

H11920

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: **H11920**

LOCALITY

State: Massachusetts

General Locality: Vineyard Sound

Sub-locality: Gay Head to Cedar Tree Neck

2008

CHIEF OF PARTY
CDR P. Tod Schattgen
NOAA

LIBRARY & ARCHIVES
DATE

HYDROGRAPHIC TITLE SHEET

H11920

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: **Gay Head to Cedar Tree Neck**

Scale: **1:10,000** Date of Survey: **07/15/08 to 09/08/08**

Instructions Dated: **06/24/08** 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 remarks were added during office verification.

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Descriptive Report to Accompany Hydrographic Survey H11920

**Project OPR-B307-TJ-08
 Gay Head to Cedar Tree Neck
 Rhode Island Sound and Approaches, RI and MA
 Scale 1:10,000
 July 15th – September 08th 2008
 NOAA Ship *THOMAS JEFFERSON***

A. AREA SURVEYED

This hydrographic survey was completed as specified by Hydrographic Survey Letter Instructions OPR-B307-TJ-08*, dated 24 June 2008. See table A-1 and figure A-1 for approximate survey area. * *Filed with original field records.*

North-east corner	North-west corner	South-east corner	South-west corner
41° 21' 27.72" N	41° 18' 02.10" N	41° 19' 06.88" N	41° 15' 38.05" N
70° 54' 09.78" W	71° 06' 00.38" W	70° 52' 19.30" W	71° 04' 54.91.8" W

Table A-1: Approximate Survey Area H11920

Data acquisition was conducted from 15 July, 2008 until 08 September, 2008.

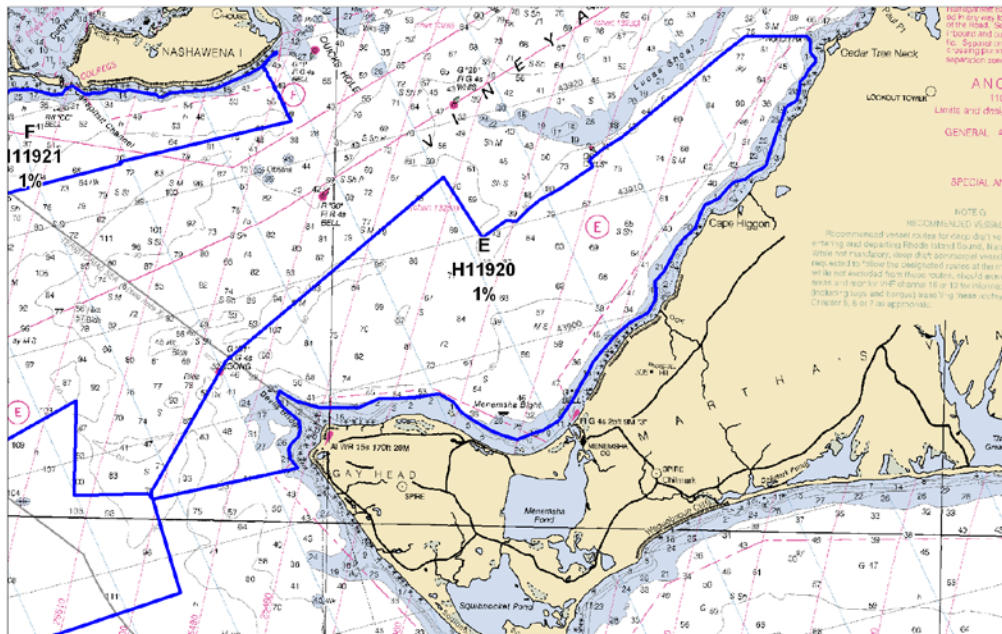
This project covers approximately 15 square nautical miles of critical survey area as designated in NOAA Hydrographic Survey Priorities, 2007 edition.

<i>NOAA Ship THOMAS JEFFERSON, Sheet E H11920</i>	
LNM Single beam mainscheme only	N/A
LNM Multibeam mainscheme only	828.91
LNM Lidar mainscheme only	N/A
LNM Side Scan Sonar mainscheme only	N/A
Lineal nautical miles of SSS with concurrent multibeam	111.57
LNM Crosslines singlebeam and multibeam combined	26.68
LNM Lidar Crosslines	N/A
LNM development lines non mainscheme	
LNM shoreline/nearshore investigations	53.92
Number of Bottom Samples	12
Number of items investigated that required additional time/effort in the field beyond the above survey operations	0.7nm SSS
Total number of square nautical miles	15.37

Table A-2. Survey Statistic

Table A-3. Dates of Multibeam Data Acquisition in Calendar and Julian Days

Calendar Date	Julian Day	Calendar Date	Julian Day
15-July-2008	197	08-August-2008	221
16-July-2008	198	09-August-2008	222
17-July-2008	199	19-August-2008	232
22-July-2008	204	20-August-2008	233
23-July-2008	205	23-August-2008	236
24-July-2008	206	08-September-2008	252
25-July-2008	207		
26-July-2008	208		
27-July-2008	209		
28-July-2008	210		
29-July-2008	211		
30-July-2008	212		
31-July-2008	213		
05-August-2008	218		



Project	Sheet Letter	H_num	HQ_Est_SNM	CumPercCompPrev	CumPercCompCur	SNM_CompCurM	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

Fig A-1 H11920 Limits

B. DATA ACQUISITION AND PROCESSING

Refer to *Thomas Jefferson Data Acquisition and Processing Report, (DAPR) Spring Addendum-2008* * 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. HSL 3101 acquired RESON 8125 multibeam echosounder soundings, sound velocity profiles, and bottom samples. HSL 3102 acquired Klein 5000 side-scan imagery, RESON 8101 multibeam echosounder soundings, and sound velocity profiles. Vessel configurations, equipment operation and data acquisition and processing were consistent with specifications described in the DAPR*. *Concur*

B.2. QUALITY CONTROL (*See Evaluation Report*)

B.2.1 System Certification and Calibration

Refer to *Thomas Jefferson Data Acquisition and Processing Report, (DAPR) Spring Addendum 2008** and *Hydrographic Systems Readiness Report 2008 (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 coverage in depths from 4 to 20 meters, and complete multibeam in depths greater than 20 meters. To aid in feature management, multibeam coverage in depths shallower than 20 meters was acquired to object detection specifications, as per guidance from AHB (See Appendix V**). Side Scan Sonar coverage was monitored by creation of a 100% coverage mosaic with 1m resolution. Bathymetry coverage was monitored by the creation of a multi-resolution BASE surface, with a 2 meter resolution in depths greater than 20 meters and a 50 centimeter resolution in depths from 4-20 meters. *Concur*

The survey limits for H11920 were modified during acquisition to include Menemsha Harbor, Menemsha Pond, and the channel connecting them. There are significant depth discrepancies between the charted channel and the one that currently exists. Sample bathymetry was conducted in Menemsha pond with the 8101 multibeam echosounder. Lines were run 25 meters apart to obtain partial bottom coverage. Additionally, current charts do not accurately depict the 12 foot curve and the area of coverage was extended outside the sheet limits to better define the 12 foot curve. Areas where the curve is not defined were deemed too rocky to risk approaching in the launches. *Concur*

**Filed with original field records.*

*** Appended to this report.*

Given the boulder-strewn nature of the bottom, it was decided that it would be time-prohibitive to identify every single side scan contact. Thus the complete multi-beam coverage that was done was conducted to object-detection criteria. This survey presented a number of unique challenges with respect to full multibeam coverage. The shallow water environment combined with large numbers of large rocks created a large number of sonar “shadows”. Small holidays remain in areas of low sounding density, however due to the shallow water environment it was again deemed time prohibitive to fill in every small area. The 50 centimeter multibeam BASE surface was compared to the 100% side scan mosaic in areas that contained small MB holidays and which had no corresponding side scan features were not developed. Additionally, a 100 square meter grid was overlaid on the BASE surface, features that had multibeam holes and corresponding SSS contacts but were deemed to not be the shoalest feature were also not developed. The final criteria was to look in the grid square and determine if the area was likely to be charted as rocky, and if a large number of large rocks populated the grid square it was not developed. If any of those three criteria could not be met, additional bathymetry data was collected to fill in the hole. Two areas did not get full multibeam or SSS. An area at location 41° 21 '22.243”N, 070° 49' 09.051"W was acquired with crosslines and turns to seek out the 4.0 m curve. There appear to be no rocks in the area but should be considered unknown depth at that location. The other area at 41°23'38.210", -070°47'12.174" did not get any SSS coverage, and holidays with greater than 3 grid nodes do exist. This appears to be sandy bottom and no rocks are believed to be in the area. All areas are marked in PYDRO as features for reference. Some side scan contacts were noted to identify significant rocks that were uncharted, but no multibeam data could be acquired over the feature. *Concur*

B 2.3 Crosslines

Multibeam echosounder cross-lines totaling 26.68 lineal nautical miles, comprising 5% of the originally planned multibeam hydrography, were acquired during the course of the survey. Crosslines were acquired with both vessels, so that a good comparison of same-vessel soundings for each of the vessels could be achieved. As per guidance from AHB, 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 0.017m in any area. Other areas of high standard deviation are caused by bathymetric features or man made obstructions. The results of the evaluation are detailed in H11920 Standard Deviation Report.pdf * located in the Descriptive Report/Separates/Crossline_Comparison folder submitted with this survey. *Concur*

**Filed with original field records.*

B 2.4 Junctions and Prior Surveys

Table B-1. Contemporary surveys junction with H11920

Registry #	Scale	Date	Field Party	Junction side
H10563	1:10,000	1994	WHITING	NE
H10654	1:10,000	1995	Contractor	N
H10649	1:10,000	1995	Contractor	NW

No junction data was provided to THOMAS JEFFERSON in a readable format for comparison.

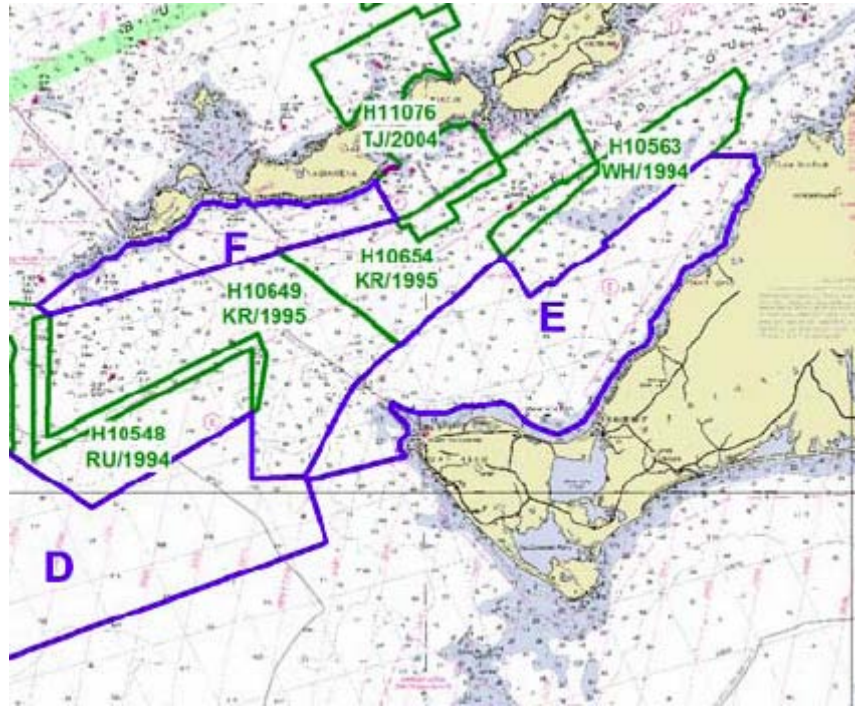


Figure B-1. H11920 Junction Surveys.

B 2.5 Systematic Errors

Normally the sound velocity is applied to nearest in distance within three hours. For this sheet the nearest in time was preferred. On day 204, launch 3101 encountered a dynamic sound velocity area near Devils Bridge. Sound Velocity was applied to those lines using nearest in distance within 4 hours. Care should be taken when applying en-masse to all lines. The following lines were affected for 3101 DN 204: 459_1458, 458_1529, 458_1553, 457_1624, 456_1649

Concur

An error was found in 3101 Klein5000_SSS100 and 200 HVF's. The X value and the Z value currently have the wrong sign. The error for X was -0.5 and should be 0.5. The Z value was -0.66 and should be 0.66. It was determined that for SSS this was within the error budget for rigid mount SSS. No correction was made to the data acquired. **Concur**

Another error observed was when the RESON 8101 projector setting flipped from aft to forward on 3102. The correction for this is in the SVP pole entry in the HVF. The Azimuth field is changed to 180 degrees at the beginning of each time period that the error occurred followed by a return to zero when the error period ends. An example of the error can be seen in the H11920 Standard Deviation Report * in the Crossline Comparison folder. **Concur**

***Filed with original field records.**

There appears to be a TCARI tide problem in the area near Devils Bridge on day 199 for launch 3101. At its max the errors range from 30-40 cm. An example of the error can be seen in the H11920 Standard Deviation Report * in the Crossline Comparison folder. **Concur**

Bathymetric data were evaluated to identify systematic errors in data correctors including motion, attitude, tide and sound velocity. Sun-illuminated digital terrain models (DTMs) did not reveal any other artifacts. **Concur**

B.3. CORRECTIONS TO ECHO SOUNDING

HDCS sounding data were reduced to mean lower-low water (MLLW) using verified water levels from the primary stations 8448725, Menemsha, MA and 8452660, Newport, RI and adjusted for Tidal Constituents and Residuals (TCARI) provided by CO-OPS as specified in the Letter Instructions* and illustrated in Figure B-2. **Concur**

The TCARI zoning does not fully encompass Menemsha Pond. Final zoning and tides were received from COOPS but did not include this area. COOPS guidance in the email dated 29 Sep, 2008 (see Appendix V**) indicates TCARI zoning was modified to allow extrapolation for this area. When TCARI was applied to this data, a “data outside of zone” error was generated in PYDRO. Subsequently, sounding data acquired outside the TCARI zone were reduced to mean lower-low water (MLLW) using verified water levels from the primary station 8448725, Menemsha, MA and were applied direct (no zoning). **Concur**

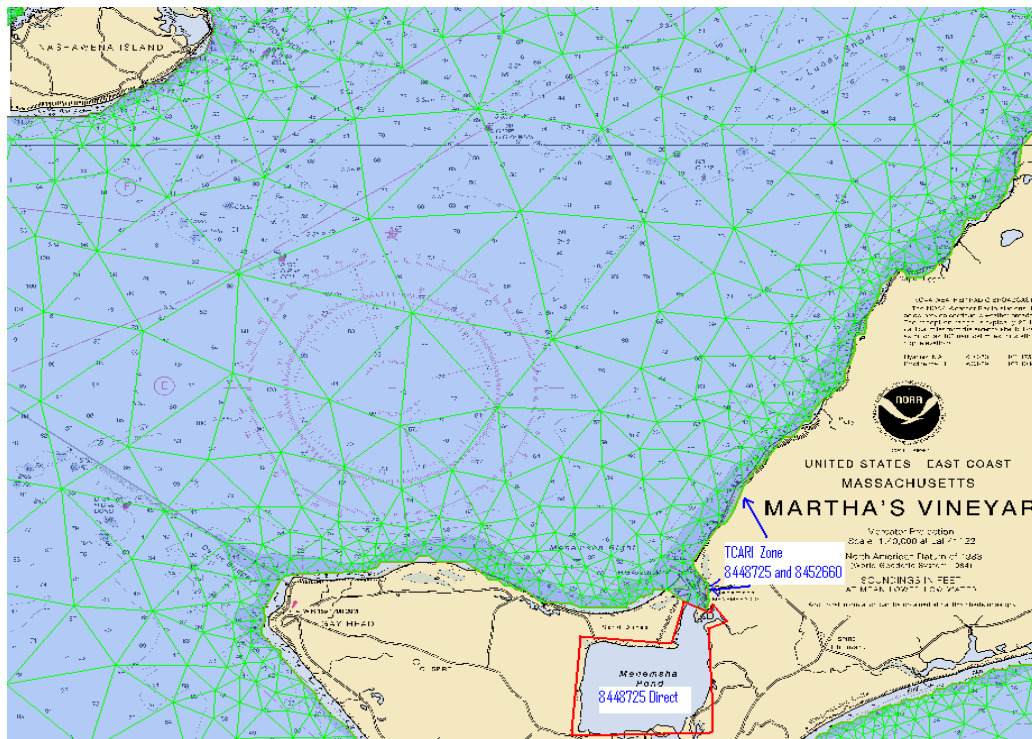


Figure B-2: Final Tide Zoning

***Filed with original field records.**

****Appended to this report.**

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

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

**Filed with original field records.*

B.4. DATA PROCESSING

There were 1283 raw files and 1439 processed files. Extra processed files were due to either, data acquired as Dual MB/SSS, processing of detached positions or duplicate files for Tide zoning as described in section B.3. Beam pattern correction was deemed inappropriate for the dynamic bottom of this survey. *Concur*

B 4.1 Total Propagated Uncertainty

For the 2008 field season, Total Propagated Uncertainty is identified as TPE (Total Propagated error) in CARIS. The parameters for sound speed and tides are calculated separately for each project. The project-specific parameters for OPR-B307-TJ-08, Survey H11920 are as follows:

Table B-3: TPU Parameters

Vessel	Tide Values		Sound Speed Values	
	Measured	Zoning	Measured	Surface
3101	0	0.0	1.0	0.2
3102	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). These values were calculated for all MBES data immediately following CARIS Merge. *Concur*

B 4.2 BASE Surfaces and Mosaics

The following table describes all BASE Surfaces and Mosaics submitted as part of Survey H11920:

Table B-3 Field Sheets\Surfaces

<i>Name of Fieldsheet</i>	<i>Resolution</i>	<i>Type</i>	<i>Purpose</i>
H11920\H11920_FinCom_Thresh_2m.hns	2m	Cube	QC
H11920_W1_50cm\H11920_W1_cu_shal_50cm_Final.hns	50cm	Cube	QC
H11920_S5\H11920_S5_cu_shal_50cm_Final.hns	50cm	Cube	QC
H11920_W2_a_50cm\H11920_W2a_cu_shal_50cm_Final.hns	50cm	Cube	QC
H11920_W2_b_50cm\H11920_W2b_cu_shal_50cm_Final.hns	50cm	Cube	QC
H11920_E3_a\H11920_E3a_cu_shal_50cm_Final.hns	50cm	Cube	QC
H11920_E3_b\H11920_E3b_cu_shal_50cm_Final.hns	50cm	Cube	QC

H11920_E3_c\H11920_E3c_cu_shal_50cm_Final.hns	50cm	Cube	QC
H11920_W2_c\H11920_W2c_cu_shal_50cm_Final.hns	50cm	Cube	QC
H11920_E4_a\H11920_E4a_cu_shal_50cm_Final.hns	50cm	Cube	QC
H11920_E3_d\H11920_E3d_cu_shal_50cm_Final.hns	50cm	Cube	QC
H11920_E4_b\H11920_E4b_cu_shal_50cm_Final.hns	50cm	Cube	QC
H11920_E4_c\H11920_E4c_cu_shal_50cm_Final.hns	50cm	Cube	QC
H11920_E3_e\H11920_E3e_cu_shal_50cm_Final.hns	50cm	Cube	QC
H11920_W1\H11920_W1_cu_deep_2m_Final.hns	2m	Cube	QC
H11920_W2\H11920_W2_cu_deep_2m_Final.hns	2m	Cube	QC
H11920_E4_d\H11920_E4d_cu_shal_50cm_Final.hns	50cm	Cube	QC
H11920_E4\H11920_E4_cu_deep_2m_Final.hns	2m	Cube	QC
H11920_E3\H11920_E3_cu_deep_2m_Final.hns	2m	Cube	QC
H11920_100_1m_mos.weight	1m	Mosaic	Coverage

This survey was processed using the Combined Uncertainty and Bathymetry Estimator (CUBE) algorithm. Two grids were processed for each field sheet: One at 50cm Order 1 Shallow CUBE parameters. The other was at 2m Order 1 deep CUBE parameters. All grids were finalized and combined into a 2m grid at a threshold of -1.0m to 22.0m for the 50cm grid and 20m to 50m for the 2m grid. The final combined grid was imported into PYDRO for analysis. Refer to the 2008 Data Acquisition and Processing Report, 2008 Field Procedures Manual, and CARIS HIPS/SIPS 6.1 manual for further discussion of cube grids. *Concur*

C. VERTICAL AND HORIZONTAL CONTROL

As per FPM section 5.2.3.2.3, 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. *Concur*

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 MA, 306 kHz; and Moriches NY, 293 kHz; were used during this survey. *Concur*

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

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 8448725, Menemsha, MA and 8452660, Newport, RI, will serve as datum control for H11920. Observed tide data with final TCARI constituents and residuals were applied to all sounding data with the exception of Menemsha Pond. *Concur*

A request for delivery of final approved (verified) tides for this survey was forwarded to N/OPS1 on September 10, 2008 in accordance with the FPM and project letter instructions. Final Tides

note was received and dated September 15, 2008. The TCARI zone file prescribed by that note is Revised-B307TJ2008-TCARI.tc with a modified date of August 14, 2008 indicating no change to zoning. *Concur*

D. RESULTS AND RECOMMENDATIONS (See Evaluation Report)

D.1 Chart Comparison

Survey H11920 was compared with the following charts 13233 (17th Ed.; September 2005, 1:20,000), 13230 (48th Ed; October 2005, 1:400,000), 13218 (40th Ed; February 2008, 1:80,000), ENC US5MA25M and US4MA23M. Chart comparisons were performed in CARIS, in PYDRO using survey-scale excessed soundings, and in MapInfo using survey-scale and chart-scale excessed soundings exported from PYDRO. *Concur*

D.1.1 Chart 13233_1, 2

In flat areas of 60 ft or deeper, soundings are ± 1 foot of charted depths. In depths 60 ft or less, comparisons showed differences ± 3 ft from charted depths. The shoreline and foul areas need to be updated and are indicated in the PYDRO PSS. There is a significant discrepancy in the charted position of the channel leading to Menemsha Pond, see fig 1. The deepest part is currently located on the south jetty, see fig 2. The shoal indicated on the north east side is located in the center of the channel, see fig 3. *Concur*



Fig 1 13233_1

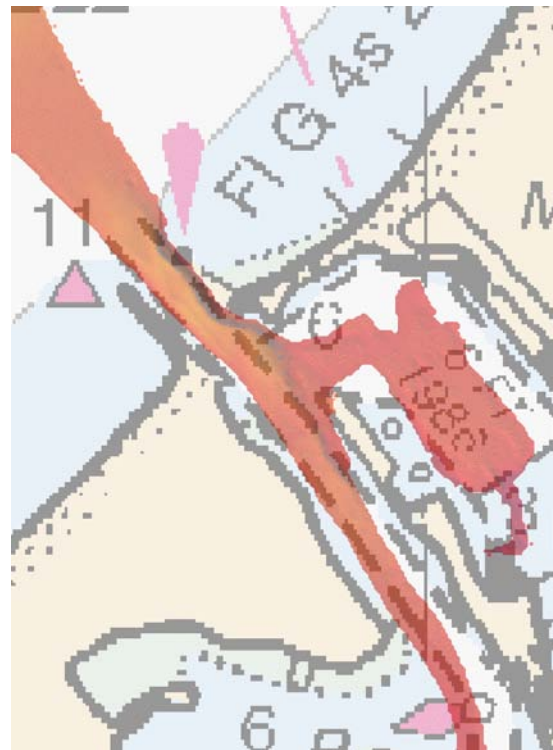


Fig 2 13233_2



Fig 3 13233_1 to ENC US4MA23M Shoreline and ATON

D.1.2 Chart 13230

In flat areas of 60 ft or deeper, soundings are ± 1 foot of charted depths. In depths 60 ft or less, comparisons showed differences ± 3 ft from charted depths. The shoreline and foul areas need to be updated and are indicated in the PYDRO PSS. There are also position differences at Menemsha Jetty Light and Gayhead Light with the ENC's. **Concur with clarification. Discrepancy not significant enough based on the chart symbol size.**

D.1.3 Chart 13218

In flat areas of 60 ft or deeper, soundings are ± 1 foot of charted depths. In depths 60 ft or less, comparisons showed differences ± 3 ft from charted depths. The shoreline and foul areas need to be updated and are indicated in the PYDRO PSS. **Concur**

D.1.4 US5MA25M

The results for this ENC were the same as above except positional differences of ATONS or other features as noted in the feature report. **Concur**

D.1.5 US4MA23M

The results for this ENC were the same as above except positional differences of ATON'S or other features as noted in the feature report, see fig 4. **Concur**



Fig 4

D.2 Additional Results

When sounding data was not acquired over an object but there was evidence of rocks or shoals were found by side scan sonar data, the S57 attributes fields for these contacts in Pydro for water level effect and vertical datum will be blank or not attributed. *Concur*

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

One assigned AWOIS item was located within the modified limits of H11920 and investigated during this survey. The item was covered by object detection multibeam. *Concur*

D.2.4 Shoreline

There is shoreline within the sheet limits of survey H11920. Observations indicate that shoreline verification should be performed with contemporary aerial photography or satellite imaging. The limits of survey were to the 4m curve, reports from the launches indicate that in many places the actual shoreline was closer than charted. Shoreline verification was not required; however, submerged rocks precluded a traditional inspection at discrete locations. *Concur*

D.2.5 Charted Features

There are 20 features that fall within the Limits of H11920. MB data could not be acquired over some features due to proximity to dangerous obstructions. Others were detected by side scan sonar only. All features and item investigations are described in detail in Appendix II * of this report. *Concur*

**Appended to this report.*

D.2.6 Charted Pipelines and Cables

There are no charted pipelines or cables in the survey area. *Concur*

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. *Concur*

D.3 Dangers to Navigation and Shoals

D 3.1 Dangers to Navigation

Nineteen dangers to navigation were found and reported to the NOAA's Office of Coast Survey, Marine Chart Division (MCD) for verification and final submission to the 1st Coast Guard District. 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. *Concur*

D 3.2 Shoals

Shoaling has been found half nautical mile northwest of Devils Bridge toward buoy G "31. *Concur*

D.4 Aids to Navigation

There are five Aids to Navigation (ATON) within the revised limits of H11920. Gay Head Lighted Gong Buoy 31, Menemsha Creek Entrance Bell Buoy 1 and Lucas Shoal Buoy LS are charted appropriately. A discrepancy between the chart 13233 and ENC US4MA23M of approximately 30 meters was found for Menemsha Creek Entrance Jetty Light 3, also listed as ATON 4 *41-21-15.761N, 070-46-06.920W*. *Concur with clarification. See Evaluation Report for more details.*

D.5 Coast Pilot Information

The hydrographer has no recommendations to the Coast Pilot. *Concur*

D.6 Miscellaneous

Bottom Samples

Bottom samples were collected in accordance with NOAA Hydrographic Survey Specifications and Deliverables. A complete description of all bottom samples acquired during Survey H11920 is contained in the PYDRO PSS. *Concur*

**Appended to this report.*

Environmental Conditions and Notes

The Hydrographer has no recommendations. *Concur*

D.8 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

The sea bottom covered by H11920 is rocky and dynamic. There are high cliffs on the shores of Martha's Vineyard created from glacial till and submerged glacial erratics. There are sand waves in the survey area, which is evidence of the high tidal currents. *Concur*

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 H11920 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:

<u>Title</u>	<u>Date Sent</u>	<u>Office</u>
Data Acquisition and Processing Report Spring Addendum-2008	4 Feb 09	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
 2009.03.06 19:48:18 Z

LT Jasper Schaer, NOAA
 Field Operations Officer


 Tod Schattgen
 2009.03.06
 19:41:42 Z

CDR P.Tod Schattgen, NOAA
 Commanding Officer

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


 Peter Lewit
 I am the author of this document
 2009.03.06 20:11:08 Z

Peter G. Lewit
 Senior Survey Tech

AHB_H11920_DtoN_Report

Registry Number: H11920
State: Massachusetts
Locality: Vinyard Sound
Sub-locality: Gay Head to Cedar Tree neck
Project Number: OPR-B307-TJ-08
Survey Dates: 07/16/2008 - 08/23/2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
13229	30th	04/01/2008	1:40,000 (13229_9)	[L]NTM: ?
13233	18th	10/01/2008	1:40,000 (13233_1)	USCG LNM: 10/21/2008 (03/03/2009) CHS NTM: None (01/30/2009) NGA NTM: 03/07/1998 (03/14/2009)
13230	48th	10/01/2005	1:40,000 (13230_1)	[L]NTM: ?
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)	[L]NTM: ?
13006	34th	05/01/2007	1:675,000 (13006_1)	[L]NTM: ?
5161	13th	10/01/2003	1:1,058,400 (5161_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?

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

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	1211/3-36ft DToN Sand Wave	Shoal	11.51 m	41° 21' 47.6" N	070° 51' 31.8" W	---
1.2	1182/1-9.48ft DToN	Rock	2.89 m	41° 23' 15.8" N	070° 44' 40.9" W	---
1.3	1437/238-7.49ft DToN	Rock	2.28 m	41° 22' 30.9" N	070° 45' 08.2" W	---
1.4	255/180-23.23ft DToN	Rock	7.08 m	41° 21' 23.6" N	070° 51' 34.8" W	---
1.5	9364/8-12.07ft Rk DtoN	Rock	3.68 m	41° 25' 07.3" N	070° 42' 49.9" W	---
1.6	1581/49-22.43ft DToN	Rock	6.84 m	41° 21' 03.9" N	070° 50' 58.1" W	---

1.7	2612/51-12.92ft DToN	Rock	3.94 m	41° 21' 10.2" N	070° 50' 29.6" W	---
1.8	1841/51-14.48ft DToN	Rock	4.41 m	41° 20' 57.2" N	070° 50' 40.3" W	---
1.9	1653/99-51.04ft DToN	Rock	15.56 m	41° 20' 48.1" N	070° 51' 39.2" W	---
1.10	4483/101-53.11ft DToN	Rock	16.19 m	41° 20' 31.2" N	070° 51' 47.0" W	---
1.11	411/4-37.78ft DToN	Rock	11.52 m	41° 21' 31.6" N	070° 51' 45.2" W	---
1.12	846/65-34.25ft DToN	Rock	10.44 m	41° 21' 32.6" N	070° 50' 17.6" W	---
1.13	262/75-8.33ft DToN	Rock	2.54 m	41° 25' 03.6" N	070° 42' 50.5" W	---
1.14	575/16-19.61ft DToN	Rock	5.98 m	41° 22' 37.2" N	070° 45' 03.8" W	---
1.15	1819/209-20.32ft DToN	Rock	6.19 m	41° 25' 10.2" N	070° 42' 55.8" W	---
1.16	310/115-18.63ft DToN	Rock	5.68 m	41° 21' 00.3" N	070° 50' 50.3" W	---

1 - DR_DToN

1.1) Profile/Beam - 1211/3 from h11920 / tj_3102_reson8101 / 2008-199 / 104_1611

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 21' 47.6" N, 070° 51' 31.8" W
Least Depth: 11.51 m (= 37.77 ft = 6.295 fm = 6 fm 1.77 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 0.983 m ; **TVU (TPEv)** ± 0.138 m
Timestamp: 2008-199.16:23:02.137 (07/17/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-199 / 104_1611
Profile/Beam: 1211/3
Charts Affected: 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

A 36 ft sounding on a sand wave was found on a 46 ft charted depth. The sounding was acquired by Reson 8101 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 38 ft.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3102_reson8101/2008-199/104_1611	1211/3	0.00	000.0	Primary
h11920/tj_3102_reson8101/2008-199/103_1553	292/5	63.57	119.8	Secondary (grouped)
h11920/tj_3102_reson8101/2008-199/100_1518	266/36	320.28	125.3	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

38ft (13233_1, 13218_1)

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

11.5m (5161_1)

S-57 Data

Geo object 1: Sand waves (SNDWAV)

Geo object 2: Sounding (SOUNDG)

Office Notes

Concur w/ clarification DToN was submitted to MCD 11/17/2008. Consider charting a seabed area for the sandwaves in this region.

Feature Images

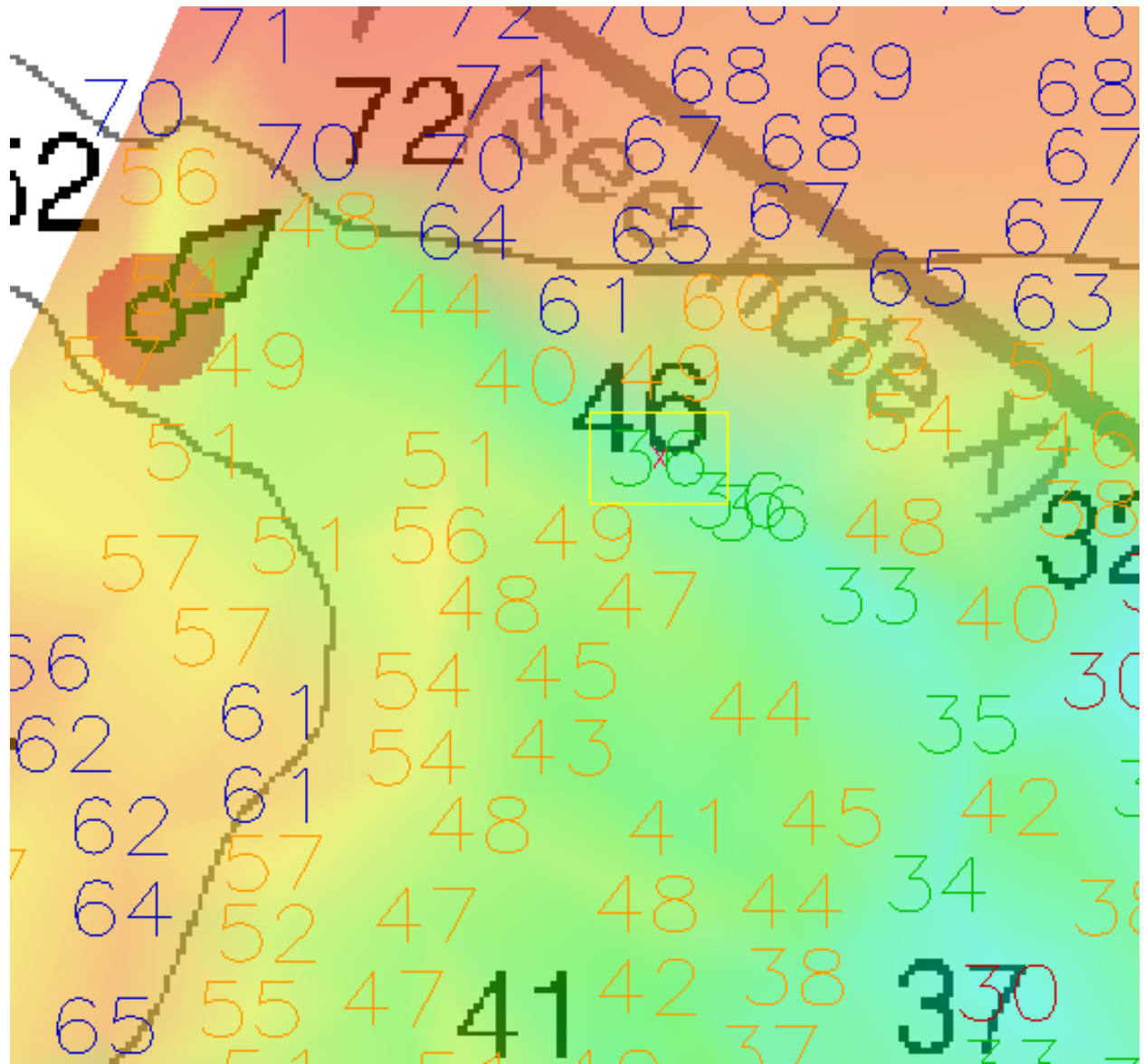


Figure 1.1.1

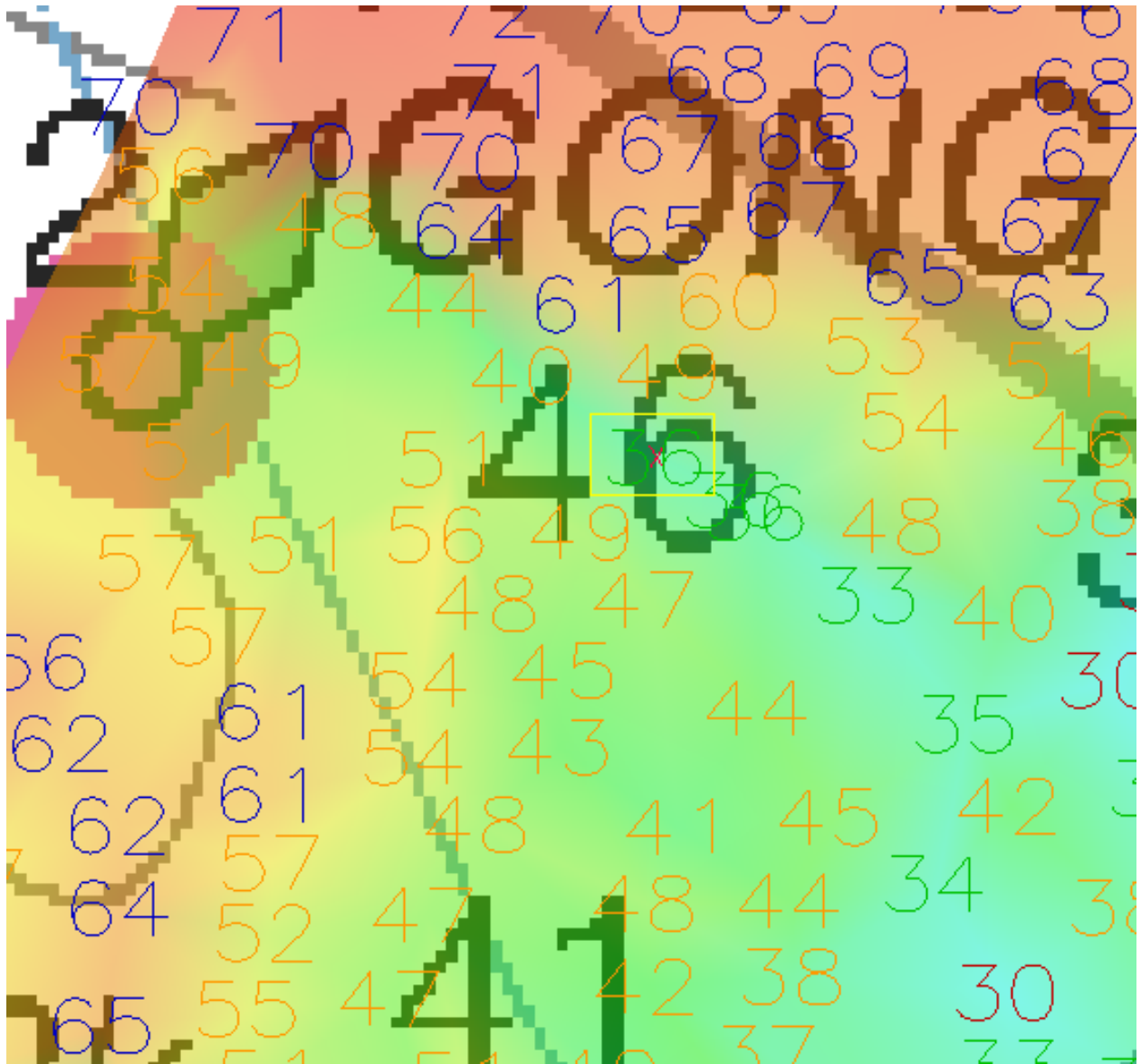


Figure 1.1.2 Chart 13218_1 location

1.2) Profile/Beam - 1182/1 from h11920 / tj_3101_reson8125 / 2008-213 / 573_1447

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 23' 15.8" N, 070° 44' 40.9" W
Least Depth: 2.89 m (= 9.48 ft = 1.579 fm = 1 fm 3.48 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.105 m
Timestamp: 2008-213.14:49:13.227 (07/31/2008)
Survey Line: h11920 / tj_3101_reson8125 / 2008-213 / 573_1447
Profile/Beam: 1182/1
Charts Affected: 13230_1, 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8125 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 9.48ft(2.89m).

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3101_reson8125/2008-213/573_1447	1182/1	0.00	000.0	Primary
h11920/tj_3102_klein5000_sss100/2008-204/113_1955	0004	6.32	177.0	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

9ft (13230_1, 13233_1, 13218_1)
 1 ½fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)
 2.9m (5161_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known

TECSOU - 3:found by multi-beam

VALSOU - 2.888 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur w/ clarification DToN was submitted to MCD 11/17/2008.Retain as charted.

Feature Images

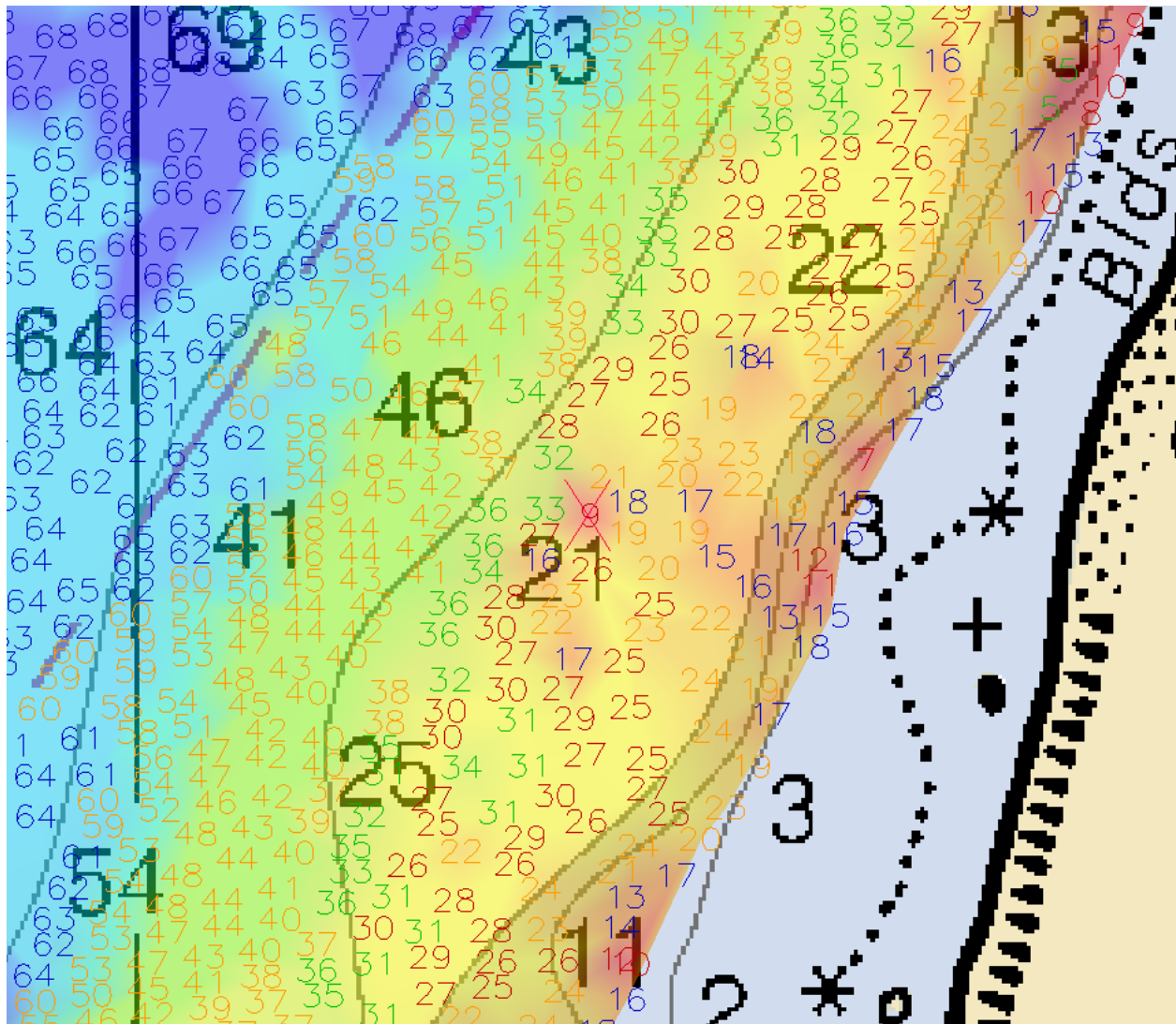


Figure 1.2.1

1.3) Profile/Beam - 1437/238 from h11920 / tj_3101_reson8125 / 2008-222 / 820_1832

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 22' 30.9" N, 070° 45' 08.2" W
Least Depth: 2.28 m (= 7.49 ft = 1.249 fm = 1 fm 1.49 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.104 m
Timestamp: 2008-222.18:32:57.924 (08/09/2008)
Survey Line: h11920 / tj_3101_reson8125 / 2008-222 / 820_1832
Profile/Beam: 1437/238
Charts Affected: 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8125 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 7.49ft(2.28m)

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3101_reson8125/2008-222/820_1832	1437/238	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

7ft (13233_1, 13218_1)
 1 ¼fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)
 2.3m (5161_1)

S-57 Data

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

VALSOU - 2.284 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur w/ clarification DToN was submitted to MCD 11/17/2008.Retain as charted.

Feature Images

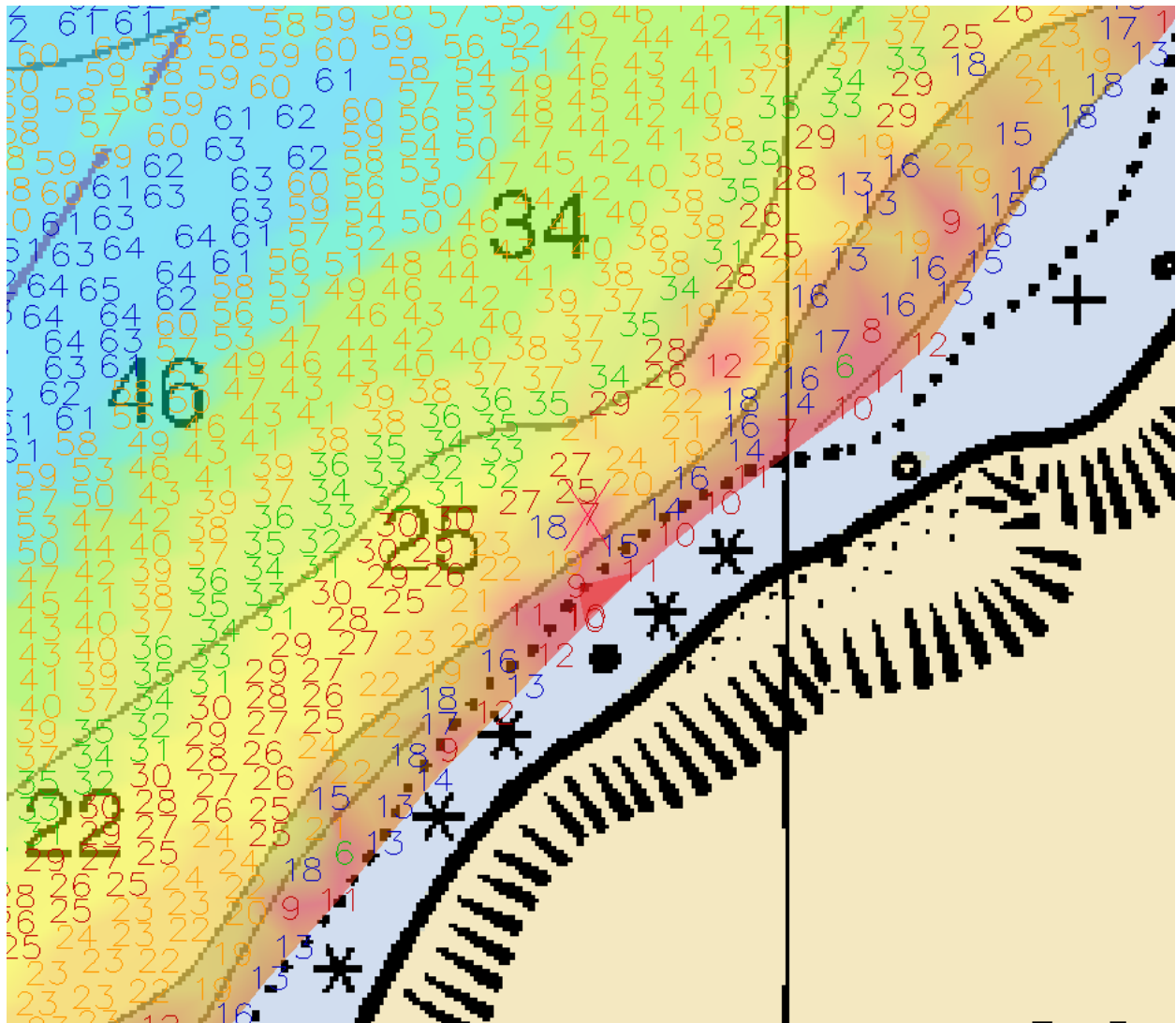


Figure 1.3.1

1.4) Profile/Beam - 255/180 from h11920 / tj_3101_reson8125 / 2008-232 / 931_1542

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 21' 23.6" N, 070° 51' 34.8" W
Least Depth: 7.08 m (= 23.23 ft = 3.871 fm = 3 fm 5.23 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.104 m
Timestamp: 2008-232.15:43:06.501 (08/19/2008)
Survey Line: h11920 / tj_3101_reson8125 / 2008-232 / 931_1542
Profile/Beam: 255/180
Charts Affected: 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8125 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 23.23 ft (7.08m).

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3101_reson8125/2008-232/931_1542	255/180	0.00	000.0	Primary
h11920/tj_3102_reson8101/2008-212/478_1723	3087/1	146.65	093.5	Secondary (grouped)
h11920/tj_3102_reson8101/2008-218/416_1631	142/6	180.87	299.4	Secondary (grouped)
h11920/tj_3102_reson8101/2008-199/105_1625	1233/17	229.07	066.6	Secondary (grouped)
h11920/tj_3102_reson8101/2008-222/603_1309	1503/1	229.16	067.0	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-199/105_1625	0018	229.64	067.5	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-199/105_1625	0019	357.12	058.4	Secondary (grouped)
h11920/tj_3102_reson8101/2008-199/105_1625	1373/89	358.17	058.8	Secondary (grouped)
h11920/tj_3102_reson8101/2008-212/143_1955	447/99	374.79	071.8	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

23ft (13233_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 - 3:found by multi-beam
VALSOU - 7.080 m
VERDAT - 12:Mean lower low water
WATLEV - 3:always under water/submerged

Office Notes

Concur w/ clarification DToN was submitted to MCD 11/17/2008.Retain as charted.

Feature Images

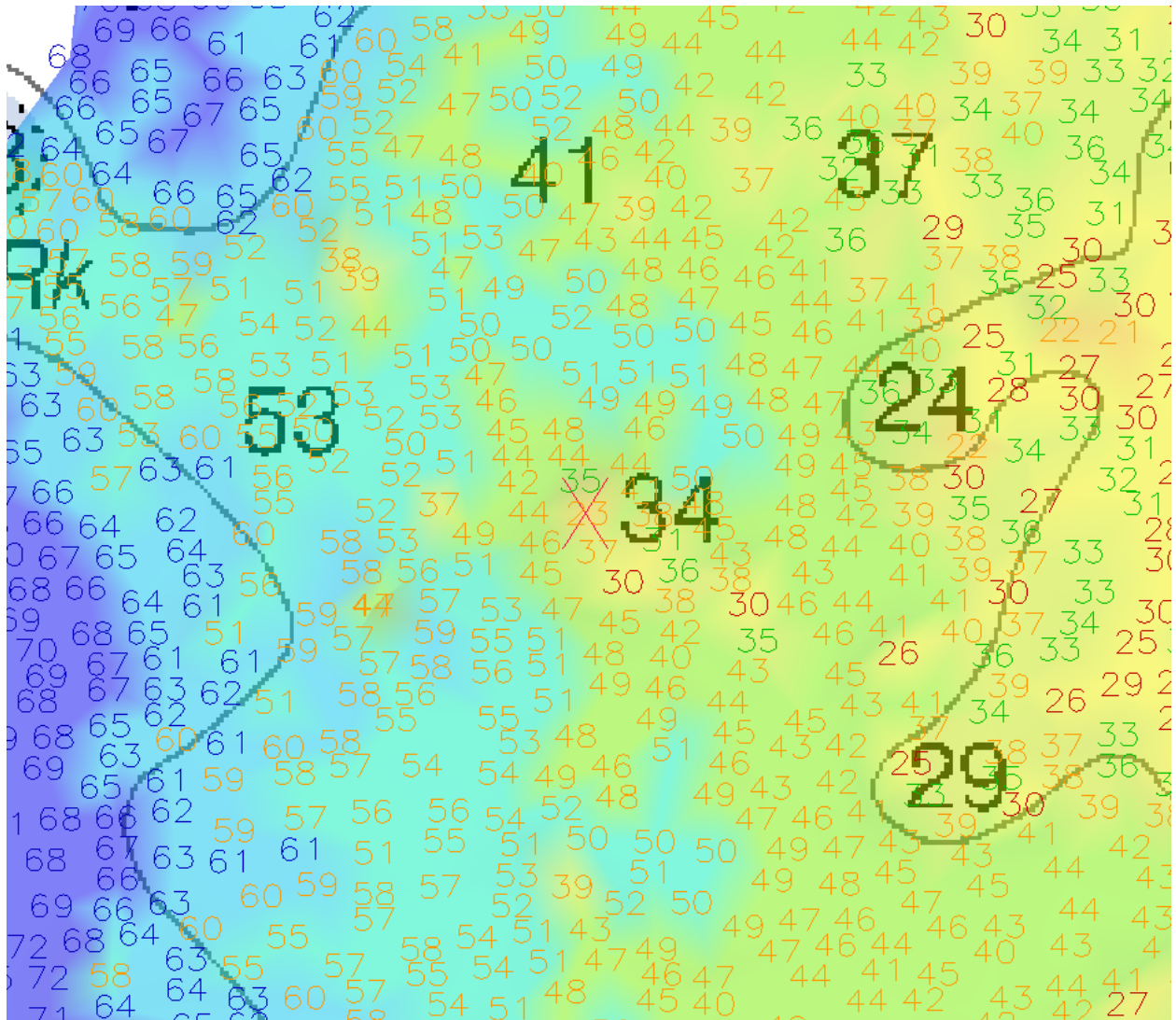


Figure 1.4.1

1.5) Profile/Beam - 9364/8 from h11920 / tj_3102_reson8101 / 2008-198 / 000_1921

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 25' 07.3" N, 070° 42' 49.9" W
Least Depth: 3.68 m (= 12.07 ft = 2.011 fm = 2 fm 0.07 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.108 m
Timestamp: 2008-198.19:36:57.871 (07/16/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-198 / 000_1921
Profile/Beam: 9364/8
Charts Affected: 13229_9, 13230_1, 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8101 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 12.07ft(3.68m).

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3102_reson8101/2008-198/000_1921	9364/8	0.00	000.0	Primary
h11920/tj_3102_klein5000_sss100/2008-204/109_1838	0003	2.58	334.8	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-198/000_1921	0001	4.05	214.1	Secondary (grouped)
h11920/tj_3101_reson8125/2008-213/459_1952	6750/191	47.47	097.9	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-204/109_1838	0004	54.52	192.4	Secondary (grouped)
h11920/tj_3101_reson8125/2008-213/459_1952	6646/185	60.05	077.8	Secondary (grouped)
h11920/tj_3101_reson8125/2008-233/808_1319	8663/208	61.66	199.3	Secondary (grouped)
h11920/tj_3101_reson8125/2008-221/756_1420	12091/202	82.07	081.4	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-204/112_1855	0009	82.56	083.5	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

12ft (13229_9, 13230_1, 13233_1, 13218_1)

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

3.7m (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 - 3.678 m
VERDAT - 12:Mean lower low water
WATLEV - 3:always under water/submerged

Office Notes

AHB recommends 12-ft DtoN to be retained as charted.

Feature Images

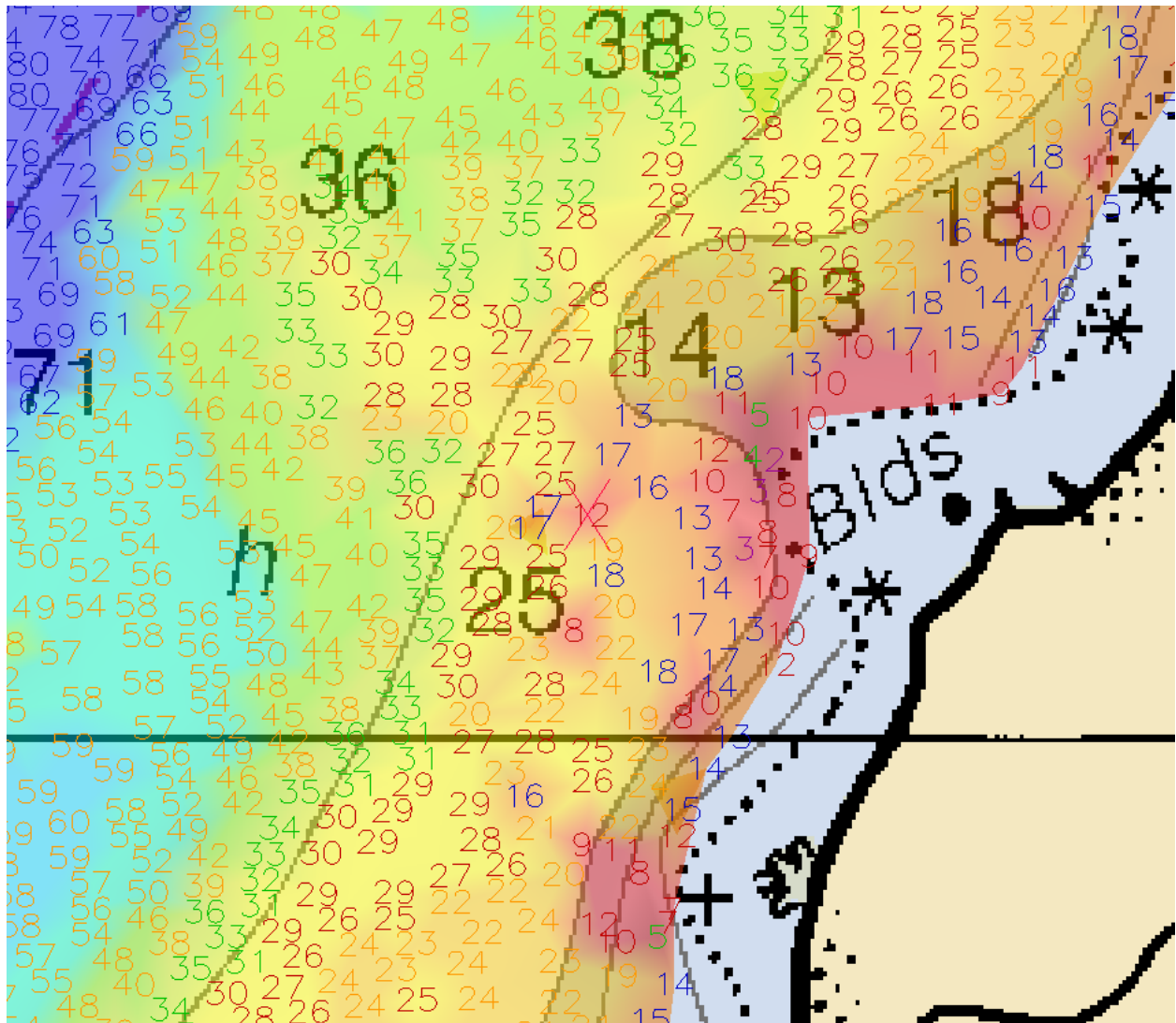


Figure 1.5.1

1.6) Profile/Beam - 1581/49 from h11920 / tj_3102_reson8101 / 2008-205 / 116_1930

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 21' 03.9" N, 070° 50' 58.1" W
Least Depth: 6.84 m (= 22.43 ft = 3.738 fm = 3 fm 4.43 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.115 m
Timestamp: 2008-205.19:35:35.966 (07/23/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-205 / 116_1930
Profile/Beam: 1581/49
Charts Affected: 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8101 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 22.43ft(6.84m).

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3102_reson8101/2008-205/116_1930	1581/49	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

22ft (13233_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 - 6:least depth known
 TECSOU - 3:found by multi-beam

VALSOU - 6.836 m

VERDAT - 12:Mean lower low water

Office Notes

Concur w/ clarification DToN was submitted to MCD 11/17/2008. retain as charted.

Feature Images

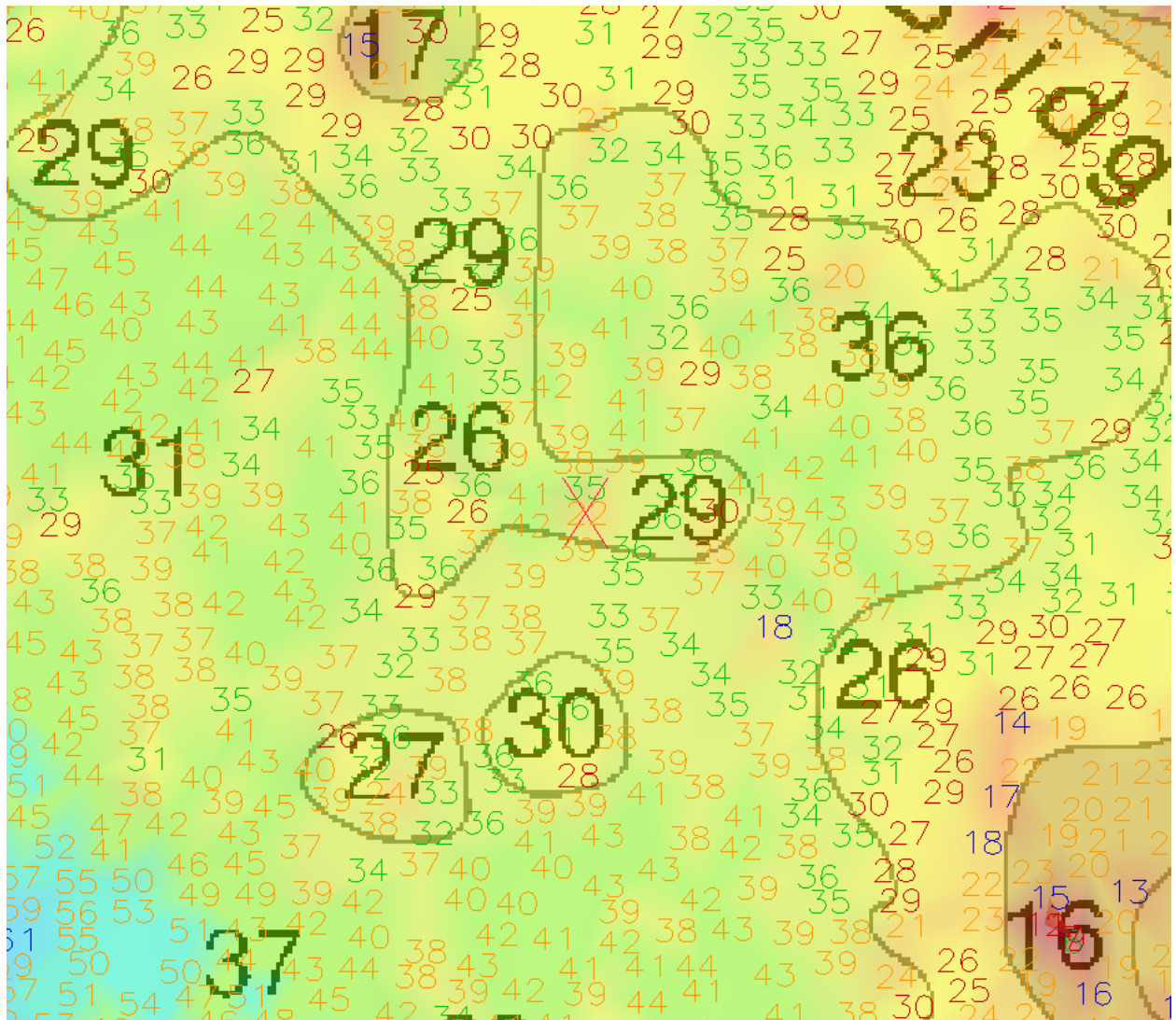


Figure 1.6.1

1.7) Profile/Beam - 2612/51 from h11920 / tj_3102_reson8101 / 2008-205 / 120_2005

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 21' 10.2" N, 070° 50' 29.6" W
Least Depth: 3.94 m (= 12.92 ft = 2.153 fm = 2 fm 0.92 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.115 m
Timestamp: 2008-205.20:11:20.719 (07/23/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-205 / 120_2005
Profile/Beam: 2612/51
Charts Affected: 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8101 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 12.92 ft (3.94m)

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3102_reson8101/2008-205/120_2005	2612/51	0.00	000.0	Primary
h11920/tj_3102_klein5000_sss100/2008-197/003_1755	0001	2.68	344.4	Secondary
h11920/tj_3102_klein5000_sss100/2008-197/002_1833	0003	5.25	225.5	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

- 13ft (13233_1, 13218_1)
- 2fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)
- 3.9m (5161_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 6:least depth known
TECSOU - 3:found by multi-beam
VALSOU - 3.937 m
VERDAT - 12:Mean lower low water
WATLEV - 3:always under water/submerged

Office Notes

Concur w/ clarification DToN was submitted to MCD 11/17/2008. Retain as charted.

Feature Images

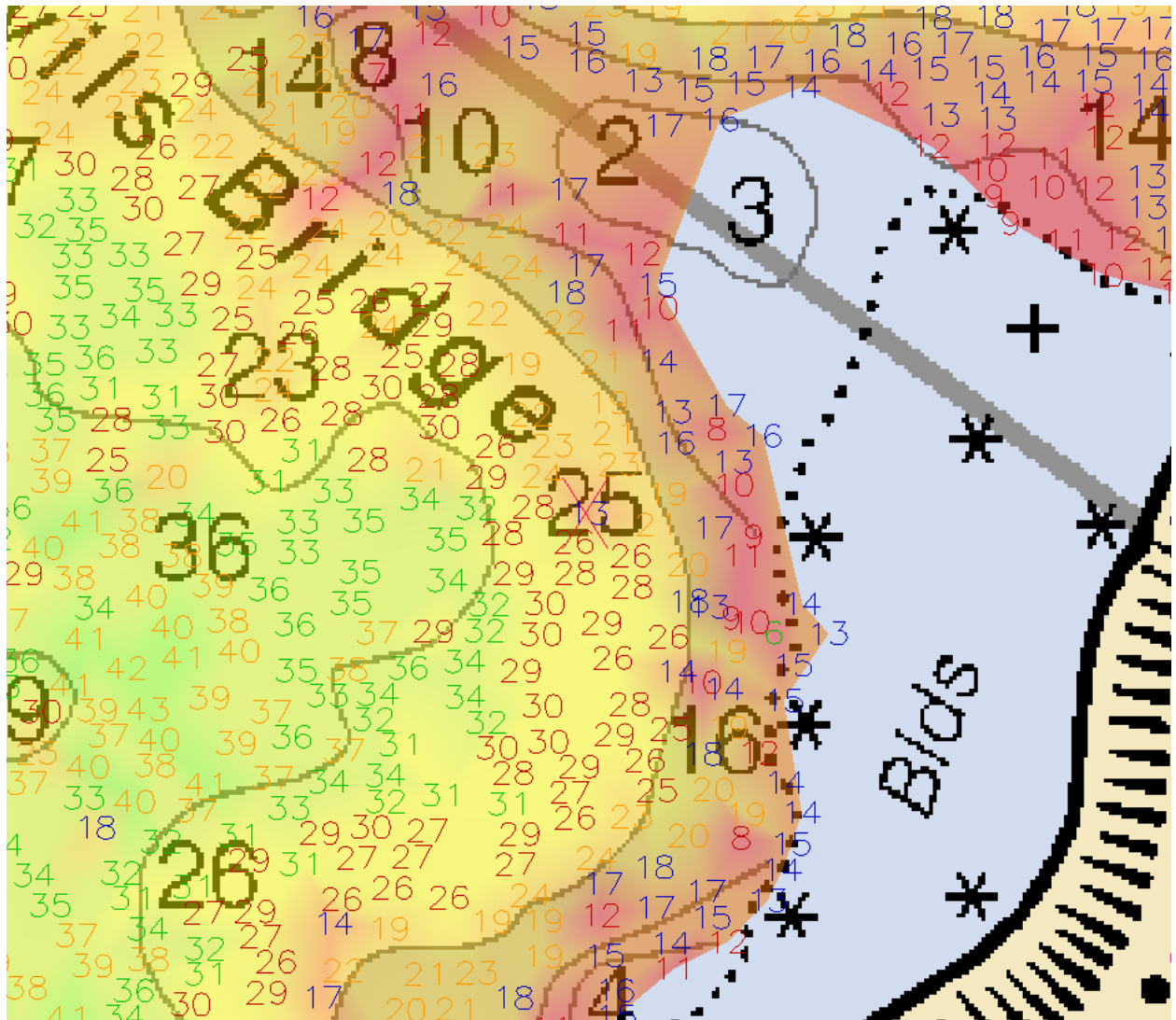


Figure 1.7.1

1.8) Profile/Beam - 1841/51 from h11920 / tj_3102_reson8101 / 2008-211 / 513_1613

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 20' 57.2" N, 070° 50' 40.3" W
Least Depth: 4.41 m (= 14.48 ft = 2.414 fm = 2 fm 2.48 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.115 m
Timestamp: 2008-211.16:17:48.119 (07/29/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-211 / 513_1613
Profile/Beam: 1841/51
Charts Affected: 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Shoal of charted depths and 18 foot curve. Uncharted rock. The sounding was acquired by Reson 8101 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 14.48 ft (4.41m)

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3102_reson8101/2008-211/513_1613	1841/51	0.00	000.0	Primary
h11920/tj_3101_reson8125/2008-232/955_1801	500/14	73.80	009.2	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

14ft (13233_1, 13218_1)
 2 ¼fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)
 4.4m (5161_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 6:least depth known

TECSOU - 3:found by multi-beam

VALSOU - 4.414 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur w/ clarification DToN was submitted to MCD 11/17/2008.Retain as charted.

Feature Images

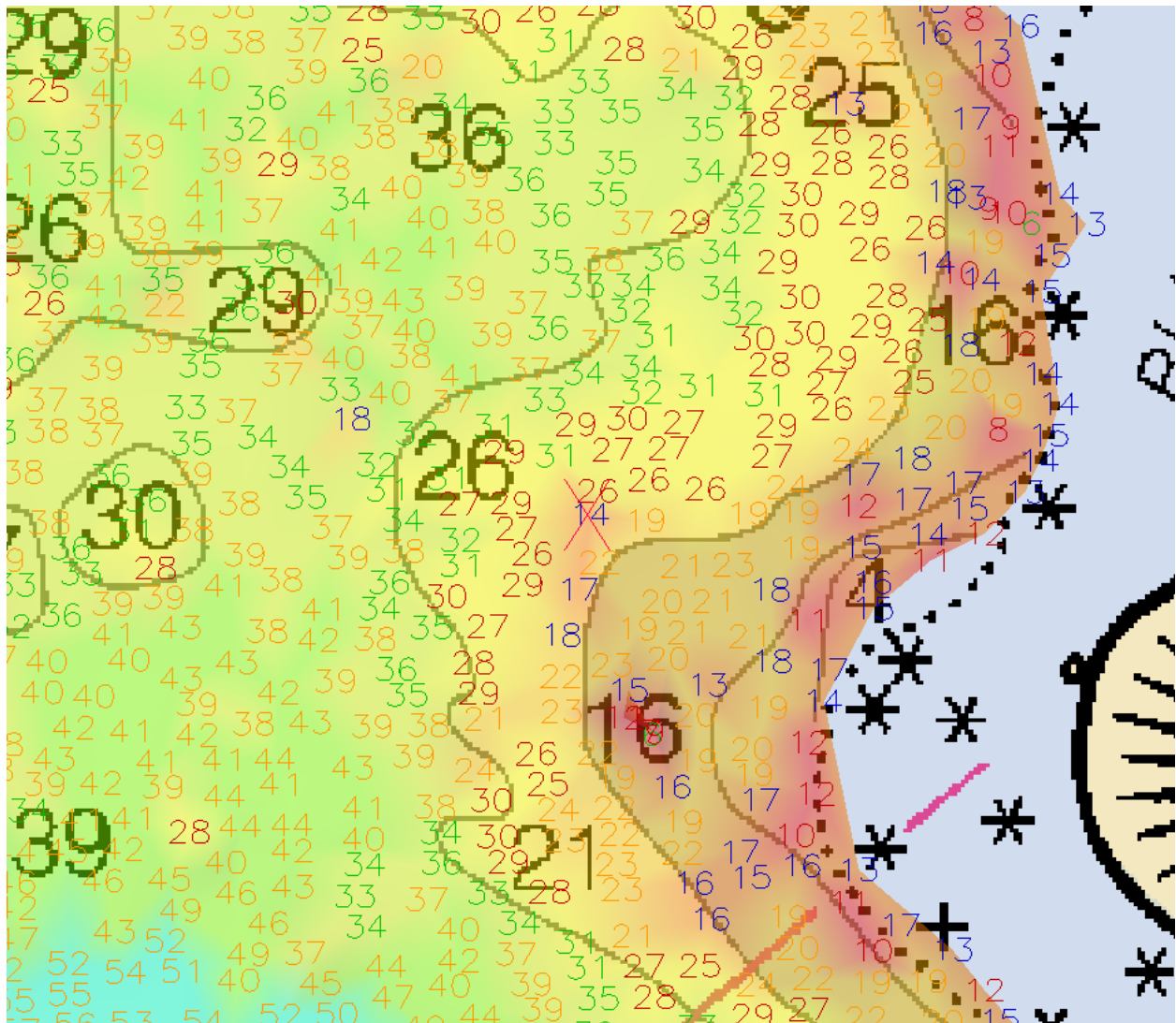


Figure 1.8.1

1.9) Profile/Beam - 1653/99 from h11920 / tj_3102_reson8101 / 2008-212 / 484_1553

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 20' 48.1" N, 070° 51' 39.2" W
Least Depth: 15.56 m (= 51.04 ft = 8.507 fm = 8 fm 3.04 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.984 m ; **TVU (TPEv)** ±0.153 m
Timestamp: 2008-212.15:59:08.813 (07/30/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-212 / 484_1553
Profile/Beam: 1653/99
Charts Affected: 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Shoal rock. Uncharted rock. The sounding was acquired by Reson 8101 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 51.04 ft(15.56m)

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3102_reson8101/2008-212/484_1553	1653/99	0.00	000.0	Primary
h11920/tj_3102_klein5000_sss100/2008-199/110_1754	0003	27.47	168.9	Secondary (grouped)
h11920/tj_3102_reson8101/2008-212/485_1531	3760/2	82.29	245.2	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-199/110_1754	0002	89.91	250.4	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-199/111_1808	0028	106.04	254.9	Secondary (grouped)
h11920/tj_3102_reson8101/2008-199/111_1808	2513/99	107.32	252.7	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-205/112a1855	0001	265.72	290.7	Secondary (grouped)
h11920/tj_3102_reson8101/2008-212/491_1411	4014/6	271.31	290.1	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

51ft (13233_1, 13218_1)

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

15.6m (5161_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 6:least depth known
TECSOU - 3:found by multi-beam
VALSOU - 15.558 m
VERDAT - 12:Mean lower low water
WATLEV - 3:always under water/submerged

Office Notes

Concur w/ clarification DToN was submitted to MCD 11/17/2008.Retain as charted.

Feature Images

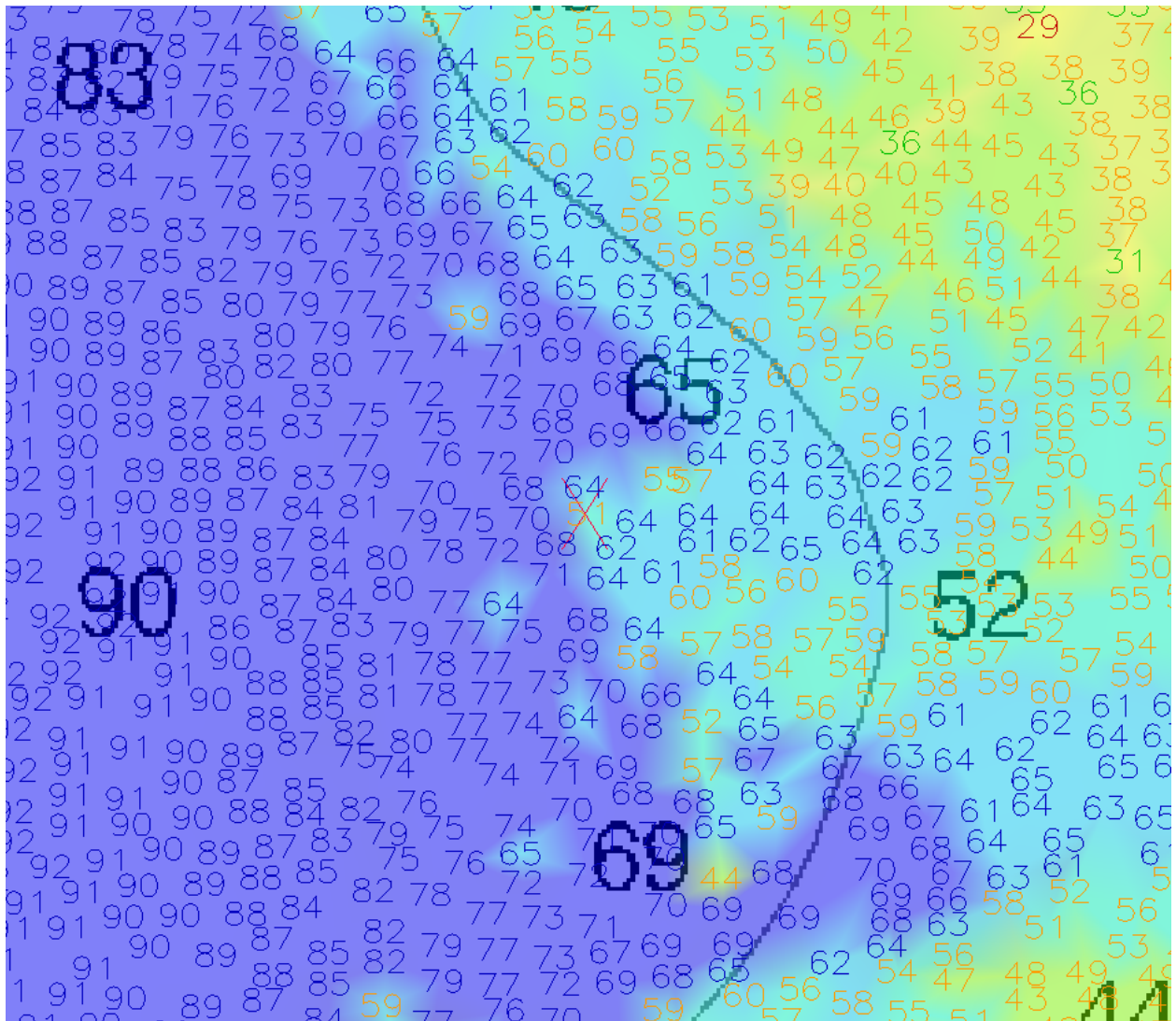


Figure 1.9.1

1.10) Profile/Beam - 4483/101 from h11920 / tj_3102_reson8101 / 2008-212 / 489_1437

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 20' 31.2" N, 070° 51' 47.0" W
Least Depth: 16.19 m (= 53.11 ft = 8.852 fm = 8 fm 5.11 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.987 m ; **TVU (TPEv)** ±0.214 m
Timestamp: 2008-212.14:47:07.575 (07/30/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-212 / 489_1437
Profile/Beam: 4483/101
Charts Affected: 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8101 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 53.11 ft(16.19m).

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3102_reson8101/2008-212/489_1437	4483/101	0.00	000.0	Primary
h11920/tj_3102_klein5000_sss100/2008-199/111_1809	0007	2.76	307.6	Secondary (grouped)
h11920/tj_3102_reson8101/2008-212/485_1531	4439/1	45.28	154.3	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-199/110_1754	0007	51.35	151.3	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-199/111_1809	0014	54.88	291.0	Secondary (grouped)
h11920/tj_3102_reson8101/2008-212/491_1411	4667/101	55.68	295.1	Secondary (grouped)
h11920/tj_3102_reson8101/2008-212/491_1411	4656/101	59.03	283.9	Secondary (grouped)
h11920/tj_3102_reson8101/2008-212/488_1449	326/101	116.30	346.0	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-199/111_1809	0008	122.01	345.9	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-205/112a1855	0012	151.95	277.8	Secondary (grouped)
h11920/tj_3102_reson8101/2008-212/489_1437	4410/1	153.04	276.9	Secondary (grouped)
h11920/tj_3102_reson8101/2008-205/112a1855	3150/84	163.18	333.0	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-205/112a1855	0013	231.80	274.9	Secondary (grouped)
h11920/tj_3102_reson8101/2008-211/492_2041	361/82	232.44	274.8	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

53ft (13233_1, 13218_1)

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

16.2m (5161_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 6:least depth known
TECSOU - 3:found by multi-beam
VALSOU - 16.188 m
VERDAT - 12:Mean lower low water
WATLEV - 3:always under water/submerged

Office Notes

Concur w/ clarification DToN was submitted to MCD 11/17/2008.Retain as charted.

Feature Images

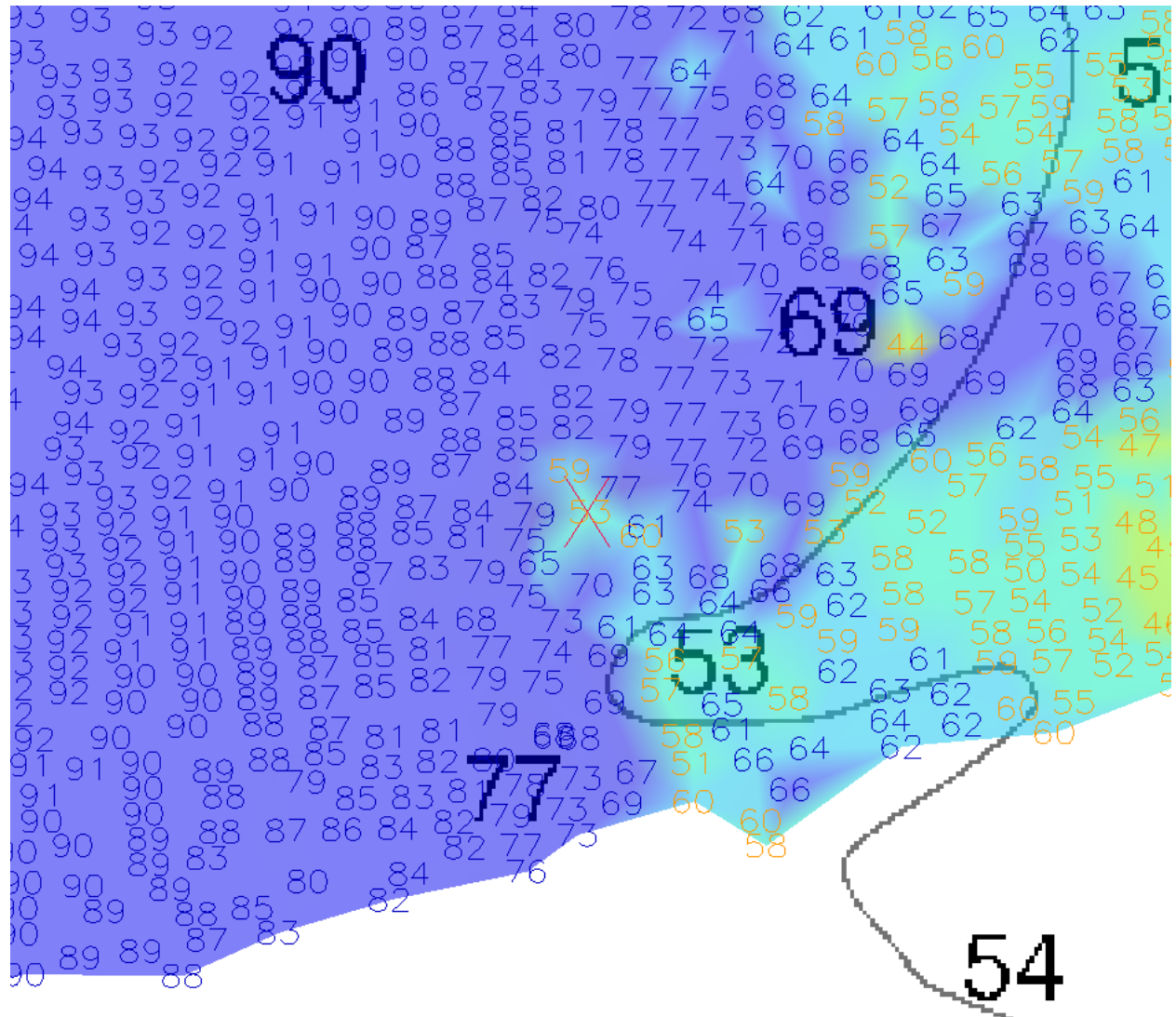


Figure 1.10.1

1.11) Profile/Beam - 411/4 from h11920 / tj_3102_reson8101 / 2008-222 / 604_1301

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 21' 31.6" N, 070° 51' 45.2" W
Least Depth: 11.52 m (= 37.78 ft = 6.296 fm = 6 fm 1.78 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.982 m ; **TVU (TPEv)** ±0.132 m
Timestamp: 2008-222.13:03:05.891 (08/09/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-222 / 604_1301
Profile/Beam: 411/4
Charts Affected: 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8101 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 37.78 ft(11.52m).

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3102_reson8101/2008-222/604_1301	411/4	0.00	000.0	Primary
h11920/tj_3102_reson8101/2008-199/104_1611	546/2	25.86	315.4	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

38ft (13233_1, 13218_1)
 6 ¼fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)
 11.5m (5161_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known

TECSOU - 3:found by multi-beam

VALSOU - 11.515 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur w/ clarification DToN was submitted to MCD 11/17/2008.Retain as charted.

Feature Images

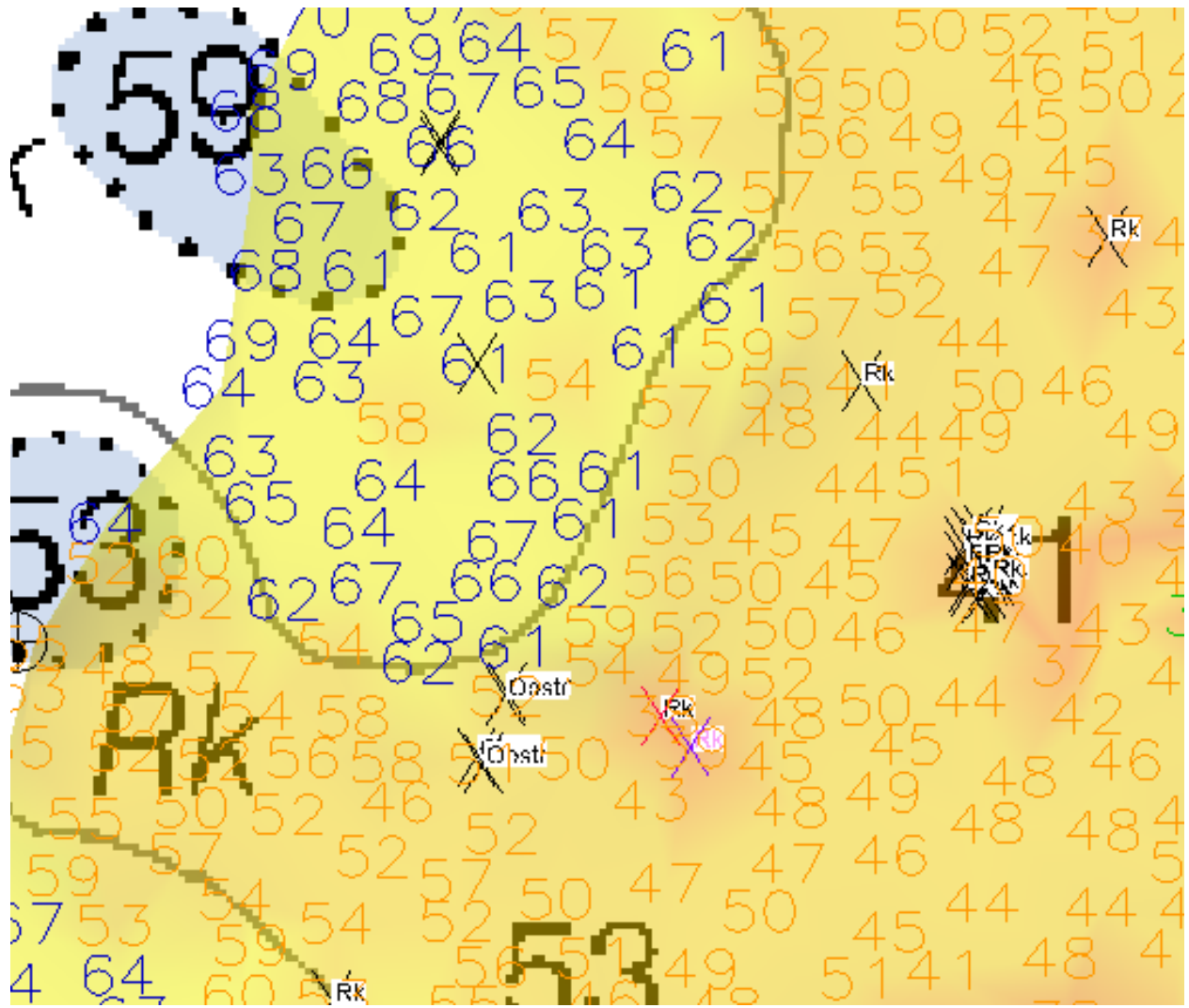


Figure 1.11.1

1.12) Profile/Beam - 846/65 from h11920 / tj_3102_reson8101 / 2008-222 / 655_1636

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 21' 32.6" N, 070° 50' 17.6" W
Least Depth: 10.44 m (= 34.25 ft = 5.708 fm = 5 fm 4.25 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.116 m
Timestamp: 2008-222.16:37:48.737 (08/09/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-222 / 655_1636
Profile/Beam: 846/65
Charts Affected: 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Shoal of charted 41.Uncharted rock. The sounding was acquired by Reson 8101 multibeam and corrected to MLLW using observed water levels.Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 34.25 ft (10.44m)

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3102_reson8101/2008-222/655_1636	846/65	0.00	000.0	Primary
h11920/tj_3102_reson8101/2008-213/484_1817	1812/77	78.59	028.8	Secondary (grouped)
h11920/tj_3102_reson8101/2008-213/484_1817	1774/1	82.89	353.6	Secondary (grouped)
h11920/tj_3102_reson8101/2008-222/656_1639	475/63	121.53	063.1	Secondary (grouped)
h11920/tj_3102_reson8101/2008-213/434_1810	791/83	152.53	094.5	Secondary (grouped)
h11920/tj_3102_reson8101/2008-211/472_1312	759/2	245.71	290.4	Secondary (grouped)
h11920/tj_3102_reson8101/2008-213/505_1849	158/2	279.91	357.1	Secondary (grouped)
h11920/tj_3102_reson8101/2008-213/503_1936	1702/99	362.58	323.3	Secondary (grouped)
h11920/tj_3102_reson8101/2008-213/429_1829	552/2	404.23	104.8	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

34ft (13233_1, 13218_1)

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

10.4m (5161_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 6:least depth known
TECSOU - 2:found by side scan sonar
VALSOU - 10.438 m
VERDAT - 12:Mean lower low water
WATLEV - 3:always under water/submerged

Office Notes

Concur w/ clarification DToN was submitted to MCD 11/17/2008.Retain as charted.

Feature Images

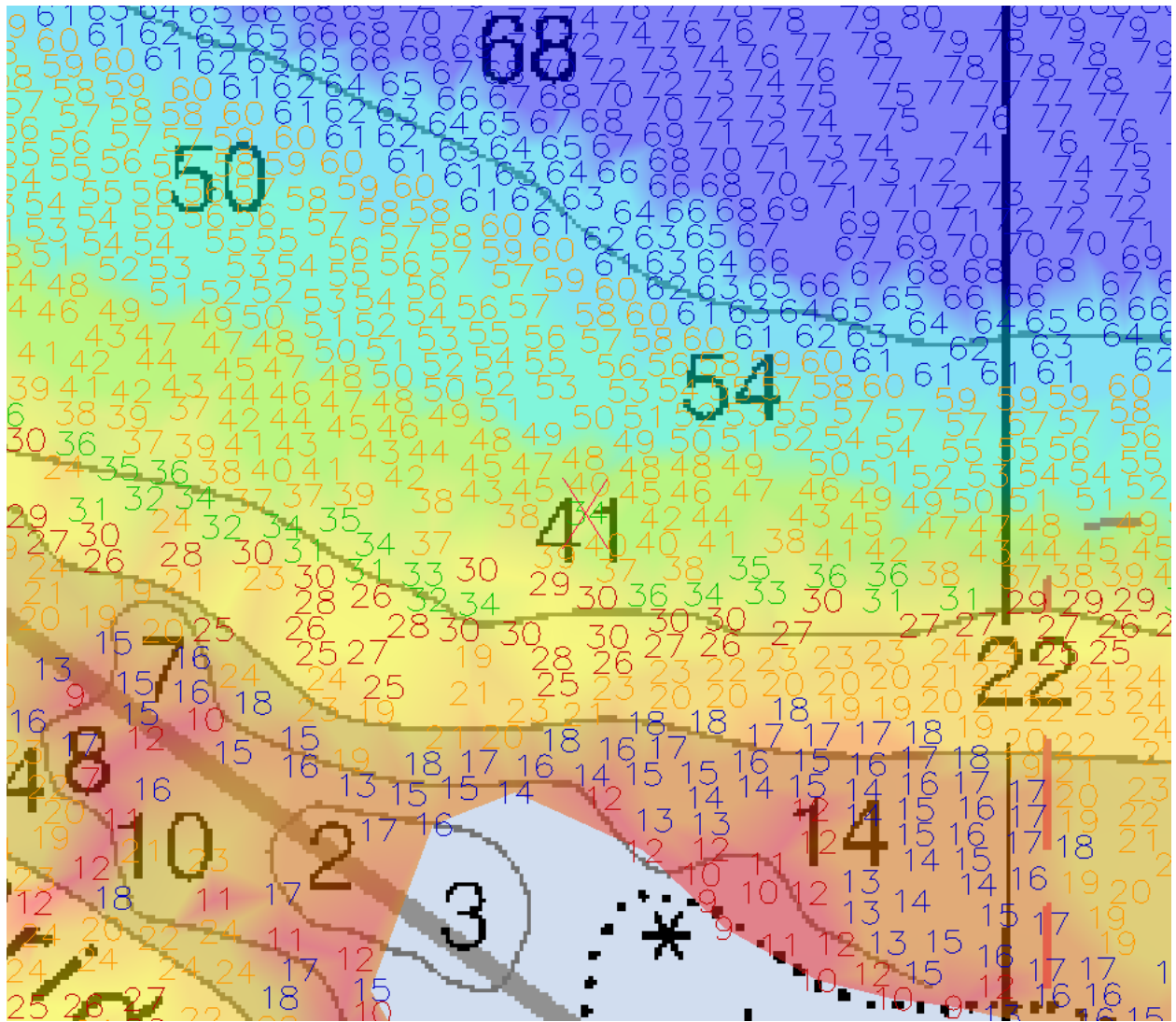


Figure 1.12.1

1.13) Profile/Beam - 262/75 from h11920 / tj_3102_reson8101 / 2008-236 / 670_1712

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 25' 03.6" N, 070° 42' 50.5" W
Least Depth: 2.54 m (= 8.33 ft = 1.388 fm = 1 fm 2.33 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 0.980 m ; **TVU (TPEv)** ± 0.111 m
Timestamp: 2008-236.17:13:09.819 (08/23/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-236 / 670_1712
Profile/Beam: 262/75
Charts Affected: 13229_9, 13230_1, 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8101 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 8.33 ft(2.54m)

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3102_reson8101/2008-236/670_1712	262/75	0.00	000.0	Primary
h11920/tj_3102_klein5000_sss100/2008-204/109_1838	0002	4.33	226.7	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-198/003_1515	0009	9.91	341.5	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-198/003_1637	0001	14.22	352.9	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

8ft (13229_9, 13230_1, 13233_1, 13218_1)
 1 ¼fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)
 2.5m (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 - 2.538 m
VERDAT - 12:Mean lower low water
WATLEV - 3:always under water/submerged

Office Notes

Concur w/ clarification DToN was submitted to MCD 11/17/2008.Retain as charted.

Feature Images

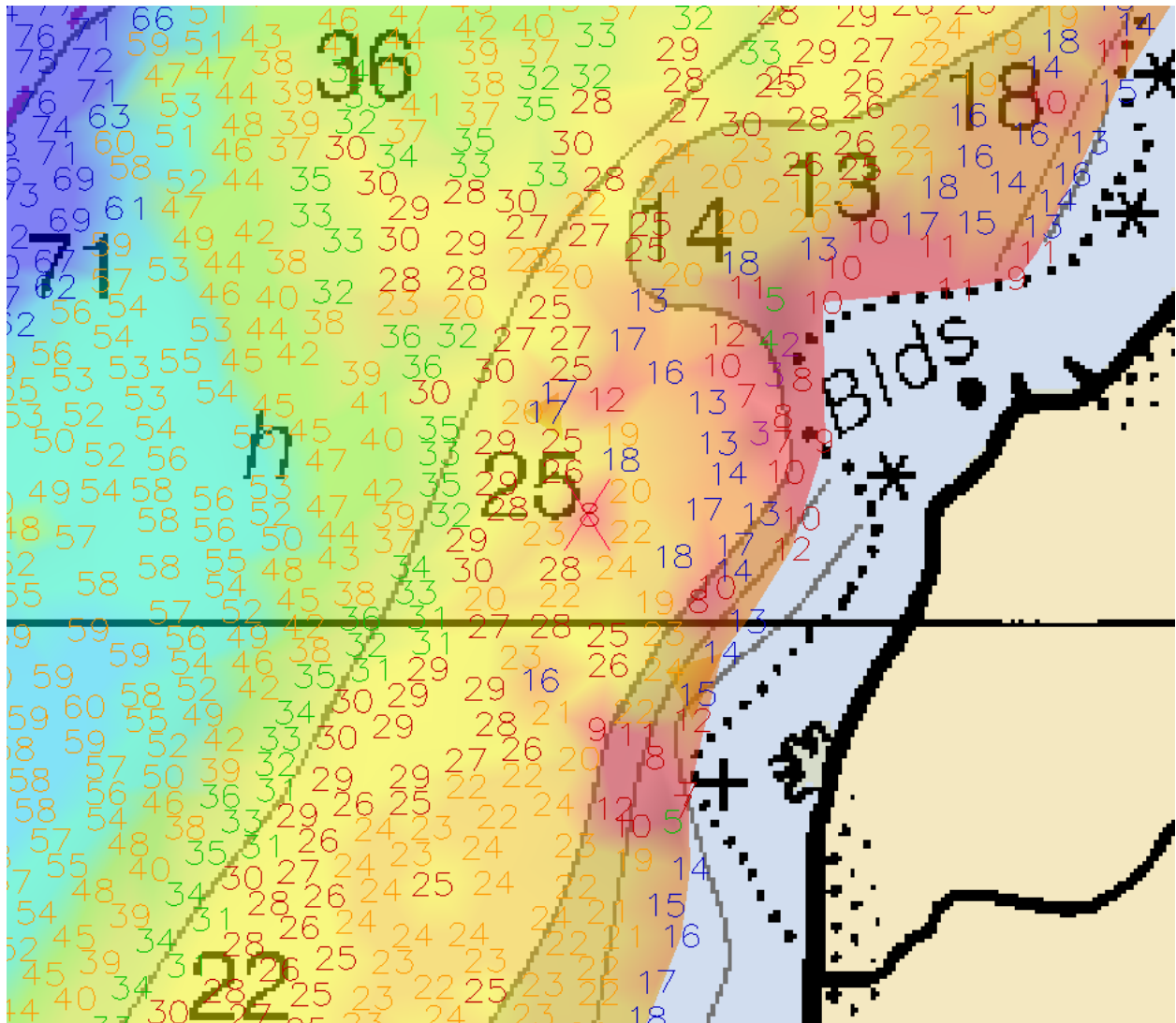


Figure 1.13.1

1.14) Profile/Beam - 575/16 from h11920 / tj_3102_reson8101 / 2008-236 / 627_1934

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 22' 37.2" N, 070° 45' 03.8" W
Least Depth: 5.98 m (= 19.61 ft = 3.268 fm = 3 fm 1.61 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.111 m
Timestamp: 2008-236.19:35:04.096 (08/23/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-236 / 627_1934
Profile/Beam: 575/16
Charts Affected: 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8101 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 19.61ft (5.98m)

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3102_reson8101/2008-236/627_1934	575/16	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

19ft (13233_1, 13218_1)
 3 ¼fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)
 6.0m (5161_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 6:least depth known
 TECSOU - 3:found by multi-beam

VALSOU - 5.977 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur w/ clarification DToN was submitted to MCD 11/17/2008.Retain as charted.

Feature Images

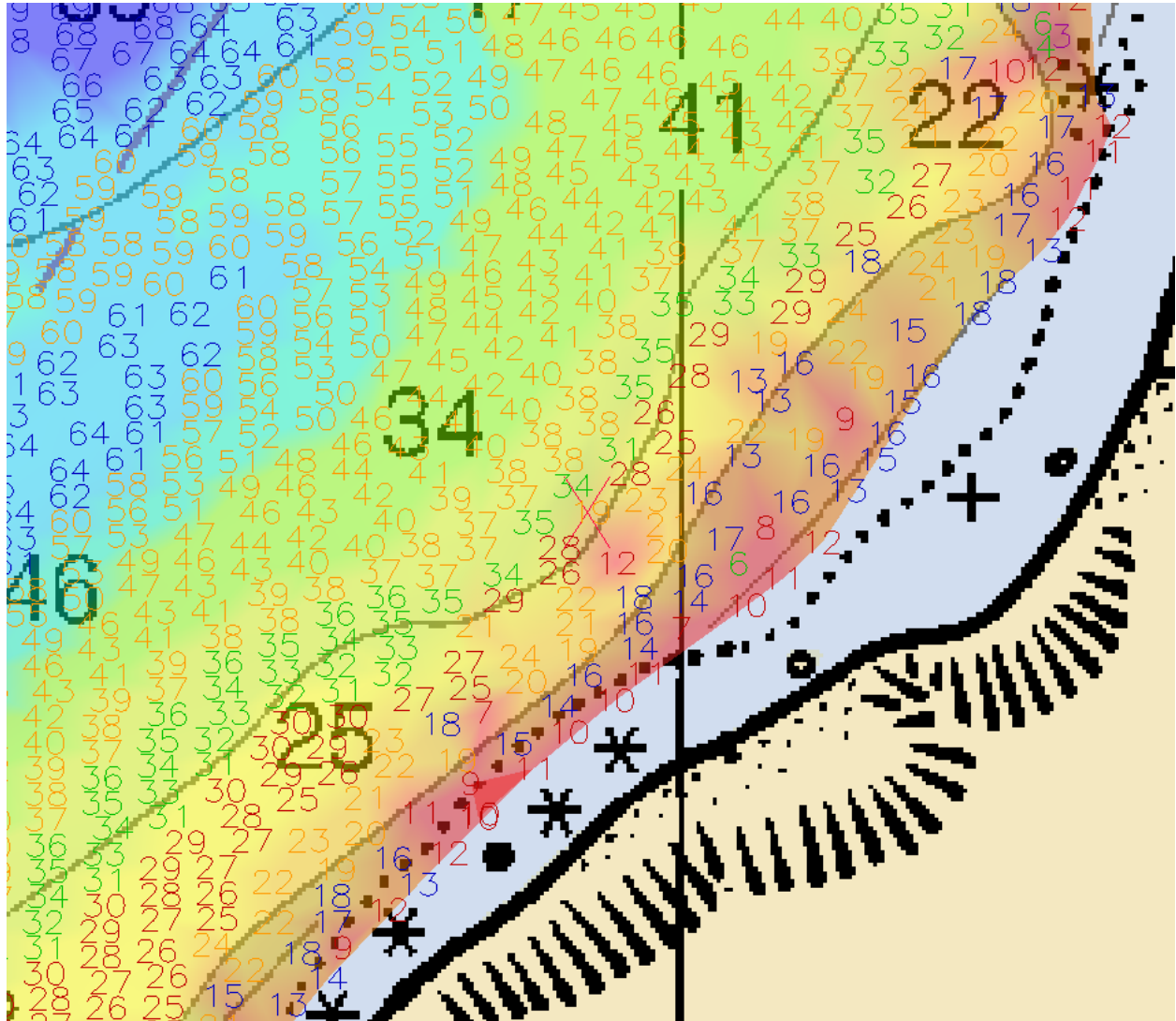


Figure 1.14.1

1.15) Profile/Beam - 1819/209 from h11920 / tj_3101_reson8125 / 2008-232 / 913_2031

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 25' 10.2" N, 070° 42' 55.8" W
Least Depth: 6.19 m (= 20.32 ft = 3.386 fm = 3 fm 2.32 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.105 m
Timestamp: 2008-232.20:34:12.210 (08/19/2008)
Survey Line: h11920 / tj_3101_reson8125 / 2008-232 / 913_2031
Profile/Beam: 1819/209
Charts Affected: 13229_9, 13230_1, 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8125 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 20.32 ft(6.19m)

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3101_reson8125/2008-232/913_2031	1819/209	0.00	000.0	Primary
h11920/tj_3101_reson8125/2008-232/913_2031	624/5	64.63	092.8	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

20ft (13229_9, 13230_1, 13233_1, 13218_1)

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

6.2m (5161_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 6:least depth known
TECSOU - 3:found by multi-beam
VALSOU - 6.193 m
VERDAT - 12:Mean lower low water
WATLEV - 3:always under water/submerged

Office Notes

Concur w/ clarification DToN was submitted to MCD 11/17/2008.Retain as charted.

Feature Images

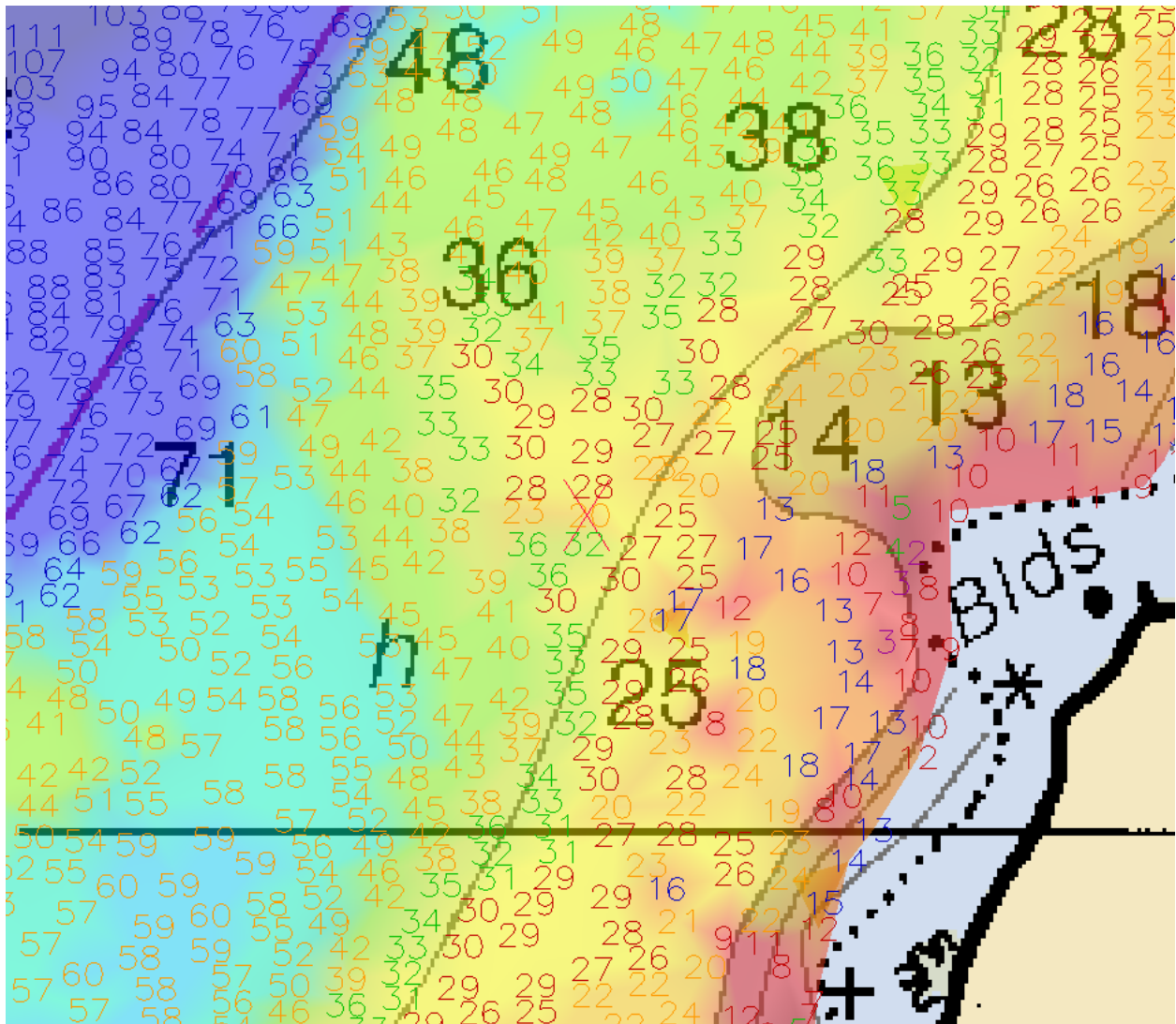


Figure 1.15.1

1.16) Profile/Beam - 310/115 from h11920 / tj_3101_reson8125 / 2008-232 / 947_1731

DANGER TO NAVIGATION

Survey Summary

Survey Position: 41° 21' 00.3" N, 070° 50' 50.3" W
Least Depth: 5.68 m (= 18.63 ft = 3.104 fm = 3 fm 0.63 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.103 m
Timestamp: 2008-232.17:31:33.653 (08/19/2008)
Survey Line: h11920 / tj_3101_reson8125 / 2008-232 / 947_1731
Profile/Beam: 310/115
Charts Affected: 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8125 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 18.63 ft(5.68m)

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3101_reson8125/2008-232/947_1731	310/115	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

18ft (13233_1, 13218_1)
 3fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)
 5.7m (5161_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 6:least depth known
 TECSOU - 3:found by multi-beam

VALSOU - 5.677 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur w/ clarification DToN was submitted to MCD 11/17/2008. Retain as charted.

Feature Images

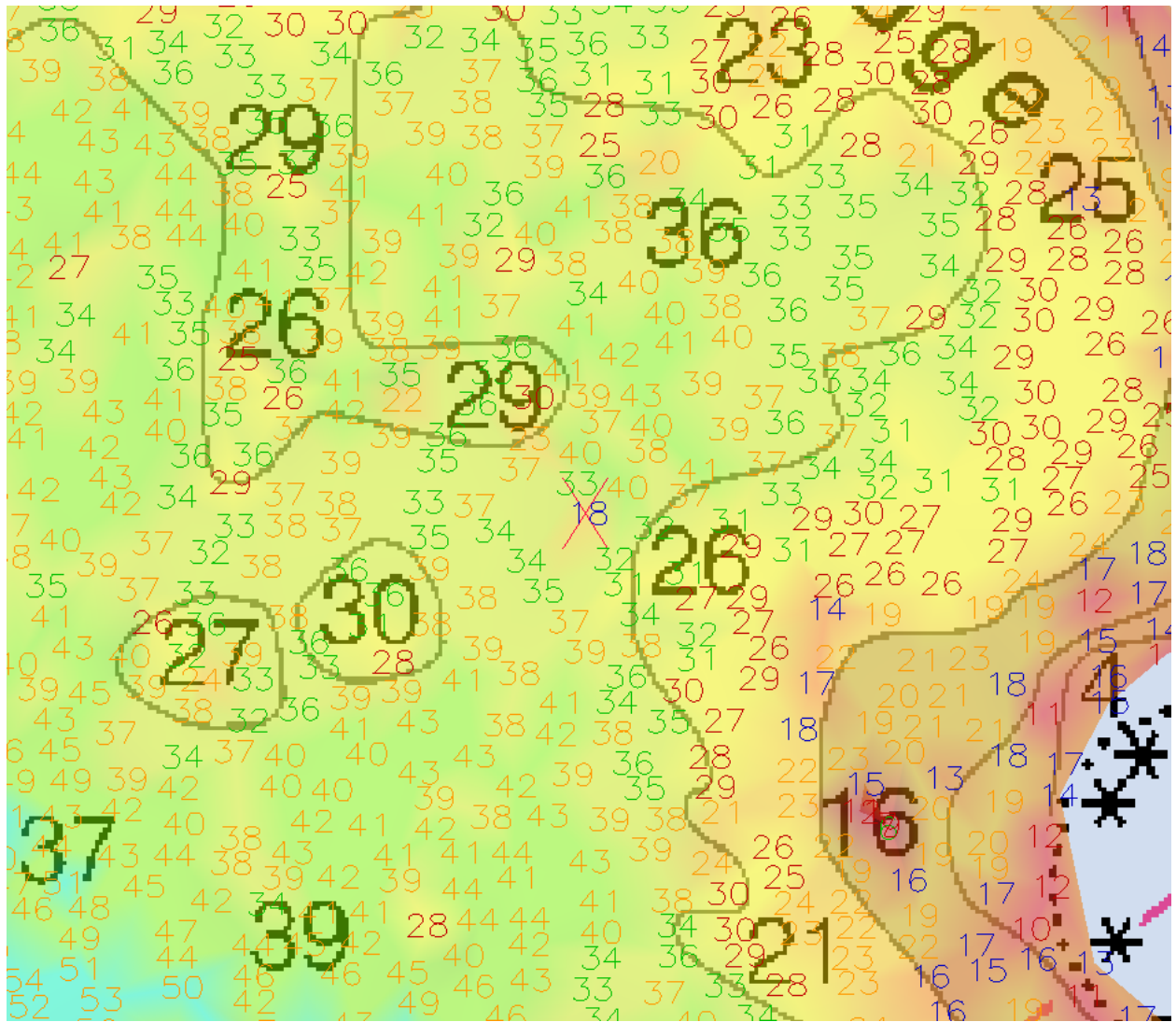


Figure 1.16.1

AHB_H11920_Feature_Report

Registry Number: H11920
State: Massachusetts
Locality: Vinyard Sound
Sub-locality: Gay Head to Cedar Tree neck
Project Number: OPR-B307-TJ-08
Survey Dates: 07/16/2008 - 08/23/2008

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
13229	30th	04/01/2008	1:40,000 (13229_9)	[L]NTM: ?
13233	18th	10/01/2008	1:40,000 (13233_1)	USCG LNM: 10/21/2008 (03/03/2009) CHS NTM: None (01/30/2009) NGA NTM: 03/07/1998 (03/14/2009)
13230	48th	10/01/2005	1:40,000 (13230_1)	[L]NTM: ?
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)	[L]NTM: ?
13006	34th	05/01/2007	1:675,000 (13006_1)	[L]NTM: ?
5161	13th	10/01/2003	1:1,058,400 (5161_1)	[L]NTM: ?
13003	49th	04/01/2007	1:1,200,000 (13003_1)	[L]NTM: ?

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

Features

No.	Name	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	0015-10.60ft RK Retain	Rock	[None]	41° 22' 49.9" N	070° 44' 42.2" W	---
1.2	976/99-37.45ft UWTROC	Rock	11.41 m	41° 21' 41.0" N	070° 51' 33.7" W	---
1.3	5512/171-16.50ft Rk	Rock	5.03 m	41° 24' 22.8" N	070° 43' 26.8" W	---
1.4	8073/21-28.32ft Rk	Rock	8.63 m	41° 23' 55.2" N	070° 44' 08.4" W	---
1.5	5985/16-14.03ft Rk	Rock	4.28 m	41° 23' 20.8" N	070° 44' 34.1" W	---
1.6	8559/1-22.08ft Rk	Rock	6.73 m	41° 23' 05.2" N	070° 44' 46.3" W	---

1.7	395/149-6.96ft Rk	Rock	2.12 m	41° 21' 49.9" N	070° 45' 46.5" W	---
1.8	435/130-20.12ft Rk	Rock	6.13 m	41° 21' 11.4" N	070° 50' 47.3" W	---
1.9	588/164-2.96ft Rk	Rock	0.90 m	41° 25' 06.2" N	070° 42' 43.4" W	---
1.10	5552/37-9.73ft Rk	Rock	2.96 m	41° 24' 56.9" N	070° 42' 50.2" W	---
1.11	660/26-10.88ft Rk	Rock	3.31 m	41° 24' 56.7" N	070° 42' 48.5" W	---
1.12	597/94-6.07ft Rk	Rock	1.85 m	41° 20' 50.3" N	070° 50' 37.7" W	---
1.13	1923/7-7.71ft Rks	Rock	2.35 m	41° 24' 38.7" N	070° 42' 57.0" W	---
1.14	1056/88-10.50ft Rk	Rock	3.20 m	41° 22' 51.2" N	070° 44' 46.4" W	---
1.15	CITY OF COLUMBUS	AWOIS	[no data]	[no data]	[no data]	---

1 - Tree

1.1) Contact/Point - 0015/1 from h11920 / tj_3102_klein5000_sss100 / 2008-204 / 000_1706

Survey Summary

Survey Position: 41° 22' 49.9" N, 070° 44' 42.2" W
Least Depth: [None]
TPU (±1.96σ): THU (TPEh) [None] ; TVU (TPEv) [None]
Timestamp: 2008-221.03:29:58 (08/08/2008)
Survey Line: h11920 / tj_3102_klein5000_sss100 / 2008-204 / 000_1706
Contact/Point: 0015/1
Charts Affected: 13230_1, 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Retain as charted.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3102_klein5000_sss100/2008-204/000_1706	0015	0.00	000.0	Primary

Hydrographer Recommendations

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 2:depth unknown
 TECSOU - 2:found by side scan sonar
 VERDAT - 12:Mean lower low water

Office Notes

AHB recommends to retain this feature as charted

1.2) Profile/Beam - 976/99 from h11920 / tj_3102_reson8101 / 2008-199 / 104_1611

Survey Summary

Survey Position: 41° 21' 41.0" N, 070° 51' 33.7" W
Least Depth: 11.41 m (= 37.45 ft = 6.241 fm = 6 fm 1.45 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.982 m ; **TVU (TPEv)** ±0.129 m
Timestamp: 2008-199.16:22:13.083 (07/17/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-199 / 104_1611
Profile/Beam: 976/99
Charts Affected: 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
h11920/tj_3102_reson8101/2008-199/104_1611	976/99	0.00	000.0	Primary
h11920/tj_3102_reson8101/2008-222/605_1254	723/3	171.89	059.5	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-199/105_1625	0017	195.04	022.3	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-199/105_1625	0016	209.84	021.0	Secondary (grouped)
h11920/tj_3102_reson8101/2008-212/477_1744	1306/6	217.09	019.1	Secondary (grouped)
h11920/tj_3101_reson8125/2008-232/922_1544	534/211	268.99	293.6	Secondary (grouped)

Hydrographer Recommendations

Cartographically-Rounded Depth (Affected Charts):

37ft (13233_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 - 3:found by multi-beam

VALSOU - 11.414 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

AHB recommends to add Sandwave Text chart feature w/ current survey sounding data.

1.3) Profile/Beam - 5512/171 from h11920 / tj_3101_reson8125 / 2008-212 / 453_1918

Survey Summary

Survey Position: 41° 24' 22.8" N, 070° 43' 26.8" W
Least Depth: 5.03 m (= 16.50 ft = 2.750 fm = 2 fm 4.50 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.103 m
Timestamp: 2008-212.19:22:02.322 (07/30/2008)
Survey Line: h11920 / tj_3101_reson8125 / 2008-212 / 453_1918
Profile/Beam: 5512/171
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
h11920/tj_3101_reson8125/2008-212/453_1918	5512/171	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

16ft (13229_9, 13230_1, 13233_1, 13218_1)
 2 ¾fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)
 5.0m (5161_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known
 TECSOU - 3:found by multi-beam
 VALSOU - 5.030 m
 VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Add UWTROC feature with current survey sounding depth.

1.4) Profile/Beam - 8073/21 from h11920 / tj_3101_reson8125 / 2008-213 / 571_1558

Survey Summary

Survey Position: 41° 23' 55.2" N, 070° 44' 08.4" W
Least Depth: 8.63 m (= 28.32 ft = 4.720 fm = 4 fm 4.32 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.982 m ; **TVU (TPEv)** ±0.111 m
Timestamp: 2008-213.16:09:51.411 (07/31/2008)
Survey Line: h11920 / tj_3101_reson8125 / 2008-213 / 571_1558
Profile/Beam: 8073/21
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
h11920/tj_3101_reson8125/2008-213/571_1558	8073/21	0.00	000.0	Primary
h11920/tj_3102_klein5000_sss100/2008-198/003_1514	0008	122.32	216.0	Secondary (grouped)
h11920/tj_3102_reson8101/2008-198/003_1514	5535/16	124.67	214.5	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

28ft (13229_9, 13230_1, 13233_1, 13218_1)
 4 ¾fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)
 8.6m (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 - 8.632 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

AHB recommends charting 28Ft. UWTRC.

1.5) Profile/Beam - 5985/16 from h11920 / tj_3101_reson8125 / 2008-213 / 574_1734

Survey Summary

Survey Position: 41° 23' 20.8" N, 070° 44' 34.1" W
Least Depth: 4.28 m (= 14.03 ft = 2.338 fm = 2 fm 2.03 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.105 m
Timestamp: 2008-213.17:42:02.540 (07/31/2008)
Survey Line: h11920 / tj_3101_reson8125 / 2008-213 / 574_1734
Profile/Beam: 5985/16
Charts Affected: 13229_9, 13230_1, 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8125 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 14.03 ft(4.28m)

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3101_reson8125/2008-213/574_1734	5985/16	0.00	000.0	Primary
h11920/tj_3102_klein5000_sss100/2008-198/002_1651	0007	3.74	273.7	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-198/003_1514	0006	7.74	077.7	Secondary (grouped)
h11920/tj_3102_reson8101/2008-198/003_1514	2503/19	14.64	099.0	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-198/002_1651	0008	59.78	035.4	Secondary (grouped)
h11920/tj_3101_reson8125/2008-218/574_1930	3664/28	60.85	037.1	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-198/003_1514	0005	63.41	035.3	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-198/003_1514	0007	71.25	184.1	Secondary (grouped)
h11920/tj_3102_reson8101/2008-198/003_1514	2645/7	74.18	182.9	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

14ft (13229_9, 13230_1, 13233_1, 13218_1)

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

4.3m (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 - 4.275 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

AHB recommends charting 10 Ft UWTROC and updating chart w/ current surveyed soundings

Feature Images

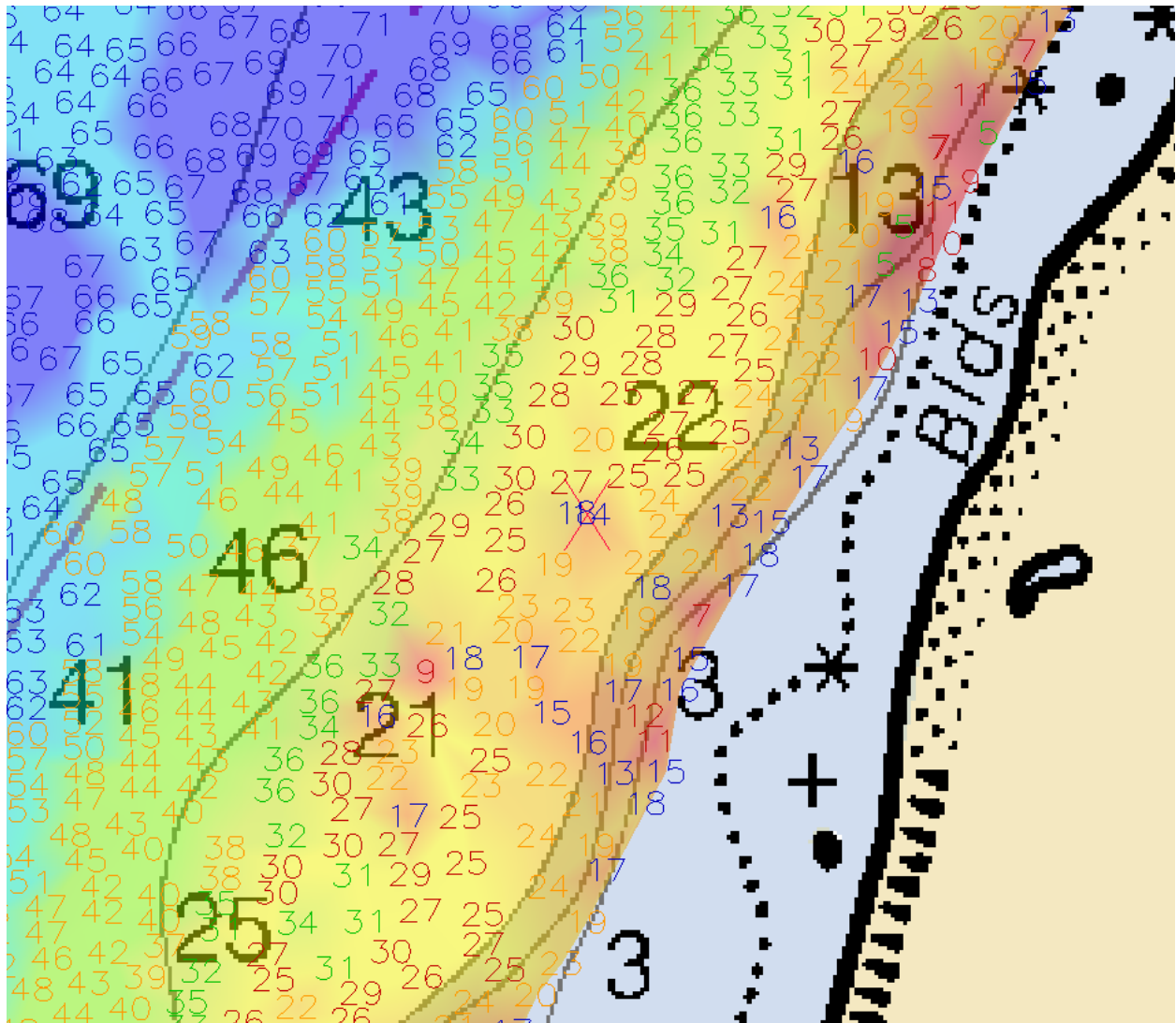


Figure 1.5.1

1.6) Profile/Beam - 8559/1 from h11920 / tj_3101_reson8125 / 2008-221 / 749_1653

Survey Summary

Survey Position: 41° 23' 05.2" N, 070° 44' 46.3" W
Least Depth: 6.73 m (= 22.08 ft = 3.679 fm = 3 fm 4.08 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.982 m ; **TVU (TPEv)** ±0.122 m
Timestamp: 2008-221.17:01:10.354 (08/08/2008)
Survey Line: h11920 / tj_3101_reson8125 / 2008-221 / 749_1653
Profile/Beam: 8559/1
Charts Affected: 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
h11920/tj_3101_reson8125/2008-221/749_1653	8559/1	0.00	000.0	Primary
h11920/tj_3102_klein5000_sss100/2008-198/003_1514	0002	5.15	217.3	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

22ft (13230_1, 13233_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 - 6.729 m
 VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

AHB recommends updating chart w/ Blds text and update foul line to include these features.

1.7) Profile/Beam - 395/149 from h11920 / tj_3101_reson8125 / 2008-222 / 704_1515

Survey Summary

Survey Position: 41° 21' 49.9" N, 070° 45' 46.5" W
Least Depth: 2.12 m (= 6.96 ft = 1.160 fm = 1 fm 0.96 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.103 m
Timestamp: 2008-222.15:15:28.042 (08/09/2008)
Survey Line: h11920 / tj_3101_reson8125 / 2008-222 / 704_1515
Profile/Beam: 395/149
Charts Affected: 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Base Surface QC.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3101_reson8125/2008-222/704_1515	395/149	0.00	000.0	Primary
h11920/tj_3102_klein5000_sss100/2008-204/000_1705	0002	0.98	304.9	Secondary (grouped)
h11920/tj_3102_reson8101/2008-222/857_1911	10881/99	90.07	244.3	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-204/000_1705	0017	90.52	243.8	Secondary (grouped)
h11920/tj_3101_reson8125/2008-207/445_2030	9657/234	333.40	183.2	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

7ft (13233_1, 13218_1)

1fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

2.1m (5161_1)

S-57 Data

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

Attributes: QUASOU - 2:depth unknown

TECSOU - 3:found by multi-beam

VALSOU - 2.122 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

AHB recommends adding 6.96-ft UWTRC

1.8) Profile/Beam - 435/130 from h11920 / tj_3101_reson8125 / 2008-232 / 958_1735

Survey Summary

Survey Position: 41° 21' 11.4" N, 070° 50' 47.3" W
Least Depth: 6.13 m (= 20.12 ft = 3.354 fm = 3 fm 2.12 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.103 m
Timestamp: 2008-232.17:36:00.123 (08/19/2008)
Survey Line: h11920 / tj_3101_reson8125 / 2008-232 / 958_1735
Profile/Beam: 435/130
Charts Affected: 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8101 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 20.12 ft(6.13m)

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3101_reson8125/2008-232/958_1735	435/130	0.00	000.0	Primary
h11920/tj_3102_reson8101/2008-211/509_1528	3352/98	254.77	268.4	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

20ft (13233_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: QUASOU - 1:depth known
 TECSOU - 3:found by multi-beam
 VALSOU - 6.134 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

AHB recommends updating chart w/ current surveyed soundings.

1.9) Profile/Beam - 588/164 from h11920 / tj_3101_reson8125 / 2008-233 / 811_1647

Survey Summary

Survey Position: 41° 25' 06.2" N, 070° 42' 43.4" W
Least Depth: 0.90 m (= 2.96 ft = 0.493 fm = 0 fm 2.96 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.103 m
Timestamp: 2008-233.16:47:58.192 (08/20/2008)
Survey Line: h11920 / tj_3101_reson8125 / 2008-233 / 811_1647
Profile/Beam: 588/164
Charts Affected: 13229_9, 13230_1, 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8125 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 2.96ft(0.90m).

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3101_reson8125/2008-233/811_1647	588/164	0.00	000.0	Primary

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

3ft (13229_9, 13230_1, 13233_1, 13218_1)

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

.9m (5161_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 6:least depth known
 TECSOU - 3:found by multi-beam
 VALSOU - 0.902 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Feature is outside foul line, AHB recommends to update foul line to include this feature.

Feature Images

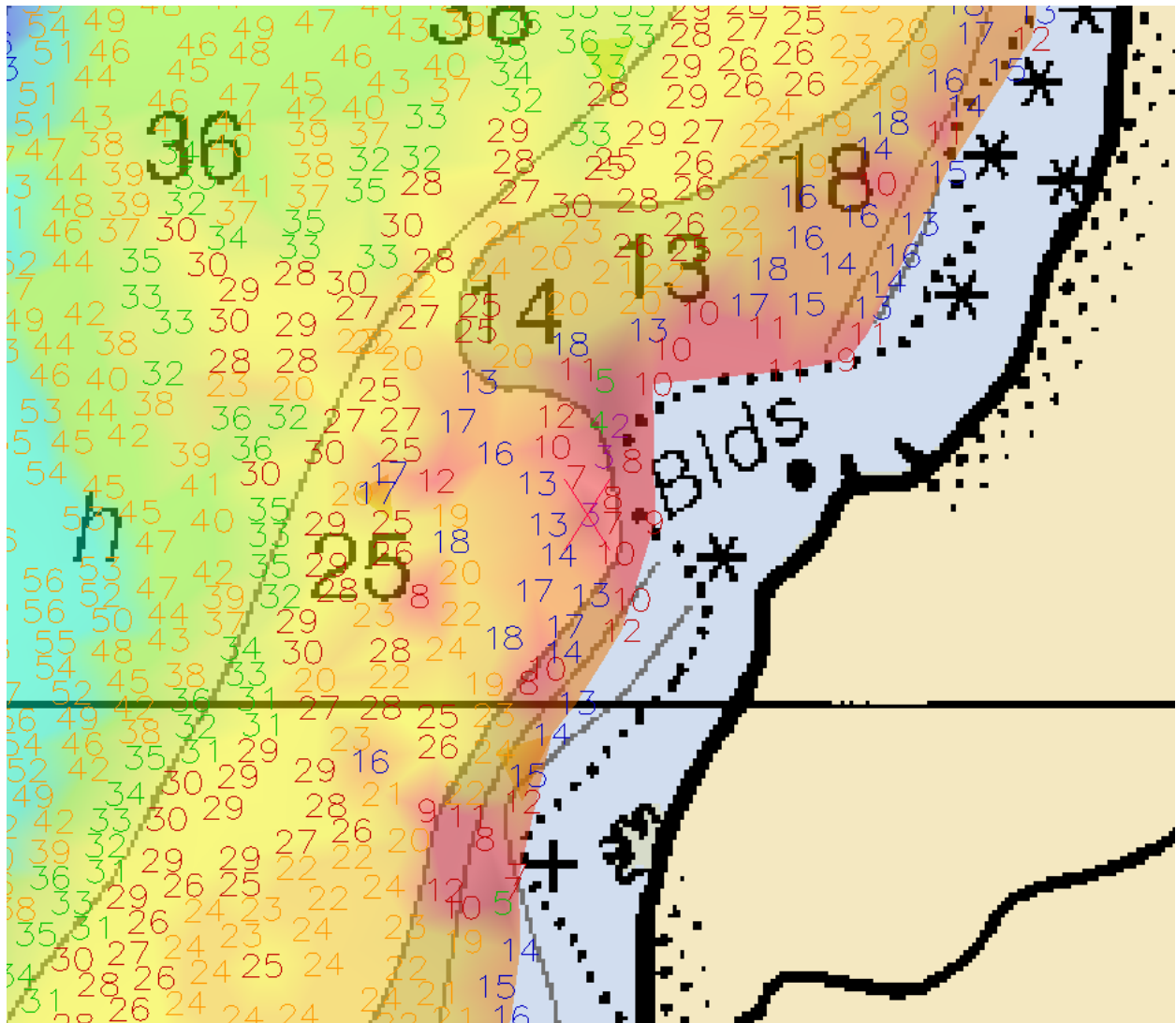


Figure 1.9.1

1.10) Profile/Beam - 5552/37 from h11920 / tj_3101_reson8125 / 2008-233 / 814_1837

Survey Summary

Survey Position: 41° 24' 56.9" N, 070° 42' 50.2" W
Least Depth: 2.96 m (= 9.73 ft = 1.621 fm = 1 fm 3.73 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.980 m ; **TVU (TPEv)** ±0.103 m
Timestamp: 2008-233.18:41:46.567 (08/20/2008)
Survey Line: h11920 / tj_3101_reson8125 / 2008-233 / 814_1837
Profile/Beam: 5552/37
Charts Affected: 13229_9, 13230_1, 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Shoal rocks outside 18 foot curve ranging from 9 to 16 feet. Re-Access Foul Line. Rky area. Uncharted rock. The sounding was acquired by Reson 8125 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 9.73ft(2.96m).

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3101_reson8125/2008-233/814_1837	5552/37	0.00	000.0	Primary
h11920/tj_3101_reson8125/2008-233/838_1636	7724/226	74.30	129.9	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-198/003_1515	0007	75.28	127.0	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

9ft (13229_9, 13230_1, 13233_1, 13218_1)
 1 ½fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)
 3.0m (5161_1)

S-57 Data

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

Attributes: QUASOU - 6:least depth known
TECSOU - 3:found by multi-beam
VALSOU - 2.965 m
VERDAT - 12:Mean lower low water
WATLEV - 3:always under water/submerged

Office Notes

Rocky Area, AHB recommends to update foul line to include these features.

Feature Images

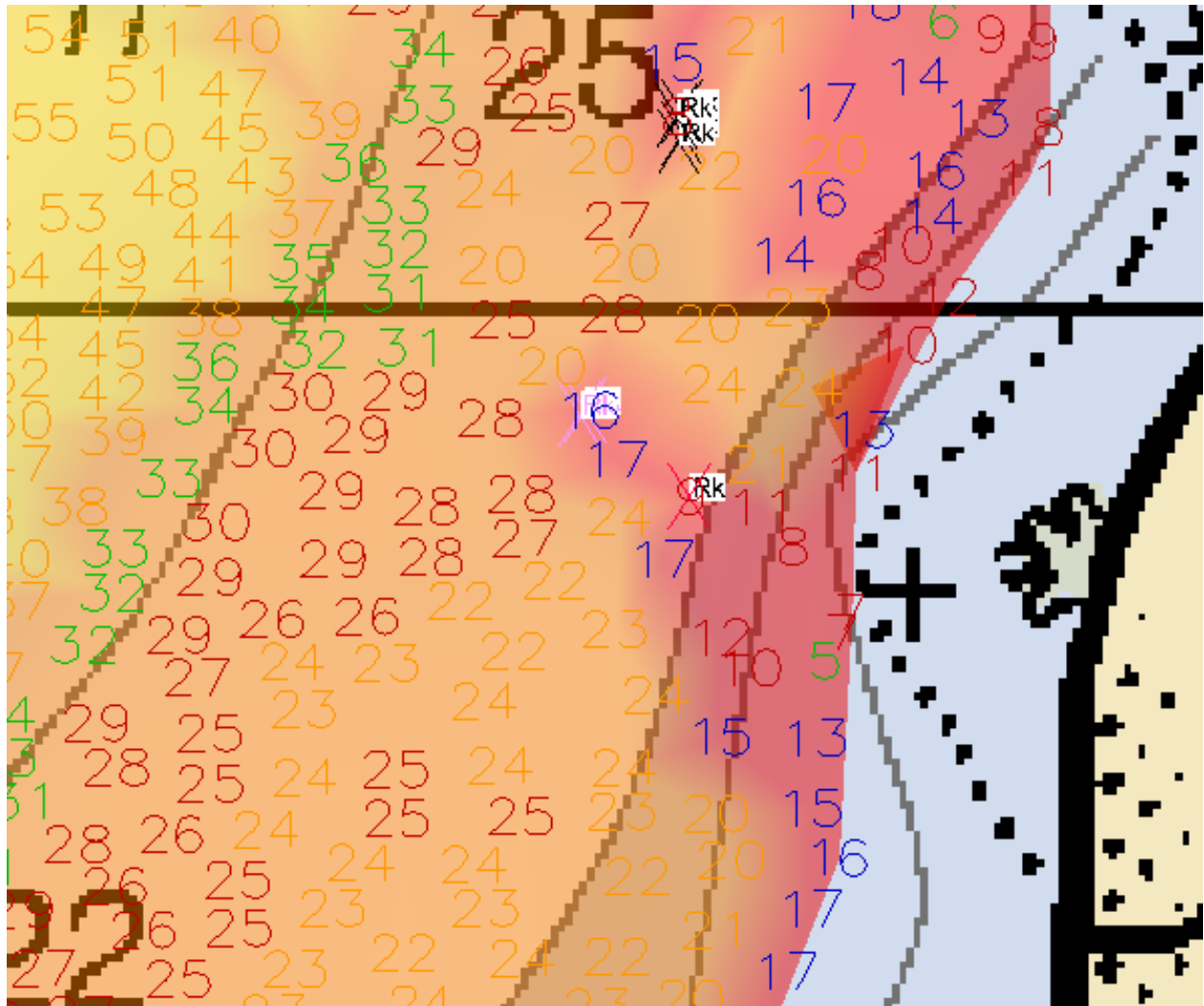


Figure 1.10.1

1.11) Profile/Beam - 660/26 from h11920 / tj_3102_reson8101 / 2008-198 / 000_1922

Survey Summary

Survey Position: ~~41° 24' 56.7" N, 070° 42' 48.5" W~~ 41-24-56.863N, 070-42-50.188W
Least Depth: ~~3.31 m (= 10.88 ft = 1.813 fm = 1 fm 4.88 ft)~~ 2.965 m
TPU (±1.96σ): **THU (TPEh) ±0.980 m ;TVU (TPEv) ±0.111 m**
Timestamp: 2008-198.19:39:54.374 (07/16/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-198 / 000_1922
Profile/Beam: 660/26
Charts Affected: 13229_9, 13230_1, 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Uncharted rock. The sounding was acquired by Reson 8101 multibeam and corrected to MLLW using observed water levels. Note locations of sounding on Chart 13233_1 and 13218_1. Final Verified Water Levels and TCARI zonig were applied and resolved the sounding to 10.88ft(3.31m).

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3102_reson8101/2008-198/000_1922	660/26	0.00	000.0	Primary
h11920/tj_3102_klein5000_sss100/2008-204/000_1707	0016	2.31	356.2	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

11ft (13229_9, 13230_1, 13233_1, 13218_1)
 1 ¾fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)
 3.3m (5161_1)

S-57 Data

[None]

Office Notes

AHB recommends retaining as charted.

1.12) Profile/Beam - 597/94 from h11920 / tj_3102_reson8101 / 2008-218 / 534_1541

Survey Summary

Survey Position: 41° 20' 50.3" N, 070° 50' 37.7" W
Least Depth: 1.85 m (= 6.07 ft = 1.011 fm = 1 fm 0.07 ft)
TPU ($\pm 1.96\sigma$): **THU (TPEh)** ± 0.981 m ; **TVU (TPEv)** ± 0.107 m
Timestamp: 2008-218.15:42:34.109 (08/05/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-218 / 534_1541
Profile/Beam: 597/94
Charts Affected: 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

A 6 ft rock was found over a charted 16 feet

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3102_reson8101/2008-218/534_1541	597/94	0.00	000.0	Primary
h11920/tj_3102_reson8101/2008-212/137_1914	1144/93	2.77	234.2	Secondary (grouped)
h11920/tj_3102_reson8101/2008-212/137_1914	1155/100	3.73	158.5	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-197/001_1856	0008	4.22	216.2	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-197/002_1833	0010	4.87	148.8	Secondary (grouped)
h11920/tj_3102_reson8101/2008-211/516_1635	2303/8	33.28	121.0	Secondary (grouped)
h11920/tj_3102_reson8101/2008-211/516_1635	2305/11	33.48	119.6	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-197/002_1833	0009	39.45	148.1	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-197/003_1755	0002	40.90	139.9	Secondary (grouped)
h11920/tj_3102_reson8101/2008-197/000_2005	113/19	71.96	227.8	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

6ft (13233_1, 13218_1)

1fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)

1.8m (5161_1)

S-57 Data

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

Attributes: VALSOU - 1.849 m

Office Notes

AHB recommends charting a 6-ft UWTROC at the current survey position

1.13) Profile/Beam - 1923/7 from h11920 / tj_3102_reson8101 / 2008-218 / 555_2015

Survey Summary

Survey Position: 41° 24' 38.7" N, 070° 42' 57.0" W
Least Depth: 2.35 m (= 7.71 ft = 1.285 fm = 1 fm 1.71 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.107 m
Timestamp: 2008-218.20:18:18.788 (08/05/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-218 / 555_2015
Profile/Beam: 1923/7
Charts Affected: 13229_9, 13230_1, 13233_1, 13218_1, 12300_1, 13200_1, 13009_1, 13006_1, 5161_1, 13003_1

Remarks:

Rocky

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11920/tj_3102_reson8101/2008-218/555_2015	1923/7	0.00	000.0	Primary
h11920/tj_3102_reson8101/2008-218/556_2006	3788/3	49.07	095.1	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-204/019_1818	0001	52.64	092.9	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

7ft (13229_9, 13230_1, 13233_1, 13218_1)
 1 ¼fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)
 2.4m (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 - 2.350 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

AHB recommends adding Rocky Area Text to chart and update w/ current soundings

1.14) Profile/Beam - 1056/88 from h11920 / tj_3102_reson8101 / 2008-236 / 701_1512

Survey Summary

Survey Position: 41° 22' 51.2" N, 070° 44' 46.4" W
Least Depth: 3.20 m (= 10.50 ft = 1.749 fm = 1 fm 4.50 ft)
TPU (±1.96σ): **THU (TPEh)** ±0.981 m ; **TVU (TPEv)** ±0.109 m
Timestamp: 2008-236.15:13:37.225 (08/23/2008)
Survey Line: h11920 / tj_3102_reson8101 / 2008-236 / 701_1512
Profile/Beam: 1056/88
Charts Affected: 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
h11920/tj_3102_reson8101/2008-236/701_1512	1056/88	0.00	000.0	Primary
h11920/tj_3102_reson8101/2008-236/702_1503	616/101	36.08	267.3	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-198/003_1514	0004	45.34	095.2	Secondary (grouped)
h11920/tj_3102_reson8101/2008-204/107_1932	1411/1	47.20	093.5	Secondary (grouped)
h11920/tj_3102_klein5000_sss100/2008-204/107_1932	0009	96.08	084.7	Secondary (grouped)
h11920/tj_3102_reson8101/2008-204/107_1932	1542/93	96.84	085.1	Secondary (grouped)

Hydrographer Recommendations

[None]

Cartographically-Rounded Depth (Affected Charts):

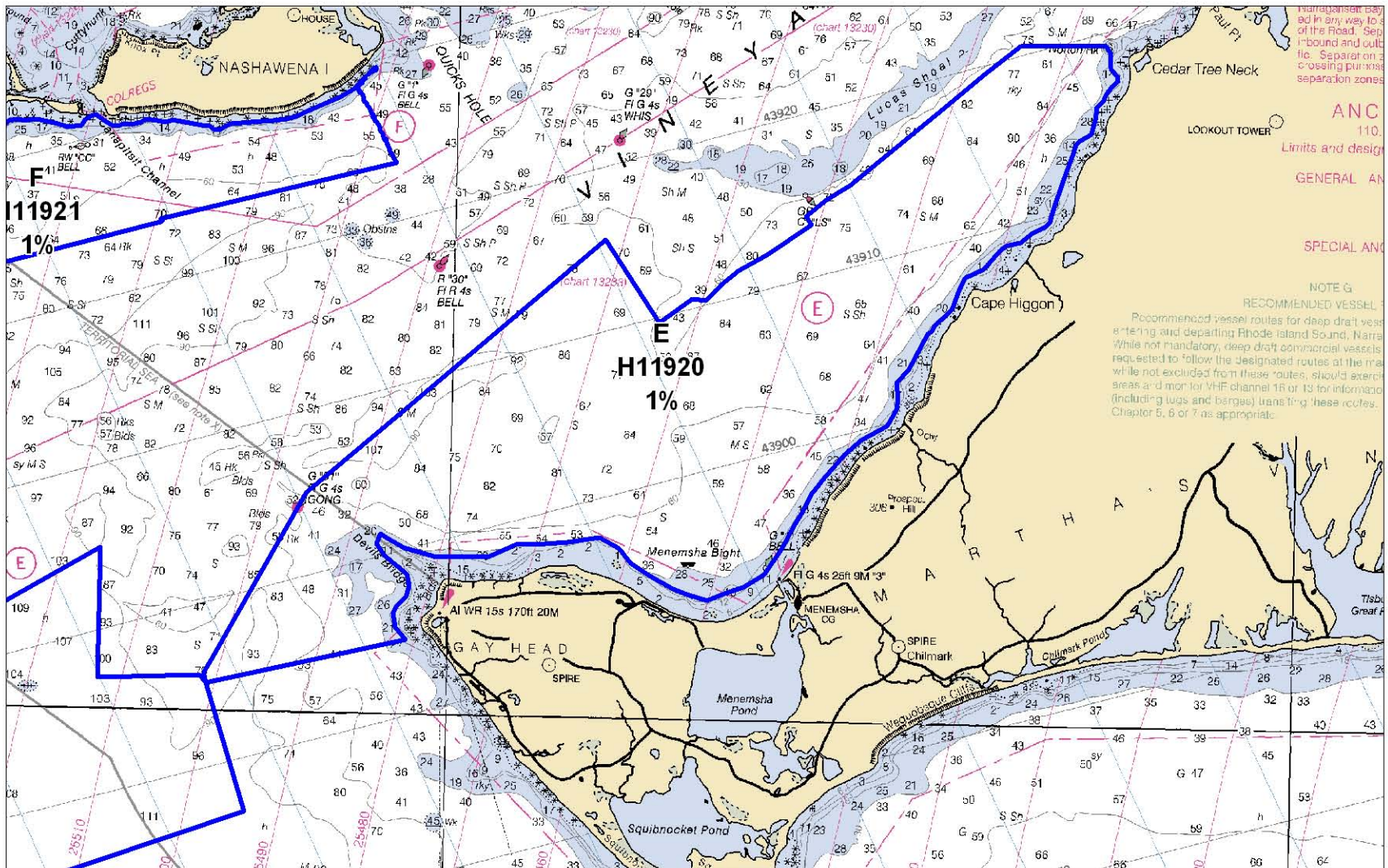
10ft (13230_1, 13233_1, 13218_1)
 1 ¾fm (12300_1, 13200_1, 13009_1, 13006_1, 13003_1)
 3.2m (5161_1)

S-57 Data

Geo object 1: Underwater rock / awash rock (UWTROC)
Attributes: QUASOU - 1:depth known
TECSOU - 3:found by multi-beam
VALSOU - 3.199 m
VERDAT - 12:Mean lower low water
WATLEV - 3:always under water/submerged

Office Notes

AHB recommends charting 10 Ft UWTROC and updating chart w/ current surveyed soundings



Project	Sheet Letter	H_num	HQ_Est_SNM	CumiPercCompPrev	CumiPercCompCur	SNM_CompCurM	CumSNMcom
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



UNITED STATES DEPARTMENT 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: H11920

LOCALITY: SOW and Pigs Reef to Quicks Hole, RI and MA
TIME PERIOD: July 15 - August 23, 2008
September 8, 2008

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

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

TIDE STATION USED: Menemsha Harbor, MA 844-8725
Lat. 41° 21.2' N Long. 70° 46.1' W

PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.882 meters

REMARKS: RECOMMENDED ZONING

Please use the TCARI grid "Revised-B307TJ2008-TCARI" as the final grid for project OPR-B307-TJ-2008, H11920, during the time period between July 15 - 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).

Note 2: The TCARI grid are applicable up to Edys Island at Lat 41° 20'56", Long 70° 46'0.4" (The red line in graphics). For survey tracklines past Edys Island and inside Menemsha pond, tide correctors are not available without additional tide information.

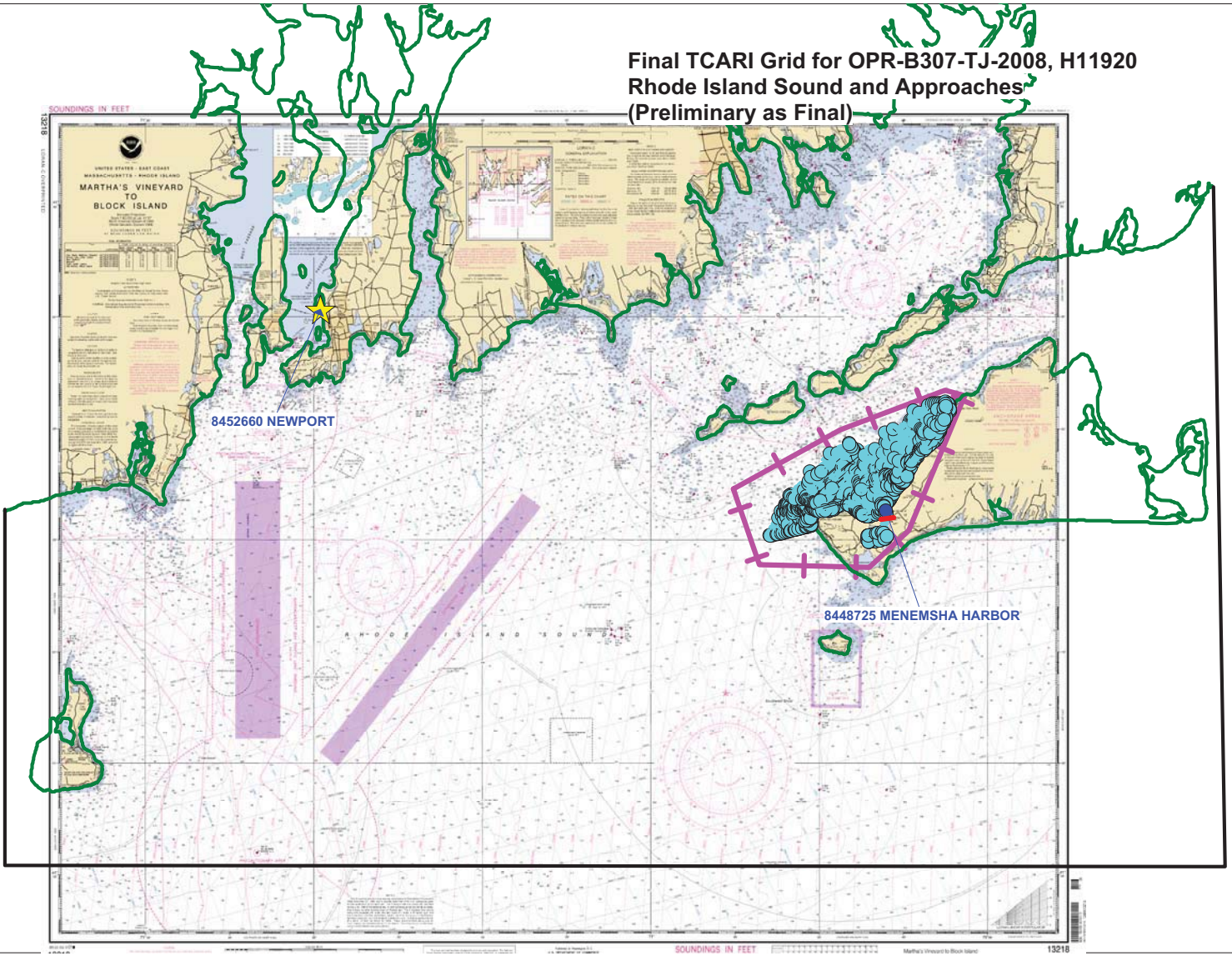
Peter J. Stone

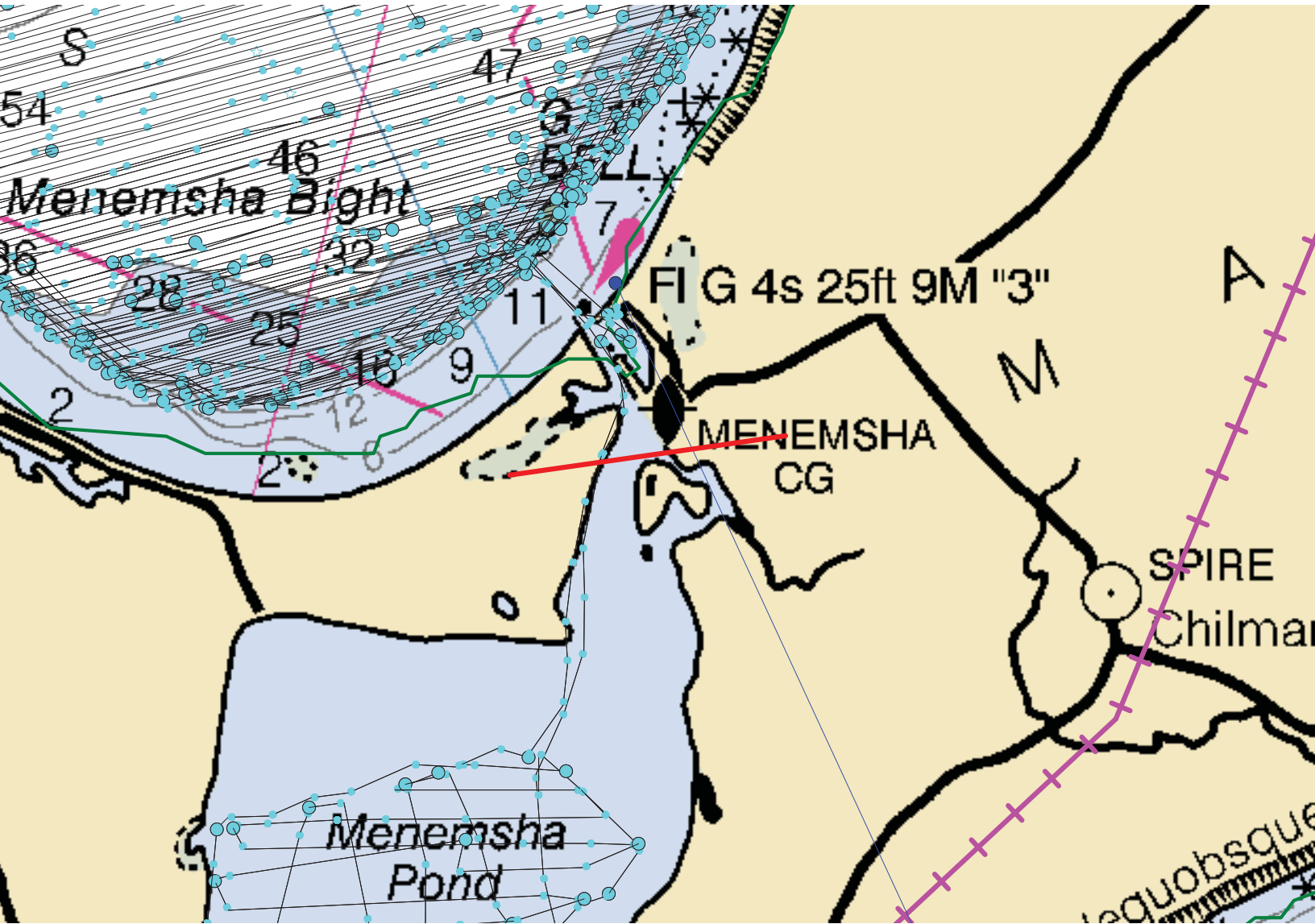
Digitally signed by Peter J. Stone
DN: cn=Peter J. Stone, o=CO-OPS, ou=NOAA/NOS,
email=peter.stone@noaa.gov, c=US
Date: 2008.09.19 14:28:58 -04'00'

CHIEF, OCEANOGRAPHIC DIVISION



**Final TCARI Grid for OPR-B307-TJ-2008, H11920
Rhode Island Sound and Approaches
(Preliminary as Final)**





Subject: Re: [Fwd: Tide zoning issues on two TJ's survey projects]
From: Craig Martin <Craig.Martin@noaa.gov>
Date: Mon, 29 Sep 2008 12:35:39 -0400
To: Jeremy McHugh <Jeremy.McHugh@noaa.gov>, FOO.Thomas.Jefferson@noaa.gov
CC: James M Crocker <James.M.Crocker@noaa.gov>, Kyle Ward <Kyle.Ward@noaa.gov>, Tod Schattgen <Tod.Schattgen@noaa.gov>, Daniel Wright <Daniel.Wright@noaa.gov>, "NOS.CO-OPS.HPT" <NOS.COOPS.HPT@noaa.gov>

Jeremy / Jasper,

In response to your email on two of TJ's survey projects:

- 1) The error estimate that should be used for the tides portion of the TPE on the B370 project is 0.38 meters.
- 2) Generally, no revision to preliminary tide zones is conducted, unless the mission is drastically beyond the scope of the original project submitted to CO-OPS. Short overages outside of the preliminary zoning is addressed and covered in the Smooth Tide process. We have not received a request for smooth tides for any B370 sheets to date. Once HPT receives these requests we will adjust the zoning and send back to the ship for application.
- 3) Due to total lack of tide information inside Menemsha Pond, CO-OPS is unable to provide reliable tide correctors to meet OCS specs beyond the southern border of Edy's Island. The TCARI grid was adjusted to the point where information could be confidentially extrapolated to meet these standards. This was annotated in the "Notes" section on the Final Tide note for the H-11920 in which the data was collected. In addition, CO-OPS informed HSD of this lack of tide information when the data was collected.

Regards,
Craig

Jeremy McHugh wrote:

Hi HPT,
Could you please address each of Jasper's three concerns and copy everyone on the reply. Thanks!
Jeremy

----- Original Message -----

Subject: Tide zoning issues on two TJ's survey projects
Date: Sat, 27 Sep 2008 16:39:25 -0400
From: jasper schaeer <jasper.schaer@noaa.gov>
Organization: NOAA-TJ
To: Smooth.Tides@noaa.gov
CC: Jeremy McHugh <Jeremy.McHugh@noaa.gov>
References: <ae8627f11e4ab567.48db6d84@noaa.gov> <48DBB8BE.3000703@noaa.gov>
<48DBC7AE.9080302@noaa.gov> <48DBDC75.9000507@noaa.gov> <48DBF32E.10601@noaa.gov>
<ad3413f430b07cf.48dcb168@noaa.gov> <48DD051E.6050609@noaa.gov>
<48DD1459.2010202@noaa.gov>

Tide zoning issues on B370 & B307.

1. We were looking for the error estimates to apply to our TPE on B370. There were none given in the tide letter part of the project instruction because at the time it was being determined. If we apply zero, we run the risk of data dropping out in our grid surfaces. We need error estimate for our discreet zoning for B370 or at the very least a high.
2. TJ 's launches survey to the 4m curve and at times we acquire data outside the preliminary tide zone in getting to the 4 m curve. This is the case for B370. Will need a revision for discreet tide zoning for B370. What do you need from us?

3. Data from survey B307 was collected in Menemsha Pond, an area that was not original planned, hence why the B307's tcari files were revised. When we try to apply the verified WL data to the TCARI file, we encounter a host of problems, see attached.

r-js

--

Jeremy McHugh, Physical Scientist
NOAA's Office of Coast Survey
301-713-2702 x117

Subject: Re: B307, amendment to project instruction for H11920

From: "james.m.crocker" <James.M.Crocker@noaa.gov>

Date: Mon, 29 Sep 2008 15:26:10 -0400

To: jasper.schaer <jasper.schaer@noaa.gov>

CC: tod.schattgen <Tod.Schattgen@noaa.gov>

Jasper,

I concur with condition that the DR directly address this stating something regarding the potential vertical error with the sounding data due to tides, as best determined by the field, so the branch knows the quality of the sounding for Menemsha Pond compared to those covered by TCARI.

Jim

jasper.schaer wrote:

Sir,

With HSD OPS's permission, we would like to use the WL from Menemsha tide gage to apply to the Menemsha Pond data set since tcari zoning does not work for this data set.

-js

CDR James Crocker, NOAA <James.m.crocker@noaa.gov>

Chief, Operations Branch

Hydrographic Surveys Division

NOAA

Subject: Re: for the Appendix V record, OPR-B307, H11920 & H11921

From: "shep.smith" <smith.shepard@gmail.com>

Date: Sat, 26 Jul 2008 14:26:28 -0400

To: jasper.schaer <jasper.schaer@noaa.gov>

Sounds like a good approach.

jasper.schaer wrote:

Sir,

Will AHB accept object detection MB coverage, in place of complete MB coverage, in the 4-20 meter survey area of the project, which already been covered by 100% SSS?

V/r-js

Subject: Re: Tcari question for B307, H11920

From: Monica Cisternelli <Monica.Cisternelli@noaa.gov>

Date: Thu, 24 Jul 2008 10:35:04 -0400

To: jasper schaeer <jasper.schaer@noaa.gov>

Hi Jasper

The TCARI grid you have should be set up to only use Newport. I am working on a revised grid using Menemsha for residuals (observed - predicted). I will set it up so that Newport is used whenever Menemsha is out. I hope this makes sense. The revised grid should be sent out on friday. Let me know if you are getting error messages or are having other problems. Thanks

Monica

jasper schaeer wrote:

Monica-

Our current project has two stations for tcari, Newport 845-2660 & Menemsha 844-8725.

Menemsha was being maintained and was not turned back on at the time we began survey. It hence forth has been fixed...

However, we now have tide data gap. Do we use another tide station to fill the gap left by Menemsha for tcari?

cheers-js

Monica Cisternelli <Monica.Cisternelli@noaa.gov>

Oceanographer

NOAA/NOS/CO-OPS

Subject: Dangers to Navigation - H11920

From: Diane Melançon <Diane.Melancon@noaa.gov>

Date: Mon, 17 Nov 2008 15:52:36 -0500

To: Castle E Parker <Castle.E.Parker@noaa.gov>, Chris Libeau <Chris.Libeau@noaa.gov>, Dave Neander <Dave.Neander@noaa.gov>, Ed Martin <Ed.Martin@noaa.gov>, Howard Danley <Howard.Danley@noaa.gov>, Jim Crocker <James.M.Crocker@noaa.gov>, Joseph Robinson <Joseph.Robinson@noaa.gov>, Ken Forster <Ken.Forster@noaa.gov>, Kevin Shaw <Kevin.Shaw@noaa.gov>, Mark Griffin <Mark.Griffin@noaa.gov>, NDB e-Mailbox <OCS.NDB@noaa.gov>, Richard Sillcox <Richard.Sillcox@noaa.gov>, Shep Smith <Shep.Smith@noaa.gov>, Stephen Hill <Stephen.Hill@noaa.gov>, Tom Loeper <Thomas.Loeper@noaa.gov>, Travis Newman <Travis.Newman@noaa.gov>, LT Jasper Schaer <jasper.schaer@noaa.gov>

L-1230/08 and DD-12615 have been registered by the Nautical Data Branch and directed to Products Branch C for processing.

The DTONs reported are several rocks in Vineyard Sound, MA.

The following charts are affected: 13233 kapp 2110

13230 kapp 2112

13229 kapp 2121

13218 kapp 2139

12300 kapp 666

13200 kapp 2153

13009 kapp 2154

The following ENC's are affected: US5MA25M

US4MA23M

US3NY01M

References: H-11920

OPR-B307-TJ-08

This information was discovered and submitted by NOAA ship THOMAS JEFFERSON.

----- Original Message -----

Subject: B307, H11920-DTON #2

Date: Fri, 14 Nov 2008 12:07:12 -0500

From: jasper schauer <jasper.schaer@noaa.gov>

Organization: NOAA-TJ

To: mcd.dton@noaa.gov

CC: tod schattgen <Tod.Schattgen@noaa.gov>, Shepard Smith <Shep.Smith@noaa.gov>

See attached.

V/r- Jasper Schaer

Diane Melancon <Diane.Melancon@noaa.gov>

Cartographer, Nautical Data Branch

National Oceanic and Atmospheric Administration (NOAA)

Marine Chart Division, Office of Coast Survey

H11920_DtoN2_111408.zip

Content-Type: application/zip

Content-Encoding: base64

AHB COMPILATION LOG

General Survey Information	
REGISTRY No.	H11861
PROJECT No.	OPR-B307-TJ-08
FIELD UNIT	NOAA SHIP THOMAS JEFFERSON
DATE OF SURVEY	15 JULY 2008 TO 08 SEPTEMBER 2008
LARGEST SCALE CHART	<i>13233_1, 2, edition 17, 20081001, 1:20,000</i>
ADDITIONAL CHARTS	
SOUNDING UNITS	Feet
COMPILER	CASIE D. CARROTT

Source Grids	File Name
	H:\Compilation\H11920_B307-TJ\AHB_H11920\E-SAR Final Products\GRIDS
	H11920_E3_cu_deep_2m_Final.hns
	H11920_E3a_cu_shal_50cm_Final.hns
	H11920_E3b_cu_shal_50cm_Final.hns
	H11920_E3c_cu_shal_50cm_Final.hns
	H11920_E3d_cu_shal_50cm_Final.hns
	H11920_E3e_cu_shal_50cm_Final.hns
	H11920_E4_cu_deep_2m_Final.hns
	H11920_E4a_cu_shal_50cm_Final.hns
	H11920_E4b_cu_shal_50cm_Final.hns
	H11920_E4c_cu_shal_50cm_Final.hns
	H11920_E4d_cu_shal_50cm_Final.hns
	H11920_S5_Cube_Shal_50cm_Final.hns
	H11920_W1_cu_deep_2m_Final.hns
	H11920_W1_cu_shal_50cm_Final.hns
	H11920_W2_cu_deep_2m_Final.hns
	H11920_W2a_cu_shal_50cm_Final.hns
	H11920_W2b_cu_shal_50cm_Final.hns
	H11920_W2c_cu_shal_50cm_Final.hns
Surfaces	File Name
	H:\Compilation\H11920_B307-TJ\AHB_H11920\COMPILE\Working
<i>Combined</i>	H11920_2m_Combined.hns
<i>Product Surface</i>	\Product Surface\PS_H11920_20m.hns
<i>Shifted Product Surface</i>	\Product Surface\Shifted Surface\PS_H11920_Shifted.hns
Final HOBs	File Name
	H:\Compilation\H11920_B307-TJ\AHB_H11920\COMPILE\Final_Hobs
<i>Survey Scale Soundings</i>	H11920_SS_Soundings.hob
<i>Chart Scale Soundings</i>	H11920_CS_Soundings.hob
<i>Contour Layer</i>	H11920_Contours.hob
<i>Feature Layer</i>	H11920_Features.hob
<i>Meta-Objects Layer</i>	H11920_MetaObjects.hob
<i>Blue Notes</i>	H11920_BlueNotes.hob
<i>ENC Retain Soundings</i>	n\a

[Type text]

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

Meta-Objects Attribution	
Acronym	Value
M_COVR	
CATCOV	Coverage available
SORDAT	20080908
SORIND	US,US,survey,H11920
M_QUAL	
CATZOC	Zone of confidence U (data not assessed)
INFORM	H11920, NOAA Ship Thomas Jefferson
POSACC	10
SORDAT	20080908
SORIND	US,US,survey,H11920
SUREND	20080908
SURSTA	20080715
DEPARE	
DRVALV 1	0.951 ft
DRVALV2	114.406 ft
SORDAT	20080908
SORIND	US,US,survey,H11920
M_CSCL	
CSCALE	40,000
SORDAT	20080908
SORIND	US,US,survey,H11920

SPECIFICATIONS:

- I. COMBINED SURFACE:
 - a. Number of ESAR Final Grids: 18
 - b. Resolution of Combined (m): 2

- II. SURVEY SCALE SOUNDINGS (SS):
 - a. Radius
 - b. Shoal biased
 - c. Use Single-Defined Radius (mm at Map Scale): 40,000 & 20,000 ; Radius Value = 1.5
 - d. Queried Depth of All Soundings
 - i. Minimum: 0.951 ft
 - ii. Maximum: 114.406 ft

- III. PRODUCT SURFACE:
 - a. Resolution (m): 20

- IV. CONTOURS:
 - a. Use a Depth List: H11861_NOAA_depth_curves_list.txt
 - b. Line Object: DEPCNT
 - c. Value Attribute: VALDCO

- V. FEATURES:
 - a. Total Number of Features: 40
 - b. Number of Insignificant Features: 0

- VI. CHART SURVEY SOUNDINGS (CS):

[Type text]

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- a. Number of ENC CS Soundings: ~330
- b. Radius
- c. Shoal biased
- d. Use Single-Defined Radius: m on the ground
 - i. Radius Value (m): 400
 - ii. Or use a Sounding Space Range Table (if applicable): H11920_SSR.txt
- e. Filter: Generalized != 1
- f. Number Survey CS Soundings: 323

VII. Notes:

[Type text]

**ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT to ACCOMPANY
SURVEY H11920 (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

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 9.4 r2691
CARIS HIPS/SIPS version 6.1 SP1 HF 1-8
CARIS Bathy Manager version 2.1 HF 1-5
DKART INSPECTOR, version 5.0 Build 732 SP1
CARIS HOM version 3.3
CARIS S57 Composer version 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 2m grids, combined at 2 meter resolution, then using them to create a product surface grid with a resolution of 20m. The survey scale selected soundings were extracted from the 20m product surface. The selected sounding set is approximately 10 to 20 times the number of charted depths. The chart scale selected soundings are a subset of the survey scale selected soundings. 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 2m product surface grid. The 2m grid resolution product surface model was generated at a scale of 1:20,000, generalization radius of 2m with no defocusing. 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 S57 Blue Note deliverable.

The pre-compilation products or components (Stand Alone HOB files (SAHOB)) are detailed in the Pre-Compile Process Log attached at the end of this document. The SAHOB files included depth curves (DEPCNT), sounding selections (SOUNDG), features (SBDARE), Meta objects (M_COVR, M_QUAL), 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 (ENC.000) in S-57 format with all values in metric units. The metric equivalent ENC.000 file was then converted to NOAA chart units (ENC_CU.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 H11920 CARIS H-Cell final deliverables include the following products:

US411920_CS.000	1: <u>40</u> ,000 Scale	H11920 H-Cell with Chart Scale Selected Soundings
US411920_SS.000	1: <u>10</u> ,000 Scale	H11920 Selected Soundings (Survey Scale)

B.22. Junctions

Survey H11920 (2008) junctions with surveys H10563 (1994) to the northeast, H10654 (1995) to the north, and H10649 (1995) to the northwest. According to the Descriptive Report no junction data was provided to the NOAA Ship Thomas Jefferson that was in a readable format in order for the field to compare junction surveys depths etc.

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON

13233 (17th Edition, 20081001)

Corrected through NM 05/16/2009
 Corrected through LNM 05/5/2009
 Scale 1:40,000

ENC Comparison

US4MA23M

Martha's Vineyard to Block Island
 Edition 12
 Application Date 2008-11-20
 Issue Date 2009-05-14
 Chart 13233

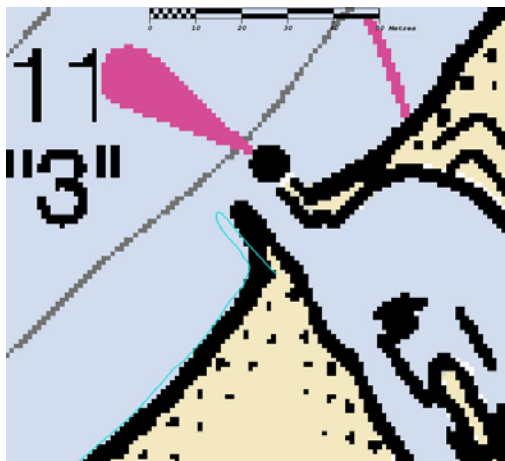
US5MA25M

Buzzards Bay
 Edition 13
 Application Date 2008-12-09
 Issue Date 2009-05-14
 Chart 13233

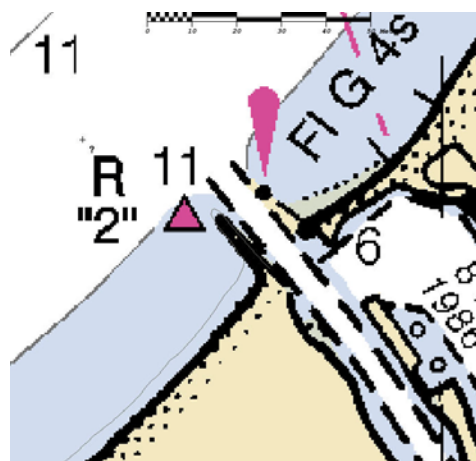
D.1.1 Hydrography

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:

- a. The jetty along the entrance to Menemsha Pond (Latitude $41^{\circ} 21' 14.996''$ N, Longitude $070^{\circ} 46' 08.539''$ W) is incorrectly charted on NOS chart 13233_1, 18th edition. Jetty/Shoreline position according to USGS the National Map Seamless Server Viewer, MA - State (Apr 2005) was submitted as a COALNE feature with the H-Cell products to MCD. It is recommended that the jetty's position be updated on the raster. See image below.



NOS Chart 13233_1

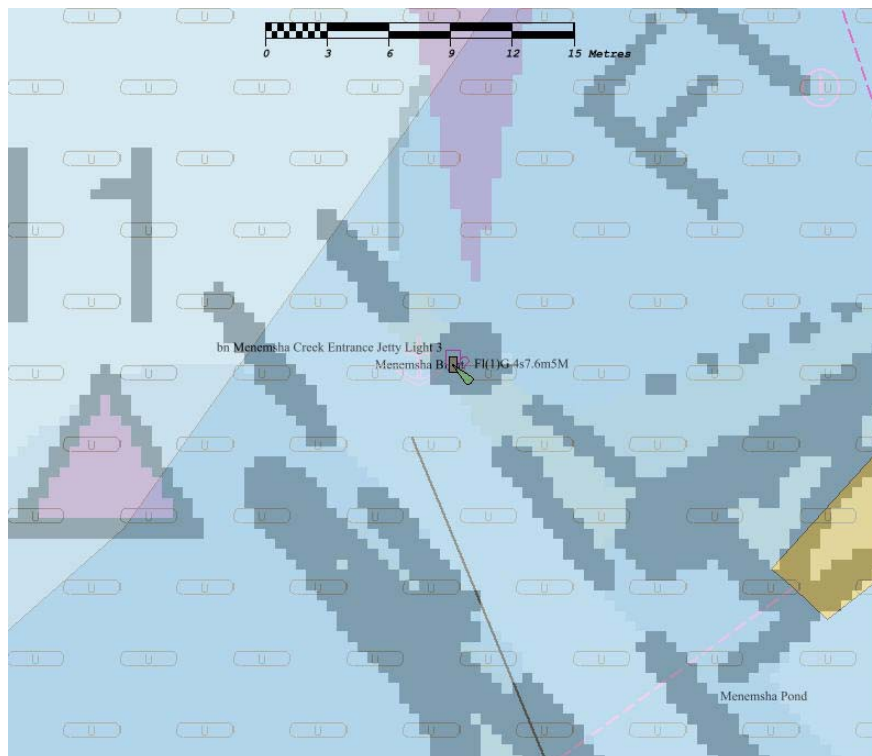


NOS Chart 13233_2

- b. The coastline along Latitude $41^{\circ} 20' 42.039''$ N, Longitude $070^{\circ} 46' 08.795''$ W to approximately Latitude $41^{\circ} 20' 36.297''$ N, Longitude $070^{\circ} 46' 17.738''$ W was incorrectly charted on NOS chart 13233_2, 18th edition. The coastline was re-digitized using USGS the National Map Seamless Server Viewer, MA - State (Apr 2005). It is recommended that the coastline be updated to agree with the orthophotograph. See image below.



- c. The Menemsha Creek Entrance Jetty Light 3 located at Latitude $41^{\circ} 21' 15.761''\text{N}$, Longitude $070^{\circ} 46' 06.920''\text{W}$, was reported in the Descriptive Report as having a location discrepancy between the NOS chart 13233, 18th edition, and ENC US4MA23M of approximately 30 meters; however, the discrepancy was deemed insignificant due to the chart symbol size depicted on the chart. See image below.



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
H11920

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 disproof of charted data. All revisions and additions made to the H-Cell files during survey processing have been entered in the digital data for this survey. The survey records and digital data comply with National Ocean Service and Office of Coast Survey requirements except where noted in the Descriptive Report and the Evaluation Report.

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

Casie D. Carrott
Hydrographic Intern
Atlantic Hydrographic Branch

I have reviewed the Base 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: _____
Shepard Smith
Commander, NOAA
Chief, Atlantic Hydrographic Branch