H12153

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey Hydrographic Survey

Field No. N/A

Registry No. H12153

LOCALITY

State Rhode Island

General Locality Narragansett Bay and Rhode Island Sound

Sublocality Sakonnet Point to Newport

2009

CHIEF OF PARTY

Lt. Matthew Jaskoski

LIBRARY & ARCHIVES

DATE

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

REGISTRY No

HYDROGRAPHIC TITLE SHEET

H12153

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: N/A

State **Rhode Island**

General Locality **Narragansett Bay and Rhode Island Sound**

Sub-Locality **Sakonnet Point to Newport**

Scale **1:10,000** Date of Survey **06/16/2009 - 08/27/2009**

Instructions dated **7/6/2009** Project No. **OPR-B301-NRT5-09**

Vessel **NOAA Launch S3002**

Chief of party **Lt. Matthew Jaskoski, NOAA**

Surveyed by **NRT5 Personnel**

Soundings by **Simrad EM3000, EM3002, Odom Echotrack CV/200**

SAR by **Adam Argento** Compilation by Kurt Brown

Soundings compiled in **Feet**

REMARKS: **All times are UTC. UTM Zone 19N**

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Revisions and end notes in red were generated during office processing. The processing branch concurs with all information and recomendations in the DR unless otherwise noted. Page numbering may be interrupted or non sequential.

All pertinent records for this survey, including the Descriptive Report, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via http://www.ngdc.noaa.gov/.

DESCRIPTIVE REPORT

to accompany
HYDROGRAPHIC SURVEY H12153[1]

Scale of Survey: 1:10,000
Year of Survey: 2009
NOAA Navigation Response Team 5
LT. Matthew Jaskoski, OIC

A. AREA SURVEYED

The purpose of project OPR-B301-NRT5-09 was to provide contemporary surveys to update National Ocean Service (NOS) nautical charts in northern Narragansett Bay. H12153 covered an area of approximately 11.9 nm[2], from North Point in the north to Bullocks Wharf in the south.

See Figure 1 on the following page for the survey limits. In accordance with the project instructions, 200% SSS coverage, at 75-m range scale, was acquired for this survey. As described in section B.2.1, 400% SSS coverage (an additional 200%) was acquired in certain areas because of excessive thermocline noise. Vertical beam echosounder (VBES) data were acquired concurrently with all the 100% and 200% SSS data but only portions of the 300% and 400% SSS data. See Table 1 for a summary of acquisition statistics:

Table 1: Acquisition Summary Statistics

Mainscheme single beam sonar only	0 nm
Mainscheme side scan sonar only	44.4 nm
Mainscheme multibeam sonar only	0 nm
Mainscheme single beam sonar/side scan sonar	361.1 nm
Crosslines (single beam/multibeam)	33.4 nm/0 nm
Developments (single beam/multibeam)	0 nm/26.5 nm
Shoreline/nearshore investigation	0 nm
# of bottom samples	0
# of items requiring additional effort	0
Total square nautical miles	11.9
Dates of data acquisition	June 16-19,22,23, August 19,20,25,26,27

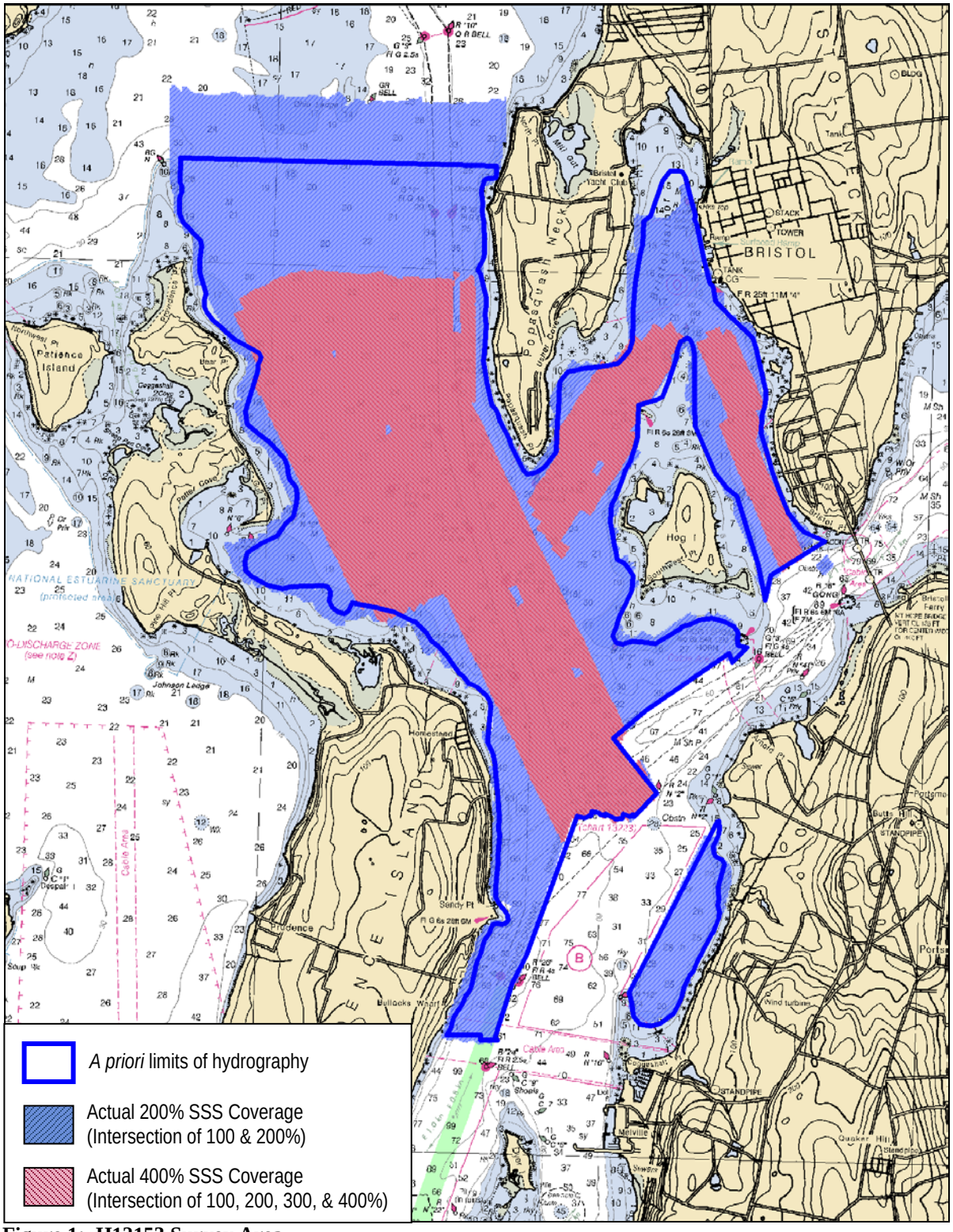


Figure 1: H12153 Survey Area

B. DATA ACQUISITION AND PROCESSING

B.1 EQUIPMENT

Data were acquired by NOAA S3002 (NRT-5). NOAA Survey Vessel S3002 is a 9.8-m (overall) aluminum SeaArk outboard-driven vessel with an average multibeam transducer draft of 0.6 meters. NOAA S3002 acquired both bathymetry and imagery data in the project area. Side scan sonar data were acquired with a towed Klein 3000 side scan sonar system (SSS). Mainscheme bathymetry data were acquired with an Odom Echotrac C/V 200 verticalbeam echosounder (VBES), and development data were acquired with a Kongsberg Simrad EM 3002 multibeam echosounder (MBES). Positioning and attitude were determined with a TSS POS/MV 320 (version 4) GPS aided inertial navigation system.

******IMPORTANT SYSTEM CHANGE****** **–** A significant configuration change occurred during H12153. Prior to July, NRT5 had a pole-mounted MBES system, with the IMU mounted beneath the deck in the cabin. The pole-mounted MBES system was replaced with a hull-mounted configuration, with the IMU mounted, further aft than previous, directly above the EM3002. This major configuration change was accounted for by creating new HVFs (HIPS vessel files), rather than adding additional timestamps to existing HVFs. See DAPR section C.2 for more information regarding the submitted two sets of HVFs.

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, and noted fliers were rejected with interpolation.

Refraction

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 (see Fig. 2). To ensure overall 200% SSS coverage, 400% SSS coverage was acquired in the areas affected by thermocline (see Fig. 1).

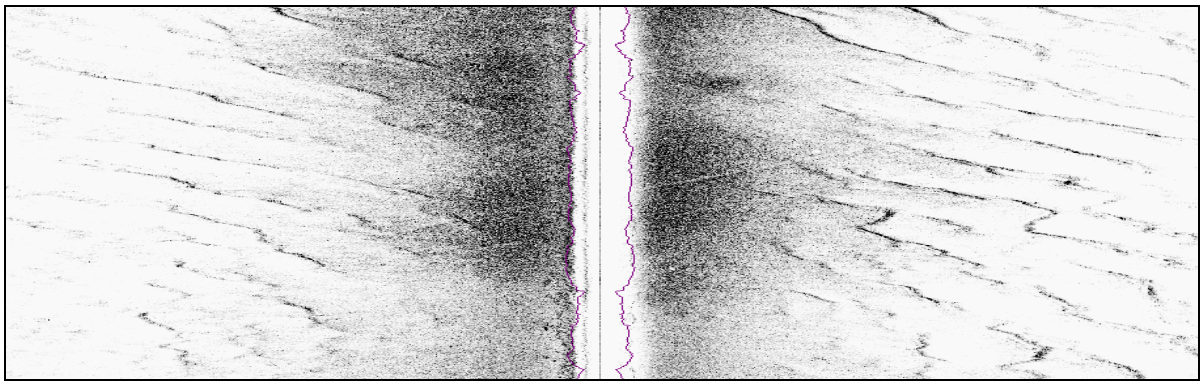


Figure 2: Example of Thermocline Noise in SSS Data

Bottom Tracking

Several lines from 2009-232, 2009-237, and 2009-238 contain very noisy bottom-tracking data (see Fig. 3). The cause of the erroneous bottom tracking was not determined. To facilitate processing, the bottom-tracking for these three days was fixed only when it affected significant or potentially significant contacts.

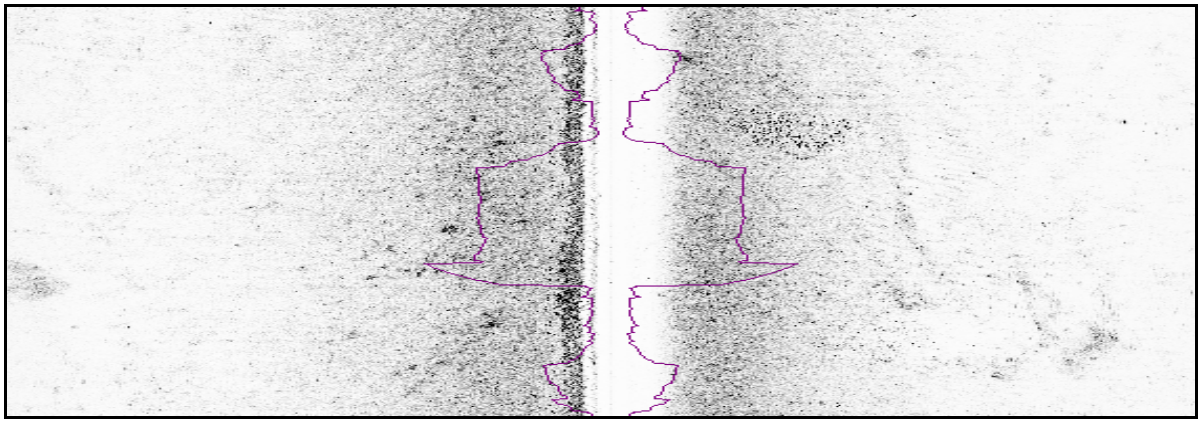


Figure 3: Example of Noisy Bottom-Tracking Data

B.2.2 Single Beam Quality Control

Navigation data were reviewed, and 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.

B.2.3 Multibeam Echosounder Quality Control

There were no faults with the MBES system which adversely effected data integrity. Navigation data were reviewed; any fliers were rejected with interpolation. A small variable navigation timing error was noted after review of the data in post-processing within Caris' subset editor. The navigation error did not exceed the allowable horizontal error budget, but it should be noted that certain vertical features may appear to have multiple peaks (see Fig.

4). Least depths were taken from the shallowest sounding. For detailed discussion of MBES system calibrations, data acquisition, and data processing refer to this project's DAPR.

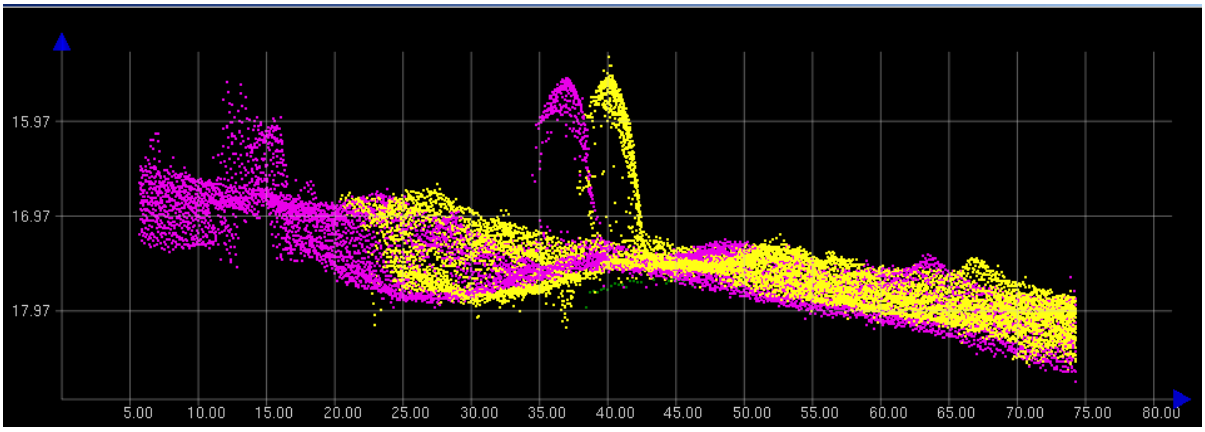


Figure 4: Example of Horizontal Offset

B.2.4 Total Propagated Error

Total Propagated Error (TPE) parameters for sound speed and tide data for H12083 are shown in Table 2. The estimated tidal error contribution to the total survey error budget in the vicinity of Narragansett Bay is included in the TCARI gird. Sound speed TPE values were used in accordance with HSTP guidelines regarding frequency of surface and water column sound speed measurements. The TPE parameters pertaining to the vessel and the related survey equipment are contained in the HVF.

Table 2: Total Propagated Error Values for Tide and Sound Speed

Parameter	Value
Tide measured	0 m
Tide zoning	0 m
Sound speed profile	4 m/s
Sound speed surface	0.2 m/s

B.2.5 Fieldsheets and Navigation Surfaces

Caris HIPS combined uncertainty weighted CUBE surfaces were created for this project[2]. For MBES data, surfaces were created at 0.5-m resolution. A 4-m resolution uncertainty-weighted BASE surface was created for VBES data. Table 3 lists all surfaces and mosaics submitted with this survey.

Table 3: Bathymetry surfaces and side scan mosaic resolutions

Fieldsheet	Surface/Mosaic Name	Grid Type	Resolution
H12153	H12153_VBES_BASE_4m	Uncertainty	4 m
H12153	H12153_MBES_CUBE_50cm	Source CUBE	0.5 m
H12153	H12153_MBES_CUBE_50cm _Final	Finalized CUBE	0.5 m
100_SSS_Coverage*	H12153_mosaic_1m_100	100% Mosaic	1 m
200_SSS_Coverage*	H12153_mosaic_1m_200	200% Mosaic	1 m
300_SSS_Coverage*	H12153_mosaic_1m_300	300% Mosaic	1 m
400_SSS_Coverage*	H12153_mosaic_1m_400	400% Mosaic	1 m

**Processing Note* – Each set of lines comprising each 100% SSS layer was not processed with its own, unique HVF. To facilitate isolating each set of lines for demonstration-of-coverage purposes, the hydrographer created four separate HIPS sessions (one for each set). The sessions are located in the submitted …*CARIS\Session* folder.

B.2.6 Crosslines

For this survey, 33.4 nm of crosslines (9.25% of mainscheme lines) were acquired. A visual examination of approximately 15% of checkpoint areas showed general agreement between crosslines and mainscheme lines to within 1-2 feet.

B.2.7 Junctions

Survey H12153 junctions with contemporary survey H12083[3]. Visual examination of all junction areas showed agreement between bathymetry data to within 1-2 ft.

B.3 CORRECTIONS TO ECHO SOUNDING

All methods or instruments used were as described in the project DAPR.

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 Newport, RI (845-2660) served as datum control for the survey area. The operating stations at Conimicut Light, RI, (845-2944) and Newport, RI, (845-2660) provided residuals for this project. A Request for Approved Tides was sent to N/OPS1 on March 30, 2010 (Appendix IV). The final TCARI grid and tide note for H12153 were received on April 28, 2010[4]. Verified water levels from the N/OPS1 CO-OPS website were downloaded and applied to all sounding data via TCARI.

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 (306kHz). 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

The following RNCs (raster navigational charts) and ENCs (electronic navigation charts) are affected by H12153:

Table 4: RNCs and ENCs affected by H12153

RNC	Edition	Edition Date	Scale
13223	41st	06/01/09	1:20,000
13224	39th	08/01/09	1:20,000
13226	6th	01/01/04	1:20,000

ENC	Edition	Issue Date
US5RI22M	12	11/16/09
US5R123M	14	3/23/10
US5RI25M	9	9/30/09

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.

D.1.2 Dangers to Navigation

There were no DToNs submitted for survey H12153[5].

D.1.3 AWOIS Items

There was one AWOIS item within the survey limits of H12153. AWOIS Item 14220 was covered with 200% SSS and 100% MBES. The hydrographer recommends that AWOIS Item be retained in the AWOIS Database as per the recommendations and remarks in the PSS[6].

D.1.4 Charted Features

Five charted features are addressed in the feature report contained in Appendix II[7]. All charted items not specifically addressed in Appendix II are recommended to be retained as charted by the hydrographer[8].

D.1.5 Uncharted Features

Fifteen uncharted features are addressed in the feature report contained in Appendix II[9].

D.2 ADDITIONAL RESULTS

D.2.1 Aids to Navigation

No AToNs within the survey limits of H12153 were found to be significantly off station[10].

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 several charted submarine cable areas in the survey area. No noted discrepancies are present in data to indicate that cable is uncovered or presents a danger to navigation. It should be noted that sections of the cable area are below the 12-ft. contour and were not surveyed. There were no charted pipelines in the survey area.

E. APPROVAL SHEET

OPR-B301-NRT5-09
H12153
Newport, Rhode Island
Sakonnet Point to Newport

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.

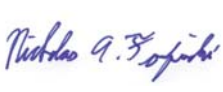
Submitted in association with this descriptive report has been a series of reports and data:

- 2009 Data Acquisition and Processing Report (submitted with this report)
- 2009 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,

Matt Andring / Survey Technician
NRT-5



pp_____
LT(jg) Matthew Jaskoski, NOAA

Revisions and Corrections Compiled During Processing and Certification

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[1]This survey was originally submitted to AHB and subsequently transferred to PHB for compilation.
[2] The 4 meter combined surface, H12153_4m_Combined, created during the SAR process was used for compilation.
[3] An actual junction does not exist between H12153 and H12083. However, H12153 also junctions with 2008 surveys H11929 and H11988. Common junctions were made with surveys H11929 and H11988 for HCell H12153_CS.000. See the HCell Report, Figure 2, 12153 Survey Junctions.
[4] See attached tide note dated April 28, 2010.
[5] Seven DTONs were discovered during office processing. These have been reported to MCD and applied to the charts.
[6] The obstruction was updated with a new position and least depth. See attached AWOIS Report.
[7] The Survey Feature Report is filed with the hydrographic records. Note: the survey feature report does not include all features from H12153. Additional features were added, some removed, and some modified during branch processing after the feature report was generated from Pydro.
[8] Chart features according to HCell H12153_CS.000.
[9] Chart features according to HCell H12153_CS.000.
[10] Chart according to latest ATONIS information.

H12153 DTON Review

Registry Number: H12153

State: Rhode Island

Locality: Narragansett Bay and Rhode Island Sound

Sub-locality: Sakonnet Point to Newport

Project Number: OPR-B301-NRT5-09

Survey Date: 08/19/2009

Possible DTONS in OPR-B301-NRT5-09; H12153.

Uncharted feartures - 5 UWTROC and 1 WRECK - were found during SAR processing.

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
13223	41st	06/01/2009	1:20,000 (13223_1)	USCG LNM: 6/14/2011 (6/14/2011) CHS NTM: None (5/27/2011) NGA NTM: 11/1/2008 (6/25/2011)
13224	39th	08/01/2009	1:20,000 (13224_1)	USCG LNM: 5/31/2011 (5/31/2011) CHS NTM: None (4/29/2011) NGA NTM: 11/2/2002 (6/11/2011)
13226	7th	01/01/2011	1:20,000 (13226_1)	USCG LNM: 6/14/2011 (6/14/2011) CHS NTM: None (5/27/2011) NGA NTM: 11/2/2002 (6/25/2011)
13221	57th	02/01/2008	1:40,000 (13221_2) 1:40,000 (13221_1)	[L]NTM: ?
13218	40th	02/01/2008	1:80,000 (13218_1)	[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	Uncharted Rock 1	Rock	4.43 m	41° 38' 09.2" N	071° 19' 00.2" W	---
1.2	Uncharted Rock 2	Rock	3.37 m	41° 40' 03.9" N	071° 20' 10.9" W	---
1.3	Uncharted Rock 3	Rock	2.56 m	41° 39' 53.6" N	071° 20' 32.8" W	---

1.4	Uncharted Rock 4	Rock	2.44 m	41° 39' 51.6" N	071° 18' 25.3" W	---
1.5	Uncharted Wreck	Wreck	3.86 m	41° 40' 13.1" N	071° 16' 50.1" W	---
1.6	Uncharted Rock 5	Rock	1.28 m	41° 38' 29.9" N	071° 16' 22.7" W	---
1.7	Uncharted Rock 6	Rock	1.63 m	41° 36' 51.6" N	071° 16' 31.7" W	---

1 - Danger To Navigation

1.1) Profile/Beam - 391/35 from h12153 / _nrt5_s3002_em3002_mbes / 2009-231 / 036_1401

DANGER TO NAVIGATION

Survey Summary

Survey Position:	41° 38' 09.2" N, 071° 19' 00.2" W
Least Depth:	4.43 m (= 14.55 ft = 2.425 fm = 2 fm 2.55 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.967 m ;**TVU (TPEv)** ±0.252 m
Timestamp:	2009-231.14:02:09.244 (08/19/2009)
Survey Line:	h12153 / _nrt5_s3002_em3002_mbes / 2009-231 / 036_1401
Profile/Beam:	391/35
Charts Affected:	13224_1, 13221_1, 13221_2, 13218_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock found with SSS and developed with MBES

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12153/_nrt5_s3002_em3002_mbes/2009-231/036_1401	391/35	0.00	000.0	Primary

Hydrographer Recommendations

Chart as UWTROC with least depth from MBES.

Cartographically-Rounded Depth (Affected Charts):

14ft (13224_1, 13221_1, 13221_2, 13218_1)

2 ¼fm (13006_1, 13003_1)

4.4m (5161_1)

S-57 Data

Geo object 1:	Underwater rock / awash rock (UWTROC)
Attributes:	INFORM - Feature rises to 4.4m (14ft), up 2.2m from the surrounding seabed. Closest charted depths are 20 and 24 ft.
	QUASOU - 6:least depth known

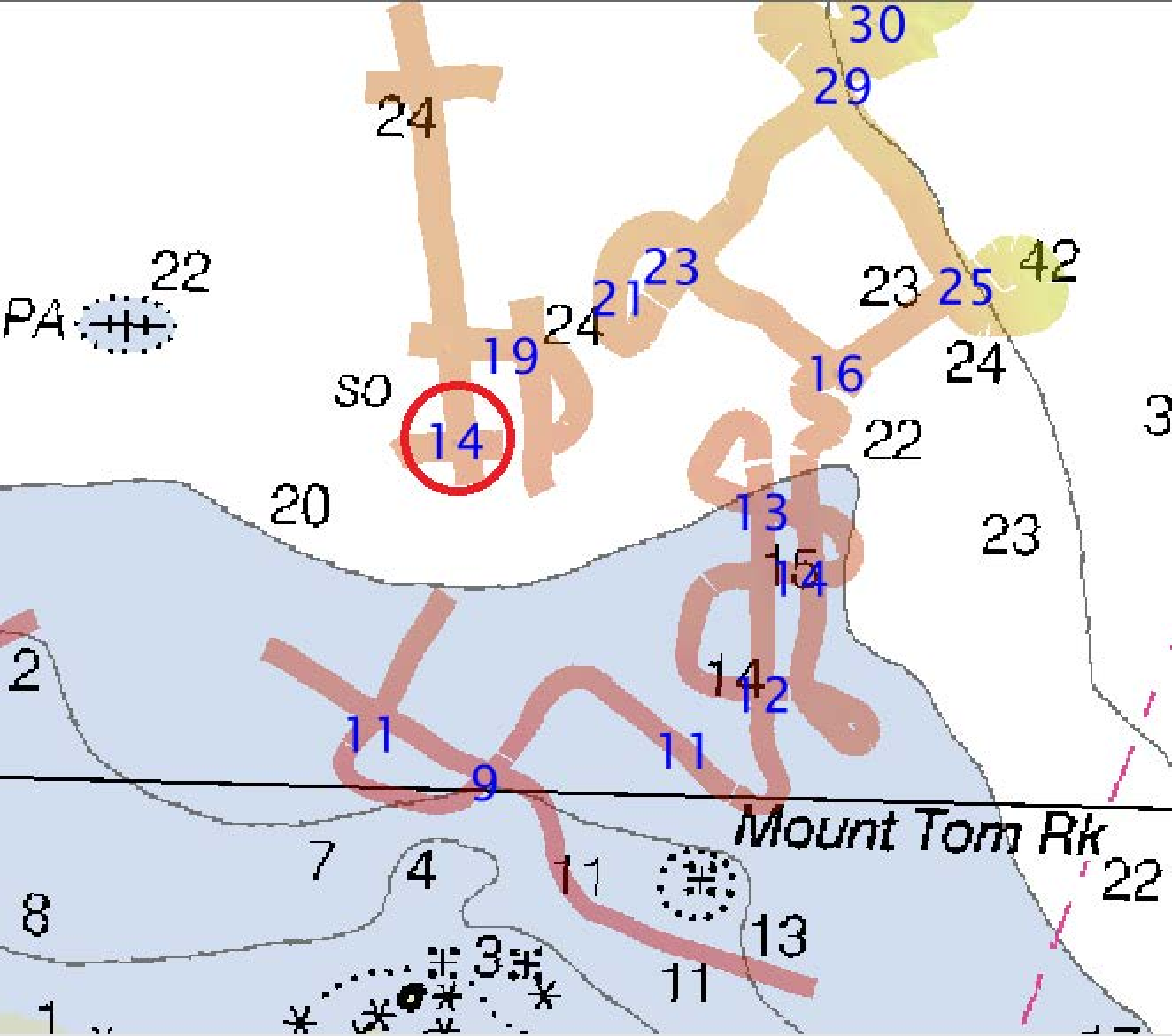
SORDAT - 20090819

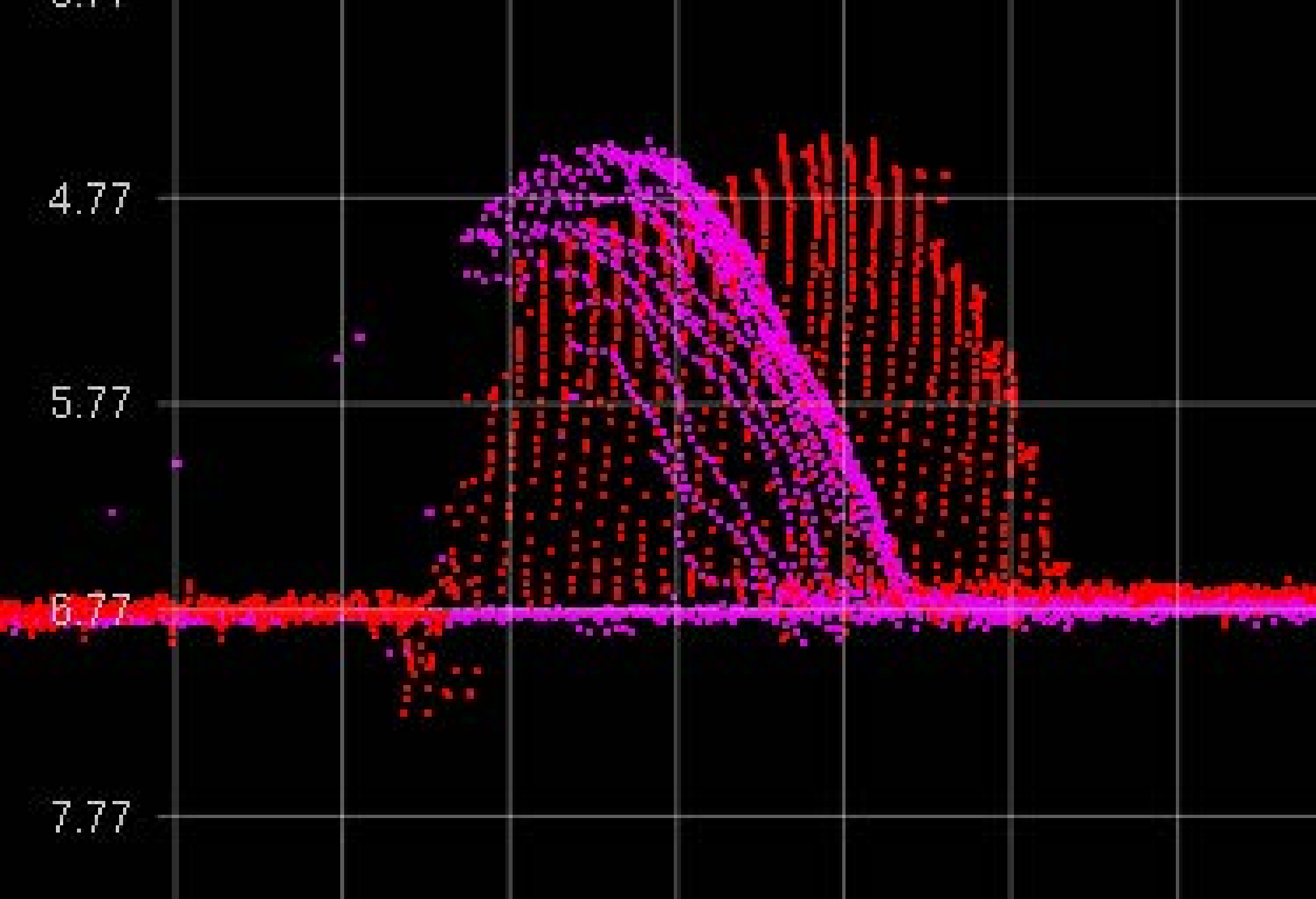
SORIND - US,US,survy,H12153

TECSOU - 3:found by multi-beam

VALSOU - 4.434 m

WATLEV - 3:always under water/submerged


PA
SO
Mount Tom Rk


4.77
5.77
6.77
7.77

1.2) Profile/Beam - 203/118 from h12153 / _nrt5_s3002_em3002_mbes / 2009-231 / 063_1450

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 40' 03.9" N, 071° 20' 10.9" W

Least Depth: 3.37 m (= 11.05 ft = 1.841 fm = 1 fm 5.05 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.964 m ;**TVU (TPEv)** ±0.260 m

Timestamp: 2009-231.14:50:35.238 (08/19/2009)

Survey Line: h12153 / _nrt5_s3002_em3002_mbes / 2009-231 / 063_1450

Profile/Beam: 203/118

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

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12153/_nrt5_s3002_em3002_mbes/2009-231/063_1450	203/118	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

11ft (13224_1, 13221_1, 13221_2)

1 ¾fm (13006_1, 13003_1)

3.4m (5161_1)

S-57 Data

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

Attributes: INFORM - Feature rises 3m off the seabed to a shoal of 2.56m (11ft). Closest charted sounding indicates a depth of 21ft, to the north. Feature is offshore.

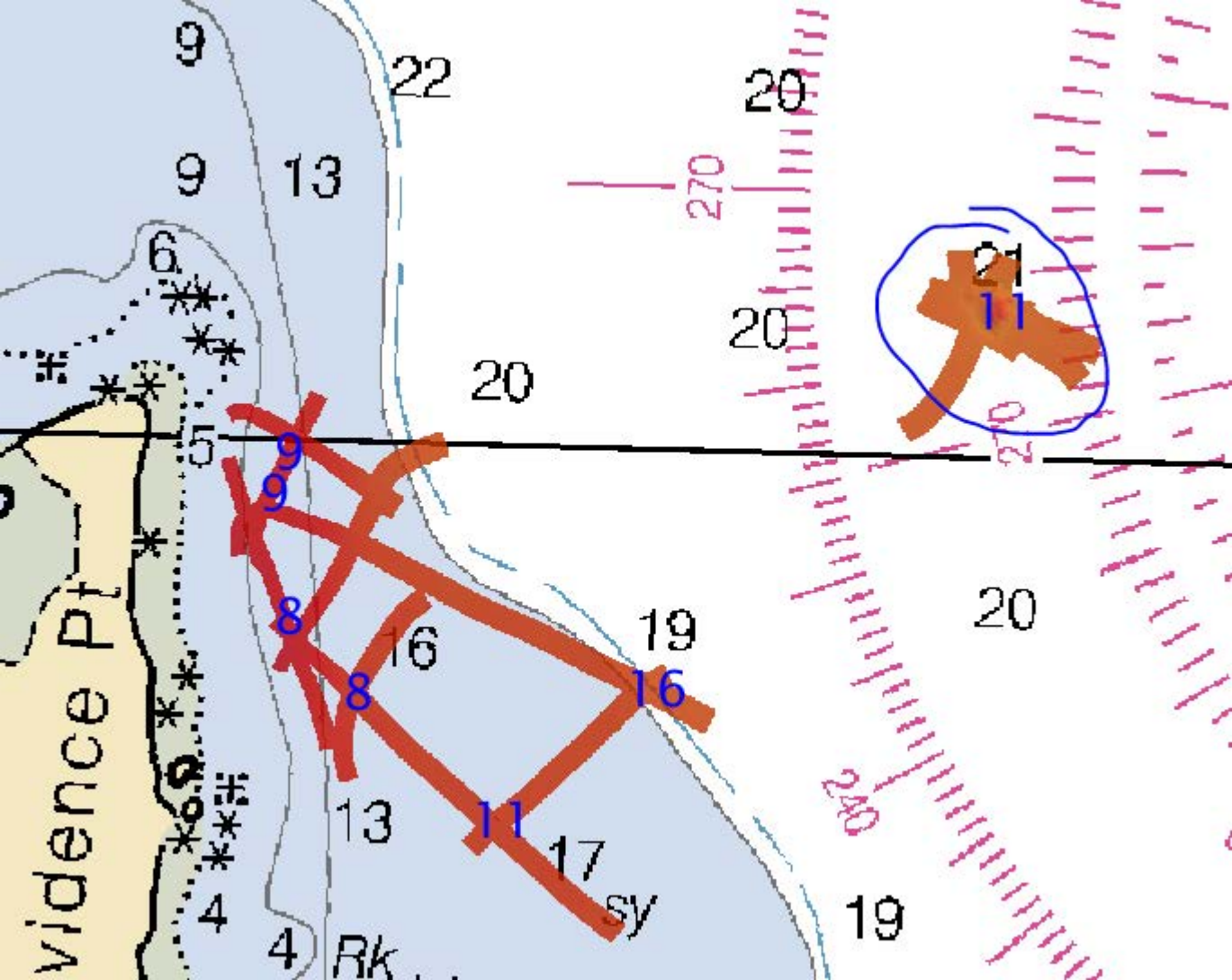
QUASOU - 6:least depth known

SORDAT - 20090819

SORIND - US,US,survy,H12153

TECSOU - 3:found by multi-beam

VALSOU - 3.367 m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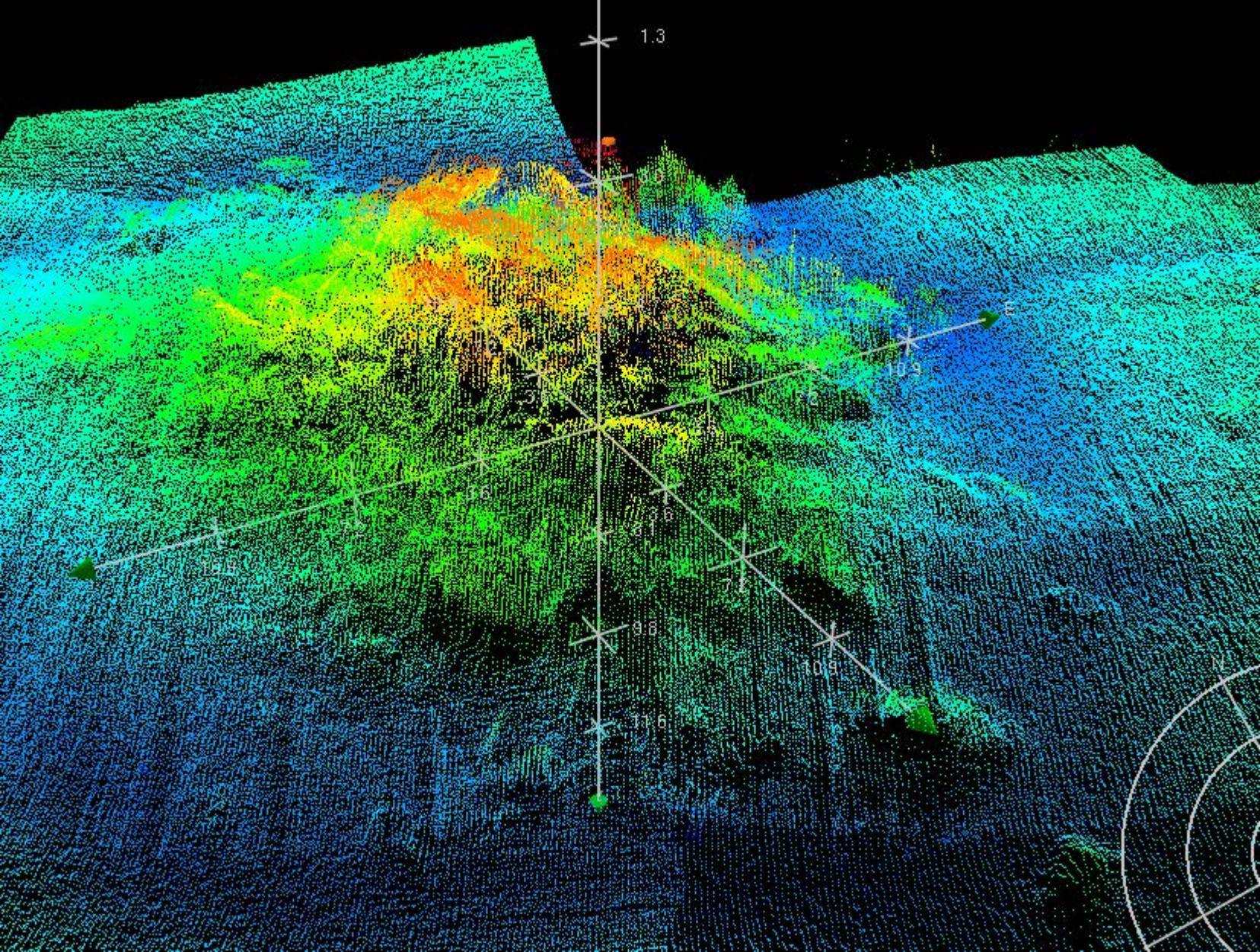

1.3
9.6
11.6

1.3) Profile/Beam - 739/183 from h12153 / _nrt5_s3002_em3002_mbes / 2009-231 / 067_1436

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 39' 53.6" N, 071° 20' 32.8" W

Least Depth: 2.56 m (= 8.39 ft = 1.398 fm = 1 fm 2.39 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.965 m ;**TVU (TPEv)** ±0.252 m

Timestamp: 2009-231.14:36:53.406 (08/19/2009)

Survey Line: h12153 / _nrt5_s3002_em3002_mbes / 2009-231 / 067_1436

Profile/Beam: 739/183

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

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12153/_nrt5_s3002_em3002_mbes/2009-231/067_1436	739/183	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

8ft (13224_1, 13221_1, 13221_2)

1 ¼fm (13006_1, 13003_1)

2.6m (5161_1)

S-57 Data

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

Attributes: INFORM - Feature rises 2m off 4.5m seabed, shoaling at 2.56m(8ft). Nearest charted soundings indicate depths of 16ft and 13 ft. feature is 150m offshore.

QUASOU - 6:least depth known

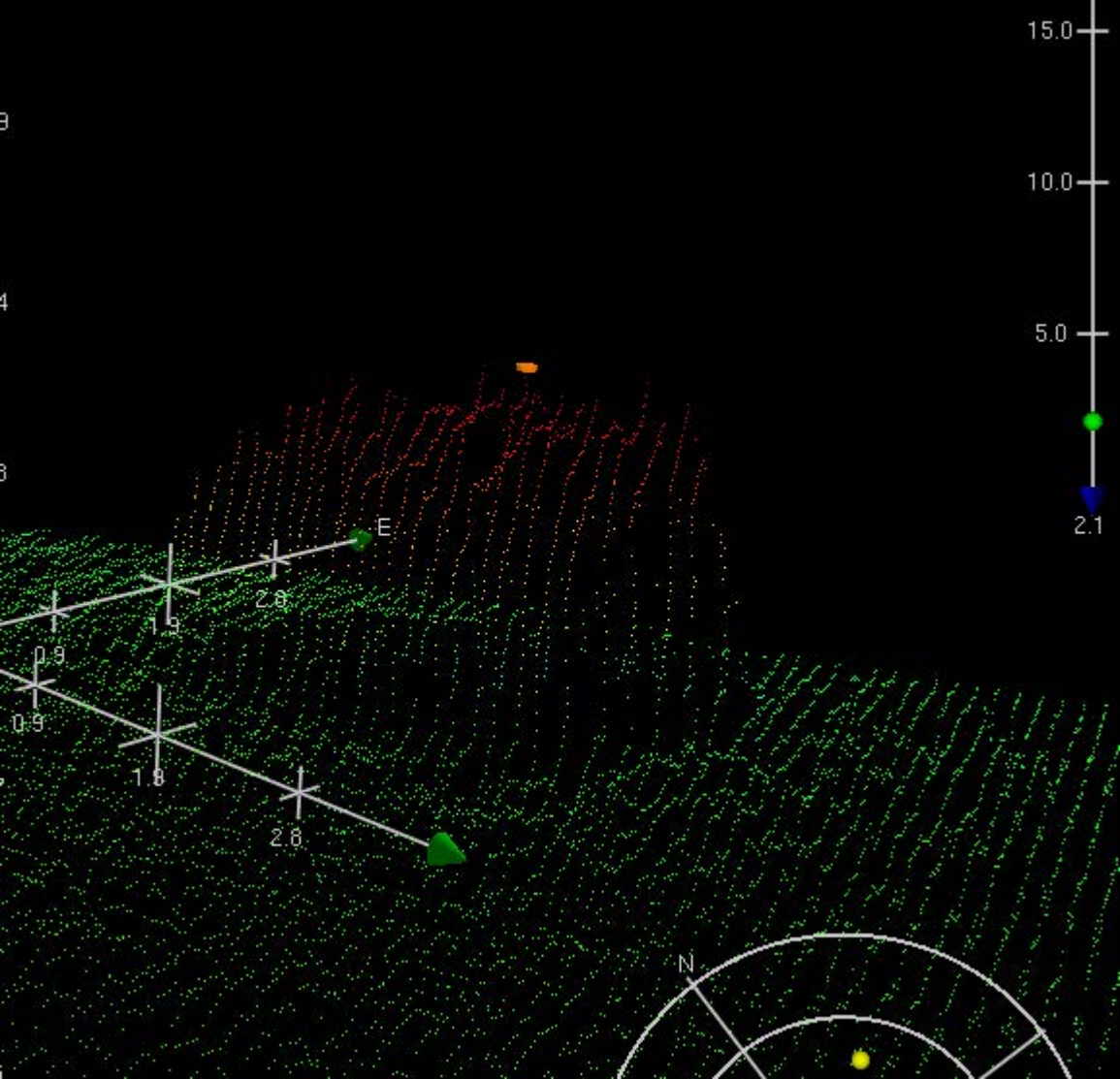
SORDAT - 20090819

SORIND - US,US,survy,H12153

TECSOU - 3:found by multi-beam

VALSOU - 2.557 m

WATLEV - 3:always under water/submerged


15.0
10.0
5.0
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2.8
1.9
0.9
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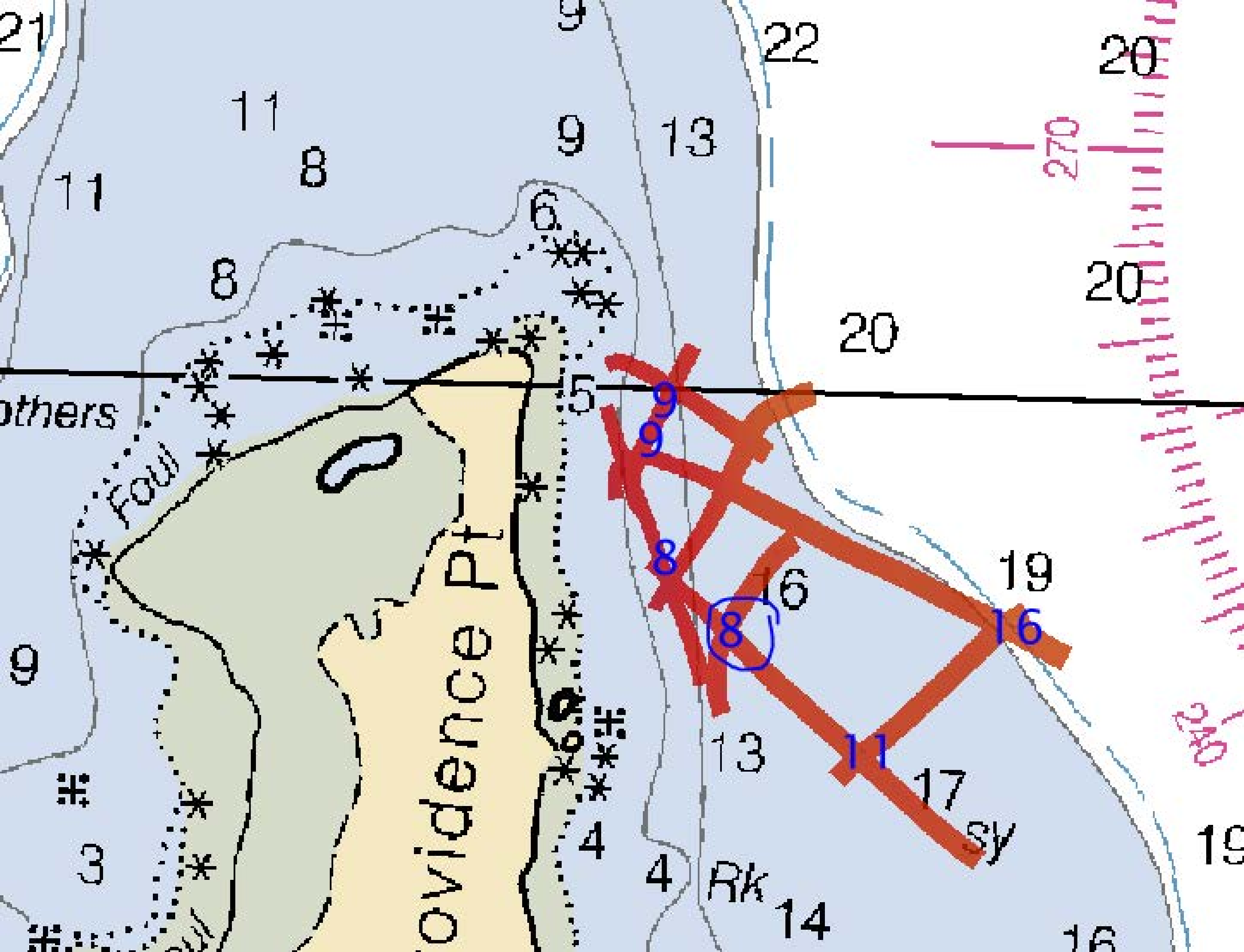
1.8
2.8
N



others
Foul
ovidence Pt
Rk
Sy
270
240

1.4) Profile/Beam - 5666/222 from h12153 / _nrt5_s3002_em3002_mbes / 2009-231 / 100_1549

DANGER TO NAVIGATION

Survey Summary

Survey Position:	41° 39' 51.6" N, 071° 18' 25.3" W
Least Depth:	2.44 m (= 8.01 ft = 1.335 fm = 1 fm 2.01 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.966 m ;**TVU (TPEv)** ±0.246 m
Timestamp:	2009-231.15:52:36.058 (08/19/2009)
Survey Line:	h12153 / _nrt5_s3002_em3002_mbes / 2009-231 / 100_1549
Profile/Beam:	5666/222
Charts Affected:	13224_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12153/_nrt5_s3002_em3002_mbes/2009-231/100_1549	5666/222	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

8ft (13224_1, 13221_1, 13221_2)

1 ¼fm (13006_1, 13003_1)

2.4m (5161_1)

S-57 Data

Geo object 1:	Underwater rock / awash rock (UWTROC)
Attributes:	INFORM - Feature rises 2m off the seabed to a shoal of 2.48m (8ft). Immediately surrounding this feature is a charted sounding of 18ft. Feature is 150m off shore. QUASOU - 6:least depth known

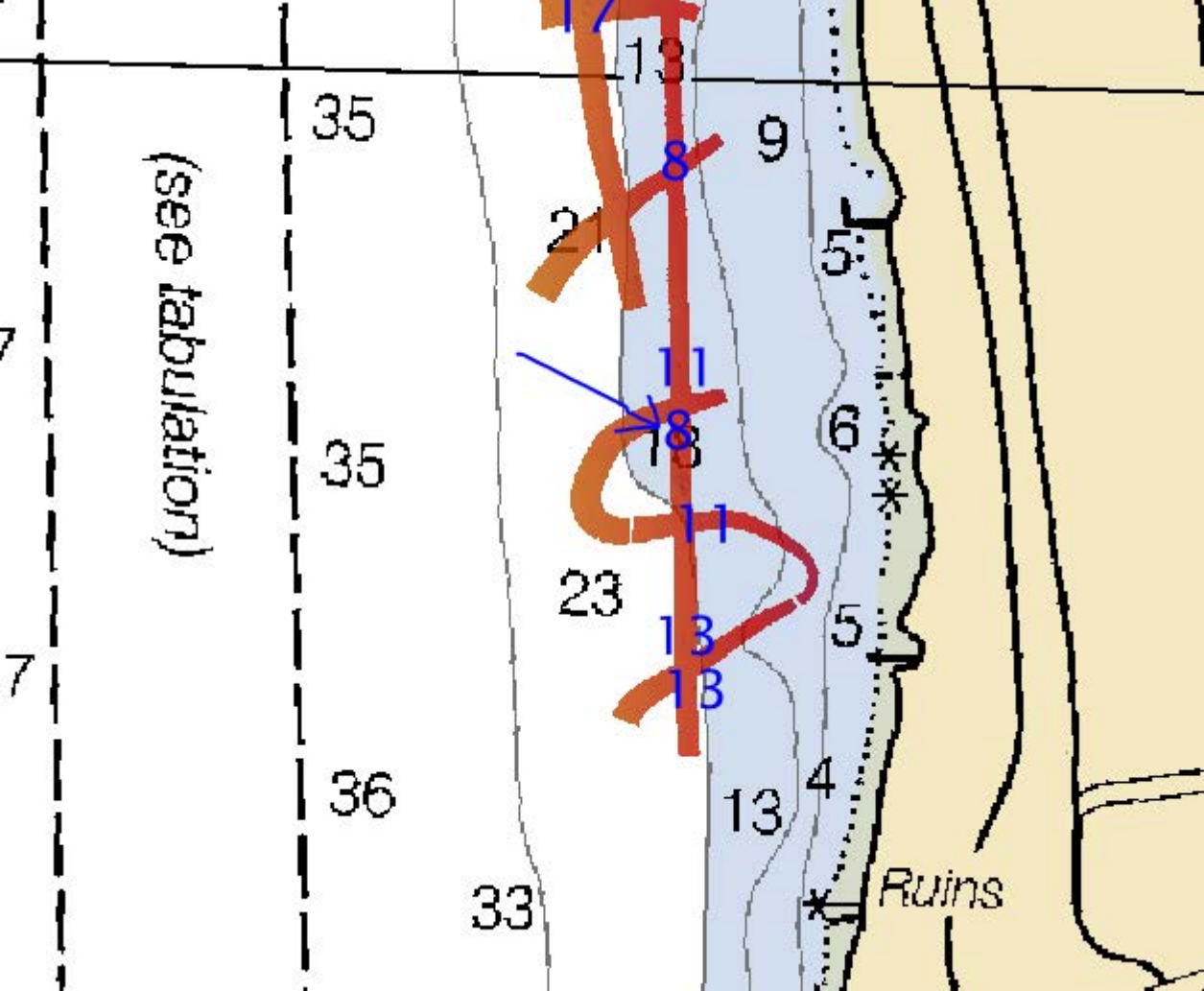
SORDAT - 20090819

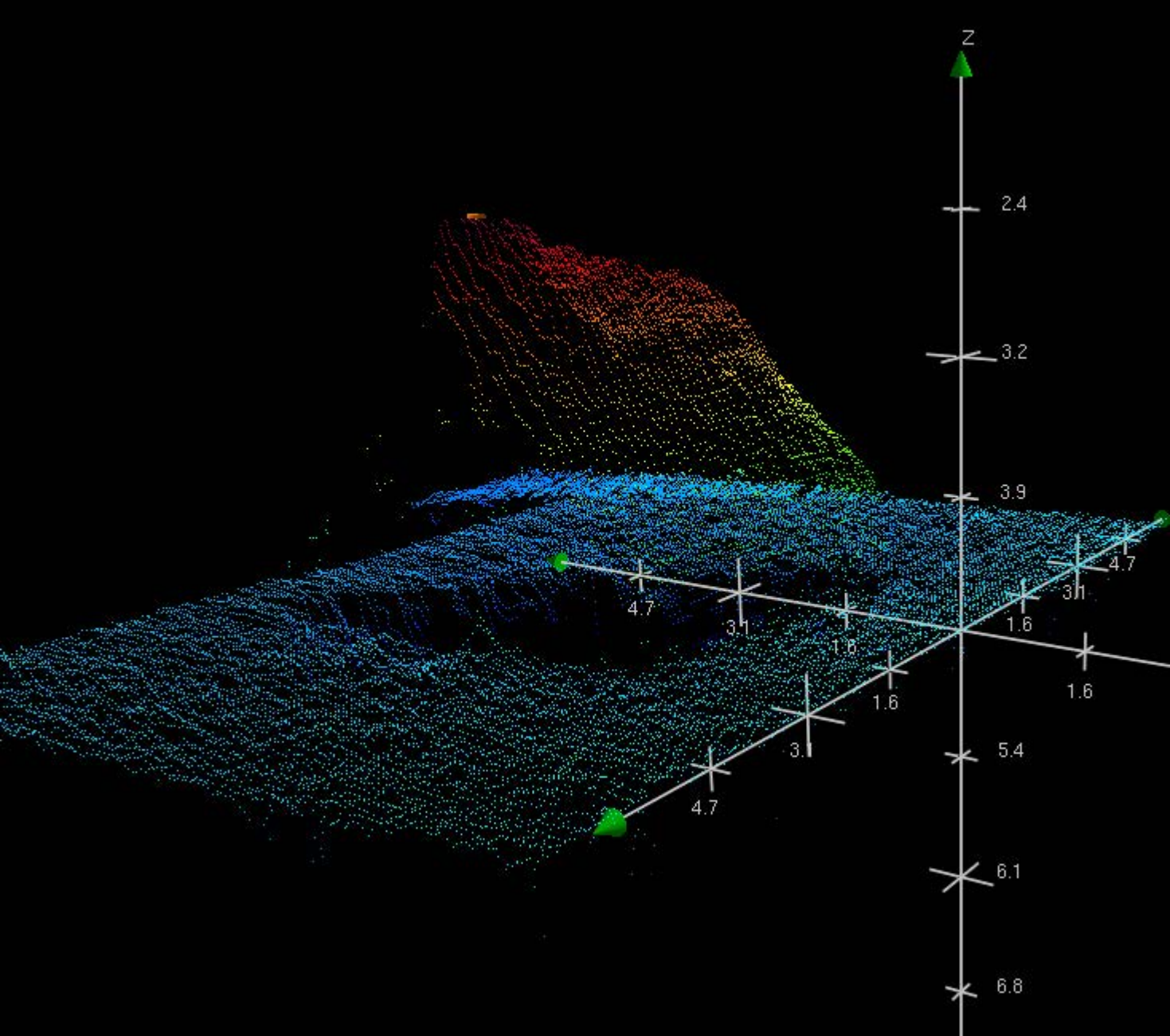
SORIND - US,US,survy,H12153

TECSOU - 3:found by multi-beam

VALSOU - 2.442 m

WATLEV - 3:always under water/submerged


(see tabulation)
35
35
36
33
13
9
8
21
5
11
8
6
11
23
13
13
5
4
13
Ruins


Z
2.4
3.2
3.9
5.4
6.1
6.8
4.7
3.1
1.6
1.6
1.6
3.1
4.7
4.7
3.1
1.6

1.5) Profile/Beam - 3687/97 from h12153 / _nrt5_s3002_em3002_mbes / 2009-231 / 125_1646

DANGER TO NAVIGATION

Survey Summary

Survey Position:	41° 40' 13.1" N, 071° 16' 50.1" W
Least Depth:	3.86 m (= 12.66 ft = 2.110 fm = 2 fm 0.66 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.963 m ;**TVU (TPEv)** ±0.258 m
Timestamp:	2009-231.16:48:11.076 (08/19/2009)
Survey Line:	h12153 / _nrt5_s3002_em3002_mbes / 2009-231 / 125_1646
Profile/Beam:	3687/97
Charts Affected:	13224_1, 13226_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12153/_nrt5_s3002_em3002_mbes/2009-231/125_1646	3687/97	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

12ft (13224_1, 13226_1, 13221_1, 13221_2)

2fm (13006_1, 13003_1)

3.9m (5161_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 5:wreck showing any portion of hull or superstructure INFORM - Feature rises 1m off the seabed to a shoal of 3.8m (13ft). Closest sdg indicates a depth of 17ft. Feature lies within the approach to a harbor.

QUASOU - 6:least depth known

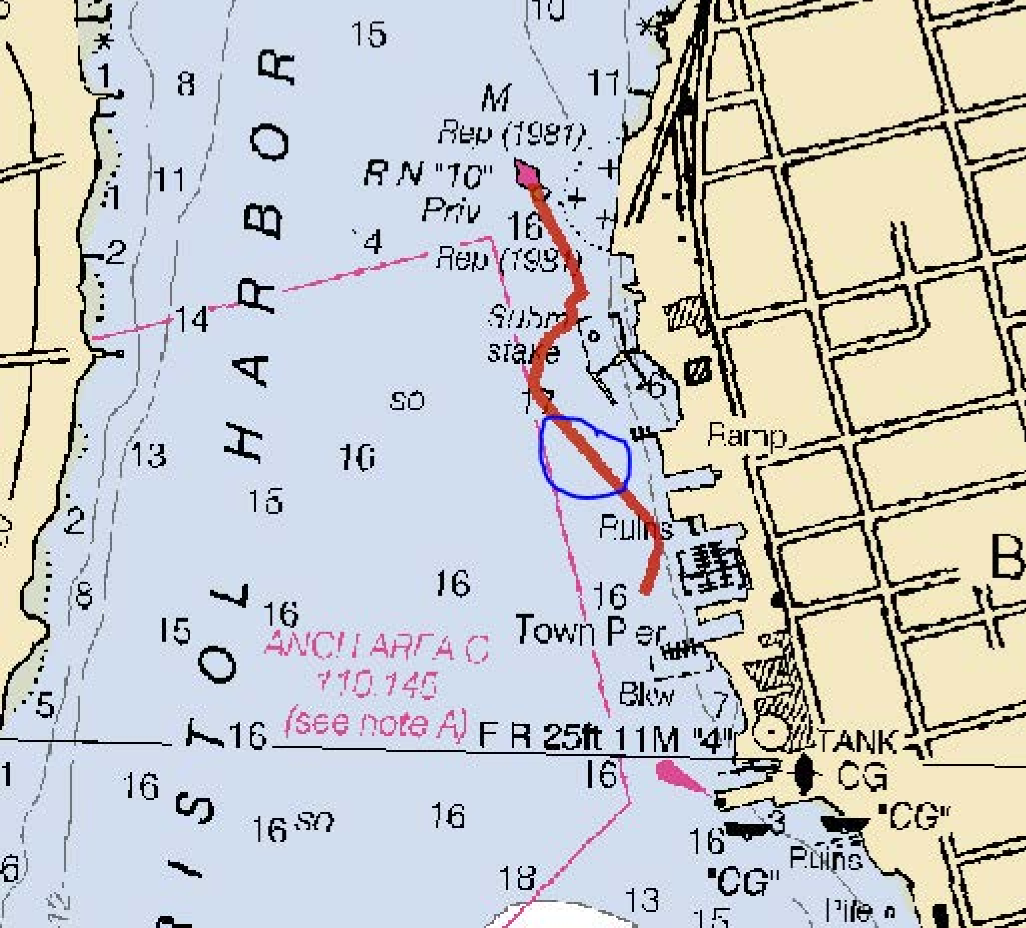
SORDAT - 20090819

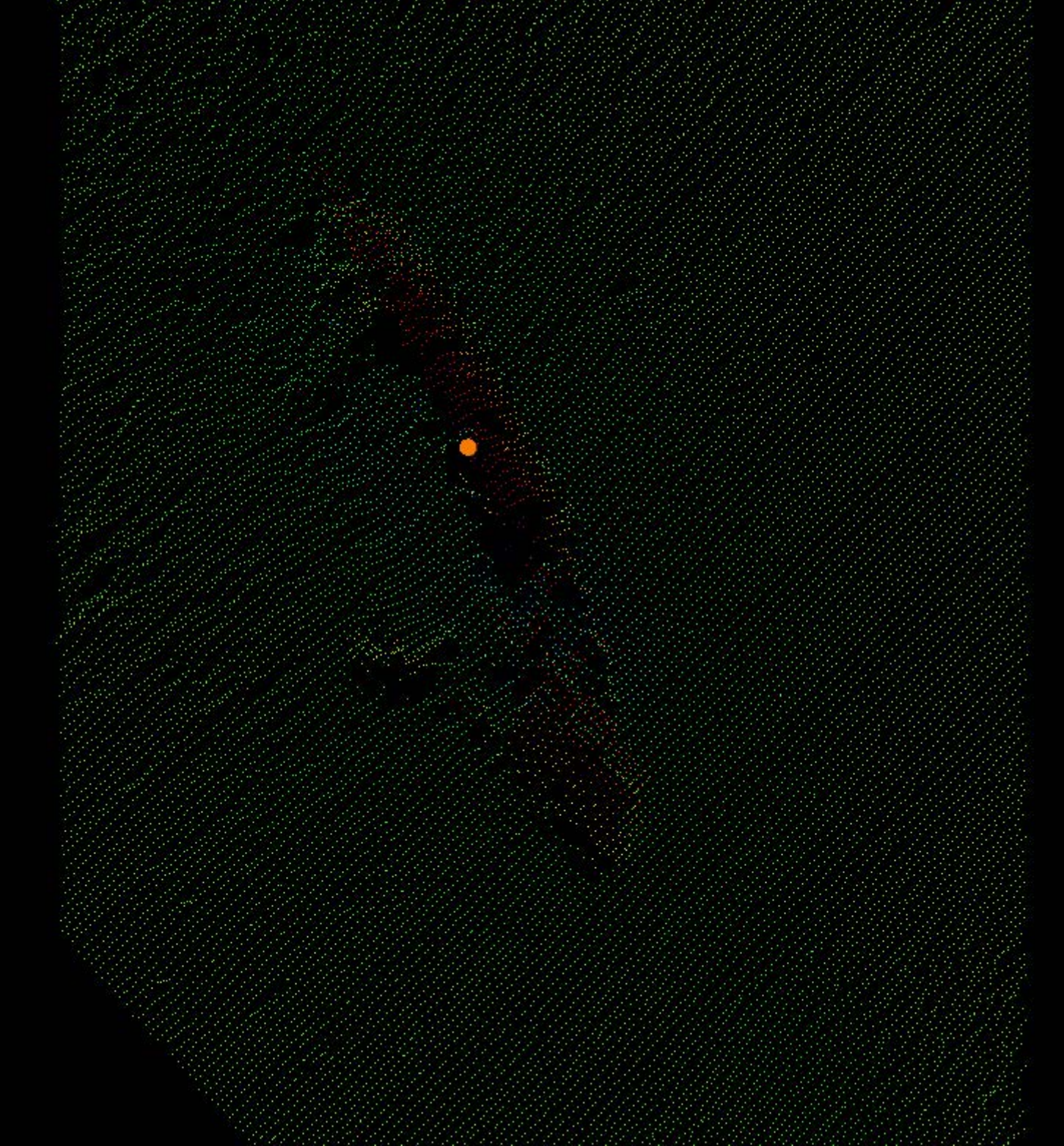
SORIND - US,US,survy,H12153

TECSOU - 3:found by multi-beam

VALSOU - 3.859 m

WATLEV - 3:always under water/submerged


HARBOR
M
Rep (1981)
R N "10"
Priv
Ramp
Ruins
Town Pier
Bkw
ANCH AREA C
110.145
(see note A)
F R 25ft 11M "4"
TANK
CG
"CG"
Ruins
"CG"
Pile



1.6) Profile/Beam - 1123/225 from h12153 / _nrt5_s3002_em3002_mbes / 2009-231 / 152_1747

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 38' 29.9" N, 071° 16' 22.7" W

Least Depth: 1.28 m (= 4.19 ft = 0.698 fm = 0 fm 4.19 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.965 m ;**TVU (TPEv)** ±0.245 m

Timestamp: 2009-231.17:48:39.779 (08/19/2009)

Survey Line: h12153 / _nrt5_s3002_em3002_mbes / 2009-231 / 152_1747

Profile/Beam: 1123/225

Charts Affected: 13224_1, 13226_1, 13221_1, 13221_2, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12153/_nrt5_s3002_em3002_mbes/2009-231/152_1747	1123/225	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

4ft (13224_1, 13226_1, 13221_1, 13221_2)

0 ¾fm (13006_1, 13003_1)

1.3m (5161_1)

S-57 Data

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

Attributes: INFORM - Feature rises 1m off the seabed, shoaling at 1.28m (4ft) Nearest charted soundings indicate depths of 10, 15, and 8ft. Feature is about 230m offshore.

QUASOU - 6:least depth known

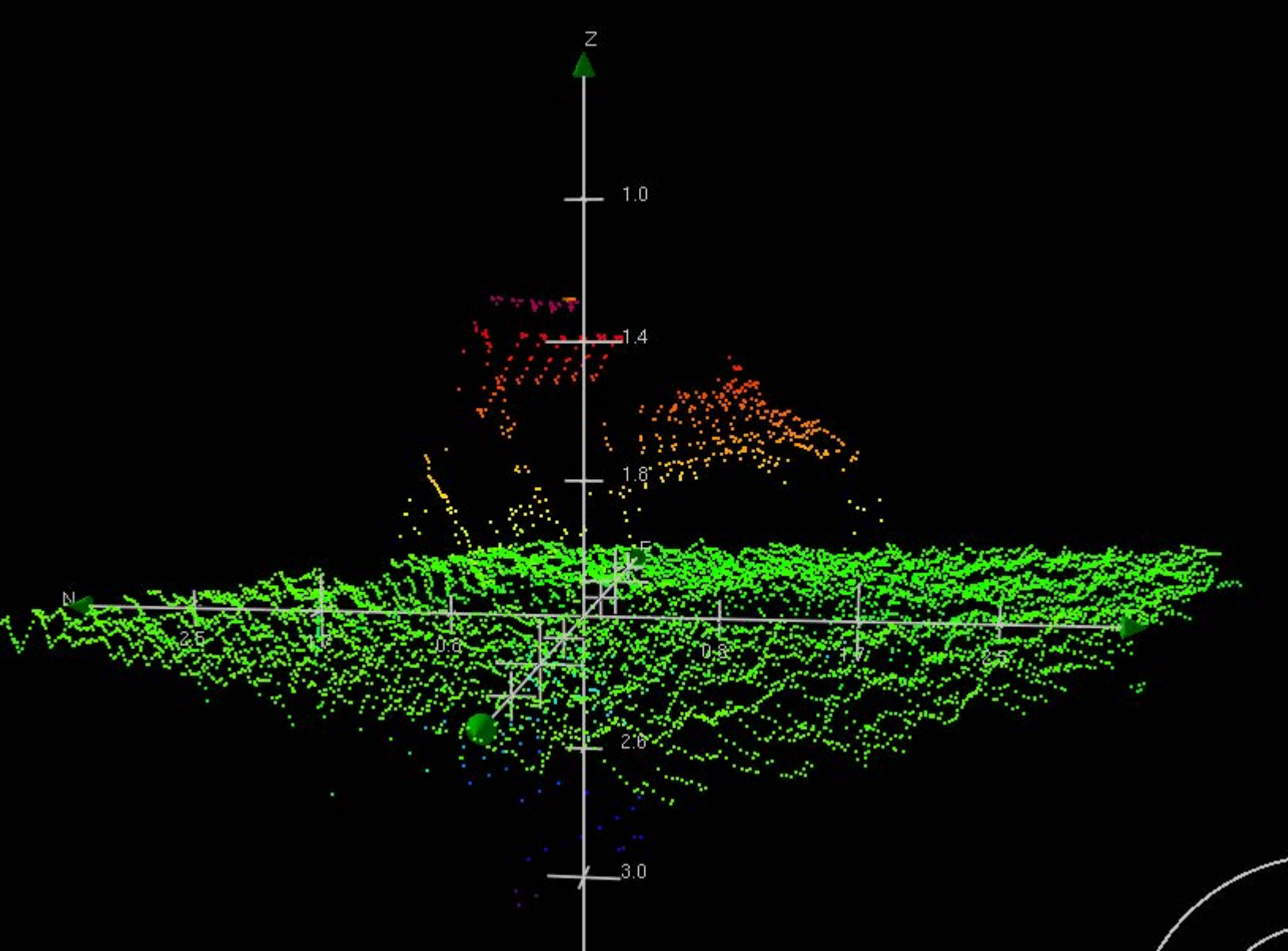
SORDAT - 20090819

SORIND - US,US,survy,H12153

TECSOU - 3:found by multi-beam

VALSOU - 1.276 m

WATLEV - 3:always under water/submerged


Z
1.0
1.4
1.8
2.6
3.0
N
2.5
0.0
0.5
1.0
2.5


Hog Island
Piles
Marsh
1
4
7
10
15
8
6
5
3
2
16
27

1.7) Profile/Beam - 186/101 from h12153 / _nrt5_s3002_em3002_mbes / 2009-231 / 210_1925

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 36' 51.6" N, 071° 16' 31.7" W

Least Depth: 1.63 m (= 5.34 ft = 0.891 fm = 0 fm 5.34 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.964 m ;**TVU (TPEv)** ±0.257 m

Timestamp: 2009-231.19:26:08.288 (08/19/2009)

Survey Line: h12153 / _nrt5_s3002_em3002_mbes / 2009-231 / 210_1925

Profile/Beam: 186/101

Charts Affected: 13223_1, 13226_1, 13221_1, 13221_2, 13218_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12153/_nrt5_s3002_em3002_mbes/2009-231/210_1925	186/101	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

5ft (13223_1, 13226_1, 13221_1, 13221_2, 13218_1)

0 ¾fm (13006_1, 13003_1)

1.6m (5161_1)

S-57 Data

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

Attributes: INFORM - Feature rises 1.5 meters off the seabed to a shoalest depth of 1.73m (5ft). Closest charted soundings indicate depths of 7ft and 14ft. 230m offshore.

QUASOU - 6:least depth known

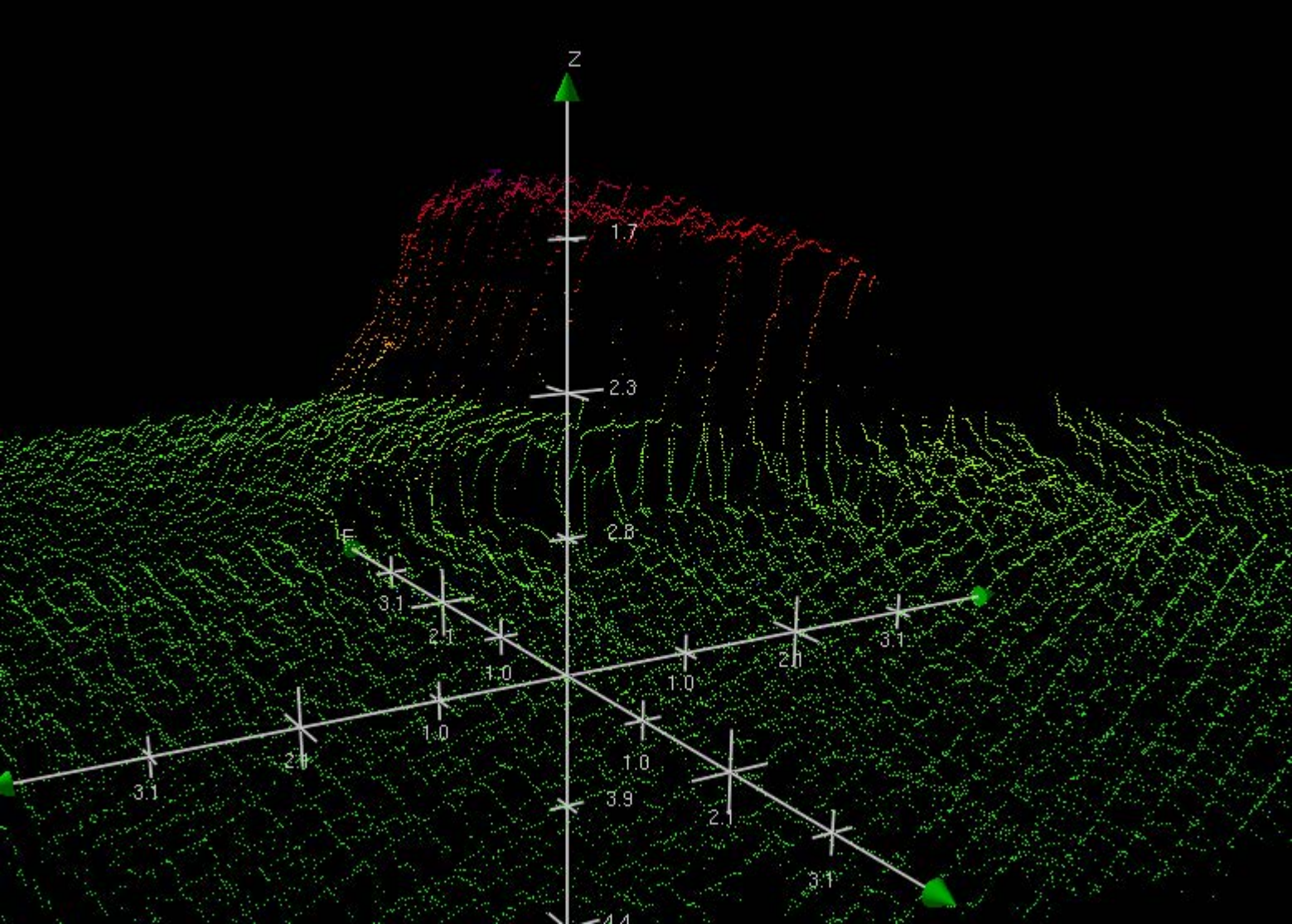
SORDAT - 20090819

SORIND - US.US,survy,H12153

TECSOU - 3:found by multi-beam

VALSOU - 1.629 m

WATLEV - 3:always under water/submerged


Z
1.7
2.3
2.8
3.1
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3.1
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1.0
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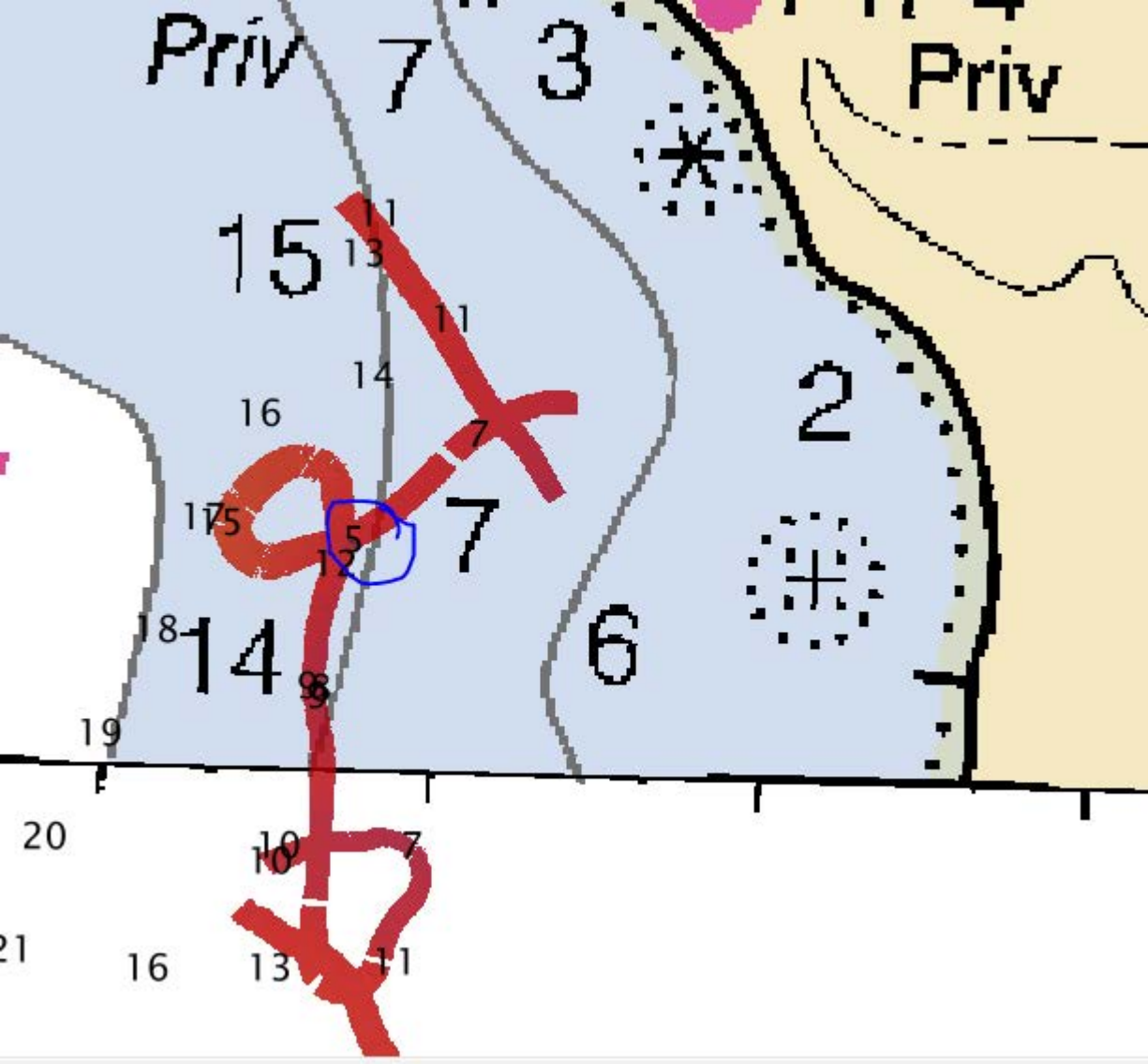
2.1
3.9
3.1


Priv
7
3
Priv
15
11
13
11
14
16
7
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12
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16
13
11

AWOIS Features

1) AWOIS 14220

Primary Feature for AWOIS Item #14220

Search Position: 41° 38' 22.4" N, 071° 15' 46.4" W

Historical Depth: 9.14 m

Search Radius: 50

Search Technique: S2, MB

Technique Notes: [None]

History Notes:

H10628/1995-- An Obstruction was located at 41/38/22.4 - 71/15/46.44. Least depth found was 30 feet. (Entered CEH 7/1/2008)

Survey Summary

Survey Position: 41° 38' 22.7" N, 071° 15' 46.3" W

Least Depth: 8.90 m (= 29.21 ft = 4.868 fm = 4 fm 5.21 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.967 m ;**TVU (TPEv)** ±0.261 m

Timestamp: 2009-231.17:40:03.042 (08/19/2009)

Survey Line: h12153 / _nrt5_s3002_em3002_mbes / 2009-231 / 157_1738

Profile/Beam: 1151/67

Charts Affected: 13224_1, 13226_1, 13221_1, 13221_2, 13218_1, 13006_1, 5161_1, 13003_1

Remarks:

Obstruction covered with 200% side scan sonar and 100% multibeam echosounder.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h12153/_nrt5_s3002_em3002_mbes/2009-231/157_1738	1151/67	0.00	000.0	Primary
h12153/nrt5_s3002_klein3000_sss/2009-168/sonar_data090617132100	0001	2.30	282.1	Secondary
h12153/nrt5_s3002_klein3000_sss/2009-168/sonar_data090617132100	0004	2.93	259.1	Secondary
h12153/nrt5_s3002_klein3000_sss/2009-168/sonar_data090617132000	0001	3.50	210.8	Secondary
h12153/nrt5_s3002_klein3000_sss/2009-168/sonar_data090617132000	0002	3.88	211.1	Secondary
h12153/nrt5_s3002_klein3000_sss/2009-168/sonar_data090617132100	0004	9.22	018.1	Secondary
AWOIS Items	AWOIS # 14220	9.35	018.6	Secondary
h12153/nrt5_s3002_klein3000_sss/2009-168/sonar_data090617132100	0001	10.36	020.1	Secondary

h12153/nrt5_s3002_klein3000_sss/2009-168/sonar_data090617132000	0001	14.48	214.7	Secondary
h12153/nrt5_s3002_klein3000_sss/2009-168/sonar_data090617132000	0002	14.85	215.0	Secondary

Hydrographer Recommendations

Adjust charted depth to new least depth.

Cartographically-Rounded Depth (Affected Charts):

29ft (13224_1, 13226_1, 13221_1, 13221_2, 13218_1)

4 ¾fm (13006_1, 13003_1)

8.9m (5161_1)

S-57 Data

[None]

Office Notes: Concur with clarification. Update position and depth of obstruction.

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : April 28, 2010

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-B301-NRT5-2009
HYDROGRAPHIC SHEET: H12153

LOCALITY: Sakonnet Point to Newport, Narragansett Bay, RI
TIME PERIOD: June 16 - August 27, 2009

TIDE STATION USED: 845-2660 Newport, RI
Lat.41° 30.3' N Long. 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

TIDE STATION USED: 845-2944 Conimicut Light, RI
Lat. 41° 43.0' N Long. 71° 20.6' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.319 meters

REMARKS: RECOMMENDED GRID

Please use the TCARI grid "H12153.tc" as the final grid for project OPR-B301-NRT5-2009, H12153, during the time period between June 16 and August 27, 2009.

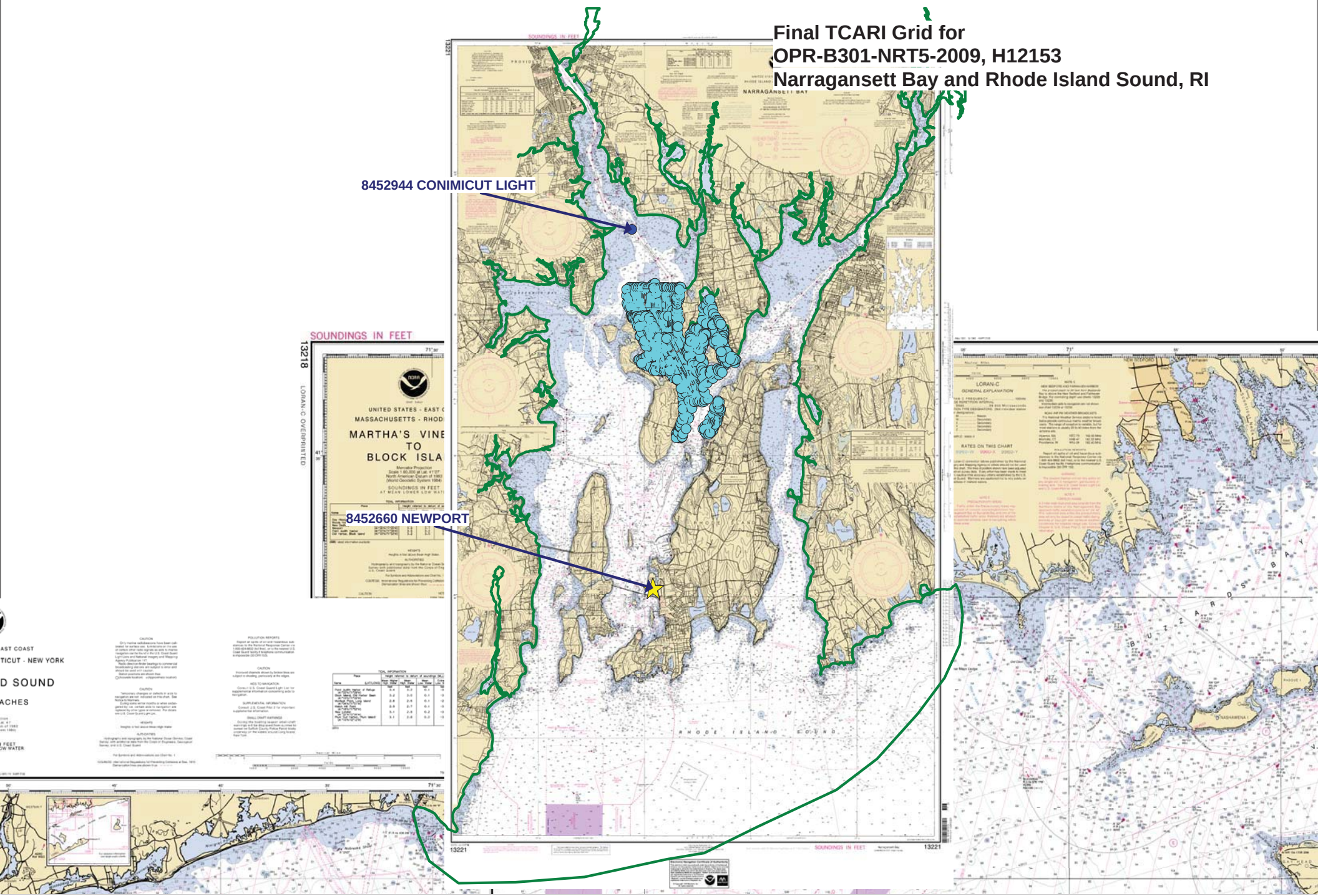
Refer to attachments for grid information.

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

Peter J. Stone

Digitally signed by Peter J. Stone
DN: cn=Peter J. Stone, o=CO-OPS, ou=NOAA/NOS, email=peter.stone@noaa.gov, c=US
Date: 2010.05.03 12:56:47 -04'00'

CHIEF, OCEANOGRAPHIC DIVISION


Final TCARI Grid for
OPR-B301-NRT5-2009, H12153
Narragansett Bay and Rhode Island Sound, RI
8452944 CONIMICUT LIGHT
8452660 NEWPORT
SOUNDINGS IN FEET
13218
LORAN-C OVERPRINTED
MARTHA'S VINE
TO
BLOCK ISLA
RHODE ISLAND SOUND
13221
LORAN-C
GENERAL EXPLANATION
RATES ON THIS CHART

PHB Compilation Log

General Survey Info

Survey Number	H12153	Field Unit	NRT5	State	RI	UTM Zone	19N
Project Number	OPR-B301-NRT5-09	Project Name (Locality)	Narragansett Bay and Rhode Island Sound				
Start Date	06/16/2009	Sublocality	Sakonnet Point to Newport				
End Date	08/27/2009	Survey Scale	10,000	Compilation Scale	20000		

Affected Raster Charts

Chart	KAPP	Scale	Edition	Date	NTM Date
13223	2134	20000	41st	06/01/2009	11/12/2011
13224	2132	20000	39th	08/01/2009	10/29/2011
13226	2129	20000	7th	01/01/2011	12/10/2011

Add Chart | Remove Chart

Affected Electronic Charts

ENC	Scale
US5RI22M	20000
US5RI23M	20000

Add ENC | Remove ENC

Spatial Reference

Horizontal Datum	WGS84
Coordinate System	LLDG
Sounding Datum	MLLW
Vertical Datum	MHW

Junction Surveys

Survey Number	Survey Date	Location Relative to Current Survey
H11929	01/01/2008	N
H11988	01/01/2008	W

Add Survey | Remove Survey

HCell Compiler	Kurt Brown	QC Reviewer	Cathleen Barry	SAR Reviewer	Adam Argento

PHB Compilation Log

Processing Info

Source Surfaces	
Resolution	File Name
4	H12153_4m_Combined

Add Surface | Remove Surface

Supporting Documents	
Name	Version
Specs and Deliverables	June 2011
HCell Specs	6.1

Add Doc | Remove Doc

Software Used		
Software	Version, HF	Used For
CARIS HIPS	7.1 HF3	SAR Review. Inspection of Combined BASE Surfaces.
Pydro	11.10	SAR Review. Generation of Features Reports.
CARIS BASE Editor	3.2 HF5	Creation of soundings and bathy-derived features, meta area object, and Blue Notes; Survey evaluation and verification; Initial HCell assembly.
CARIS S-57 Composer	2.2 HF4	Final compilation of the HCell, correct geometry and build topology, apply final attributes, export the HCell, and QA.
CARIS GIS	4.4a	Setting the sounding rounding variable for conversion of the metric HCell to NOAA charting units with NOAA rounding. (For Fathoms and Feet chart units only.)
CARIS HOM	3.3 SP3 HF8	Perform conversion of the metric HCell to NOAA charting units with NOAA rounding. (For Fathom and Feet chart units only)
CARIS Plot Composer	5.1 SP 2	Generate plots of CARIS Session files used for QC.
HydroService, dKart Inspector	5.1	Validation check of the HCell.
Fugawi View ENC	1.0.0.3	Independent inspection of final HCells using COTS viewer.

Product Info

Deliverables	
Chart Scale HCell	H12153_CS.000
Survey Scale HCell	H12153_SS.000
HCell Report for MCD	H12153_HR.pdf
Feature Listing	H12153_FL.txt
Descriptive Report	H12153_DR.pdf
Survey Outline	H12153_Outline.gml and .xsd

Horizontal and Vertical Units

During creation of the HCell all soundings and features are maintained in metric units with as high precision as possible. Depth units for soundings measured with sonar maintain millimeter precision. Depths on rocks above MLLW and heights on islets above MHW are typically measured with range finder, so precision is less.

Depth Units (DUNI)	Feet
Height Units (HUNI)	Feet
Positional Units (PUNI)	Meters

PHB Compilation Log

Radius Setting

A survey-scale sounding (SOUNDG) feature object layer was built from the Combined Surface in CARIS BASE Editor. A shoal-biased selection was made at survey scale using a Radius Table file with values shown below.

Radius (mm)	Min. Depth (m)	Max Depth (m)
3	-4.7	10
4	10	20
4.5	20	50
5	50	500

Contours

Depth contours at the intervals on the largest scale chart are included in the SS HCell for MCD raster charting division to use for guidance in creating chart contours. With the exception of the zero contours included in the *_CS file, contours have not been deconflicted against shoreline features, soundings and hydrography.

Charted Contours	Metric Equivalent	Metric- NOAA Rounded	Chart Contours - NOAA Rounded
6ft	1.8288m	2.0574m	6.75ft
12ft	3.6576m	3.8862m	12.75ft
18ft	5.4864m	5.715m	18.75ft
30ft	9.3762m	9.144m	30.75ft
60ft	18.288m	18.516m	60.75ft

Add Contour | Remove Contour

Additional Info

Contact Information

Inquiries regarding this HCell content or construction should be directed to:

HCell Compiler: Kurt Brown

Phone Number: 206-526-6839

Email: kurt.brown@noaa.gov

Compilation Comments

APPROVAL SHEET
H12153

Initial Approvals:

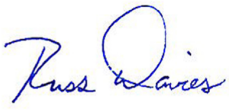
The survey evaluation and verification has been conducted according to branch processing procedures and the HCell compiled per the latest OCS HCell Specifications.

Digitally signed by Kurt Brown
DN: cn=Kurt Brown, o=Pacific Hydrographic Branch, ou=NOAA, email=kurt.brown@noaa.gov, c=US
Date: 2012.02.13 15:03:29 -08'00'

The survey and associated records have been inspected with regard to survey coverage, delineation of the depth curves, development of critical depths, S-57 classification and attribution of soundings and features, cartographic characterization, and verification or disproval of charted data within the survey limits. The survey records and digital data comply with OCS requirements except where noted in the Descriptive Report and are adequate to supersede prior surveys and nautical charts in the common area.

Cathleen Barry
2012.02.14 07:47:42 -08'00'

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



Digitally signed by Russ Davies
Reason: signing for Dave Zezula
Date: 2012.02.14 09:19:47 -08'00'