H11693

NOAA FORM 76-35A

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

DESCRIPTIVE REPORT

Type of Survey: **Navigable Area Survey**

Registry Number: **H11693**

LOCALITY

State: Maryland – District of Columbia

General Locality: Potomac River

Sub-locality: Central Potomac River

2008

CHIEF OF PARTY
LT Michael Davidson, NOAA

LIBRARY & ARCHIVES

DATE

NOAA FORM 77-28 (11.72) U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**H11693**

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

1State:	**Maryland and the District of Columbia**		
General Locality:	**Potomac River**		
Sub-Locality:	**Central Potomac River**		
Scale:	**1:10,000**	Date of Survey:	**05/29/07 to 06/21/07**
Instructions Dated:	**05/21/2007**	Project Number:	**OPR-E300-BH-SPOT-07**
Vessel:	**NOAA S/V BAY HYDROGRAPHER, S-5501**		
	NOAA Special Projects Operations Team, S-3004		
Chief of Party:	**LT Michael Davidson, NOAA BAY HYDROGRAPHER**		
Surveyed by:	**BAY HYDROGRAPHER and SPOT Personnel**		
Soundings by:	**ODOM Echotrac MK III**		
	ODOM Echotrac CV		
	Reson Seabat 7125 Multibeam Echosounder		
	Reson Seabat 8125 Multibeam Echosounder		
Graphic record scaled by:	**N/A**		
Graphic record checked by:	**N/A**		
Protracted by:	**N/A**	Automated Plot:	**N/A**
Verification by:	**Atlantic Hydrographic Branch Personnel**		
Soundings in:	~~**Meters**~~ ***Feet*** **at MLLW**		

Remarks:
1) All Times are UTC.
2) This is a Navigable Area Survey.
3) Projection is UTM Zone 18 North.
Notes in Red , Bold, and Italic were made during office processing.

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DESCRIPTIVE REPORT

to accompany
NAVIGABLE AREA SURVEY H11693

Scale of Survey: 1:10,000
Year of Survey: 2007
NOAA S/V BAY HYDROGRAPHER, SS501
NOAA SPOT Boat, S3004
LT Michael Davidson, Officer in Charge

A. AREA SURVEYED

This navigable area survey was conducted in accordance with Hydrographic Survey Letter Instructions for Field Examination OPR-E300-BH-SPOT-07, H11693 Potomac River, Maryland and District of Columbia. The original instructions are dated May 21, 2007.

This descriptive report traverses the Potomac River northward from Kettle Bottom Shoals to the southern extent of the Anacostia River. The purpose of this survey is to investigate potential shoaling, obstructions, and dangers to navigation that may possibly hinder the transit of the NOAA Ship THOMAS JEFFERSON into Alexandria, VA. In addition, this survey provides a contemporary update to the National Ocean Service (NOS) suite of nautical charts.

Prevalent maritime traffic on this portion of the Potomac River primarily consists of petroleum products, sand, gravel, crushed rock, newsprint, and fertilizers. Vessel draft on the river typically does not exceed 20 feet[1]. Pleasure craft are also very prominent in the survey area and may range from personal watercraft to chartered sightseeing cruises.

An additional request was received from the Maryland Pilots Association and amended to the original survey to determine least-depths at the entrance of the Anacostia River between Giesboro Point and Haines Point. This assessment provided information on the feasibility of safe navigation into Washington Channel by vessels drawing up to 13 feet. ***Concur***

[1] United States Coast Pilot 3, 40th Ed. Atlantic Coast: Sandy Hook, NJ to Cape Henry, VA., 2007

Metrics detailing the linear nautical miles covered for this survey are noted below:

Linear nautical miles of single beam mainscheme sounding lines	403
Linear nautical miles of multibeam mainscheme sounding lines	61.66
Linear nautical miles of side scan sonar mainscheme sounding lines	395.47
Linear nautical miles of combined total of mainscheme sounding lines	860.13
Linear nautical miles of crosslines from single beam/multibeam combined	36.30
Linear nautical miles of developments other than mainscheme lines	16.60
Linear nautical miles of shoreline/nearshore investigation	0
Number of bottom samples collected	0
Number of items investigated that required additional time/effort in the field beyond the above survey operations	0
Total linear nautical miles	913.03

Dates of acquisition: May 30, 2007 to June 20, 2007

	BH	SPOT-7	Totals	XL Percentages
Main scheme SBES	158.6171	244.3813	402.9983	
Main scheme MBES	0	61.6648	61.66	
Main scheme SSS	137.78	257.69	395.47	
Single beam XL	8.0837	23.6095	31.6932	7.86 %
Multibeam XL	0	4.6053	4.6053	7.47 %
Development SBES	0	0	0	
Development MBES	1.7741	14.8296	16.60	

Table 1 H11693 vessel statistics

For complete survey limits, see Figure 1 on the following page.

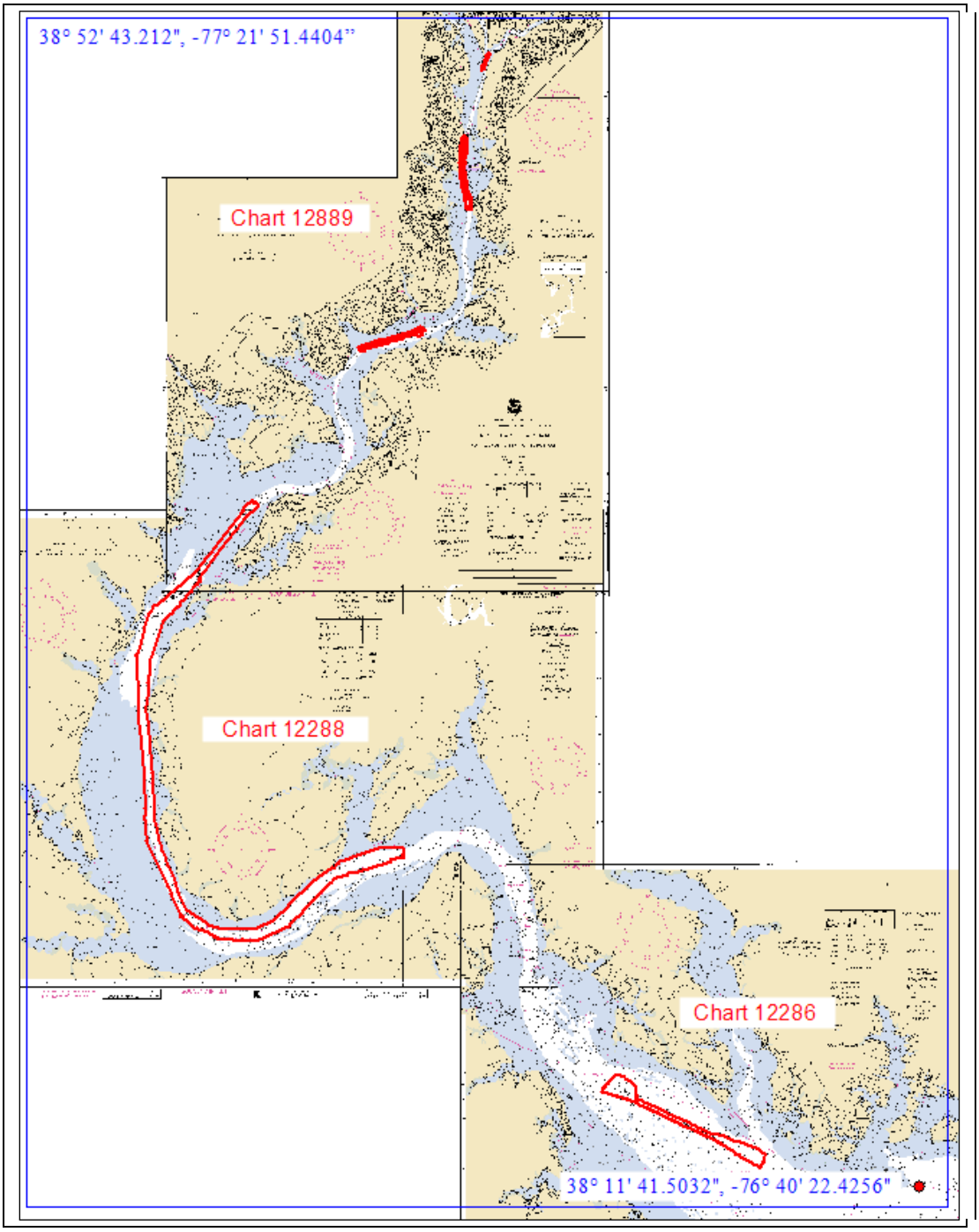

Figure 1 Complete Survey Limits & Data Coverage

B. DATA ACQUISITION AND PROCESSING *(see also the Evaluation Report)*

B.1 EQUIPMENT

The 17 meter NOAA S/V BAY HYDROGRAPHER (S5501) and 10 meter NOAA Special Operations Team (S3004) acquired all survey data for project OPR-E300-BH-SPOT-07. Side scan sonar data were acquired using a Klein LW5000 Side Scan Sonar (S5501) and a Benthos C3D Phase Differencing Bathymetric Sonar (S3004). All bathymetric data were acquired with Reson Seabat 7125 (S5501) or Seabat 8125 (S3004) multibeam echosounders in company with Odom Echotrac MKIII (S5501) or Odom Echotrac CV (S3004) single beam echosounders. GPS aided inertial navigation was provided on both vessels by an Applanix POS/MV Model 320, version 4.

All sound speed casts were provided by a manually deployed Sea-Bird SBE-19 Plus SEACAT CTD Profiler and processed with Velocwin.

No major deviations were made from the current configurations of either vessel. Refer to the * Data Acquisition and Processing Report (DAPR) for individual detailed vessel configuration(s). ***Concur***

B.2 QUALITY CONTROL

B.2.1 Side Scan Sonar Quality Control (SSS)

Daily confidence checks were made by observing the outer ranges of the side scan sonar images on the Klein LW5000 (S5501) and the Benthos C3D (S3004). This check was accomplished by distinguishing linear contacts in the sonar record along visually conspicuous objects such as piers, wharves, and quays. 200% SSS bottom coverage was collected for this survey at a 75 m range scale.

Sporadic voltage intensity artifacts were observed on the C3D side scan record (Figure 2) and may have been attributed to a malfunction encountered during the operation of the C3D aboard S3004. While these artifacts were not detrimental to side scan object detection, the quality of bathymetric data was severely affected. The unit subsequently failed days later and was sent to the manufacturer for diagnosis and servicing. Upon post survey completion, it was reported by the manufacturer that the regulated voltage of the C3D was lower than the normal operating range causing intermittent failures. (**See Appendix: V for correspondence) ***Concur***

Refer to this project's *DAPR for detailed discussion of SSS system calibrations, data acquisition, and data processing. ***Concur***

Submitted with H-Cell deliverables.
****Data filed with original field reports.***

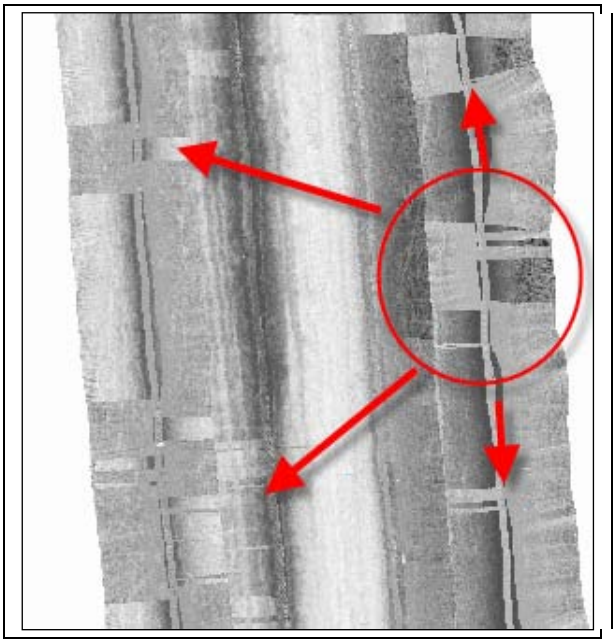

Figure 2 Benthos C3D Voltage Intensity Artifacts

During Side Scan Sonar Processing, a nine-second offset was subtracted from the navigation sensor affecting the BH_S5501_KLEIN5000_SSS100 and BH_S5501_KLEIN5000_SSS200 CARIS HIPS Vessel Files (HVF) utilized by BAY HYDROGRAPHER. Prior to the commencement of this survey, this offset was applied after the original Klein 5000 towfish malfunctioned and was replaced with a light weight model (Klein LW5000) without a depressor wing. The offset was derived from a SSS calibration test and applied to the HVF to correct the horizontal positioning of the unit to meet specifications for towed SSS as detailed in ***NOAA** Hydrographic Surveys Specifications and Deliverables (HSSD). The nine-second offset was subsequently removed from the HVF (2008-067) only after a fabricated modification was made to the depressor wing, allowing it to be used with the Klein LW5000.

B.2.2 Multibeam Echosounder Quality Control (MBES)

There were no unusual events associated with the collection of Reson 8125 multibeam data; however network latency issues were experienced with the Reson 7125 on day number 150. Data quality was not compromised and sufficient coverage was acquired through repeated passes. This issue was later resolved by rerouting data packets through another network switch.

As mentioned previously in section B.2.1, bathymetric data associated with C3D phase differencing sonar were deemed unusable and were not submitted for this survey upon consultation with the Hydrographic Surveys Division Operations Branch. ***Concur***

Heave induced data errors (Figure 3) were encountered in the survey area between Hains Pt. and Giesboro Pt. of the Anacostia River. The most probable cause of these errors was rapid turns between survey lines with short a lead in prior to the start of data acquisition. However, data quality still meets IHO Order I specifications for vertical uncertainty.

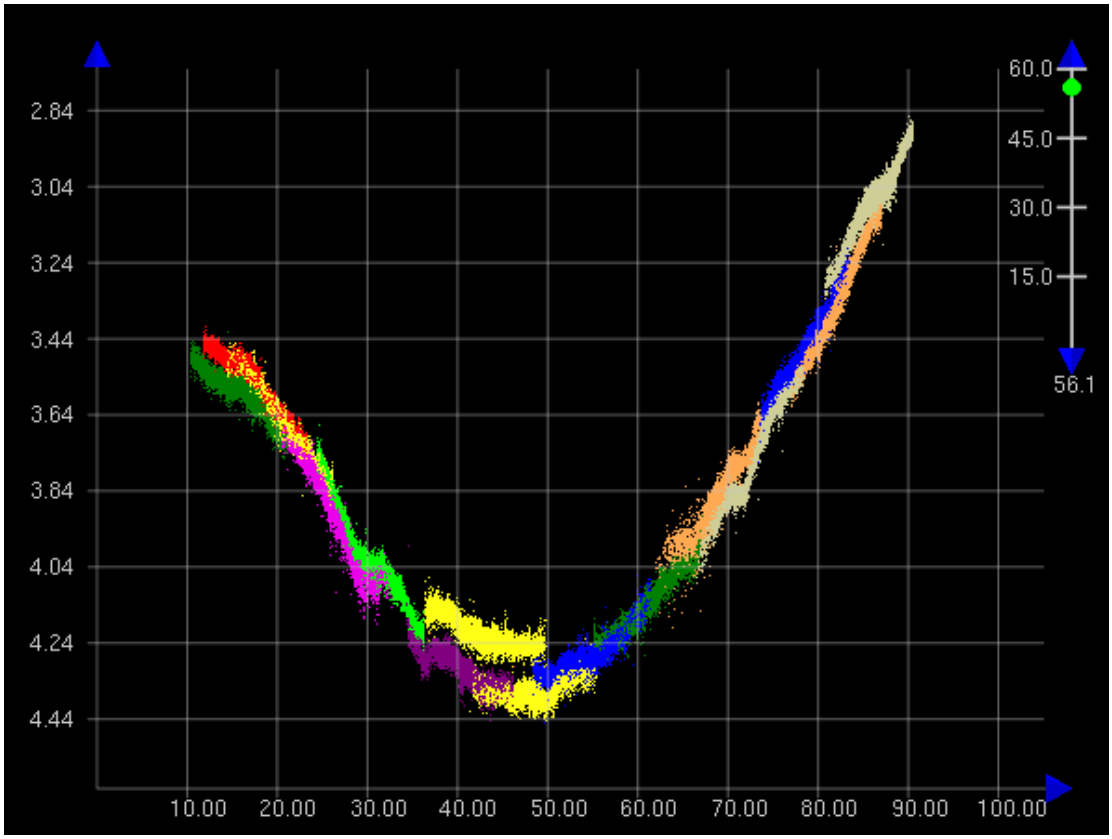

Figure 3 Heave Induced Data Error

Refer to this project's *DAPR for detailed discussion of MBES system calibrations, data acquisition, and data processing. ***Concur***

B.2.3 Single Beam Quality Control (SBES)

No major events were experienced with the collection of the Single Beam data for this project. However, a single beam time stamping issue was encountered on day number 166 aboard BAY HYDROGRAPHER. HYPACK single beam data containing accurate attitude and navigation times were being simultaneously stamped with erroneous (but systematic) times of the Odom Echotrac MKIII resulting in CARIS processing errors. This was remedied by affecting a time offset to the data using the post acquisition tools in PYDRO (**See Appendix V for correspondence).
Concur
Submitted with H-Cell Deliverables.
****Data filed with original field reports.***

A 0.2 meter discrepancy was noted when comparing surfaces from the S3004 single beam to the surfaces generated by other sensors which were generally in good agreement and within the allowable error of IHO Order 1 specifications. This discrepancy may have been attributed to combination(s) of sound speed error (refer to section D.1.1) and/or tide/water level error (refer to section C.1) experienced within the mouth of the Wicomico and Potomac River complex. The Tide Component Error Estimation contribution toward the survey is 0.77 meters at the 95% confidence level. Refer to this project's ***DAPR for detailed discussion of SBES system calibrations, data acquisition, and data processing. ***Concur***

B.2.4 Total Propagated Error (TPE)

A Total Propagated Error model for sound speed and tide data for H11693 is illustrated in the following table:

		Tide Values (meters)		Sound Speed Values (meters/second)	
Project	Vessel	Measured	Zoning	Measured	Surface
H11693	S5501	0.02	0.77	4	0.5
H11693	S3004	0.02	0.77	4	0.5

Table 2 TPE Model for Sound Speed and Tides

B.2.5 Crosslines

NOAA S/V BAY HYDROGRAPHER (S5501) and SPOT (S3004) collected 31.69 linear nautical miles (lnm) of Single Beam Echosounder (SBES) cross lines equating to 7.86% of the 403 lnm of main scheme SBES data. MBES cross lines totaled 4.6 lnm equaling 7.46% of the 61.66 lnm of main scheme MBES data (Table 1). In general, the cross lines are in good agreement within their respective data sets.

Reports for detailing the Beam Number, Ping Count, Min and Max Difference, Mean and Standard Deviation, and the Percentage of Soundings meeting IHO Order 1 accuracy criteria for each beam were generated in CARIS (Figures 4 and 5). These documents accompany the descriptive report. ***Concur***

Submitted with H-Cell Deliverables.

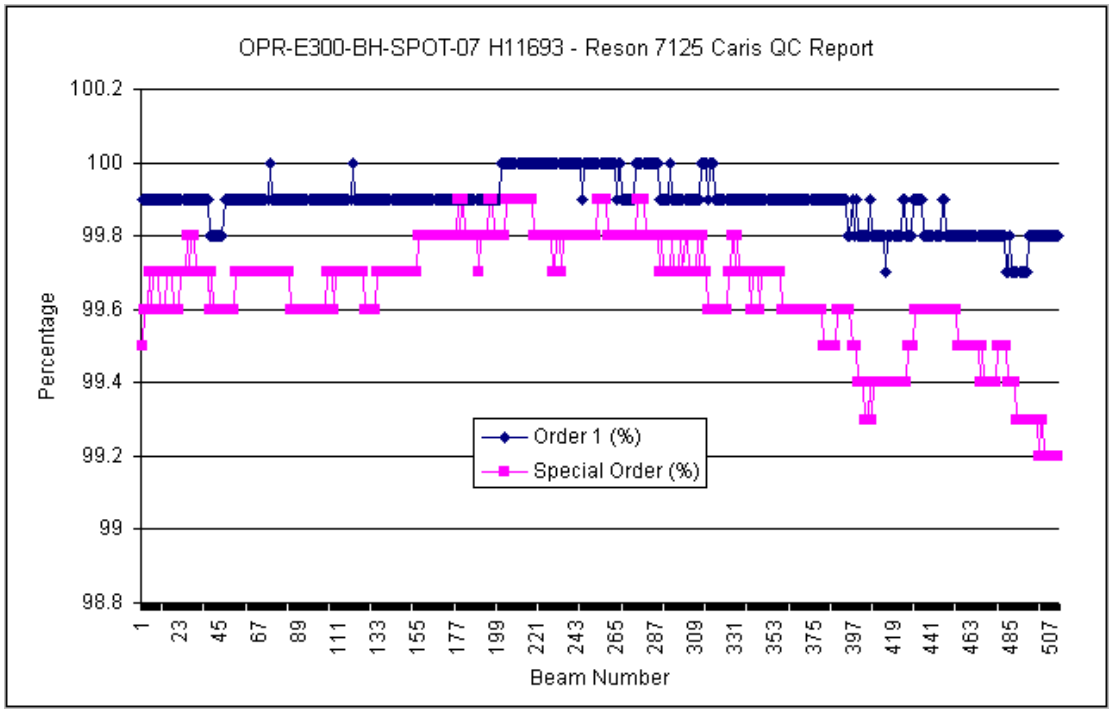

Figure 4 BH – S5501 Reson 7125 IHO-ness vs. beam number

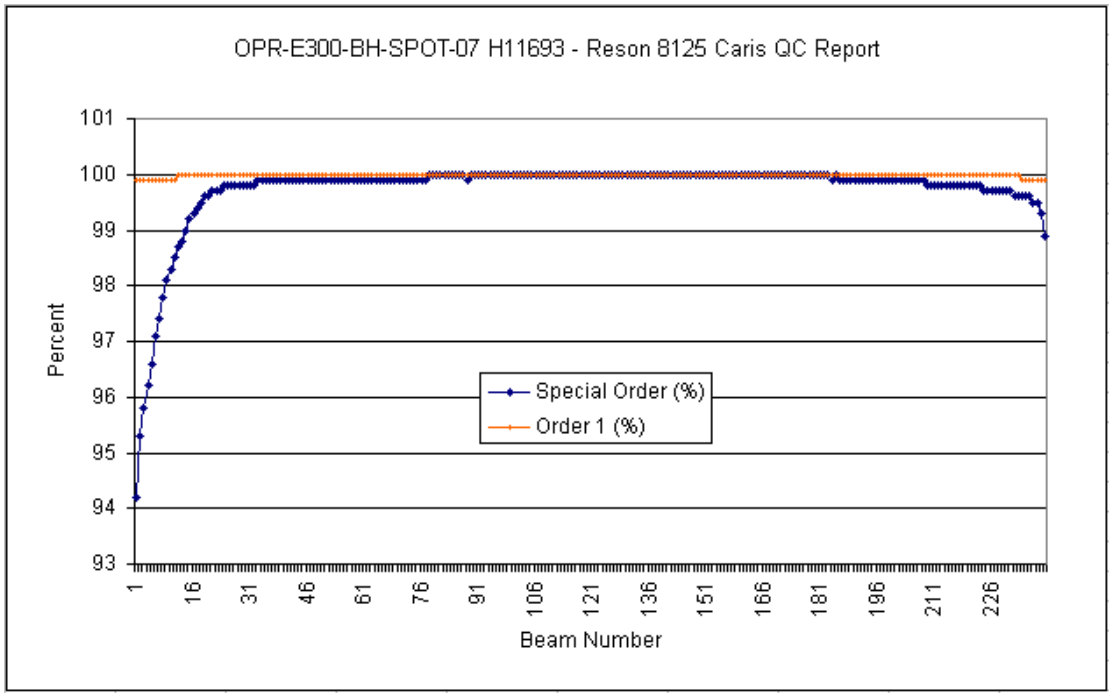

Figure 5 SPOT – S3004 Reson 8125 IHO-ness vs. beam number

B.2.6 Junctions

An evaluation of survey junctions was not performed; No contemporary survey junctions were available for this survey. ***Concur***

B.3 CORRECTIONS TO ECHO SOUNDING

All methods or instruments used are described in the project ***DAPR. The positions of sound velocity casts are loaded into the survey's PSS as individual "generic position" features (GP's), with the depth versus sound velocity information contained in the remarks. ***Concur***

B.4 DATA PROCESSING

A Caris HIPS CUBE (Combined Uncertainty Bathymetry Estimator) surface was created using the "Shallow" Density & Locale parameters as specified by the Hydrographic Systems Technical Directive (HSTD 2007-02) to correspond with NOAA's complete gridding standard. Half-meter multibeam HIPS CUBE Surfaces were created for all Reson7125 and Reson8125 data. BASE surfaces were created for single beam data with a resolution of 2 meters and Individual mosaics were created for the 100% and 200% SSS mainscheme lines to demonstrate survey area coverage. A summary of the accompanying surfaces and mosaics are as follows (Table 3):
Concur

H11693_Anacostia
H11693_S3004_RESON8125_MBES_0p5m_Final
H11693_North
H11693_S3004_RESON8125_MBES_0p5m_Final
H11693_S5501_S3004_Odom_SBES_2m_Final
H11693_S5501_KLEIN5000_SSS_100%_1m
H11693_S5501_KLEIN5000_SSS_200%_1m
H11693_Central
H11693_S3004_RESON8125_MBES_0p5m_Final
H11693_S5501_S3004_Odom_SBES_2m_Final
H11693_S3004_C3D_SSS_100%_1m
H11693_S3004_C3D_SSS_200%_1m
H11693_S5501_KLEIN5000_SSS_100%_1m
H11693_S5501_KLEIN5000_SSS_200%_1m
H11693_South
H11693_S5501_RESON7125_MBES_0p5m_Final
H11693_S5501_S3004_Odom_SBES_2m_Final
H11693_S3004_C3D_SSS_100%_1m
H11693_S3004_C3D_SSS_200%_1m
H11693_S5501_KLEIN5000_SSS_100%_0p5m
H11693_S5501_KLEIN5000_SSS_200%_0p5m

Table 3 H11693 Surfaces

Submitted with H-Cell Deliverables.

C. VERTICAL AND HORIZONTAL CONTROL

C.1 VERTICAL CONTROL

The tidal datum for this project is Mean Lower Low Water (MLLW). The operating National Water Level Observation Network (NWLON) stations at Washington, DC (859-4900) and Lewisetta, MD (863-5750) served as datum control for the survey.

The preliminary zones and correctors used for the preliminary survey are as follows:

ZONE NAME	CORRECTOR (min)	RATIO	REFERENCE
POTR16	+60	X1.49	863-5750
POTR19	+72	X1.33	863-5750
POTR20	+90	X1.25	863-5750
POTR22	+108	X1.21	863-5750
POTR26	+156	X1.09	863-5750
POTR28	+174	X1.05	863-5750
POTR29	+186	X1.01	863-5750
POTR30	+198	X1.01	863-5750
POTR31	+210	X1.01	863-5750
POTR32	+222	X0.97	863-5750
POTR33	+234	X0.93	863-5750
POTR34	+246	X0.89	863-5750
POTR35	+258	X0.85	863-5750
POTR36	+270	X0.85	863-5750
POTR39	+288	X0.89	863-5750
POTR40	+300	X0.97	863-5750
POTR41	+312	X1.05	863-5750
POTR43	+324	X1.13	863-5750
POTR45	+336	X1.25	863-5750
POTR47	+354	X1.37	863-5750
POTR53	-30	X0.82	859-4900
POTR56	-12	X0.95	859-4900
POTR57	-6	X0.99	859-4900

Table 4 Preliminary Tide Zones & Correctors

A request for **TCARI Approved Smooth Tides** letter was sent to N/OPS1 on 27 August, 2007 (Appendix IV). During subsequent communications with CO-OPS, the lack of historical tide data near Smith Point (38.41595811N, -077.26567435W) adversely affected the TCARI model. As a result of the modeling complexities of the corresponding survey area, a finalized discrete zoning file was sent in its place and applied to all survey data.

Refer to the ***DAPR for a summary of the methods used to determine, evaluate, and apply tide corrections to sounding data. ***Concur***
****Submitted with H-Cell deliverables.***

C.2 HORIZONTAL CONTROL

The horizontal datum used for this survey is the North American Datum of 1983 (NAD 83) using a Mercator projection (UTM-Zone 18N).

Horizontal position was determined using a Global Positioning System (GPS) corrected by U.S. Coast Guard differential GPS (DGPS) beacon stations. Beacons are selected by automatic range in the Trimble DSM212L DGPS system. No horizontal control stations were established for this survey.

Horizontal dilution of precision (HDOP) was monitored daily. The observed HDOP values did not exceed 4.0. ***Concur***

D. RESULTS AND RECOMMENDATIONS *(see also the Evaluation Report)*

D.1 CHART COMPARISON

There are four raster charts affected by this survey. Chart comparisons are effective to the 44-07 5th edition of the U.S. Coast Guard Fifth District Local Notice to Mariners. No electronic navigational charts (ENC) are available for this area.
Concur
Traditional raster charts

Number	Version	Edition Date	Scale
12285	39	03/01/2008	1:40000
12286	30	08/01/2006	1:40000
12287	17	02/03/1996	1:20000
12288	20	10/01/2007	1:40000
12289	49	06/01/2005	1:40000

Table 5 Affected Charts

D.1.1 General Agreement with Charted Soundings

The soundings observed on this survey vary from charted depths in several places. This is believed to be in association with change in the substrate due to dynamic environments and/or the advance of Echo Sounding technology than previous collection.

Large variations in sound speed profiles were experienced throughout the survey area. In some instances by as much as 26 meters per second in areas near Cobb Neck along the outfall of the Wicomico River into the Potomac River. These areas were minimally affected as single beam echo sounders were used exclusively for this region of the survey, however a 0.2-meter discrepancy was observed between singlebeam and multibeam surfaces. Survey areas containing multibeam data were generally homogenous with slight variances minimizing sound speed refraction errors. ***Concur***

Hains Point, Anacostia River (affects 12285, 12289)

Depths of the passageway between Giesboro Pt and Hains Pt have a least depth of 11 feet at MLLW (Mean Lower Low Water) within the proximity of position 38-51-7.6068N, 077-1-14.7252W. This area will not be suitable for vessels drawing 13 feet or more. Hydrographer recommends modifying the contour to reflect this change and notifying the Chesapeake Pilots of its status. A chartlet detailing this area has been sent to a NOAA navigation manager for communication. ***Concur with clarification. Although, an 11' sounding exist in this area, shoalest sounding in this surveyed area is 5' and has been selected as a Chart Scale Sounding.***

East of Robinson North Terminal. Alexandria, VA (affects 12285, 12289)

Depths in the vicinity of Robinson North Terminal 38-48-32.367N, 077-2-16.1262W are shoaler than the currently charted 18 foot contour. Redraw contour to reflect current state of bathymetry. ***Concur***

Southeast of Robinson South Terminal. Alexandria, VA (affects 12285, 12289)

The 18 foot contour near position 38-47-45.222N, 077-2-9.4128W southeast of Robinson Terminal (located at position 38-47-50.5674N, 077-2-21.699W does not adequately reflect the observed depths. Hydrographer recommends amending the 18 foot contour further westward offshore. ***Concur***

South of Woodrow Wilson Bridge (affects 12285, 12289)

Depths in the vicinity of 38-47-20.1006N, 077-2-19.9464W depicts an abrupt change in depths. The current 18 foot contour requires an extension further offshore (eastward) toward the natural channel. ***Concur***

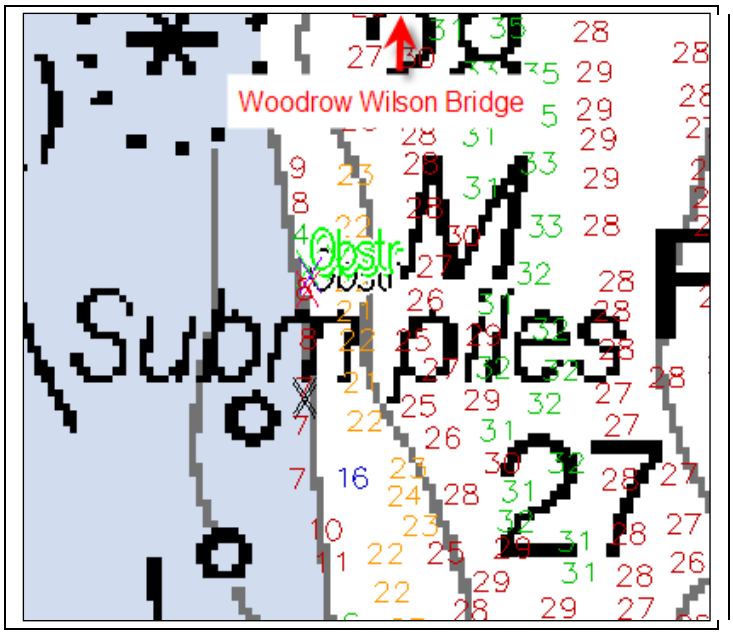

Figure 6 South of Woodrow Wilson Bridge

Rosier Bluff (affects 12285, 12289)

Depths about the 18 foot contour near the charted Piles awash (AWOIS item 13952) have become 5 feet shoaler than currently charted and were not observed in side scan sonar or multibeam data. Hydrographer recommends changing the three currently charted "Piles awash" features in the vicinity of 38-46-14.7072N, 77-1-53.4468W to Piles submerged and redrawing the contour to reflect the present state of bathymetry. ***Concur***

Channel northwest of Cornwallis Neck (affects 12285, 12288, 12289)

Depths of 20 feet were observed between Buoys G "47" (38-34-19.164N, 077-13-26.124W) and G "49" (38-35-01.305N, 077-12-43.858W) within the channel currently charted with a controlling depth of 21 feet. Channel was ensonified using a Reson 8125 multibeam echosounder with depths processed to IHO Order 1. Hydrographer recommends reducing the controlling depth of the channel in its entirety from 21 feet (Apr 2000) to the observed depth of 20 feet. Please confer with the US Army Corps of Engineers for further action. ***Concur***

Shoaling area southeast of Cockpit Point (affects 12285, 12288, 12289)

A shoal demarcated by the 24 foot contour at position 38-33-11.1522N, 077-14-53.7066W has migrated southward into the natural channel. Hydrographer recommends amending the 24 foot contour to reflect observed depths. ***Concur***

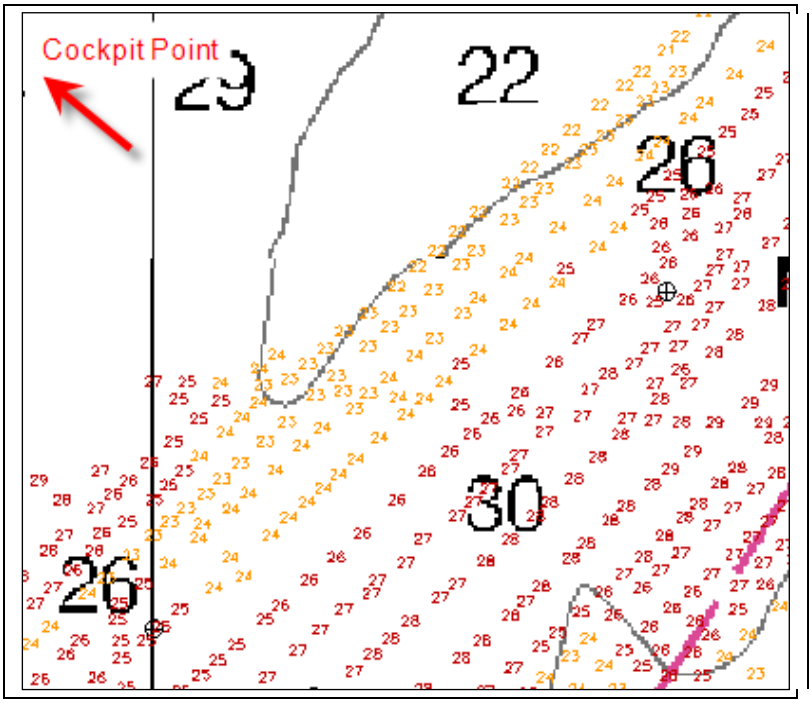

Figure 7 Shoaling southeast of Cockpit Point

A general chart comparative overview (Table 6) is detailed below:

Position	Comment
38-31-42.693N, 077-16-3.9786W	Depths in this area are deeper (3-4 feet) than currently charted. ***Concur***
38-28-32.6382N, 077-16-37.2894W to 38-28-32.6382N, 077-16-37.2894W	Depths in the area of Mallows Bay to Clifton Beach are in good agreement (1-3 feet). ***Concur***
38-24-12.6576N, 077-16-8.4612W to 38-21-26.5464N, 077-13-45.7464W	Depths from Green "27" to Red "22" are in good agreement (1-3 feet) with charted depths. ***Concur***
38-21-8.1714N, 077-12-50.8062W to 38-21-8.3514N, 077-12-18.7734W	Depths from Buoy G "21" eastward along the southern meander of the Potomac to G "19" show evidence of moderate deepening with differences of > 10 feet. ***Concur***
38-21-6.7818N, 077-12-54.2988W	The 13 foot shoal is in good agreement with the observed least depth of "14 feet", however, contour lines may require an amendment. ***Concur***
38-21-8.4522N, 077-12-18.777W	The vicinity of Buoy G "19" may require an amendment to the contour. ***Concur***
38-23-28.428N, 077-6-45.576W	Observed depths at charted AWOIS item 13951 (Buoy G "11") do not reflect the charted "4 ft" sounding. Hydrographer recommends removing charted depth of 4 feet and modifying depths as observed. ***Concur***
38-15-47.8368N, 077-55-0.5586W	The 19 foot charted shoal was not observed. Charted depths within this area are in good agreement (1-4 feet) contiguously at both ends of the channel just north of the Kettle Bottom Shoal. The controlling depth of 23 feet is in agreement with the observed depths of the channel. ***Concur***

Table 6 General Chart Comparison

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D.1.2 AWOIS Items and Significant Contacts

There were two original AWOIS items identified as critical to surface navigation and assigned to this project for full investigation, a third AWOIS item was also added during survey operations and was tasked for development. *See Appendix II. ***Concur***

D.1.3 Danger to Navigation

There were six DtoN's for this survey, *see Appendix I. ***Concur***

D.1.4 Charted Features

*See Appendix II. ***Concur***

D.1.5 Charting Recommendations

The hydrographer recommends that the affected charts be updated to reflect the current bathymetric data acquired over the survey area. H11693 is complete and adequate to supersede charted soundings in their common areas. ***Concur***

D.2 2ADDITIONAL RESULTS

D.2.1 Aids to Navigation and Other Detached Positions

All identified floating aids to navigation within the survey area are consistent with the chart and serve their intended purpose. The positions of the lighted floating aids to navigation are consistent with the positions published in the United States Coast Guard's Light List and are on station unless otherwise noted. ***Concur***

D.2.2 Bridges and Overhead Cables

There are two bridges and one overhead cable in the survey area and are presumed in position unless otherwise noted. ***Concur***

Woodrow Wilson Memorial Bascule Bridge centered 38-47-36.294N, 077-2-15.6042W as currently charted may not be reflective of the bridge's present position where a replacement span is under construction. An accurate position was not attainable because of the heavy activity. *See LNM_02_2008 Appendix V. ***Concur***

Overhead power cables centered at 38-32-17.7318N, 077-15-53.4774W. ***Concur***
Data filed with the original field reports.

Harry W Nice Memorial bridge centered at 38-21-42.951N, 077-59-43.1556W. ***Concur***

D.2.3 Ferry Routes

There are no ferry terminals or ferry routes in the survey area. ***Concur***

D.2.4 Submarine Cables and Pipelines

There are two charted pipelines and eleven submarine cables within the survey limits. No noticeable discrepancies were observed in the location of these charted features. ***Concur***

Descriptions begin from southernmost portion of survey area:

1. Cable area bordering the Nice Memorial Bridge centered at 38-21-52.041N, 076-59-22.29W. ***Concur***
2. Cable area between Mathias Point Neck centered at 38-24-17.2146N, 077-2-34.5192W. ***Concur***
3. Cable area between Blossom Point and Upper Cedar Point centered at 38-24-13.2906N, 077-5-36.8586W. ***Concur***
4. Cable area near Chopawamsic Island centered at 38-30-37.497N, 077-17-58.1712W. ***Concur***
5. Cable area crossing Mattawoman Creek centered at 38-36-50.0862N, 77-10-31.3716W. ***Concur***
6. Cable Area crossing Potomac between Indian Head up to Sycamore Point centered at 38-36-50.0862N, 077-10-31.3716W. ***Concur***
7. Cable area between Hallowing Point and Pomonkey Point centered at 38-37-59.0802N, 077-7-19.758W. ***Concur***
8. Pipeline Area near Gunston Cove centered at 38-40-2.9136N, 077-8-27.7542W. ***Concur***
9. Cable Area nr Ft Washington centered at 38-42-49.860N, 077-2-27.870W. ***Concur***
10. Pipeline Area near Villamay centered at 38-45-34.9308, 077-2-17.5482W. ***Concur***
11. Cable Area near southern Alexandria centered at 38-47-51.4536N, 077-2-10-1616W. ***Concur***
12. Cable Area north of Alexandria near Marbury Point centered at 38-49-0.9732W, 077-1-56.7552W. ***Concur***
13. Cable Area adjacent to preceding (number 12) centered at 38-49-30.3276N, 077-2-0.0234W. ***Concur***

D.2.5 Shoreline

No shoreline was required toward this navigable area survey. However, the hydrographer recommends a revisit to acquire shoreline in areas such as Alexandria, VA where change is evident. ***Concur***

E. APPROVAL SHEET

OPR-E300-BH-SPOT-07
Potomac River, Central Potomac River
Maryland - DC

Survey Registry No. H11693

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

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

Also submitted in association with this Descriptive Report has been a series of reports and data:

- Separates to Accompany Project OPR-E300-BH-SPOT-07, Sheet A, H11693
- May 2007 – May 2008 Data Acquisition and Processing Report

Respectfully Submitted:

_____
Vitad Pradith
Physical Scientist

Approved and Forwarded:

_____
Michael Davidson, LT/NOAA
Officer in Charge/BAY HYDROGRAPHER

H11693 DTON Report

Registry Number: H11693

State: Maryland

Locality: Potomac River, Maryland DC

Sub-locality: Central Potomac River

Project Number: OPR-E300-BH-SPOT-07

Survey Dates: 06/13/2007 - 06/20/2007

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12288	20th	10/01/2007	1:40,000 (12288_1)	USCG LNM: 04/29/2008 (05/20/2008) NGA NTM: 07/20/1996 (05/24/2008)
12289	49th	06/01/2005	1:40,000 (12289_1)	USCG LNM: 06/19/2007 (05/20/2008) NGA NTM: 07/20/1996 (05/24/2008)
12285	39th	03/01/2008	1:80,000 (12285_9) 1:80,000 (12285_15) 1:40,000 (12285_14)	[L]NTM: ?
12280	8th	03/01/2008	1:200,000 (12280_1)	[L]NTM: ?

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

Features

No.	Feature Type	Survey Depth	Survey Latitude	Survey Longitude	AWOIS Item
1.1	Obstruction	5.99 m	38° 47' 54.0" N	077° 02' 15.8" W	---
1.2	Obstruction	5.02 m	38° 32' 52.6" N	077° 14' 40.3" W	---
1.3	Obstruction	5.87 m	38° 32' 22.2" N	077° 15' 51.0" W	---
1.4	Obstruction	2.86 m	38° 27' 38.0" N	077° 16' 19.6" W	---
1.5	Obstruction	5.03 m	38° 25' 50.8" N	077° 16' 20.8" W	---
1.6	Obstruction	5.58 m	38° 24' 54.7" N	077° 16' 17.8" W	---

1 - DtoN

1.1) 19' in charted 26'

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 47' 54.0" N, 077° 02' 15.8" W

Least Depth: 5.99 m (= 19.65 ft = 3.274 fm = 3 fm 1.65 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.987 m ;**TVU (TPEv)** ±1.566 m

Timestamp: 2007-171.16:23:43.094 (06/20/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-171 / 171-1623

Profile/Beam: 456/145

Charts Affected: 12285_14, 12289_1, 12285_15, 12280_1

Remarks:

Feature imaged with 200% Klein 5000 SSS and developed with Reson 8125 MBES. The least depth on the feature is 5.85 meters (19 feet) in waters charted at 26 feet. The dimensions of the feature are approximately 3.5 meters wide by 1.2 meters high.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-171/171-1623	456/145	0.00	000.0	Primary
h11693/bh_s5501_klein5000_sss100/2007-169/003_1707	0004	0.91	298.0	Secondary (grouped)
h11693/bh_s5501_klein5000_sss200/2007-169/003_1743	0001	11.36	172.6	Secondary (grouped)

Hydrographer Recommendations

Hydrographer recommends charting an obstruction at position 38°47'53.987"N , -077°02'15.824"W with a least depth of 5.85 meters. Concur

Cartographically-Rounded Depth (Affected Charts):

19ft (12285_14, 12289_1, 12285_15, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20070620

SORIND - US,US,nsurf,H11693

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

VALSOU - 5.988 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Feature Images

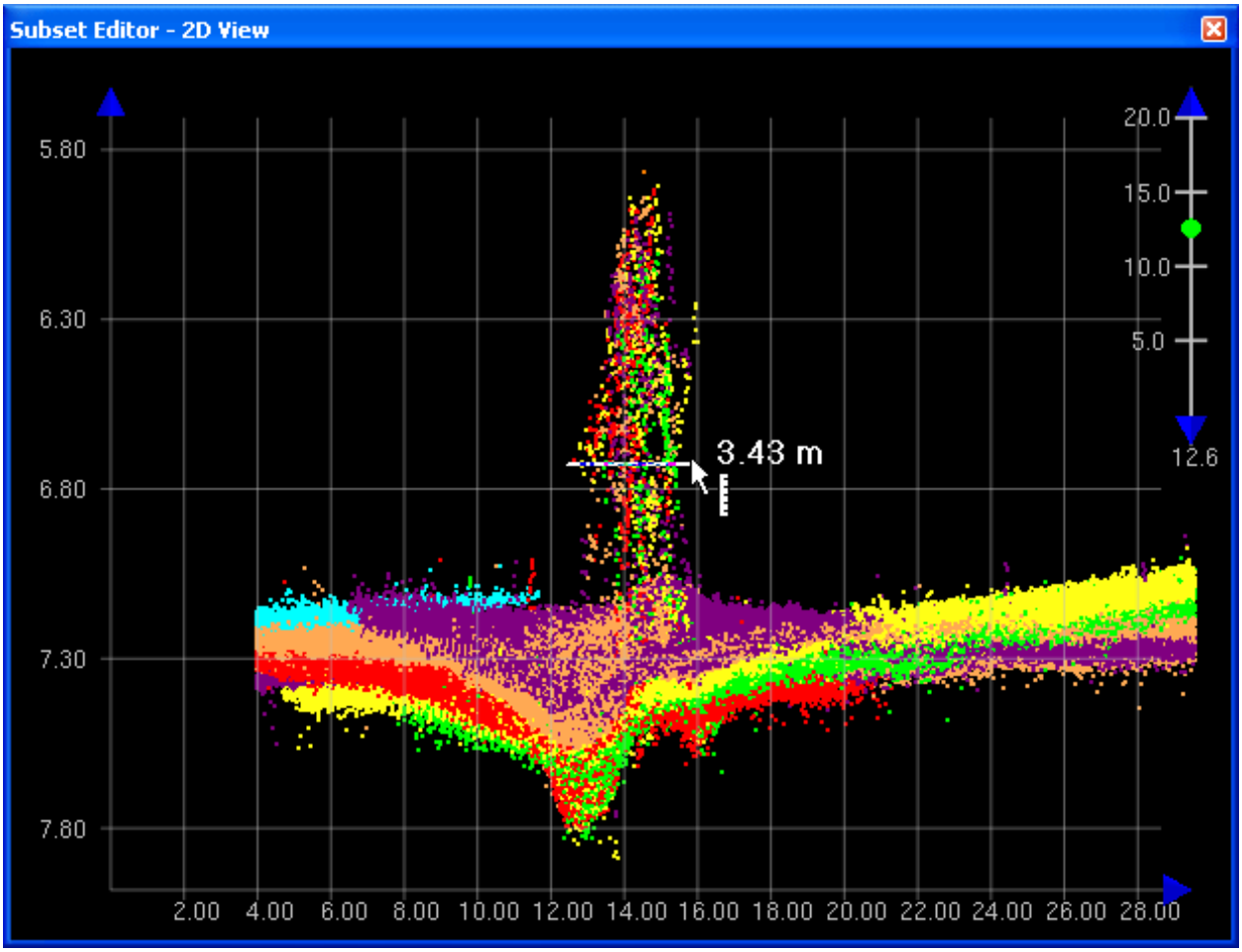

Figure 1.1.1

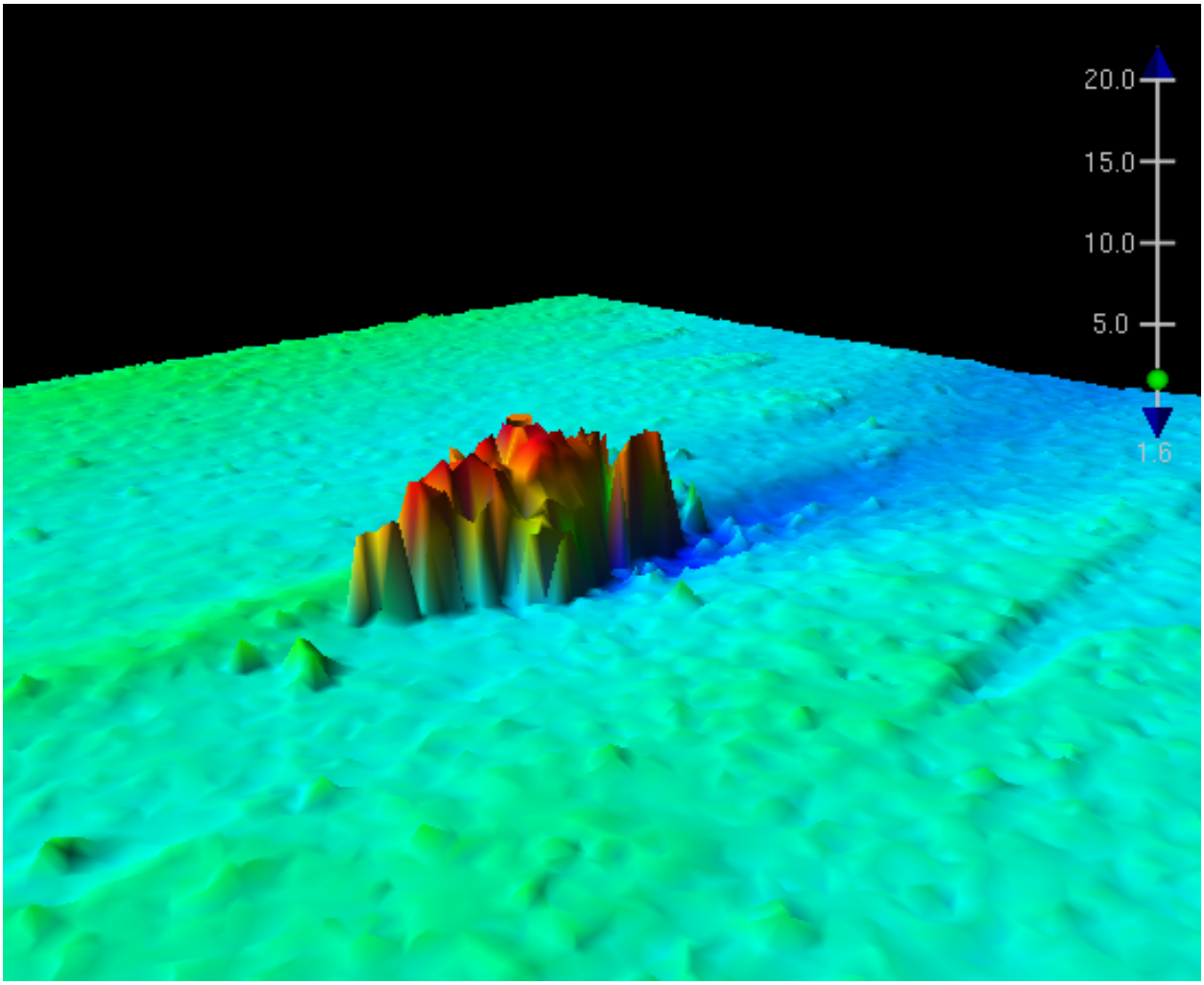

Figure 1.1.2 3D Points

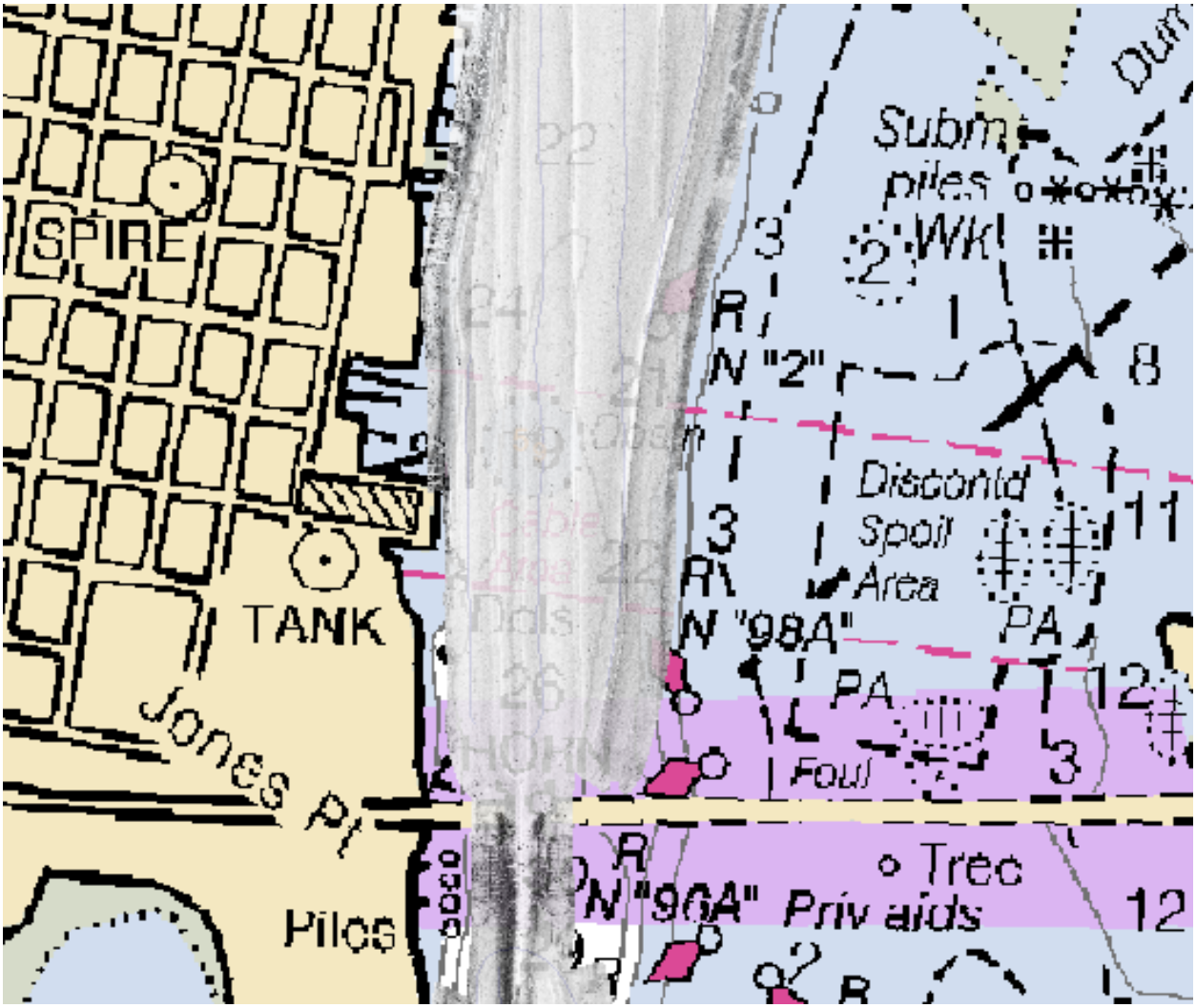
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Figure 1.1.3

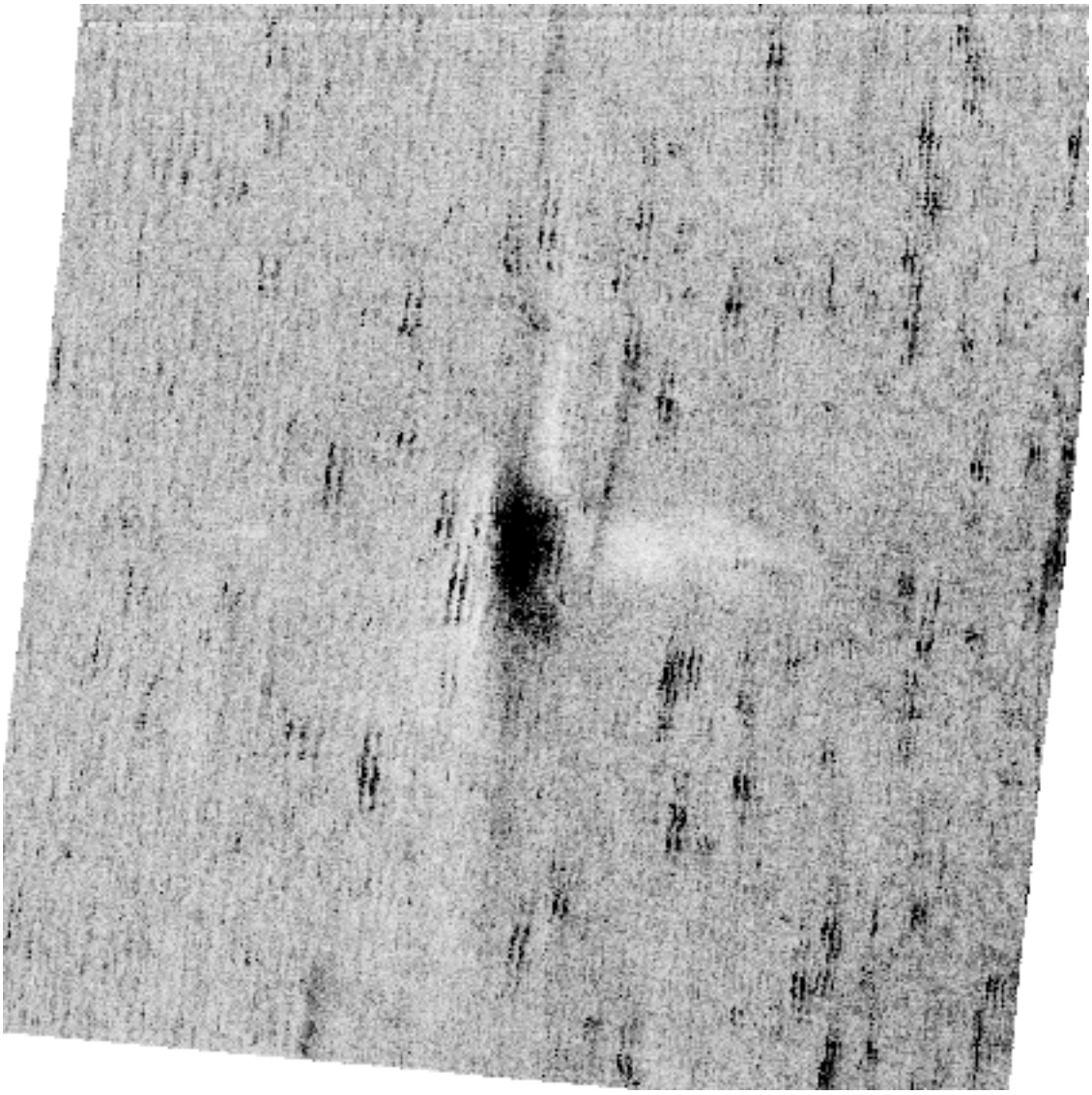


Figure 1.1.4

1.2) 16' in charted 23'

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 32' 52.6" N, 077° 14' 40.3" W

Least Depth: 5.02 m (= 16.47 ft = 2.745 fm = 2 fm 4.47 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.982 m ;**TVU (TPEv)** ±1.570 m

Timestamp: 2007-165.15:11:16.142 (06/14/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-165 / 165-1510

Profile/Beam: 391/55

Charts Affected: 12288_1, 12285_9, 12280_1

Remarks:

Contact located near the main channel at position 38°32'52.592" , -077°14'40.272" was reviewed in CARIS SSS editor and marked for development with MBES. Feature imaged with 200% Klein 5000 SSS and developed with a Reson 8125. Least depth on feature at 4.80 meters (15.75 feet) in surrounding waters charted at 23 feet deep. Observed depths in this area are in good agreement (1-2 feet) of the charted depths. The dimensions of the feature are approximately 18.65 meters wide by 6.56 meters high. Item to be submitted as a DtoN -VP

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-165/165-1510	391/55	0.00	000.0	Primary
h11693/bh_s5501_klein5000_sss200/2007-156/091_1827	0001	16.35	044.1	Secondary (grouped)
h11693/bh_s5501_klein5000_sss200/2007-156/091_1827	0002	16.64	080.8	Secondary (grouped)
h11693/bh_s5501_klein5000_sss100/2007-156/062_1634	0001	18.25	182.6	Secondary (grouped)
h11693/bh_s5501_klein5000_sss200/2007-156/091_1827	0003	22.22	102.4	Secondary (grouped)

Hydrographer Recommendations

Hydrographer recommends charting an obstruction at position 38°32'52.600"N , 077°14'40.271"W (304401.16E,4269001.63N) with a least depth of 4.80 meters or 16 feet using NOAA rounding parameters. Concur

Cartographically-Rounded Depth (Affected Charts):

16ft (12288_1, 12285_9, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes:

QUASOU - 6:least depth known

SORDAT - 20070614

SORIND - US,US,nsurf,H11693

STATUS - 1:permanent

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

VALSOU - 5.020 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Feature Images

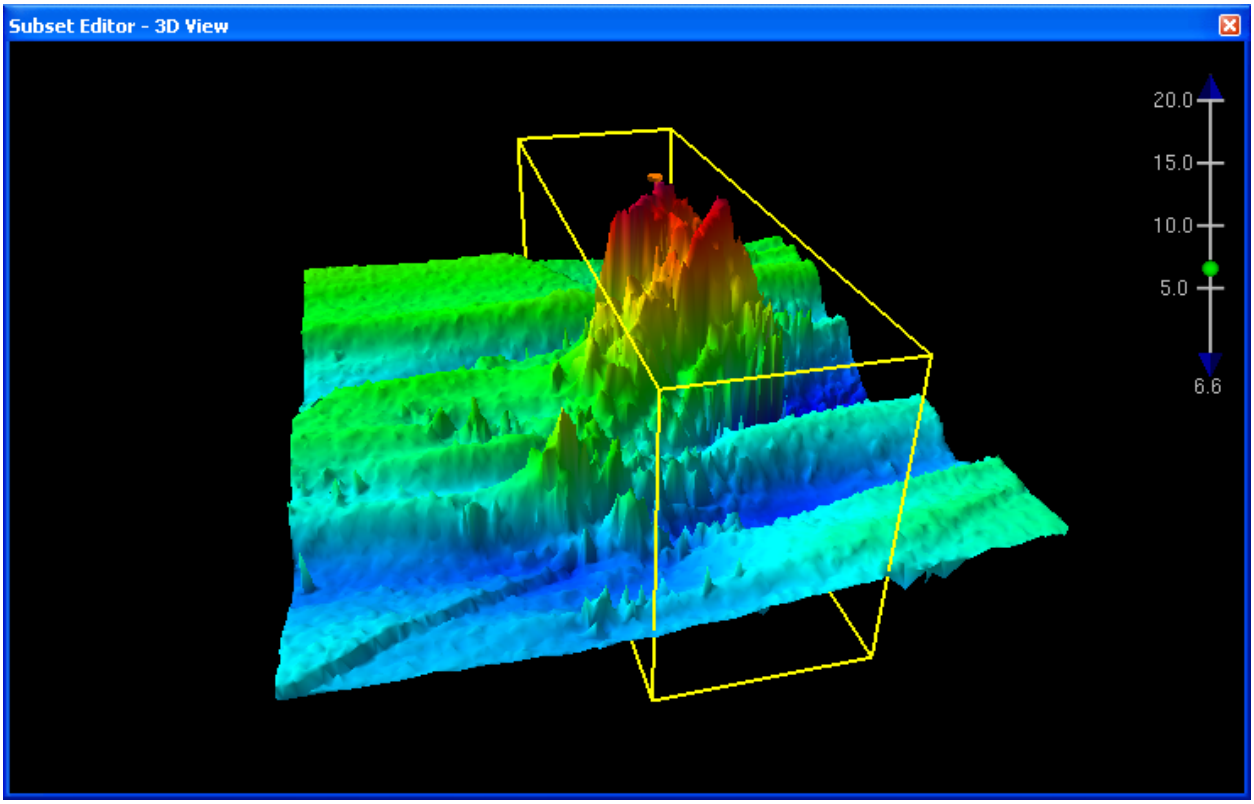
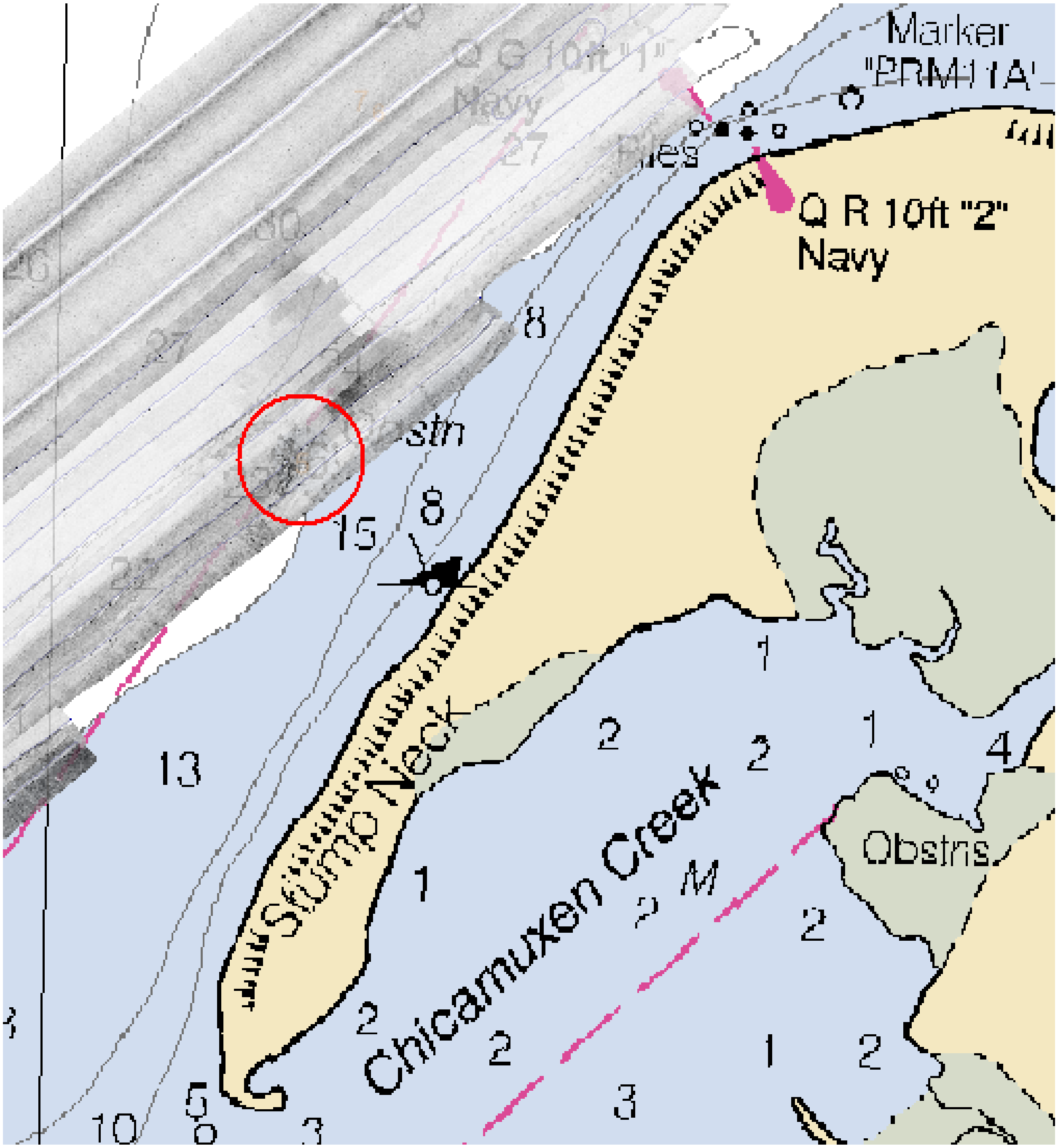


Figure 1.2.1 3D Points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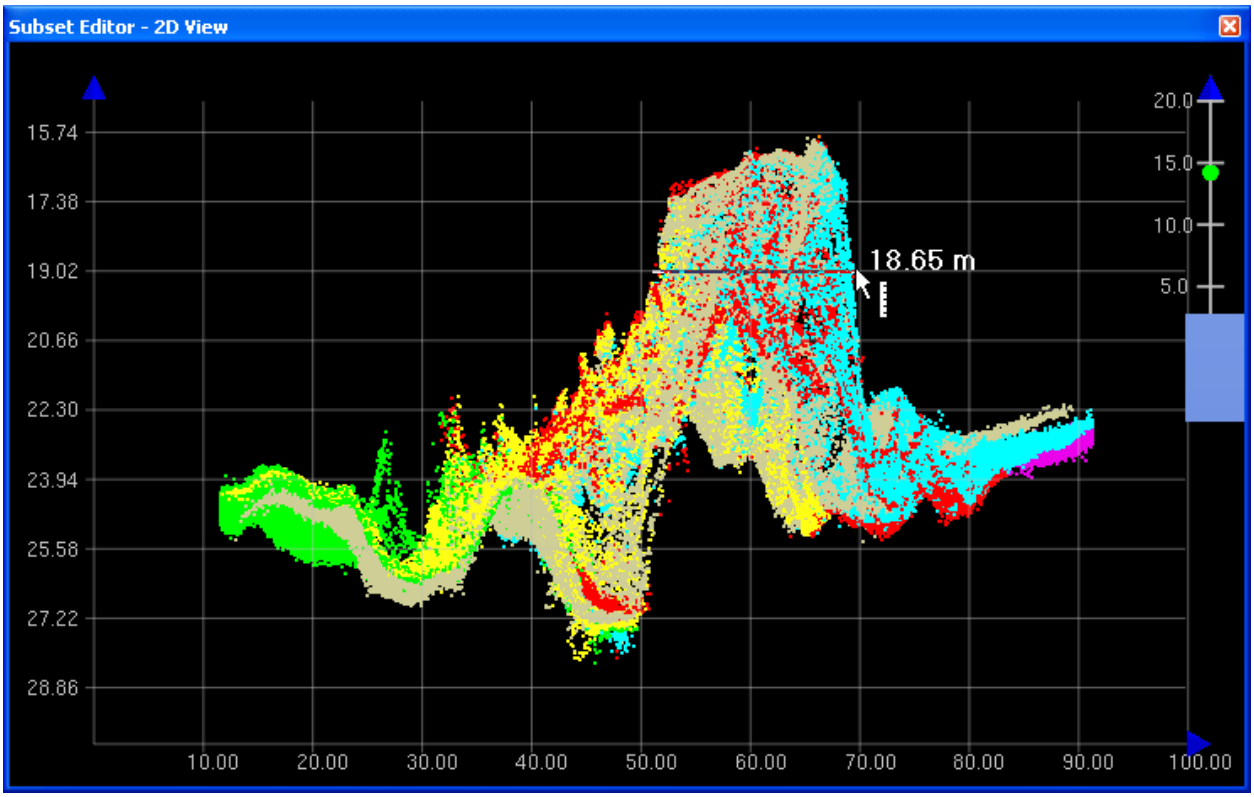
Obstn
Stump Neck
Chicamuxen Creek
Obstns

Figure 1.2.2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5.0

Figure 1.2.3

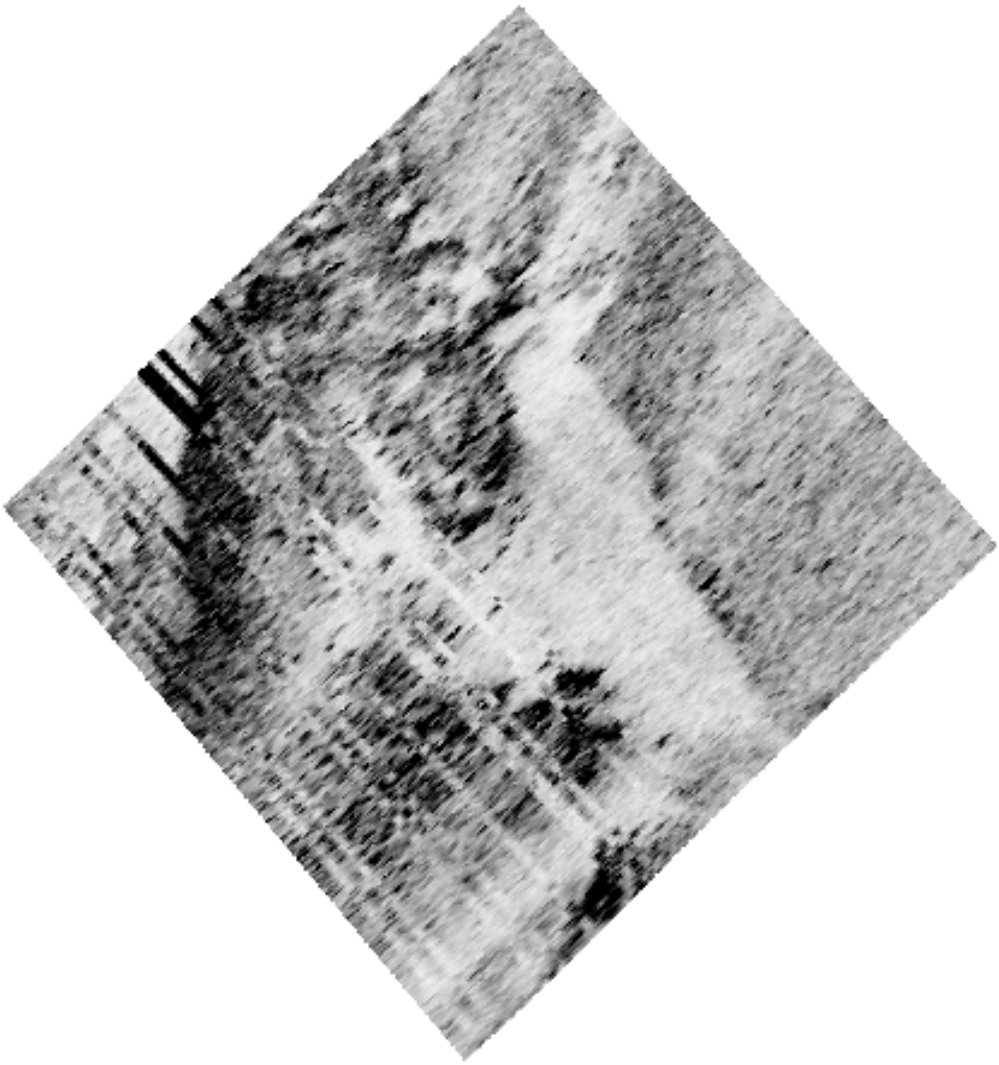


Figure 1.2.4

1.3) 18' in charted 27'

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 32' 22.2" N, 077° 15' 51.0" W

Least Depth: 5.87 m (= 19.26 ft = 3.210 fm = 3 fm 1.26 ft)

TPU (±1.96σ): **THU (TPEh)** ±2.001 m ;**TVU (TPEv)** ±1.588 m

Timestamp: 2007-165.14:35:34.851 (06/14/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-165 / 165-1435

Profile/Beam: 353/228

Charts Affected: 12288_1, 12285_9, 12280_1

Remarks:

2007-165:Contact lies 100 meters from the charted overhead power cable "Priv aids". Feature imaged with 200% Klein 5500 SSS and developed with a Reson 8125. Least depth of feature at 5.58 meters (18.29 feet) in surrounding waters charted at 27 feet deep. The dimensions of the feature are approximately 2.04 meters wide by 2.20 meters high. Despite the proximity to charted powerline towers, the contact is located in an area frequented by tug and barge traffic and therefore, the item should be submitted as a DtoN - vp

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-165/165-1435	353/228	0.00	000.0	Primary
h11693/bh_s5501_klein5000_sss100/2007-156/083_1457	0001	14.80	048.6	Secondary
h11693/bh_s5501_klein5000_sss100/2007-156/065_1437	0004	22.42	231.2	Secondary

Hydrographer Recommendations

Hydrographer recommends charting an obstruction at position 38°32'22.185"N , 077°15'50.973"W (302666.38E,4268105.95N) with a least depth of 5.58 meters (19 feet using NOAA rounding). Concur

Cartographically-Rounded Depth (Affected Charts):

19ft (12288_1, 12285_9, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20070614

SORIND - US,US,nsurf,H11693

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

VALSOU - 5.870 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Feature Images

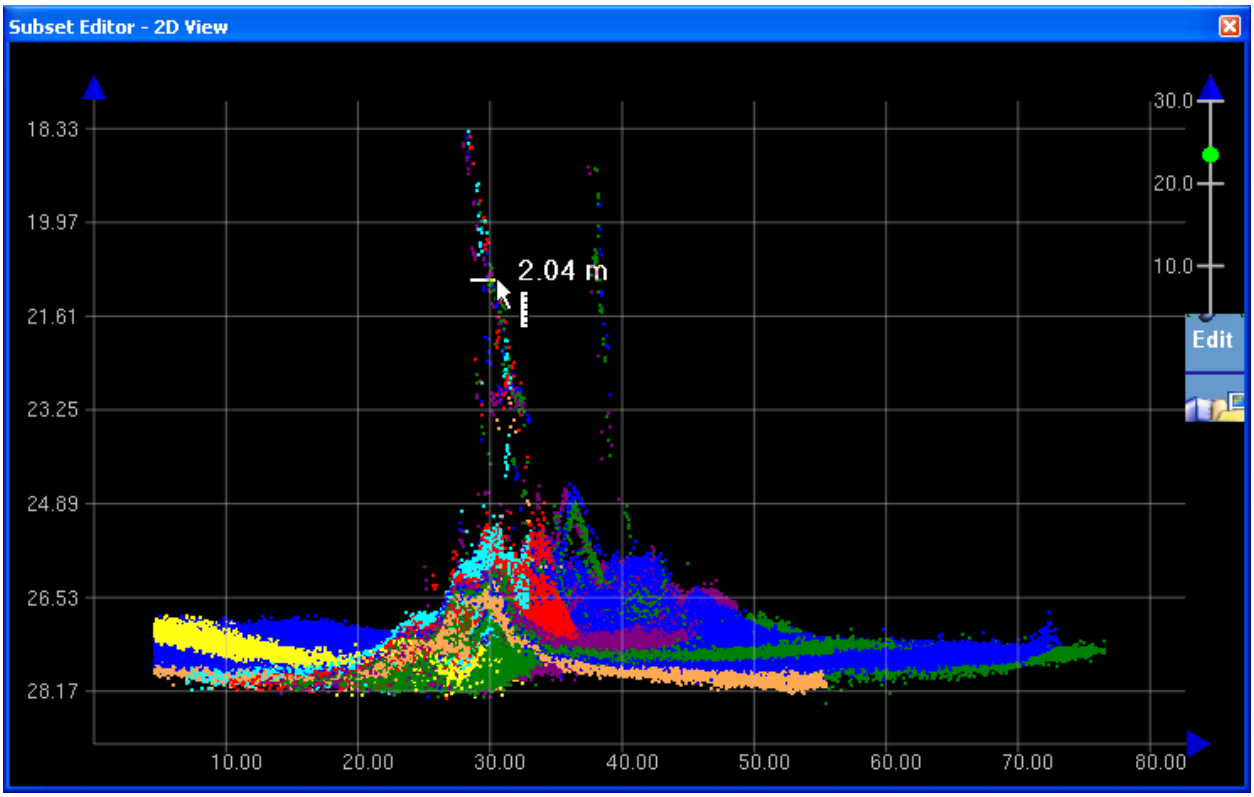


Figure 1.3.1

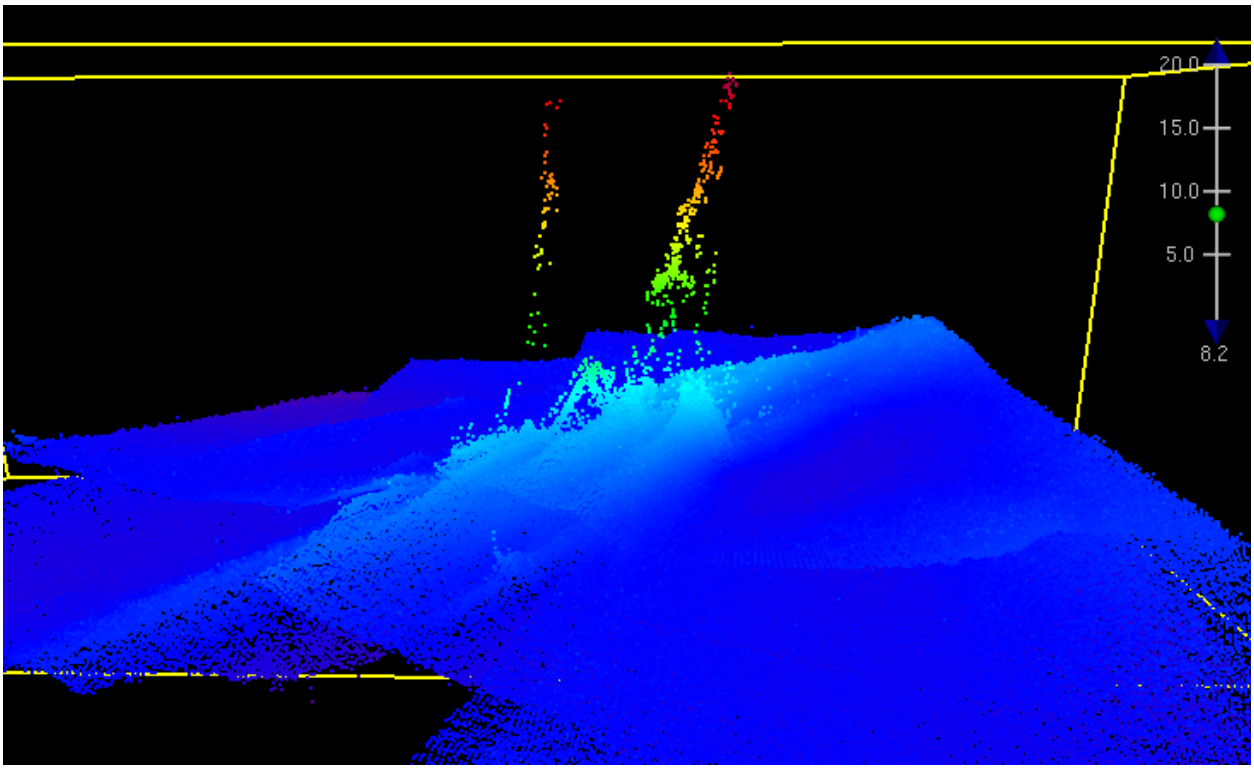


Figure 1.3.2

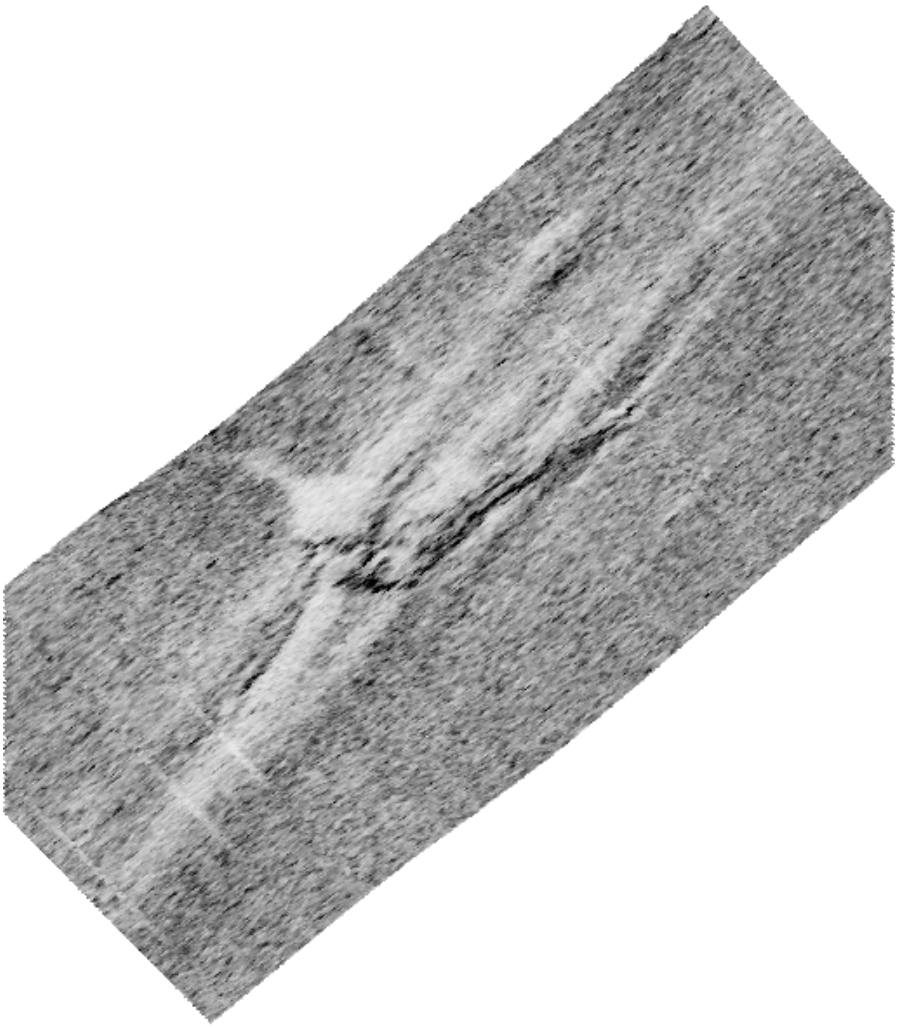


Figure 1.3.3

1.4) 9' in charted 24'

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 27' 38.0" N, 077° 16' 19.6" W

Least Depth: 2.86 m (= 9.39 ft = 1.565 fm = 1 fm 3.39 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.971 m ;**TVU (TPEv)** ±1.572 m

Timestamp: 2007-164.17:33:47.708 (06/13/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-164 / 164-1733

Profile/Beam: 173/3

Charts Affected: 12288_1, 12285_9, 12280_1

Remarks:

2007_164:Contact reviewed in CARIS SSS editor and marked for development with MBES. Feature imaged with 200% Klein 5000 SSS and developed with a Reson 8125. Least depth on feature is 2.69 meters (8.82 feet) in surrounding waters charted at 24 feet deep. The dimensions of the feature are approximately 3.23 meters wide by 5.31 meters high. Due to the proximity to the main channel, the item should be submitted as a DtoN -VP

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-164/164-1733	173/3	0.00	000.0	Primary
h11693/nrt7_s3004_c3d_100/2007-162/162-1353	0001	9.43	162.4	Secondary

Hydrographer Recommendations

Hydrographer recommends charting an obstruction at position 38°27'38.011"N , 077°16'19.609"W (301756.65E,4259362.51N) with a least depth of 2.69 meters (9 feet using NOAA rounding). Concur

Cartographically-Rounded Depth (Affected Charts):

9ft (12288_1, 12285_9, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20070613

SORIND - US,US,nsurf,H11693

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

VALSOU - 2.862 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Feature Images

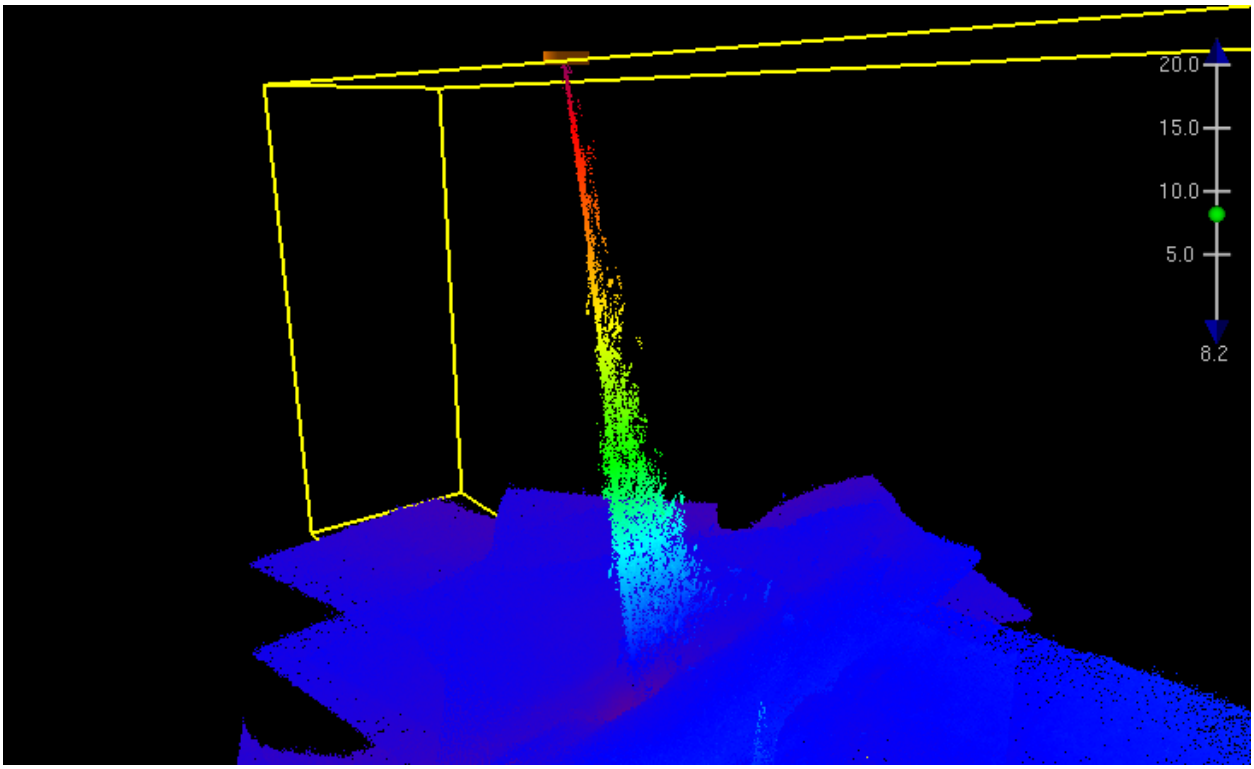


Figure 1.4.1

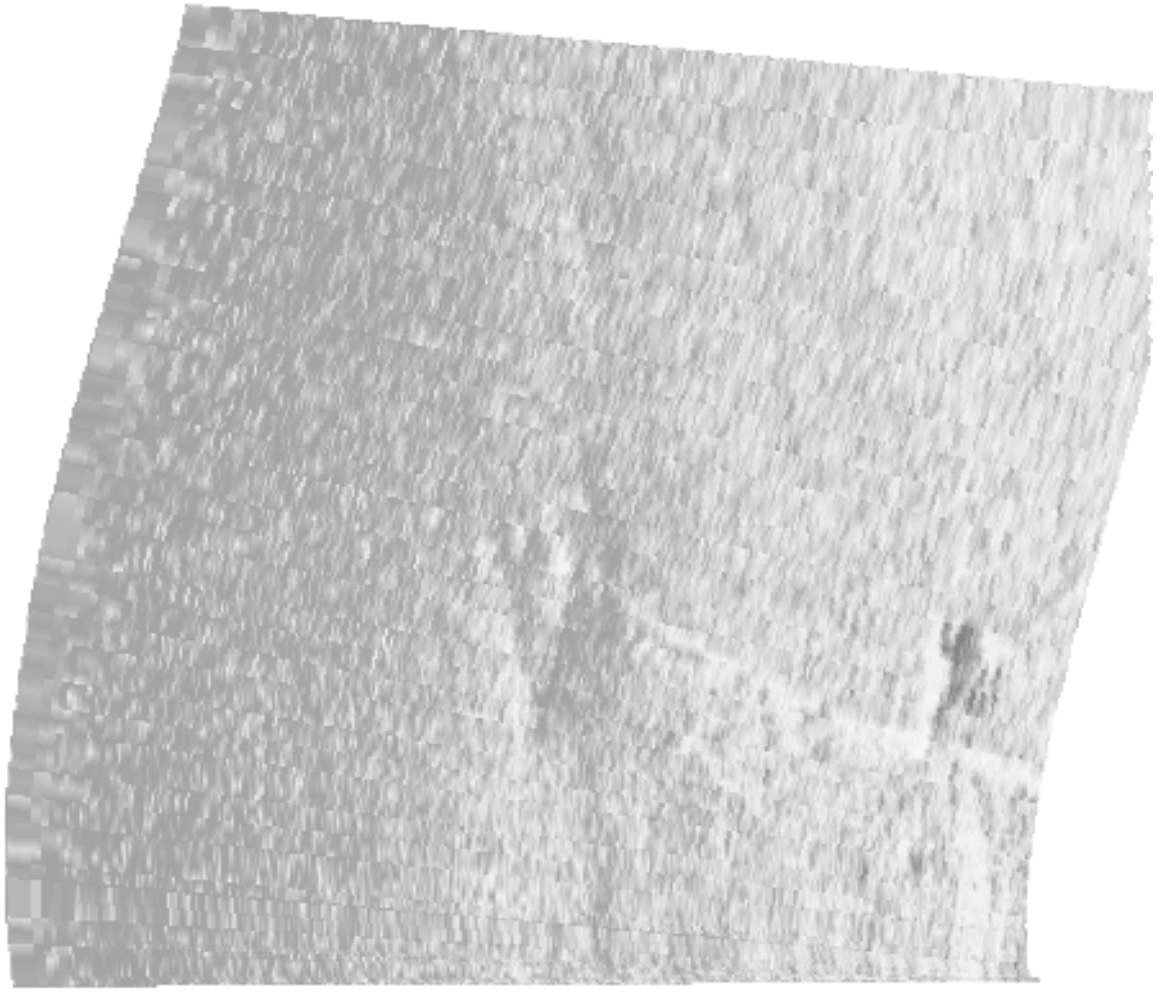
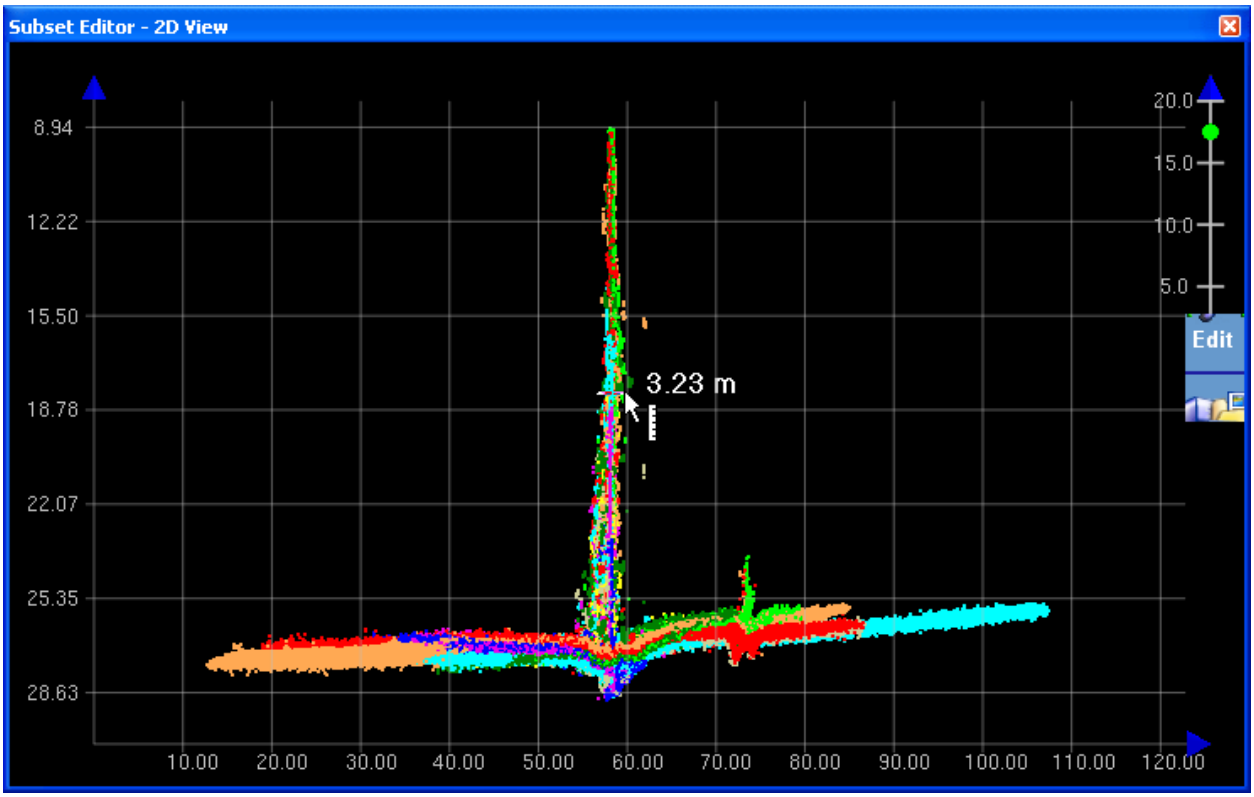


Figure 1.4.2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Edit

Figure 1.4.3

1.5) 15' in charted 21'

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 25' 50.8" N, 077° 16' 20.8" W

Least Depth: 5.03 m (= 16.49 ft = 2.748 fm = 2 fm 4.49 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.976 m ;**TVU (TPEv)** ±1.567 m

Timestamp: 2007-164.17:02:15.743 (06/13/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-164 / 164-1702

Profile/Beam: 224/166

Charts Affected: 12288_1, 12285_9, 12280_1

Remarks:

Feature imaged with 200% Klein 5000 SSS and developed with a Reson 8125. Least depth on feature is 4.79 meters (15.73 feet) in surrounding waters charted at 20 - 21 feet deep. The dimensions of the feature are approximately 10.66 meters wide by 1.27 meters high. Due to the proximity to the main channel, the item should be submitted as a DtoN -VP

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-164/164-1702	224/166	0.00	000.0	Primary
h11693/nrt7_s3004_c3d_100/2007-156/156-1552	0001	6.98	053.4	Secondary

Hydrographer Recommendations

Hydrographer recommends charting an obstruction at position 38°25'50.784"N , 077°16'20.780"W (301646.70E,4256057.64N) with a least depth of 4.79 meters (16 feet using NOAA rounding). Concur

Cartographically-Rounded Depth (Affected Charts):

16ft (12288_1, 12285_9, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20070613

SORIND - US,US,nsurf,H11693

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

VALSOU - 5.026 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Geo object 2: Sounding (SOUNDG)

Attributes: EXPSOU - 2:shoaler than range of depth of the surrounding depth area

QUASOU - 1:depth known

SORDAT - 20070613

SORIND - US,US,nsurf,H11693

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

VERDAT - 12:Mean lower low water

Feature Images

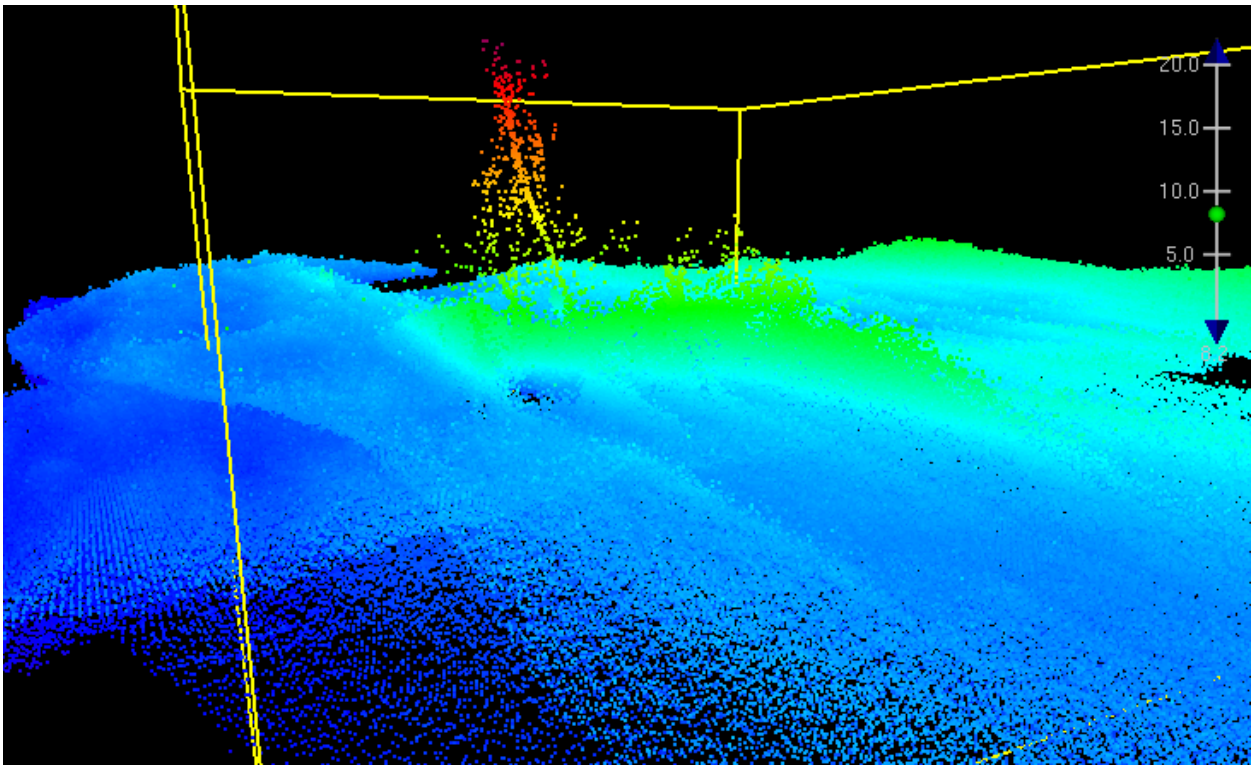


Figure 1.5.1

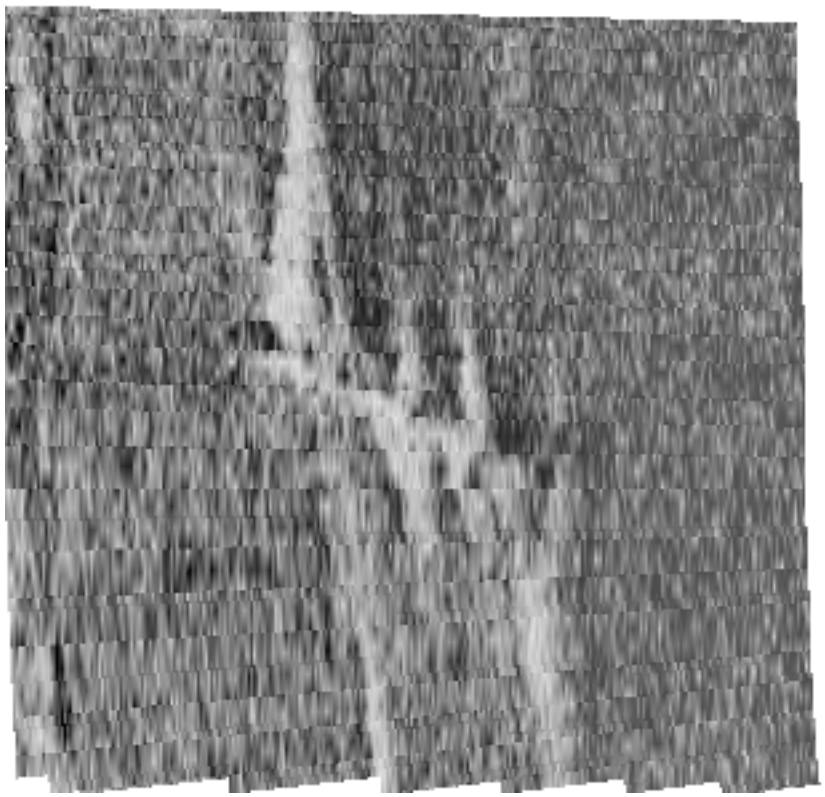


Figure 1.5.2

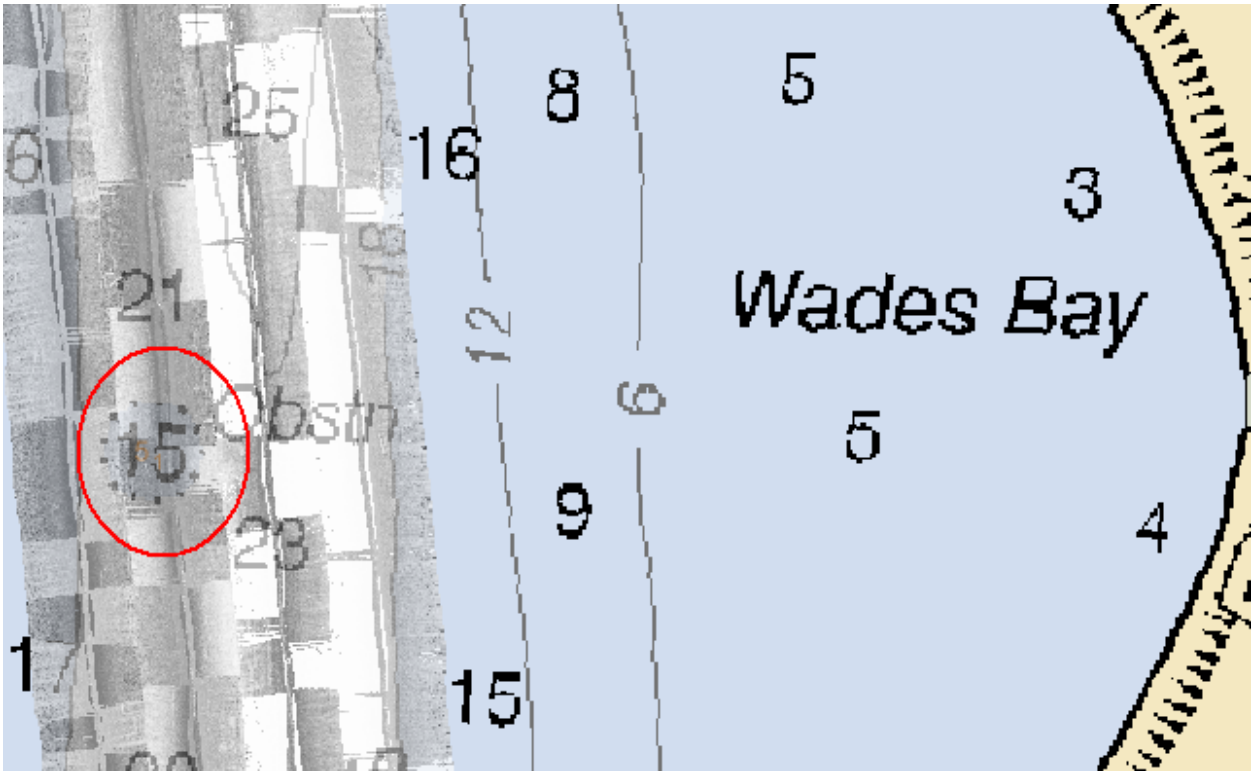
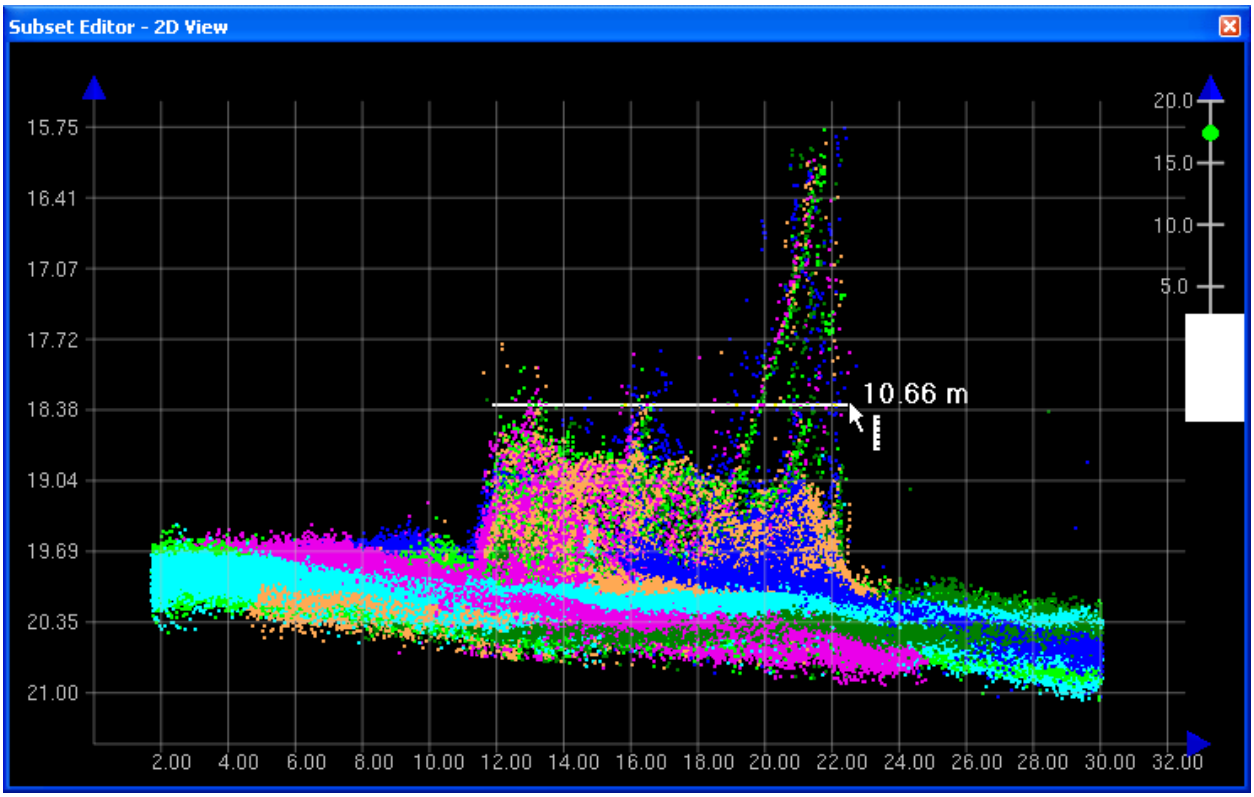


Figure 1.5.3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20.0
15.0
10.0
5.0
10.66 m

Figure 1.5.4

1.6) 18' in charted 23'

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 24' 54.7" N, 077° 16' 17.8" W

Least Depth: 5.58 m (= 18.29 ft = 3.049 fm = 3 fm 0.29 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.987 m ;**TVU (TPEv)** ±1.576 m

Timestamp: 2007-164.16:48:41.059 (06/13/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-164 / 164-1648

Profile/Beam: 483/28

Charts Affected: 12288_1, 12285_9, 12280_1

Remarks:

Feature imaged with 200% Klein 5000 SSS and developed with a Reson 8125. Least depth on feature is 5.42 meters (17.77 feet) in surrounding waters charted at 23 feet deep. The dimensions of the feature are approximately 1.17 meters wide by 1.86 meters high. Due to the proximity to the main channel, the item should be submitted as a DtoN-VP

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-164/164-1648	483/28	0.00	000.0	Primary
h11693/nrt7_s3004_c3d_100/2007-162/162-1303	0001	3.72	314.3	Secondary

Hydrographer Recommendations

Hydrographer recommends charting an obstruction at position 38°24'54.709"N , 077°16'17.808"W (301676.17E,4254327.18N) with a least depth of 5.42 meters (24 feet using NOAA rounding). Concur

Cartographically-Rounded Depth (Affected Charts):

18ft (12288_1, 12285_9, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20070613

SORIND - US,US,nsurf,H11693

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

VALSOU - 5.576 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Feature Images

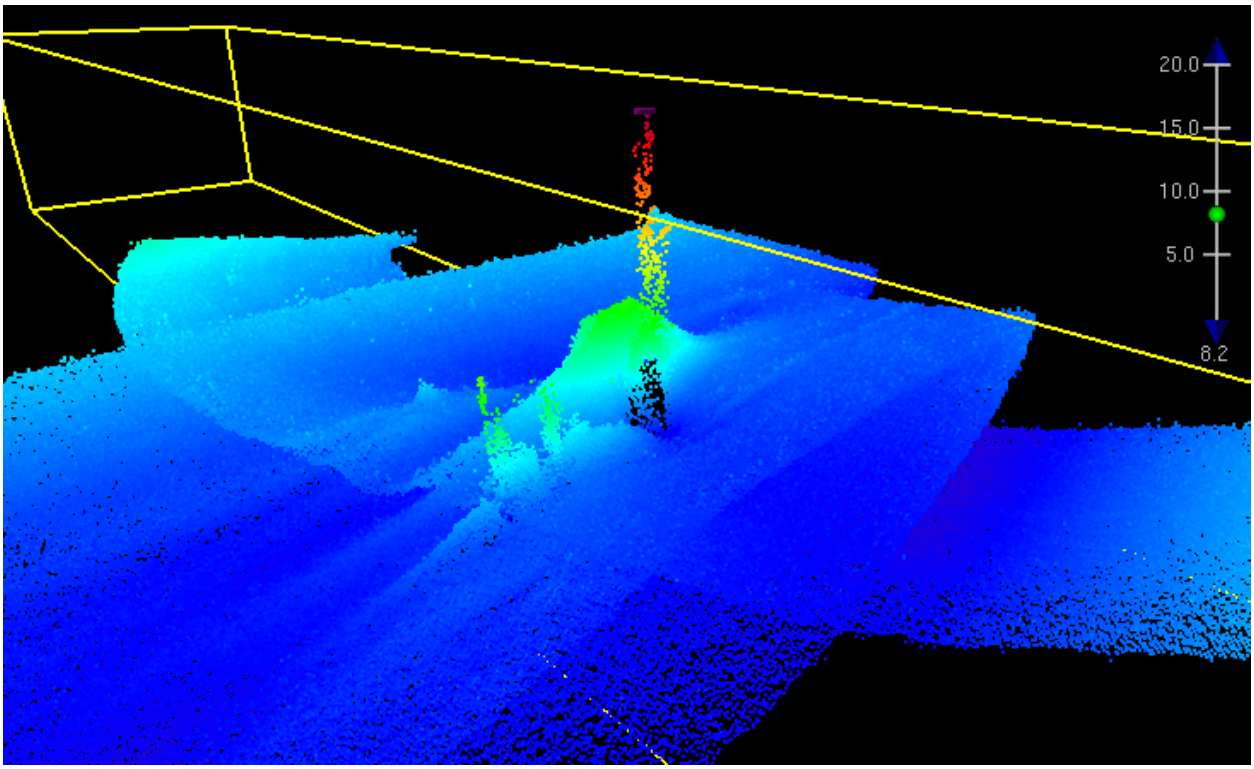


Figure 1.6.1

Figure 1.6.2

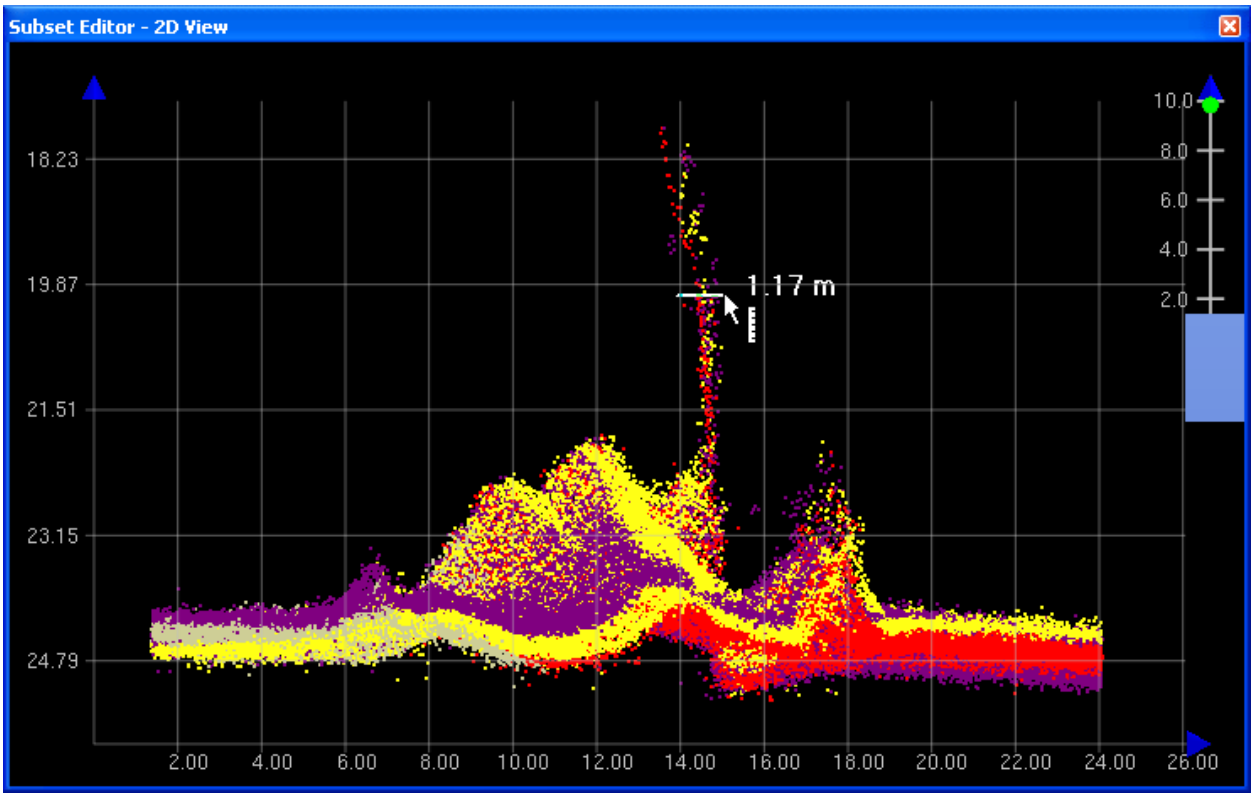


Figure 1.6.3

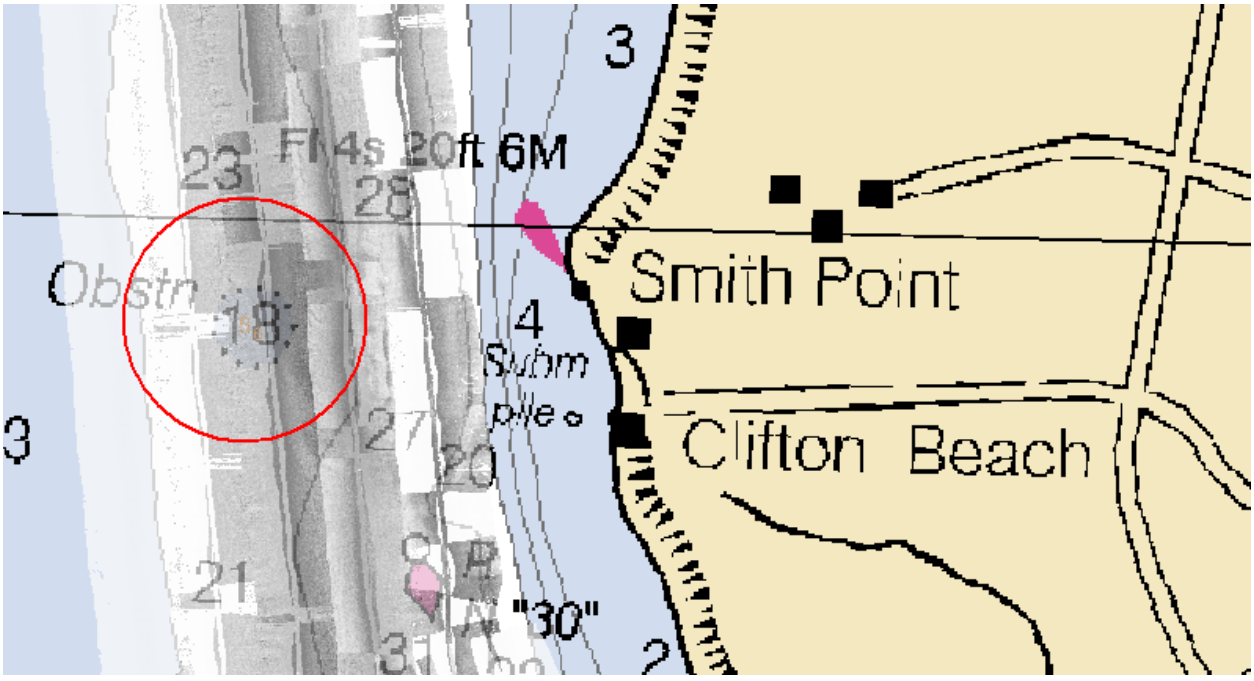


Figure 1.6.4

H11693 AHB_Feature_Report_new

Registry Number: H11693

State: Maryland

Locality: Potomac River, Maryland DC

Sub-locality: Central Potomac River

Project Number: OPR-E300-BH-SPOT-07

Survey Dates: 05/30/2007 - 04/15/2009

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
12286	30th	08/01/2006	1:40,000 (12286_1)	USCG LNM: 04/29/2008 (05/20/2008) NGA NTM: None (05/24/2008)
12288	20th	10/01/2007	1:40,000 (12288_1)	USCG LNM: 04/29/2008 (05/20/2008) NGA NTM: 07/20/1996 (05/24/2008)
12289	49th	06/01/2005	1:40,000 (12289_1)	USCG LNM: 06/19/2007 (05/20/2008) NGA NTM: 07/20/1996 (05/24/2008)
12285	39th	03/01/2008	1:80,000 (12285_9) 1:80,000 (12285_15) 1:80,000 (12285_1) 1:40,000 (12285_8) 1:40,000 (12285_14)	[L]NTM: ?
12280	8th	03/01/2008	1:200,000 (12280_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	Private AtoN	SSS	[None]	38° 32' 10.0" N	077° 15' 46.5" W	---
1.2	Charted Wreck	Wreck	[None]	38° 28' 59.2" N	077° 16' 28.1" W	---
1.3	Dolphins	Pile	[None]	38° 48' 37.1" N	077° 02' 14.1" W	---
1.4	25' OBSTRN	Obstruction	7.71 m	38° 46' 13.7" N	077° 01' 56.4" W	---
1.5	DtoN 19-ft Obstrn Retain as charted	Obstruction	5.99 m	38° 47' 54.0" N	077° 02' 15.8" W	---
1.6	DtoN 16-ft Obstrn retain as charted	Obstruction	5.02 m	38° 32' 52.6" N	077° 14' 40.3" W	---
1.7	DtoN 18-ft Obstrn: Revise to 19-ft Obstrn	Obstruction	5.87 m	38° 32' 22.2" N	077° 15' 51.0" W	---
1.8	17-Ft Obstrn	Obstruction	5.03 m	38° 25' 50.8" N	077° 16' 20.8" W	---

1.9	DtoN 18-ft Obstrn: Retain as charted	Obstruction	5.58 m	38° 24' 54.7" N	077° 16' 17.8" W	---
1.10	16' OBSTRN	Obstruction	4.89 m	38° 23' 32.4" N	077° 07' 53.2" W	---
1.11	26' Obstrn in observed 30'	Obstruction	8.11 m	38° 23' 12.6" N	077° 08' 23.8" W	---
1.12	8' in observed 10'	Obstruction	2.31 m	38° 47' 20.0" N	077° 02' 20.0" W	---
1.13	AWOIS #13960 19-ft Obstrn Retain as charted	Obstruction	5.12 m	38° 12' 44.4" N	076° 41' 36.9" W	13960
1.14	DtoN Revise 9-ft Obstrn (subm pile) : Chart 8-ft Obstrn 586/33	Shoal	2.80 m	38° 27' 38.0" N	077° 16' 19.6" W	---
1.15	20-ft Subm Pile AWOIS # 13952 1754/98	Obstruction	6.15 m	38° 46' 14.5" N	077° 01' 53.2" W	---
1.16	20-ft Subm Pile AWOIS # 13952 1281/68	Obstruction	6.31 m	38° 46' 11.7" N	077° 01' 53.3" W	---
1.17	26-ft Subm Pile AWOIS #13592 149/161	Obstruction	8.02 m	38° 46' 17.0" N	077° 01' 54.8" W	---
1.18	Private AtoN	GP	[None]	38° 32' 21.9" N	077° 15' 57.2" W	---

1 - AHB_Report

1.1) Private AtoN

Survey Summary

Survey Position: 38° 32' 10.0" N, 077° 15' 46.5" W

Least Depth: [None]

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

Timestamp: 2007-157.05:25:27 (06/06/2007)

Survey Line: h11693 / bh_s5501_klein5000_sss100 / 2007-156 / 062_1643

Contact/Point: 0001/1

Charts Affected: 12288_1, 12285_9, 12280_1

Remarks:

cable area already charted possible positioning -RES

Agreed, retain as charted.-VP

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/bh_s5501_klein5000_sss100/2007-156/062_1643	0001	0.00	000.0	Primary
h11693/bh_s5501_klein5000_sss100/2007-156/092_1654	0001	38.34	037.3	Secondary

Hydrographer Recommendations

Retain as charted position approximate, a static position was not obtained due to the focus of the survey.

S-57 Data

Geo object 1: Beacon, special purpose/general (BCNSPP)

Attributes:

BCNSHP - 3:beacon tower

CATSPM - 6:cable mark

COLOUR - 3:red

CONRAD - 1:radar conspicuous

SORDAT - 20070606

SORIND - US,US,survy,H11693

STATUS - 1:permanent

Office Notes

Concur.

Feature Images

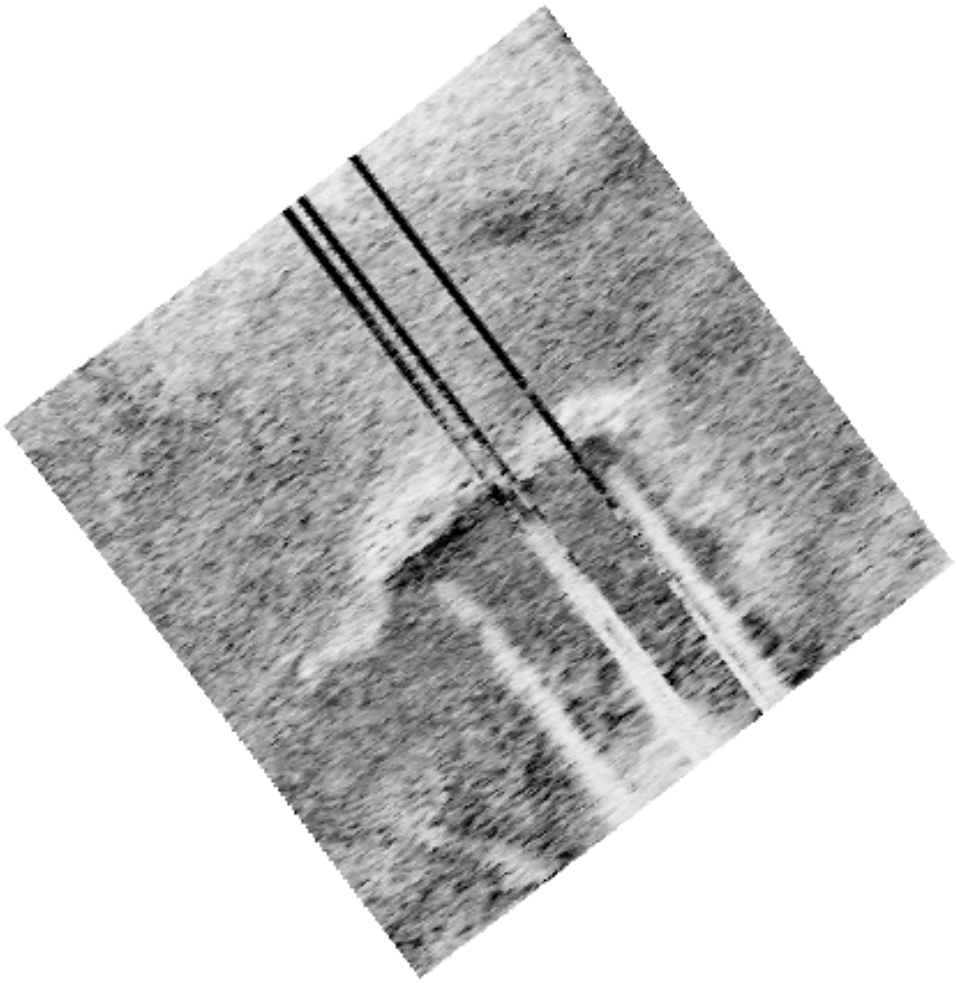


Figure 1.1.1

1.2) Charted Wreck

Survey Summary

Survey Position: 38° 28' 59.2" N, 077° 16' 28.1" W

Least Depth: [None]

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

Timestamp: 2007-164.07:59:09 (06/13/2007)

Survey Line: h11693 / bh_s5501_klein5000_sss200 / 2007-164 / 261_1454

Contact/Point: 0001/1

Charts Affected: 12288_1, 12285_9, 12280_1

Remarks:

Charted wreck not seen via SSS, however a wreck was observed on shore.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/bh_s5501_klein5000_sss200/2007-164/261_1454	0001	0.00	000.0	Primary

Hydrographer Recommendations

Data inconclusive, further investigation was not performed due to unnavigable waters. Retain as charted.

S-57 Data

Geo object 1: Wreck (WRECKS)

Attributes: CATWRK - 3:distributed remains of wreck

SORDAT - 20070613

SORIND - US, US,survy, H11693

VERDAT - 12:Mean lower low water

Office Notes

Concur.

Feature Images

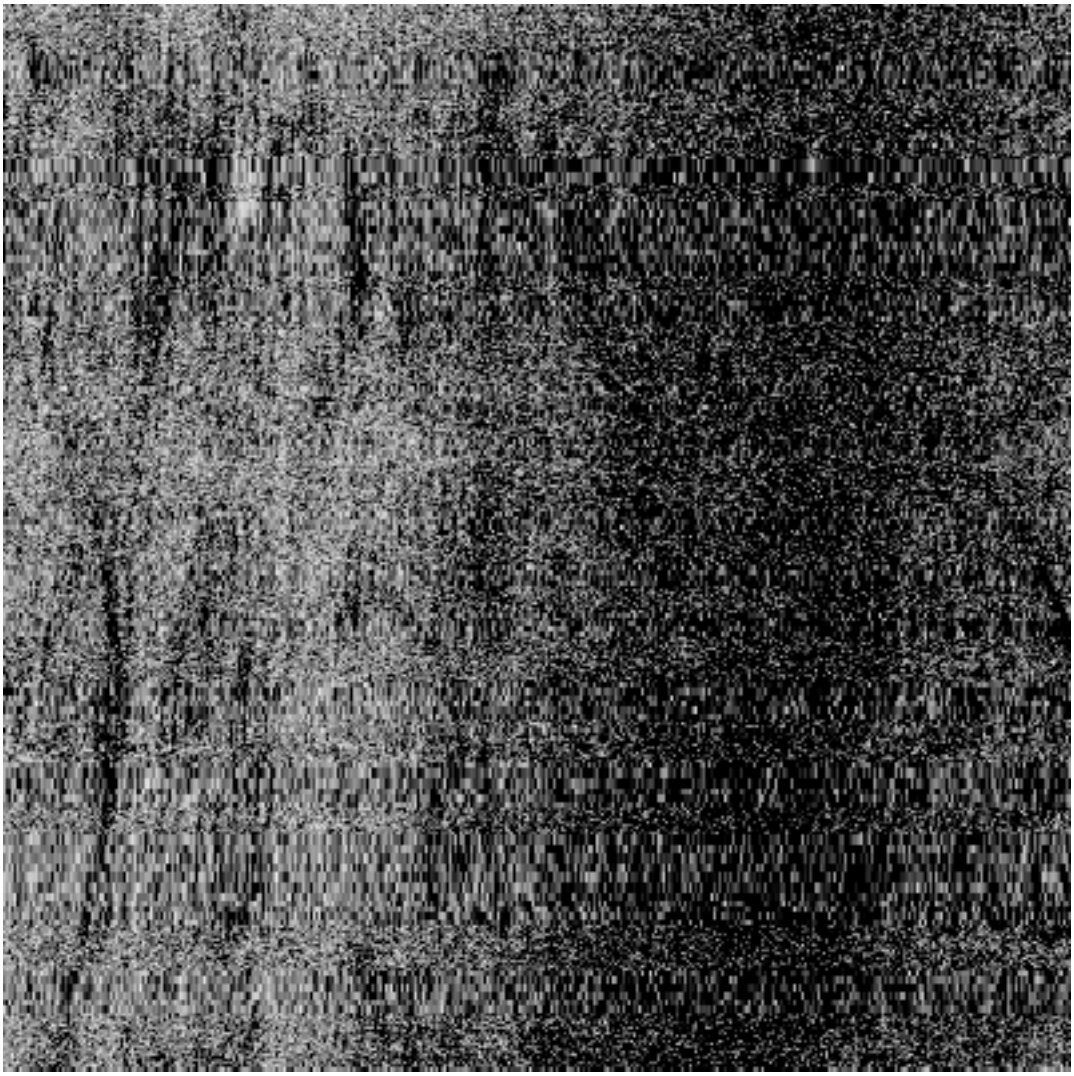


Figure 1.2.1

1.3) Dolphins

Survey Summary

Survey Position: 38° 48' 37.1" N, 077° 02' 14.1" W

Least Depth: [None]

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

Timestamp: 2007-170.05:13:10 (06/19/2007)

Survey Line: h11693 / bh_s5501_klein5000_sss100 / 2007-169 / 004_1637

Contact/Point: 0002/1

Charts Affected: 12285_14, 12289_1, 12280_1

Remarks:

Dols observed on SSS record within proximity of charted "Ruins Dols", subsequent investigation with MBES confirmed their existence.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/bh_s5501_klein5000_sss100/2007-169/004_1637	0002	0.00	000.0	Primary
h11693/bh_s5501_klein5000_sss100/2007-169/004_1637	0003	20.60	162.0	Secondary (grouped)

Hydrographer Recommendations

Hydrographer recommends extending row of Dols end point to 38.81030100N , 077.03724390W (323113.32E , 4297697.24N).

S-57 Data

Geo object 1: Pile (PILPNT)

Attributes: CATPLE - 3:post

CONVIS - 1:visual conspicuous

SORDAT - 20070618

SORIND - US, US,survy, H11693

Office Notes

Concur.

Feature Images

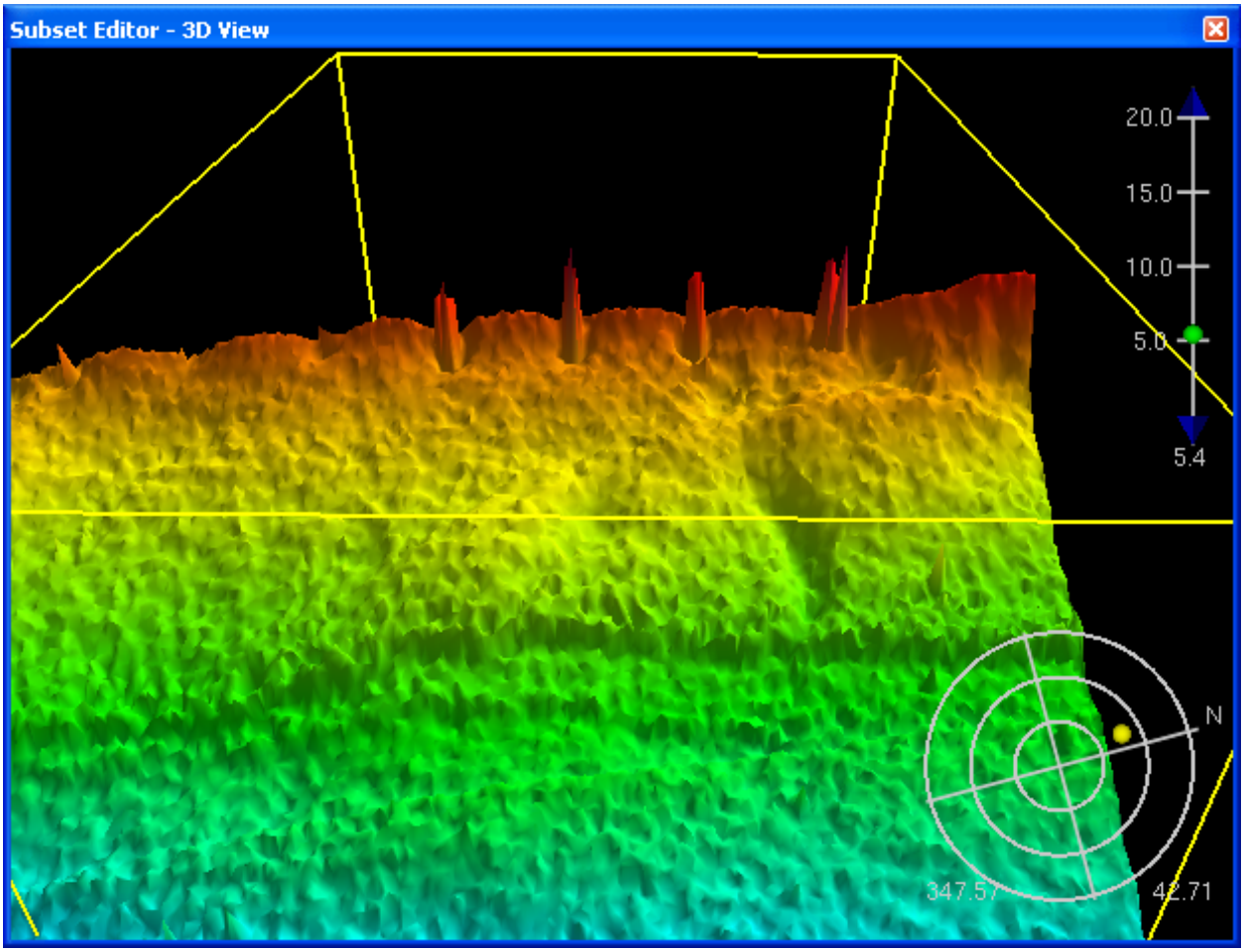


Figure 1.3.1

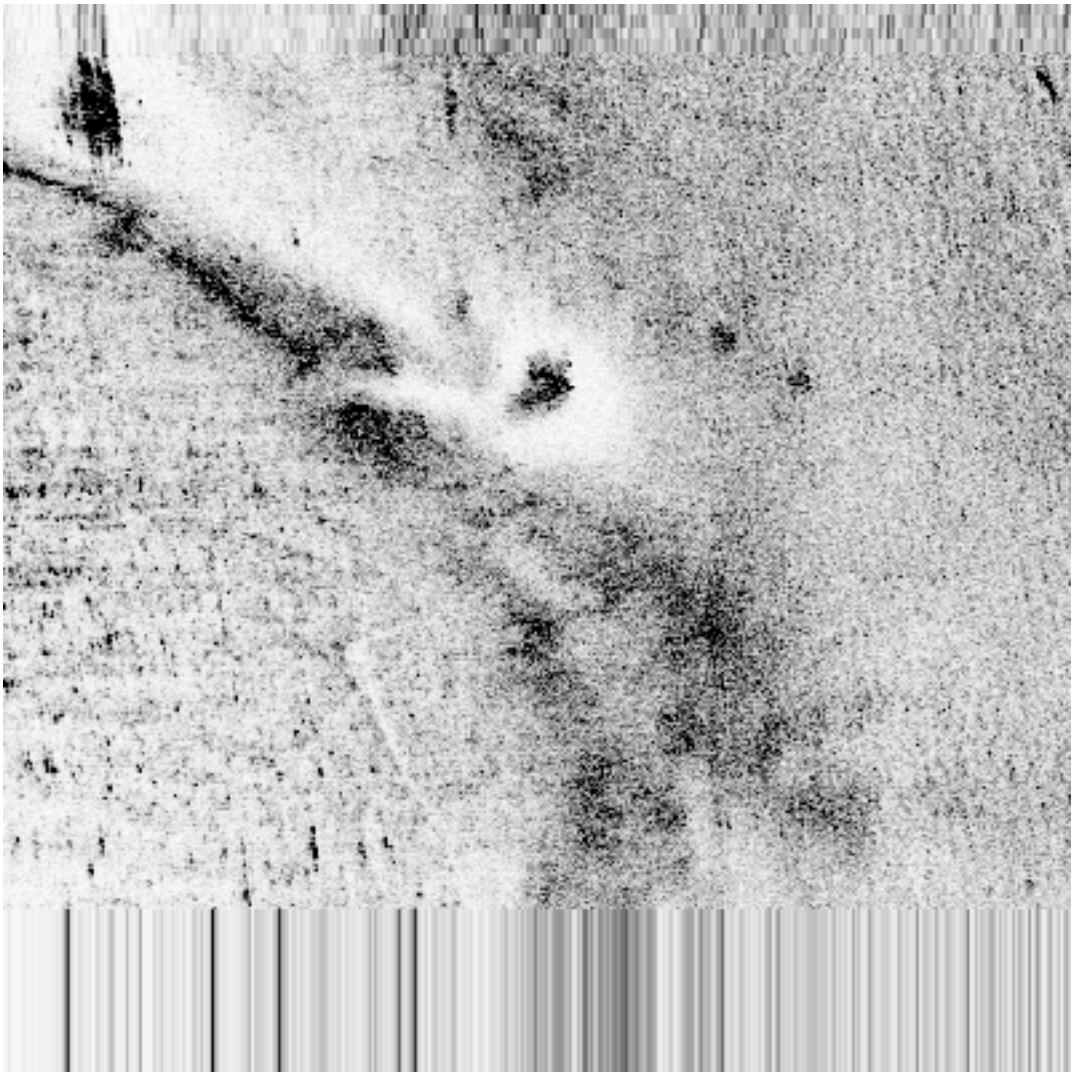


Figure 1.3.2

1.4) 25' OBSTRN

Survey Summary

Survey Position: 38° 46' 13.7" N, 077° 01' 56.4" W

Least Depth: 7.71 m (= 25.28 ft = 4.213 fm = 4 fm 1.28 ft)

TPU (±1.96σ): **THU (TPEh)** ±2.010 m ;**TVU (TPEv)** ±1.577 m

Timestamp: 2007-171.17:11:00.399 (06/20/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-171 / 171-1710

Profile/Beam: 288/52

Charts Affected: 12285_14, 12289_1, 12285_15, 12280_1

Remarks:

One and a half meter object (measured by acoustic shadow) imaged with a KLEIN 5000 side scan sonar 25 meters offshore of the 24 foot contour and 70 meters west of an assigned AWOIS item (Piles awash). Item marked for contact development and subsequently investigated with a RESON 8125 multibeam. Least depth of feature determined to be 24.78 feet in 28.50 feet of surrounding water. This feature is not considered to be a danger to navigation due to controlling depths of 19 feet upriver.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-171/171-1710	288/52	0.00	000.0	Primary
h11693/bh_s5501_klein5000_sss200/2007-169/002_1522	0001	10.06	359.7	Secondary (grouped)
h11693/bh_s5501_klein5000_sss100/2007-169/004_1447	0002	19.26	167.3	Secondary (grouped)
h11693/bh_s5501_klein5000_sss100/2007-169/003_1439	0001	21.58	348.2	Secondary (grouped)

Hydrographer Recommendations

Hydrographer recommends charting an obstruction with a least depth of 25 feet at position 38°46'13.671" , -077°01'56.435".

Cartographically-Rounded Depth (Affected Charts):

25ft (12285_14, 12289_1, 12285_15, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: OBJNAM - 25-ft OBSTRN

QUASOU - 6:least depth known

SORDAT - 20070619

SORIND - US,US,nsurf,H11693

TECSOU - 3:found by multi-beam

VALSOU - 7.705 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur.

Feature Images

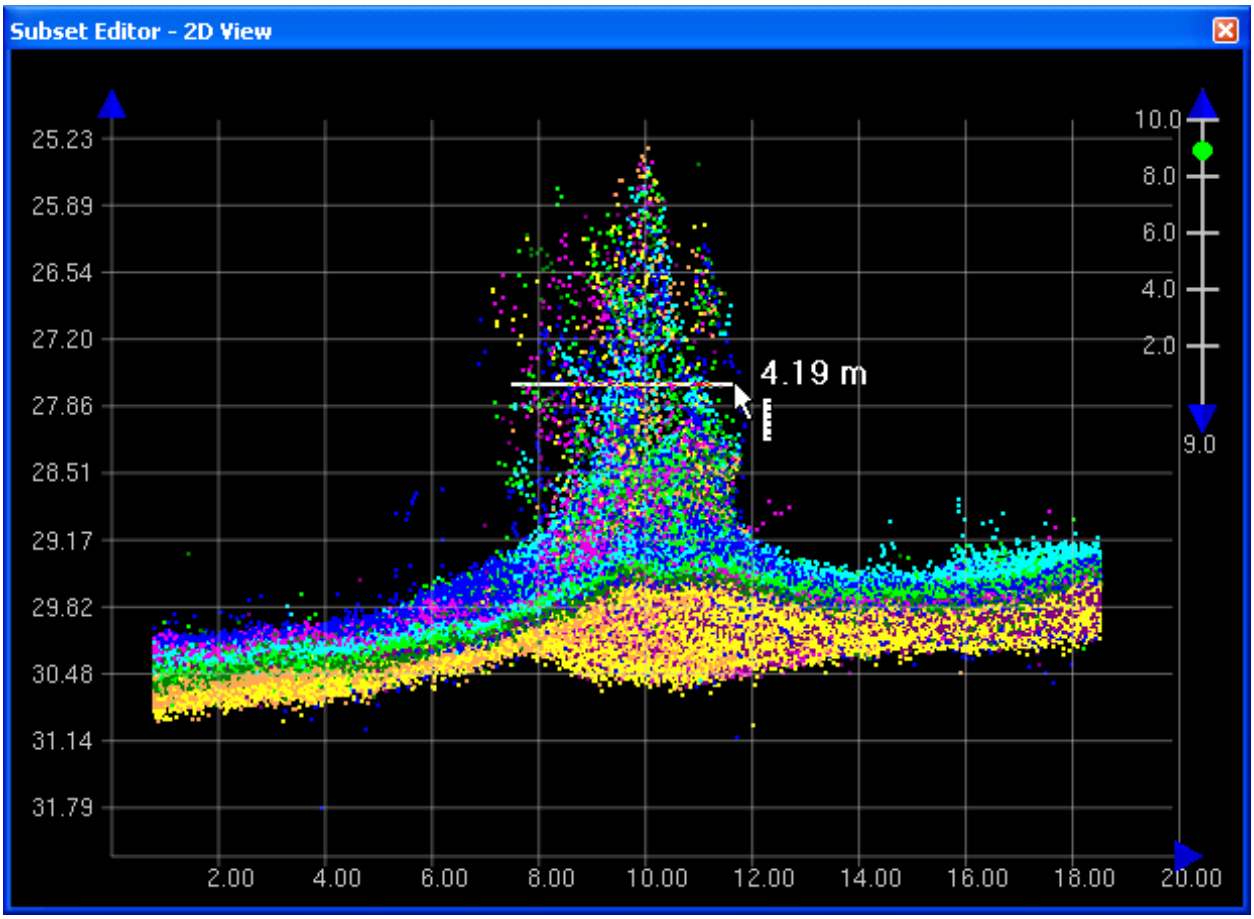


Figure 1.4.1

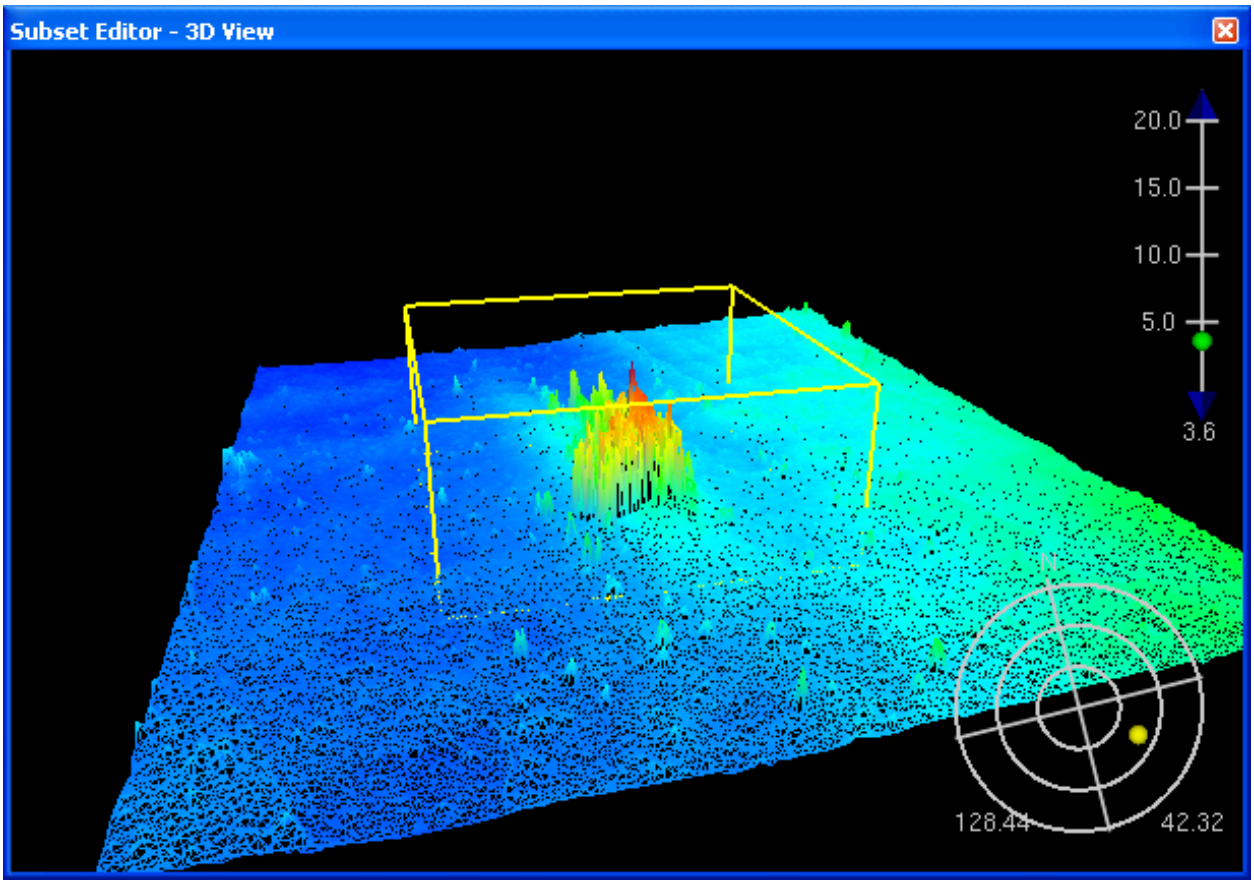


Figure 1.4.2

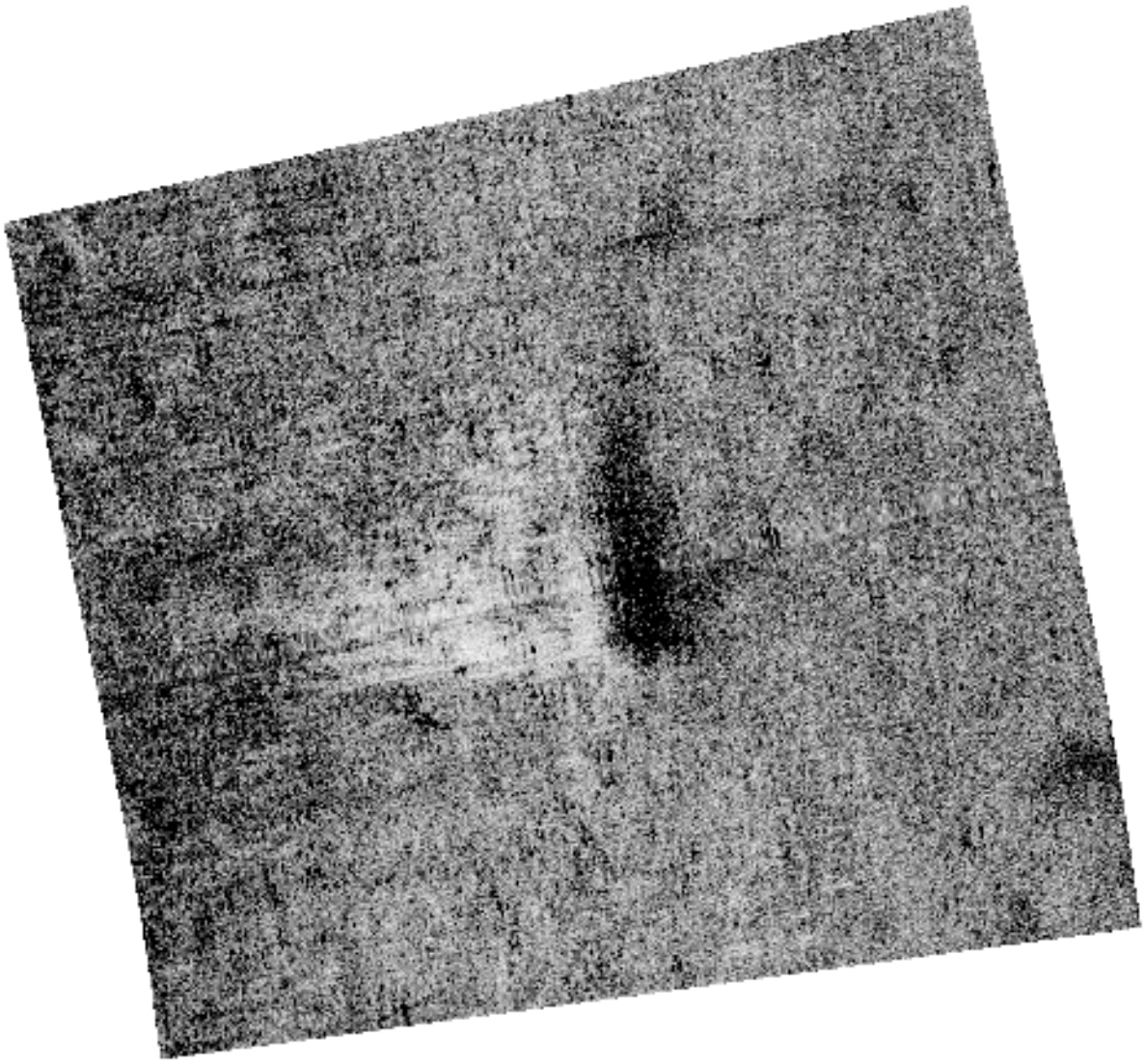


Figure 1.4.3

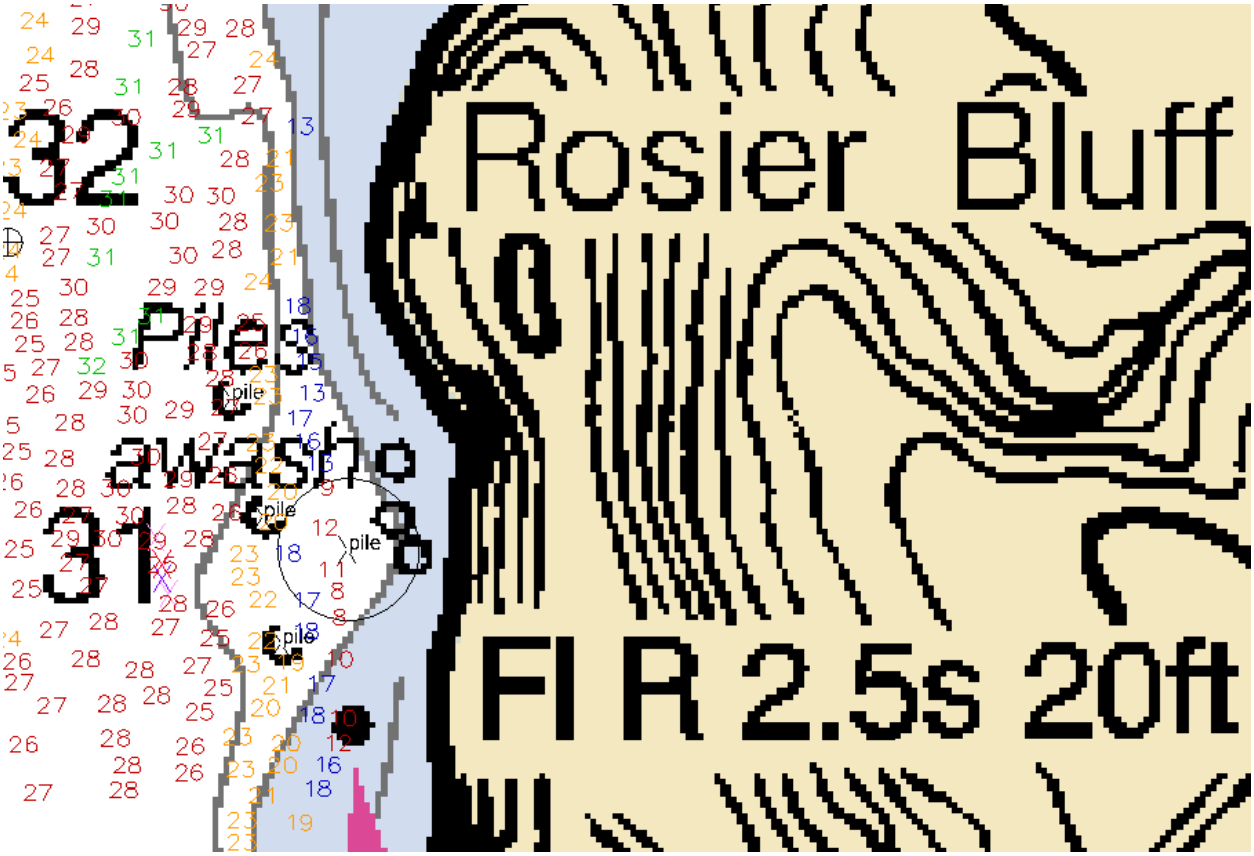


Figure 1.4.4

1.5) DtoN 19-ft Obstrn Retain as charted

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 47' 54.0" N, 077° 02' 15.8" W

Least Depth: 5.99 m (= 19.65 ft = 3.274 fm = 3 fm 1.65 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.987 m ;**TVU (TPEv)** ±1.566 m

Timestamp: 2007-171.16:23:43.094 (06/20/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-171 / 171-1623

Profile/Beam: 456/145

Charts Affected: 12285_14, 12289_1, 12285_15, 12280_1

Remarks:

Feature imaged with 200% Klein 5000 SSS and developed with Reson 8125 MBES. The least depth on the feature is 5.85 meters (19 feet) in waters charted at 26 feet. The dimensions of the feature are approximately 3.5 meters wide by 1.2 meters high.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-171/171-1623	456/145	0.00	000.0	Primary
h11693/bh_s5501_klein5000_sss100/2007-169/003_1707	0004	0.91	298.0	Secondary (grouped)
h11693/bh_s5501_klein5000_sss200/2007-169/003_1743	0001	11.36	172.6	Secondary (grouped)

Hydrographer Recommendations

Hydrographer recommends charting an obstruction at position 38°47'53.987"N, 077°02'15.824"W with a least depth of 5.85 meters.

Cartographically-Rounded Depth (Affected Charts):

19ft (12285_14, 12289_1, 12285_15, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20070620

SORIND - US,US,nsurf,H11693

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

VALSOU - 5.988 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Obstruction's least depth is 5.935m (19.47-ft). Recommend retain charted 19-ft Obstrn as currently portrayed on Chart 12289.

Feature Images

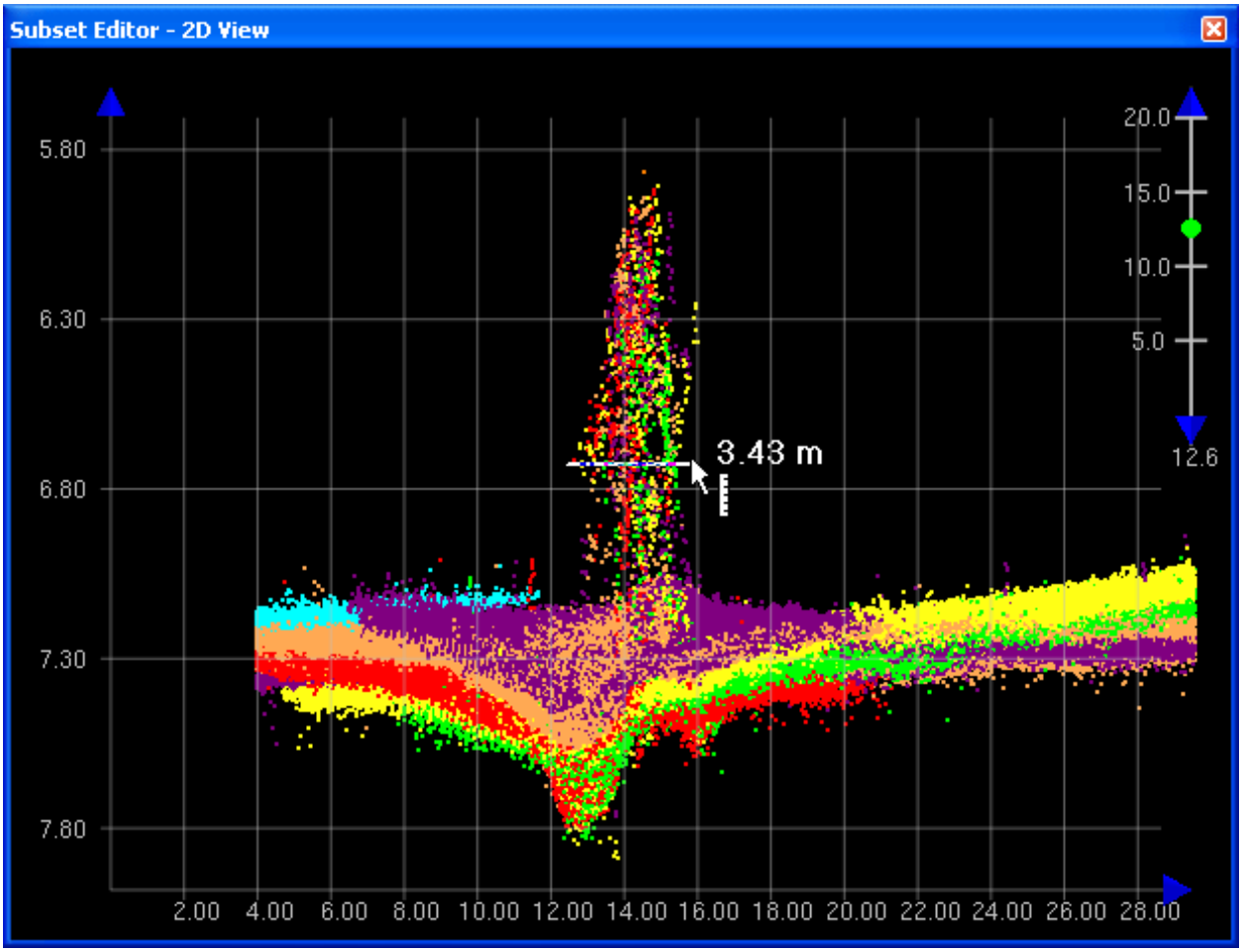


Figure 1.5.1

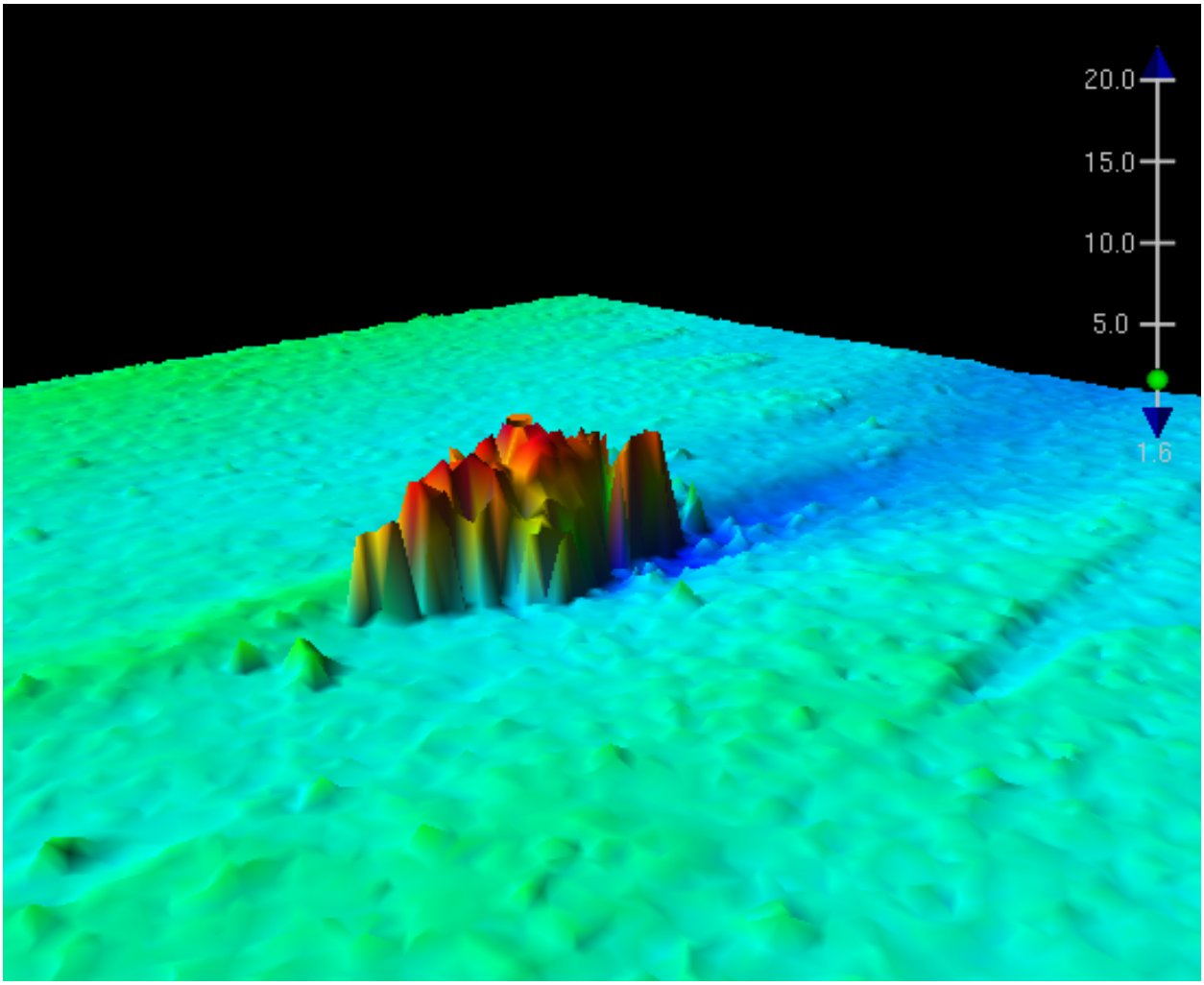


Figure 1.5.2 3D Points

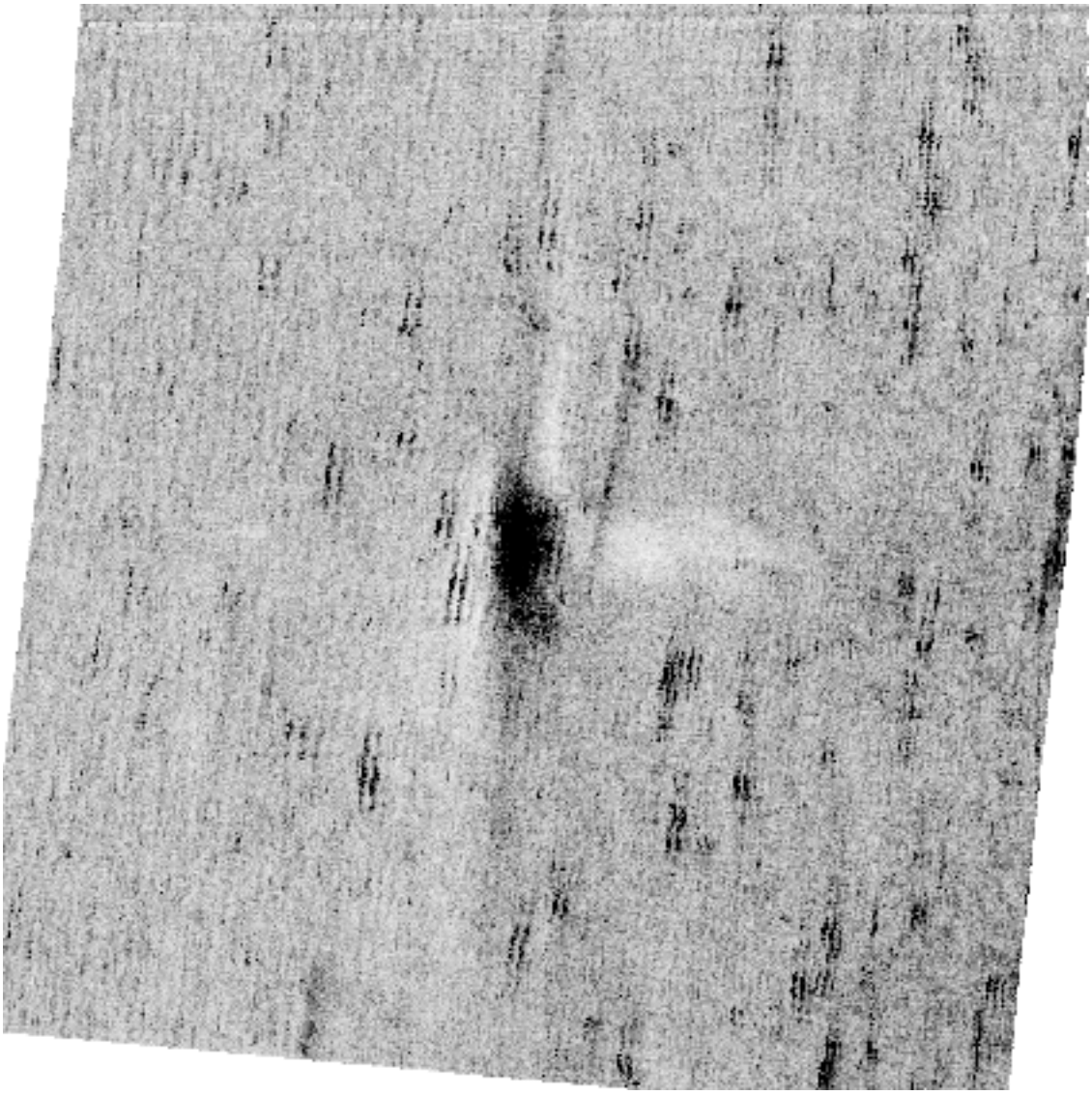


Figure 1.5.3

1.6) DtoN 16-ft Obstrn retain as charted

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 32' 52.6" N, 077° 14' 40.3" W

Least Depth: 5.02 m (= 16.47 ft = 2.745 fm = 2 fm 4.47 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.982 m ;**TVU (TPEv)** ±1.570 m

Timestamp: 2007-165.15:11:16.142 (06/14/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-165 / 165-1510

Profile/Beam: 391/55

Charts Affected: 12288_1, 12285_9, 12280_1

Remarks:

Contact located near the main channel at position 38°32'52.592" , -077°14'40.272" was reviewed in CARIS SSS editor and marked for development with MBES. Feature imaged with 200% Klein 5000 SSS and developed with a Reson 8125. Least depth on feature at 4.80 meters (15.75 feet) in surrounding waters charted at 23 feet deep. Observed depths in this area are in good agreement (1-2 feet) of the charted depths. The dimensions of the feature are approximately 18.65 meters wide by 6.56 meters high. Item to be submitted as a DtoN -VP

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-165/165-1510	391/55	0.00	000.0	Primary
h11693/bh_s5501_klein5000_sss200/2007-156/091_1827	0001	16.35	044.1	Secondary (grouped)
h11693/bh_s5501_klein5000_sss200/2007-156/091_1827	0002	16.64	080.8	Secondary (grouped)
h11693/bh_s5501_klein5000_sss100/2007-156/062_1634	0001	18.25	182.6	Secondary (grouped)
h11693/bh_s5501_klein5000_sss200/2007-156/091_1827	0003	22.22	102.4	Secondary (grouped)

Hydrographer Recommendations

Hydrographer recommends charting an obstruction at position 38°32'52.600"N , 077°14'40.271"W (304401.16E,4269001.63N) with a least depth of 4.80 meters or 16 feet using NOAA rounding parameters.

Cartographically-Rounded Depth (Affected Charts):

16ft (12288_1, 12285_9, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes:

QUASOU - 6:least depth known

SORDAT - 20070614

SORIND - US,US,nsurf,H11693

STATUS - 1:permanent

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

VALSOU - 5.020 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur. Retain charted 16-ft Obstruction as portrayed on Chart 12288.

Feature Images

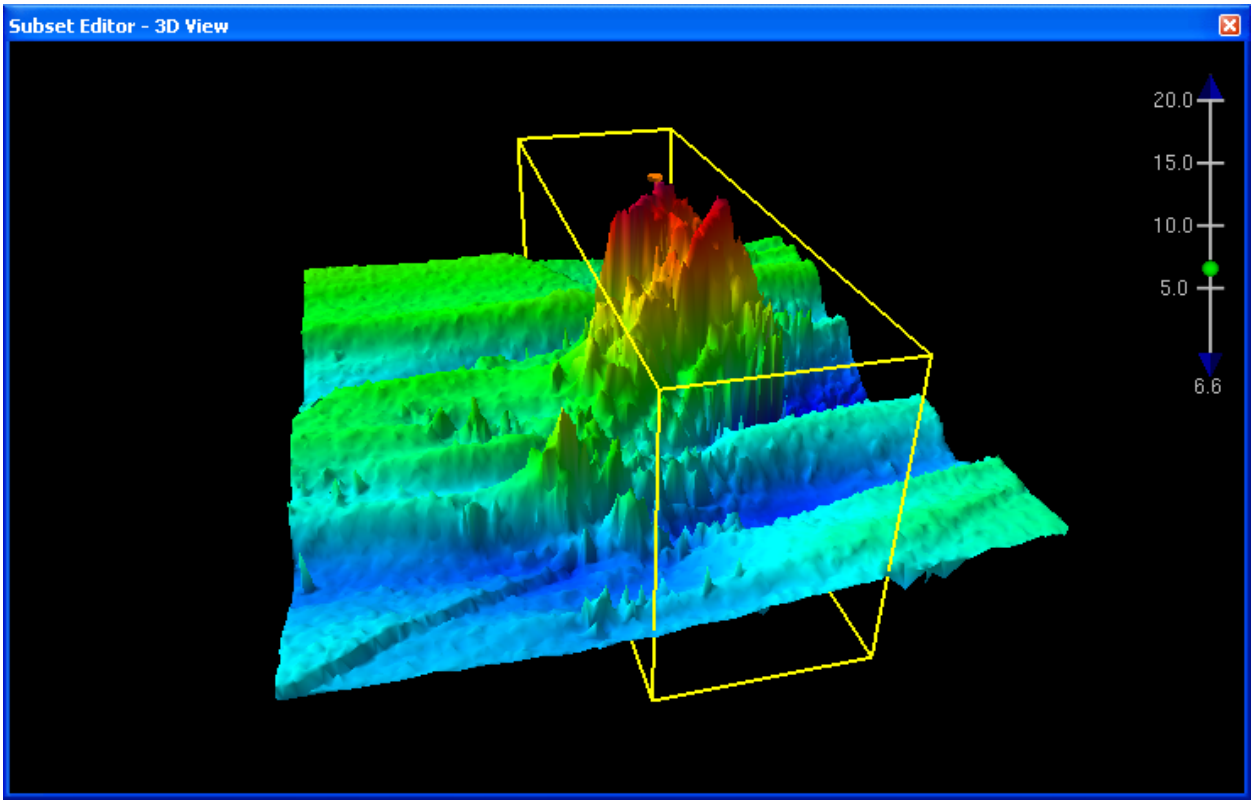


Figure 1.6.1

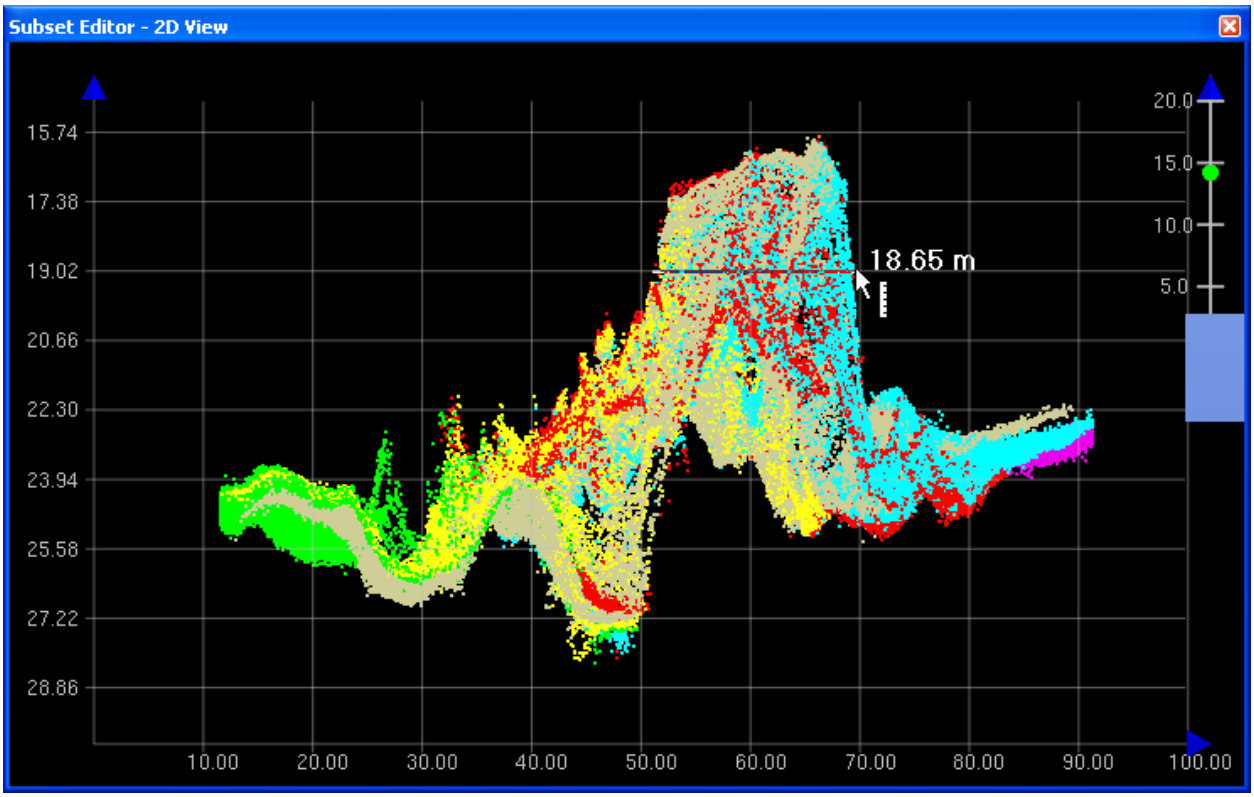

Subset Editor - 2D View
15.74
17.38
19.02
20.66
22.30
23.94
25.58
27.22
28.86
10.00
20.00
30.00
40.00
50.00
60.00
70.00
80.00
90.00
100.00
18.65 m
20.0
15.0
10.0
5.0

Figure 1.6.2

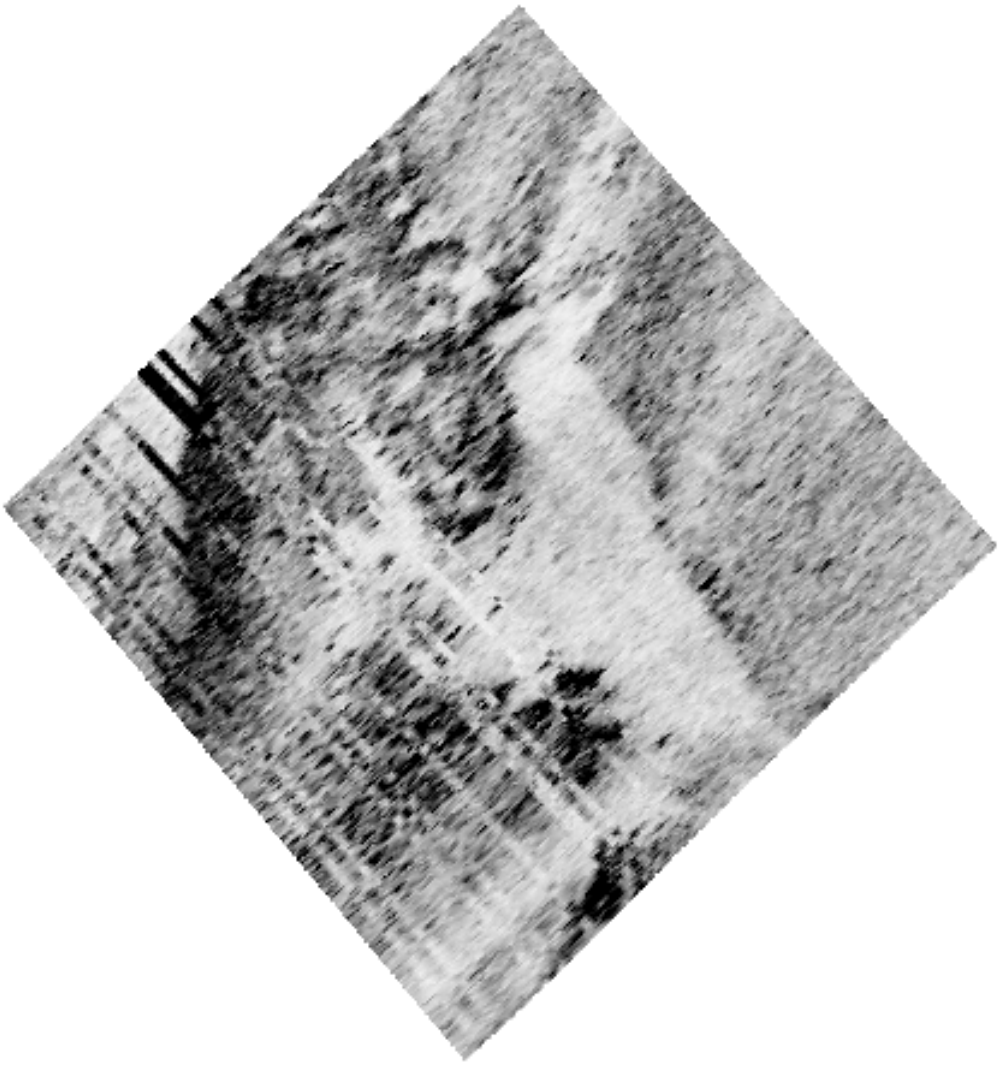


Figure 1.6.3

1.7) DtoN 18-ft Obstrn: Revise to 19-ft Obstrn

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 32' 22.2" N, 077° 15' 51.0" W

Least Depth: 5.87 m (= 19.26 ft = 3.210 fm = 3 fm 1.26 ft)

TPU (±1.96σ): **THU (TPEh)** ±2.001 m ;**TVU (TPEv)** ±1.588 m

Timestamp: 2007-165.14:35:34.851 (06/14/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-165 / 165-1435

Profile/Beam: 353/228

Charts Affected: 12288_1, 12285_9, 12280_1

Remarks:

2007-165:Contact lies 100 meters from the charted overhead power cable "Priv aids". Feature imaged with 200% Klein 5500 SSS and developed with a Reson 8125. Least depth of feature at 5.58 meters (18.29 feet) in surrounding waters charted at 27 feet deep. The dimensions of the feature are approximately 2.04 meters wide by 2.20 meters high. Despite the proximity to charted powerline towers, the contact is located in an area frequented by tug and barge traffic and therefore, the item should be submitted as a DtoN

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-165/165-1435	353/228	0.00	000.0	Primary
h11693/bh_s5501_klein5000_sss100/2007-156/083_1457	0001	14.80	048.6	Secondary
h11693/bh_s5501_klein5000_sss100/2007-156/065_1437	0004	22.42	231.2	Secondary

Hydrographer Recommendations

Hydrographer recommends charting an obstruction at position 38°32'22.185"N , 077°15'50.973"W (302666.38E,4268105.95N) with a least depth of 5.58 meters (19 feet using NOAA rounding).

Cartographically-Rounded Depth (Affected Charts):

19ft (12288_1, 12285_9, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20070614

SORIND - US,US,nsurf,H11693

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

VALSOU - 5.870 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. 18-ft Obstruction was submitted to MCD as a DtoN. Final data review indicates the least depth is 5.769m (18.927-ft). Recommend to delete charted 18-ft Obstruction and append chart with a 19-ft Obstruction located in 38°32'22.206"N, 077°15'50.965"W.

Feature Images

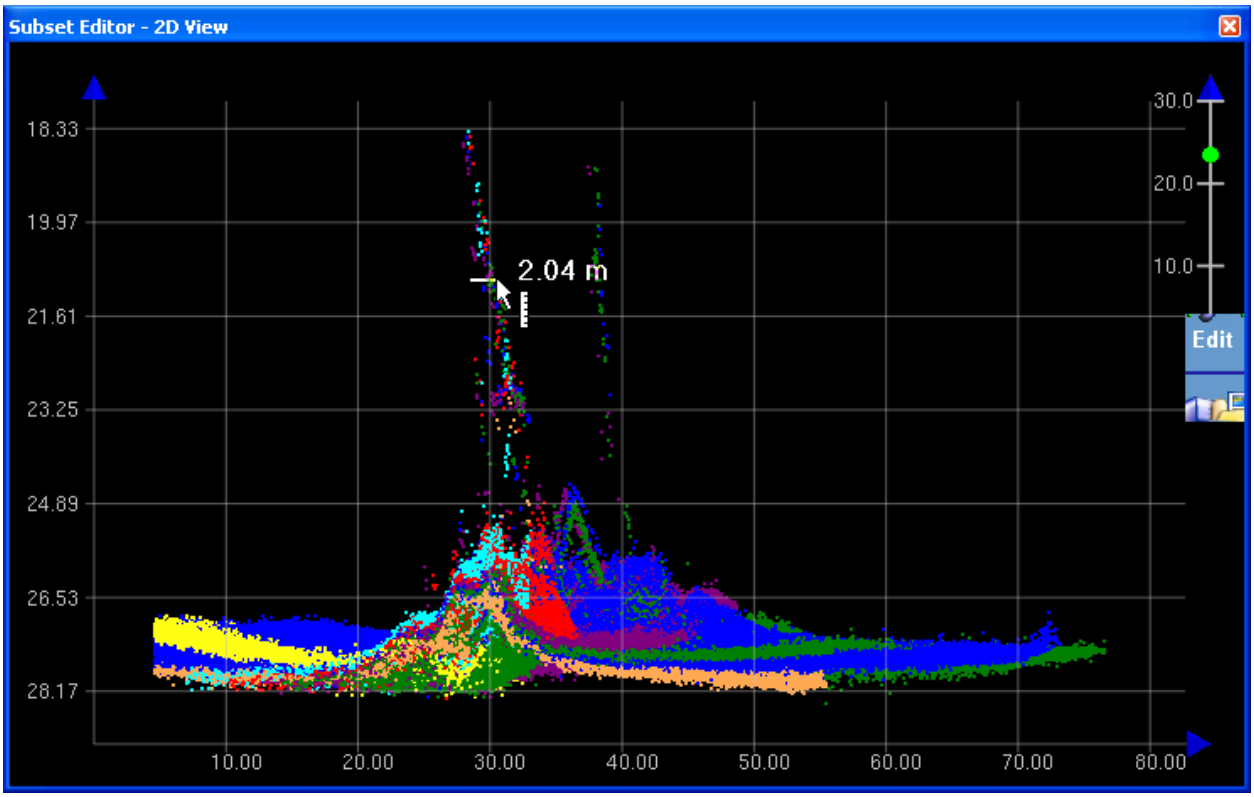


Figure 1.7.1

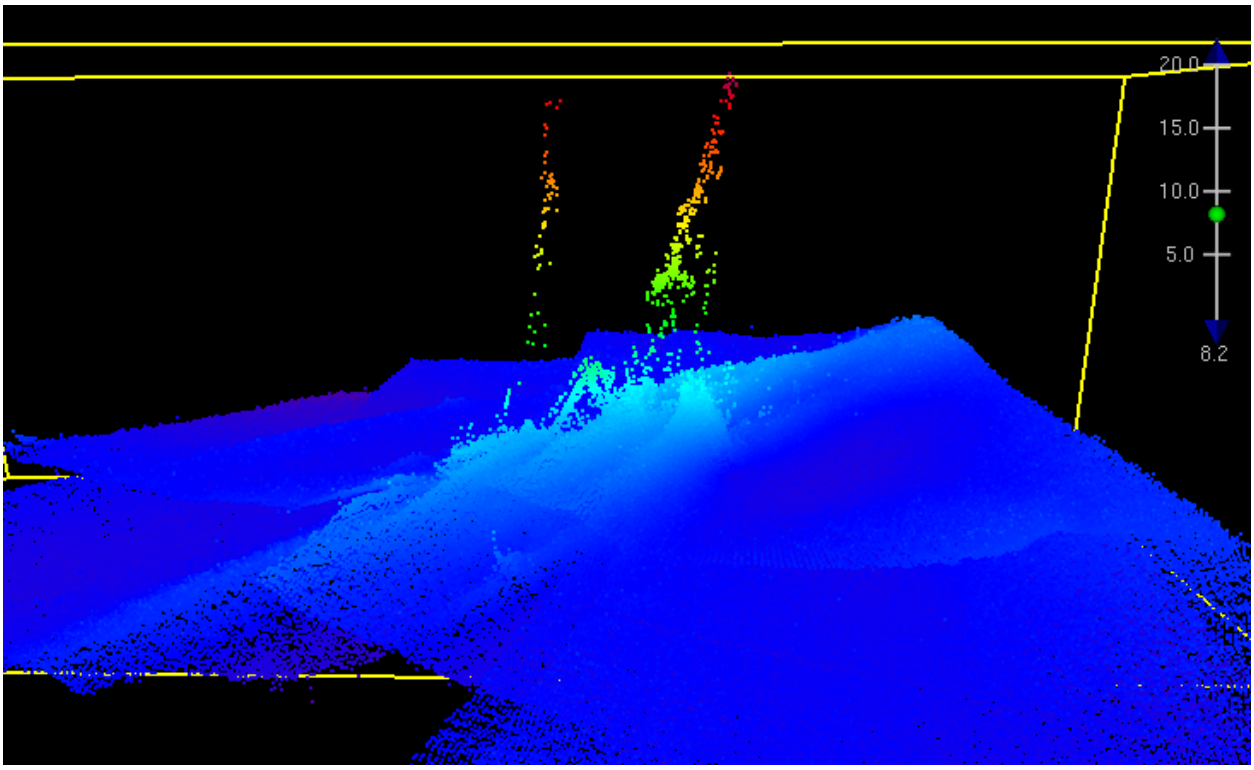


Figure 1.7.2

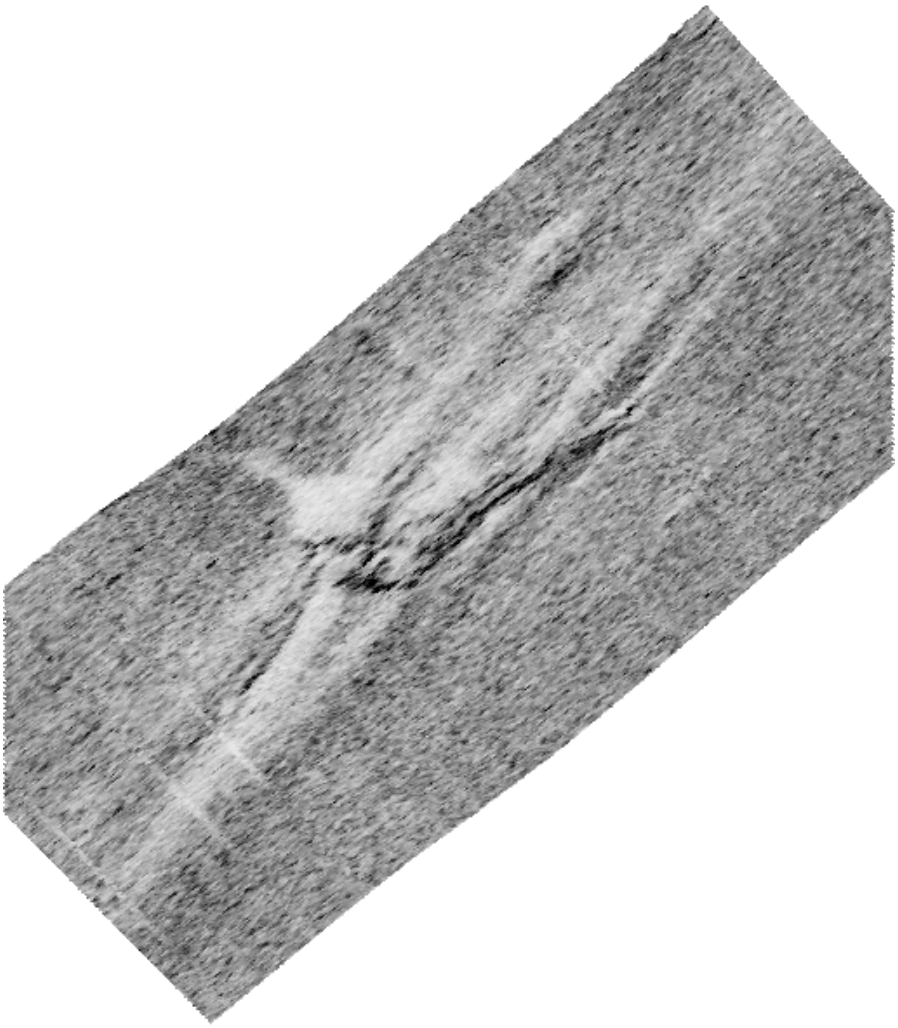


Figure 1.7.3

1.8) 17-Ft Obstrn

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 25' 50.8" N, 077° 16' 20.8" W

Least Depth: 5.03 m (= 16.49 ft = 2.748 fm = 2 fm 4.49 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.976 m ;**TVU (TPEv)** ±1.567 m

Timestamp: 2007-164.17:02:15.743 (06/13/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-164 / 164-1702

Profile/Beam: 224/166

Charts Affected: 12288_1, 12285_9, 12280_1

Remarks:

Feature imaged with 200% Klein 5000 SSS and developed with a Reson 8125. Least depth on feature is 4.79 meters (15.73 feet) in surrounding waters charted at 20 - 21 feet deep. The dimensions of the feature are approximately 10.66 meters wide by 1.27 meters high. Due to the proximity to the main channel, the item should be submitted as a DtoN -VP

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-164/164-1702	224/166	0.00	000.0	Primary
h11693/nrt7_s3004_c3d_100/2007-159/159-1754	0001	3.28	178.4	Secondary
h11693/nrt7_s3004_c3d_100/2007-156/156-1552	0001	6.98	053.4	Secondary

Hydrographer Recommendations

Hydrographer recommends charting an obstruction at position 38°25'50.784"N , 077°16'20.780"W (301646.70E,4256057.64N) with a least depth of 4.79 meters (16 feet using NOAA rounding).

Cartographically-Rounded Depth (Affected Charts):

16ft (12288_1, 12285_9, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20070613

SORIND - US,US,nsurf,H11693

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

VALSOU - 5.026 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Do not concur. Refer to Appendix I, feature 1.5. Final data review indicates the least depth of 5.112 m = 16.771 ft. Recommend to delete charted 15-ft Obstruction and chart 17-ft Obstruction in 38°25'50.772"N, 077°16'20.816"W.

Feature Images

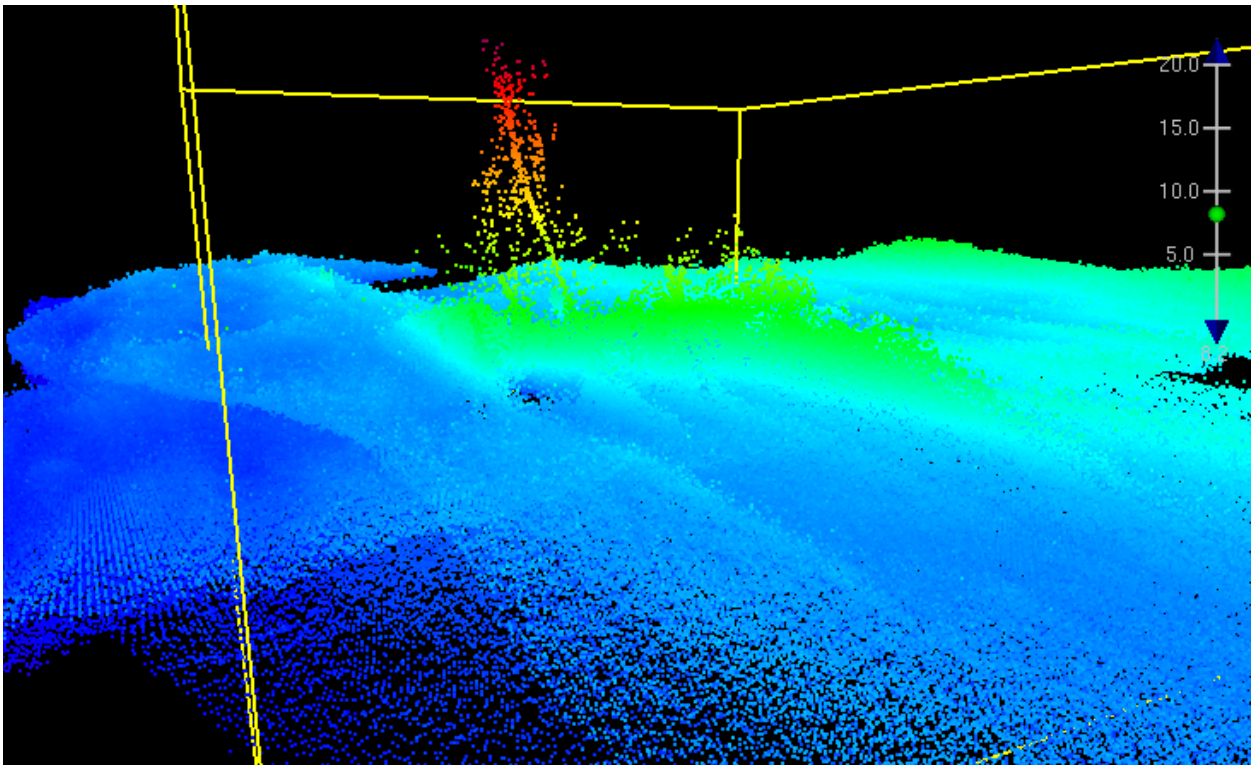


Figure 1.8.1

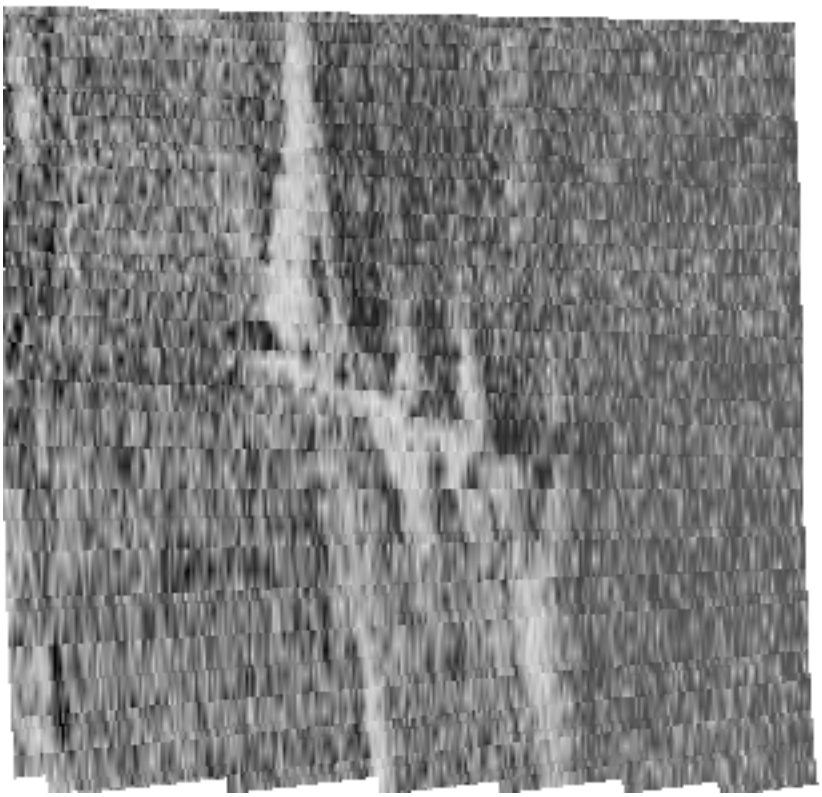
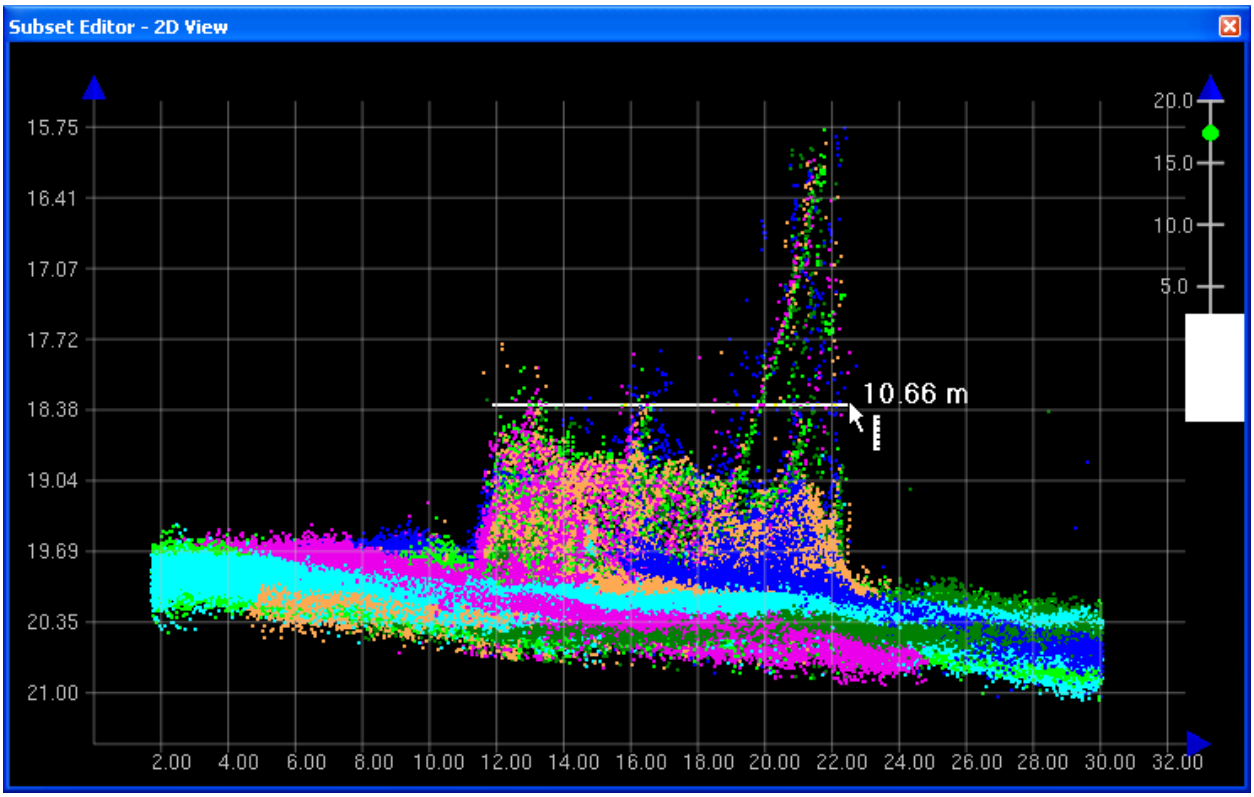


Figure 1.8.2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19.69
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2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 24.00 26.00 28.00 30.00 32.00
20.0
15.0
10.0
5.0
10.66 m

Figure 1.8.3

1.9) DtoN 18-ft Obstrn: Retain as charted

DANGER TO NAVIGATION

Survey Summary

Survey Position: 38° 24' 54.7" N, 077° 16' 17.8" W

Least Depth: 5.58 m (= 18.29 ft = 3.049 fm = 3 fm 0.29 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.987 m ;**TVU (TPEv)** ±1.576 m

Timestamp: 2007-164.16:48:41.059 (06/13/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-164 / 164-1648

Profile/Beam: 483/28

Charts Affected: 12288_1, 12285_9, 12280_1

Remarks:

Feature imaged with 200% Klein 5000 SSS and developed with a Reson 8125. Least depth on feature is 5.42 meters (17.77 feet) in surrounding waters charted at 23 feet deep. The dimensions of the feature are approximately 1.17 meters wide by 1.86 meters high. Due to the proximity to the main channel, the item should be submitted as a DtoN.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-164/164-1648	483/28	0.00	000.0	Primary
h11693/nrt7_s3004_c3d_100/2007-162/162-1303	0001	3.72	314.3	Secondary
h11693/nrt7_s3004_c3d_100/2007-156/156-1750	0001	5.36	180.4	Secondary
h11693/nrt7_s3004_c3d_200/2007-159/159-1618	0001	5.98	344.1	Secondary

Hydrographer Recommendations

Hydrographer recommends charting an obstruction at position 38°24'54.709"N , 077°16'17.808"W (301676.17E,4254327.18N) with a least depth of 5.42 meters (24 feet using NOAA rounding).-VP

Cartographically-Rounded Depth (Affected Charts):

18ft (12288_1, 12285_9, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20070613

SORIND - US,US,nsurf,H11693

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

VALSOU - 5.576 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Final data review indicates the least depth is 5.576m (18.29-ft). Recommend to retain 18-ft Obstruction as currently charted.

Feature Images

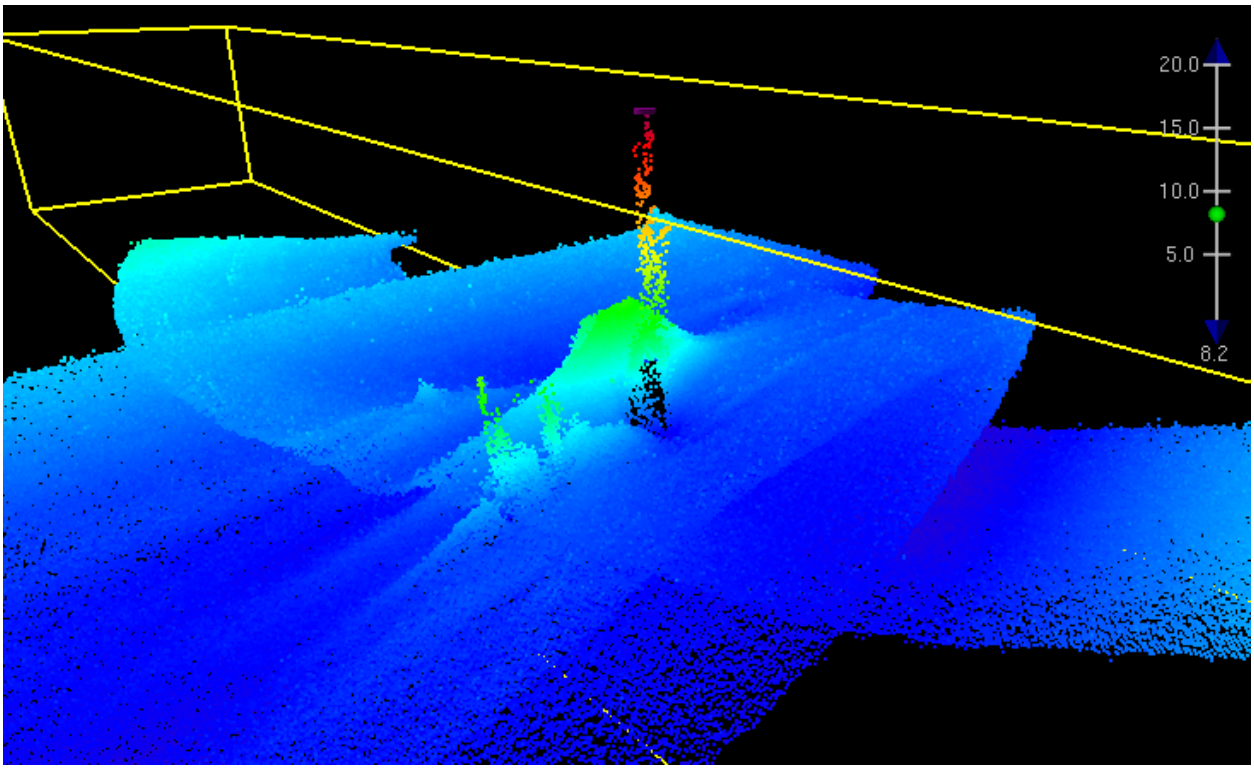

Figure 1.9.1

Figure 1.9.2

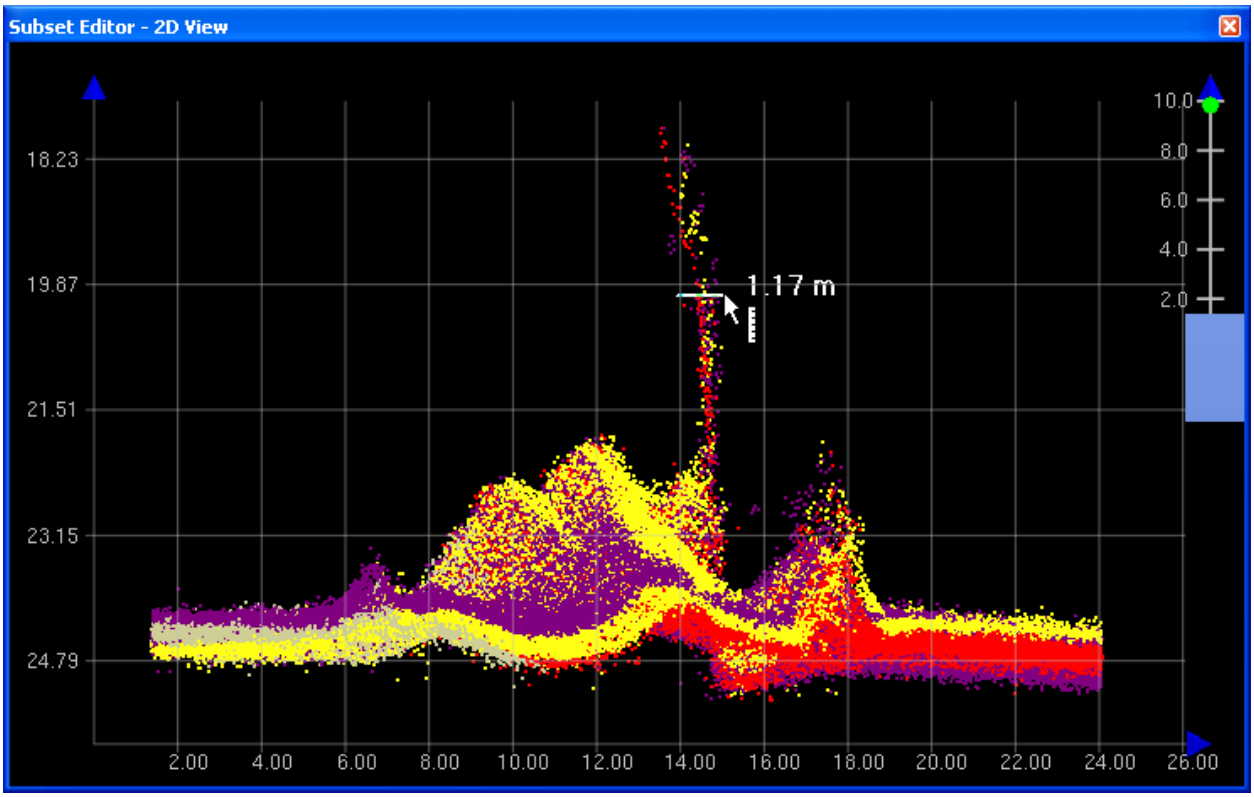

Figure 1.9.3

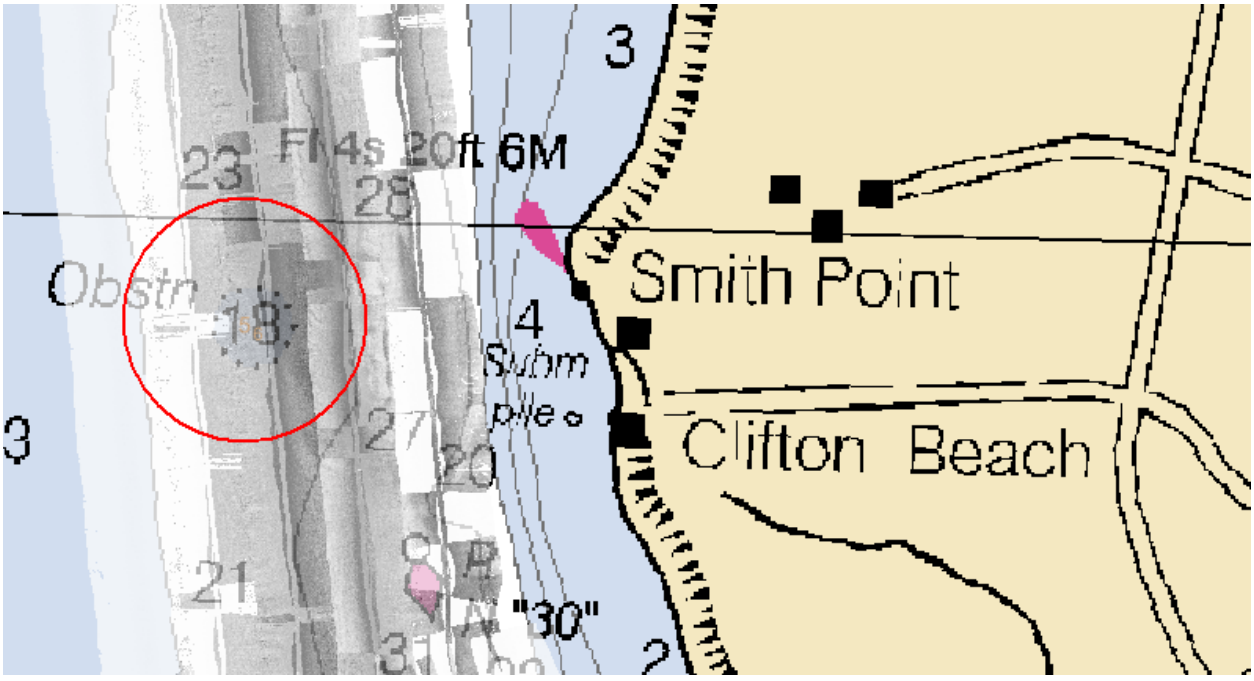

Figure 1.9.4

1.10) 16' OBSTRN

Survey Summary

Survey Position: 38° 23' 32.4" N, 077° 07' 53.2" W

Least Depth: 4.89 m (= 16.04 ft = 2.673 fm = 2 fm 4.04 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.976 m ;**TVU (TPEv)** ±1.568 m

Timestamp: 2007-164.14:41:09.234 (06/13/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-164 / 164-1440

Profile/Beam: 559/63

Charts Affected: 12288_1, 12285_9, 12280_1

Remarks:

Contact with a shadow height of 1.3 meters located on the charted 18 ft contour just inside the natural channel east of the charted boathouse and was ensonified with 200% SSS imagery from a KLEIN 5000 and was investigated with a RESON 8125. The least depth of the feature is 16 ft in surrounding depths of 19 ft. NOT A DANGER TO NAVIGATION due to its location outside the navigable channel.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-164/164-1440	559/63	0.00	000.0	Primary
h11693/nrt7_s3004_c3d_200/2007-157/157-1700	0001	7.36	357.5	Secondary

Hydrographer Recommendations

Hydrographer recommends charting a 16 foot obstruction at position 38°23'32.449"N , 077°07'53.224"W (313855.78E , 4251499.02N).

Cartographically-Rounded Depth (Affected Charts):

16ft (12288_1, 12285_9, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 6:least depth known

SORDAT - 20070613

SORIND - US,US,nsurf,H11693

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

VALSOU - 4.888 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Both the SS and MBES development depict the appearance of a boat that may be of historical significance.

Feature Images

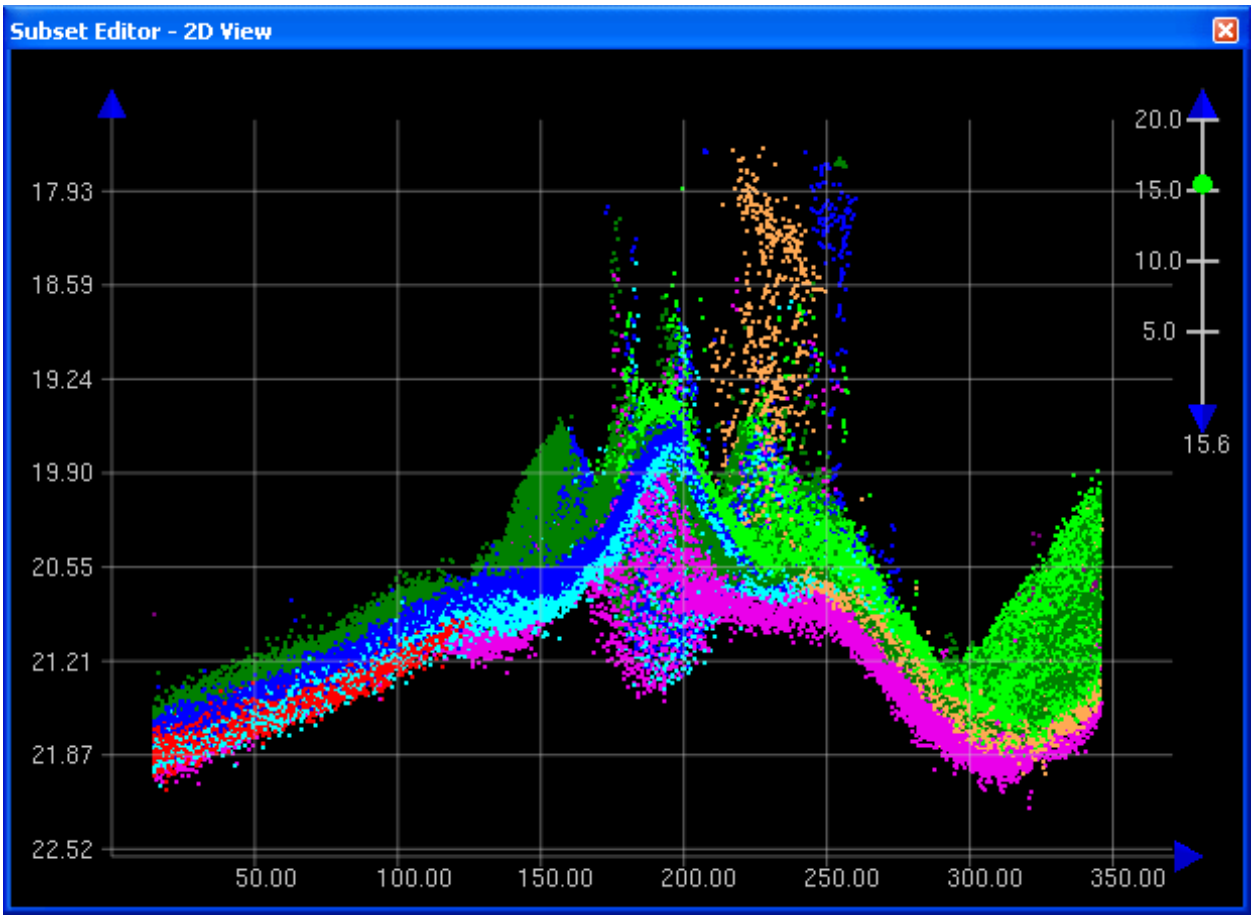

Figure 1.10.1

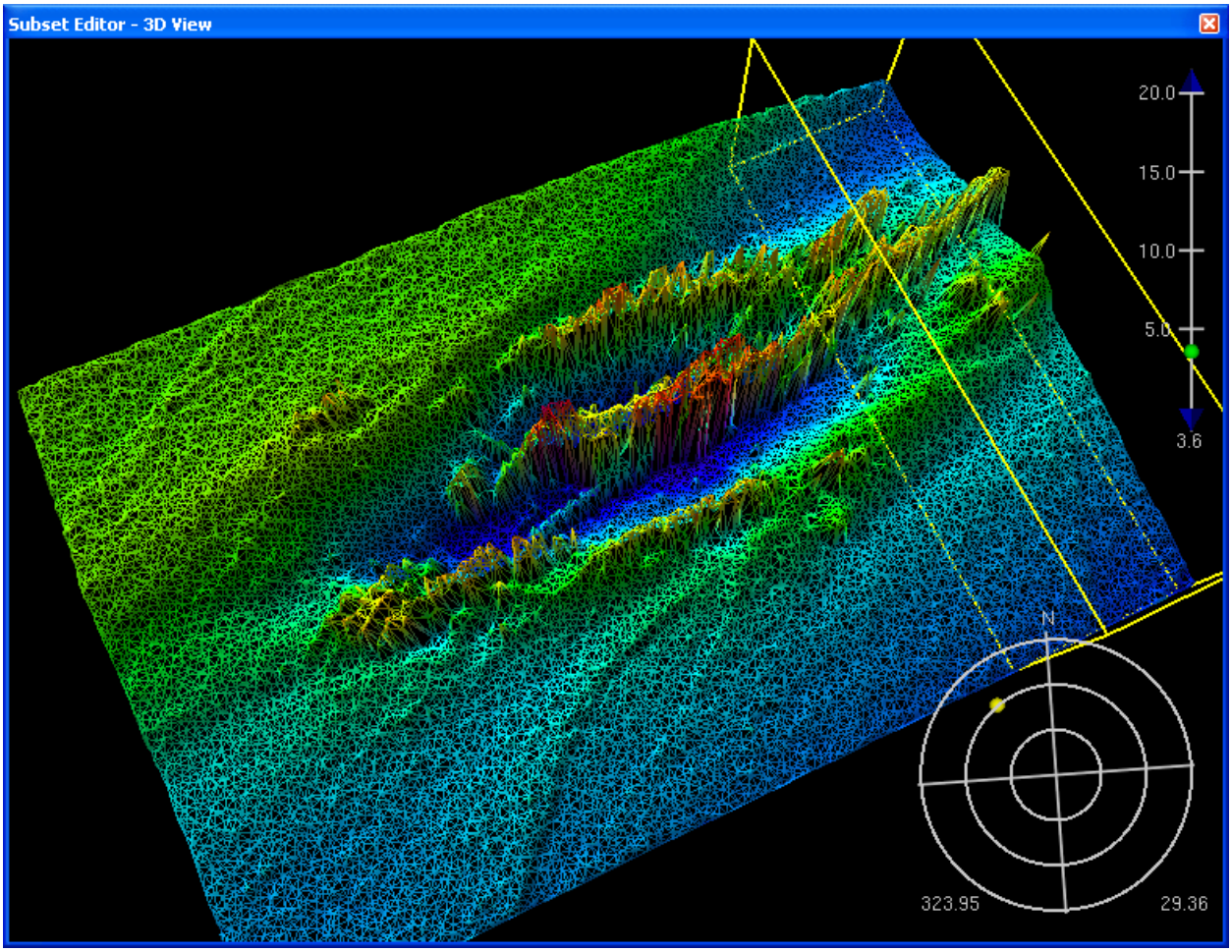

Figure 1.10.2

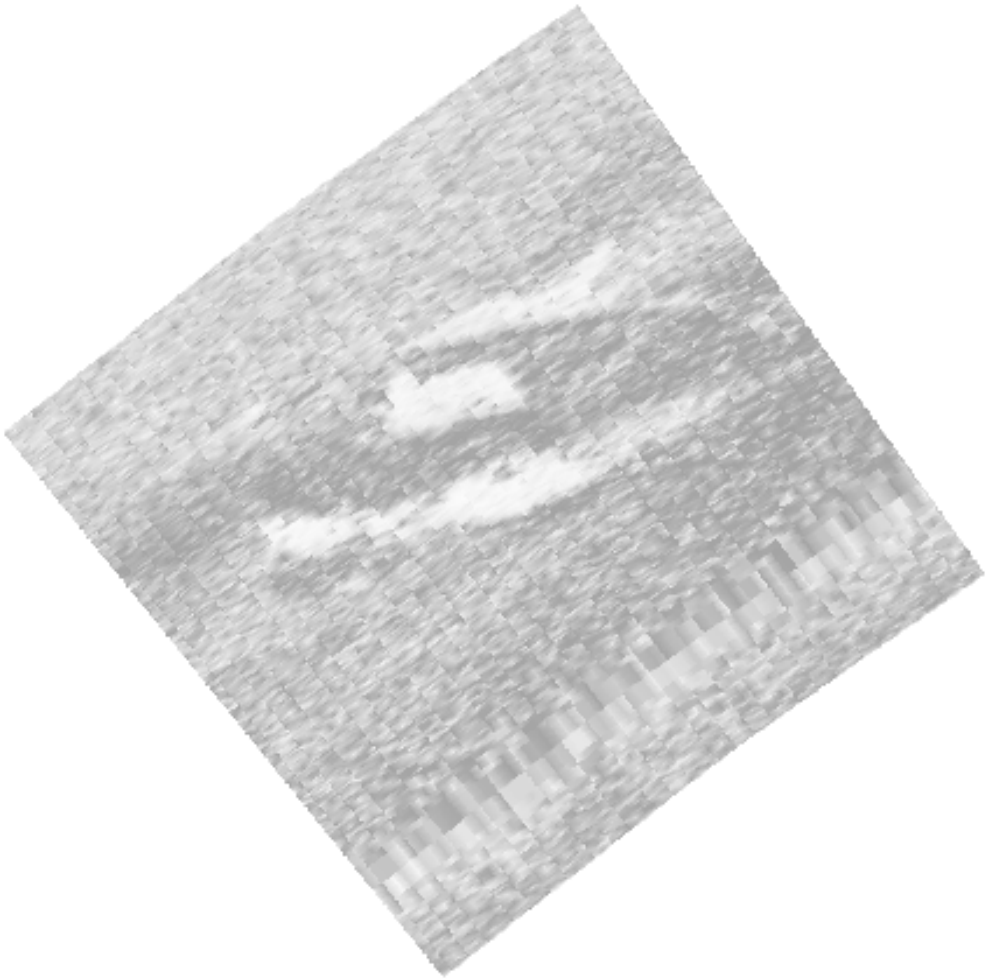

Figure 1.10.3

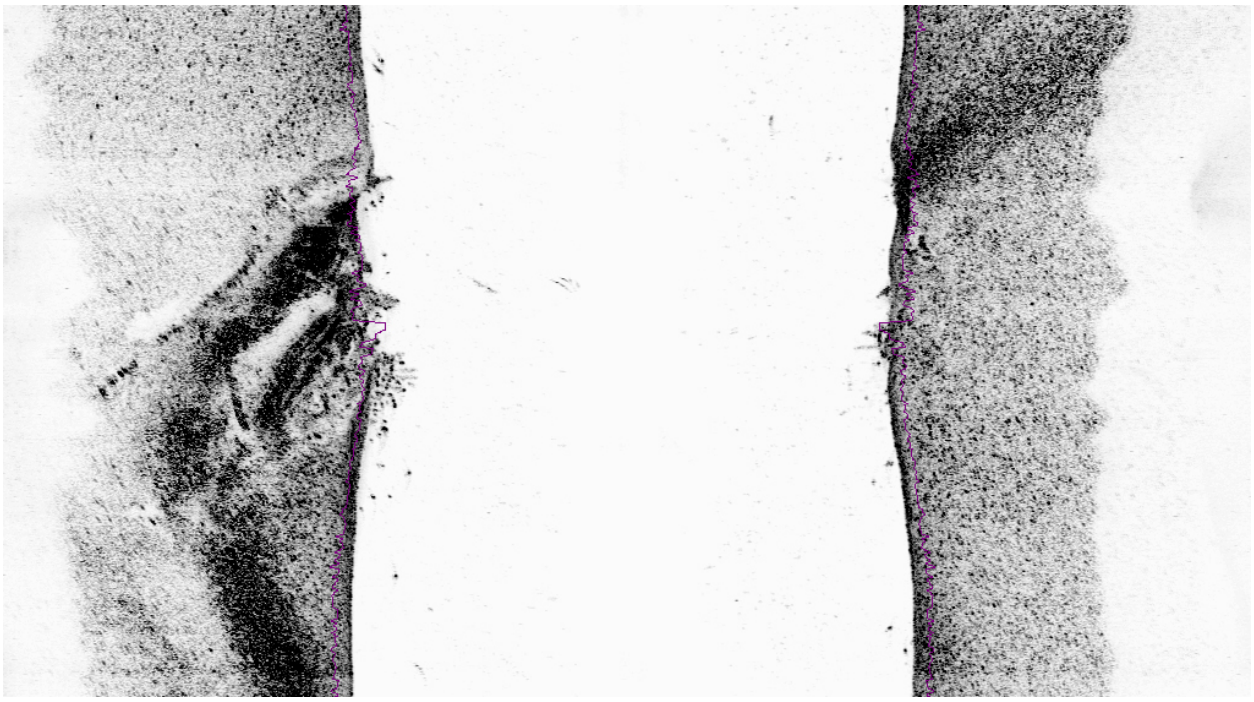

Figure 1.10.4

1.11) 26' Obstrn in observed 30'

Survey Summary

Survey Position: 38° 23' 12.6" N, 077° 08' 23.8" W

Least Depth: 8.11 m (= 26.60 ft = 4.433 fm = 4 fm 2.60 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.999 m ;**TVU (TPEv)** ±1.566 m

Timestamp: 2007-164.15:06:37.145 (06/13/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-164 / 164-1506

Profile/Beam: 270/122

Charts Affected: 12288_1, 12285_9, 12280_1

Remarks:

200% Imagery from a KLEIN 5000 indicated a contact with a height of 0.7 meters above the water bottom within the navigable channel east of the "PRM8C" marker. The contact was investigated with a RESON 8125 MBES and a least depth of 26 feet in surrounding depths of 29.77 feet was determined. Feature is not a danger to navigation due the unlikelyhood of a deep draft vessel transiting this particular area of the channel.-VP

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-164/164-1506	270/122	0.00	000.0	Primary
h11693/nrt7_s3004_c3d_200/2007-157/157-1728	0001	9.35	273.7	Secondary

Hydrographer Recommendations

Hydrographer recommends charting an Obstruction symbol at postion 38:23:12.569N , 077:08:23.817W (313099.32E , 4250903.38N)with a least depth of 8.11 meters (26 feet using NOAA rounding).

Cartographically-Rounded Depth (Affected Charts):

26ft (12288_1, 12285_9, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: QUASOU - 1:depth known

RECDAT - 20070613

SORDAT - 20070613

STATUS - 1:permanent

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

VALSOU - 8.107 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur.

Feature Images

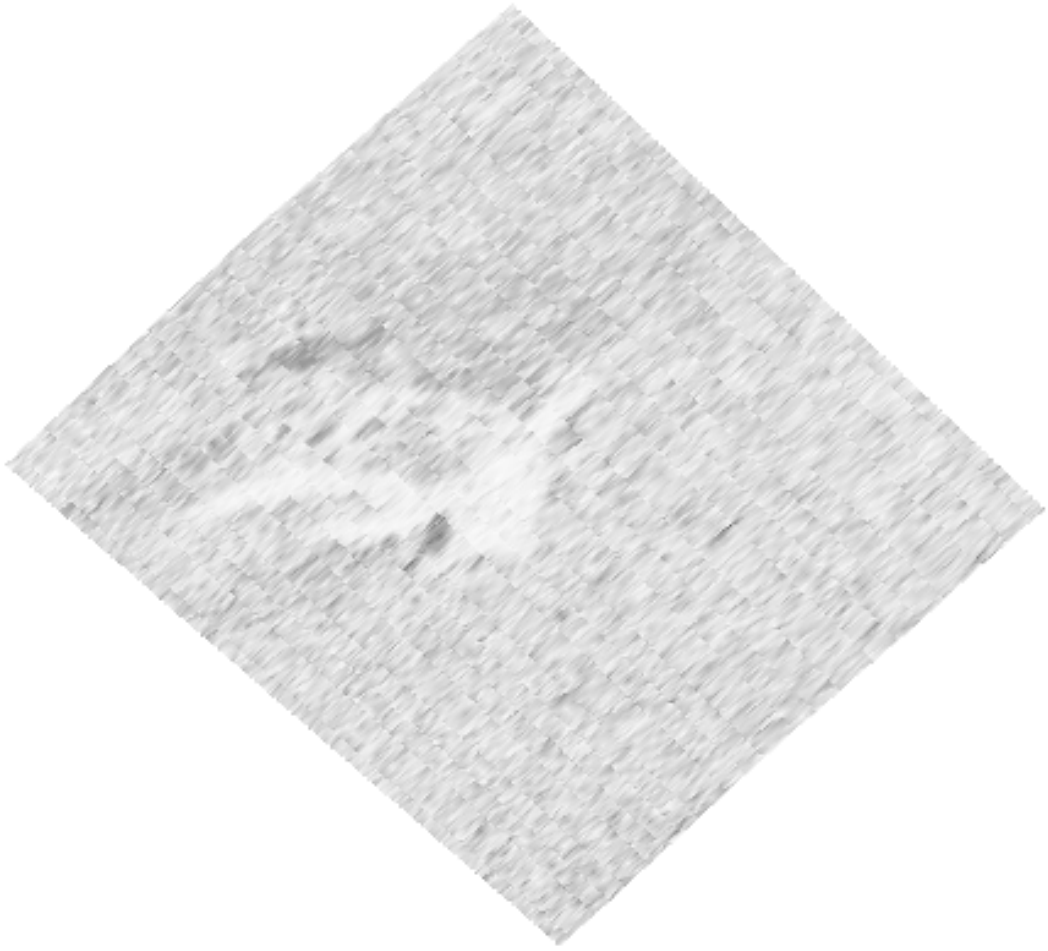

Figure 1.11.1

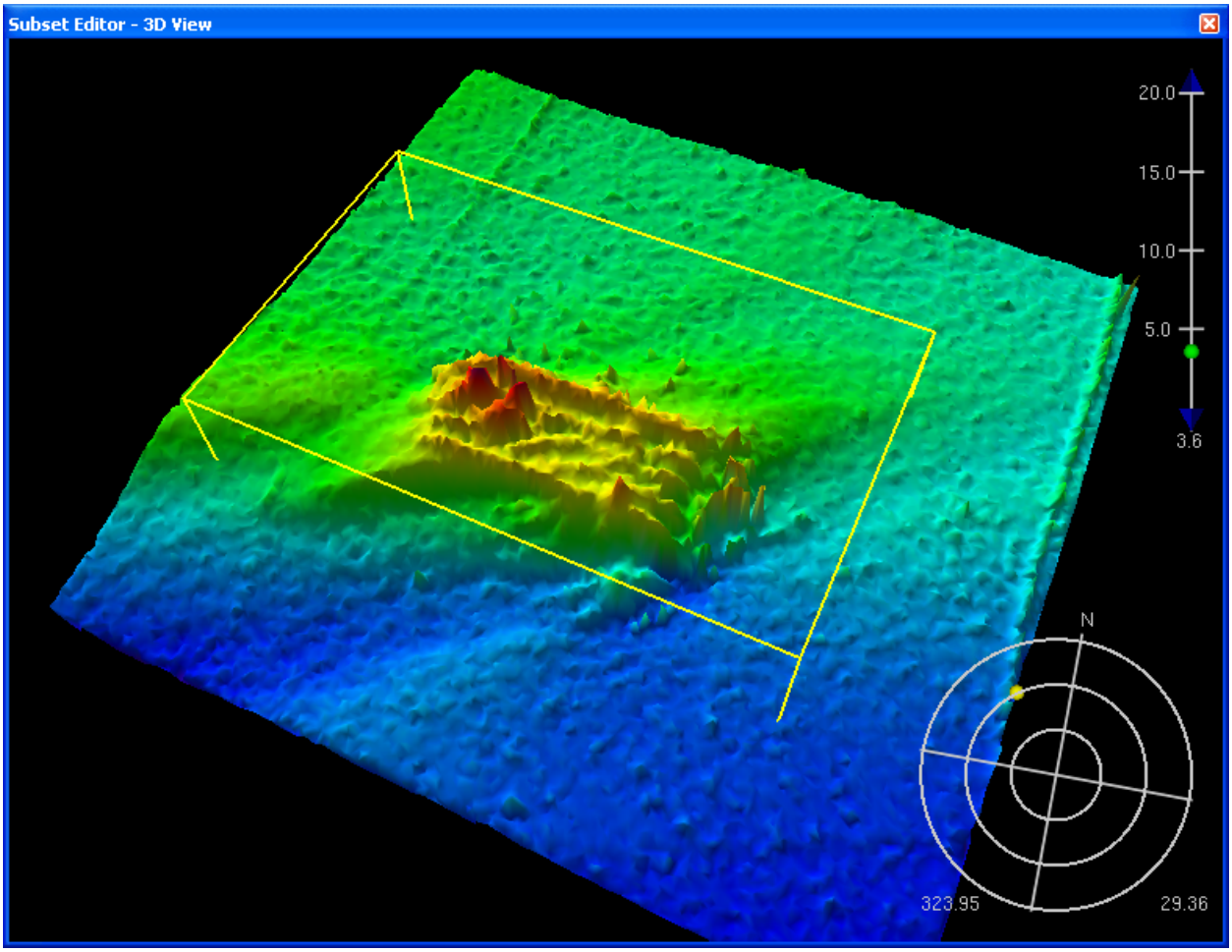

Figure 1.11.2

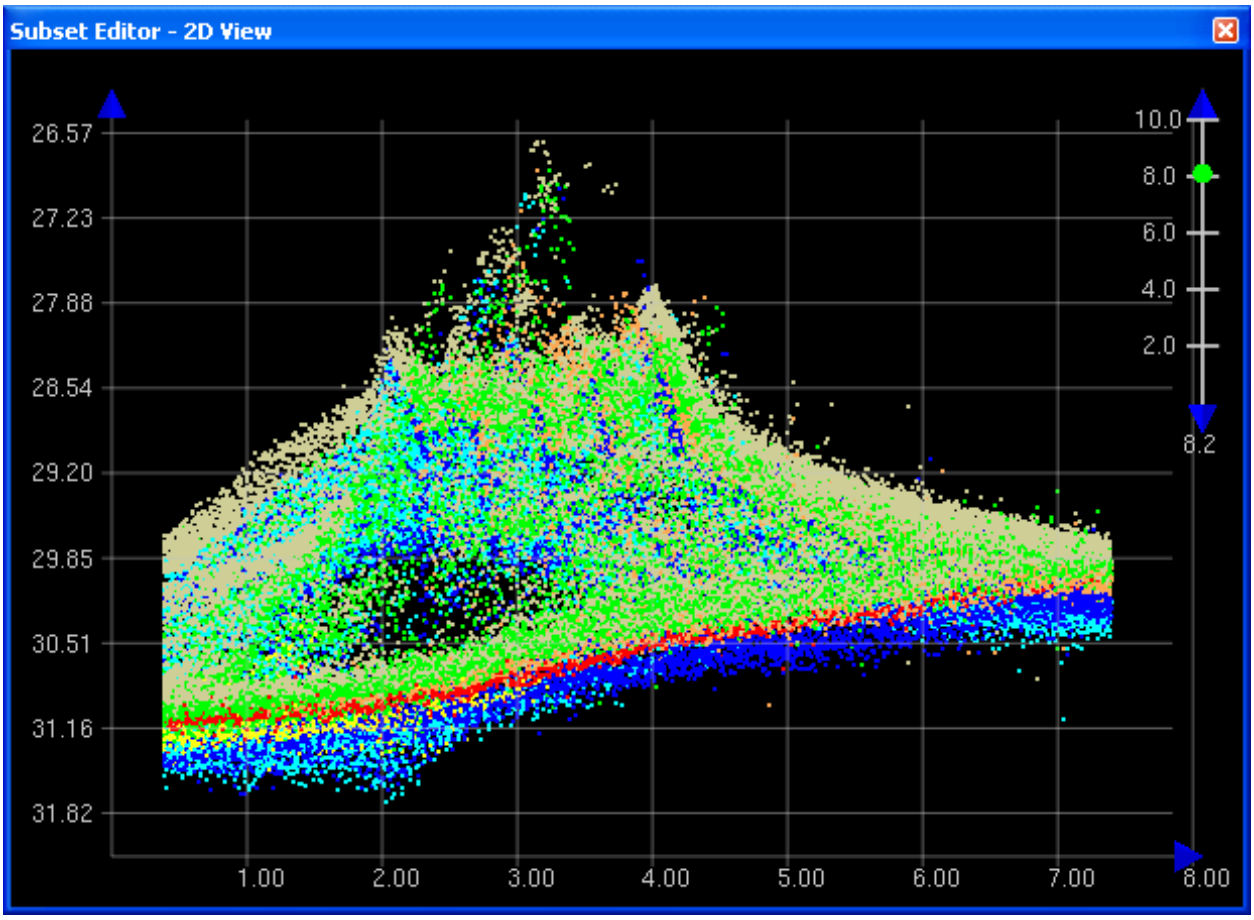
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Figure 1.11.3

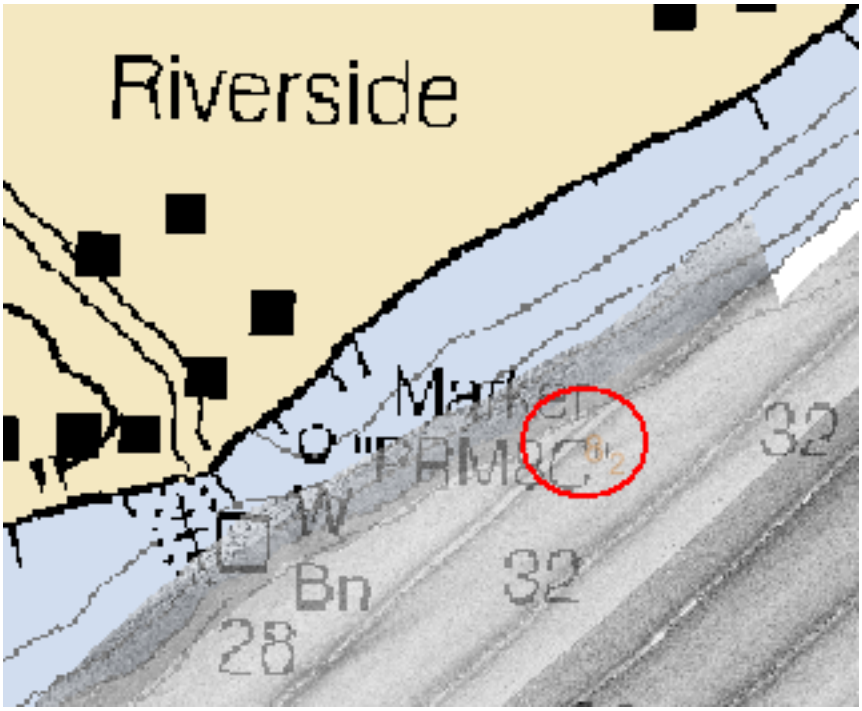


Figure 1.11.4

1.12) 8' in observed 10'

Survey Summary

Survey Position: 38° 47' 20.0" N, 077° 02' 20.0" W

Least Depth: 2.31 m (= 7.58 ft = 1.264 fm = 1 fm 1.58 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.966 m ;**TVU (TPEv)** ±1.567 m

Timestamp: 2007-171.16:45:44.167 (06/20/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-171 / 171-1644

Profile/Beam: 1996/52

Charts Affected: 12285_14, 12289_1, 12285_15, 12280_1

Remarks:

Contact located near charted sumberged piles, just offshore of the 18 foot contour. Contact has a least depth of 7.58 feet in surrounding water of 10.08 feet.-RWM

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-171/171-1644	1996/52	0.00	000.0	Primary
h11693/bh_s5501_klein5000_sss100/2007-169/001_1416	0001	3.85	343.4	Secondary
h11693/bh_s5501_klein5000_sss200/2007-169/001_1529	0007	11.41	359.0	Secondary

Hydrographer Recommendations

Hydrographer recommends charting the least depth of 7.58 feet at position 38:47:19.845N , 077:02:19.971W (322918.06E , 4295319.27N) contingent on the redraw of the 18 foot contour line. Otherwise, chart an obstruction at feature's position with least deapth.

Note: Initial tide reductions used discrete zoning, subsequent depths will be altered upon the application of TCARI.

Cartographically-Rounded Depth (Affected Charts):

7ft (12285_14, 12289_1, 12285_15, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes: CATOBS - 7:foul ground

QUASOU - 6:least depth known

SORDAT - 2007_171

SORIND - US,US,nsurf,H11693

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

VALSOU - 2.311 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur. Chart 7-ft Obstrn

1.13) AWOIS #13960 19-ft Obstrn Retain as charted

Primary Feature for AWOIS Item #13960

Search Position: 38° 12' 44.0" N, 076° 41' 36.0" W

Historical Depth: 5.49 m

Search Radius: 250

Search Technique: SSS, SB, MB, PDS

Technique Notes: [None]

History Notes:

18 ft. obstruction reported in location of 23 ft. sounding on the edge of a shipping channel. Obstruction reported to be a 100 by 40 ft. pile of concrete and steel beams with an least depth of 18.1.■■*Bay Hydrographer comments: AWOIS feature verified by 200% coverage with a KLEIN 5000 and developed with a RESON 7125 MBES. However, MBES data quality issues were encountered from technical system difficulties. The confidence in this data is questionable. Hydrographer recommends retaining the feature as charted. -VP*****

Survey Summary

Survey Position: 38° 12' 44.4" N, 076° 41' 36.9" W

Least Depth: 5.12 m (= 16.80 ft = 2.800 fm = 2 fm 4.80 ft)

TPU (±1.96σ): **THU (TPEh)** ±3.925 m ;**TVU (TPEv)** ±1.517 m

Timestamp: 2007-150.17:35:20.278 (05/30/2007)

Survey Line: h11693 / bh_s5501_reson7125 / 2007-150 / 022_0429

Profile/Beam: 2072/63

Charts Affected: 12285_8, 12286_1, 12285_1, 12280_1

Remarks:

Bay Hydrographer comments: AWOIS feature verified by 200% coverage with a KLEIN 5000 and developed with a RESON 7125 MBES. However, MBES data quality issues were encountered from technical system difficulties. The confidence in this data is questionable.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/bh_s5501_reson7125/2007-150/022_0429	2072/63	0.00	000.0	Primary
h11693/bh_s5501_klein5000_sss100/2007-150/031_0337	0001	11.91	150.5	Secondary
h11693/bh_s5501_klein5000_sss200/2007-150/023_0347	0001	12.53	351.7	Secondary
h11693/bh_s5501_klein5000_sss200/2007-150/021_0352	0001	14.73	263.7	Secondary
h11693/bh_s5501_klein5000_sss100/2007-150/021_0352	0001	17.32	045.4	Secondary

h11693/bh_s5501_klein5000_sss100/2007-150/023_0347	0001	21.62	255.1	Secondary
OPR-E300-BH-NRT7-07-A	AWOIS # 13960	23.60	298.3	Secondary (grouped)
h11693/bh_s5501_klein5000_sss100/2007-150/001_0333	0001	33.68	332.1	Secondary

Hydrographer Recommendations

Hydrographer recommends retaining the feature as charted. -VP

Cartographically-Rounded Depth (Affected Charts):

17ft (12285_8, 12286_1, 12285_1, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes:

CATOBS - 6:foul area

NATCON - 2,7:concreted,metal

QUASOU - 6:least depth known

RECDAT - 20070530

SORDAT - 20070621

SORIND - US,US,nsurf,H11693

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

VALSOU - 5.121 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Concur with clarification. Sonar system artifacts were present within the SWMB data. Data review required editing to eliminate the artifacts. The least depth of the feature post editing was determined to be 6.235m (20.45-ft). Recommend to retain as charted.

Feature Images

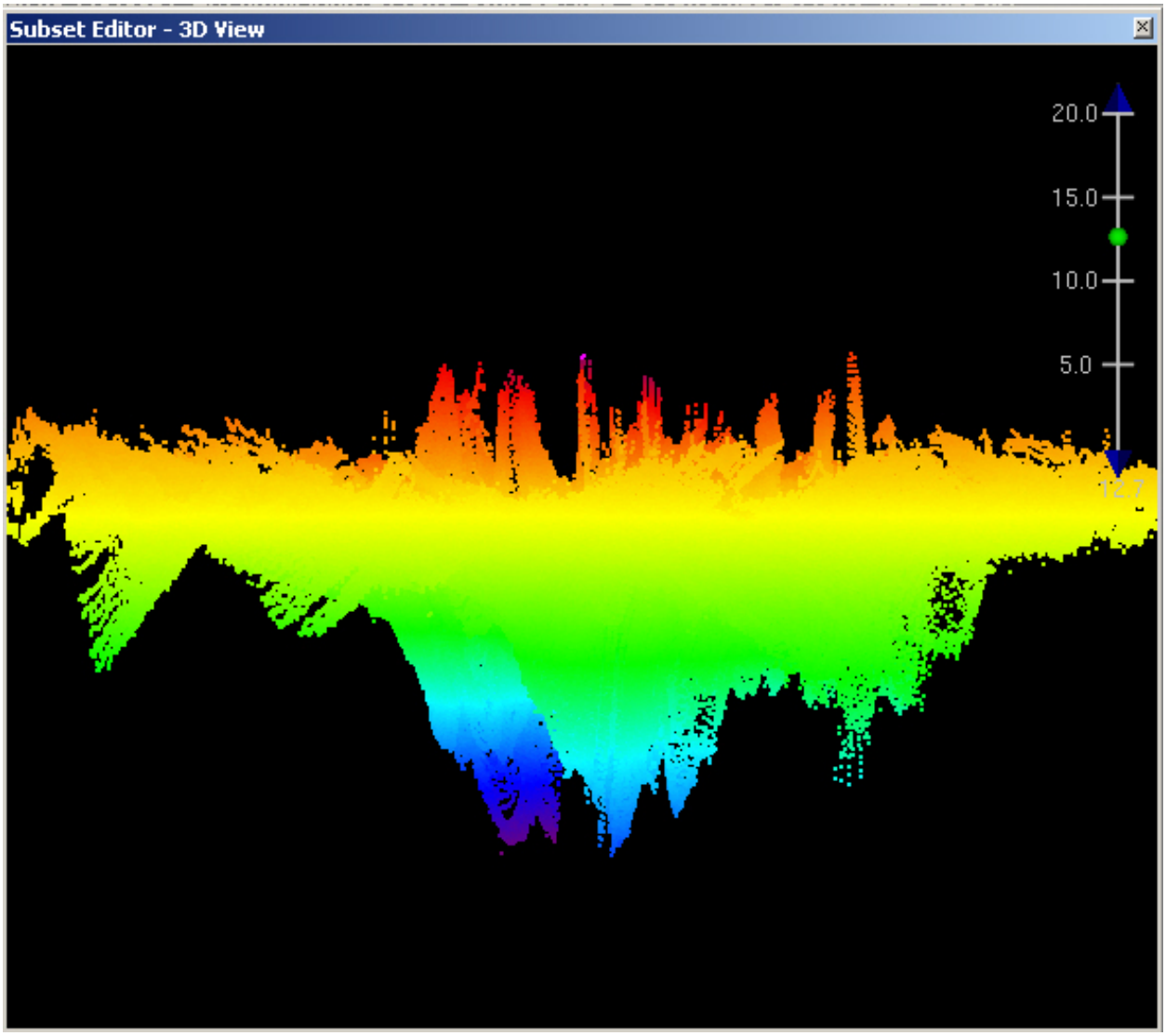


Figure 1.13.1

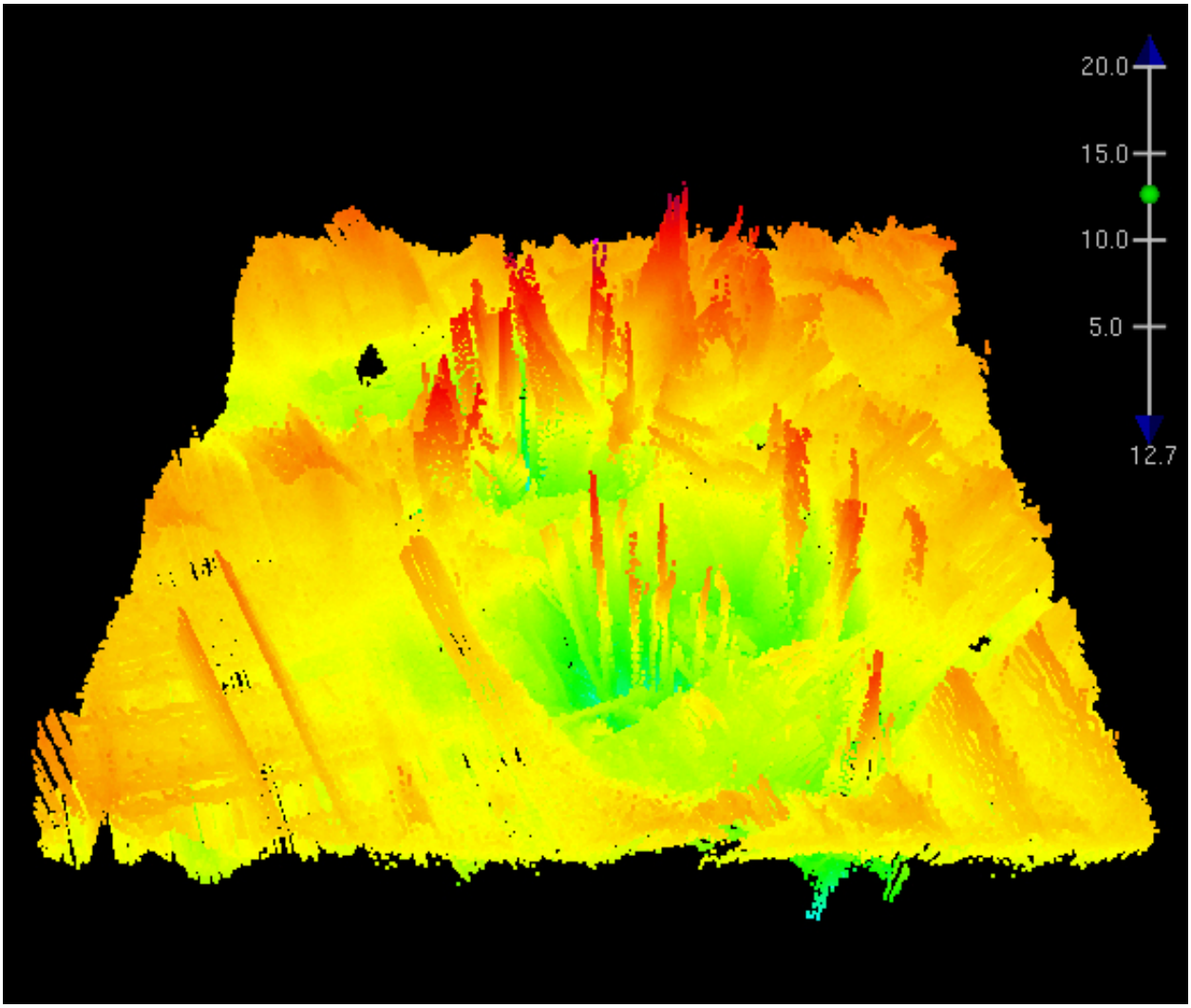


Figure 1.13.2

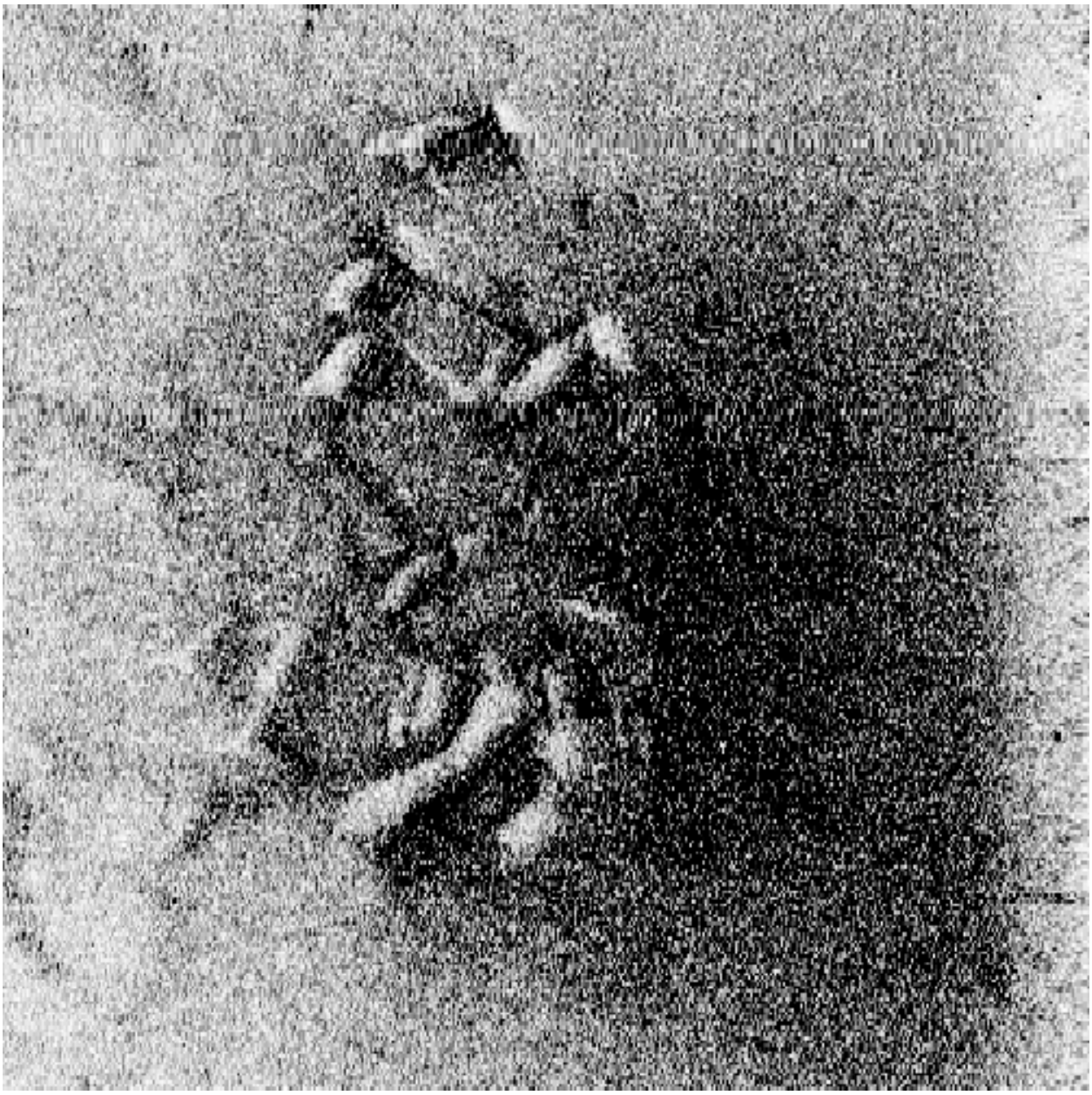


Figure 1.13.3

1.14) DtoN Revise 9-ft Obstrn (subm pile) : Chart 8-ft Obstrn 586/33

DANGER TO NAVIGATION

Survey Summary

Survey Position:	38° 27' 38.0" N, 077° 16' 19.6" W
Least Depth:	2.80 m (= 9.19 ft = 1.532 fm = 1 fm 3.19 ft)
TPU (±1.96σ):	**THU (TPEh)** ±1.966 m ;**TVU (TPEv)** ±1.568 m
Timestamp:	2007-164.17:31:00.607 (06/13/2007)
Survey Line:	h11693 / nrt7_s3004_reson8125 / 2007-164 / 164-1730
Profile/Beam:	586/33
Charts Affected:	12288_1, 12285_9, 12280_1

Remarks:

2007_164:Contact reviewed in CARIS SSS editor and marked for development with MBES. Feature imaged with 200% Klein 5000 SSS and developed with a Reson 8125. Least depth on feature is 2.80 meters (9.19 feet) in surrounding waters charted at 24 feet deep. The dimensions of the feature are approximately 3.23 meters wide by 5.31 meters high. Due to the proximity to the main channel, the item should be submitted as a DtoN.

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-164/164-1730	586/33	0.00	000.0	Primary

Hydrographer Recommendations

Hydrographer recommends charting an obstruction at position 38°27'38.012" , -077°16'19.609" with a least depth of 2.8 meters (9 feet using NOAA rounding).

Cartographically-Rounded Depth (Affected Charts):

9ft (12288_1, 12285_9, 12280_1)

S-57 Data

[None]

Office Notes

Concur with clarification. Final data review indicates the least depth is 2.478m (8.129-ft). Recommend to delete the 9-ft Obstruction submitted as DtoN, and append chart with 8-ft Obstruction located in 38°27'38.00"N, 077°16'19.619"W.

Feature Images

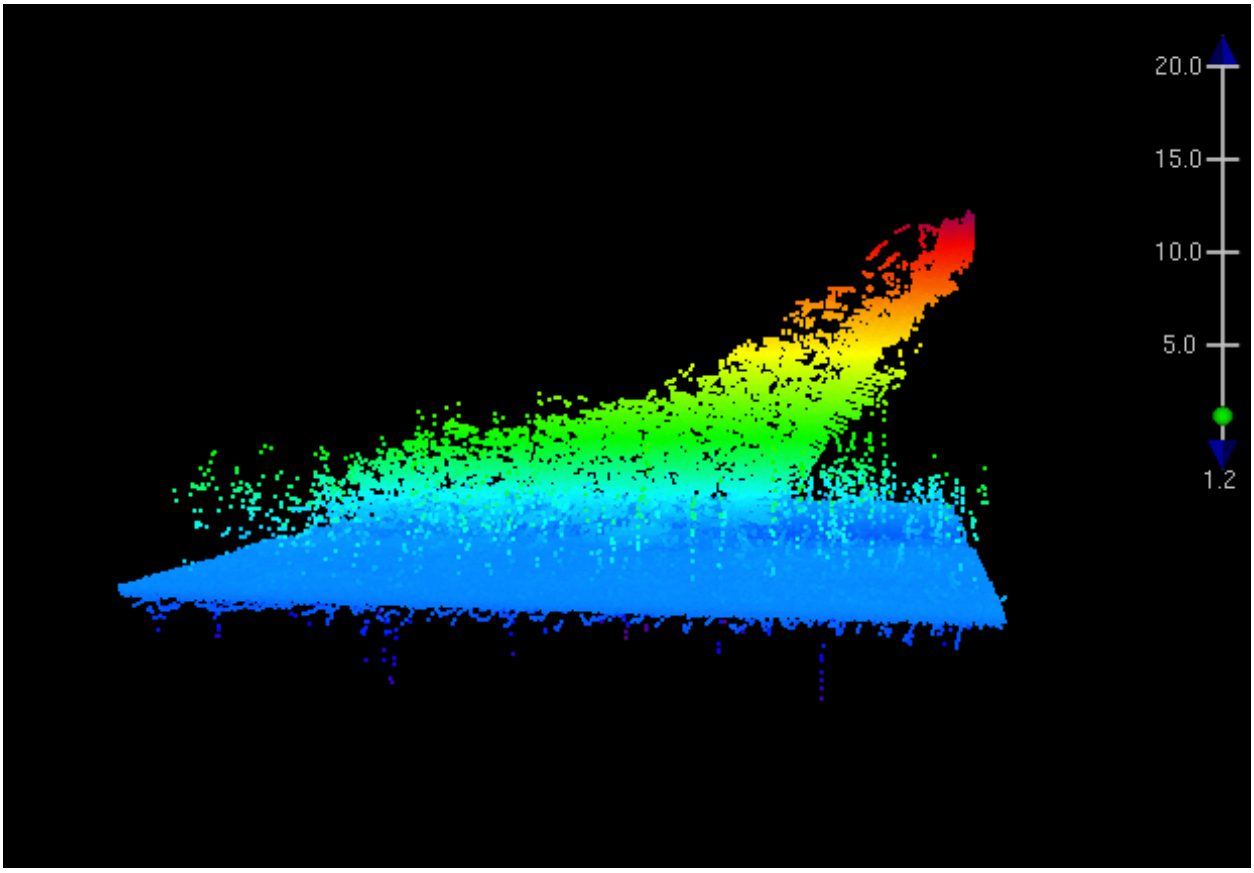
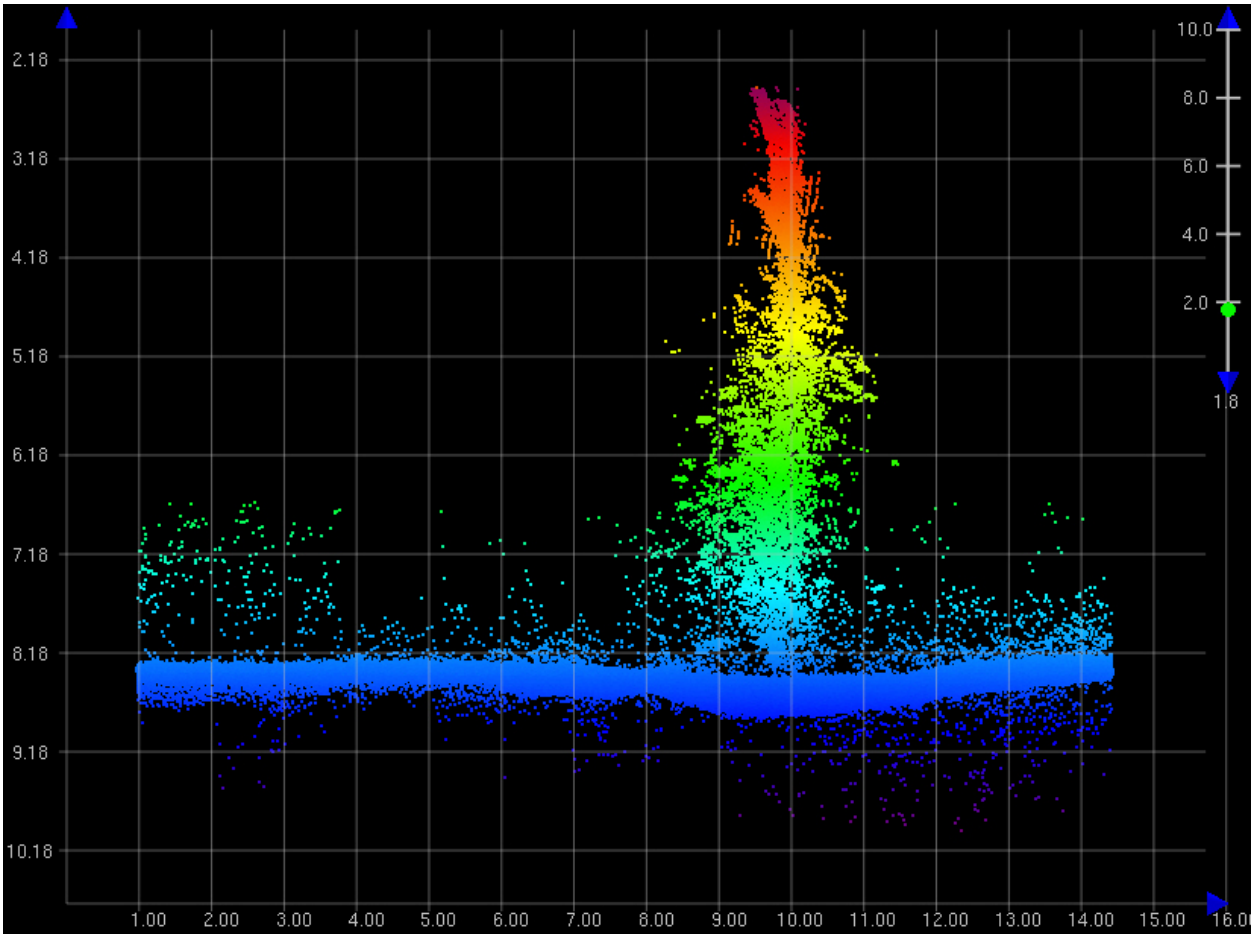


Figure 1.14.1


2.18
3.18
4.18
5.18
6.18
7.18
8.18
9.18
10.18
1.00
2.00
3.00
4.00
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10.00
11.00
12.00
13.00
14.00
15.00
10.0
8.0
6.0
4.0
2.0
1.8

Figure 1.14.2

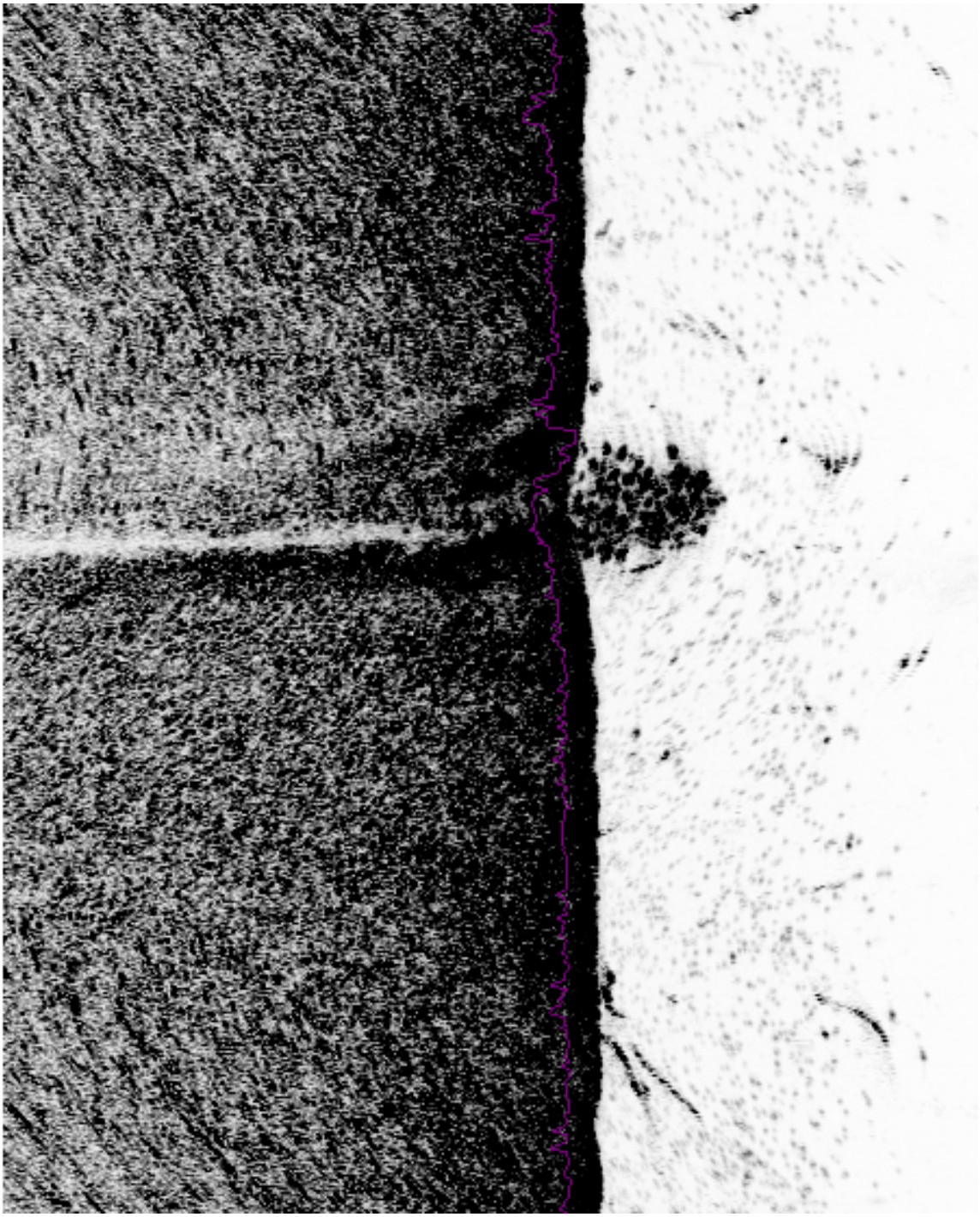


Figure 1.14.3

1.15) 20-ft Subm Pile AWOIS # 13952 1754/98

Survey Summary

Survey Position: 38° 46' 14.5" N, 077° 01' 53.2" W

Least Depth: 6.15 m (= 20.17 ft = 3.362 fm = 3 fm 2.17 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.986 m ;**TVU (TPEv)** ±1.566 m

Timestamp: 2007-169.16:38:42.076 (06/18/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-169 / 169-1636

Profile/Beam: 1754/98

Charts Affected: 12285_14, 12289_1, 12285_15, 12280_1

Remarks:

Charted Pile awash. Bathy data indicates a feature, pile like in appearance rising above the sea floor 0.33m (1.08-ft). Least depth is 6.148m (20.171-ft).

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-169/169-1636	1754/98	0.00	000.0	Primary

Hydrographer Recommendations

Field recommended to revise Pile awash to submerged.

Cartographically-Rounded Depth (Affected Charts):

20ft (12285_14, 12289_1, 12285_15, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes:

OBJNAM - 20-ft subm pile

QUASOU - 6:least depth known

SORDAT - 20070621

SORIND - US,US,nsurf,H11693

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

VALSOU - 6.148 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Chart submerged pile with a least depth of 6.148m (20.171) at the surveyed location. The feature is listed as an Obstruction (snag) for S57 encoding. Apply to raster chart as 20-ft submerged pile.

Feature Images

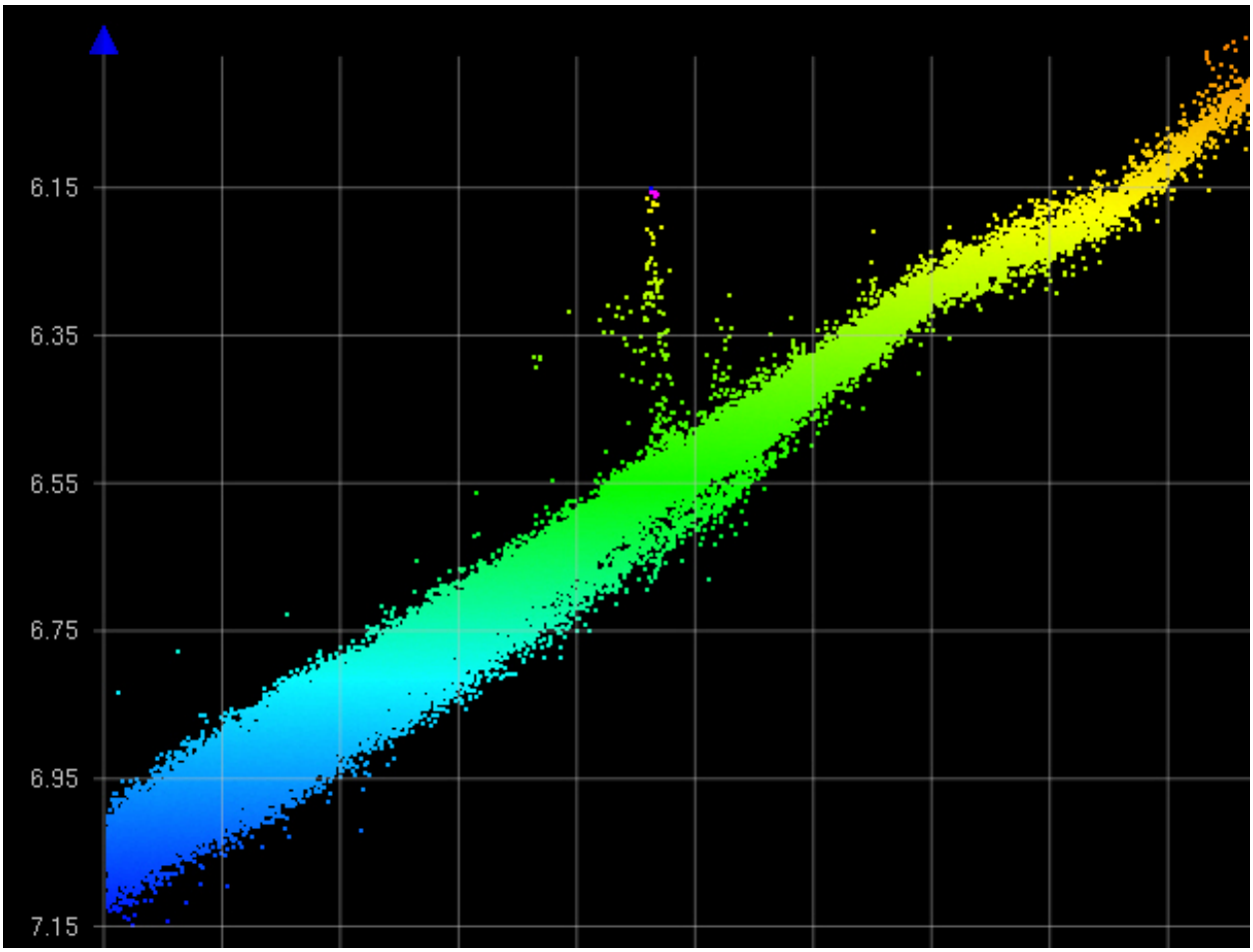


Figure 1.15.1

1.16) 20-ft Subm Pile AWOIS # 13952 1281/68

Survey Summary

Survey Position: 38° 46' 11.7" N, 077° 01' 53.3" W

Least Depth: 6.31 m (= 20.70 ft = 3.450 fm = 3 fm 2.70 ft)

TPU (±1.96σ): **THU (TPEh)** ±1.992 m ;**TVU (TPEv)** ±1.570 m

Timestamp: 2007-170.14:31:50.582 (06/19/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-170 / 170-1430

Profile/Beam: 1281/68

Charts Affected: 12285_14, 12289_1, 12285_15, 12280_1

Remarks:

Charted Pile awash. Bathy data indicates a feature, pile like in appearance rising above the sea floor 0.27m (0.88-ft). Least depth is 6.309m (20.669-ft).

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-170/170-1430	1281/68	0.00	000.0	Primary

Hydrographer Recommendations

Field recommended to revise Pile awash to submerged.

Cartographically-Rounded Depth (Affected Charts):

20ft (12285_14, 12289_1, 12285_15, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes:

OBJNAM - 20-ft Subm Pile

QUASOU - 6:least depth known

SORDAT - 20070621

SORIND - US,US,nsurf,H11693

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

VALSOU - 6.309 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Chart submerged pile with a least depth of 6.309m (20.669) at the surveyed location. The feature is listed as an Obstruction (snag) for H-Cell S57 encoding. Apply to raster chart as submerged pile.

Feature Images

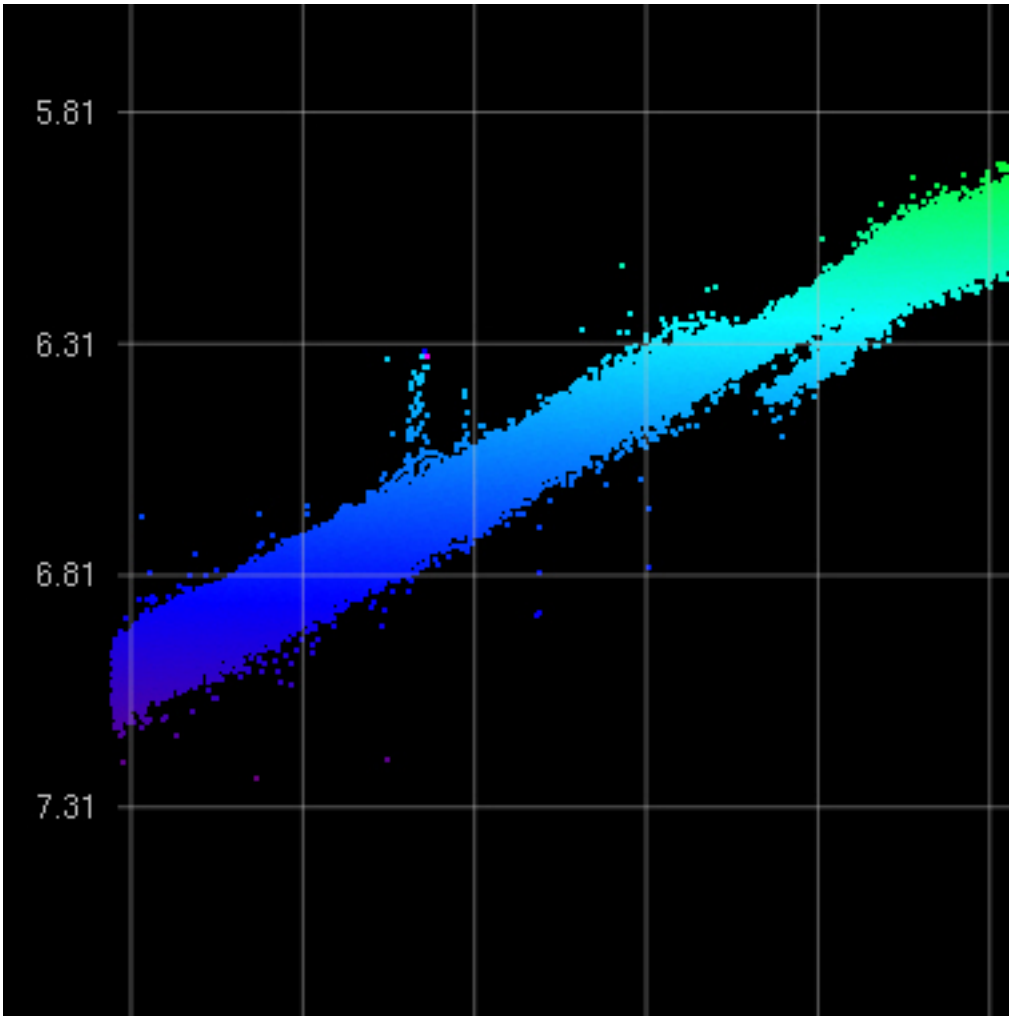


Figure 1.16.1

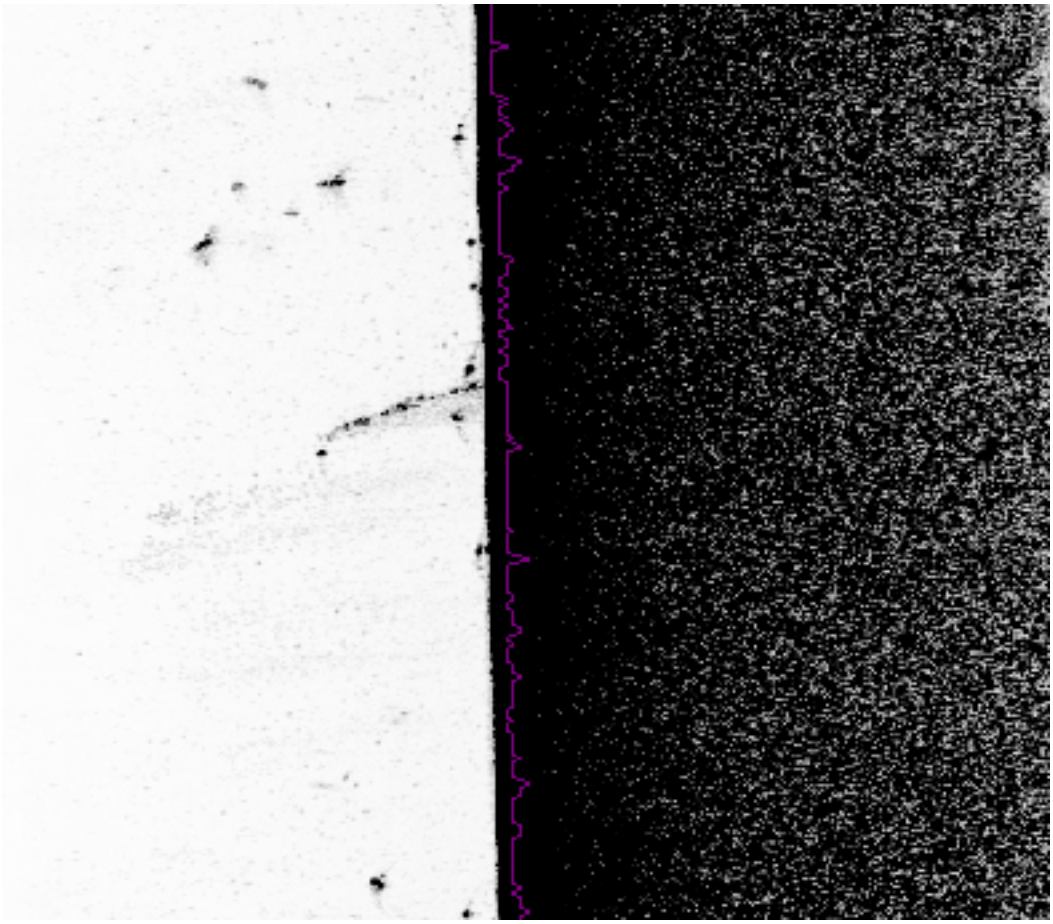


Figure 1.16.2

1.17) 26-ft Subm Pile AWOIS #13592 149/161

Survey Summary

Survey Position: 38° 46' 17.0" N, 077° 01' 54.8" W

Least Depth: 8.02 m (= 26.31 ft = 4.385 fm = 4 fm 2.31 ft)

TPU (±1.96σ): **THU (TPEh)** ±2.006 m ;**TVU (TPEv)** ±1.569 m

Timestamp: 2007-170.14:29:44.342 (06/19/2007)

Survey Line: h11693 / nrt7_s3004_reson8125 / 2007-170 / 170-1429

Profile/Beam: 149/161

Charts Affected: 12285_14, 12289_1, 12285_15, 12280_1

Remarks:

Charted Pile awash. Bathy data indicates a feature, pile like in appearance rising above the sea floor 0.55m (1.804-ft). Least depth is 8.109m (26.309-ft).

Feature Correlation

Address	Feature	Range	Azimuth	Status
h11693/nrt7_s3004_reson8125/2007-170/170-1429	149/161	0.00	000.0	Primary

Hydrographer Recommendations

Field recommended to revise Pile awash to submerged.

Cartographically-Rounded Depth (Affected Charts):

26ft (12285_14, 12289_1, 12285_15, 12280_1)

S-57 Data

Geo object 1: Obstruction (OBSTRN)

Attributes:

CATOBS - 1:snag / stump

OBJNAM - 26-ft Subm Pile

QUASOU - 6:least depth known

SORDAT - 20070621

SORIND - US,US,nsurf,H11693

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

VALSOU - 8.019 m

VERDAT - 12:Mean lower low water

WATLEV - 3:always under water/submerged

Office Notes

Chart submerged pile with a least depth of 8.019m (26.309) at the surveyed location. The feature is listed as an Obstruction (snag) for S57 encoding. Apply to raster chart as 26-ft submerged pile.

1.18) Private AtoN

Survey Summary

Survey Position: 38° 32' 21.9" N, 077° 15' 57.2" W

Least Depth: [None]

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

Timestamp: 2009-105.10:13:02 (04/15/2009)

GP Dataset: ChartGPs - Digitized

GP No.: 16

Charts Affected: 12288_1, 12285_9, 12280_1

Remarks:

[None]

Feature Correlation

Address	Feature	Range	Azimuth	Status
ChartGPs - Digitized	16	0.00	000.0	Primary

Hydrographer Recommendations

[None]

S-57 Data

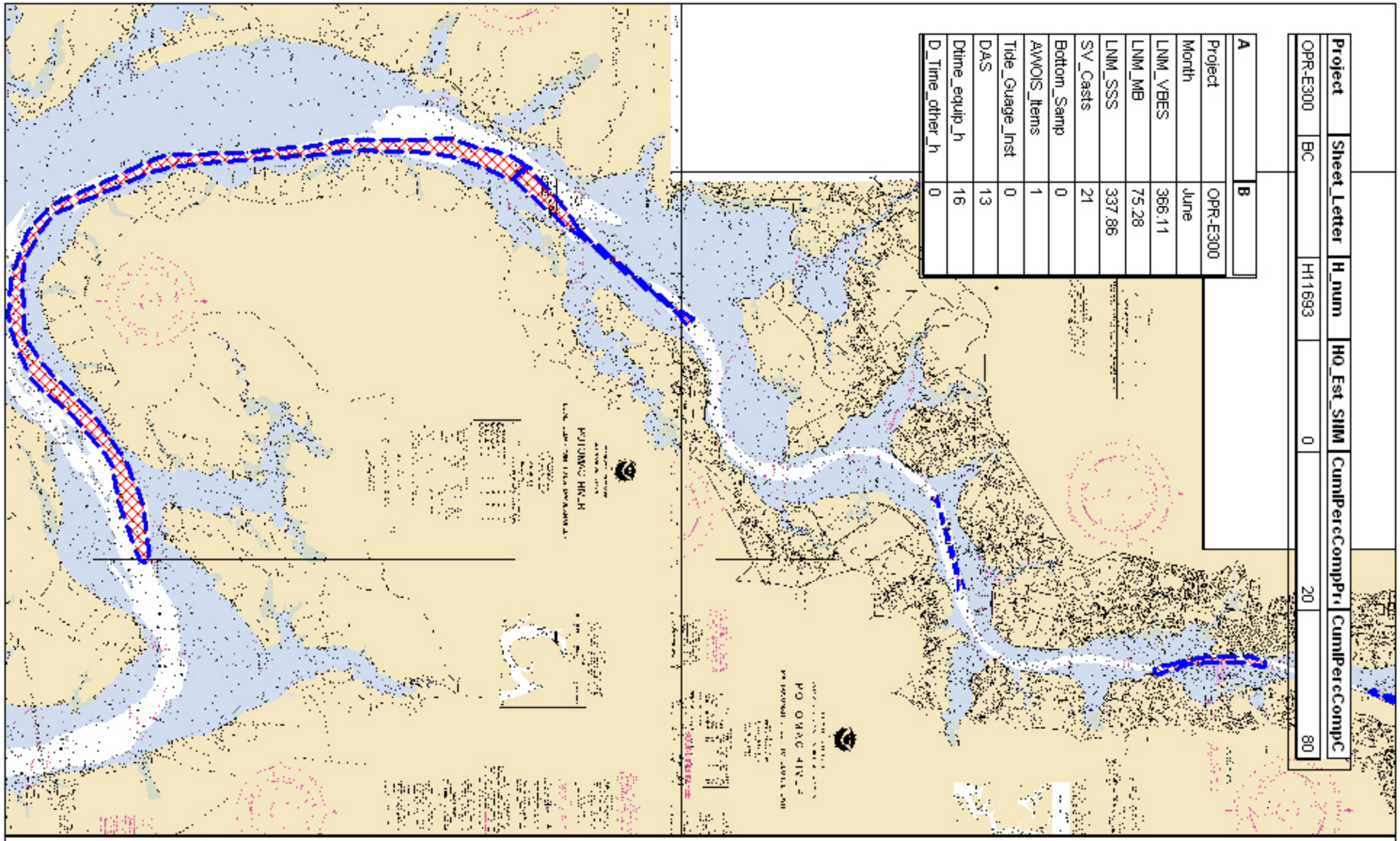
Geo object 1: Beacon, special purpose/general (BCNSPP)

Attributes: CATSPM - 13:private mark

INFORM - Private Aid

Office Notes

Field made no remarks or recommendation. Private navigational aid's location vertified by SSS records. Retain private aid as charted.



Chartlet 1 of 1

H11693 June 2007 Progress Sketch

Preliminary data subject to office review. Soundings corrected using preliminininary observed tides.
Data reflects state of sea floor in existence on day and at time the survey was conducted.

NOT FOR NAVIGATION.

No Window

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL OCEAN SERVICE

Project: *S-E300-BH-NR77-07*
Survey: *H11693, Potomac River-Area B & C*
State: *Virginia*
Locality: *Alexandria*
Sub-locality: *Central Potomac*
Survey Scale: *1:10,000*

Sounding Units: *Feet*
Sounding Datum: *MLLW*
Horizontal Datum: *NAD 83*
Projection: *UTM 18*
Central Meridian: *075° 00 00*
Scale Factor: *0.9996*

BAY HYDROGRAPHER
LT(jg) Michael Davidson
Commanding

June 1 to
June 30, 2007

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : October 22, 2007

HYDROGRAPHIC BRANCH: Atlantic Hydrographic Branch
HYDROGRAPHIC PROJECT: OPR-E300-BH-2007
HYDROGRAPHIC SHEET: H11693

LOCALITY: Potomac River, Maryland and Washington D.C
TIME PERIOD: May 29 - July 21, 2007

TIDE STATION USED: Lewisetta, VA 863-5750
Lat.37° 59.8′ N Long. 076° 27.9'W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.416 meters

TIDE STATION USED: Washington, DC 859-4900
Lat. 38° 52.4' N Long. 077° 01.3' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.897 meters

REMARKS: RECOMMENDED ZONING

POTR14, POTR16, POTR19, POTR26, POTR28, POTR29, POTR30, POTR31, POTR32, POTR33, POTR34, POTR35, POTR36, POTR39, POTR40, POTR41, POTR43, POTR45, POTR47, POTR52, POTR53, POTR56 & POTR57

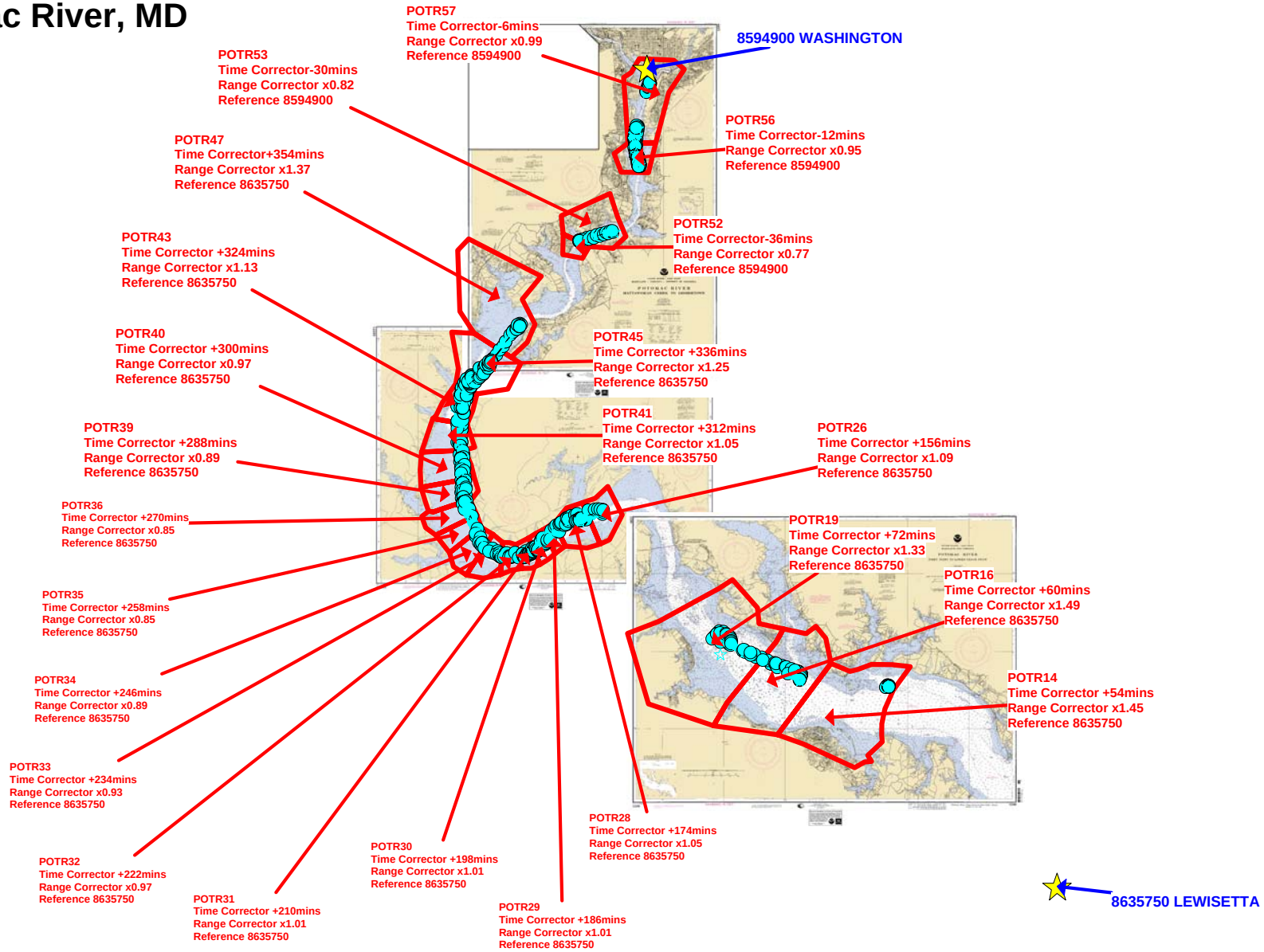
Refer to attachments for zoning information.

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).

_____

CHIEF, PRODUCTS AND SERVICES DIVISION

Final Tidal Zoning
for OPR-E300-BH-2007, H11693
Potomac River, MD



From <Michael.Davidson@noaa.gov>

Sent Wednesday, October 3, 2007 10:36 am

To Paul.Turner@noaa.gov

Cc

Bcc

Subject Re: Potomac River Project

Attachments H11693_survey_outline.zip 555K

Hey Paul,

The outline was submitted a few months ago. I have attached a copy for you. Let me know if you have any further questions.

Take care,
Mike

----- Original Message -----
From: Paul.Turner@noaa.gov
Date: Wednesday, October 3, 2007 10:16 am
Subject: Potomac River Project

> Hi Mike-
>
> Was there a survey outline submitted for the Potomac river project
> fromthis summer?
>
> I am trying to account for all the outlines for the past field season
> and do not have a record of one.
>
> Paul
>

From <Michael.Davidson@noaa.gov>

Sent Friday, May 16, 2008 9:23 am

To B Jordan <BJordan@mdp.state.md.us>

Cc

Bcc

Subject Re: RE: Features of possible historical significance

Attachments H11693_SHPO_v2.zip 554K

Hi Brian,

Attached are the files that you requested. All the wrecks have been added to a single shape file and there is one correction that has been made and annotated on Chartlet 7. We went back and reviewed all the contacts and realized that the indicated wreck in the upper right corner of Chartlet 7 (when viewed in profile) was a contact that was created during the training of new personnel and should not have made it through to the final plot - it was intended for demonstration purposes only. We should have noticed it on the plot prior to sending it the first time. We have resent the original graphic with the erroneous contact annotated with a large red "X" to hopefully reduce any confusion.

We will be submitting our survey to the Atlantic Hydrographic Branch in Norfolk in the next week. At that point any special handling requests for features submitted to your office should be directed to LCDR Shep Smith, Chief, Atlantic Hydrographic Branch. He can be reached at 757-441-6746 or by email at shep.smith@noaa.gov

Let me know if you have any remaining questions.

V/R,
Mike

--
LT Michael C. Davidson, NOAA
NOAA - Survey Vessel BAY HYDROGRAPHER
c/o Calvert Marina
PO Box 157
14485 Dowell Rd
Solomons, MD 20688
michael.davidson@noaa.gov
410-610-8361

----- Original Message -----
From: B Jordan <BJordan@mdp.state.md.us>
Date: Monday, April 28, 2008 2:13 pm
Subject: RE: Features of possible historical significance

> Hi Mike,
>
> I was working with our GIS people to view the information you sent us
> and a couple of the sites are missing from the shapefiles and
> associatedtables. The two wrecks on Chartlet_7.jpg and
> Chartlet_6.jpg are not
> included in the shape file. I was able to plot these points within
> GISexcept for the wreck in the upper left of Chartlet_7.jpg, which
> has no
> associated lat/long information or associated image. If you could
> sendthese along I would appreciate it.
>
> We are going to have some of our volunteers check out some of these
> wrecks this summer. For now, I would have you mark these as
> obstructions until we can rule them out as historic. Non of these
> wrecks are showing up in our databases, except the one in
> chartlet_1.jpgoff of Sandy Point, which is probably one of the WWI
> fleet that is sunk
> in Mallows Bay.
>
> Cheers,
>
> Brian
>
>
> Brian A. Jordan, Ph.D.
> Assistant State Underwater Archaeologist
> Office of Preservation Services
> BJordan@mdp.state.md.us
> 410.514.7668 410.987.4071/fax
> Toll Free: 1.800.756.0119 x7668
> ----------
> ----
> -----
> Maryland Department of Planning
> Maryland Historical Trust
> 100 Community Place www.marylandhistoricaltrust.net
> Crownsville, MD 21032 www.mdp.state.md.us
>
>
> -----Original Message-----
> From: Michael.Davidson@noaa.gov [mailto:Michael.Davidson@noaa.gov]
> Sent: Thursday, April 24, 2008 9:40 AM
> To: B Jordan
> Cc: S Langley; Briana.Welton@noaa.gov
> Subject: Features of possible historical significance
>
> Hi all,
>
> Attached are some features that were discovered during a partial
> channelsurvey of the Potomac River from Colonial Beach to
> Alexandria. Some of
> the features are wrecks that are not currently charted and other
> features are not readily recognizable as wrecks, but were included for
> review by your office.
>
> Typically, if a wreck is not considered historically significant, then
> it gets charted as a wreck. If there is historical significance, then
> the features are usually charted as obstructions. Please review the
> attached files and let us know if any of the features require special
> consideration when charting.
>
> We have included mapinfo files as well as shape files. Let me know
> if a
> different format is preferred.

>
> V/R,
> Mike
>
>
> --
> LT Michael C. Daivdson, NOAA
> R/V BAY HYDROGRAPHER
> c/o Calvert Marina
> P.O. Box 157
> 14485 Dowell Rd
> Solomons, MD 20688
> 410-610-8361 (boat)
> michael.davidson@noaa.gov
>
>
>

From <Michael.Davidson@noaa.gov>

Sent Thursday, April 24, 2008 9:40 am

To bjordan@mdp.state.md.us

Cc slangley@mdp.state.md.us briana.welton@noaa.gov

Bcc

Subject Features of possible historical significance

Attachments H11693_Maryland_SHPO.zip 2.9MB

Hi all,

Attached are some features that were discovered during a partial channel survey of the Potomac River from Colonial Beach to Alexandria. Some of the features are wrecks that are not currently charted and other features are not readily recognizable as wrecks, but were included for review by your office.

Typically, if a wreck is not considered historically significant, then it gets charted as a wreck. If there is historical significance, then the features are usually charted as obstructions. Please review the attached files and let us know if any of the features require special consideration when charting.

We have included mapinfo files as well as shape files. Let me know if a different format is preferred.

V/R,
Mike

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P.O. Box 157
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Solomons, MD 20688
410-610-8361 (boat)
michael.davidson@noaa.gov

From B Jordan <BJordan@mdp.state.md.us>

Sent Thursday, April 24, 2008 11:43 am

To Michael.Davidson@noaa.gov

Cc

Bcc

Subject RE: Features of possible historical significance

Thanks Mike,

Some of these look very interesting. We are going to cross-reference it with some of our spatial information and we will get back to you. It there a time-frame we are looking at for you to post the information in AWOIS or other public notices?

Cheers,

Brian

Brian A. Jordan, Ph.D.
Assistant State Underwater Archaeologist
Office of Preservation Services
BJordan@mdp.state.md.us
410.514.7668 410.987.4071/fax
Toll Free: 1.800.756.0119 x7668

Maryland Department of Planning
Maryland Historical Trust
100 Community Place www.marylandhistoricaltrust.net
Crownsville, MD 21032 www.mdp.state.md.us

-----Original Message-----
From: Michael.Davidson@noaa.gov [mailto:Michael.Davidson@noaa.gov]
Sent: Thursday, April 24, 2008 9:40 AM
To: B Jordan
Cc: S Langley; Briana.Welton@noaa.gov
Subject: Features of possible historical significance

Hi all,

Attached are some features that were discovered during a partial channel survey of the Potomac River from Colonial Beach to Alexandria. Some of the features are wrecks that are not currently charted and other features are not readily recognizable as wrecks, but were included for review by your office.

Typically, if a wreck is not considered historically significant, then it gets charted as a wreck. If there is historical significance, then the features are usually charted as obstructions. Please review the attached files and let us know if any of the features require special consideration when charting.

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P.O. Box 157
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Solomons, MD 20688
410-610-8361 (boat)
michael.davidson@noaa.gov

From <Michael.Davidson@noaa.gov>

Sent Thursday, April 24, 2008 12:55 pm

To B Jordan <BJordan@mdp.state.md.us>

Cc

Bcc

Subject Re: RE: Features of possible historical significance

Hi Brian,

Unfortunately, I do not have an answer to your question about the time to posting in the AWOIS database, etc . . . I will ask around and get back to you on this. The total charting process from the time I submit the survey until it gets onto the chart is close to a year, but we have already submitted some of the items as Dangers to Navigation which were listed as obstructions.

We are having a conference next week during which new guidelines for this process will be detailed. I should be able to get some answers for you by then.

Thanks,
Mike

----- Original Message -----
From: B Jordan <BJordan@mdp.state.md.us>
Date: Thursday, April 24, 2008 11:43 am
Subject: RE: Features of possible historical significance

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> Solomons, MD 20688
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>
>
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From B Jordan <BJordan@mdp.state.md.us>

Sent Monday, April 28, 2008 2:13 pm

To Michael.Davidson@noaa.gov

Cc

Bcc

Subject RE: Features of possible historical significance

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We are going to have some of our volunteers check out some of these wrecks this summer. For now, I would have you mark these as obstructions until we can rule them out as historic. Non of these wrecks are showing up in our databases, except the one in chartlet_1.jpg off of Sandy Point, which is probably one of the WWI fleet that is sunk in Mallows Bay.

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Brian A. Jordan, Ph.D.
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Crownsville, MD 21032 www.mdp.state.md.us

-----Original Message-----
From: Michael.Davidson@noaa.gov [mailto:Michael.Davidson@noaa.gov]
Sent: Thursday, April 24, 2008 9:40 AM
To: B Jordan
Cc: S Langley; Briana.Welton@noaa.gov
Subject: Features of possible historical significance

Hi all,

Attached are some features that were discovered during a partial channel survey of the Potomac River from Colonial Beach to Alexandria. Some of the features are wrecks that are not currently charted and other features are not readily recognizable as wrecks, but were included for review by your office.

Typically, if a wreck is not considered historically significant, then it gets charted as a wreck. If there is historical significance, then the features are usually charted as obstructions. Please review the attached files and let us know if any of the features require special consideration when charting.

We have included mapinfo files as well as shape files. Let me know if a different format is preferred.

V/R,
Mike

--
LT Michael C. Daivdson, NOAA
R/V BAY HYDROGRAPHER
c/o Calvert Marina
P.O. Box 157
14485 Dowell Rd
Solomons, MD 20688
410-610-8361 (boat)
michael.davidson@noaa.gov

From <Michael.Davidson@noaa.gov>

Sent Wednesday, April 30, 2008 3:24 pm

To B Jordan <BJordan@mdp.state.md.us>

Cc

Bcc

Subject Re: RE: Features of possible historical significance

Hi Brian,

We are currently away from the boat attending a conference, but will be back on the boat Friday. I will have one of my guys take a look at everything again and package up the missing shape files.

V/R,
Mike

----- Original Message -----
From: B Jordan <BJordan@mdp.state.md.us>
Date: Monday, April 28, 2008 2:13 pm
Subject: RE: Features of possible historical significance

> Hi Mike,
>
> I was working with our GIS people to view the information you sent us
> and a couple of the sites are missing from the shapefiles and
> associatedtables. The two wrecks on Chartlet_7.jpg and
> Chartlet_6.jpg are not
> included in the shape file. I was able to plot these points
> within GIS
> except for the wreck in the upper left of Chartlet_7.jpg, which
> has no
> associated lat/long information or associated image. If you could
> sendthese along I would appreciate it.
>
> We are going to have some of our volunteers check out some of these
> wrecks this summer. For now, I would have you mark these as
> obstructions until we can rule them out as historic. Non of these
> wrecks are showing up in our databases, except the one in
> chartlet_1.jpgoff of Sandy Point, which is probably one of the WWI
> fleet that is sunk
> in Mallows Bay.
>
> Cheers,
>
> Brian
>
>
> Brian A. Jordan, Ph.D.
> Assistant State Underwater Archaeologist
> Office of Preservation Services
> BJordan@mdp.state.md.us
> 410.514.7668 410.987.4071/fax
> Toll Free: 1.800.756.0119 x7668
> ----------
> -----
> -----
> Maryland Department of Planning
> Maryland Historical Trust
> 100 Community Place www.marylandhistoricaltrust.net
> Crownsville, MD 21032 www.mdp.state.md.us
>
>
> -----Original Message-----
> From: Michael.Davidson@noaa.gov [mailto:Michael.Davidson@noaa.gov]
> Sent: Thursday, April 24, 2008 9:40 AM
> To: B Jordan
> Cc: S Langley; Briana.Welton@noaa.gov
> Subject: Features of possible historical significance
>
> Hi all,
>
> Attached are some features that were discovered during a partial
> channelsurvey of the Potomac River from Colonial Beach to
> Alexandria. Some of
> the features are wrecks that are not currently charted and other
> features are not readily recognizable as wrecks, but were included
for
> review by your office.
>
> Typically, if a wreck is not considered historically significant,
then
> it gets charted as a wreck. If there is historical significance,
then
> the features are usually charted as obstructions. Please review the
> attached files and let us know if any of the features require special
> consideration when charting.
>
> We have included mapinfo files as well as shape files. Let me
> know if a
> different format is preferred.
>
> V/R,
> Mike
>
>
> --
> LT Michael C. Daivdson, NOAA
> R/V BAY HYDROGRAPHER
> c/o Calvert Marina
> P.O. Box 157
> 14485 Dowell Rd
> Solomons, MD 20688
> 410-610-8361 (boat)
> michael.davidson@noaa.gov
>
>
>

From "Jack L. Riley" <Jack.Riley@noaa.gov>
Sent Tuesday, August 28, 2007 4:42 pm
To Vitad.Pradith@noaa.gov
Cc Olivia.Hauser@noaa.gov , Michael.Davidson@noaa.gov , "Michael J. Annis" <Michael.J.Annis@noaa.gov>
Bcc
Subject Re: HYPACK Raw data timestamp issue
Attachments image/jpeg 204K

Doh! I inadvertently copied data examples from line 3074.166 in my e-mail below, not 3076.166.

And--oops, in my last para. I should have said something like:

I'm not sure how the UTC time values in the $INUTC, $INZDA, and $INGGA NMEA sentences could be wrong--so the Hypack CPU clock value appears to be wrong; e.g., for 3076.166, true TND (in header; time of start of line) = 15:24:15 06/15/2007 + 3658.xx sec = 16:25:13 06/15/2007
So the EC2 data looks like it needs to be time-shifted with + 3658.xx
(The rest remains the same.)
And it may be better to use HIPS HVF Swath1/SVP1 time error entries to [increment the SLRange & ObservedDepths time data in HIPS], rather than the Pydro-Post Acquisition Tools? (Not sure if you would specify + or - in the HVF off the top of my head.) (Also, note the Tool->Caris->Reinstate Data from Backup if you want to try the HVF route.)

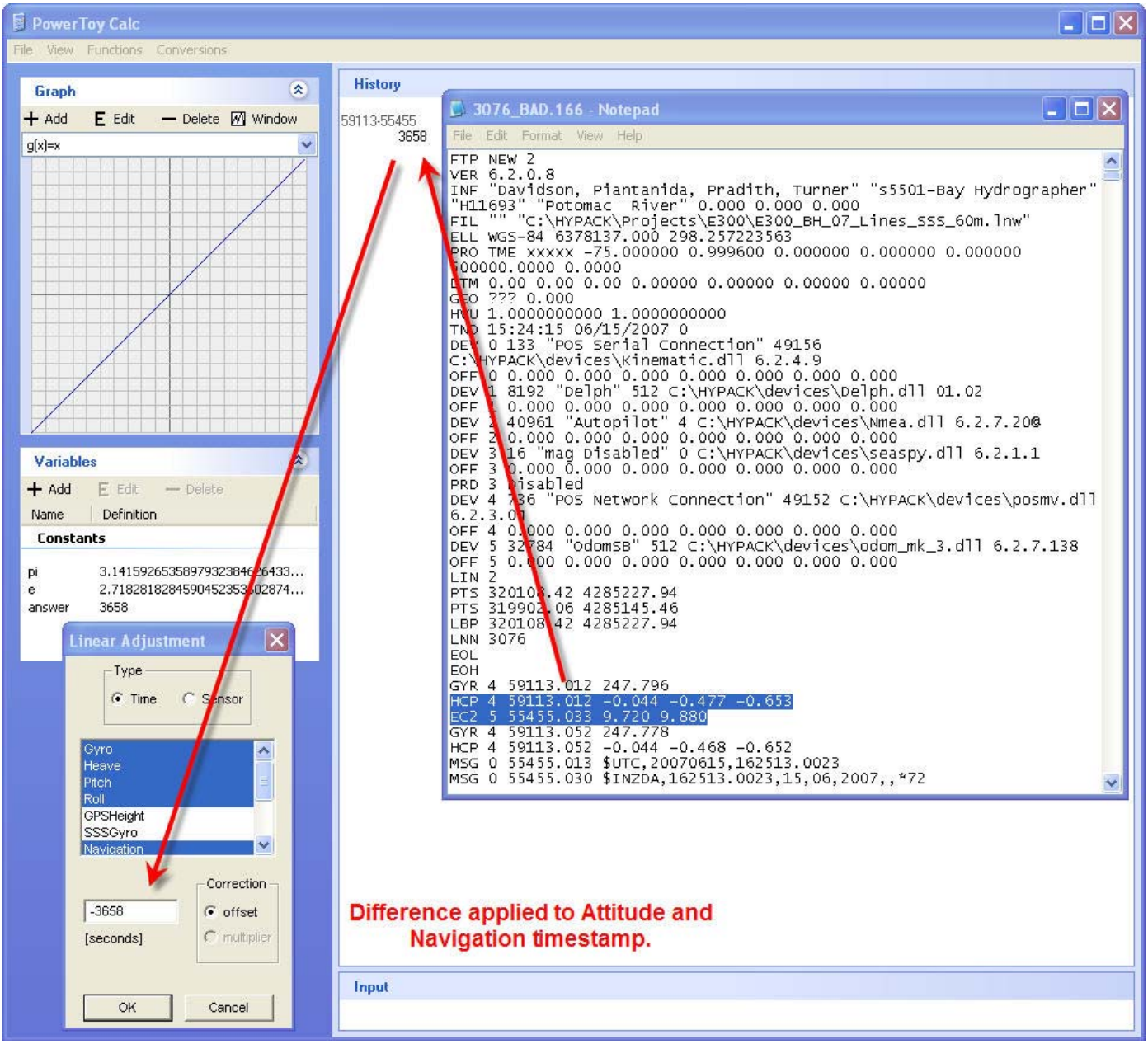
Sorry for any confusion I may have caused.

Jack L. Riley wrote:

> V,
>
> I noticed that the last value the QUA messages of your data contain a value that suspiciously close to the computed time offset; e.g., in 3076_BAD.166:
> QUA 0 56483.752 13 9.000 1.000 8.000 2.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 289.000 -3642.547
> ...
>
> And looking in the Hypack Manual (2007), 9. Appendix, II. File Format Descriptions, A. Hypack Raw Data Format, 2) Data Strings in HYPACK Raw Format, (k) QUA - Position Quality Information (see attached--on the next, in case the file attachment proves too large):
>
> 289.000 (binary byte value 0100100001--only last 4 bits meaningful per below) = syns synchronization status
> -3642.547 = synb computer clock phase adjustment status
>
> Bit 1 in the syns is set which implies "not in sync" (see below).
>
> That said, the time difference as judged by comparing the CPU seconds-since-midnight timestamp of MSG 0 messages with that of the UTC time of the $INUTC, $INZDA , & $INGGA NMEA sentences therein agrees with your estimation of ~ -3658 (via time difference between adjacent messages), vice -3642.547:
>
> TND 14:40:25 06/15/2007 0
> ---
> MSG 0 52825.675 $INGGA,154123.752,3841.41386,N,07706.59172,W,2,08,1.0,1.80,M,,,2,0059*08
> => 52825.675-(15.*3600.+41*60.+23.752) = -3658.08
> ...
> MSG 0 52825.920 $UTC,20070615,154124.0022
> => 52825.920-(15.*3600.+41*60.+24.0022) = -3658.08
> ...
> MSG 0 52825.934 $INZDA,154124.0022,15,06,2007,,*76
> => 52825.934-(15.*3600.+41*60.+24.0022) = -3658.07
> ...
>
> Given that the Hypack CPU clock synch appears to be off, I think that means you need to *add* 3658.xx to the SLRange & ObservedDepths data in HIPS. And it may be better to use HIPS HVF Swath1/SVP1 time error entries to achieve that, rather than the Pydro-Post Acquisition Tools? (Not sure if you would specify + or - in the HVF off the top of my head.) (Also, note the Tool->Caris->Reinstate Data from Backup if you want to try the HVF route.)
>
> Jack
>
> ----------snip----------
> (k) QUA - Position Quality Information
> Format QUA dn t n m h sat mode
> Where:
> dn device number
> t time tag (seconds past midnight)
> n number of values to follow
> m 10 minus HDOP
> h HDOP
> sat number of satellites
> mode GPS mode (NMEA 0183 standard values)
> 0 = fix not available or invalid
> 1 = GPS fix
> 2 = Differential GPS fix
> 3 = GPS PPS Mode fix
> 4 = RTK fix
> 5 = RTK Float
>
> The following 3 values are decoded from GST message:
> sigman standard deviation of latitude error (meters)
> sigmae standard deviation of longitude error (meters)
> semimaj Standard deviation of semi-major axis of error ellipsis (meters)
>
> Remaining values are present only if synchronizing computer clock with GPS clock:
> ref reference time at last sync (milliseconds since midnight)
> var computer clock at last sync (milliseconds
> midnight)
> syna computer clock frequency adjustment factor
> (microseconds per sec)
> syne filtered synchronization error (milliseconds)
> syns synchronization status. Binary code with the
> following bits (other bits are not meaningful):
> 1 = not in sync
> 2 = low accuracy synchronization
> 4 = high accuracy synchronization
> 8 = synchronization failure
> synb computer clock phase adjustment status
> ----------snip----------

Vitad.Pradith@noaa.gov wrote:

> All,
>
> I think I've come up with a solution. It looks like the Attitude and Navigation timestamps were one-hour ahead (3658 seconds to be exact) of the echosounder data. I've deducted the time difference and applied it accordingly in the post acquisition tools of PYDRO(see attached graphic). I am relatively certain that the Nav and Attitude time stamps were ahead based on the Windows time stamp associated with its corresponding raw data file(s). If someone thinks of anything else that I may have missed, please feel free to let me know.
>
> All cleaning and reductions (using TCARI) to the data were performed without incident. The dataset looks to be in good agreement with the other soundings acquired on another day.
>
> Sorry for the bother!
> -V



Subject: Re: HYPACK Raw data timestamp issue
From: Olivia.Hauser@noaa.gov
Date: Mon, 27 Aug 2007 20:47:25 -0400
To: "Jack L. Riley" <Jack.Riley@noaa.gov>
To: "Jack L. Riley" <Jack.Riley@noaa.gov>
CC: Vitad.Pradith@noaa.gov, Michael.Davidson@noaa.gov

Hi,

The RUDE did see a similar problem, partly because of an incorrect dll and partly because they were getting the position and heave over the ethernet with conflicting messages. It seems this may be related, but I would need to see the file and get more info to be sure. I am in Gulf Shores AL with NRT 1 this week, and will be out on the boat all day tomorrow (if the system is still working). V, try giving me a call sometime in the afternoon. If you cannot reach me, the plan is for me to be in the NRT 1 trailer on Wed and Thursday so if I get no reception on the water, try me back then. I will also try to reach you. Should I call your cell or the Bay Hydro cell? My number is 302-229-3368. Thanks. Olivia

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

From: "Jack L. Riley" <Jack.Riley@noaa.gov> **Date**: Monday, August 27, 2007 3:25 pm **Subject**: Re: HYPACK Raw data timestamp issue > Olivia,
>
> This sounds like the problem RUDE saw--time tagging of HCP
> heave/pitch/roll datagrams wrong ; wasn't it due to using an
> incorrect
> device driver (.dll) in Hypack?
>
> Jack
>
> Vitad.Pradith@noaa.gov wrote:
> > Hi Jack,
> >
> > I am having some issues on one particular day of single beam
> data and
> > was hoping that you may be able to assist me. It looks like the
> data> may have a difference in time stamping between the datagram
> message> strings of HCP and EC2 of the HYPACK Raw file. This was
> also observed
> > in the HDCS data when an error message displays "Navigation Data
> does> not match Single Beam Data".
> >
> > My presumption tells me that the NAV time is correct, but the
> > timestamp(s) of the depthsoundings are wrong. What does the
> strings HCP

TELEDYNE
BENTHOS
A Teledyne Technologies Company

Teledyne Benthos, Inc.
49 Edgerton Dr.
North Falmouth, MA 02556

RMA Estimate: 07-170
Sales Order: U-07-00730
Date: 07/13/07

To:
BRIANA WELTON

Phone #:
Fax #:

Equipment / Proposed Work		S/N	Eval / Repair Est	Delivery ARO
W-D298-0490	WREP; ASM, DSP-LPM, C3D	40364	0.00	Immediate
Problem found:	Intermittent ping/not ping. 5v supply low at Rx board (4.75 on receipt). As received, serial number on unit (40384) does not coincide with Benthos' S/N log. Correct serial number is 40364.			
Proposed repairs:	5V supply adjusted up to 4.95Vdc at the receiver board. Unit tested IAW TP.D2980490. Affix new serial number label with correct serial number (40364).			
ESTIMATED TOTAL			$0.00	

The value of this repair has been estimated to the best of our ability on the basis of the reported symptoms and in-house observation. If during the course of repair it becomes apparent that additional costs will be incurred, you will be notified of the increase for approval before proceeding.

If you wish to proceed with the repair, please provide either a purchase order or credit card number. Any questions, feel free to contact the Teledyne Benthos Repair Center Administrator at 1.508.563.1564. PO should be faxed to 1.508.564.9945. Thank you!

For your records

Subject:
RE: Observed Shoals within a Channel
From:
"Golder, Steven M NAB02" <Steven.M.Golder@usace.army.mil>
Date:
Mon, 13 Apr 2009 08:06:22 -0400
To:
Briana.Welton@noaa.gov

Briana,
I will pass on to the Project Manager.

Steven M. Golder
U.S. Army Corps of Engineers - Baltimore
Chief, Survey Team
W: 410-962-6031
C: 410-960-1298
F: 410-962-6033
email: steven.m.golder@usace.army.mil

-----Original Message-----
From: Briana.Welton@noaa.gov [mailto:Briana.Welton@noaa.gov]
Sent: Friday, April 10, 2009 10:00 PM
To: Golder, Steven M NAB02
Cc: Casie Carrott; Chris Libeau; Steve.Soherr@noaa.gov
Subject: Fwd: Observed Shoals within a Channel

Hi Steve,

This is an FYI regarding a channel in the Potomac River (a 20 ft in a 21 ft channel) that NOAA surveyed in 2007. Are you able to pass this around?

Best regards,

Bri

Hi Steve,

This is an FYI regarding a channel in the Potomac River (a 20 ft in a 21 ft channel) that NOAA surveyed in 2007. Are you able to pass this around?

Best regards,

Bri

Subject:
Observed Shoals within a Channel

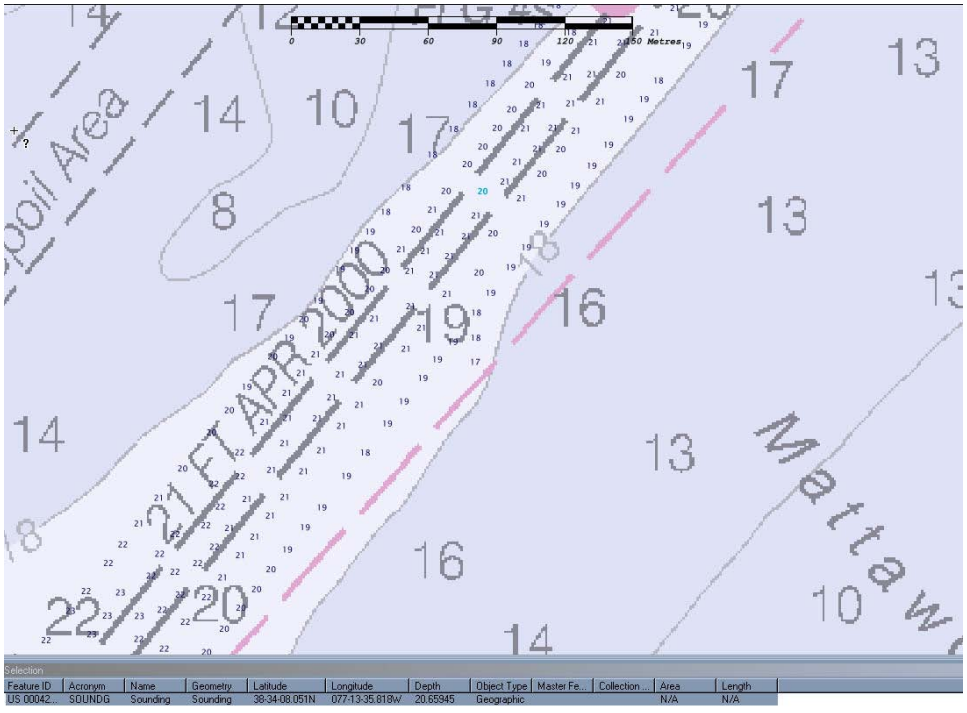
From:
Casie Carrott <Casie.Carrott@noaa.gov>
Date:
Fri, 10 Apr 2009 10:59:27 -0400
To:
Briana.Welton@noaa.gov

Dear Briana Welton,

During the pre-compilation process of survey H11693-OPR-E300-BH-SPOT-07, a channel (38-35-42.148N, 077-11-59.286W to 38-33-30.607N, 077-14-13.010W) was noted to have shoaler depths than what was charted as the tabulated depth of the channel. The attached pdf images show that there are 20-ft soundings within the tabulated channel area of 21-ft. It is recommended that these shoaler soundings be reported to the Army Corp of Engineers.

Please let me know if further information needs to be provided.

Best Regards, Casie Carrott



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

AHB COMPILATION LOG

General Survey Information	
REGISTRY No.	H11693
PROJECT No.	OPR_E300_BH_SPOT Personnel
FIELD UNIT	NOAA S/V BAY HYDROGRAPHER AND SPOT TEAM
DATE OF SURVEY	06/21/2007
LARGEST SCALE CHART	***12286, edition 30, 20090314, 1:40,000***
ADDITIONAL CHARTS	***12288, edition 20, 20090314, 1:40,000*** ***12289, edition 49, 20090314, 1:40,000***
SOUNDING UNITS	**feet**
COMPILER	CASIE CARROTT

Source Grids	**File Name** H:\Compilation\H11693_E300-BH\AHB_H11693\
	E-SAR Final Products\GRIDS**H11693_AHB_RESON8125_MBES_0p5m_north1_Final.hns**
	E-SAR Final Products\GRIDS**H11693_AHB_Odon_SBES_2m_north2_Final.hns**
	E-SAR Final Products\GRIDS**H11693_AHB_MBES_0p5_north2_Final.hns**
	E-SAR Final Products\GRIDS**H11693_AHB_RESON8125_MBES_0p5_north3_Final.hns**
	E-SAR Final Products\GRIDS**H11693_AHB_Odom_SBES_5m_north3_Final.hns**
	E-SAR Final Products\GRIDS**H11693_AHB_RESON8125_MBES_0p5_center1_Final.hns**
	E-SAR Final Products\GRIDS**H11693_AHB_Odom_SBES_2m_center1_Final.hns**
	E-SAR Final Products\GRIDS**H11693_AHB_RESON8125_MBES_0p5m_center2_Final.hns**
	E-SAR Final Products\GRIDS**H11693_AHB_Odom_SBES_2m_center2_Final.hns**
	E-SAR Final Products\GRIDS**H1169_AHB_RESON8125_MBES_0p5m_center3_Final.hns**
	E-SAR Final Products\GRIDS**H11693_AHB_Odom_SBES_2m_center3_Final.hns**
	E-SAR Final Products\GRIDS**H11693_AHB_RESON7125_MBES_0p5_south_Final.hns**
	E-SAR Final Products\GRIDS**H11693_AHB_Odom_SBES_2m_south_Final.hns**
Surfaces	**File Name** H:\Compilation\H11693_E300-BH\AHB_H11693\COMPILE\Working
Combined	**H11693_2m_Combined.hns**
Interpolated TIN	\Surfaces**H11693_2m_InterpTIN.hns**
Shifted Interpolated TIN	\Surfaces**H11693_2m_InterpTIN_Shifted.hns**
Product Surface	**n\a**
Final HOBs	**File Name** H:\Compilation\H11693_E300-BH\AHB_H11693\COMPILE\Final_Hobs\
Survey Scale Soundings	**H11693_SS_Soundings.hob**
Chart Scale Soundings	**H11693_CS_Soundings.hob**
Contour Layer	**H11693_Contours.hob**
Feature Layer	**H11693_Features.hob**
Meta-Objects Layer	**H11693_MetaObjects.hob**
Blue Notes	**H11693_BlueNotes.hob**
ENC Retain Soundings	**n\a**

Meta-Objects Attribution	
Acronym	**Value**
M_COVR	
CATCOV	Coverage available
SORDAT	20070621
SORIND	US,US,survy,H11693
M_QUAL	
CATZOC	Zone of confidence U (data not assessed)
INFORM	H11693,NOAA S\V Bay Hydrographer
POSACC	10
SORDAT	20070621
SORIND	US,US,survy,H11693
SUREND	20070621
SURSTA	20070529
DEPARE	
DRVALV 1	5.495
DRVALV2	67.877
SORDAT	20070621
SORIND	US,US,Nsurf,H11693
M_CSCL	
CSCALE	n\a
SORDAT	n\a
SORIND	n\a

SPECIFICATIONS:

I. COMBINED SURFACE:
   a. Number of ESAR Final Grids: 13
   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): 1:40,000 ; Radius Value = 1
   d. Queried Depth of All Soundings
      i. Minimum: 5.495
      ii. Maximum: 67.877

III. INTERPOLATED TIN SURFACE:
   a. Resolution (m): 2
   b. Linear
   c. Shifted value: -0.229 *[-0.229m (feet), (≤ 10 fathoms)]*
      [-1.372m (fathoms), (> 10 fathoms)]

IV. CONTOURS:
   a. Use a Depth List: H11693_NOAA_depth_curves_list.txt
   b. Line Object: DEPCNT
   c. Value Attribute: VALDCO

V. FEATURES:
   a. Total Number of Features: 22

b. Number of Insignificant Features: 0

VI. CHART SURVEY SOUNDINGS (CS):

a. Number of ENC CS Soundings: n\a
b. Radius
c. Shoal biased
d. Use Single-Defined Radius: m on the ground
    i. Radius Value (m): 200
    ii. Or use a Sounding Space Range Table (if applicable): HXXXXX_SSR.txt
e. Filter: Interpolated != 1
f. Number Survey CS Soundings: 291

VII. Notes:

There are no ENCs within this area, so there are no ENC retaining of soundings or features. Due to an error with the shifter interpolated TIN surface, contours were created and smooth\filtered using the SS sounding layer TIN.

ATLANTIC HYDROGRAPHIC BRANCH
EVALUATION REPORT to ACCOMPANY
SURVEY H11693 (2008)

This Evaluation Report has been written to supplement and/or clarify the original Descriptive Report. Sections in this report refer to the corresponding sections of the Descriptive Report.

B. DATA ACQUISITION AND PROCESSING

B.1 DATA PROCESSING

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

HSTP PYDRO version 7.3 r2239
CARIS HIPS/SIPS version 6.1 SP1 HF 1-6
CARIS Bathy Manager version 2.1 HF 1-3
DKART INSPECTOR, version 5.0 Build 732 SP1
CARIS S57 Composer version 1.0

B.2. QUALITY CONTROL

B.2.1. H-Cell

The AHB source depth grid for the survey's nautical chart update product entailed the field's original 0.5m and 2m grids, combined at 2 meter resolution, then using them to create a product surface grid with a resolution of 2m. The survey scale selected soundings were extracted from the 2m combined. 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 Survey Scale Sounding layer TIN. The 2m grid resolution surface model was generated at a scale of 1:40,000. 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 Compile Process Log attached at the end of this document. The SAHOB files included depth curves (DEPCNT), sounding selections (SOUNDG), features, Meta objects (M_COVR, M_QUAL, M_CSCL), and cartographic Blue Notes. The individual SAHOB files were inserted into one BASE Manager Feature layer and exported to S57 format in order to create the H-Cell deliverable.

The completed H-Cell was exported as a Base Cell File (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 H11693 CARIS H-Cell final deliverables include the following products:

US511693_CS.000	**1:40,000 Scale**	**H11693 H-Cell with Chart Scale Selected Soundings**
US511693_SS.000	**1:10,000 Scale**	**H11693 Selected Soundings (Survey Scale)**

D. RESULTS AND RECOMMENDATIONS

D.1 CHART COMPARISON

12286 (39thEdition, 20080301)
Corrected through NM 03/07/2009
Corrected through LNM 03/03/2009
Scale 1:40,000

12288 (20thEdition, 20071001)
Corrected through NM 03/07/2009
Corrected through LNM 03/03/2009
Scale 1:40,000

12289_1 (49thEdition, 20080301)
Corrected through NM 03/07/2009
Corrected through LNM 03/03/2009
Scale 1:40,000

12289_2 (49thEdition, 20080301)
Corrected through NM 03/07/2009
Corrected through LNM 03/03/2009
Scale 1:20,000

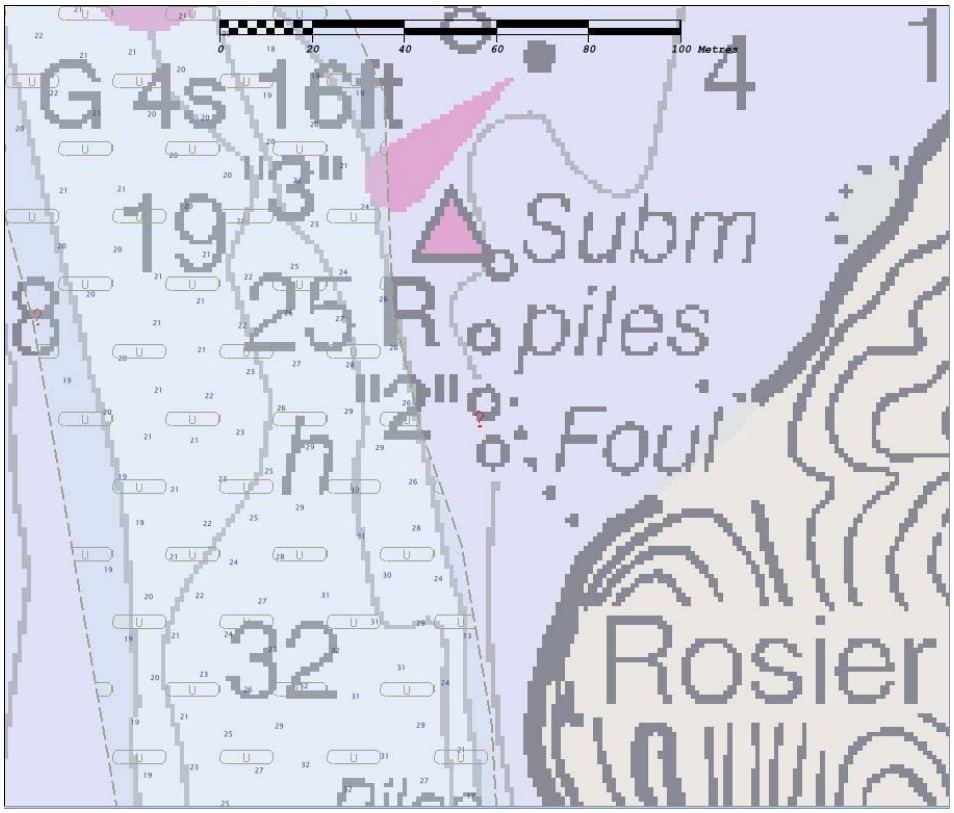
D.1.1 Hydrography

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. Channel located between 38-33-30.607N, 077-14-13.010W and 38-35-42.148N, 077-11-59.286W has a tabulated depth of 21-ft. Survey Soundings were noted to be shoaler than the tabulated depth (20-ft). Findings were

reported to the Mid-Atlantic Navigation Manager (see Appendix V for email and images).

b. Submerged piling (PILPNT) was removed from the feature layer (38-46-29.792N, 077-01-51.973W), and the attribute was changed to a cartographic symbol due to the fact that it was proven using Side Scan imagery. See image below.

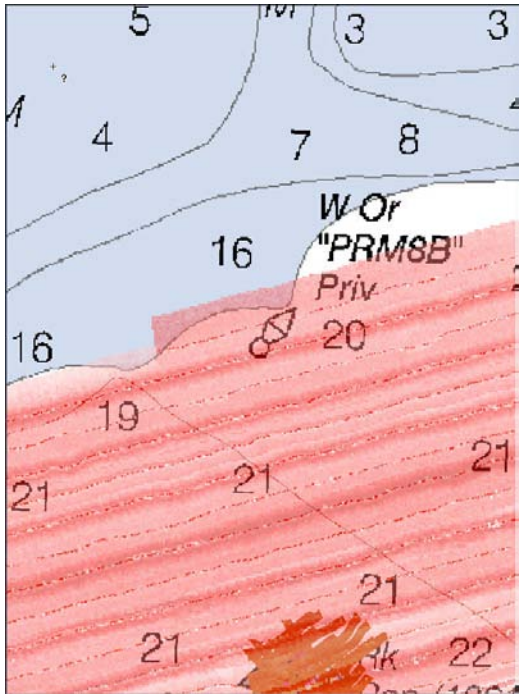


c. Charted Pier located at 38-28-59.17N, 077-16-28.13W; disproved using USGS, National Map Seamless Server (ortho-imagery: MD – Charles County (Mar 2007)). Red marked coordinates in the below image, indicate position of Blue Note. Recommend removing charted pier from raster chart 12288.

D.2. ADDITIONAL RESULTS

D.2.1. Aids to Navigation

a. Private buoy “PRM8B” at location 38-23-52.769N, 077-06-48.966W, was disproved using Side Scan imagery. Feature was blue noted and recommended for removal from chart (see image below).



b. A private aid buoy was charted at 38-32-21.668N, 077-15-56.920W and is associated with the feature/buoy charted and retained at 38-32-09.959N, 077-15-46.506W. A new feature was added to the feature layer at the present charted location of the above mention private aid buoy.

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 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
H11693

Initial Approvals:

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

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

Casie Carrott
2009.04.20
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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 

Digitally signed by Shepard Smith
DN: cn=Shepard Smith, o=NOAA, ou=AHB, email=shep.smith@noaa.gov, c=US
Date: 2009.04.28 14:32:16 -04'00'

Shepard Smith
Commander, NOAA
Chief, Atlantic Hydrographic Branch

Christopher Hare
AWOIS Check
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