H11921

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey: Navigable Area

Registry Number: H11921

LOCALITY

State: Massachusetts

General Locality: Vineyard Sound

Sub-locality: Sow and Pigs Reef to Quicks Hole

2008

CHIEF OF PARTY
CDR P. Tod Schattgen
NOAA

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DATE

NOAA FORM 77-28 (11-72)	U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
	HYDROGRAPHIC TITLE SHEET	**H11921**

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:	**Massachusetts**		
General Locality:	**Vineyard Sound**		
Sub-Locality:	**Sow and Pigs Reef to Quicks Hole**		
Scale:	**1:10,000**	Date of Survey:	**6 August to 8 September 2008**
Instructions Dated:	**24 June 2008**	Project Number:	**OPR-B307-TJ-08**
Vessel:	**NOAA Ship *Thomas Jefferson***		
Chief of Party:	**CDR P. Tod Schattgen**		
Surveyed by:	***Thomas Jefferson* Personnel**		
Soundings by:	**Reson 8101 and 8125 multibeam echosounders.**		
Graphic record scaled by:	**N/A**		
Graphic record checked by:	**N/A**		
Protracted by:	**N/A**	Automated Plot:	**N/A**
Verification by:			
Soundings in:	**Meters at MLLW**		

Remarks:
1) All Times are in UTC.
2) This is a Navigable Area Hydrographic Survey.
3) Projection is NAD83, UTM Zone 19.
Red, bold, italic comments were made during office review.

Table of Contents

Descriptive Report to Accompany Hydrographic Survey H11921

Project OPR-B307-TJ-08
Vineyard Sound
Sow and Pigs Reef to Quicks Hole
Scale 1:10,000
6 August - 8 September 2008

NOAA Ship *Thomas Jefferson*

A. AREA SURVEYED *See Evaluation Report.*

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-B307-TJ-08, dated 24 June 2008.

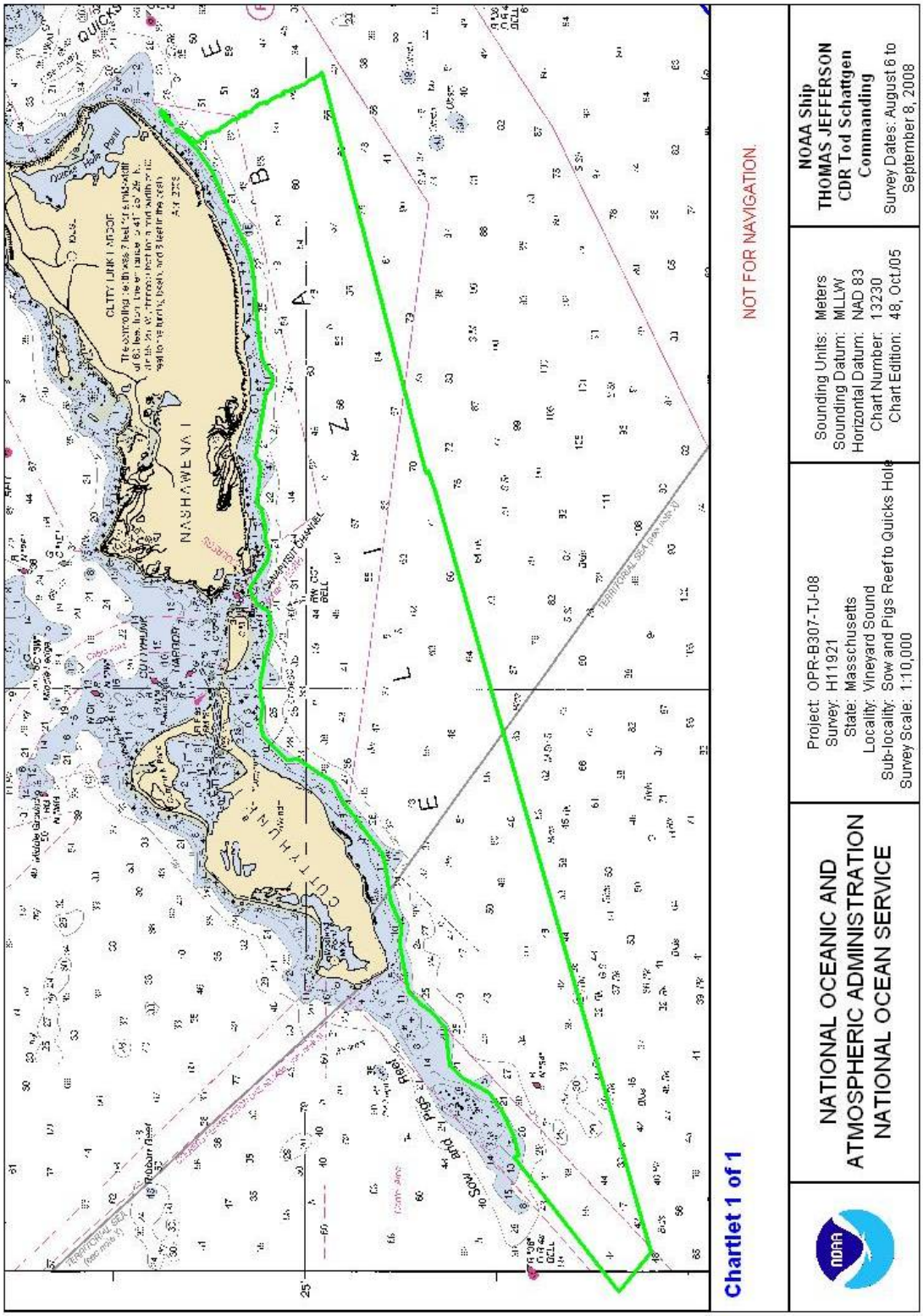
Northern Limit	Southern Limit	Western Limit	Eastern Limit
41° 25' 48.92" N 070° 50' 55.45" W	41° 23' 05.34" N 070° 59' 06.91" W	41° 23' 22.20" N 070° 59' 18.39" W	41° 24' 53.8" N 070° 50' 39.85" W

Data acquisition was conducted from 6th August to 8th September 2008.

The purpose for this survey is to provide modern full bottom coverage hydrographic surveys for 67 square nautical miles area, which was designated as a critical area in the Hydrographic Survey Priorities, 2007 edition.

	Lineal Nautical Miles
Single beam mainscheme only	N/A
Multibeam mainscheme only	392.22
Side Scan Sonar mainscheme only	77.31
Crosslines	15.80
Developments	0.88
Shoreline/nearshore investigations	26.23
Number of Bottom Samples	9
Number of AWOIS items Investigated	2

The survey limits of H11921 are shown on the following page.


NOT FOR NAVIGATION
Chartlet 1 of 1
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE
Project: OPR-B307-TJ-08
Survey: H11921
State: Massachusetts
Locality: Vineyard Sound
Sub-locality: Sow and Pigs Reef to Quicks Hole
Survey Scale: 1:10,000
Sounding Units: Meters
Sounding Datum: MLLW
Horizontal Datum: NAD 83
Chart Number: 13230
Chart Edition: 48, Oct./05
NOAA Ship
THOMAS JEFFERSON
CDR Tod Schattgen
Commanding
Survey Dates: August 6 to
September 8, 2008

B. DATA ACQUISTION AND PROCESSING

Refer to ***OPR-B307-TJ-08 Data Acquisition and Processing Report (DAPR-Spring)*** for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods. Additional information to supplement sounding and survey data, and any deviations from the DAPR are included in this descriptive report.

B 1. EQUIPMENT AND VESSELS

Data were acquired by Hydrographic Survey Launches 3101 and 3102. Launch 3101 acquired Reson 8125 multibeam echosounder soundings, sound velocity profiles, and bottom samples. Launch 3102 acquired Klein 5000 side scan sonar imagery, Reson 8101 multibeam echosounder soundings, and sound velocity profiles. Vessel configurations, equipment operation, data acquisition and processing were consistent with specifications described in the DAPR.

B 2. QUALITY CONTROL

B 2.1 System Certification and Calibration

Refer to NOAA Ship *Thomas Jefferson* DAPR and Hydrographic Systems Readiness Report (HSRR) for a complete description of system integration and initial calibration results for equipment and sensors used for this survey.

B 2.2 Sounding Coverage

As per the Letter Instructions, this survey was conducted using 100% side scan and complete multibeam (MB) coverage in depths from 4 to 20 meters, and complete MB coverage in depths greater than 20 meters. To aid in feature management, MB coverage in depths shallower than 20 meters was acquired to object detection specifications, see appendix V. Side Scan Sonar coverage was proven by creation of a 100% coverage mosaic with a 0.5 meter resolution. Bathymetry coverage was proven by the creation of a 50 cm resolution BASE surface, using IHO Order 1 quality flags and the "shallow" CUBE settings as per FPM Sec.4.4.1.1.1.1. ***See Evaluation Report.***

Given the boulder-strewn nature of the seafloor, it would be unnecessarily time-consuming to identify and attribute every side scan contact. Therefore, MB coverage was acquired to object-detection criteria within the 20m curve and shoaler. ***See Evaluation Report.*** Despite the narrow line spacing, large quantities of small holidays remained in some areas. Due to safety concerns in the shallow water environment, it was deemed prohibitive to fill in every small holiday. The 0.5 meter multibeam surface was superimposed on the 100% side scan mosaic, and analyzed to determine if the most significant features had least depth coverage. Areas that contained small MB holidays that had no corresponding side scan features were considered resolved. Further examination of the MB data showed that large rocks in shallow water created shadows in the multibeam data, similar to that seen in the sidescan, although in each instance least depths on the rocks were adequately determined.

B 2.3 Crosslines

Multibeam echosounder cross-lines totaling 15.80 lineal nautical miles, comprising 4 percent of hydrography, were acquired during the course of the survey. As per guidance from AHB (see email in appendix V) an evaluation of the standard deviation layer of the BASE surface was performed for each fieldsheet in the survey. The results indicate some systematic artifacts due to attitude inputs, but these do not exceed 0.355 in any area. Other areas of high standard deviation are caused by bathymetric features or man made obstructions. The results of the evaluation are located in the Descriptive Report/Separates/Crossline_Comparison folder submitted with this survey.

B 2.4 Junctions and Prior Surveys

The following contemporary surveys junction with H11921:

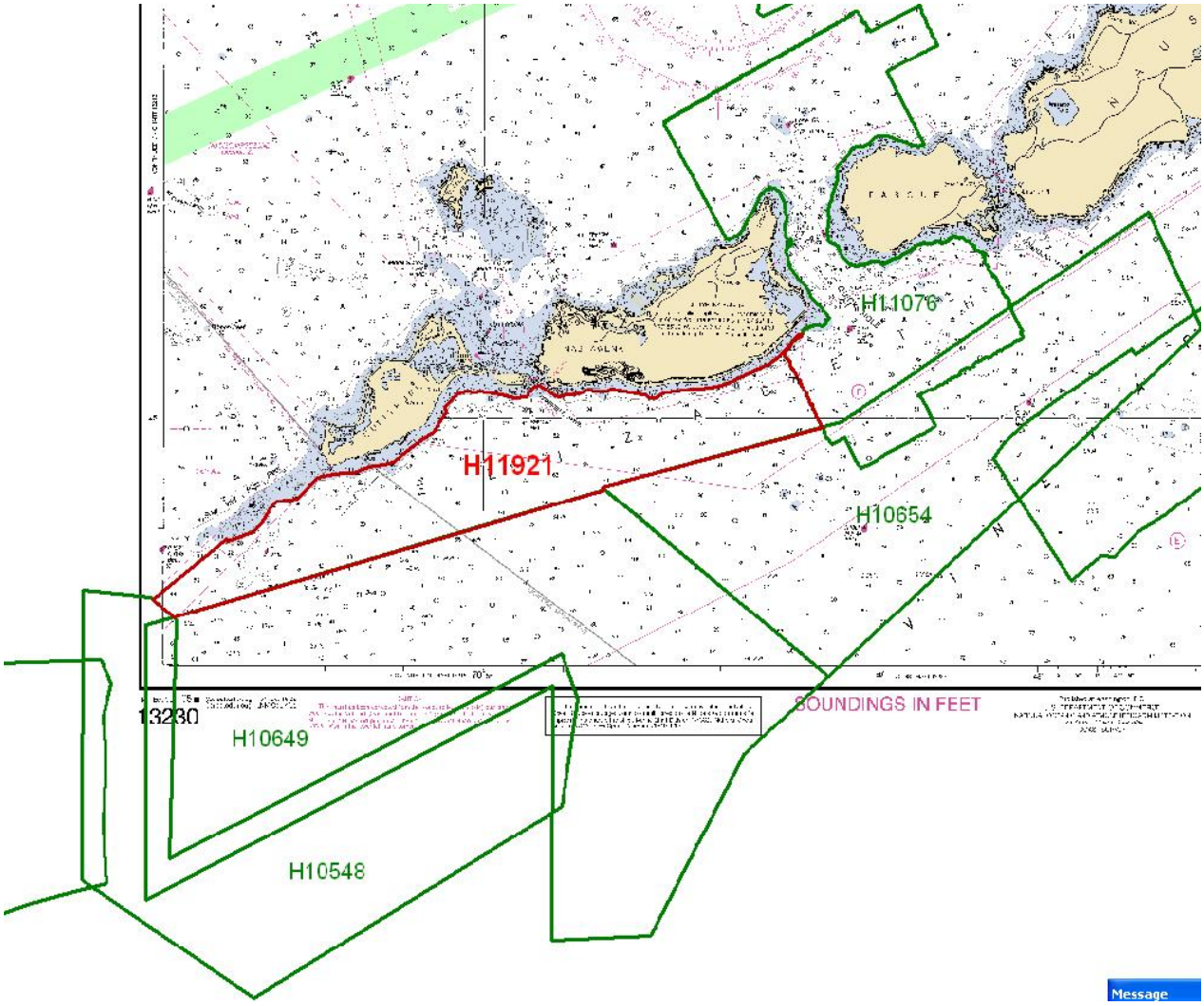
Registry #	Scale	Year	Field Party	Junction side
H11076	1:5000	2004	*Thomas Jefferson*	East
H10654	1:10,000	1995	contractor	Southeast
H10649	1:10,000	1995	contractor	Southwest
H10548	1:10,000	1994	*Rude*	West

Survey H11076 junctions with H11921 in the East. The difference in soundings between the two surveys is no greater than 0.30 meters.

Survey H10654 junctions with H11921 in the Southeast. This survey is older than five years.

Survey H10649 junctions with H11921 in the Southwest. This survey is older than five years.

Survey H10548 junctions with H11921 in the West. This survey is older than five years.

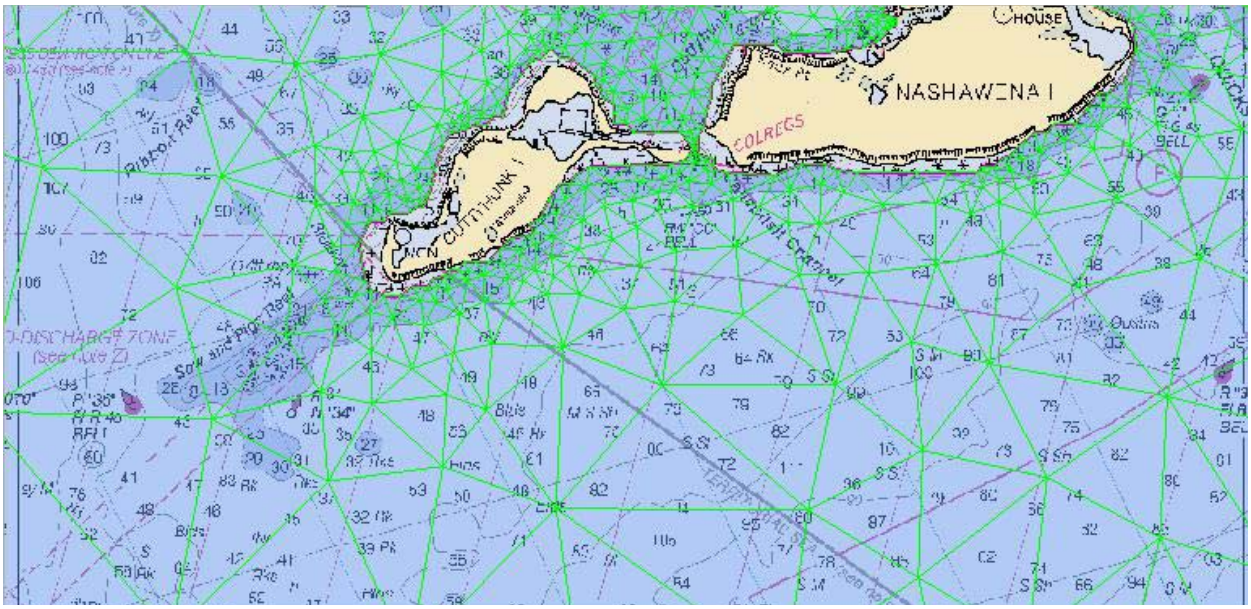


B 2.5 Systematic Errors

On DN 233 Launch 3102 had two hours of data with a 2008 date in the attitude time stamp. The problem was fixed using Pydro and adding a 2006 DN335 date stamp into the HVF. ***See Evaluation Report.***

B 3. CORRECTIONS TO ECHO SOUNDINGS

HDCS sounding data were reduced to mean lower-low water (MLLW) using verified water levels from Newport, RI (845-2660) and Menemsha Harbor, MA (844-8725), adjusted for tidal constituents and residuals provided by CO-OPS as specified in the Letter Instructions and illustrated below.



All other datum reduction procedures conform to those outlined in the ***DAPR.***

All methods and instruments used for sound velocity correction were as described in the ***DAPR***. A file detailing all sound velocity casts is located in Separate ~~III~~ ***II*** of this Descriptive Report.

B 4. DATA PROCESSING

B 4.1 Total Propagated Error *See Evaluation Report.*

For the 2008 field season, Total Propagated Error (TPE) parameters for sound speed and tides are calculated separately for each project. The project-specific parameters for OPR-B307-TJ-08, Survey H11921 are as follows:

TPE Parameters

Vessel	Tide Values		Sound Speed Values	
	Measured	Zoning	Measured	Surface
3101	0.0	0.0	1.0	0.2
3102	0.0	0.0	1.0	0.2

Measured Sound Speed values were calculated using the HSTP Sound Speed Estimator program and were consistently below 1 m/s for the project area (see processing logs in separates). TPE values for all MBES data were applied immediately following CARIS Merge.

B 4.2 BASE Surfaces and Mosaics

The following table describes all BASE Surfaces and Mosaics submitted as part of Survey H11921:

Name of Surfaces and/or Mosaics	*Resolution*	*Type*	*Purpose*
H11921_100SSS_Mosiac	0.5 meter	SSS Mosaic	Side Scan Coverage
H11921_1_Cube_50cm_Shallow_Final	0.5 meter	CUBE	Sounding Coverage
H11921_2_Cube_50cm_Shallow_Final	0.5 meter	CUBE	Sounding Coverage
H11921_3_Cube_50cm_Shallow_Final	0.5 meter	CUBE	Sounding Coverage
H11921_4_Cube_50cm_Shallow_Final	0.5 meter	CUBE	Sounding Coverage
H11921_MB_All	2.0 meter	CUBE	Sounding Coverage All

This survey was processed using the Combined Uncertainty and Bathymetry Estimator (CUBE) algorithm. The CUBE configuration was set to "Shallow" for this entire survey and IHO order 1 was chosen, too. Refer to the 2008 Data Acquisition and Processing Report-Spring, 2007 Field Procedures Manual, and CARIS HIPS/SIPS 6.1 manual for further discussion.

C. VERTICAL AND HORIZONTAL CONTROL

As per FPM section 5.2.3.2.3 guidance (see Appendix V), a HVCR report was not filed as no horizontal control stations were established by the field party for this survey. A summary of horizontal and vertical control for this survey follows.

C 1.1 Horizontal Control

The horizontal datum for this project is the North American Datum of 1983 (NAD83), zone 19. Differential GPS (DGPS) was the sole method of positioning. Differential corrections from U.S. Coast Guard beacons at Acushnet (306 kHz) and Moriches (293 kHz) were used during this survey.

No horizontal control stations were established by the field party for this survey.

C 1.2 Vertical Control

The vertical datum for this project is Mean Lower-Low Water (MLLW). The operating National Water Level Observation Network (NWLON) station at Newport, RI (845-2660) and Menemsha Harbor, MA (844-8725), served as datum control for H11921. Final tides with final TCARI constituents and residuals were applied to all sounding data.

A request for delivery of final approved (verified) tides for this survey was forwarded to N/OPS1 on 9 September 2008 in accordance with the FPM and project letter instructions.

D. RESULTS AND RECOMMENDATIONS

D.1 Chart Comparison

Survey H11921 was compared with the following charts and ENCs:

13218 (40th Ed.; February 2008, 1:80,000)
13230 (48th Ed.; October 2005, 1:40,000)
13233 (17th Ed.; September 2005, 1:40,000)
13229 (30th Ed; April 2008, 1:40,000)
13200 (35th Ed; May 2007, 1:400,000)
13009 (33rd Ed; May 2007, 1:500,000)
13006 (34th Ed; May 2007, 1:675,000)
13003 (49th Ed; April 2007, 1:1,200,000)
5161 (13th Ed; September 2003 1:1,058,400)

US5MA25M
US4MA23M

Chart comparisons were performed in Pydro using survey-scale excessed soundings, and in MapInfo using survey-scale and chart-scale excessed soundings exported from Pydro.

D.1.1 Chart 13218 Comparison

In general the soundings agree within 1 meter. Where there are differences they tend to be deeper than the charted depths. In some cases there is a 2 meter difference. ***One particular charted depth is 3 meters shoaler than the survey soundings.***

D.1.2 Chart 13230 Comparison

In general the soundings agree within 1 meter. In the deeper areas where there are differences they tend to be deeper. In the near shore areas especially near Sow and Pigs Reef the soundings tend to be shallower than the charted depths. In some cases there is a 2 meter difference. ***One particular charted depth is 3 meters shoaler than the survey soundings.***

D.1.3 Chart 13233 Comparison

The survey limits fall onto the eastern side of chart 13233. In general the soundings agree within 1 meter. In the shallows south of Nashawena Island the soundings tend to be 1 meter shallower than the charted depths.

D.1.4 Chart 13229 comparison

Chart 13229 is outside the survey limits of H11921. ***Do not concur. See Evaluation Report.***

D.1.5 Chart 13200 comparison

In general the soundings agree within 1 meter. Where there are differences they tend to be deeper up to by up to 1.8 meters. ***Concur with clarification. The survey soundings tend to de deeper than the charted depths.***

D.1.6 Chart 13009 comparison

In general the soundings agree within 1 meter. Where there are differences they tend to be deeper up to by up to 1.8 meters. ***Do not concur. One of the two charted depths on chart 13009 that falls within the survey area is 3.2 fathoms deeper than an over-plotting 0.83-fathom survey sounding.***

D.1.7 Chart 13006 comparison

There are not any depths on this chart which fall within the survey limits. ***Concur.***

D.1.8 Chart 13003 comparison

There are not any depths on this chart which fall within the survey limits. ***Concur.***

D.1.9 Chart 5161 comparison

There are not any depths on this chart which fall within the survey limits.

D.1.10 ENC US5MA25M

In general the soundings agree within 1 meter. In the near shore areas especially near Sow and Pigs Reef the soundings tend to be shallower than the charted depths. In some cases there is a 2 meter difference.

D.1.11 ENC US4MA23M

This ENC covers the western most limits of H11921. The soundings agree within 1 meter of the charted depth.

D.2 Additional Results

D.2.1 Automated Wreck and Obstruction Information Service (AWOIS) Items

A total of two assigned AWOIS items were located within the modified limits of H11921 and investigated during this survey. AWOIS items were investigated with 100% Klein 5000 side scan sonar and complete multibeam coverage over the search radius. All AWOIS items are described in detail in Appendix II of this report.

D.2.4 Shoreline

Detached positions were taken on some rocks, an uncharted airfield, charted islands that are now connected by solid shoreline, and a charted wreck. For more information on these items refer to the H11921 Pydro PSS.

D.2.5 Charted Features *See Evaluation Report.*

The following features are located as charted and their representation on the chart is adequate. The hydrographer recommends retaining the following features as charted: ***Concur with clarification. The below features do not need to be charted. They will be retained considering they are outside of the surveyed area.***

Description of Feature	*Charted Latitude*	*Charted Longitude*	*Least Depth*
~~Rock~~	~~41° 25' 23.261"N~~	~~070° 54' 56.768"W~~	~~Awash~~ ***(Same as Wreck below)***
Rock	41° 25' 21.932"N	070° 54' 55.492"W	Unknown
Wreck	41° 25' 23.261"N	070° 54' 56.768"W	Unknown

All other charted features and item investigations are described in detail in Appendix II of this report.

D.2.6 Charted Pipelines and Cables

There are no charted pipelines or cables in the survey area. ***Concur with clarification. The survey area adjoins a charted cable area to the west.***

D.2.7 Bridges, Ferry Routes, and Overhead Cables

There are no ferry routes, bridges, or overhead cable crossings within the limits of the survey.

D.3 Dangers to Navigation and Shoals

D 3.1 Dangers to Navigation

A total of fifteen dangers to navigation were found and reported to the NOAA's Office of Coast Survey, Marine Chart Division (MCD) for verification. A copy of each Danger to Navigation Report is included in Appendix I, and a copy of each DTON email to MCD is located in Appendix V of this Descriptive Report.

A table of all Dangers to Navigation identified in this survey, with their submission date to MCD, is included below.

DTON Number	Description	Latitude	Longitude	Date Submitted
1	Rock	41°23'16.359"N	070°59'02.089"W	14 August 2008
2	Rock	41°23'30.237"N	070°58'10.652"W	19 August 2008
3	Rock	41°23'18.240"N	070°58'52.874"W	4 September 2008
4	Rock	41°23'33.747"N	070°58'00.021"W	4 September 2008
5	Rock	41°23'37.058"N	070°57'55.405"W	4 September 2008
6	Rock	41°23'44.665"N	070°57'23.631"W	4 September 2008
7	Rock	41°24'18.548"N	070°56'31.821"W	4 September 2008
8	Rock	41°24'24.279"N	070°56'18.871"W	4 September 2008
9	Rock	41°25'00.772"N	070°53'42.946"W	4 September 2008
10	Rock	41°23'53.048"N	070°57'54.751"W	4 September 2008

11	Rock	41°23'43.640"N	070°58'37.355"W	4 September 2008
12	Rock	41°25'04.064"N	070°54'16.300"W	4 September 2008
13	Rock	41°23'45.127"N	070°57'50.634"W	4 September 2008
14	Rock	41°24'33.674"N	070°54'38.301"W	17 September 2008
15	Rock	41°23'38.575"N	070°57'37.637"W	17 September 2008

D 3.2 Shoals

The shoal area south of Sow and Pigs Reef is showing movement slightly north and east.

D.4 Aids to Navigation

There are three charted Aids to Navigation (ATON) within the limits of H11921.

All Aids to Navigation were found to be on station and serving their intended purpose. The Hydrographer has no recommendations regarding these ATONs. ***See Evaluation Report.***

D.5 Coast Pilot Information

The Hydrographer has no recommendations for changes or addenda to the Coast Pilot.

D.6 Miscellaneous

Bottom Samples

Bottom samples were collected throughout the survey area. A total of 9 bottom samples were acquired. A list of all bottom samples is contained in Appendix V.

D.7 Adequacy of Survey

This survey is considered complete and adequate to supersede charted depths within the common area as per requirements specified in the Project Letter Instructions. ***Concur.***

Summary and Recommendations for Additional Work

E. APPROVAL

As Lead Hydrographer, I have ensured that standard field surveying and processing procedures were followed in producing this examination in accordance with the Office of Coast Survey Hydrographic Surveys Division's *Field Procedures Manual*, and NOS *Hydrographic Surveys Specifications and Deliverables*. Field operations for this basic hydrographic survey were conducted under my daily supervision with frequent checks of progress and adequacy.

All field sheets, this Descriptive Report, and all accompanying records and data are approved. All records are forwarded for final review and processing to N/CS33, Atlantic Hydrographic Branch.

Survey H11921 is adequate to supersede charted soundings in their common areas.

Listed below are supplemental reports submitted separately that contain additional information relevant to this survey:

Title	Date Sent	Office
Data Acquisition and Processing Report for OPR-B307-TJ-08	7 May 2008	N/CS33
Horizontal and Vertical Control Report for OPR-B307-TJ-08	n/a	N/CS33
Tides and Water Levels Package for OPR-B307-TJ-08	n/a	N/OPS1
Coast Pilot Report for OPR-B307-TJ-08	n/a	N/CS26

Approved and Forwarded:

Jasper Schaer
I have reviewed this document
2008.10.14 07:37:13 -04'00'

LT Jasper D. Schaer, NOAA
Field Operations Officer

CDR P. Tod Schattgen, NOAA
Commanding Officer

In addition, the following individuals were also responsible for overseeing data acquisition and processing of this survey:

Survey Managers:

Mike O'Neal
I am the author of this document
2008.10.14 07:35:58 -04'00'

ENS Michael O'Neal, NOAA
Junior Officer

Kim Glomb
I am the author of this document
2008.10.14 07:35:11 -04'00'

Kimberly Glomb
Survey Technician, NOAA

Appendix I

Dangers to Navigation

~~-15 DTONS~~

DTON Report

Registry Number: H11921

State: Massachusetts

Locality: Vineyard Sound

Sub-locality: Sow and Pigs Reef to Quicks Hole

Project Number: OPR-B307-TJ-08

Survey Dates: 6 August 2008 - 8 September 2008

The following DTON was found during acquistion of H11921.

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
13229	30th	04/01/2008	1:12,000 (13229_8)	USCG LNM: 01/16/2007 (10/14/2008) CHS NTM: None (08/29/2008) NGA NTM: None (10/25/2008)
13229	30th	04/01/2008	1:40,000 (13229_9)	USCG LNM: 07/29/2008 (10/14/2008) CHS NTM: None (08/29/2008) NGA NTM: 05/27/2000 (10/25/2008)
13230	49th	08/01/2008	1:40,000 (13230_1)	USCG LNM: 10/14/2008 (10/14/2008) NGA NTM: 03/07/1998 (10/25/2008)
13218	40th	02/01/2008	1:80,000 (13218_1)	USCG LNM: 05/20/2008 (06/03/2008) NGA NTM: 11/15/2003 (06/07/2008)
13200	35th	05/01/2007	1:400,000 (13200_1)	[L]NTM: ?
12300	47th	05/01/2008	1:400,000 (12300_1)	[L]NTM: ?
13009	33rd	05/01/2007	1:500,000 (13009_1)	USCG LNM: 09/09/2008 (11/04/2008) NGA NTM: 08/02/2008 (11/15/2008)
13006	34th	05/01/2007	1:675,000 (13006_1)	USCG LNM: 11/04/2008 (11/04/2008) NGA NTM: 08/02/2008 (11/15/2008)
5161	13th	10/01/2003	1:1,058,400 (5161_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	USCG LNM: 11/04/2008 (11/04/2008) NGA NTM: 08/02/2008 (11/15/2008)

* 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	DTON 2	Rock	6.09 m	41° 23' 30.2" N	070° 58' 10.7" W	---

Generated by Pydro v8.7 (r2666) on Thu Apr 23 18:06:57 2009 [UTC]

1.2	DTON 16 - AHB	Rock	9.98 m	41° 24' 35.2" N	070° 54' 57.7" W	---
1.3	DTON 7	Rock	9.27 m	41° 24' 18.5" N	070° 56' 31.8" W	---
1.4	DTON 9	Rock	8.79 m	41° 25' 00.8" N	070° 53' 42.9" W	---
1.5	DTON 10	Rock	3.79 m	41° 23' 53.0" N	070° 57' 54.8" W	---
1.6	DTON 12	Rock	7.13 m	41° 25' 04.1" N	070° 54' 16.3" W	---
1.7	DTON 14	Shoal	13.54 m	41° 24' 33.7" N	070° 54' 38.3" W	---

1 - DR_DToN

1.1) DTON 2

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 23' 30.2" N, 070° 58' 10.7" W

Least Depth: 6.09 m (= 19.98 ft = 3.330 fm = 3 fm 1.98 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.103 m

Timestamp: 2008-225.17:33:29.335 (08/12/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-225 / 406_1648

Profile/Beam: 24152/115

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature ia a 6-meter tall uncharted dangerous rock, detected with Reson 8125 MBES and 100% Klein 5000 SSS data. The rock is located in an area with numerous charted rocks, approximately 1.1 km south of Sow and Pigs Reef. Preliminary water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-225/406_1648	24152/115	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

20ft (13229_9, 13230_1, 13218_1)

3 ¼fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

6.1m (5161_1)

S-57 Data

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

Attributes: OBJNAM - Rock

QUASOU - 1:depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 6.090 m

WATLEV - 3:always under water/submerged

Office Notes

The feature is charted as a result of a field-submitted DtoN letter. The field recommended charting the feature as a dangerous rock of known depth in the corresponding depth area; however, the feature is currently charted as a dangerous rock of known depth outside the corresponding depth area. The reviewer recommends retaining the feature as charted because the least depth is indeed outside the corresponding depth area.

Feature Images

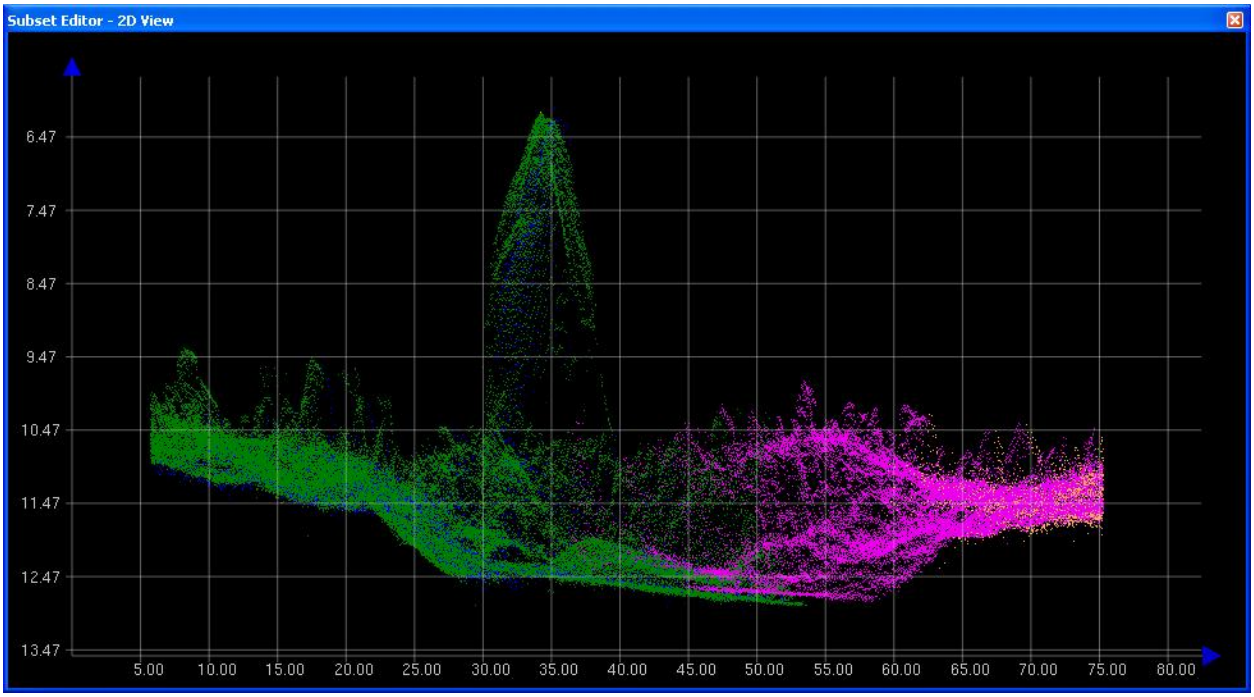


Figure 1.1.1

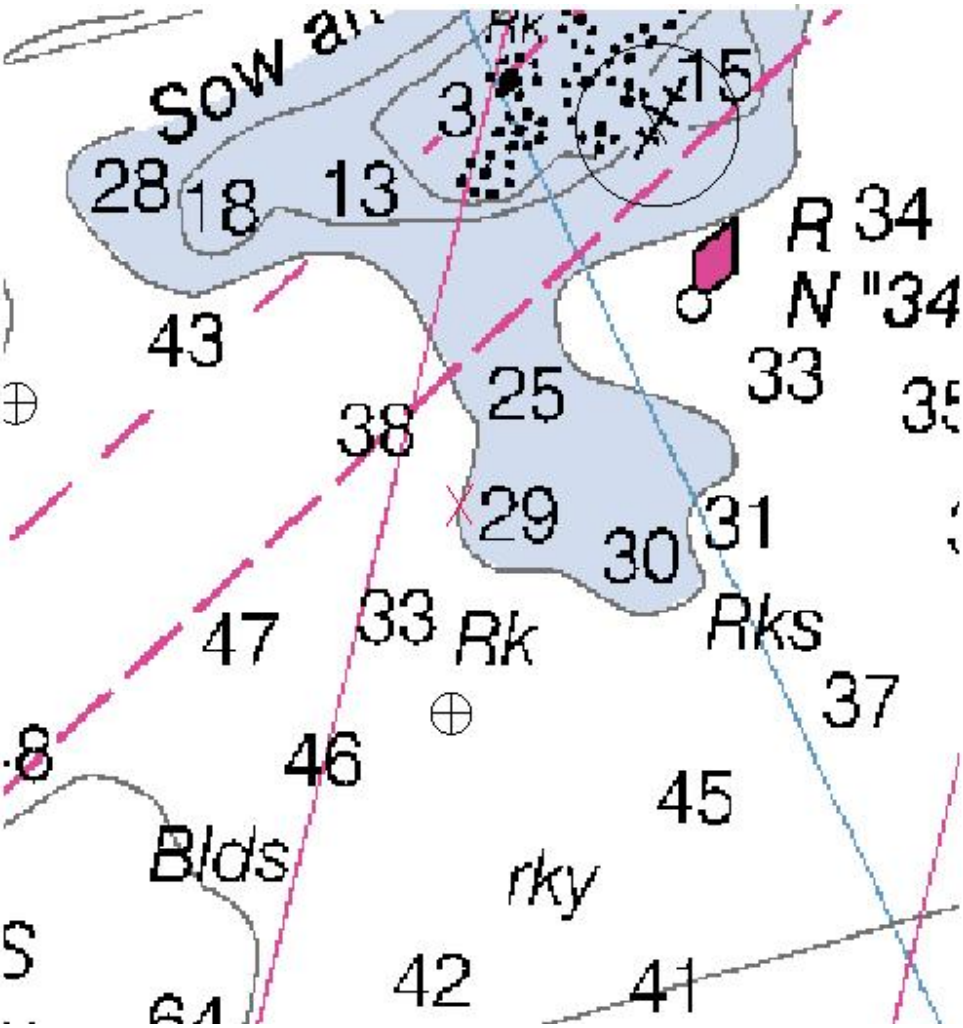

Rk
3
15
28
18
13
R 34
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Figure 1.1.2

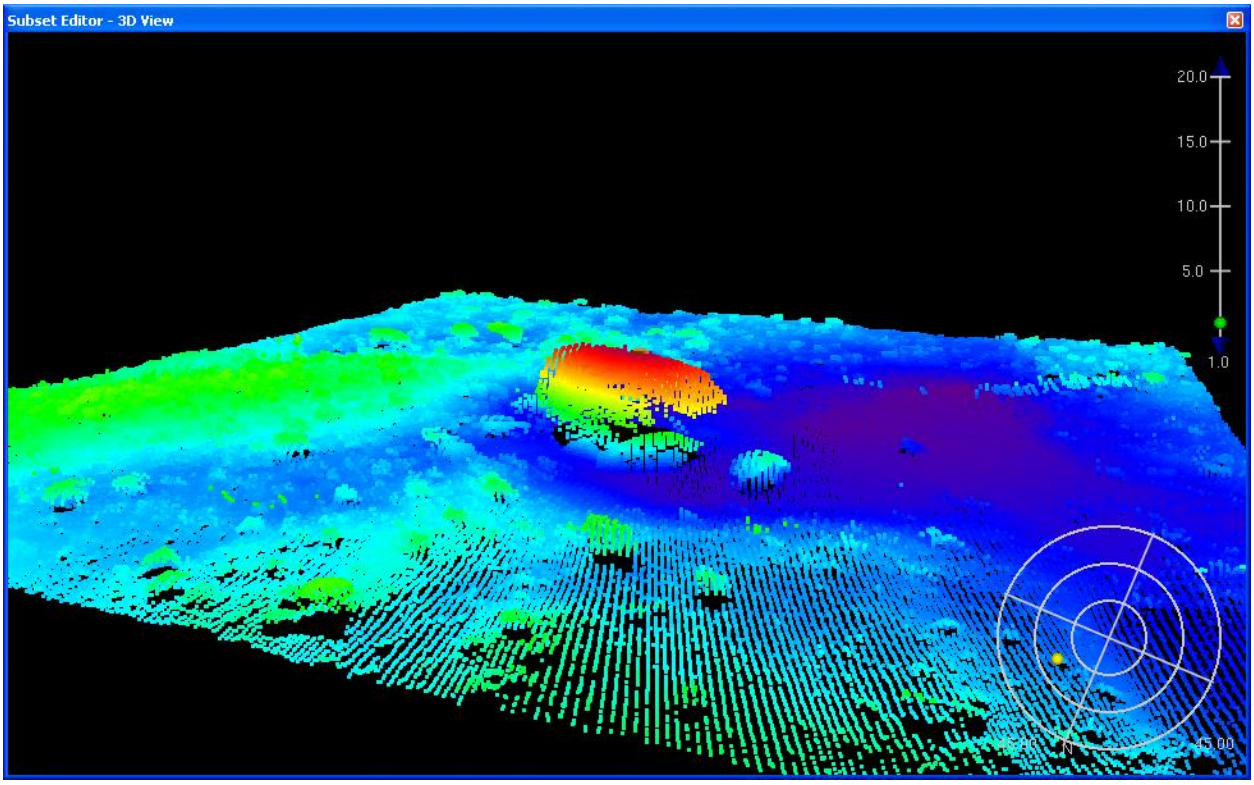

Figure 1.1.3

1.2) DTON 16 - AHB

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 24' 35.2" N, 070° 54' 57.7" W

Least Depth: 9.98 m (= 32.73 ft = 5.455 fm = 5 fm 2.73 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.982 m ; **TVU (TPEv)** ±0.110 m

Timestamp: 2008-223.19:33:41.052 (08/10/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-223 / 422_1909

Profile/Beam: 14023/207

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-223/422_1909	14023/207	0.00	000.0	Primary
ChartGPs - Digitized	7	6.49	165.4	Secondary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

32ft (13229_9, 13230_1, 13218_1)

5 ½fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

10.0m (5161_1)

S-57 Data

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

Attributes: VALSOU - 9.977 m

WATLEV - 3:always under water/submerged

Office Notes

The feature is an uncharted rock. Delete the nearby 37-ft charted depth (chart 13229_9), and chart the feature as per the surveyed least depth and position.

Feature Images

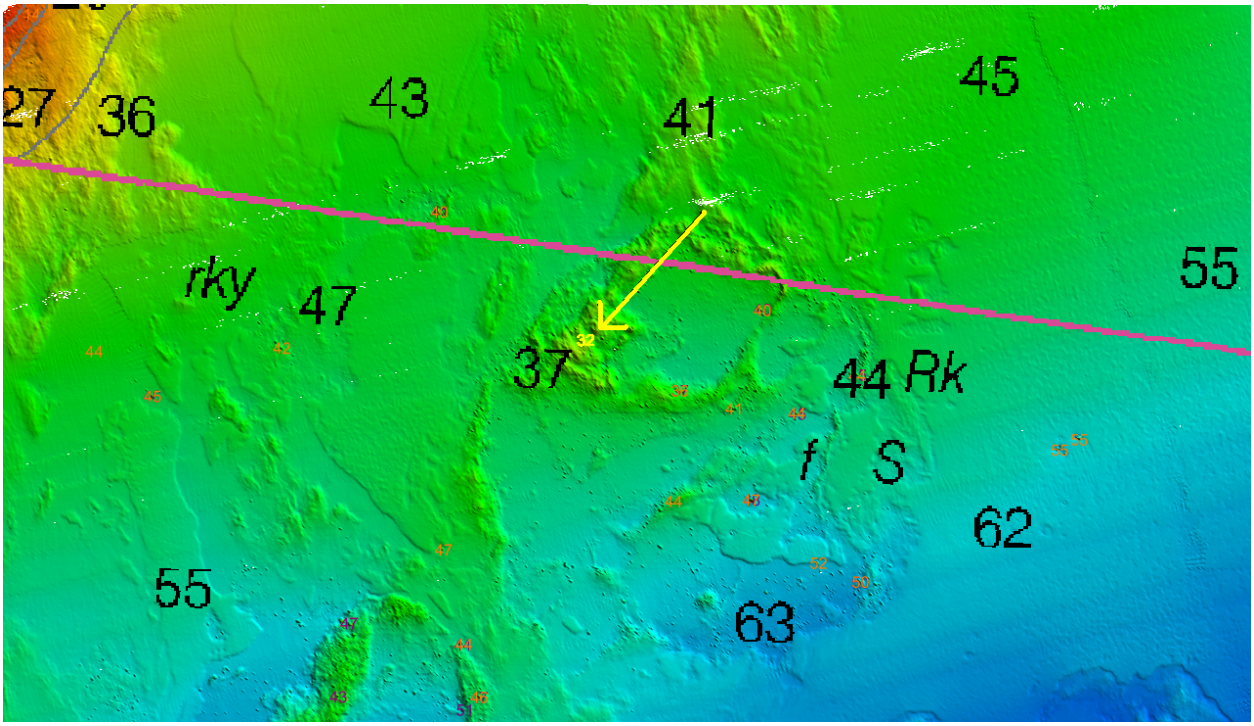

Figure 1.2.1

1.3) DTON 7

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 24' 18.5" N, 070° 56' 31.8" W

Least Depth: 9.27 m (= 30.42 ft = 5.071 fm = 5 fm 0.42 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.105 m

Timestamp: 2008-236.15:36:11.923 (08/23/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-236 / 643_1536

Profile/Beam: 141/66

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 9.27 meter tall uncharted dangerous rock, detected with Reson 8125 MBES and 100% Klein 5000 SSS data. The rock is located approximately 700 meters south of Cuttyhunk Island. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-236/643_1536	141/66	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

30ft (13229_9, 13230_1, 13218_1)

5fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

9.3m (5161_1)

S-57 Data

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

Attributes: QUASOU - 1:depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 9.273 m

WATLEV - 3:always under water/submerged

Office Notes

The feature is charted as a result of a field-submitted DtoN letter. Retain feature as charted.

Feature Images

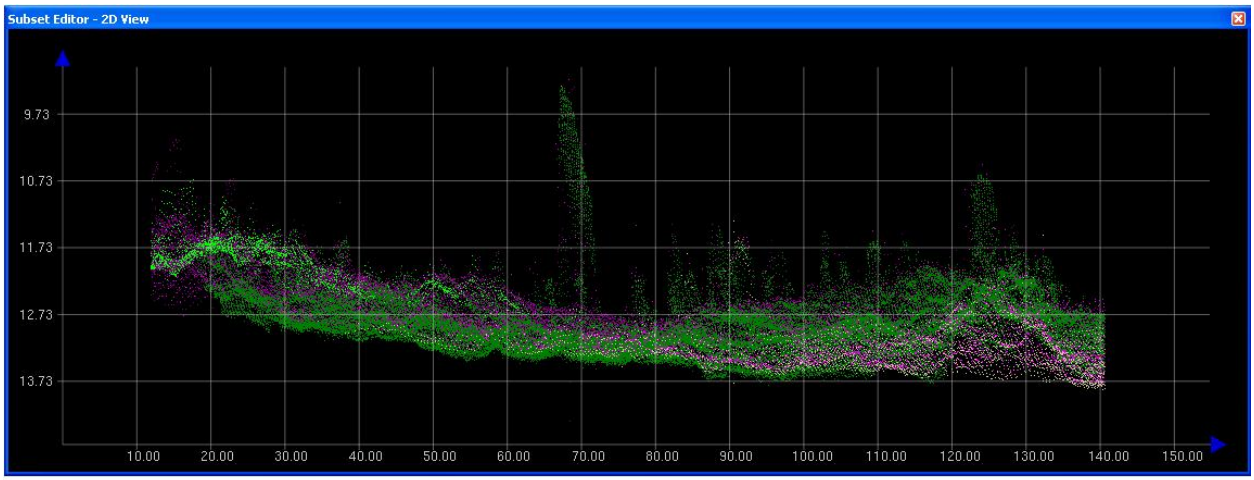

Figure 1.3.1

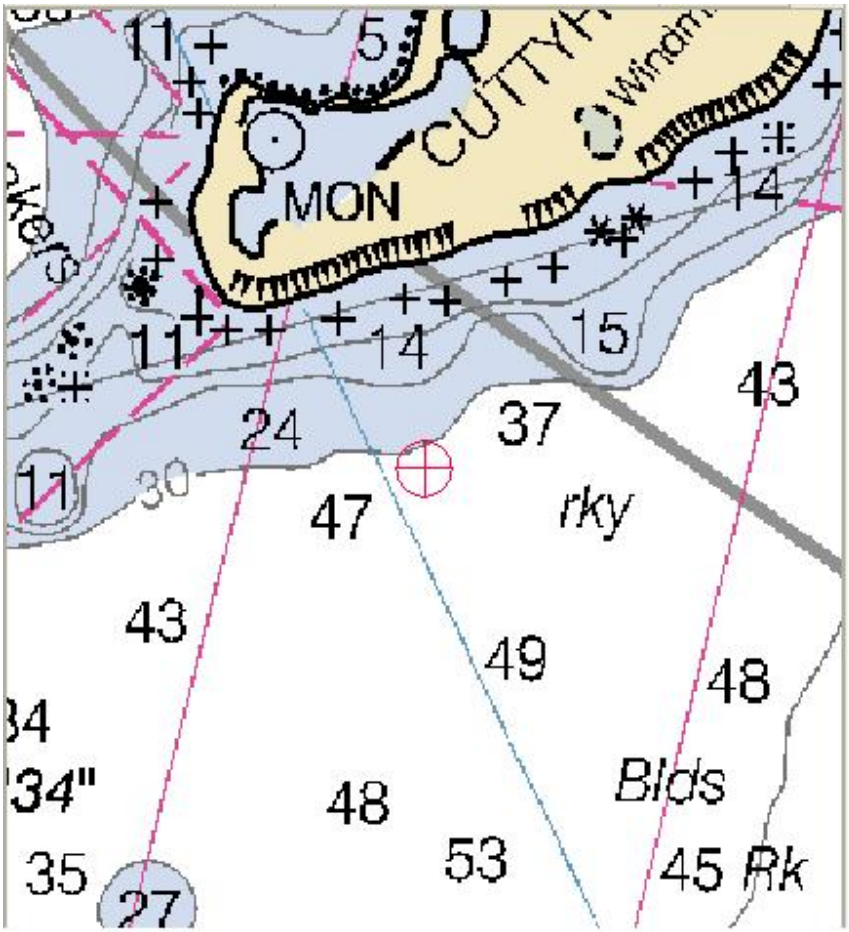
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Figure 1.3.2

1.4) DTON 9

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 25' 00.8" N, 070° 53' 42.9" W

Least Depth: 8.79 m (= 28.84 ft = 4.806 fm = 4 fm 4.84 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.114 m

Timestamp: 2008-226.13:54:30.258 (08/13/2008)

Survey Line: h11921 / tj_3102_reson8101 / 2008-226 / 431_1332

Profile/Beam: 10738/29

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 8.79 meter tall uncharted dangerous rock, detected with Reson 8101 MBES and 100% Klein 5000 SSS data. The rock is located approximately 600 meters south of Nashawena Island. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3102_reson8101/2008-226/431_1332	10738/29	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

29ft (13229_9, 13230_1, 13218_1)

4 ¾fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

8.8m (5161_1)

S-57 Data

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

Attributes: QUASOU - 1:depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 8.790 m

WATLEV - 3:always under water/submerged

Office Notes

The feature is charted as a result of a field-submitted DtoN letter. Retain feature as charted.

Feature Images

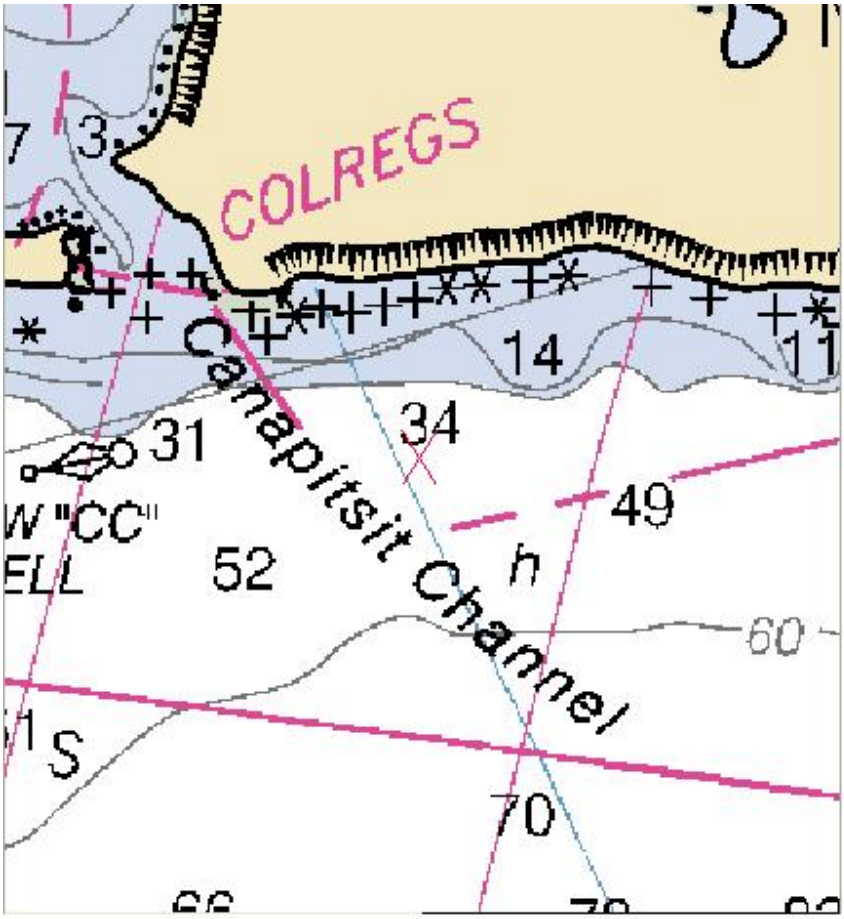

Figure 1.4.1

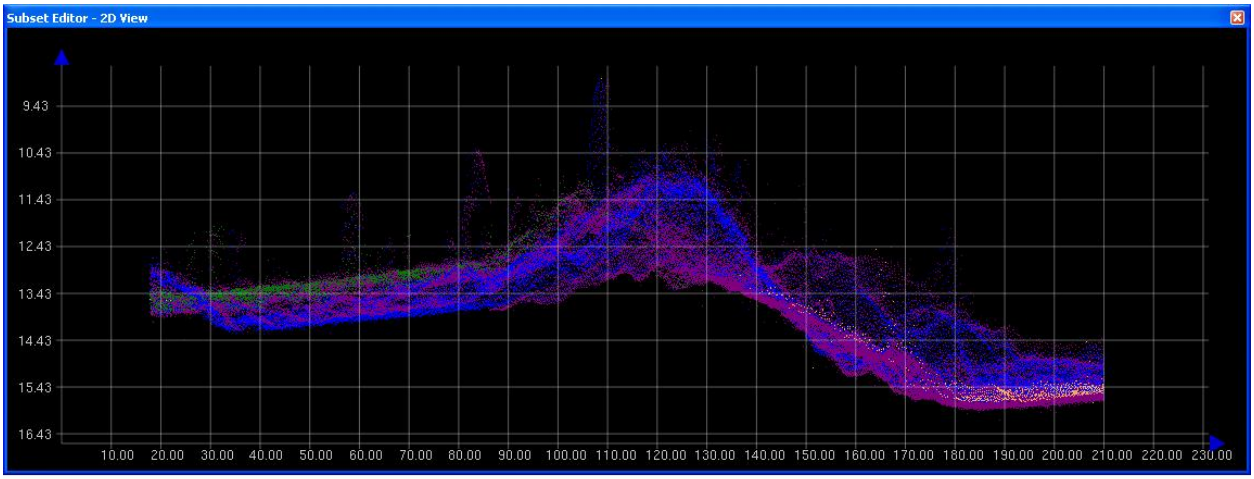
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Figure 1.4.2

1.5) DTON 10

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 23' 53.0" N, 070° 57' 54.8" W

Least Depth: 3.79 m (= 12.43 ft = 2.071 fm = 2 fm 0.43 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.113 m

Timestamp: 2008-236.21:03:52.936 (08/23/2008)

Survey Line: h11921 / tj_3102_reson8101 / 2008-236 / 713_2102

Profile/Beam: 873/67

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 3.79 meter tall uncharted dangerous rock, detected with Reson 8101 MBES and 100% Klein 5000 SSS data. The rock is located south of Sow and Pigs Reef. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3102_reson8101/2008-236/713_2102	873/67	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

12ft (13229_9, 13230_1, 13218_1)

2fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

3.8m (5161_1)

S-57 Data

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

Attributes: QUASOU - 1:depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 3.788 m

WATLEV - 3:always under water/submerged

Office Notes

The feature is charted as a result of a field-submitted DtoN letter. Retain feature as charted.

Feature Images

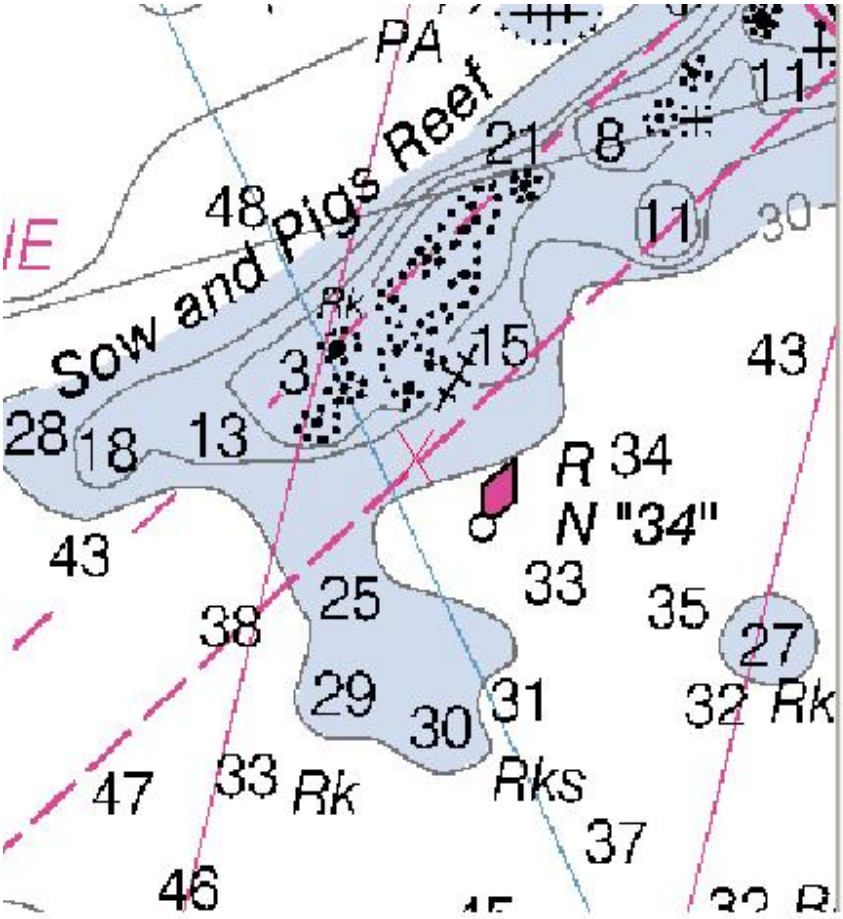

Figure 1.5.1

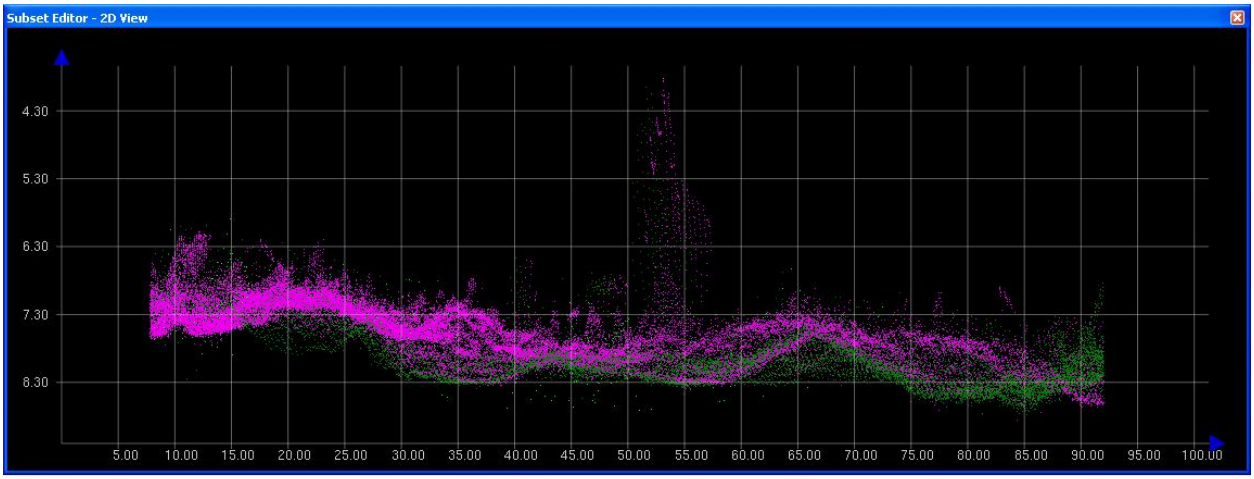
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Figure 1.5.2

1.6) DTON 12

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 25' 04.1" N, 070° 54' 16.3" W

Least Depth: 7.13 m (= 23.39 ft = 3.899 fm = 3 fm 5.39 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.104 m

Timestamp: 2008-236.20:10:43.126 (08/23/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-236 / 664_2009

Profile/Beam: 698/76

Charts Affected: 13229_8, 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 7.13 meter tall uncharted dangerous rock, detected with Reson 8125 MBES and 100% Klein 5000 SSS data. The rock is located approximately 500 meters west of Nashawena Island. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-236/664_2009	698/76	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

23ft (13229_8, 13229_9, 13230_1, 13218_1)

3 ¾fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

7.1m (5161_1)

S-57 Data

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

Attributes: QUASOU - 1:depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 7.130 m

WATLEV - 3:always under water/submerged

Office Notes

The feature is charted as a result of a field-submitted DtoN letter. Retain feature as charted.

Feature Images

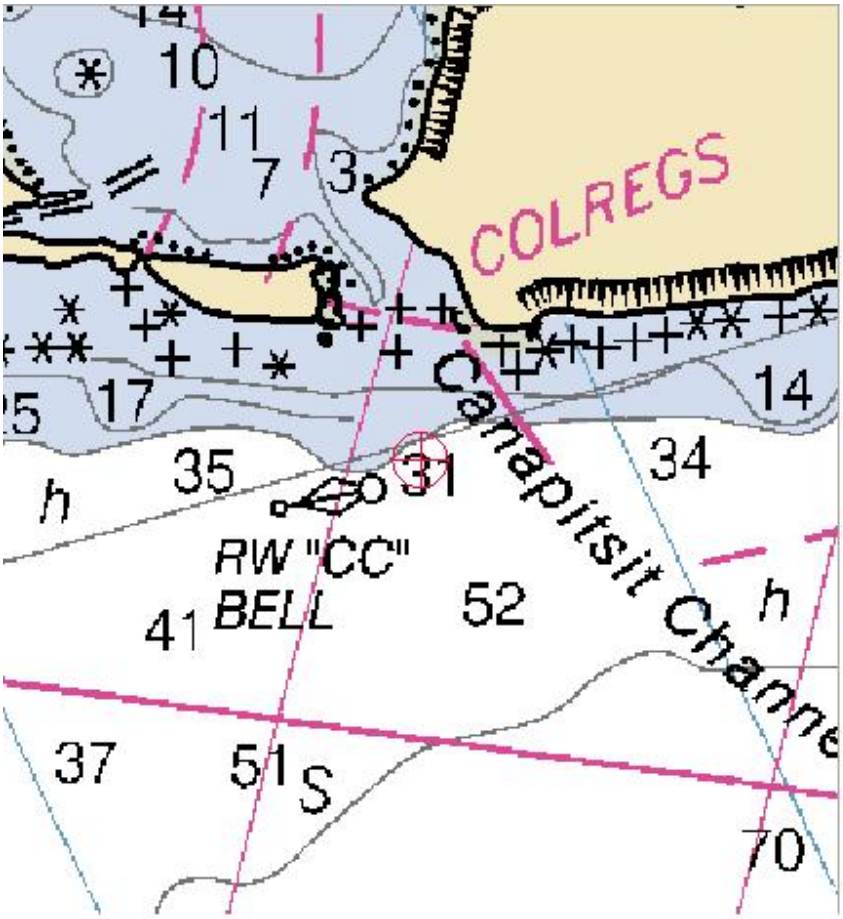

Figure 1.6.1

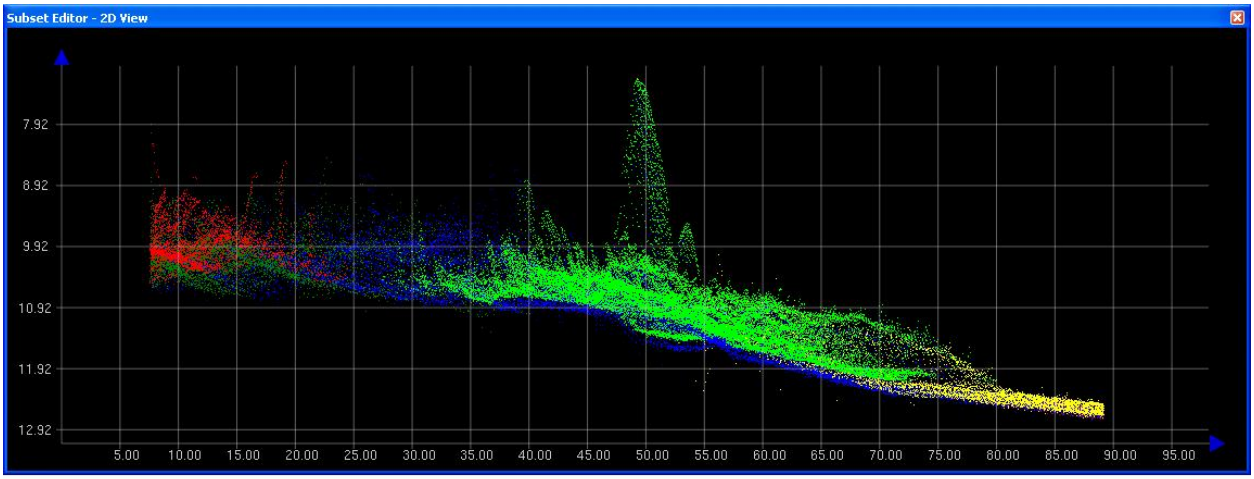
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Figure 1.6.2

1.7) DTON 14

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 24' 33.7" N, 070° 54' 38.3" W

Least Depth: 13.54 m (= 44.42 ft = 7.403 fm = 7 fm 2.42 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.117 m

Timestamp: 2008-232.19:49:22.322 (08/19/2008)

Survey Line: h11921 / tj_3102_reson8101 / 2008-232 / 652_1944

Profile/Beam: 1490/21

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 13.64 meter tall uncharted dangerous rock, detected with Reson 8125 MBES and 100% Klein 5000 SSS data. The rock is located approximately 1.4 kilometers south of Cuttyhunk Island. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3102_reson8101/2008-232/652_1944	1490/21	0.00	000.0	Primary
h11921/tj_3101_reson8125/2008-223/418_1331	16870/209	1.16	233.2	Secondary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

44ft (13229_9, 13230_1, 13218_1)

7 ¼fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

13.5m (5161_1)

S-57 Data

[None]

Office Notes

The feature was charted as a result of a field-submitted DtoN letter. The reviewer selected another sounding as the least depth, but the cartographically rounded depth did not change. Retain feature as charted.

Appendix II

Survey Features Report

1. AWOIS Items

-2 AWOIS items

2. Charted Features

- ~~none~~ ***13 features: 9 (1 WRECK, 8 UWTROC) 3 ROCKY SBDARE, 1 SNDWAV SBDARE***

3. Uncharted Features

~~-none~~ ***7 feature: 1 AWOIS, 6***

H11921 Descriptive Report Features

Registry Number: H11921

State: Massachusetts

Locality: Vineyard Sound

Sub-locality: Sow and Pigs Reef to Quicks Hole

Project Number: OPR-B307-TJ-08

Survey Dates: 08/07/2008 - 11/14/2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
13229	30th	04/01/2008	1:12,000 (13229_8)	USCG LNM: 01/16/2007 (10/14/2008) CHS NTM: None (08/29/2008) NGA NTM: None (10/25/2008)
13229	30th	04/01/2008	1:40,000 (13229_9)	USCG LNM: 07/29/2008 (10/14/2008) CHS NTM: None (08/29/2008) NGA NTM: 05/27/2000 (10/25/2008)
13233	17th	09/01/2005	1:40,000 (13233_1)	USCG LNM: 09/30/2008 (10/14/2008) NGA NTM: 03/07/1998 (10/25/2008)
13230	49th	08/01/2008	1:40,000 (13230_1)	USCG LNM: 10/14/2008 (10/14/2008) NGA NTM: 03/07/1998 (10/25/2008)
13218	40th	02/01/2008	1:80,000 (13218_1)	USCG LNM: 05/20/2008 (06/03/2008) NGA NTM: 11/15/2003 (06/07/2008)
13200	35th	05/01/2007	1:400,000 (13200_1)	[L]NTM: ?
12300	47th	05/01/2008	1:400,000 (12300_1)	[L]NTM: ?
13009	33rd	05/01/2007	1:500,000 (13009_1)	USCG LNM: 09/09/2008 (11/04/2008) NGA NTM: 08/02/2008 (11/15/2008)
13006	34th	05/01/2007	1:675,000 (13006_1)	USCG LNM: 11/04/2008 (11/04/2008) NGA NTM: 08/02/2008 (11/15/2008)
5161	13th	10/01/2003	1:1,058,400 (5161_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	USCG LNM: 11/04/2008 (11/04/2008) NGA NTM: 08/02/2008 (11/15/2008)

* 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 27-ft rock	Shoal	8.38 m	41° 23' 33.3" N	070° 57' 08.2" W	---
1.2	charted 33-ft rock	Shoal	10.10 m	41° 23' 20.9" N	070° 58' 16.9" W	---
1.3	charted 30-ft rock	Shoal	8.72 m	41° 23' 26.4" N	070° 57' 51.7" W	---
1.4	charted 31-ft rock	Shoal	9.09 m	41° 23' 28.4" N	070° 57' 41.8" W	---
1.5	charted 'rky'	GP	[None]	41° 23' 36.6" N	070° 57' 49.7" W	---
1.6	charted 'rky'	GP	[None]	41° 24' 14.6" N	070° 56' 12.2" W	---
1.7	charted 'rky'	GP	[None]	41° 24' 37.8" N	070° 55' 24.2" W	---
1.8	charted 'rky'	GP	[None]	41° 24' 33.9" N	070° 56' 08.8" W	---
2.1	uncharted sandwaves	GP	[None]	41° 25' 06.3" N	070° 51' 20.0" W	---
3.1	AWOIS #1890 FAIRFAX	AWOIS	[no data]	[no data]	[no data]	---
3.2	AWOIS #1984 DOUGLAS DEERBORN	AWOIS	[no data]	[no data]	[no data]	---
4.1	DTON 1	Rock	9.82 m	41° 23' 16.4" N	070° 59' 02.1" W	---
4.2	DTON 2	Rock	6.09 m	41° 23' 30.2" N	070° 58' 10.7" W	---
4.3	DTON 16 - AHB	Rock	9.98 m	41° 24' 35.2" N	070° 54' 57.7" W	---
4.4	DTON 3	Rock	11.42 m	41° 23' 18.2" N	070° 58' 52.9" W	---
4.5	DTON 4	Rock	6.36 m	41° 23' 33.7" N	070° 58' 00.0" W	---
4.6	DTON 15	Rock	8.40 m	41° 23' 38.6" N	070° 57' 37.6" W	---
4.7	DTON 5	Rock	6.69 m	41° 23' 37.1" N	070° 57' 55.4" W	---
4.8	DTON 6	Rock	9.55 m	41° 23' 44.7" N	070° 57' 23.6" W	---
4.9	DTON 7	Rock	9.27 m	41° 24' 18.5" N	070° 56' 31.8" W	---
4.10	DTON 8	Rock	9.66 m	41° 24' 24.3" N	070° 56' 18.9" W	---
4.11	DTON 9	Rock	8.79 m	41° 25' 00.8" N	070° 53' 42.9" W	---
4.12	DTON 10	Rock	3.79 m	41° 23' 53.0" N	070° 57' 54.8" W	---
4.13	DTON 11	Rock	11.13 m	41° 23' 43.6" N	070° 58' 37.3" W	---
4.14	DTON 12	Rock	7.13 m	41° 25' 04.1" N	070° 54' 16.3" W	---
4.15	DTON 13	Rock	6.79 m	41° 23' 45.1" N	070° 57' 50.6" W	---
4.16	DTON 14	Shoal	13.54 m	41° 24' 33.7" N	070° 54' 38.3" W	---

1 - Charted Features

1.1) charted 27-ft rock

Survey Summary

Survey Position: 41° 23' 33.3" N, 070° 57' 08.2" W

Least Depth: 8.38 m (= 27.48 ft = 4.580 fm = 4 fm 3.48 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.108 m

Timestamp: 2008-220.15:16:57.851 (08/07/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-220 / 400_1501

Profile/Beam: 7445/35

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-220/400_1501	7445/35	0.00	000.0	Primary
ChartGPs - Digitized	6	8.08	131.7	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

27ft (13229_9, 13230_1, 13218_1)

4 ½fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

8.4m (5161_1)

S-57 Data

[None]

Office Notes

The feature is a charted rock not addressed by the hydrographer. There is excellant agreement between the charted rock and the survey data. Retain the charted rock.

Feature Images

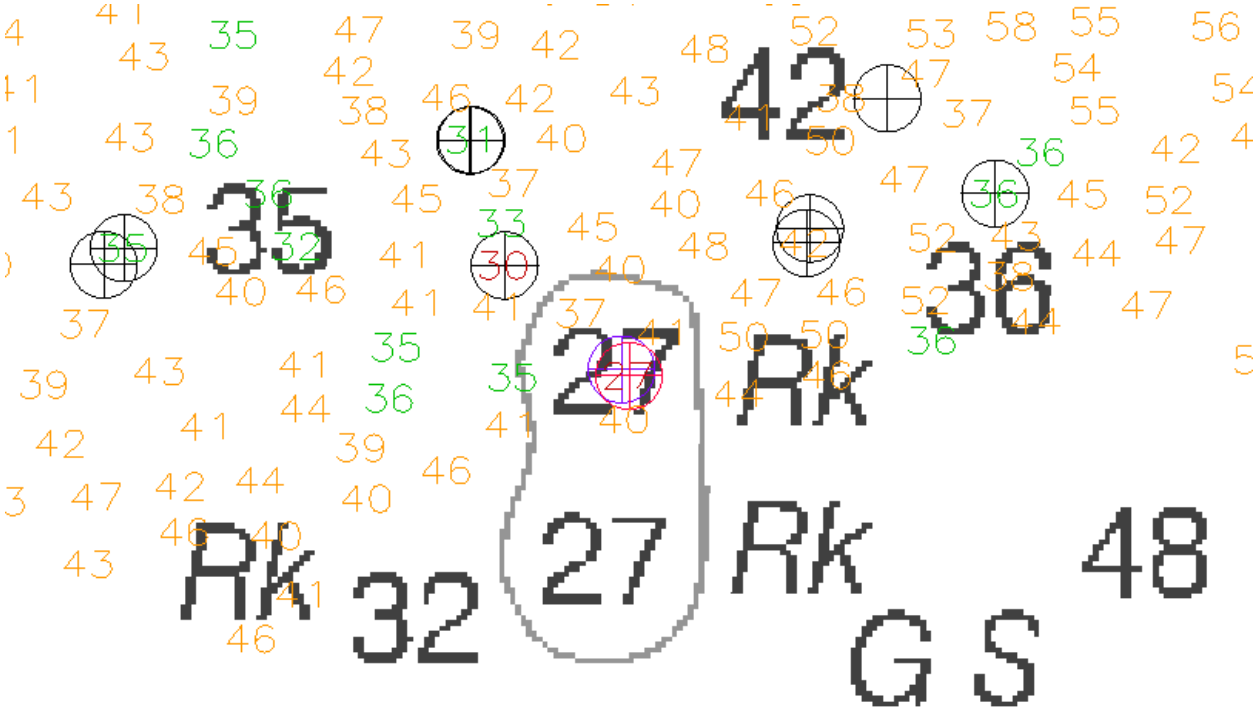

Figure 1.1.1

1.2) charted 33-ft rock

Survey Summary

Survey Position: 41° 23' 20.9" N, 070° 58' 16.9" W

Least Depth: 10.10 m (= 33.14 ft = 5.523 fm = 5 fm 3.14 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.983 m ; **TVU (TPEv)** ±0.125 m

Timestamp: 2008-220.17:52:06.269 (08/07/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-220 / 478_1747

Profile/Beam: 2423/240

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-220/478_1747	2423/240	0.00	000.0	Primary
h11921/tj_3102_reson8101/2008-223/478_1950	2132/94	0.85	109.7	Secondary
ChartGPs - Digitized	3	23.45	091.3	Secondary (grouped)

Hydrographer Recommendations

[None]

S-57 Data

[None]

Office Notes

The office reviewer reccomends to delete the non addressed rock feature considering that it falls within a predominantly recognized rocky area. A rocky seabed area feature is reccomended to be charted in order to consolidate the multiple rocky features. The designated sounding for this feature will be included as a chart sounding.

Feature Images

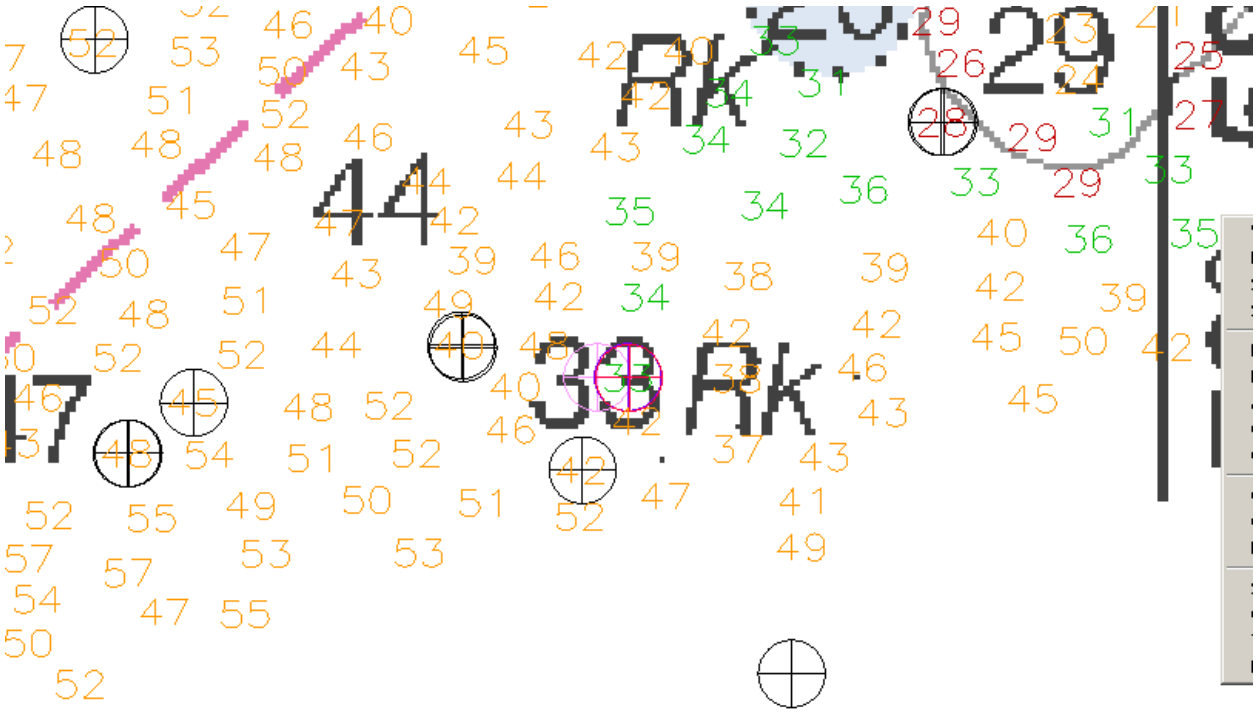

Figure 1.2.1

1.3) charted 30-ft rock

Survey Summary

Survey Position: 41° 23' 26.4" N, 070° 57' 51.7" W

Least Depth: 8.72 m (= 28.61 ft = 4.768 fm = 4 fm 4.61 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.982 m ; **TVU (TPEv)** ±0.110 m

Timestamp: 2008-220.17:54:26.701 (08/07/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-220 / 478_1747

Profile/Beam: 3856/212

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-220/478_1747	3856/212	0.00	000.0	Primary
ChartGPs - Digitized	4	25.74	045.1	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

28ft (13229_9, 13230_1, 13218_1)

4 ¾fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

8.7m (5161_1)

S-57 Data

[None]

Office Notes

The office reviewer reccomends to delete the non addressed rock feature considering that it falls within a predominantly recognized rocky area. A rocky seabed area feature is reccomended to be charted in order to consolidate the multiple rocky features. The designated sounding for this feature will be included as a chart

sounding.

Feature Images

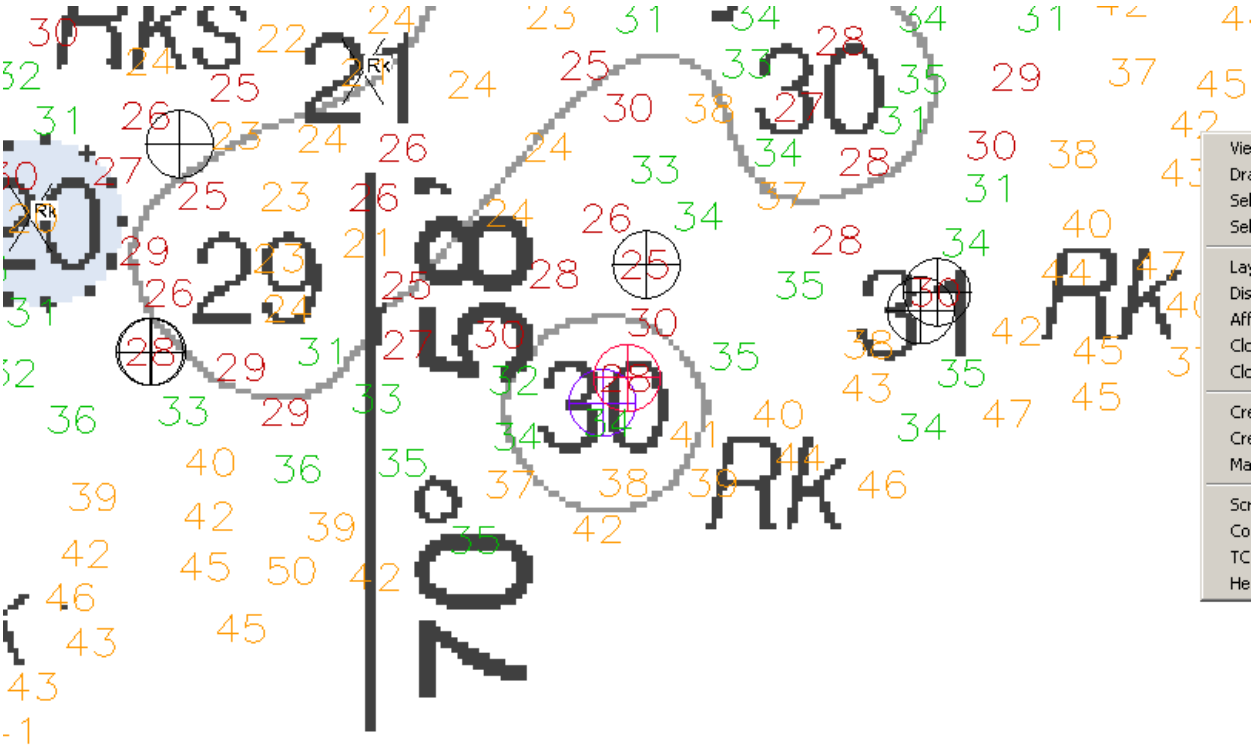

Figure 1.3.1

1.4) charted 31-ft rock

Survey Summary

Survey Position: 41° 23' 28.4" N, 070° 57' 41.8" W

Least Depth: 9.09 m (= 29.81 ft = 4.968 fm = 4 fm 5.81 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.982 m ; **TVU (TPEv)** ±0.106 m

Timestamp: 2008-220.17:55:20.602 (08/07/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-220 / 478_1747

Profile/Beam: 4487/183

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-220/478_1747	4487/183	0.00	000.0	Primary
ChartGPs - Digitized	5	18.03	041.8	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

30ft (13229_9, 13230_1, 13218_1)

5fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

9.1m (5161_1)

S-57 Data

[None]

Office Notes

The office reviewer reccomends to delete the non addressed rock feature considering that it falls within a predominantly recognized rocky area. A rocky seabed area feature is reccomended to be charted in order to consolidate the multiple rocky features. The designated sounding for this feature will be included as a chart

sounding.

Feature Images

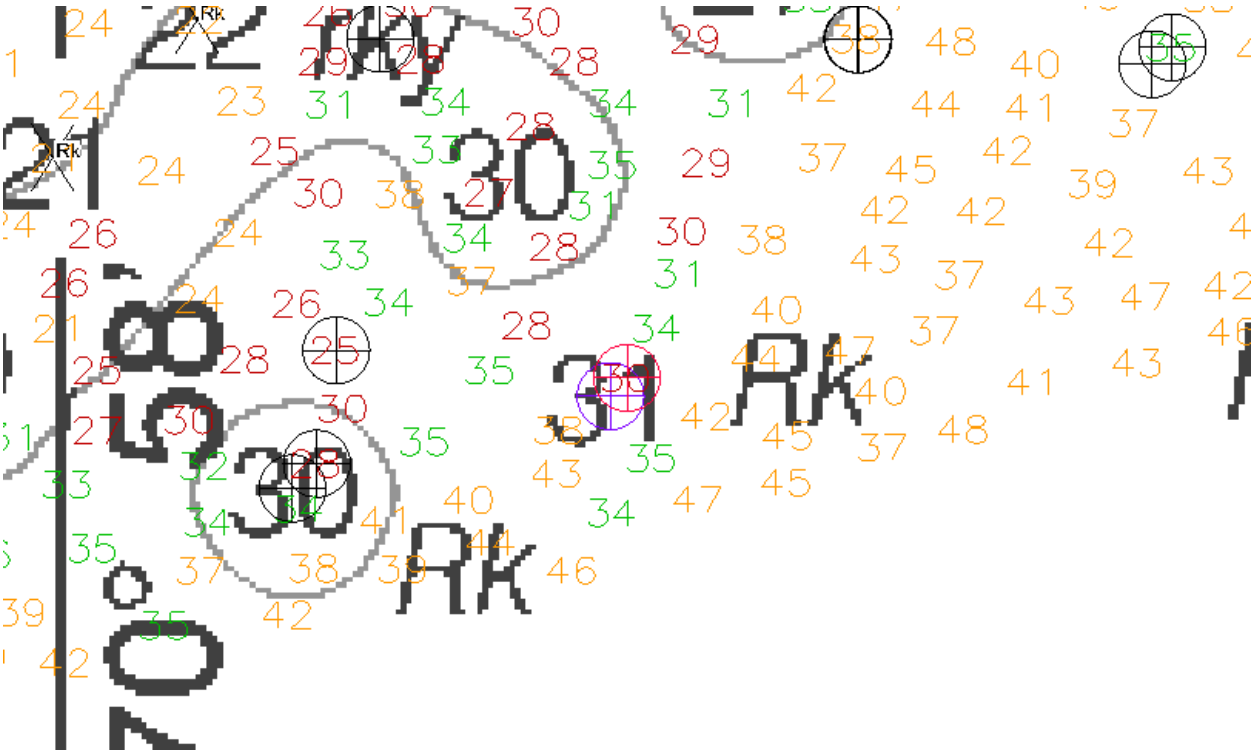

Figure 1.4.1

1.5) charted 'rky'

Survey Summary

Survey Position: 41° 23' 36.6" N, 070° 57' 49.7" W

Least Depth: [None]

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2008-319.10:06:25 (11/14/2008)

GP Dataset: ChartGPs - Digitized

GP No.: 8

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	8	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

[None]

Office Notes

Delete the "rky" annotation feature considering that it falls within a predominantly recognized rocky area and is repeated multiple times in this very location. A rocky seabed area feature is reccomended to be charted in order to consolidate the multiple rocky features.

Feature Images

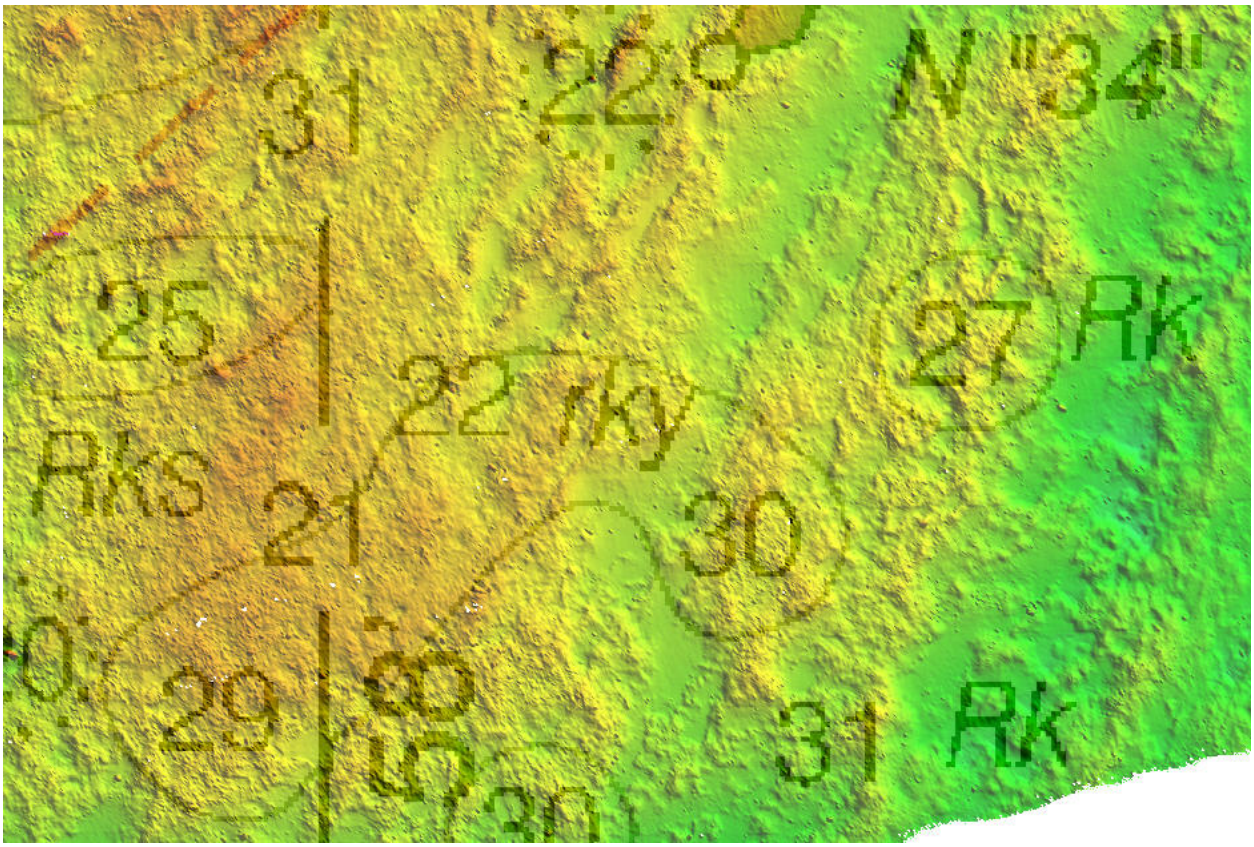

Figure 1.5.1

1.6) charted 'rky'

Survey Summary

Survey Position: 41° 24' 14.6" N, 070° 56' 12.2" W

Least Depth: [None]

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2008-319.10:07:07 (11/14/2008)

GP Dataset: ChartGPs - Digitized

GP No.: 9

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	9	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

[None]

Office Notes

Delete the "rky" annotation feature considering that it falls within a predominantly recognized rocky area and is repeated multiple times in this very location. A rocky seabed area feature is reccomended to be charted in order to consolidate the multiple rocky features.

Feature Images

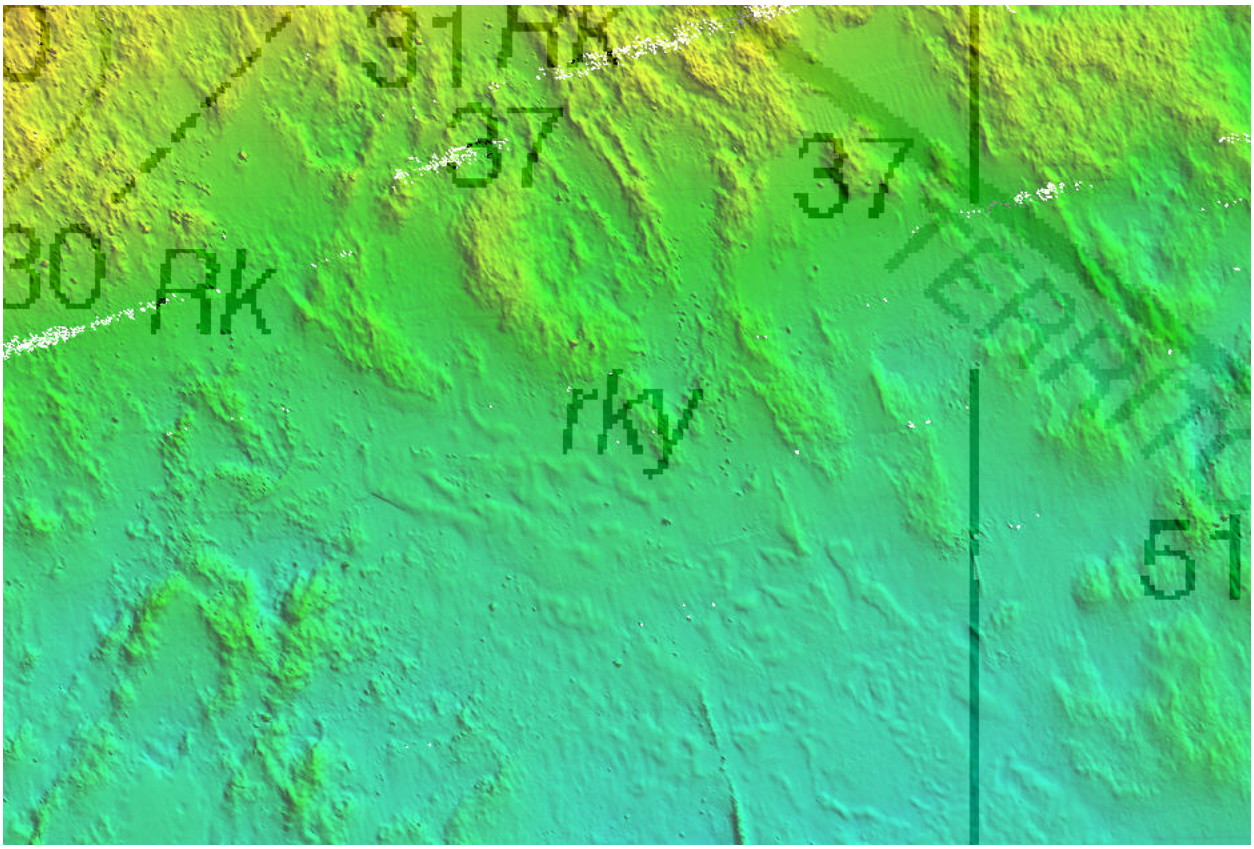

Figure 1.6.1

1.7) charted 'rky'

Survey Summary

Survey Position: 41° 24' 37.8" N, 070° 55' 24.2" W

Least Depth: [None]

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2008-319.10:07:36 (11/14/2008)

GP Dataset: ChartGPs - Digitized

GP No.: 10

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	10	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

[None]

Office Notes

Delete the "rky" annotation feature considering that it falls within an overall predominantly recognized rocky area and is repeated multiple times in this very location. A rocky seabed area feature is reccomended to be charted in order to consolidate the multiple rocky features.

Feature Images

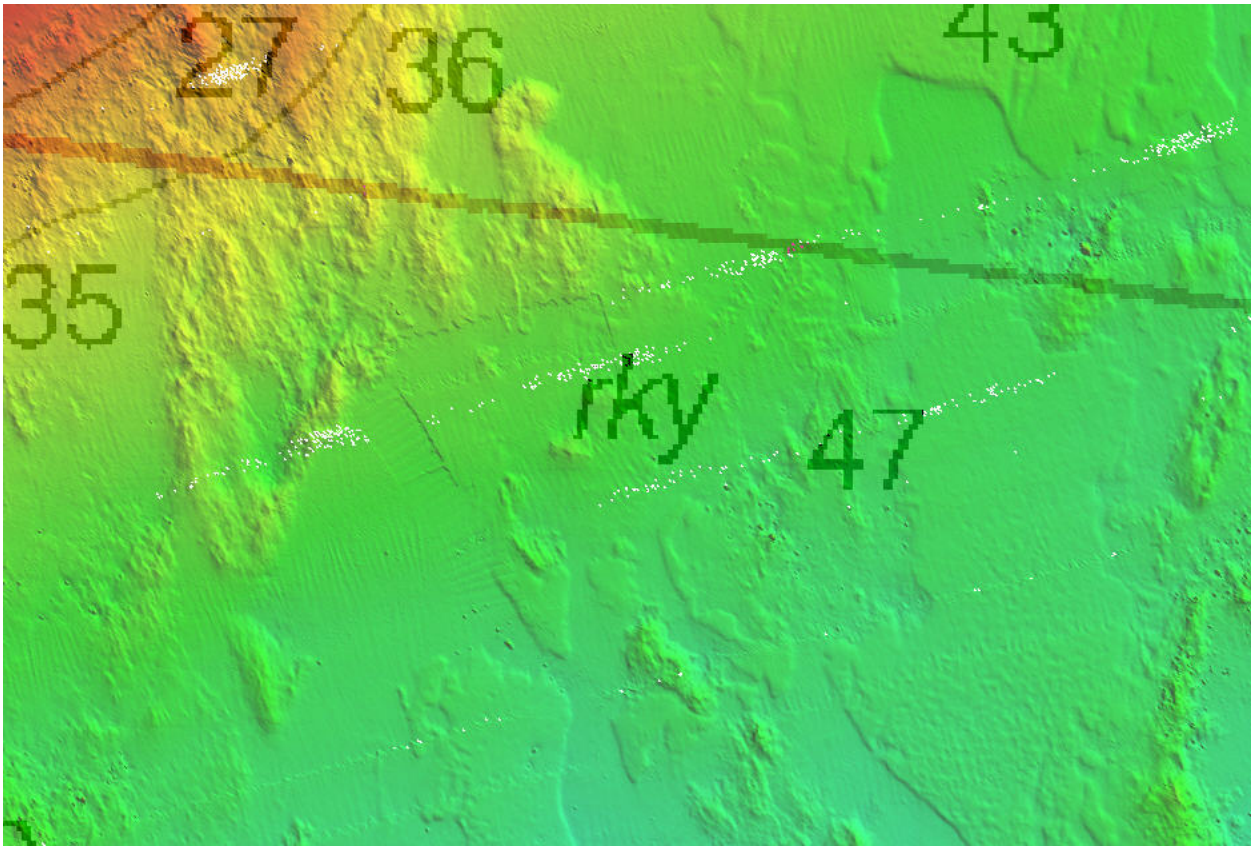

Figure 1.7.1

1.8) charted 'rky'

Survey Summary

Survey Position: 41° 24' 33.9" N, 070° 56' 08.8" W

Least Depth: [None]

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2008-319.10:10:29 (11/14/2008)

GP Dataset: ChartGPs - Digitized

GP No.: 11

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	11	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

[None]

Office Notes

Delete the "rky" annotation feature considering that it falls within a predominantly recognized rocky area and is repeated multiple times in this very location. A rocky seabed area feature is reccomended to be charted in order to consolidate the multiple rocky features.

Feature Images

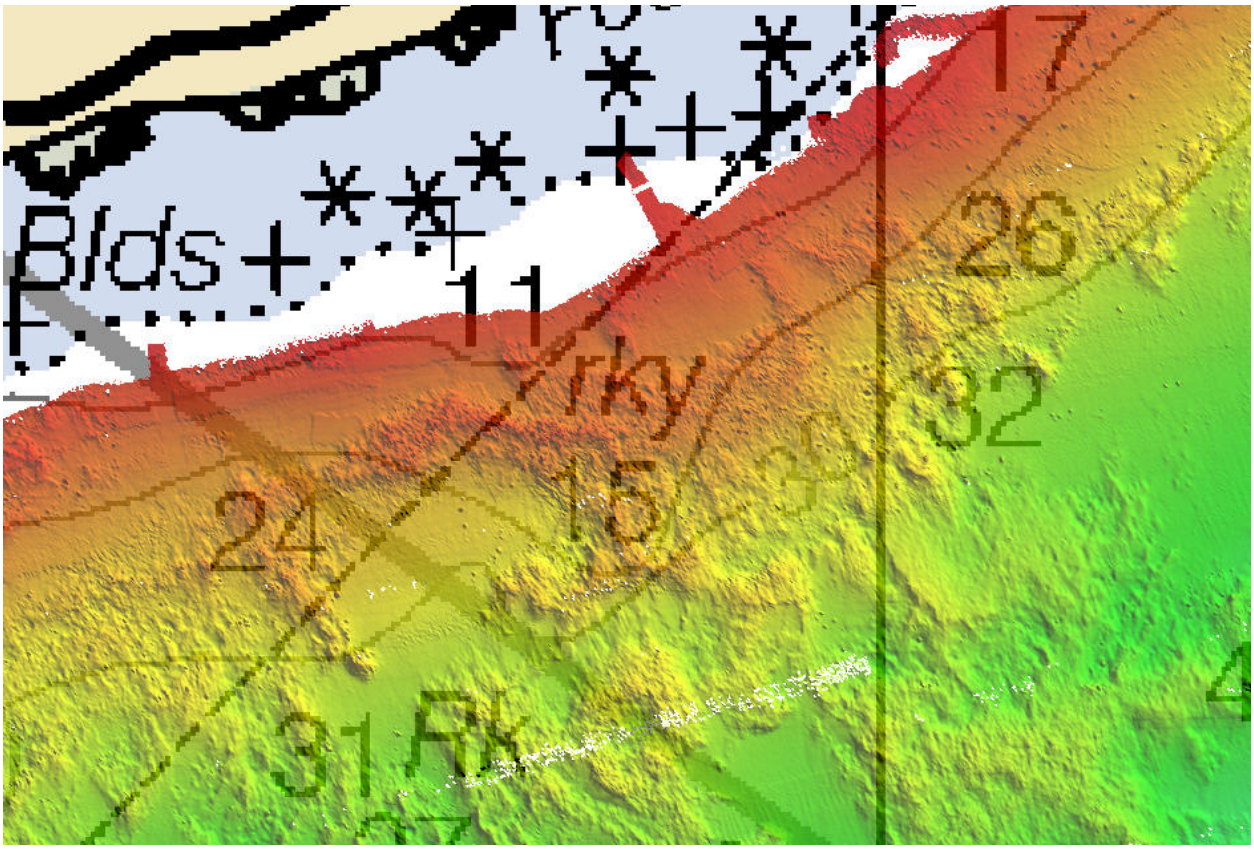

Figure 1.8.1

2 - New Features

2.1) uncharted sandwaves

Survey Summary

Survey Position: 41° 25' 06.3" N, 070° 51' 20.0" W

Least Depth: [None]

TPU (±1.96σ): **THU (TPEh)** [None] ; **TVU (TPEv)** [None]

Timestamp: 2008-319.10:24:55 (11/14/2008)

GP Dataset: ChartGPs - Digitized

GP No.: 12

Charts Affected: 13229_9, 13230_1, 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	12	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Sand waves (SNDWAV)

Office Notes

The feature represents an area of prominent sandwaves. Chart a sandwave symbol.

Feature Images

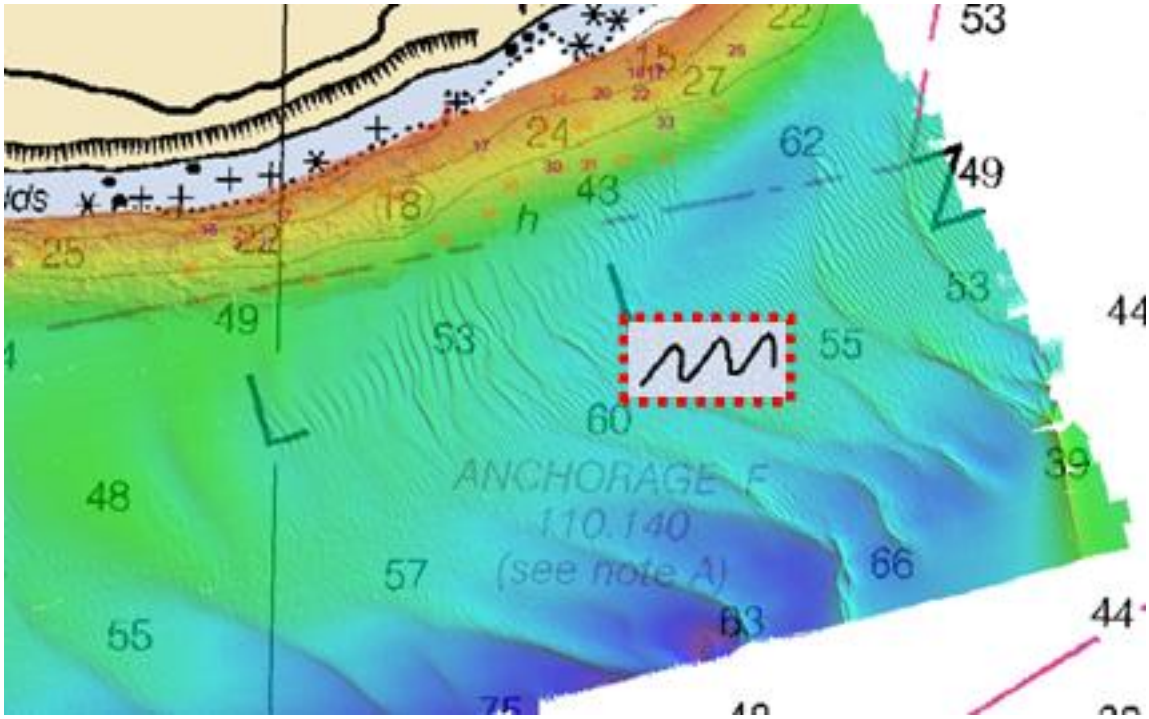

Figure 2.1.1

3 - AWOIS Features

3.1) AWOIS #1890 - AWOIS #1890 FAIRFAX

No Primary Survey Feature for this AWOIS Item

Search Position: 41° 24' 00.4" N, 070° 57' 50.1" W

Historical Depth: [None]

Search Radius: 200

Search Technique: s2

Technique Notes: [None]

History Notes:

NM30/24--COMMANDING OFFICER OF THE USS TOUCEY REPORTS THE ì■EXISTENCE OF A WRECK 1500 YARDS, 80 DEGREES FROM SOW AND PIGS ì■REEF BELL BUOY 2 IN PA LAT 41-24-00N, LONG 70-57-45W. (ENTERED ì■MSM 3/89)■ H9645/76--UNREVIEWED; POSSIBLE SIDE ECHO OF THE WK COV 11FT ì■IN 18-20 FT DEPTHS WAS FOUND NEAR THE CHARTED POSITION. HYDRO RECOMMENDS ì■CHARTED SUNKEN WK BE RETAINED AT LAT 41-24-00N, LONG 70-57-52W. ì■(ENT GM 10/89)

Survey Summary

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

AWOIS #1890 was partially investigated with 100% Klein 5000 SSS and Reson 8101/8125 multibeam. The AWOIS item was not fully investigated due to the shallow depth and many rocks in the area. No evidence of this item was seen in the radius that was covered.

Feature Correlation

Address	Feature	Range	Azimuth	Status
AWOIS_B307-TJ-08	AWOIS # 1890	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Wreck (WRECKS)

Office Notes

Clarification: No evidence of this item was seen in the portion of the radius that was covered. Retain as charted.

3.2) AWOIS #1894 - AWOIS #1984 DOUGLAS DEERBORN

No Primary Survey Feature for this AWOIS Item

Search Position: 41° 24' 24.4" N, 070° 55' 58.1" W

Historical Depth: [None]

Search Radius: 0

Search Technique: [None]

Technique Notes: [None]

History Notes:

H8904/66--36-39FT DEPTHS EXIST IN VICINITY. (UPDATED 11/91 RWD)

Survey Summary

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

AWOIS #1984 was investigated with 100% Klein 5000 SSS and Reson 8101 multibeam. The AWOIS item was not found.

Feature Correlation

Address	Feature	Range	Azimuth	Status
AWOIS_B307-TJ-08	AWOIS # 1894	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

Geo object 1: Cartographic symbol ($CSYMB)

Office Notes

Nothing was found, and nothing is charted. No cartographic action required.

4 - Dangers to Navigation

4.1) DTON 1

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 23' 16.4" N, 070° 59' 02.1" W

Least Depth: 9.82 m (= 32.22 ft = 5.370 fm = 5 fm 2.22 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.104 m

Timestamp: 2008-225.15:08:01.342 (08/12/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-225 / 092_1507

Profile/Beam: 394/160

Charts Affected: 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 6-meter tall uncharted dangerous rock, detected with Reson 8125 MBES and 100% Klein 5000 SSS data. The rock is located in an area with numerous charted rocks and boulders, approximately 1.5 km southwest of Sow and Pigs Reef. Preliminary water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-225/092_1507	394/160	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

32ft (13230_1, 13218_1)

5 ¼fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

9.8m (5161_1)

S-57 Data

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

Attributes: QUASOU - 1:depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 9.821 m

WATLEV - 3:always under water/submerged

Office Notes

The feature is charted as a result of a field-submitted DtoN letter. The field recommended charting the feature as a dangerous rock of known depth in the corresponding depth area; however, the feature is currently charted as a dangerous rock of known depth outside the corresponding depth area. The office reviewer recommends deleting the blue tint and danger curve to reflect the hydrographer's reccomendation.

Feature Images

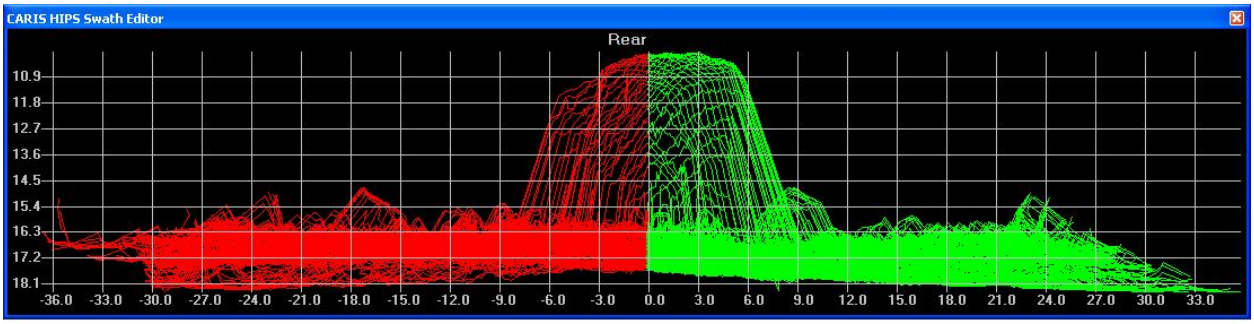

Figure 4.1.1

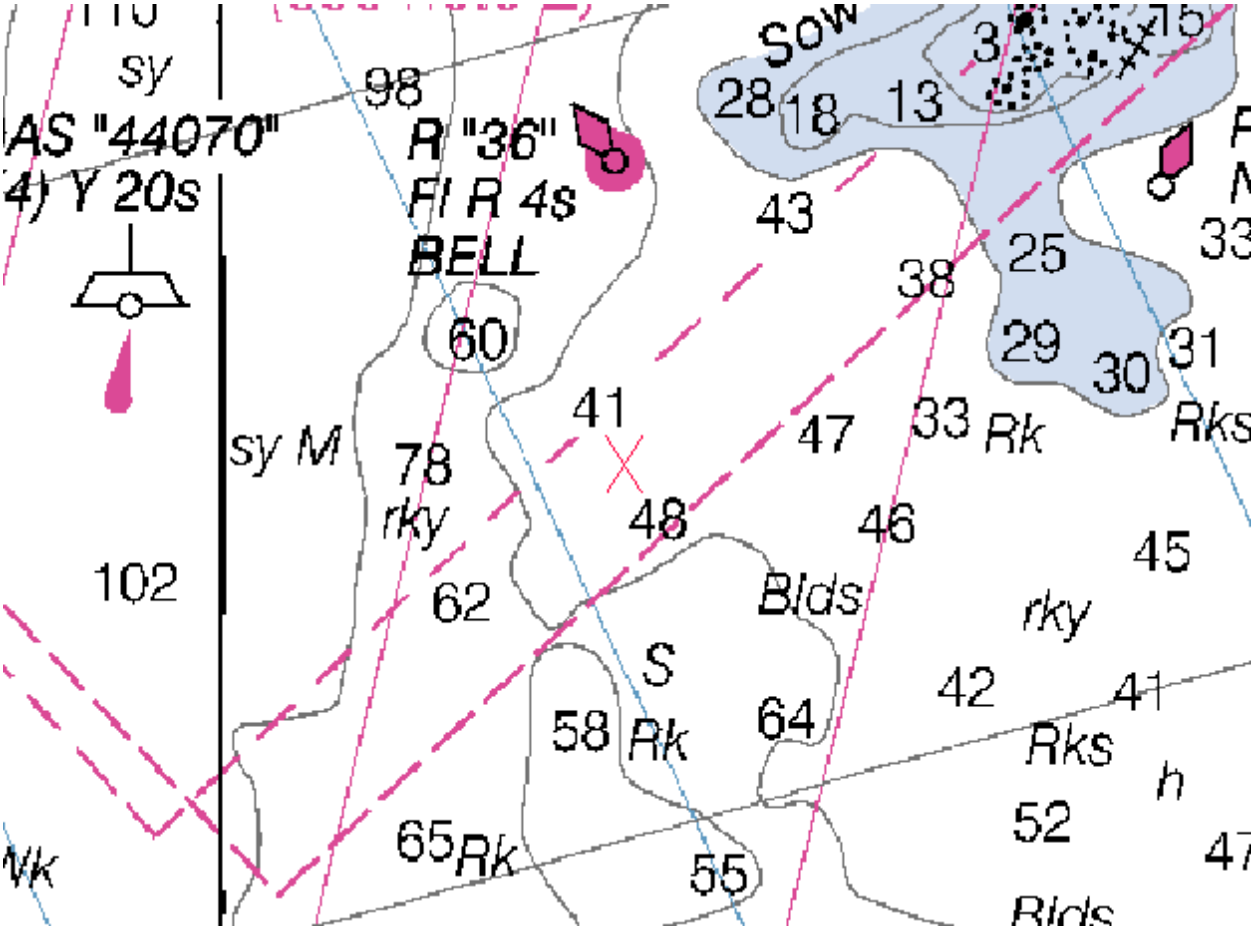

Figure 4.1.2

[Image file h:/compilation/h11921_b370-tj/ahb_h11921/pss/images/dton_1_picture2.jpg does not exist.]

4.2) DTON 2

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 23' 30.2" N, 070° 58' 10.7" W

Least Depth: 6.09 m (= 19.98 ft = 3.330 fm = 3 fm 1.98 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.103 m

Timestamp: 2008-225.17:33:29.335 (08/12/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-225 / 406_1648

Profile/Beam: 24152/115

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature ia a 6-meter tall uncharted dangerous rock, detected with Reson 8125 MBES and 100% Klein 5000 SSS data. The rock is located in an area with numerous charted rocks, approximately 1.1 km south of Sow and Pigs Reef. Preliminary water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-225/406_1648	24152/115	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

20ft (13229_9, 13230_1, 13218_1)

3 ¼fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

6.1m (5161_1)

S-57 Data

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

Attributes: OBJNAM - Rock

QUASOU - 1:depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 6.090 m

WATLEV - 3:always under water/submerged

Office Notes

The feature is charted as a result of a field-submitted DtoN letter. The field recommended charting the feature as a dangerous rock of known depth in the corresponding depth area; however, the feature is currently charted as a dangerous rock of known depth outside the corresponding depth area. The reviewer recommends retaining the feature as charted because the least depth is indeed outside the corresponding depth area.

Feature Images

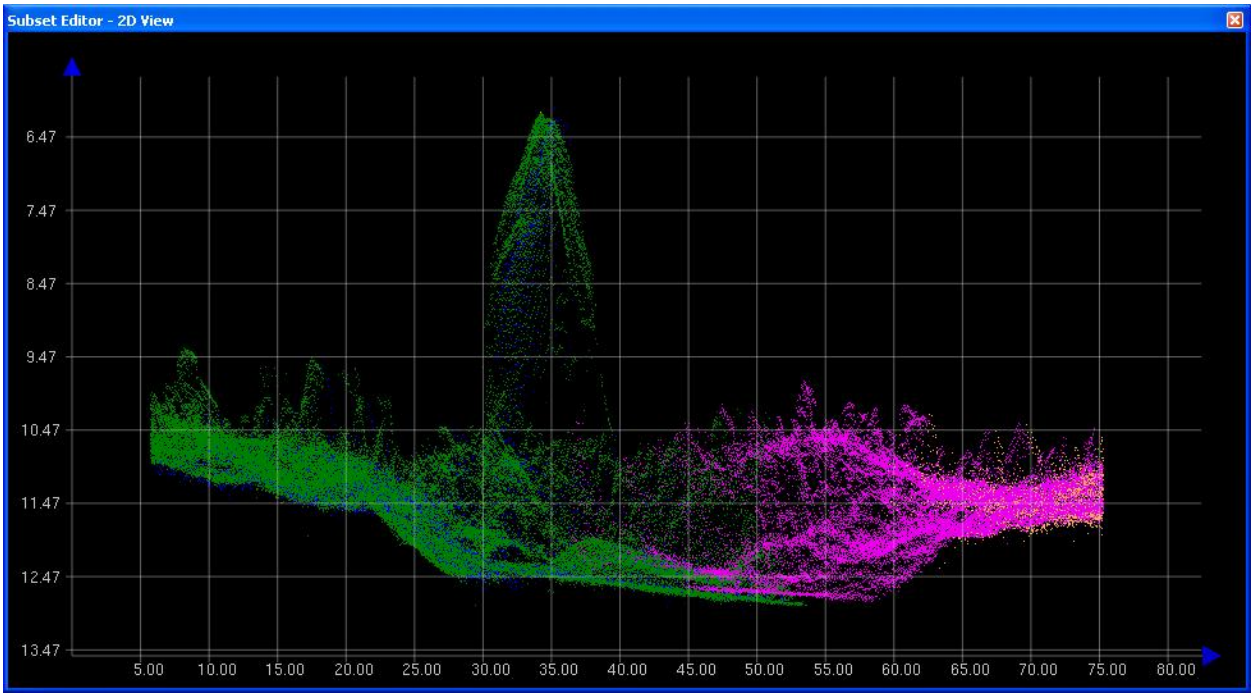

Figure 4.2.1

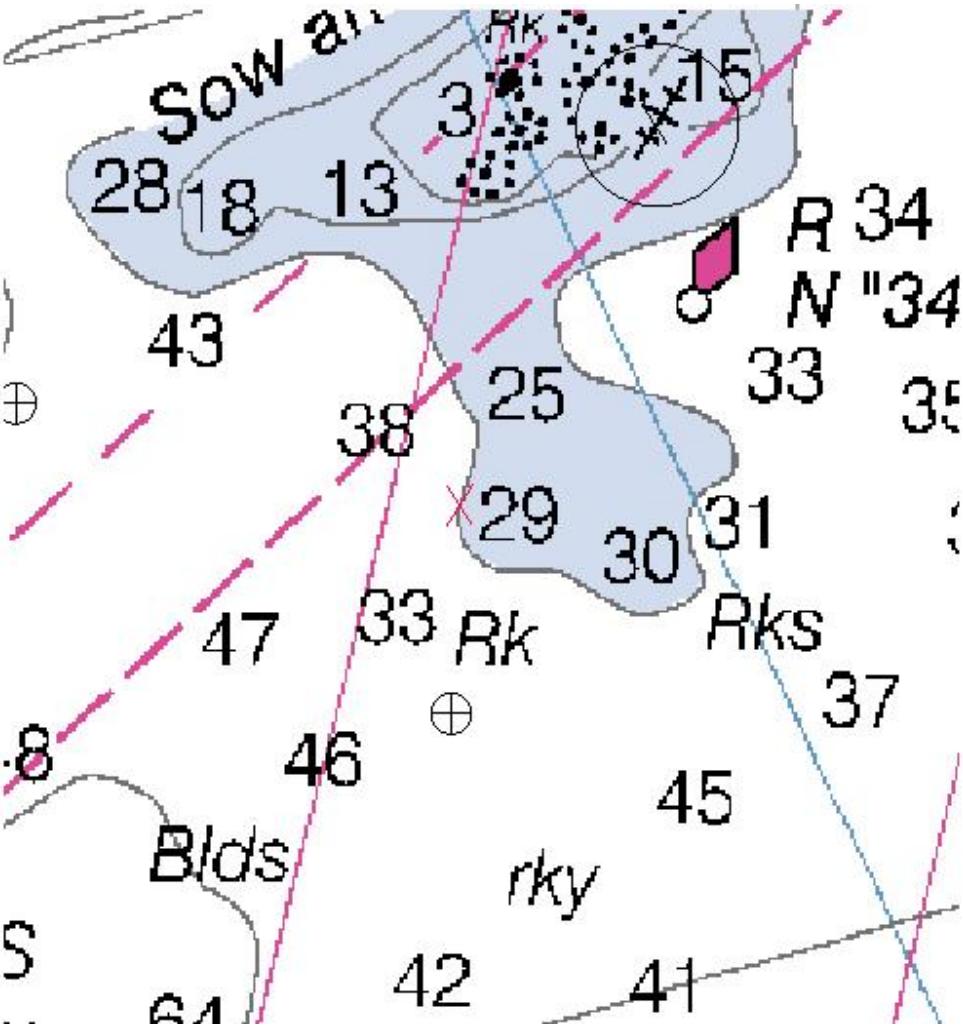
Sow
Rk
3
15
28
18
13
R 34
N "34
43
33
25
38
29
30
31
47
33
Rk
Rks
37
46
45
Blds
rky
42
41

Figure 4.2.2

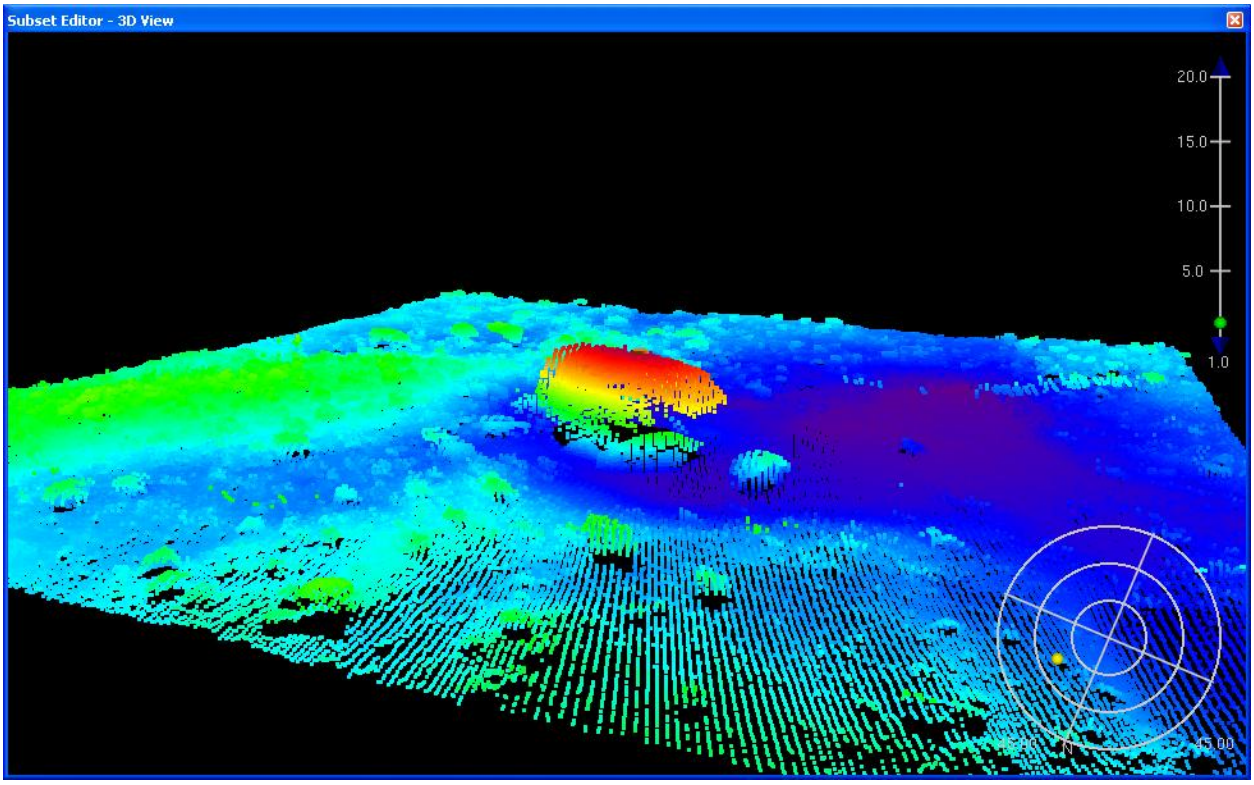

Figure 4.2.3

4.3) DTON 16 - AHB

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 24' 35.2" N, 070° 54' 57.7" W

Least Depth: 9.98 m (= 32.73 ft = 5.455 fm = 5 fm 2.73 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.982 m ; **TVU (TPEv)** ±0.110 m

Timestamp: 2008-223.19:33:41.052 (08/10/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-223 / 422_1909

Profile/Beam: 14023/207

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-223/422_1909	14023/207	0.00	000.0	Primary
ChartGPs - Digitized	7	6.49	165.4	Secondary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

32ft (13229_9, 13230_1, 13218_1)

5 ½fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

10.0m (5161_1)

S-57 Data

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

Attributes: VALSOU - 9.977 m

WATLEV - 3:always under water/submerged

Office Notes

The feature is an uncharted rock. Delete the nearby 37-ft charted depth (chart 13229_9), and chart the feature as per the surveyed least depth and position.

Feature Images

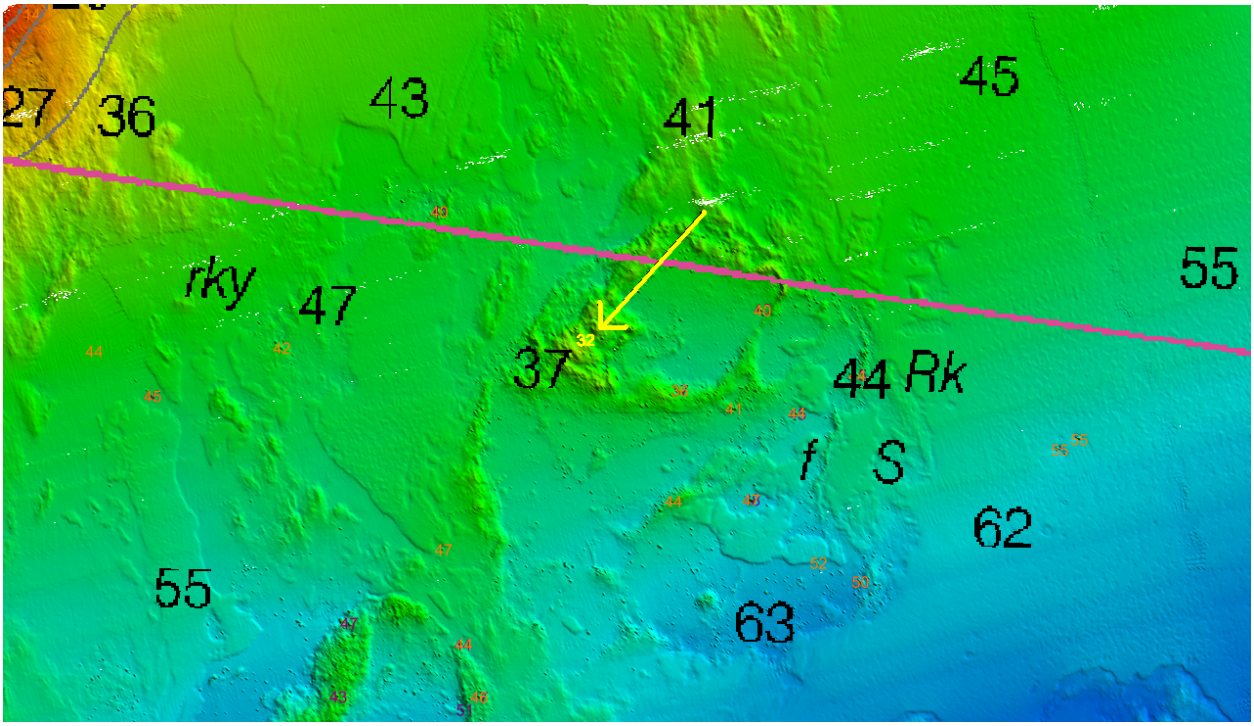

Figure 4.3.1

4.4) DTON 3

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 23' 18.2" N, 070° 58' 52.9" W

Least Depth: 11.42 m (= 37.48 ft = 6.246 fm = 6 fm 1.48 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.982 m ; **TVU (TPEv)** ±0.106 m

Timestamp: 2008-225.14:27:40.650 (08/12/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-225 / 404_1340

Profile/Beam: 1324/179

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 11.42 meter tall uncharted dangerous rock, detected with Reson 8125 MBES and 100% Klein 5000 SSS data. The rock is located in an area with numerous charted rocks and boulders, approximately 1.5 km southwest of Sow and Pigs Reef. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-225/404_1340	1324/179	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

37ft (13229_9, 13230_1, 13218_1)

6 ¼fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

11.4m (5161_1)

S-57 Data

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

Attributes: QUASOU - 1:depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 11.423 m

WATLEV - 3:always under water/submerged

Office Notes

The feature is charted as a result of a field-submitted DtoN letter. The field recommended charting the feature as a dangerous rock of known depth in the corresponding depth area; however, the feature is currently charted on chart 13218 as a dangerous rock of known depth outside the corresponding depth area. The office reviewer recommends deleting the DtoN feature from the chart due to its close proximity to multiple underwater rocks within a designated rocky seabed area. The designated sounding for this feature will be included as a chart sounding.

Feature Images

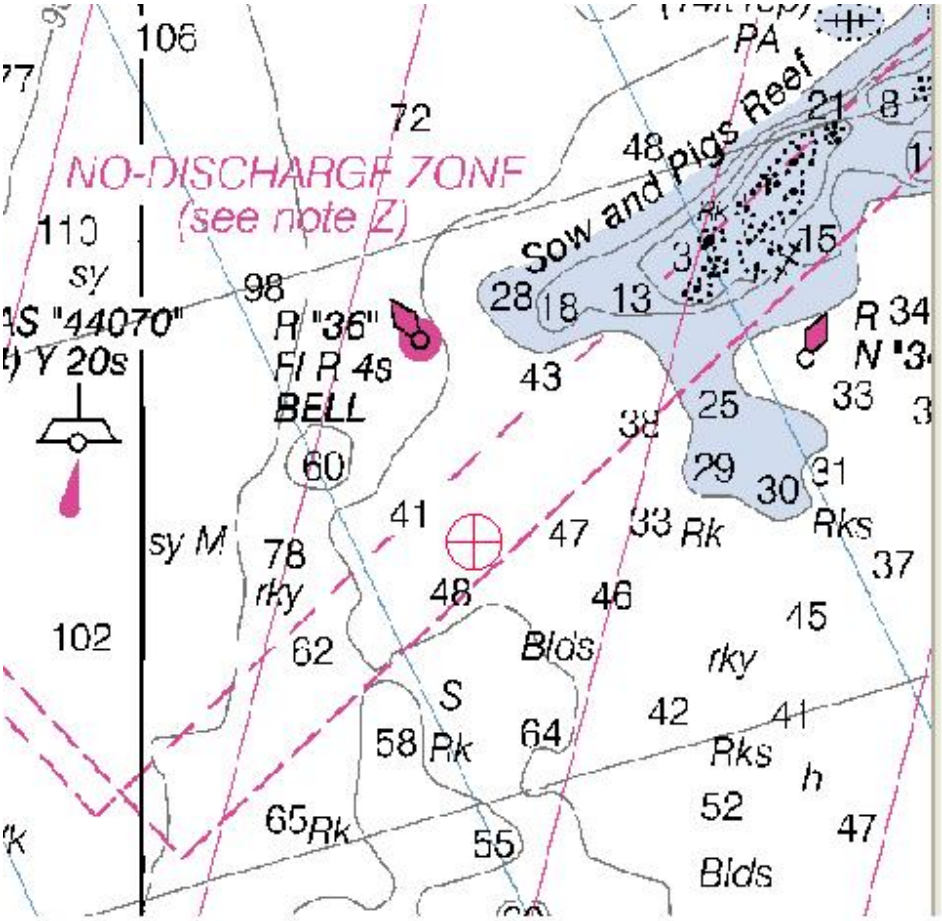

Figure 4.4.1

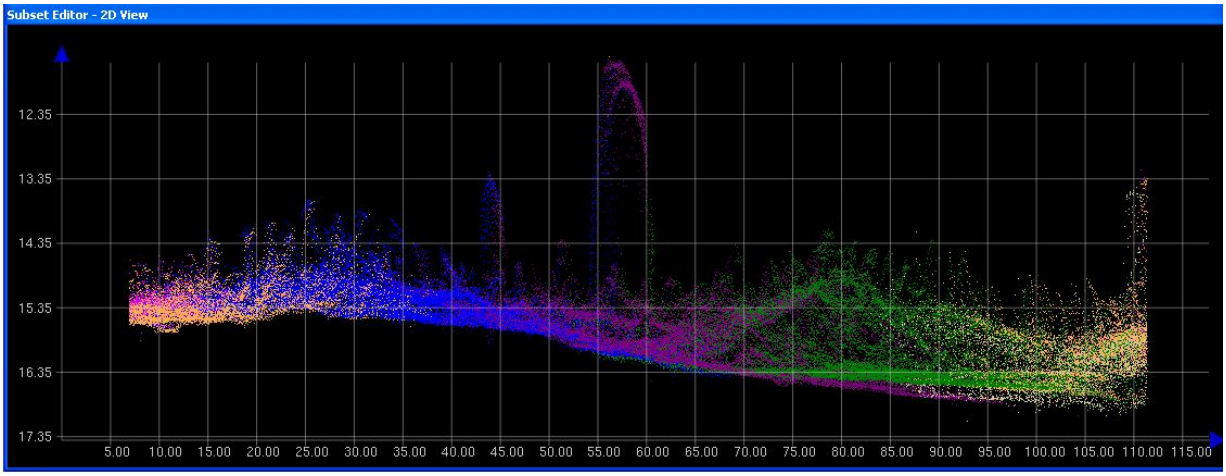
Subset Editor - 2D View
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Figure 4.4.2

4.5) DTON 4

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 23' 33.7" N, 070° 58' 00.0" W

Least Depth: 6.36 m (= 20.87 ft = 3.478 fm = 3 fm 2.87 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.106 m

Timestamp: 2008-225.18:20:12.595 (08/12/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-225 / 407_1811

Profile/Beam: 5327/213

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 6.36 meter tall uncharted dangerous rock, detected with Reson 8125 MBES and 100% Klein 5000 SSS data. The rock is located approximately 1.0 km south of Sow and Pigs Reef. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-225/407_1811	5327/213	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

21ft (13229_9, 13230_1, 13218_1)

3 ½fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

6.4m (5161_1)

S-57 Data

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

Attributes: QUASOU - 1:depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 6.361 m

WATLEV - 3:always under water/submerged

Office Notes

The office reviewer recommends deleting the DtoN feature from the chart due to its close proximity to multiple underwater rocks within a designated rocky seabed area. The designated sounding for this feature will be included as a chart sounding.

Feature Images

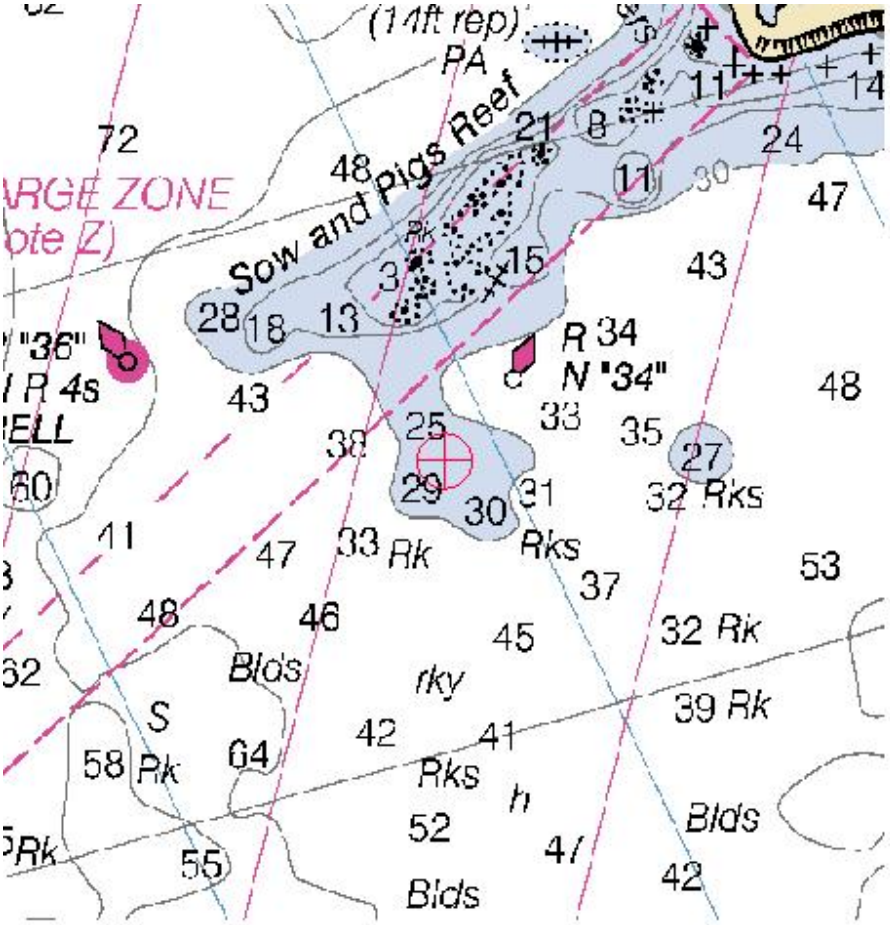

Figure 4.5.1

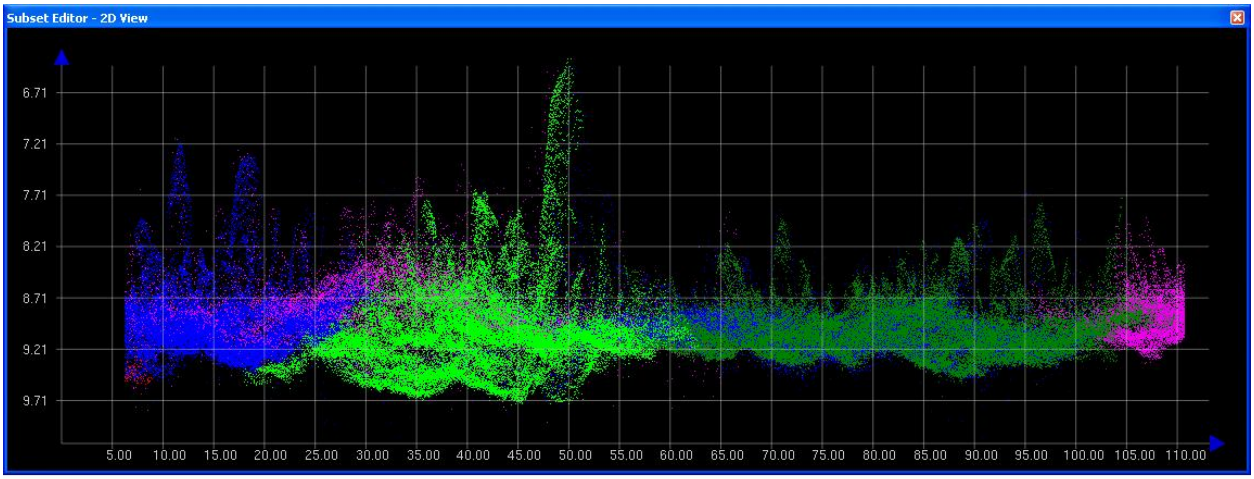
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Figure 4.5.2

4.6) DTON 15

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 23' 38.6" N, 070° 57' 37.6" W

Least Depth: 8.40 m (= 27.57 ft = 4.595 fm = 4 fm 3.57 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.104 m

Timestamp: 2008-225.18:22:39.677 (08/12/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-225 / 407_1811

Profile/Beam: 7707/149

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 8.40 meter tall uncharted dangerous rock, detected with Reson 8125 MBES and 100% Klein 5000 SSS data. The rock is located approximately 900 meters south of Sow and Pigs Reef. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-225/407_1811	7707/149	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

27ft (13229_9, 13230_1, 13218_1)

4 ½fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

8.4m (5161_1)

S-57 Data

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

Attributes: QUASOU - 6:least depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 8.404 m

WATLEV - 3:always under water/submerged

Office Notes

The office reviewer recommends deleting the DtoN feature from the chart due to its close proximity to multiple underwater rocks within a designated rocky seabed area. The designated sounding for this feature will be included as a chart sounding.

Feature Images

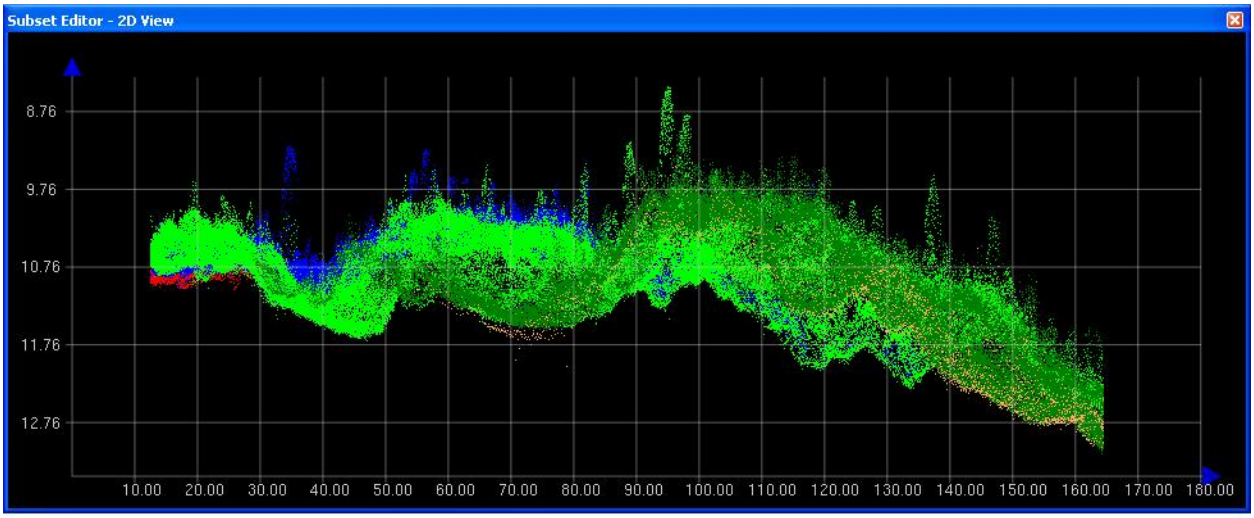

Figure 4.6.1

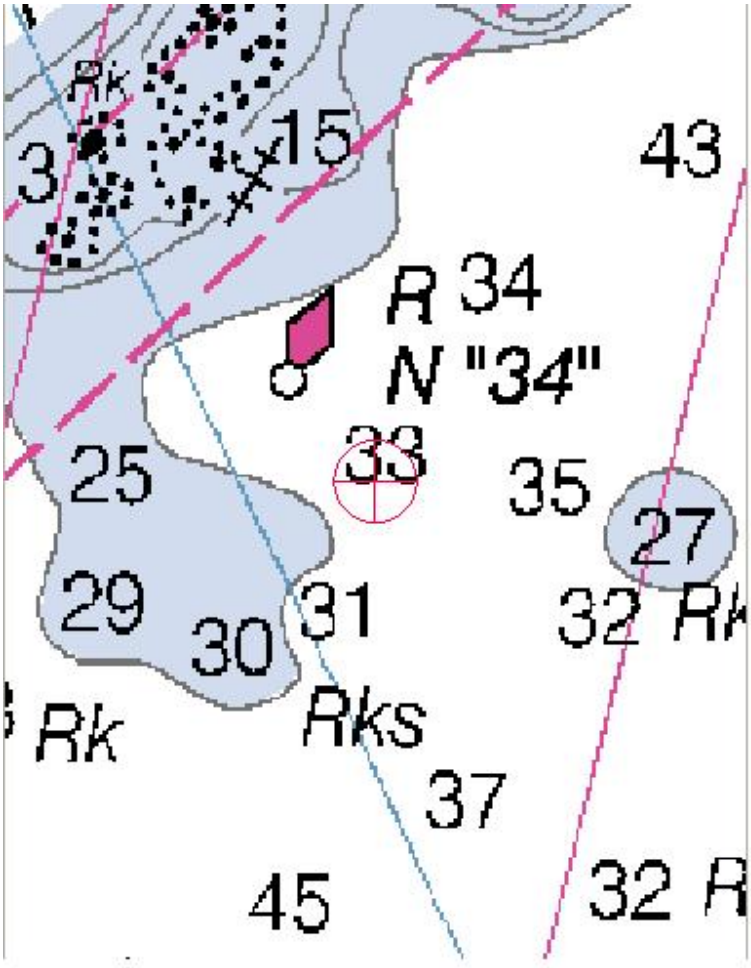

Figure 4.6.2

4.7) DTON 5

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 23' 37.1" N, 070° 57' 55.4" W

Least Depth: 6.69 m (= 21.95 ft = 3.659 fm = 3 fm 3.95 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.108 m

Timestamp: 2008-225.20:12:23.669 (08/12/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-225 / 408_1928

Profile/Beam: 23728/217

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 6.69 meter tall uncharted dangerous rock, detected with Reson 8125 MBES and 100% Klein 5000 SSS data. The rock is located approximately 1.0 km south of Sow and Pigs Reef. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-225/408_1928	23728/217	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

22ft (13229_9, 13230_1, 13218_1)

3 ½fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

6.7m (5161_1)

S-57 Data

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

Attributes: QUASOU - 1:depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 6.691 m

WATLEV - 3:always under water/submerged

Office Notes

The office reviewer recommends deleting the DtoN feature from the chart due to its close proximity to multiple underwater rocks within a designated rocky seabed area. The designated sounding for this feature will be included as a chart sounding.

Feature Images

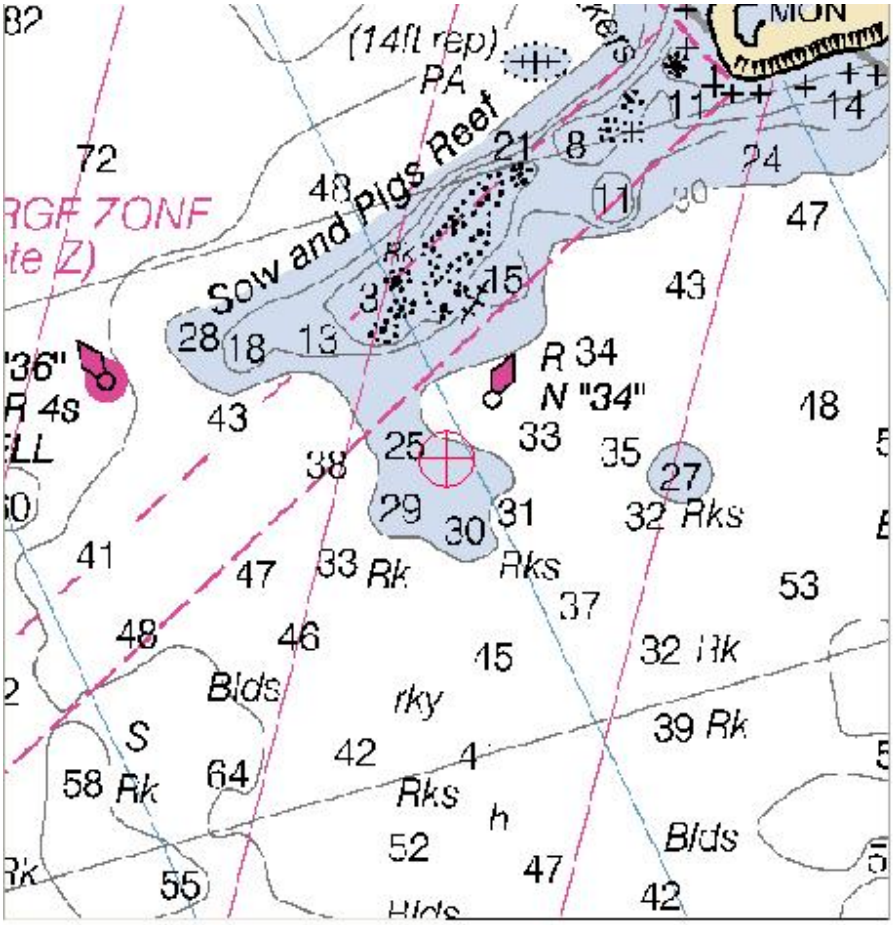

Figure 4.7.1

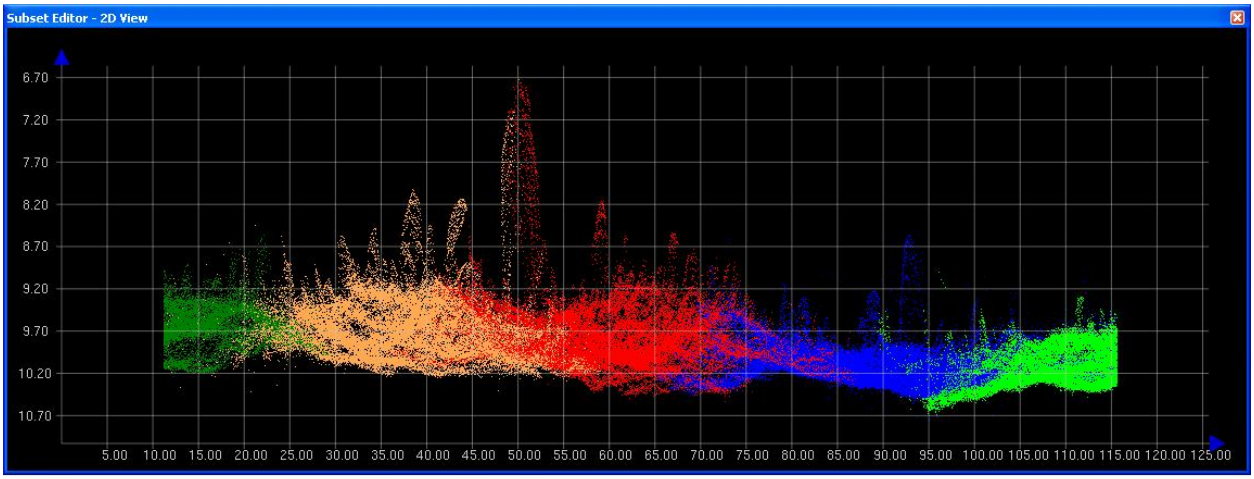
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Figure 4.7.2

4.8) DTON 6

DANGER TO NAVIGATION

Survey Summary

Survey Position:	41° 23' 44.7" N, 070° 57' 23.6" W
Least Depth:	9.55 m (= 31.34 ft = 5.224 fm = 5 fm 1.34 ft)
TPU (±1.96σ):	**THU (TPEh)** ±0.982 m ; **TVU (TPEv)** ±0.108 m
Timestamp:	2008-226.13:46:46.284 (08/13/2008)
Survey Line:	h11921 / tj_3101_reson8125 / 2008-226 / 409_1309
Profile/Beam:	19947/41
Charts Affected:	13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 9.55 meter tall uncharted dangerous rock, detected with Reson 8125 MBES and 100% Klein 5000 SSS data. The rock is located approximately 1.1 km south of Sow and Pigs Reef. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-226/409_1309	19947/41	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

31ft (13229_9, 13230_1, 13218_1)

5 ¼fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

9.6m (5161_1)

S-57 Data

Geo object 1:	Underwater rock / awash rock (UWTROC)
Attributes:	QUASOU - 1:depth known
	TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 9.553 m

WATLEV - 3:always under water/submerged

Office Notes

The office reviewer recommends deleting the DtoN feature from the chart due to its close proximity to multiple underwater rocks within a designated rocky seabed area. The designated sounding for this feature will be included as a chart sounding.

Feature Images

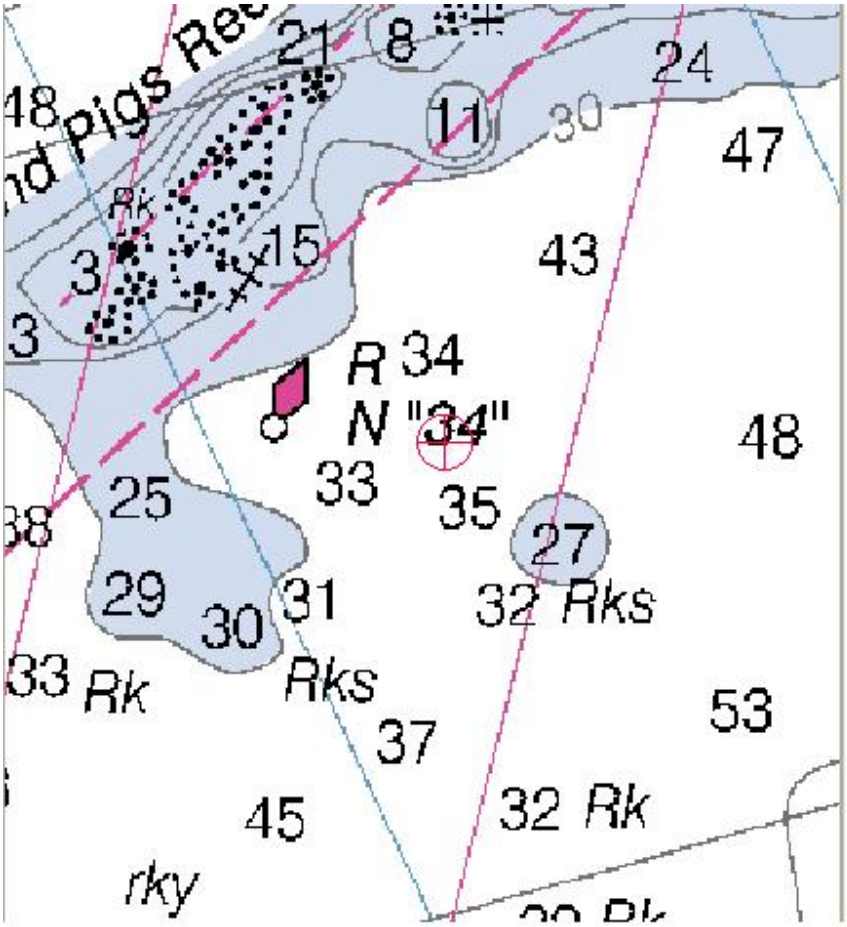

Figure 4.8.1

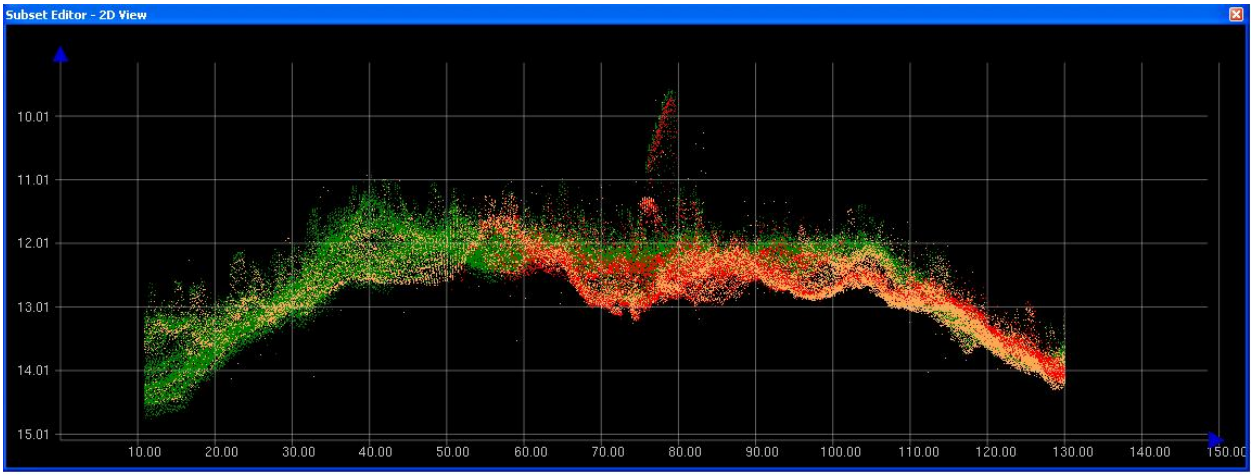
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Figure 4.8.2

4.9) DTON 7

DANGER TO NAVIGATION

Survey Summary

Survey Position:	41° 24' 18.5" N, 070° 56' 31.8" W
Least Depth:	9.27 m (= 30.42 ft = 5.071 fm = 5 fm 0.42 ft)
TPU (±1.96σ):	**THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.105 m
Timestamp:	2008-236.15:36:11.923 (08/23/2008)
Survey Line:	h11921 / tj_3101_reson8125 / 2008-236 / 643_1536
Profile/Beam:	141/66
Charts Affected:	13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 9.27 meter tall uncharted dangerous rock, detected with Reson 8125 MBES and 100% Klein 5000 SSS data. The rock is located approximately 700 meters south of Cuttyhunk Island. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-236/643_1536	141/66	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

30ft (13229_9, 13230_1, 13218_1)

5fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

9.3m (5161_1)

S-57 Data

Geo object 1:	Underwater rock / awash rock (UWTROC)
Attributes:	QUASOU - 1:depth known
	TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 9.273 m

WATLEV - 3:always under water/submerged

Office Notes

The feature is charted as a result of a field-submitted DtoN letter. Retain feature as charted.

Feature Images

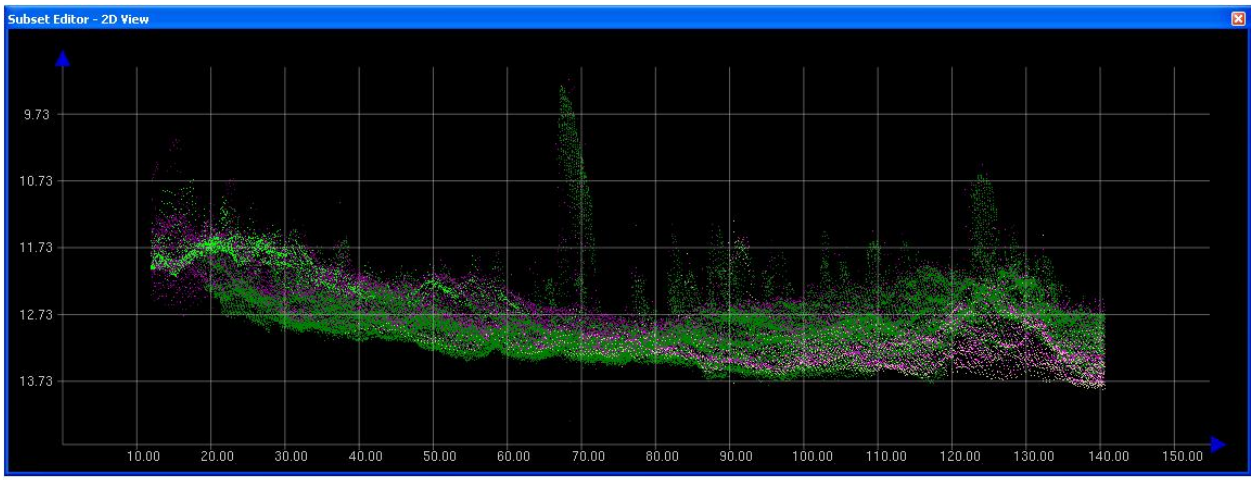

Figure 4.9.1

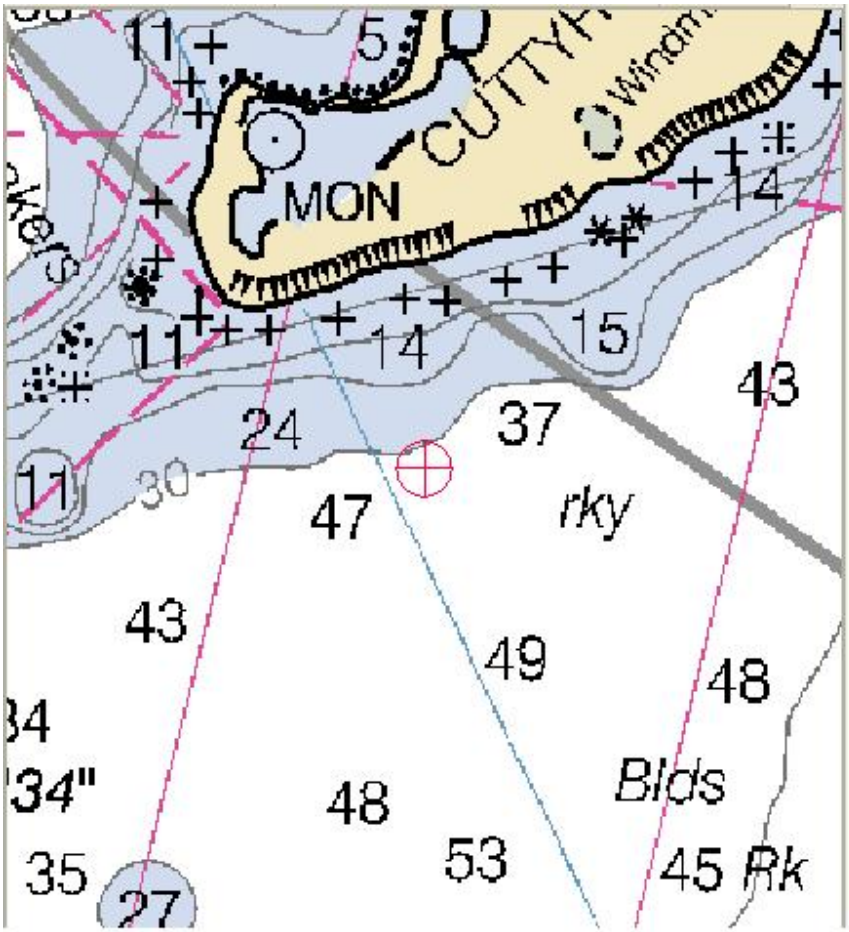
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Figure 4.9.2

4.10) DTON 8

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 24' 24.3" N, 070° 56' 18.9" W

Least Depth: 9.66 m (= 31.71 ft = 5.285 fm = 5 fm 1.71 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.115 m

Timestamp: 2008-225.20:17:15.123 (08/12/2008)

Survey Line: h11921 / tj_3102_reson8101 / 2008-225 / 482_2009

Profile/Beam: 4426/48

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 9.66 meter tall uncharted dangerous rock, detected with Reson 8101 MBES and 100% Klein 5000 SSS data. The rock is located approximately 600 meters south of Cuttyhunk Island. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3102_reson8101/2008-225/482_2009	4426/48	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

31ft (13229_9, 13230_1, 13218_1)

5 ¼fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

9.7m (5161_1)

S-57 Data

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

Attributes: QUASOU - 1:depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 9.665 m

WATLEV - 3:always under water/submerged

Office Notes

The office reviewer recommends deleting the DtoN feature from the chart due to its close proximity to multiple underwater rocks within a designated rocky seabed area. The designated sounding for this feature will be included as a chart sounding.

Feature Images

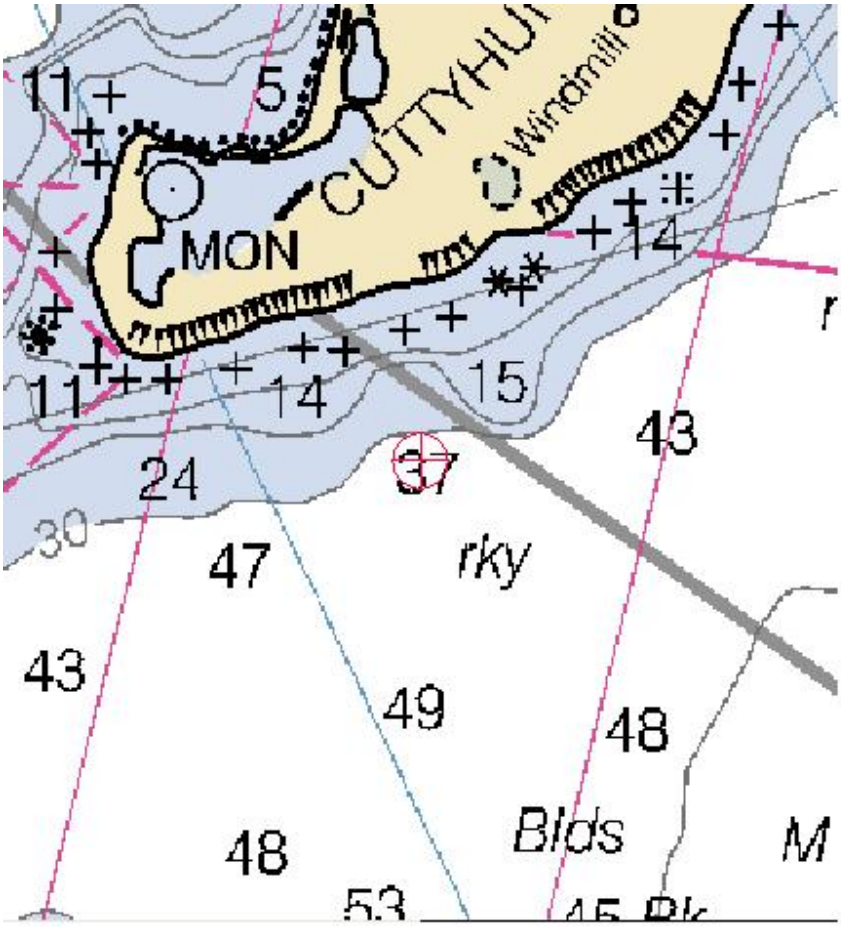

Figure 4.10.1

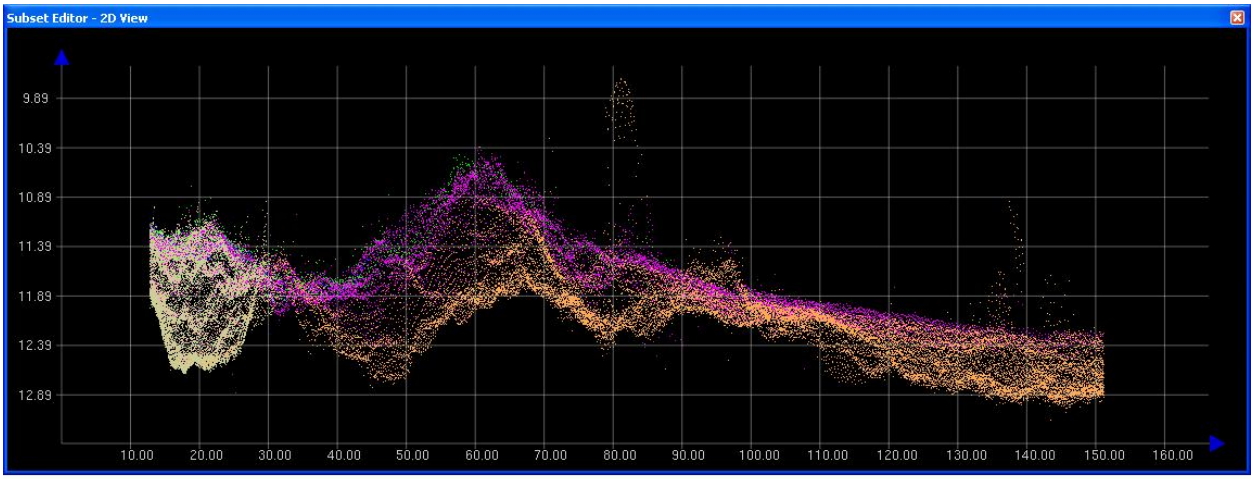
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Figure 4.10.2

4.11) DTON 9

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 25' 00.8" N, 070° 53' 42.9" W

Least Depth: 8.79 m (= 28.84 ft = 4.806 fm = 4 fm 4.84 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.114 m

Timestamp: 2008-226.13:54:30.258 (08/13/2008)

Survey Line: h11921 / tj_3102_reson8101 / 2008-226 / 431_1332

Profile/Beam: 10738/29

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 8.79 meter tall uncharted dangerous rock, detected with Reson 8101 MBES and 100% Klein 5000 SSS data. The rock is located approximately 600 meters south of Nashawena Island. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3102_reson8101/2008-226/431_1332	10738/29	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

29ft (13229_9, 13230_1, 13218_1)

4 ¾fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

8.8m (5161_1)

S-57 Data

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

Attributes: QUASOU - 1:depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 8.790 m

WATLEV - 3:always under water/submerged

Office Notes

The feature is charted as a result of a field-submitted DtoN letter. Retain feature as charted.

Feature Images

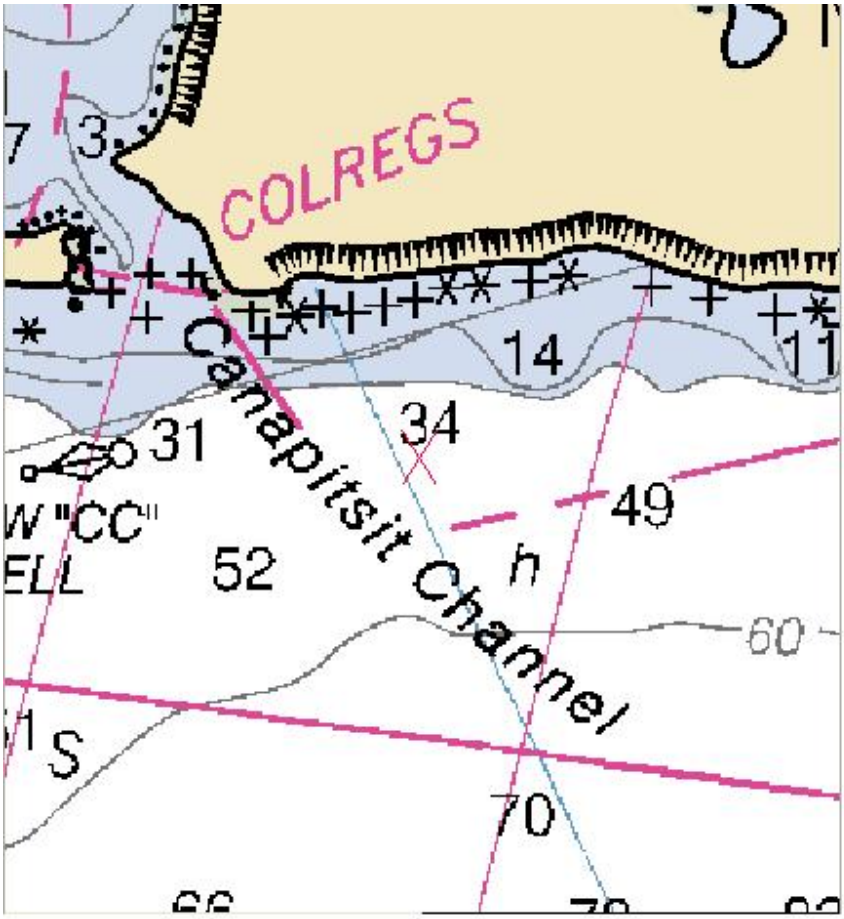

Figure 4.11.1

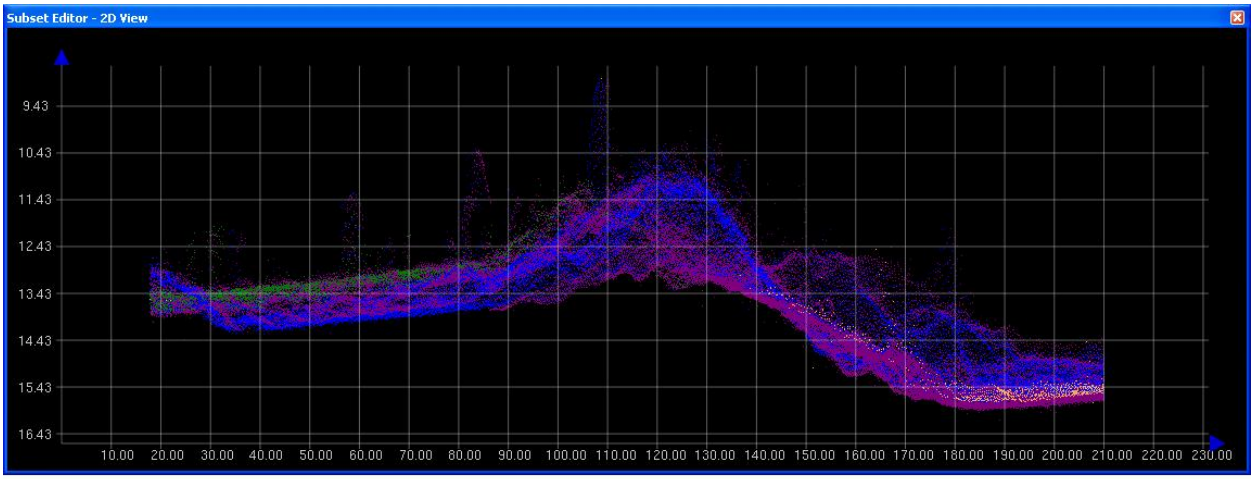
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Figure 4.11.2

4.12) DTON 10

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 23' 53.0" N, 070° 57' 54.8" W

Least Depth: 3.79 m (= 12.43 ft = 2.071 fm = 2 fm 0.43 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.113 m

Timestamp: 2008-236.21:03:52.936 (08/23/2008)

Survey Line: h11921 / tj_3102_reson8101 / 2008-236 / 713_2102

Profile/Beam: 873/67

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 3.79 meter tall uncharted dangerous rock, detected with Reson 8101 MBES and 100% Klein 5000 SSS data. The rock is located south of Sow and Pigs Reef. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3102_reson8101/2008-236/713_2102	873/67	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

12ft (13229_9, 13230_1, 13218_1)

2fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

3.8m (5161_1)

S-57 Data

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

Attributes: QUASOU - 1:depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 3.788 m

WATLEV - 3:always under water/submerged

Office Notes

The feature is charted as a result of a field-submitted DtoN letter. Retain feature as charted.

Feature Images

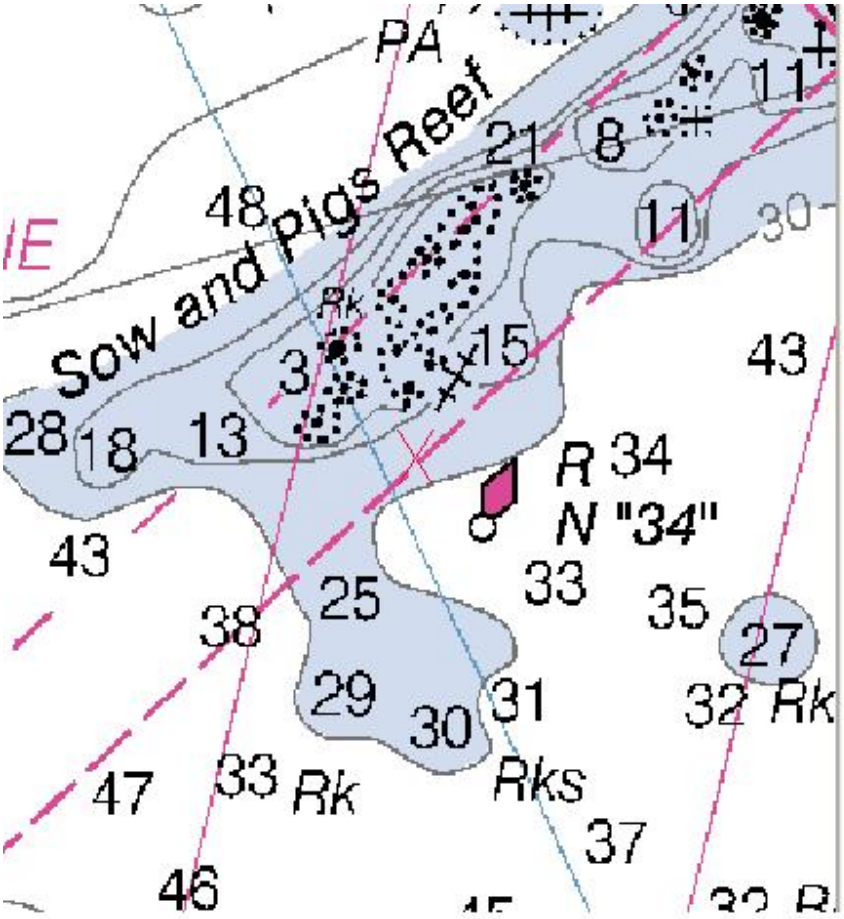

Figure 4.12.1

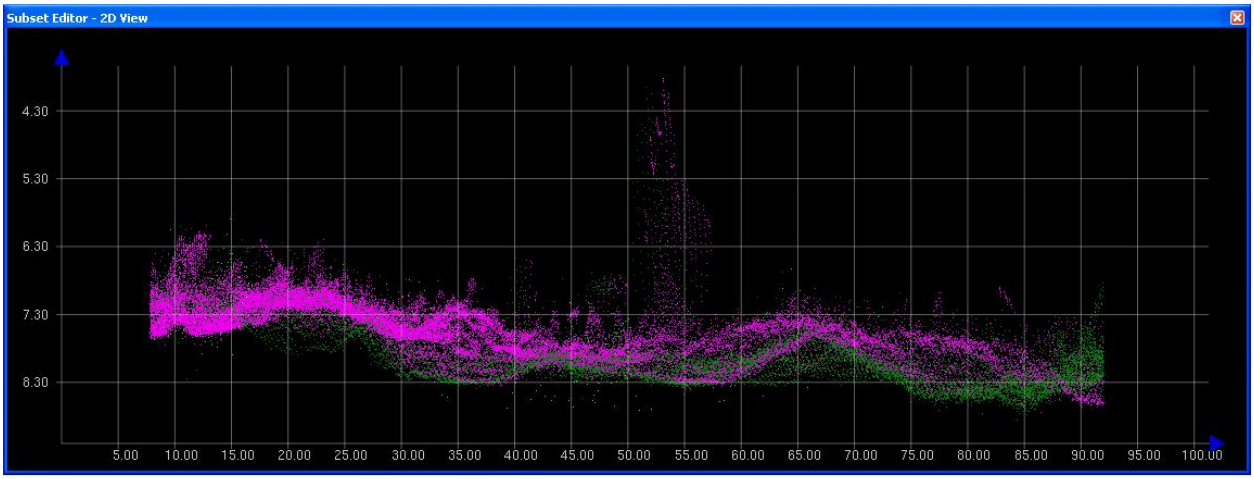
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Figure 4.12.2

4.13) DTON 11

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 23' 43.6" N, 070° 58' 37.3" W

Least Depth: 11.13 m (= 36.53 ft = 6.088 fm = 6 fm 0.53 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.116 m

Timestamp: 2008-236.20:51:39.461 (08/23/2008)

Survey Line: h11921 / tj_3102_reson8101 / 2008-236 / 814_2051

Profile/Beam: 92/44

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 11.15 meter tall uncharted dangerous rock, detected with Reson 8101 MBES and 100% Klein 5000 SSS data. The rock is located approximately 800 meters west of Sow and Pigs Reef. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3102_reson8101/2008-236/814_2051	92/44	0.00	000.0	Primary
h11921/tj_3102_reson8101/2008-236/814_2051	93/47	0.92	131.1	Secondary (grouped)

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

36ft (13229_9, 13230_1, 13218_1)

6fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

11.1m (5161_1)

S-57 Data

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

Attributes: QUASOU - 1:depth known

TECSOU - 1,2:found by echo-sounder,found by side scan sonar

VALSOU - 11.134 m

Office Notes

The office reviewer recommends deleting the DtoN feature from the chart due to its close proximity to multiple underwater rocks within a designated rocky seabed area. The designated sounding for this feature will be included as a chart sounding.

4.14) DTON 12

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 25' 04.1" N, 070° 54' 16.3" W

Least Depth: 7.13 m (= 23.39 ft = 3.899 fm = 3 fm 5.39 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.104 m

Timestamp: 2008-236.20:10:43.126 (08/23/2008)

Survey Line: h11921 / tj_3101_reson8125 / 2008-236 / 664_2009

Profile/Beam: 698/76

Charts Affected: 13229_8, 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 7.13 meter tall uncharted dangerous rock, detected with Reson 8125 MBES and 100% Klein 5000 SSS data. The rock is located approximately 500 meters west of Nashawena Island. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3101_reson8125/2008-236/664_2009	698/76	0.00	000.0	Primary

Hydrographer Recommendations

The hydrographer recommends charting the feature as a dangerous underwater rock of known depth in the corresponding depth area.

Cartographically-Rounded Depth (Affected Charts):

23ft (13229_8, 13229_9, 13230_1, 13218_1)

3 ¾fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

7.1m (5161_1)

S-57 Data

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

Attributes: QUASOU - 1:depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 7.130 m

WATLEV - 3:always under water/submerged

Office Notes

The feature is charted as a result of a field-submitted DtoN letter. Retain feature as charted.

Feature Images

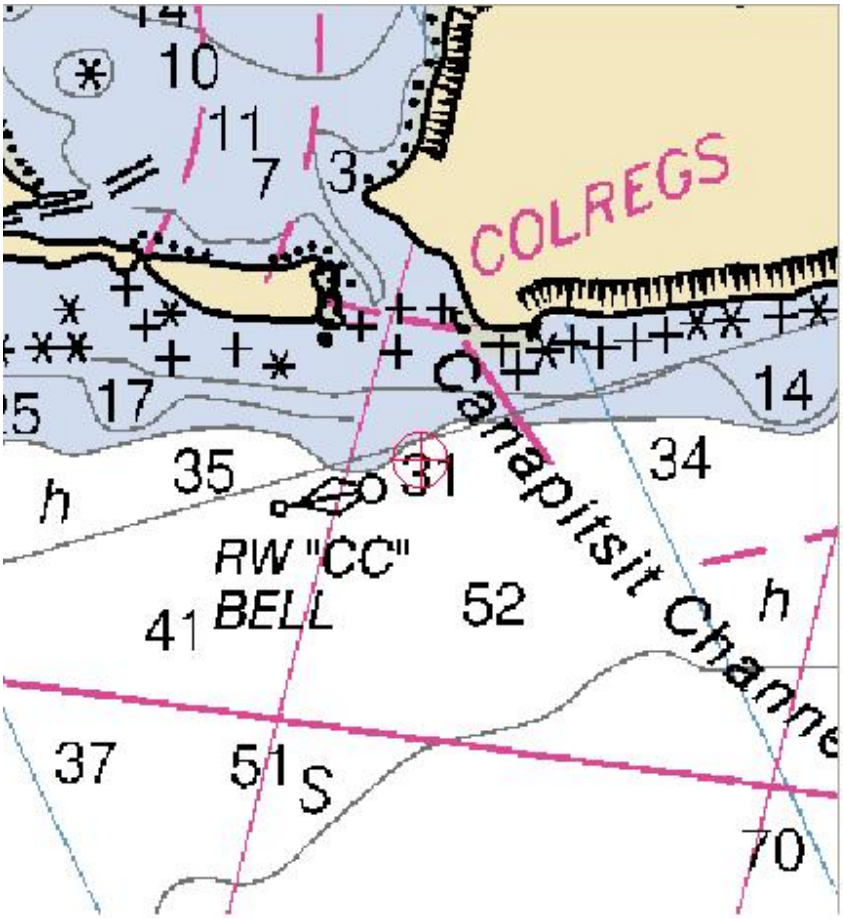


Figure 4.14.1

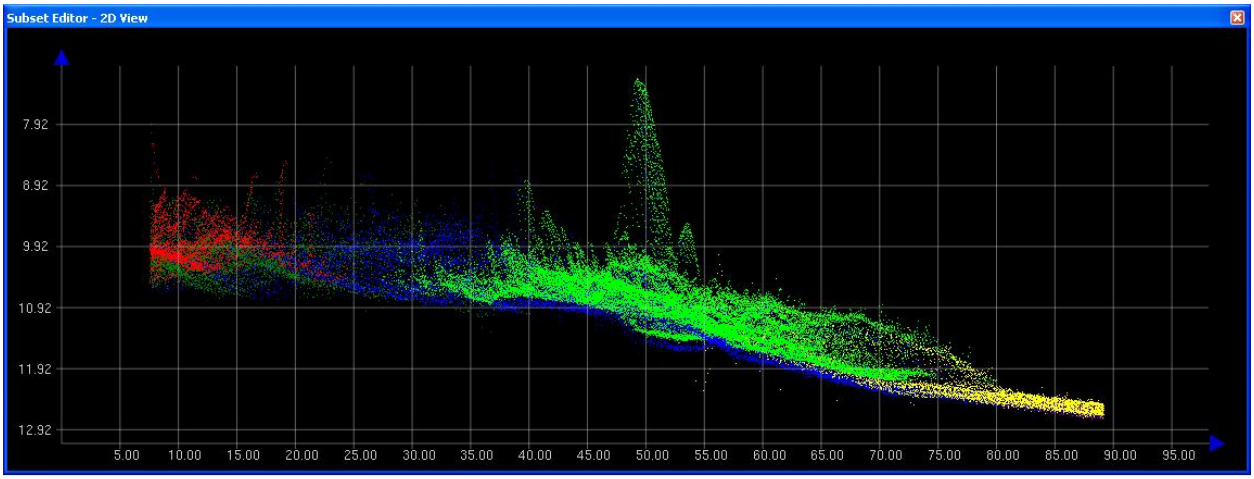

Subset Editor - 2D View
7.92
8.92
9.92
10.92
11.92
12.92
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
45.00
50.00
55.00
60.00
65.00
70.00
75.00
80.00
85.00
90.00
95.00

Figure 4.14.2

4.15) DTON 13

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 23' 45.1" N, 070° 57' 50.6" W

Least Depth: 6.79 m (= 22.29 ft = 3.715 fm = 3 fm 4.29 ft)

TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.111 m

Timestamp: 2008-220.21:03:08.616 (08/07/2008)

Survey Line: h11921 / tj_3102_reson8101 / 2008-220 / 108_2055

Profile/Beam: 3137/91

Charts Affected: 13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 6.79 meter tall uncharted dangerous rock, detected with Reson 8101 MBES and 100% Klein 5000 SSS data. The rock is located approximately 500 meters south of Sow and Pigs Reef. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3102_reson8101/2008-220/108_2055	3137/91	0.00	000.0	Primary

Hydrographer Recommendations

The office reviewer recommends deleting the DtoN feature from the chart due to its close proximity to multiple underwater rocks within a designated rocky seabed area. The designated sounding for this feature will be included as a chart sounding.

Cartographically-Rounded Depth (Affected Charts):

22ft (13229_9, 13230_1, 13218_1)

3 ¾fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

6.8m (5161_1)

S-57 Data

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

Attributes: QUASOU - 1:depth known

TECSOU - 2,3:found by side scan sonar,found by multi-beam

VALSOU - 6.794 m

WATLEV - 3:always under water/submerged

Office Notes

The feature is charted as a result of a field-submitted DtoN letter. Retain feature as charted.

Feature Images

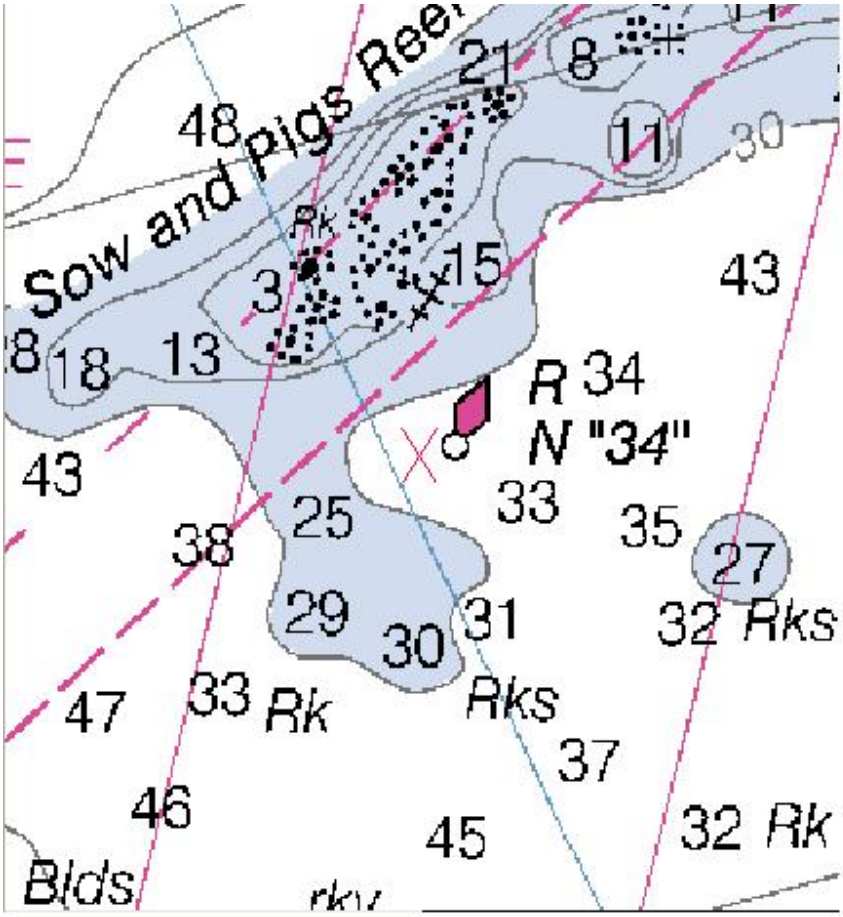


Figure 4.15.1

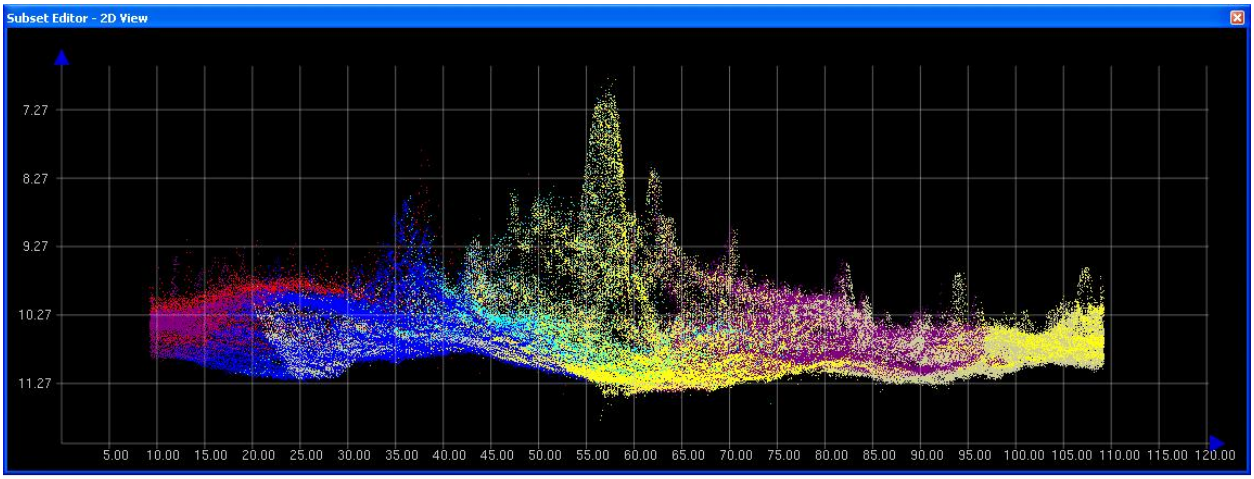

Subset Editor - 2D View
7.27
8.27
9.27
10.27
11.27
5.00 10.00 15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00 65.00 70.00 75.00 80.00 85.00 90.00 95.00 100.00 105.00 110.00 115.00 120.00

Figure 4.15.2

4.16) DTON 14

DANGER TO NAVIGATION

Survey Summary

Survey Position:	41° 24' 33.7" N, 070° 54' 38.3" W
Least Depth:	13.54 m (= 44.42 ft = 7.403 fm = 7 fm 2.42 ft)
TPU (±1.96σ):	**THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.117 m
Timestamp:	2008-232.19:49:22.322 (08/19/2008)
Survey Line:	h11921 / tj_3102_reson8101 / 2008-232 / 652_1944
Profile/Beam:	1490/21
Charts Affected:	13229_9, 13230_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

The feature is a 13.64 meter tall uncharted dangerous rock, detected with Reson 8125 MBES and 100% Klein 5000 SSS data. The rock is located approximately 1.4 kilometers south of Cuttyhunk Island. Verified water level data were applied with a preliminary TCARI model.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11921/tj_3102_reson8101/2008-232/652_1944	1490/21	0.00	000.0	Primary
h11921/tj_3101_reson8125/2008-223/418_1331	16870/209	1.16	233.2	Secondary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

44ft (13229_9, 13230_1, 13218_1)

7 ¼fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

13.5m (5161_1)

S-57 Data

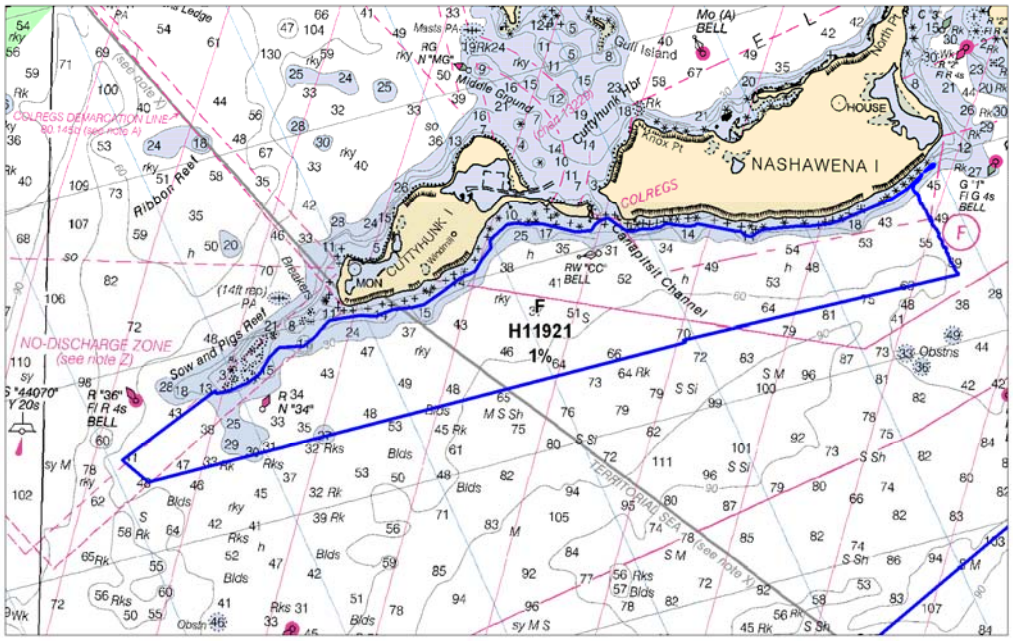
[None]

Office Notes

The feature was charted as a result of a field-submitted DtoN letter. The reviewer selected another sounding as the least depth, but the cartographically rounded depth did not change. Retain feature as charted.

Appendix III

Progress Sketch



Project	Sheet_Letter	H_num	HQ_Est_SNM	CumlPercCompPrev	CumlPercCompCu	SNM_CompCurV	CumSNMcomp
B307-TJ-08	F	H11921	5	99	1	0	5
B307-TJ-08	E	H11920	15	99	1	0	15
B307-TJ-08	D	H11922	28	100	0	0	28
B307-TJ-08	B	H11996	17	99	1	1	17
B307-TJ-08	C	H11995	17	95	5	1	17

Progress Sketch OPR-B307-TJ-08
September 2008

Appendix IV

Tides and Water Levels

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : September 15, 2008

HYDROGRAPHIC BRANCH: Atlantic
HYDROGRAPHIC PROJECT: OPR-B307-TJ-2008
HYDROGRAPHIC SHEET: H11921

LOCALITY: Sow and Pigs Reef to Quicks Hole, Vineyard Sound, MA
TIME PERIOD: August 6 - 24, 2008
September 8, 2008

TIDE STATION USED: 845-2660 Newport
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

REMARKS: RECOMMENDED ZONING

Please use the TCARI grid "Revised-B307TJ2008-TCARI.tc" as the final grid for project OPR-B307-TJ-2008, H11921, during the time period between August 6 and September 8, 2008

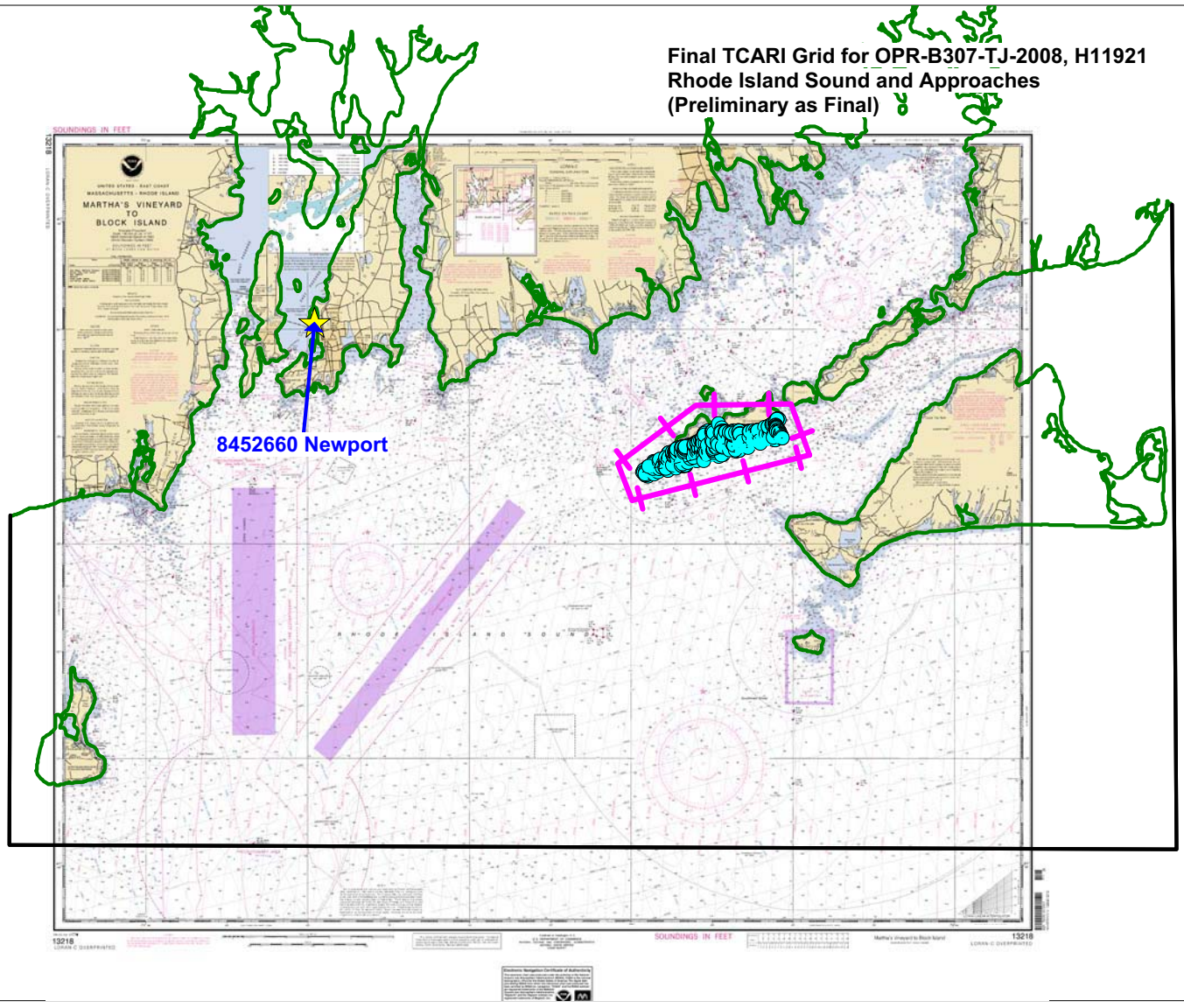
Refer to attachments for zoning information.

Note 1: Provided time series data are tabulated in metric units (meters), relative to MLLW and on Greenwich Mean Time on the 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: 2008.09.19 14:28:12 -04'00'

CHIEF, OCEANOGRAPHIC DIVISION


Final TCARI Grid for OPR-B307-TJ-2008, H11921
Rhode Island Sound and Approaches
(Preliminary as Final)
8452660 Newport
MARTHA'S VINEYARD
TO
BLOCK ISLAND
SOUNDINGS IN FEET
13218
13210

Appendix V

Supplemental Survey Records & Correspondence

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

AHB COMPILATION LOG

General Survey Information	
REGISTRY No.	H11921
PROJECT No.	**OPR-B307-TJ-08**
FIELD UNIT	**NOAA Ship *Thomas Jefferson***
DATE OF SURVEY	20081008
LARGEST SCALE CHART	***13299_8, edition 30, 20090321, 1:15,000***
ADDITIONAL CHARTS	***13299_9, edition 30, 20090321, 1:40,000*** ***13230_2, edition 49, 20090321, 1:20,000*** ***13230_1, edition 49, 20090321, 1:40,000*** ***13218, edition 40, 20090321, 1:80,000***
SOUNDING UNITS	**(feet/fathoms)**
COMPILER	Nikki Trenholm

Source Grids	**File Name** H:\Compilation\H11921_B370-TJ\AHB_H11921\E-SAR Final Products
	E-SAR Final Products\GRIDS\ AHB_H11921_1_MBES_Final.hns
	E-SAR Final Products\GRIDS\ AHB_H11921_2_MBES_Final.hns
	E-SAR Final Products\GRIDS\ AHB_H11921_3_MBES_Final.hns
	E-SAR Final Products\GRIDS\ AHB_H11921_4_MBES_Final.hns
Surfaces	**File Name** H:\Compilation\H11921_B370-TJ\AHB_H11921\COMPILE\Working
Combined	**H11921_3m_Combined.hns**
Interpolated TIN	\Interpolated TIN**H11921_3m_InterpTIN.hns**
Shifted Interpolated TIN	\Shifted Surface**H11921_3m_InterpTIN_Shifted.hns**
Final HOBs	**File Name** H:\Compilation\H11921_B370-TJ\AHB_H11921\COMPILE\Final_Hobs
Survey Scale Soundings	**H11921_SS_Soundings.hob**
Chart Scale Soundings	**H11921_CS_Soundings.hob**
Contour Layer	**H11921_Contours2.hob**
Feature Layer	**H11921_Features_1.hob**
Meta-Objects Layer	**H11921_MetaObjects.hob**
Blue Notes	**H11921_BlueNotes.hob**
ENC Retain Soundings	**H11921_ENC_Retain_Soundings.hob**
ENC Retain Features	**H11921_Retained_ENC_Features**

Meta-Objects Attribution	
Acronym	**Value**
M_COVR	
CATCOV	1
SORDAT	20081008
SORIND	US,US,survy,H11921
M_QUAL	
CATZOC	Un-assessed
INFORM	H11921, **OPR-B307-TJ-08**, Thomas Jefferson
POSACC	10
SORDAT	20081008

SORIND	US,US,survy,H11921
SUREND	20081008
SURSTA	20080906
DEPARE	
DRVALV 1	3.9633 ft
DRVALV2	81.3845 ft
SORDAT	20081008
SORIND	US,US,survy,H11921
M_CSCL	
CSCALE	40,000/80,000/12,000/20,000
SORDAT	20081008
SORIND	US,US,graph,H11921

SPECIFICATIONS:

I. COMBINED SURFACE:
   a. Number of ESAR Final Grids: 4
   b. Resolution of Combined (m): 3m

II. SURVEY SCALE SOUNDINGS (SS):
   a. Radius
   b. Shoal biased
   c. Use Single-Defined Radius (mm at Map Scale): 12k, 20k, 40k, 80k ; Radius Value = 1
   d. Queried Depth of All Soundings
      i. Minimum: 3.9633
      ii. Maximum: 81.3845

III. INTERPOLATED TIN SURFACE:
   a. Resolution (m): 3m
   b. Linear
   c. Shifted value: -.229 *[-0.229m (feet), (≤ 10 fathoms)]*
      [-1.372m (fathoms), (> 10 fathoms)]

IV. CONTOURS:
   a. Use a Depth List: H11921_NOAA_depth_curves_list.txt
   b. Line Object: DEPCNT
   c. Value Attribute: VALDCO

V. FEATURES:
   a. Total Number of Features: 21

VI. CHART SURVEY SOUNDINGS (CS):
   a. Number of ENC CS Soundings:
   b. Radius
   c. Shoal biased
   d. Use Single-Defined Radius: 250 m on the ground
      i. Radius Value (m):
      ~~ii. Or use a Sounding Space Range Table (if applicable): HXXXXX_SSR.txt~~
   e. Filter: Interpolated != 1
   f. Number Survey CS Soundings: 240

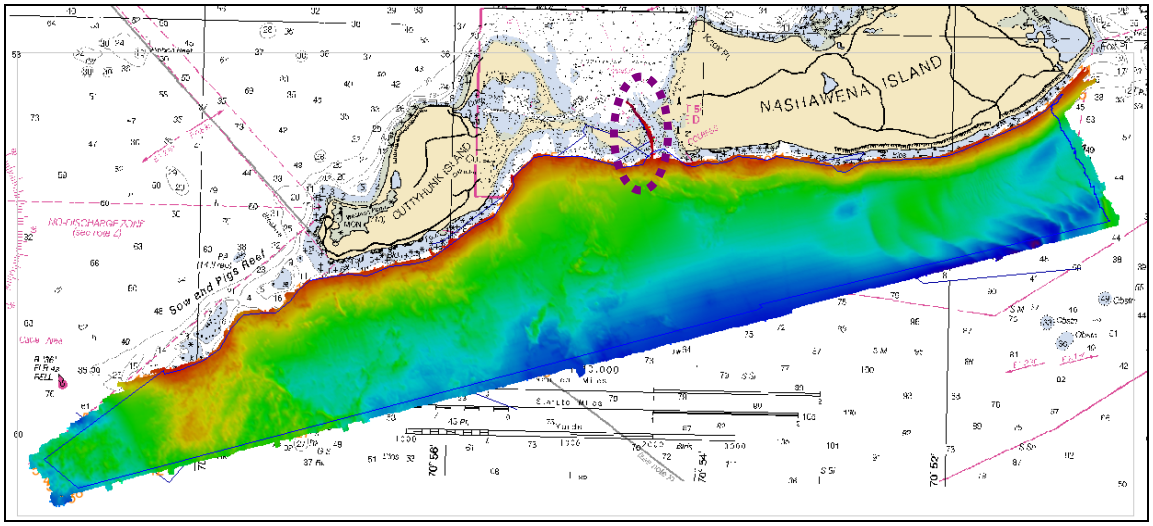
VII. Notes: See Reviewers notes in Evaluation Report

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT to ACCOMPANY
SURVEY H11921 (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.

A. AREA SURVEYED

The submitted grids and the AHB grids contain a narrow strip of data not documented in the DR. The strip of data is located between Cuttyhunk and Nashawena Islands. See image below. The area did not contain enough data points to be included into the survey coverage area. There are a few shoaler soundings within this area that are significant to supersede existing soundings. These soundings were retained from the strip of data.



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 7.3 r2534
CARIS HIPS/SIPS version 6.1 SP2 HF 1-4
CARIS Bathy Manager version 2.1 SP1 HF 1-8
DKART INSPECTOR, version 5.0 Build 732 SP1
CARIS HOM version 3.3
CARIS S57 Composer version 1.0 and 2.0

B.2. QUALITY CONTROL

B.2.1. H-Cell

The AHB source depth grid for the survey's nautical chart update product entailed the field's original 0.5cm grids combined at a 3m resolution surface. The survey scale selected soundings were extracted from the 3m combined surface. A TIN was created from the survey scale selected soundings. An interpolated TIN surface was created from the survey scale selected soundings. The chart scale selected soundings are a subset of the survey scale selected soundings. They were extracted from an interpolated TIN surface. The surface model was referenced when selecting the chart scale soundings, to ensure that the selected soundings portrayed the bathymetry within the common area.

Depth curves were created from a shifted 3m interpolated surface grid. The depth curves are forwarded to MCD for reference only. The curves were utilized during chart scale sounding selection and quality assurances efforts at AHB. The depth curves are incorporated into the CS deliverable.

The compilation products or components (Stand Alone HOB files (SAHOB)) are detailed in the Compile Process Log attached at the end of this document. The SAHOB files included depth curves (DEPCNT), sounding selections (CS and SS SOUNDG and ENC_retained_soundings), features (SBDARE, WRECKS, UNWROC, ENC_retained_Features), Meta objects (M_COVR, M_QUAL, M_CSCL), and cartographic Blue Notes. The individual SAHOB files were inserted into one BASE Manager feature layer and exported to S57 format in order to create the H-Cell deliverable.

The completed H-Cell was exported as a Base Cell File (H11921_CS_metric.hob and H11921_SS_metric.hob) in S-57 format with all values in metric units. The metric equivalent ENC.000 file was then converted to NOAA chart units (H11921_CS.000 and H11921_SS.000) with all values measured in feet following NOAA sounding rounding rules.

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

The H11921 CARIS H-Cell final deliverables include the following products:

US511921_CS.000	**1:12,000 Scale**	**H11921 H-Cell with Chart Scale Selected Soundings, Features, MetaObjects, ENC_Retained Soundings, ENC_Retained_Features, Bluenotes)**
US511921_SS.000	**1:12,000 Scale**	**H11921 Selected Soundings (Survey Scale), Contours**

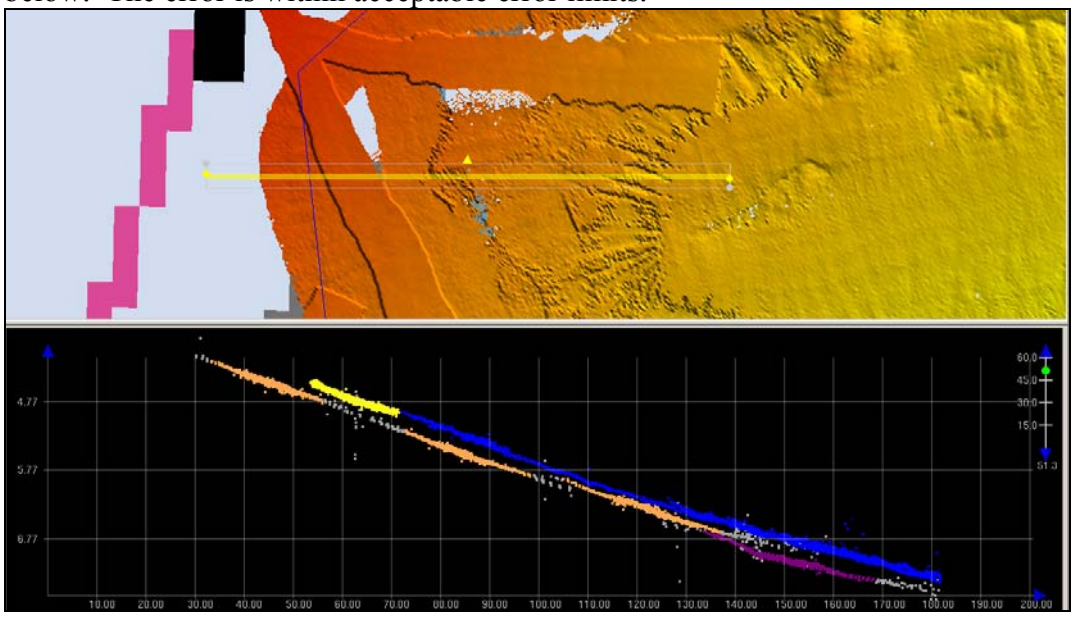
B 2.2 Sounding Coverage

The DR reports that object detection multibeam was achieved in depths 20 meters and less; however, strict object detection multibeam was not achieved in 20 meters and less.

Several small holidays exist in certain portions of the grid. Coverage multibeam, which is what the project instructions require, was achieved throughout the survey.

B 2.5 Systematic Errors

There is an undocumented 0.3-meter systematic offset in certain MBES data. See image below. The error is within acceptable error limits.



B 4.1 Total Propagated Error

The TPE was recalculated during office processing because a fair portion of the submitted grids had unexpectedly high uncertainty that exceeded IHO order 1. Investigation into the TPE sensor in the HVFs revealed the main cause of the high uncertainty was an anomalously high *MRU alignment pitch/roll* value for launch 3101. Anomalous *delta draft* and *MRU alignment gyro* TPE values also contributed to the high final uncertainty. As has already been discussed with the field, the offending standard deviations were re-evaluated and changed. Once TPE was recomputed and the surfaces were regenerated, the soundings and grids fell within IHO order 1 spec.

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

D.1 CHART COMPARISON

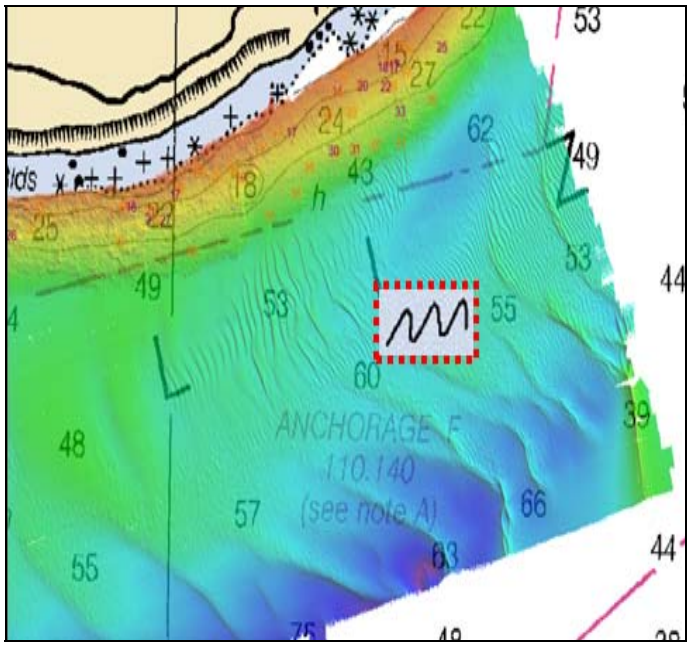
RNC	*Scale*	*Edition*	*Updated through LNM*
13299_8	1:12,000	30	03/21/2009
13299_9	1:40,000	30	03/21/2009
13230	1:40,000	49	03/21/2009
13218	1:80,000	40	03/21/2009

ENC	*Edition*	*Update*	*Issue Date*
US4MA23M	12	0	01/27/2009
US5MA25M	13	0	04/01/2009

D.1.1 Hydrography

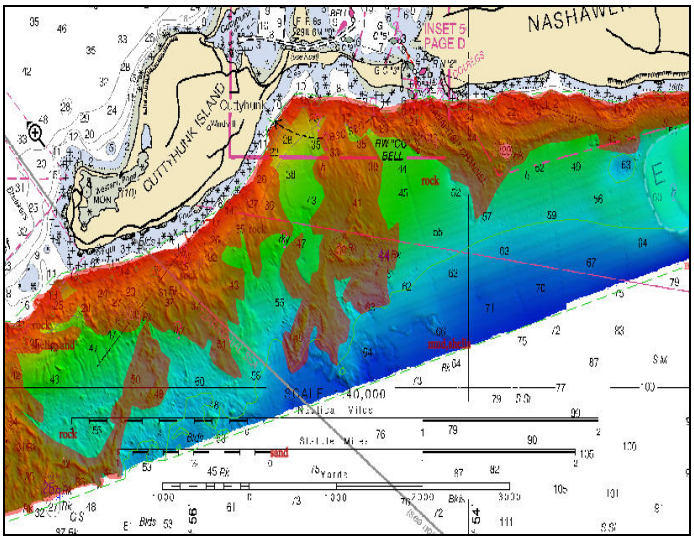
The charted hydrography originates with prior surveys and requires no further consideration. The hydrographer makes adequate chart comparisons in section "D" and Appendix 1 & 2 of the Descriptive Report. The following exceptions are noted:

1. The hydrographer did not address an area of uncharted prominent migrating sandwaves. The reviewer recommends charting a sandwave symbol at 41°25'06.274" N, 070°51'19.963" W (see image below). A seabed area SNDWAV feature was created and included in the final CS deliverables.

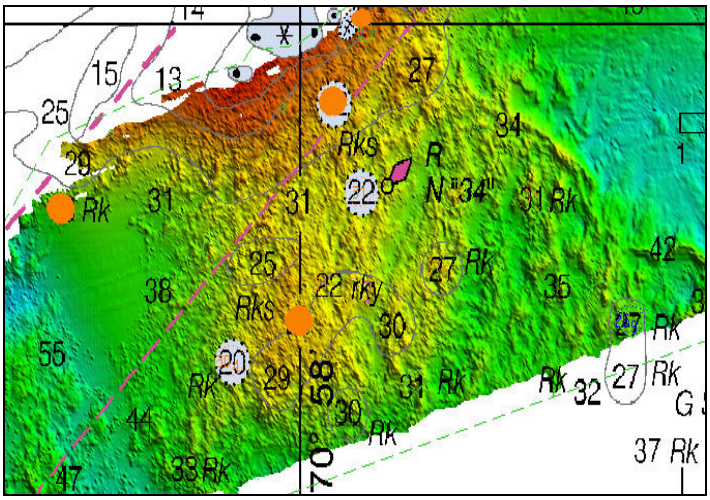


2. The DR states that chart 13299 is outside the survey limits; however, the survey limits are covered by chart 13299.

3. Most of the survey area is predominantly rocky seabed area. Rocky seabed area features were included in final CS deliverable (see image below A.). Many of the submitted DTON's for this survey ultimately were not included in the H-Cell due to overcrowding of underwater rock features within a close proximity to one another. There are also four non addressed underwater rocks reported in the DR (see below D.2.5), three of the rocks were also deemed not significant to be charted due to the same overcrowding proximity of underwater rock features. (see image below B.)



A.



B.

D.2. ADDITIONAL RESULTS

D.2.1. Aids to Navigation

The buoy GC"3" was observed approximately 66 meters from the charted position. Defer to MCD for charting action.

D.2.5 CHARTED FEATURES

Four charted rocks were not addressed by the survey. Refer to Appendix II for detailed feature reports.

41°23'33.318" , -070°57'08.231"
41°23'20.854" , -070°58'16.929"
41°23'26.374" , -070°57'51.709"
41°23'28.447" , -070°57'41.804"

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.1. 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.

APPROVAL SHEET
H11921

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.

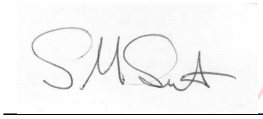
All final products have undergone a comprehensive reviews per the Hydrographic surveys Division Office Processing Manual and are verified to be accurate and complete except where noted.

Nicole Trenholm

Digitally signed by Nicole Trenholm
DN: cn=Nicole Trenholm, c=US, email=nicole.trenholm@noaa.gov
Date: 2009.04.27 10:28:36 -04'00'

Nicole Trenholm
Hydrographic Intern
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: 

Digitally signed by Shepard Smith
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Date: 2009.04.28 07:14:25 -04'00'

Shepard Smith
Commander, NOAA
Chief, Atlantic Hydrographic Branch

Jeremy McHugh
AWOIS/SURF Check Completed
2009.05.20 10:54:43 -04'00'