.1" N	071° 22' 25.2" W	---
3.1	OBSTRUCTION	AWOIS	[no data]	[no data]	[no data]	---

1 - Charted Features

1.1) Charted Subm log

Survey Summary

Survey Position: 41° 42' 55.4" N, 071° 19' 11.4" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2009-084.09:55:45 (03/25/2009)
GP Dataset: ChartGPs - Digitized
GP No.: 1
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	1	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-197/sonar_data080715151900	0003	17.87	197.6	Secondary (grouped)

Hydrographer Recommendations

[None]

S-57 Data

[None]

Office Notes

The feature is a charted submerged log not addressed by the hydrographer. No significant features were found in the immediate vicinity. Delete the submerged log.

1.2) Charted Subm stake

Survey Summary

Survey Position: 41° 42' 53.4" N, 071° 19' 08.8" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2009-084.09:55:49 (03/25/2009)
GP Dataset: ChartGPs - Digitized
GP No.: 2
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	2	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

[None]

Office Notes

The feature is a charted submerged stake not addressed by the hydrographer. No significant features were found in the immediate vicinity. Delete the charted submerged stake.

2 - New Features

2.1) Wreck

Survey Summary

Survey Position: 41° 42' 32.2" N, 071° 19' 29.6" W
Least Depth: 4.91 m (= 16.11 ft = 2.685 fm = 2 fm 4.11 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.963 m ; **TVU (TPEv)** ± 0.142 m
Timestamp: 2008-227.18:18:43.924 (08/14/2008)
Survey Line: h11929 / nrt5_s3002_em3000_mbes / 2008-227 / 128_1818
Profile/Beam: 233/45
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The area was covered with 200% Klein 3000 SSS and developed with 100% Simrad EM3000 MBES, final TCARI grid applied. The contact appears to be a small wreck or debris, LD shallower than charted depths in the area.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11929/nrt5_s3002_em3000_mbes/2008-227/128_1818	233/45	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-196/sonar_data080714174500	0004	1.87	224.1	Secondary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a non-dangerous wreck.

Cartographically-Rounded Depth (Affected Charts):

16ft (13224_1, 13221_1, 13221_2)

2 ½fm (13006_1, 13003_1)

4.9m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 1:non-dangerous wreck
 CONVIS - 2:not visual conspicuous
 QUASOU - 1:depth known
 SORDAT - 20080814

TECSOU - 2:found by side scan sonar

VALSOU - 4.910 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Chart feature as dangerous wreck.

2.2) Rock

Survey Summary

Survey Position: 41° 43' 06.9" N, 071° 20' 16.5" W
Least Depth: 2.83 m (= 9.30 ft = 1.550 fm = 1 fm 3.30 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.964 m ; **TVU (TPEv)** ± 0.143 m
Timestamp: 2008-227.16:09:09.358 (08/14/2008)
Survey Line: h11929 / nrt5_s3002_em3000_mbes / 2008-227 / 168_1608
Profile/Beam: 334/6
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The area was covered with 200% Klein 3000 SSS and developed with 100% Simrad EM3000 MBES, final TCARI grid applied. The object is a rock in a charted rocky area on eastern edge of the channel, LD shallower than charted depths in the area.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11929/nrt5_s3002_em3000_mbes/2008-227/168_1608	334/6	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-195/sonar_data080713125600	0001	2.96	039.6	Secondary
h11929/nrt5_s3002_em3000_mbes/2008-227/168_1608	369/120	11.43	025.0	Secondary (grouped)
h11929/nrt5_s3002_em3000_mbes/2008-227/169_1610	192/28	12.82	054.4	Secondary
h11929/nrt5_s3002_em3000_mbes/2008-227/169_1610	363/73	26.18	274.7	Secondary

Hydrographer Recommendations

The hydrographer recommends the object be charted as a rock, position and LD as surveyed.

Cartographically-Rounded Depth (Affected Charts):

9ft (13224_1, 13221_1, 13221_2)

1 ½fm (13006_1, 13003_1)

2.8m (5161_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)

Attributes: QUASOU - 6:least depth known

SORDAT - 20080814

TECSOU - 2:found by side scan sonar

VALSOU - 2.834 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur.

2.3) Wreck

Survey Summary

Survey Position: 41° 43' 35.7" N, 071° 21' 55.8" W
Least Depth: 5.24 m (= 17.20 ft = 2.867 fm = 2 fm 5.20 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.963 m ; **TVU (TPEv)** ± 0.146 m
Timestamp: 2008-227.15:49:53.712 (08/14/2008)
Survey Line: h11929 / nrt5_s3002_em3000_mbes / 2008-227 / 192_1549
Profile/Beam: 621/115
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The area was covered with 200% Klein 3000 SSS and developed with 100% Simrad EM3000 MBES, final TCARI grid applied. The object appears to be an obstruction or small wreck.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11929/nrt5_s3002_em3000_mbes/2008-227/192_1549	621/115	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-194/sonar_data080712130800	0001	4.53	283.0	Secondary
h11929/nrt5_s3002_klein3000_sss/2008-194/sonar_data080712135400	0002	6.96	323.6	Secondary

Hydrographer Recommendations

The hydrographer recommends the object be charted as an OBSTN, LD and position as surveyed.

Cartographically-Rounded Depth (Affected Charts):

17ft (13224_1, 13221_1, 13221_2)

2 $\frac{3}{4}$ fm (13006_1, 13003_1)

5.2m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: VALSOU - 5.243 m

Office Notes

Concur with clarification. Add dangerous wreck.

2.4) Obstruction

Survey Summary

Survey Position: 41° 45' 18.0" N, 071° 22' 22.9" W
Least Depth: 6.24 m (= 20.46 ft = 3.410 fm = 3 fm 2.46 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.963 m ; **TVU (TPEv)** ± 0.143 m
Timestamp: 2008-227.14:54:12.838 (08/14/2008)
Survey Line: h11929 / nrt5_s3002_em3000_mbes / 2008-227 / 223_1453
Profile/Beam: 193/98
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The area was covered with 200% Klein 3000 SSS developed with Simrad EM3000 MBES, final TCARI grid applied. The object appears to be a mast, LD in agreement with charted soundings.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11929/nrt5_s3002_em3000_mbes/2008-227/223_1453	193/98	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-193/sonar_data080711215900	0001	2.98	197.3	Secondary
h11929/nrt5_s3002_klein3000_sss/2008-193/sonar_data080711194500	0001	3.84	173.7	Secondary

Hydrographer Recommendations

The hydrographer recommends the object be charted as an OBSTN, LD and position as surveyed.

Cartographically-Rounded Depth (Affected Charts):

20ft (13224_1, 13221_1, 13221_2)

3 ¼fm (13006_1, 13003_1)

6.2m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes: SORDAT - 20080814
 VALSOU - 6.237 m
 WATLEV - 3:always under water/submerged

Office Notes

Concur.

Feature Images

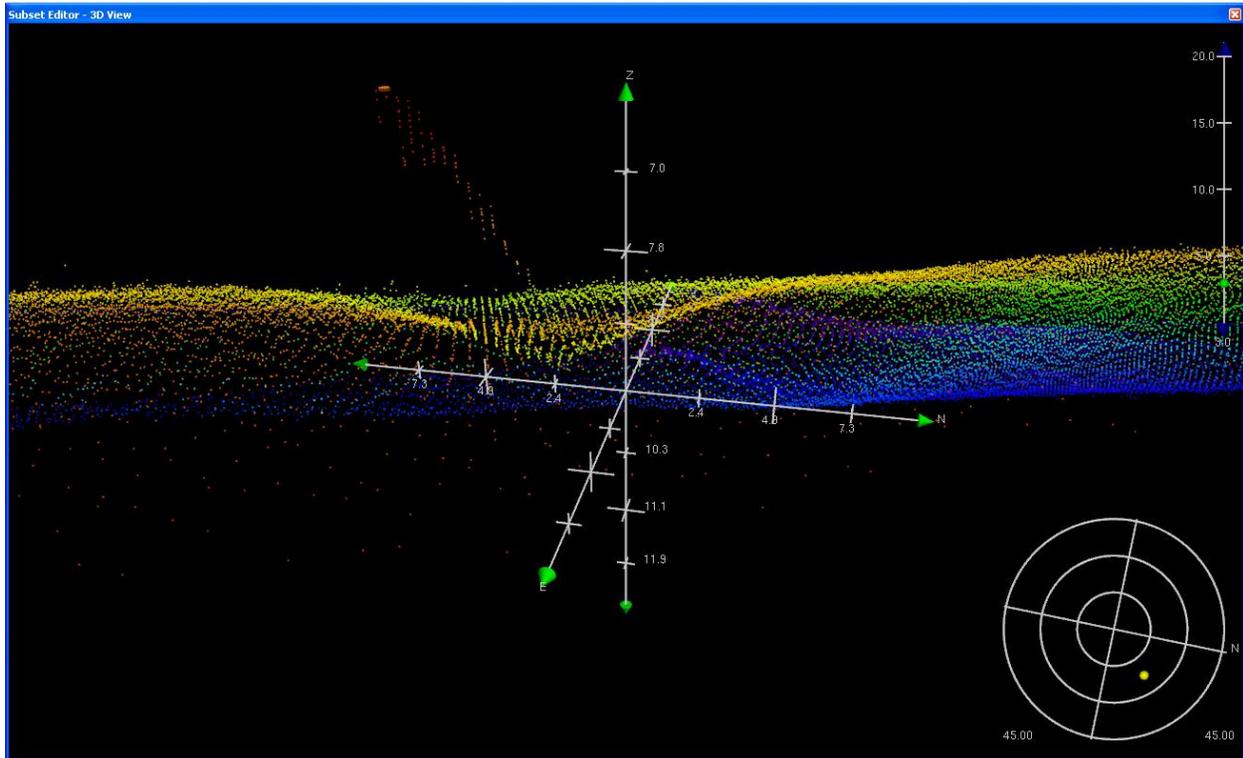


Figure 2.4.1



Figure 2.4.2



Figure 2.4.3

2.5) Wreck

Survey Summary

Survey Position: 41° 43' 00.9" N, 071° 18' 36.7" W
Least Depth: 4.77 m (= 15.66 ft = 2.609 fm = 2 fm 3.66 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.962 m ; **TVU (TPEv)** ± 0.142 m
Timestamp: 2008-227.17:33:09.513 (08/14/2008)
Survey Line: h11929 / nrt5_s3002_em3000_mbes / 2008-227 / 247_1731
Profile/Beam: 1897/78
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The area was covered with 200% Klein 3000 SSS developed with Simrad EM3000 MBES, final TCARI grid applied. The contact appears to be a small wreck of insignificant height laying in a slight depression.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11929/nrt5_s3002_em3000_mbes/2008-227/247_1731	1897/78	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-197/sonar_data080715165200	0001	1.51	118.8	Secondary
h11929/nrt5_s3002_klein3000_sss/2008-197/sonar_data080715162700	0001	6.32	353.4	Secondary

Hydrographer Recommendations

The hydrographer recommends the object be charted as a non-dangerous wreck, LD and position as surveyed

Cartographically-Rounded Depth (Affected Charts):

15ft (13224_1, 13221_1, 13221_2)

2 ½fm (13006_1, 13003_1)

4.8m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 1:non-dangerous wreck
 CONVIS - 2:not visual conspicuous
 HEIGHT - 0.19 m

QUASOU - 6:least depth known

SORDAT - 20080814

TECSOU - 2:found by side scan sonar

VALSOU - 4.772 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Add dangerous wreck.

2.6) Wreck

Survey Summary

Survey Position: 41° 40' 49.3" N, 071° 20' 25.8" W
Least Depth: 5.57 m (= 18.26 ft = 3.044 fm = 3 fm 0.26 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.963 m ; **TVU (TPEv)** ± 0.143 m
Timestamp: 2008-228.18:24:26.649 (08/15/2008)
Survey Line: h11929 / nrt5_s3002_em3000_mbes / 2008-228 / 005_1823
Profile/Beam: 1105/20
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The area was covered with 200% Klein 3000 SSS and developed with 100% Simrad EM3000 MBES, final TCARI grid applied. The object appears to be a small wreck.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11929/nrt5_s3002_em3000_mbes/2008-228/005_1823	1105/20	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-192/sonar_data080710152800	0001	2.96	214.5	Secondary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a non-dangerous wreck, LD and position as surveyed.

Cartographically-Rounded Depth (Affected Charts):

18ft (13224_1, 13221_1, 13221_2)

3fm (13006_1, 13003_1)

5.6m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 1:non-dangerous wreck
 CONVIS - 2:not visual conspicuous
 QUASOU - 6:least depth known
 SORDAT - 20080815

TECSOU - 2:found by side scan sonar

VALSOU - 5.566 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Chart feature as dangerous wreck.

2.7) Wreck

Survey Summary

Survey Position: 41° 40' 46.9" N, 071° 20' 51.9" W
Least Depth: 7.82 m (= 25.64 ft = 4.273 fm = 4 fm 1.64 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.964 m ; **TVU (TPEv)** ± 0.145 m
Timestamp: 2008-228.18:28:09.839 (08/15/2008)
Survey Line: h11929 / nrt5_s3002_em3000_mbes / 2008-228 / 009_1827
Profile/Beam: 166/74
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The area was covered with 200% Klein 3000 SSS and developed with 100% Simrad EM3000 MBES, final TCARI grid applied. The object appears to be a small wreck.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11929/nrt5_s3002_em3000_mbes/2008-228/009_1827	166/74	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-192/sonar_data080710120400	0001	1.16	304.3	Secondary
h11929/nrt5_s3002_klein3000_sss/2008-192/sonar_data080710121900	0004	6.21	218.6	Secondary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a non-dangerous wreck, LD and position as surveyed.

Cartographically-Rounded Depth (Affected Charts):

25ft (13224_1, 13221_1, 13221_2)

4 ¼fm (13006_1, 13003_1)

7.8m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 1:non-dangerous wreck
 CONVIS - 2:not visual conspicuous
 QUASOU - 6:least depth known

SORDAT - 20080815

TECSOU - 2:found by side scan sonar

VALSOU - 7.815 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Chart feature as a dangerous wreck.

2.8) Wreck

Survey Summary

Survey Position: 41° 41' 17.0" N, 071° 20' 55.0" W
Least Depth: 6.52 m (= 21.40 ft = 3.566 fm = 3 fm 3.40 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.963 m ; **TVU (TPEv)** ± 0.144 m
Timestamp: 2008-228.16:23:44.420 (08/15/2008)
Survey Line: h11929 / nrt5_s3002_em3000_mbes / 2008-228 / 013_1623
Profile/Beam: 331/26
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The area was covered with 200% Klein 3000 SSS and developed with 100% Simrad EM3000 MBES, final TCARI grid applied. The object appears to be a small wreck.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11929/nrt5_s3002_em3000_mbes/2008-228/013_1623	331/26	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-192/sonar_data080710121900	0005	0.85	124.1	Secondary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a non-dangerous wreck, LD and position as surveyed.

Cartographically-Rounded Depth (Affected Charts):

21ft (13224_1, 13221_1, 13221_2)

3 ½fm (13006_1, 13003_1)

6.5m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 1:non-dangerous wreck
 CONVIS - 2:not visual conspicuous
 QUASOU - 6:least depth known
 SORDAT - 20080815

TECSOU - 2:found by side scan sonar

VALSOU - 6.522 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Chart feature as a dangerous wreck.

2.9) Wreck

Survey Summary

Survey Position: 41° 41' 19.3" N, 071° 21' 00.0" W
Least Depth: 5.93 m (= 19.47 ft = 3.245 fm = 3 fm 1.47 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.963 m ; **TVU (TPEv)** ± 0.143 m
Timestamp: 2008-228.16:21:21.457 (08/15/2008)
Survey Line: h11929 / nrt5_s3002_em3000_mbes / 2008-228 / 017_1620
Profile/Beam: 376/64
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The area was covered with 200% Klein 3000 SSS and developed with 100% Simrad EM3000 MBES, final TCARI grid applied. The object appears to be a small wreck.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11929/nrt5_s3002_em3000_mbes/2008-228/017_1620	376/64	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-192/sonar_data080710114900	0001	4.32	227.1	Secondary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a non-dangerous wreck, LD and position as surveyed.

Cartographically-Rounded Depth (Affected Charts):

19ft (13224_1, 13221_1, 13221_2)

3 ¼fm (13006_1, 13003_1)

5.9m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 1:non-dangerous wreck
 CONVIS - 2:not visual conspicuous
 QUASOU - 6:least depth known
 SORDAT - 20080815

TECSOU - 2:found by side scan sonar

VALSOU - 5.935 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Chart feature as a dangerous wreck.

2.10) Wreck

Survey Summary

Survey Position: 41° 41' 13.8" N, 071° 21' 40.3" W
Least Depth: 4.25 m (= 13.95 ft = 2.324 fm = 2 fm 1.95 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.964 m ; **TVU (TPEv)** ± 0.140 m
Timestamp: 2008-228.19:09:31.795 (08/15/2008)
Survey Line: h11929 / nrt5_s3002_em3000_mbes / 2008-228 / 021_1909
Profile/Beam: 226/33
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The area was covered with 200% Klein 3000 SSS and developed with 100% Simrad EM3000 MBES, final TCARI grid applied. The object appears to be a small wreck.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11929/nrt5_s3002_em3000_mbes/2008-228/021_1909	226/33	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-191/sonar_data080709125700	0001	1.54	095.4	Secondary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a non-dangerous wreck, LD and position as surveyed.

Cartographically-Rounded Depth (Affected Charts):

14ft (13224_1, 13221_1, 13221_2)

2 ¼fm (13006_1, 13003_1)

4.3m (5161_1)

S-57 Data

Geo object 1: Wreck (WRECKS)
Attributes: CATWRK - 1:non-dangerous wreck
 QUASOU - 1:depth known
 SORDAT - 20080815
 TECSOU - 3:found by multi-beam

VALSOU - 4.251 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur. Chart feature as a dangerous wreck.

2.11) Obstruction

Survey Summary

Survey Position: 41° 41' 32.5" N, 071° 21' 28.7" W
Least Depth: 2.91 m (= 9.55 ft = 1.591 fm = 1 fm 3.55 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.963 m ; **TVU (TPEv)** ± 0.136 m
Timestamp: 2008-228.16:12:46.583 (08/15/2008)
Survey Line: h11929 / nrt5_s3002_em3000_mbes / 2008-228 / 026_1612
Profile/Beam: 351/14
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The area was covered with 200% Klein 3000 SSS and developed with 100% Simrad EM3000 MBES, final TCARI grid applied. The object is possibly a small wreck or debris.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11929/nrt5_s3002_em3000_mbes/2008-228/026_1612	351/14	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-191/sonar_data080709141600	0001	3.80	149.0	Secondary

Hydrographer Recommendations

The hydrographer recommends charting this feature as an OBSTN, LD and position as surveyed.

Cartographically-Rounded Depth (Affected Charts):

9ft (13224_1, 13221_1, 13221_2)

1 ½fm (13006_1, 13003_1)

2.9m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes: QUASOU - 6:least depth known
 SORDAT - 20080815
 TECSOU - 2:found by side scan sonar
 VALSOU - 2.910 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur.

2.12) Wreck

Survey Summary

Survey Position: 41° 41' 33.6" N, 071° 21' 01.2" W
Least Depth: 5.86 m (= 19.23 ft = 3.204 fm = 3 fm 1.23 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.963 m ; **TVU (TPEv)** ± 0.143 m
Timestamp: 2008-228.16:16:39.573 (08/15/2008)
Survey Line: h11929 / nrt5_s3002_em3000_mbes / 2008-228 / 030_1616
Profile/Beam: 345/109
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The area was covered with 200% Klein 3000 SSS and developed with 100% Simrad EM3000 MBES, final TCARI grid applied. The object appears to be a small wreck.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11929/nrt5_s3002_em3000_mbes/2008-228/030_1616	345/109	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-192/sonar_data080710114900	0002	3.42	222.2	Secondary

Hydrographer Recommendations

The hydrographer recommends the object be charted as an OBSTN, LD and position as surveyed.

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes: QUASOU - 6:least depth known
 SORDAT - 20080815
 TECSOU - 2:found by side scan sonar
 VALSOU - 5.860 m
 VERDAT - 12:Mean lower low water
 WATLEV - 3:always under water/submerged
Geo object 2: Wreck (WRECKS)
Attributes: VALSOU - 5.860 m

Office Notes

Do not concur. Contact is a wreck. Chart feature as a dangerous wreck.

2.13) Obstruction

Survey Summary

Survey Position: 41° 42' 00.3" N, 071° 19' 55.8" W
Least Depth: 5.86 m (= 19.24 ft = 3.206 fm = 3 fm 1.24 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 1.964 m ; **TVU (TPEv)** ± 0.143 m
Timestamp: 2008-228.15:17:46.521 (08/15/2008)
Survey Line: h11929 / nrt5_s3002_em3000_mbes / 2008-228 / 045_1516
Profile/Beam: 887/24
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The area was covered with 200% Klein 3000 SSS and developed with 100% Simrad EM3000 MBES, final TCARI grid applied. The feature appears to be a small wreck or debris.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11929/nrt5_s3002_em3000_mbes/2008-228/045_1516	887/24	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-192/sonar_data080710214300	0001	4.93	204.7	Secondary

Hydrographer Recommendations

The hydrographer recommends the object be charted as an OBSTN.

Cartographically-Rounded Depth (Affected Charts):

19ft (13224_1, 13221_1, 13221_2)

3 ¼fm (13006_1, 13003_1)

5.9m (5161_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)
Attributes: QUASOU - 6:least depth known
 SORDAT - 20080815
 TECSOU - 2:found by side scan sonar
 VALSOU - 5.863 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Councur.

2.14) Rocky area

Survey Summary

Survey Position: 41° 41' 02.9" N, 071° 18' 05.5" W
Least Depth: 3.87 m (= 12.69 ft = 2.115 fm = 2 fm 0.69 ft)
TPU ($\pm 1.96\sigma$): THU (TPEh) ± 1.964 m ; TVU (TPEv) ± 0.150 m
Timestamp: 2008-228.14:27:38.299 (08/15/2008)
Survey Line: h11929 / nrt5_s3002_em3000_mbes / 2008-228 / 119_1427
Profile/Beam: 532/7
Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The area was covered with 200% Klein 3000 SSS developed with Simrad EM3000 MBES, final TCARI grid applied. The feature is a rocky area, LD in agreement with charted depths in the area.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11929/nrt5_s3002_em3000_mbes/2008-228/119_1427	532/7	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-197/sonar_data080715175800	0002	5.55	031.3	Secondary
h11929/nrt5_s3002_em3000_mbes/2008-228/119_1427	549/66	7.53	169.7	Secondary (grouped)
h11929/nrt5_s3002_em3000_mbes/2008-228/122_1432	1788/113	9.15	159.9	Secondary (grouped)
h11929/nrt5_s3002_em3000_mbes/2008-228/119_1427	485/19	9.89	267.7	Secondary (grouped)

Hydrographer Recommendations

The hydrographer recommends no charting action.

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 6:least depth known
 SORDAT - 20080815
 TECSOU - 2:found by side scan sonar
 VALSOU - 3.867 m
 VERDAT - 12:Mean lower low water
 WATLEV - 3:always under water/submerged

Office Notes

Do not concur. Chart an 'rky' to represent the numerous rocks in the area.

2.15) Cairn

Survey Summary

Survey Position: 41° 46' 35.1" N, 071° 22' 25.2" W
Least Depth: [None]
TPU ($\pm 1.96\sigma$): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2008-195.07:24:04 (07/13/2008)
Survey Line: h11929 / nrt5_s3002_klein3000_sss / 2008-193 / sonar_data080711185100
Contact/Point: 0001/1
Charts Affected: 13225_1, 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The feature is an uncharted brick/stone masonry cairn, painted white.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11929/nrt5_s3002_klein3000_sss/2008-193/sonar_data080711185100	0001	0.00	000.0	Primary
h11929/nrt5_s3002_klein3000_sss/2008-193/sonar_data080711170600	0001	3.81	000.1	Secondary

Hydrographer Recommendations

The hydrographer recommends the item be charted as a cairn.

S-57 Data

Geo object 1: Beacon, isolated danger (BCNISD)
Attributes: BCNSHP - 6:cairn
 COLOUR - 1:white
 CONRAD - 1:radar conspicuous
 SORDAT - 20080713
 STATUS - 1:permanent

Office Notes

Concur.

3 - AWOIS Features

3.1) AWOIS #10096 - OBSTRUCTION

No Primary Survey Feature for this AWOIS Item

Search Position: 41° 42' 45.7" N, 071° 20' 16.6" W
Historical Depth: [None]
Search Radius: 75
Search Technique: S2, MB
Technique Notes: [None]

History Notes:

HISTORY ■ H-10633/95--OPR-B302-RU; AN OBSTRUCTION WITH A LEAST DEPTH OF ■ 39 FEET WAS DISCOVERED IN POS. 41-42-45.69N, 71-20-16.64W. ■ POSITION FALLS WITHIN RUMSTICK REACH CHANNEL WHICH HAS A PROJECT ■ DEPTH OF 40 FEET. ENTERED MCR 9/98

Survey Summary

Charts Affected: 13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

The area was covered with 200% SSS and developed with 100% MBES. No item matching the description of AWOIS 10096 was noted in the SSS trace or in the Bathy data.

Feature Correlation

Address	Feature	Range	Azimuth	Status
AWOIS Items_H11929	AWOIS # 10096	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends no charting action and that AWOIS #10096 be removed from the database.

S-57 Data

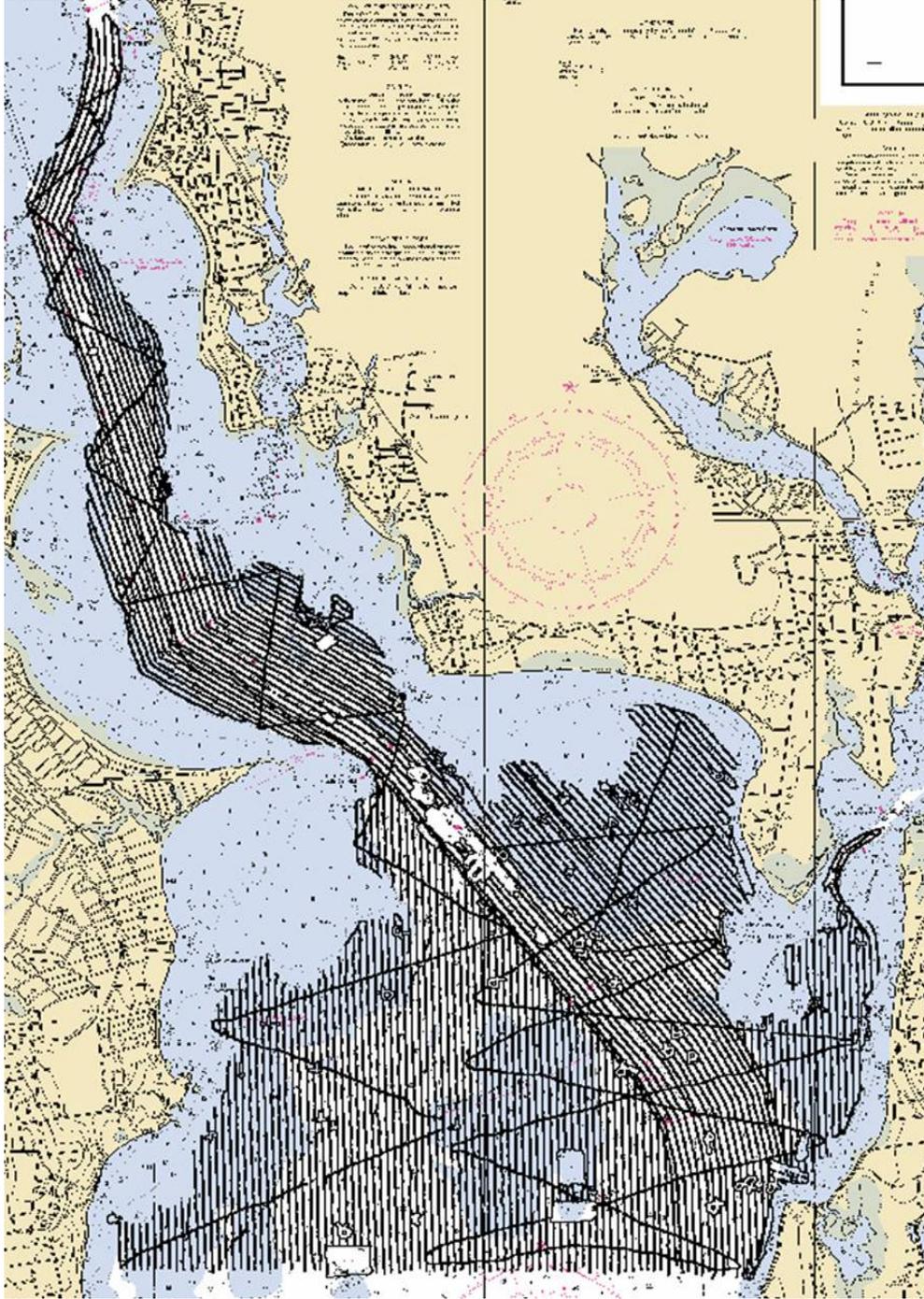
[None]

Office Notes

Concur. Nothing is charted at the position of AWOIS 10096, and no significant features were observed. No cartographic action is required.

APPENDIX III

PROGRESS SKETCH



APPENDIX IV

TIDES AND WATER LEVELS



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NOAA NRT-5 (N/CS53x5)
3 Chapel Ave, Port Liberte, c/o USACE
Jersey City, NJ 07305

September 10, 2008

MEMORANDUM FOR: Chief, Requirements and Development Division, N/OPS1

FROM: LT(jg) Matthew Jaskoski, NOAA NRT-5 (N/CS53x5)

SUBJECT: Request for Approved Tides/Water Levels

Please provide the following data:

1. Tide Note
2. Final TCARI grid
3. Final zoning in MapInfo and .MIX format
4. Six Minute Water Level data (Co-ops web site)

Transmit data to the following:

NOAA/NOS/Atlantic Hydrographic Branch
N/CS33, Building #2
439 West York Street
Norfolk, VA 23510
ATTN: Chief AHB

NOAA / NRT-5
3 Chapel Ave., Port Liberte
Jersey City, NJ 07305

These data are required for the processing of the following hydrographic survey:

Project No.: OPR-B301-NRT5-08
Registry No.: H11929
State: Rhode Island
Locality: Narragansett Bay
Sublocality: Providence River

Attachments containing:

- 1) an Abstract of Times of Hydrography,
- 2) digital MID MIF files of the track lines from Pydro

cc: N/CS33



Year_DOY	Min Time	Max Time
2008_191	12:16:46	17:18:46
2008_192	11:49:34	22:14:40
2008_193	11:52:45	23:31:36
2008_194	11:49:18	16:03:22
2008_195	11:54:38	14:45:34
2008_196	14:20:05	20:08:21
2008_197	13:30:27	20:36:20
2008_198	11:59:09	18:03:16
2008_227	14:53:53	19:51:50
2008_228	13:31:57	19:18:29



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Service
Silver Spring, Maryland 20910



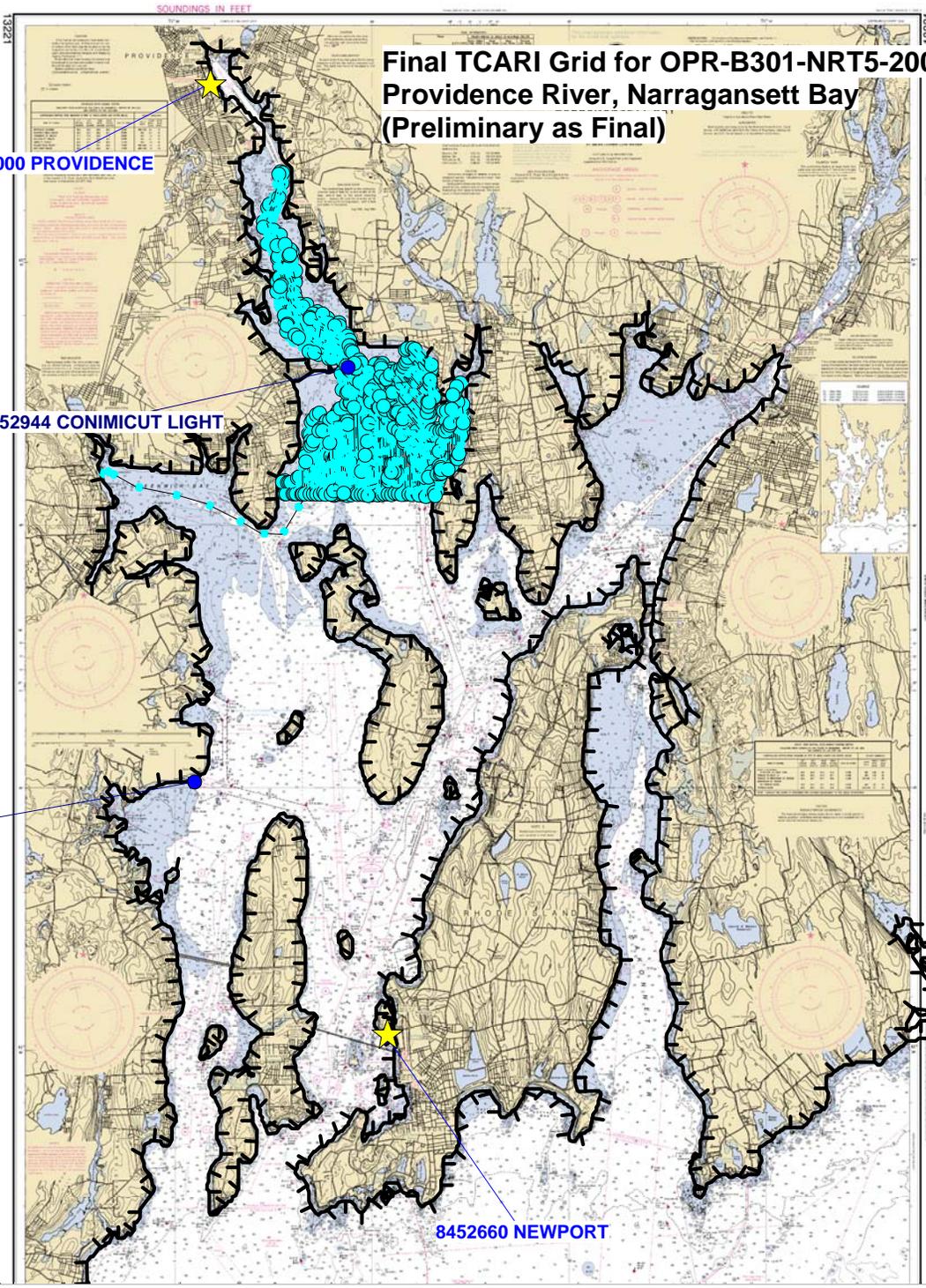
**Final TCARI Grid for OPR-B301-NRT5-2008, H11929
Providence River, Narragansett Bay
(Preliminary as Final)**

8454000 PROVIDENCE

8452944 CONIMICUT LIGHT

8454049 QUONSET PT.

8452660 NEWPORT



APPENDIX V
SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCES

V.1. COAST PILOT REPORT, NOAA FORM 77-6

No corrections or additions required.

V.2. BOTTOM SAMPLE, NOAA FORM 75-44

No bottom samples were taken.

V.3. AIDS TO NAVIGATION, NOAA FORM 76-40

An uncharted cairn was noted within the survey limits of H11929, the object is a whitewashed stone and brick masonry structure located outside the channel on a shoal. Due to the objects location it was determined by the hydrographer not to represent a hazard to safe navigation and was not submitted as DToN. No other AToNs within the survey limits of H11929 were found to be significantly off station.

**ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT to ACCOMPANY
SURVEY H11929 (2008)**

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

B.1 DATA PROCESSING

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

HSTP PYDRO version 8.7 r2586
CARIS HIPS/SIPS version 6.1 SP2 HF 1-4
CARIS Bathymetry Manager version 2.1 SP1 HF 1-8
DKART INSPECTOR, version 5.0 Build 707
CARIS HOM version 3.3
CARIS S57 Composer version 1.0

B.2.1. H-Cell

Refer to the appended pre-compilation report for H-Cell process metadata.

The H11929 CARIS H-Cell final deliverables include the following products:

H11929_CS.000	1:20,000	H11929 H-Cell with chart-scale selected soundings, features, and bluenotes
H11929_SS.000	1:10,000	H11929 Selected Soundings and curves

C. VERTICAL AND HORIZONTAL CONTROL

Horizontal control used for this survey during data acquisition is based upon the North American Datum of 1983 (NAD83), UTM projection zone 19. Office ENC processing of this survey required translating the datum to meet S-57 ENC requirements.

D. RESULTS AND RECOMMENDATIONS

The following charts were used during compilation.

<u>RNC</u>	<u>Scale</u>	<u>Edition</u>	<u>Updated through LNM</u>	<u>Updated through NTM</u>
13224	1:20,000	38	03/11/08	03/15/08
13225	1:10,000	33	12/02/08	12/20/08

<u>ENC</u>	<u>Edition</u>	<u>Update</u>	<u>Issue Date</u>
US5RI23M	8	0	02/26/08
US5RI24M	7	2	03/07/08

D.1.1 Hydrography

The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in section “D” and Appendix 1 & 2 of the Descriptive Report, except for the following:

- As documented in the DR, the hydrographer reported an uncharted cairn. The DR-position of the cairn is based on a side scan sonar contact; however, the final position of the cairn, as included in the H-Cell, was digitized from orthoimagery, which was used to supplement documentation provided by the hydrographer. The ortho-image and the associated metadata are appended to this report.

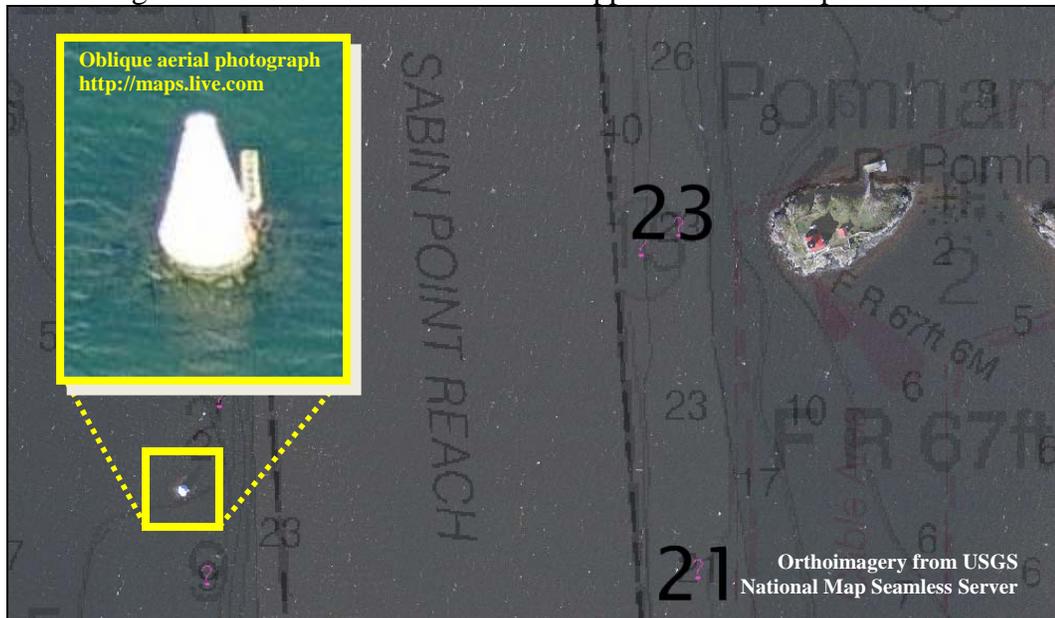


Figure 1: Uncharted cairn

- The hydrographer did not address the charted 15-ft depth at 41°46'39.491" N, 071°22'14.242" W on RNC 13224 (1:20,000); however, the 15-ft depth is not charted on RNC 13225 (1:10,000) (see Fig. 2). The position was not developed to be able to disprove or verify a 15-ft depth. Add a 15-ft depth to RNC 13225 to maintain consistency between RNC 13224 and RNC 13255.

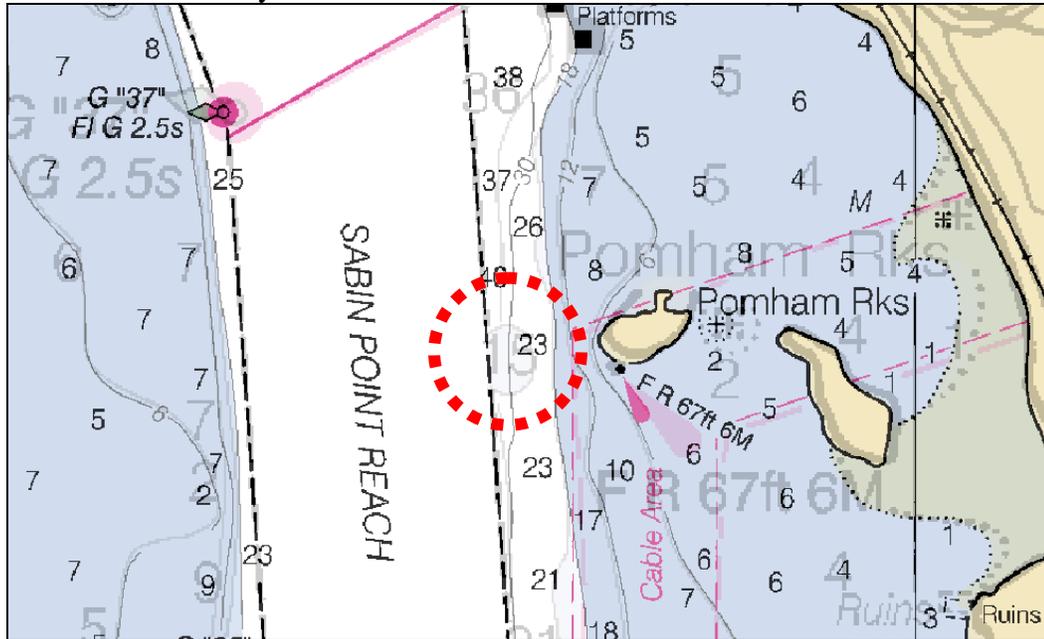


Figure 2: Discrepancy between RNC 13224 & RNC 13225. (Both charts are shown, one transparent over the other.)

- No bottom samples were acquired by the field. Retain all charted bottom characteristics.

D.3. 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. See Section D of this report for a list of the Raster Charts and Electronic Navigation Charts (ENC) used for compiling the present survey.

D.4. ADEQUACY OF SURVEY

The present survey is adequate to supersede the charted bathymetry within the common area. Any features not specifically addressed either in the H-Cell BASE Cell File or the Blue Notes should be retained as charted. Refer to the Descriptive Report for further recommendations by the hydrographer.

AHB PRE-COMPILATION LOG

General Survey Information	
REGISTRY No.	H11929
PROJECT No.	OPR-B301-NRT5-08
FIELD UNIT	NOAA NAVIGATIONAL RESPONSE TEAM 5 PERSONNAL
DATE OF SURVEY	JULY 07, 2008 TO AUGUST 15, 2008
LARGEST SCALE CHART (S)	13224, 38 th , 2006011, 1:10,000 13225, 33 rd , 20051201, 1:20,000
ADDITIONAL CHART (S)	13221, 57 th , 20080201, 1:40,000
PRE-COMPILER	Casie Carrott

Source Grids	File Location & Name
<i>Grid</i>	H:\Compilation\H11929_B301_NRT5\AHB_H11929\E-SAR Final Products\GRIDS\H11929_VBES_BASE_2m_Final.hns
<i>Grid</i>	H:\Compilation\H11929_B301_NRT5\AHB_H11929\E-SAR Final Products\GRIDS\H11929_MBES_BASE_50cm_Final.hns
Surfaces	File Location & Name
<i>Combined</i>	H:\Compilation\H11929_B301_NRT5\AHB_H11929\COMPILE\GRIDS\H11929_AHB_2m_Combined.hns
<i>Interpolated TIN</i>	H:\Compilation\H11929_B301_NRT5\AHB_H11929\COMPILE \Working\H11929_10k_2m_InterpTIN.hns and H11929_20k_2m_InterpTIN.hns
<i>Shifted Interpolated TIN</i>	H:\Compilation\H11929_B301_NRT5\AHB_H11929\COMPILE \Working\H11929_20k_2m_InterpTIN_Shifted.hns
Final HOBs	File Location & Name
<i>Survey Scale Soundings</i>	H:\Compilation\H11929_B301_NRT5\AHB_H11929\COMPILE\Final_Hobs\H11929_SS_Soundings.hob
<i>Chart Scale Soundings</i>	H:\Compilation\H11929_B301_NRT5\AHB_H11929\COMPILE\Final_Hobs \H11929_CS_Soundings.hob
<i>Contour Layer</i>	H:\Compilation\H11929_B301_NRT5\AHB_H11929\COMPILE\Final_Hobs \H11929_Contours.hob
<i>Feature Layer</i>	H:\Compilation\H11929_B301_NRT5\AHB_H11929\COMPILE\Final_Hobs \H11929_Features.hob
<i>Meta-Objects Layer</i>	H:\Compilation\H11929_B301_NRT5\AHB_H11929\COMPILE\Final_Hobs \H11929_MetaObjects.hob
<i>Blue Notes</i>	H:\Compilation\H11929_B301_NRT5\AHB_H11929\COMPILE\Final_Hobs \H11929_BlueNotes.hob
<i>ENC Retain Soundings</i>	n/a

SPECIFICATIONS:

- I. COMBINED SURFACE:
 - a. Number of ESAR Final Grids: 2
 - b. Resolution of Combined (m): 2

- II. SURVEY SCALE SOUNDINGS (SS):
 - a. Radius

[Type text]

This Document is for Office Process use only and is intended to supplement, not supersede or replace, information/recommendations in the Descriptive or Evaluation Reports

- b. Shoal biased
- c. Use Single-Defined Radius (mm at Map Scale): 1: **20,000**; Radius Value = 1 (primary chart)
1: **10,000**; Radius Value = 1 (secondary chart)
- d. Queried Depth of All Soundings
 - i. Minimum: **7.178**
 - ii. Maximum: **65.748**

III. INTERPOLATED TIN SURFACE:

- a. Resolution (m): **2**
- b. Linear
- c. Shifted value: **-0.229 m** [*-0.229m (feet), -1.372m (fathoms)*]

IV. CONTOURS:

- a. Use a Depth List: H11929_NOAA_depth_curves_list.txt
- b. Line Object: DEPCNT
- c. Value Attribute: VALDCO

V. FEATURES:

- a. Total Number of Features: **31**
- b. Number of Insignificant Features: **n/a**

VI. CHART SURVEY SOUNDINGS (CS):

- a. Number of ENC CS Soundings: **n/a**
- b. Radius
- c. Shoal biased
- d. Use Single-Defined Radius: m on the ground
 - i. Radius Value (m): **200 (plus manual editing)**
 - ii. Or use a Sounding Space Range Table (if applicable): HXXXXXX_SSR.txt **N/A**
- e. Filter: Interpolated != 1
- f. Number Survey CS Soundings: **585**

VII. Notes:

There are two raster charts that are within the survey boundary limits. The 10k scale chart includes the northern end portion of the survey boundary (~41-46-44.536N to ~41-46-30.418N longitude), and the 20k includes the rest of the survey boundary. Survey Scale Soundings and the Chart Scale Soundings were selected accordingly, and combined into a single CS_Sounding feature layer.

The ESAR final grid (H11929_VBES_BASE_2m_final.hns) had approximately 21 individual soundings at 0 ft., which were located randomly along the 071-20-39 W longitude line. These were found to be flyers, and were removed from the H11929_VBES_BASE_2m.hns grid.

The fairway from the ENC was used as the template to cut/remove the fairway from the M_Cover of the Meta Object feature layer.



USGS High Resolution Orthoimagery for the Providence, Rhode Island Urban Area

Metadata also available as

Metadata:

- [Identification Information](#)
 - [Data Quality Information](#)
 - [Spatial Data Organization Information](#)
 - [Spatial Reference Information](#)
 - [Entity and Attribute Information](#)
 - [Distribution Information](#)
 - [Metadata Reference Information](#)
-

Identification Information:

Citation:

Citation Information:

Originator: U.S. Geological Survey

Publication Date: Unknown

Title:

USGS High Resolution Orthoimagery for the Providence, Rhode Island Urban Area

Geospatial Data Presentation Form: SDE raster digital data

Series Information:

Series Name: Urban Area Orthoimagery

Issue Identification: 0.1

Publication Information:

Publication Place: Sioux Falls, SD

Publisher: U.S. Geological Survey

Other Citation Details:

The data obtained through The National Map Seamless Server is considered to be the "best available" data from USGS. Historical data and other data may be obtained by contacting Customer Services, Center for Earth Resources Observation & Science, at 1-800-252-4547.

Online Linkage: <<http://seamless.usgs.gov>>

Description:

Abstract:

An orthoimage is remotely sensed image data in which displacement of features in the image caused by terrain relief and sensor orientation have been mathematically removed. Orthoimagery combines the image characteristics of a photograph with the geometric qualities of a map. The projected coordinate system is UTM with a NAD83 datum. There is no image overlap between adjacent files.

Purpose:

These data have been created as a result of the need for having geospatial data immediately available and easily accessible in order to provide geographic reference for Federal, State, and local emergency responders, as well as for homeland security efforts.

Orthoimages also serve a variety of purposes, from interim maps to field references for earth science investigations and analysis. The digital orthoimage is useful as a layer of a geographic information system. These data can be used to provide reference information for Web browsers and for map applications at a scale of 1:100,000 or smaller. Larger scale orthoimagery such as digital orthophoto quadrangles will be more accurate, but often at the expense of timely updates.

Supplemental_Information:

No metadata were received with this data. General orthoimagery metadata were created and spatial information imported for display through the Seamless Data Distribution System at <<http://seamless.usgs.gov>> Spatial-specific information not available

Time_Period_of_Content:

Time_Period_Information:

Single_Date/Time:

Calendar_Date: unknown

Currentness_Reference: ground condition

Status:

Progress: Complete

Maintenance_and_Update_Frequency: Irregular

Spatial_Domain:

Bounding_Coordinates:

West_Bounding_Coordinate:-71.37623413

East_Bounding_Coordinate:-71.3652785

*North_Bounding_Coordinate:*41.77991104

*South_Bounding_Coordinate:*41.77359544

Keywords:

Theme:

Theme_Keyword_Thesaurus: None

Theme_Keyword: digital spatial data

Theme_Keyword: 0.3 meter orthoimage

Theme_Keyword: rectified image

Theme_Keyword: orthophoto

Theme_Keyword: natural color orthophoto

Theme_Keyword: orthoimage

Theme_Keyword: image map

Theme:

Theme_Keyword_Thesaurus: ISO 19115 Category

Theme_Keyword: imageryBaseMapsEarthCover

Theme_Keyword: 010

Theme_Keyword: geoscientificInformation

Theme_Keyword: 008

Theme_Keyword: location

Theme_Keyword: 013

Place:

Place_Keyword_Thesaurus:

U.S. Department of Commerce, 1995, Countries, dependencies, areas of special sovereignty, and their principal administrative divisions, Federal Information Processing Standard 10-4,); Washington, D.C., National Institute of Standards and Technology

Place_Keyword: United States

Place_Keyword: U.S.

Place_Keyword: US

Place:

Place_Keyword_Thesaurus:

U.S. Department of Commerce, 1987, Codes for the identification of the States, the District of Columbia and the outlying areas of the United States, and associated areas (Federal Information Processing Standard 5-2): Washington, D.C., National Institute of Standards and Technology

Place_Keyword: RI

Place:

Place_Keyword_Thesaurus: Geographic Names Information System

Place_Keyword: Providence

Access_Constraints:

Any downloading and use of these data signifies a user's agreement to comprehension and compliance of the USGS Standard Disclaimer. Insure all portions of metadata are read and clearly understood before using these data in order to protect both user and USGS interests.

Use_Constraints:

There is no guarantee of warranty concerning the accuracy of the data. Users should be aware that temporal changes may have occurred since this data set was collected and that some parts of this data may no longer represent actual surface conditions. Users should not use this data for critical applications without a full awareness of it's limitations. Acknowledgement of the originating agencies would be appreciated in products derived from these data. Any user who modifies the data is obligated to describe the types of modifications they perform. User specifically agrees not to misrepresent the data, nor to imply that changes made were approved or endorsed by the U.S. Geological Survey. Please refer to <http://www.usgs.gov/privacy.html> for the USGS disclaimer.

*Point_of_Contact:**Contact_Information:**Contact_Organization_Primary:*

Contact_Organization: U.S. Geological Survey

Contact_Position: Customer Services Representative

Contact_Address:

Address_Type: mailing and physical address

Address: USGS Center for Earth Resources Observation & Science

Address: 47914 252nd Street

City: Sioux Falls

State_or_Province: SD

Postal_Code: 57198-0001

Country: USA

Contact_Voice_Telephone: 605/594-6151

Contact_Voice_Telephone: 1-800-252-4547

Contact_TDD/TTY_Telephone: 605/594-6933

Contact_Facsimile_Telephone: 605/594-6589

Contact_Electronic_Mail_Address: custserv@usgs.gov

Hours_of_Service: 0800 - 1600 CT, M - F (-6h CST/-5h CDT GMT)

Data_Set_Credit: U.S. Geological Survey

Security_Information:

Security_Classification_System: None

Security_Classification: Unclassified

Security_Handling_Description: N/A

Native_Data_Set_Environment:

Microsoft Windows XP Version 5.1 (Build 2600) Service Pack 2; ESRI ArcCatalog 9.1.0.780

Data_Quality_Information:

*Attribute_Accuracy:**Attribute_Accuracy_Report:*

Radiometry is verified by visual inspection of the digital orthophoto. Slight systematic radiometric differences may exist between adjacent orthoimage files; these are due primarily to differences in source image capture dates and sun angles along flight lines. These differences can be observed in an image's general lightness or darkness when it is compared to adjacent orthoimage file coverages. Tonal balancing may be performed over a group of images during the mosaicking process which may serve to lighten or darken adjacent images for better color tone matching.

Logical_Consistency_Report:

Logical consistency is implicit in the raster image data structure. Source imagery is cloud free.

Completeness_Report: N/A*Positional_Accuracy:**Horizontal_Positional_Accuracy:**Horizontal_Positional_Accuracy_Report:*

The relative accuracy is assembled by comparing rectified images generated from adjacent strips of imagery. The absolute accuracy is assessed by measuring the ground control points in the rectified image against the actual surveyed co-ordinate position. The testing is for overall accuracy.

*Vertical_Positional_Accuracy:**Vertical_Positional_Accuracy_Report:* NA*Lineage:**Source_Information:**Source_Citation:**Citation_Information:*

Originator: U.S. Geological Survey

Publication_Date: 2007

Title: imagery

Geospatial_Data_Presentation_Form: raster digital data

Series_Information:

Series_Name: Urban Area Orthoimagery

Issue_Identification: 0.1

Publication_Information:

Publication_Place: Sioux Falls, SD

Publisher: U.S. Geological Survey

Type_of_Source_Media: raster digital data

*Source_Time_Period_of_Content:**Time_Period_Information:**Single_Date/Time:*

Calendar_Date: 200504

Source_Currentness_Reference: ground condition

Source_Citation_Abbreviation: imagery

Source_Contribution: Source imagery for tile production

*Process_Step:**Process_Description:*

Original processing procedures are not available for this project as no metadata were received with the data. General orthoimagery metadata were created for display through The National Map Seamless Server at <<http://seamless.usgs.gov>> Project level metadata are available in several formats: HTML, TEXT, XML, FAQ and SGML.

Process_Date: 2007

*Process_Contact:**Contact_Information:**Contact_Organization_Primary:**Contact_Organization:* U.S. Geological Survey*Contact_Position:* Customer Service Representative*Contact_Address:**Address_Type:* mailing and physical address*Address:* USGS Center for Earth Resources Observation & Science*Address:* 47914 252nd Street*City:* Sioux Falls*State_or_Province:* SD*Postal_Code:* 57198-0001*Country:* USA*Contact_Voice_Telephone:* 605-594-6151*Contact_Voice_Telephone:* 1-800-252-4547*Contact_TDD/TTY_Telephone:* 605-594-6933*Contact_Facsimile_Telephone:* 605-594-6589*Contact_Electronic_Mail_Address:* custserv@usgs.gov*Hours_of_Service:* 0800 - 1600 CT, M - F (-6h CST/-5h CDT GMT)*Contact_Instructions:*

The USGS point of contact is for questions relating only to the data display and download from this web site.

*Spatial_Data_Organization_Information:**Direct_Spatial_Reference_Method:* Raster*Raster_Object_Information:**Raster_Object_Type:* Pixel*Row_Count:* 330000*Column_Count:* 100000*Vertical_Count:* 1*Spatial_Reference_Information:**Horizontal_Coordinate_System_Definition:**Planar:**Grid_Coordinate_System:**Grid_Coordinate_System_Name:* Universal Transverse Mercator*Universal_Transverse_Mercator:**UTM_Zone_Number:* 19*Transverse_Mercator:**Scale_Factor_at_Central_Meridian:* 0.999600*Longitude_of_Central_Meridian:* -69.000000*Latitude_of_Projection_Origin:* 0.000000*False_Easting:* 500000.000000*False_Northing:* 0.000000*Planar_Coordinate_Information:**Planar_Coordinate_Encoding_Method:* row and column*Coordinate_Representation:**Abscissa_Resolution:* 0.300000*Ordinate_Resolution:* 0.300000

Planar_Distance_Units: meters

Geodetic_Model:

Horizontal_Datum_Name: North American Datum of 1983

Ellipsoid_Name: Geodetic Reference System 80

Semi-major_Axis: 6378137.000000

Denominator_of_Flattening_Ratio: 298.257222

Vertical_Coordinate_System_Definition:

Altitude_System_Definition:

Altitude_Datum_Name: North American Vertical Datum of 1988

Altitude_Resolution: 1.000000

Altitude_Distance_Units: meters

Altitude_Encoding_Method:

Explicit elevation coordinate included with horizontal coordinates

Entity_and_Attribute_Information:

Overview_Description:

Entity_and_Attribute_Overview:

Natural color orthoimagery is organized in three color bands or channels which represent the red, green, and blue (RGB) portions of the spectrum. Each image pixel is assigned a triplet of numeric values, one for each color band. Numeric values range from 0 to 255. Areas where data is incomplete due to lack of full image coverage are represented with the numeric value of 0.

Entity_and_Attribute_Detail_Citation:

U.S. Department of the Interior, U.S. Geological Survey, 1996, Standards for Digital Orthophotos: Reston, VA

Distribution_Information:

Distributor:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: U.S. Geological Survey

Contact_Position: Customer Services Representative

Contact_Address:

Address_Type: mailing and physical address

Address: USGS Center for Earth Resources Observation & Science

Address: 47914 252nd Street

City: Sioux Falls

State_or_Province: SD

Postal_Code: 57198-0001

Country: USA

Contact_Voice_Telephone: 605/594-6151

Contact_Voice_Telephone: 1-800-252-4547

Contact_TDD/TTY_Telephone: 605/594-6933

Contact_Facsimile_Telephone: 605/594-6589

Contact_Electronic_Mail_Address: custserv@usgs.gov

Hours_of_Service: 0800 - 1600 CT, M - F (-6h CST/-5h CDT GMT)

Contact_Instructions:

The USGS point of contact is for questions relating only to the data display and download from this web site. For questions regarding data content and quality, refer

to the original processor.

Resource_Description: Downloadable Data

Distribution_Liability:

Although these data have been processed successfully on a computer system at the USGS, no warranty expressed or implied is made by the USGS regarding the use of the data on any other system, nor does the act of distribution constitute any such warranty. Data may have been compiled from various outside sources. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification. The USGS shall not be liable for any activity involving these data, installation, fitness of the data for a particular purpose, its use, or analyses results.

Standard_Order_Process:

Digital_Form:

Digital_Transfer_Information:

Format_Name: Arc/Info Export Format and/or ArcView Shapefile

Format_Version_Number: ArcGIS 9.1

Format_Specification: ASCII

Transfer_Size: 0.001

Digital_Transfer_Option:

Online_Option:

Computer_Contact_Information:

Network_Address:

Network_Resource_Name: <<http://seamless.usgs.gov>>

Access_Instructions:

The URL <<http://seamless.usgs.gov>> provides a map interface that allows for data downloads within a customer defined area of interest. Zoom tools are available that can be used to investigate areas of interest on the map interface. The download tool allows the customer to capture layers from the map, utilizing the Seamless Data Distribution System process for downloading. A request summary page is then generated with the download layers listed. By clicking the "download" button on the summary page, a zipped file will be generated that can be saved on the customer's computer. The file can then be unzipped and imported into various user software applications.

Online_Computer_and_Operating_System: Not available for dissemination

Fees: None

Turnaround: Variable

Technical_Prerequisites:

ESRI ArcGIS Suite and/or Arc/Info or other compatible software, and supporting operating systems.

Available_Time_Period:

Time_Period_Information:

Range_of_Dates/Times:

Beginning_Date: 2007

Ending_Date: unknown

Metadata_Reference_Information:

Metadata_Date: 20071211

Metadata_Contact:

Contact_Information:

Contact_Organization_Primary:

Contact_Organization: U.S. Geological Survey
Contact_Position: Customer Services Representative
Contact_Address:
Address_Type: mailing and physical address
Address: USGS Center for Earth Resources Observation & Science
Address: 47914 252nd Street
City: Sioux Falls
State_or_Province: SD
Postal_Code: 57198-0001
Country: USA

Contact_Voice_Telephone: 605/594-6151
Contact_Voice_Telephone: 1-800-252-4547
Contact_TDD/TTY_Telephone: 605/594-6933
Contact_Facsimile_Telephone: 605/594-6589
Contact_Electronic_Mail_Address: custserv@usgs.gov
Hours_of_Service: 0800 - 1600 CT, M - F (-6h CST/-5h CDT GMT)
Contact_Instructions:

The above is the contact information for the USGS Center for Earth Resources Observation and Science in Sioux Falls, SD. This is the digital data storage and distribution center for the USGS. Metadata information can also be obtained through online services using The National Map Viewer, at <http://nationalmap.usgs.gov>

Metadata_Standard_Name: FGDC Content Standards for Digital Geospatial Metadata

Metadata_Standard_Version: FGDC-STD-001-1998

Metadata_Time_Convention: local time

Metadata_Access_Constraints: None

Metadata_Use_Constraints: None

Metadata_Security_Information:

Metadata_Security_Classification_System: None

Metadata_Security_Classification: Unclassified

Metadata_Security_Handling_Description: None

Metadata_Extensions:

Online_Linkage: <http://www.esri.com/metadata/esriprof80.html>

Profile_Name: ESRI Metadata Profile

Generated by [mp](#) version 2.8.6 on Tue Dec 11 12:04:51 2007

APPROVAL SHEET
H11929

Initial Approvals:

The completed survey has been inspected with regard to survey coverage, delineation of depth curves, representation of critical depths, cartographic symbolization, and verification or disproval of charted data. All revisions and additions made to the H-Cell files during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with National Ocean Service and Office of Coast Survey requirements except where noted in the Descriptive Report and the Evaluation Report.

All final products have undergone a comprehensive review per the Hydrographic Surveys Division Office Processing Manual and are verified to be accurate and complete except where noted.

Casie D. Carrott
Hydrographic Contractor
Atlantic Hydrographic Branch

Nicholas A. Forfinski
Physical Scientist
Atlantic Hydrographic Branch

I have reviewed the H-Cell files, accompanying data, and reports. This survey and accompanying Marine Chart Division deliverables meet National Ocean Service requirements and standards for products in support of nautical charting except where noted.

Approved: _____
CDR Shepard M. Smith, NOAA
Chief, Atlantic Hydrographic Branch