H12376

U.S. Department of Commerce
National Oceanic and Atmospheric Administration
National Ocean Survey

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	H12376

LOCALITY

State(s):	Florida
General Locality:	Panama City,FL
Sub-locality:	Bear Point to Hathaway Bridge

2014

CHIEF OF PARTY
Mark McMann

LIBRARY & ARCHIVES

Date:

U.S. DEPARTMENT OF COMMERCE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION	REGISTRY NUMBER:
HYDROGRAPHIC TITLE SHEET	**H12376**

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

State(s):	**Florida**
General Locality:	**Panama City,FL**
Sub-Locality:	**Bear Point to Hathaway Bridge**
Scale:	**2500**
Dates of Survey:	**09/10/2013 to 07/13/2014**
Instructions Dated:	**04/24/2014**
Project Number:	**S-J910-NRT1-14**
Field Unit:	**Navigation Response Team 1**
Chief of Party:	**Mark McMann**
Soundings by:	**Singlebeam Echo Sounder Multibeam Echo Sounder**
Imagery by:	**Side Scan Sonar**
Verification by:	**Pacific Hydrographic Branch**
Soundings Acquired in:	**meters at Mean Lower Low Water**

Remarks:

The purpose of this survey is to provide contemporary surveys to update National Ocean Service (NOS) nautical charts. All separates are filed with the hydrographic data. Any revisions to the Descriptive Report (DR) generated during office processing are shown in bold, red italic text. The processing branch maintains the DR as a field unit product, therefore, all information and recommendations within the body of the DR are considered preliminary unless otherwise noted. The final disposition of surveyed features is represented in the OCS nautical chart update products. All pertinent records for this survey, including the DR, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via http://www.ngdc.noaa.gov/.

Table of Contents

List of Tables

List of Figures

Descriptive Report to Accompany Survey H12376

Project: S-J910-NRT1-14

Locality: Panama City,FL

Sublocality: Bear Point to Hathaway Bridge

Scale: 1:2500

September 2013 - July 2014

Navigation Response Team 1

Chief of Party: Mark McMann

A. Area Surveyed

Bear Point to Hathaway Bridge, Panama City, FL

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
30° 11' 60" N 85° 46' 0" W	30° 8' 60" N 85° 43' 0" W

Table 1: Survey Limits

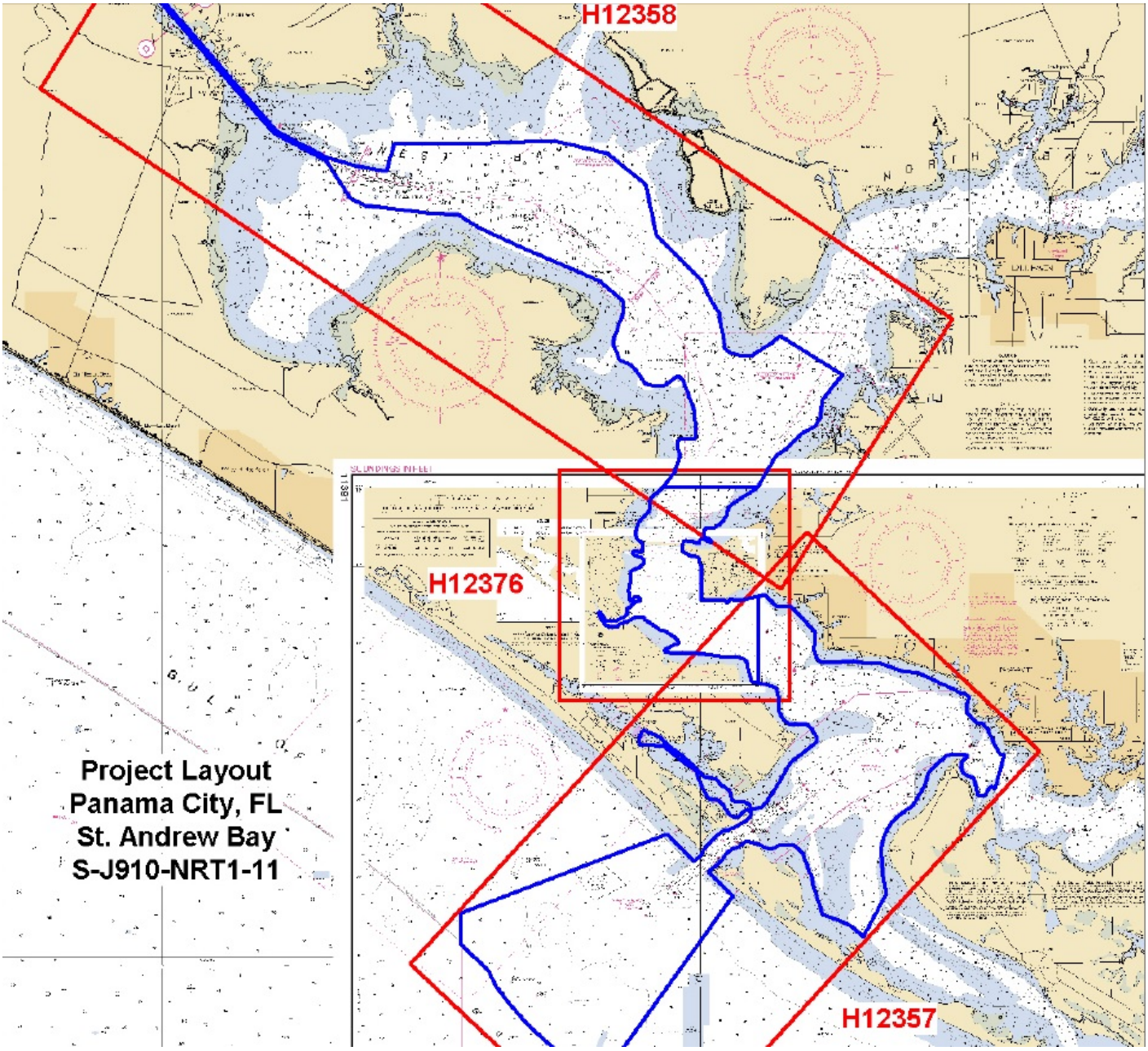


Figure 1: Survey Limits

Survey Limits were acquired in accordance with the requirements in the Project Instructions and the HSSD.

A.2 Survey Purpose

A request through the Regional Navigation Manager has requested a hydrographic survey in St. Andrews Bay and West Bay. There are reports of high spot in the Pass west of the channel and east of the western jetty. The approach to the Port and through St Andrews Pass needs

validation of the charted depths. In Grand Lagoon, there is shoaling in the channel and changing channel course. Also, to survey and validate the charted depths and features in West Bay, West Bay Creek and the depths along the GIWW. Panama City is one of the MTS ports and an ENC Verification is needed. It is the intent of this survey to supersede all bathymetry, seafloor features, and bottom characteristics within the assigned survey area as defined by these instructions for updating of NOAA charts 11390 and 11391.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

Some areas were not adequately surveyed in order to supersede the charted depths and contours.

A.4 Survey Coverage

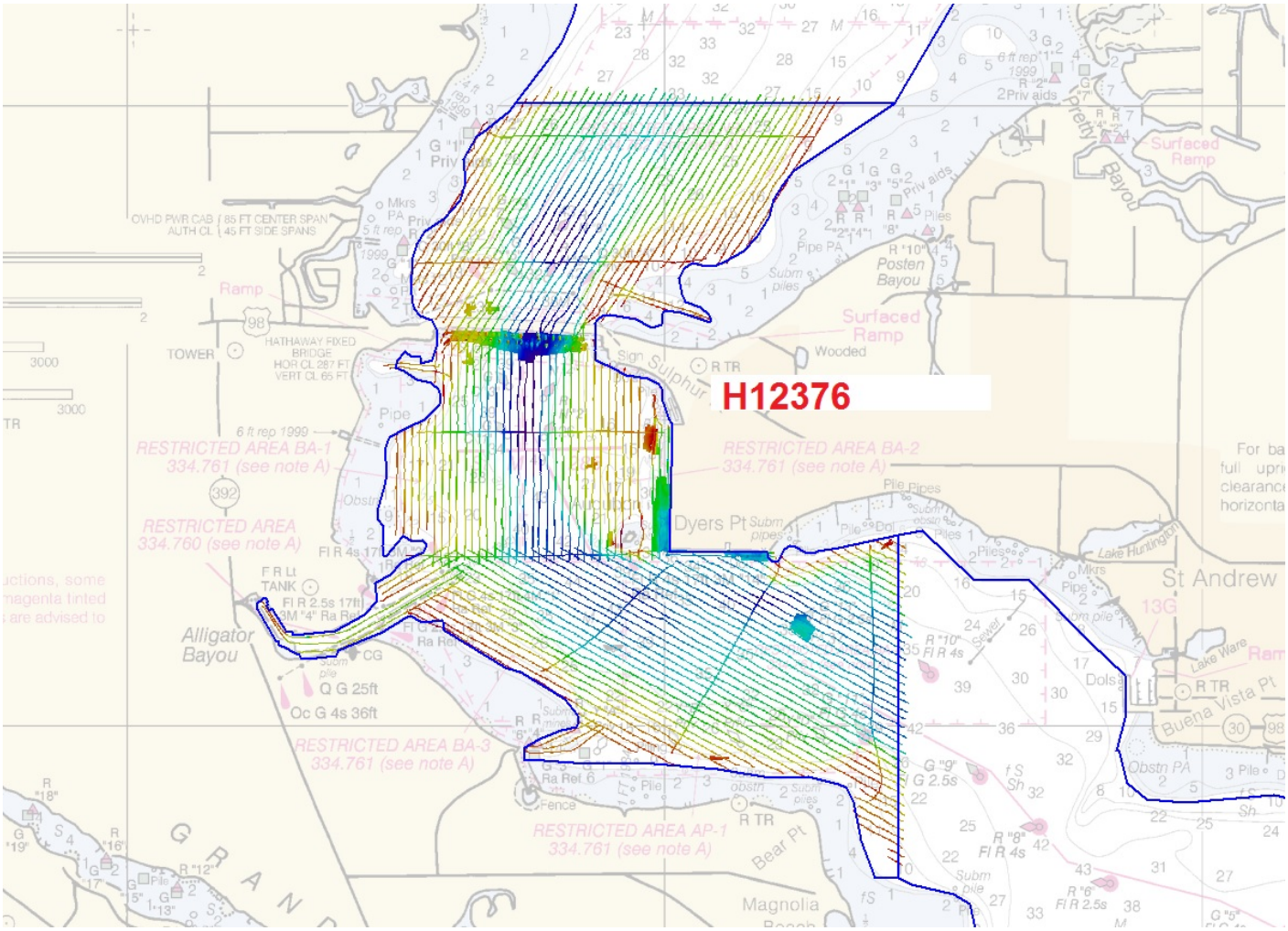


Figure 2: Survey Limit (general)

Survey Coverage was in accordance with the requirements in the Project Instructions and the HSSD.

A.5 Survey Statistics

The following table lists the mainscheme and crossline acquisition mileage for this survey:

	HULL ID	*3001*	*Total*
LNM	**SBES Mainscheme**	0	0
	MBES Mainscheme	0	0
	Lidar Mainscheme	0	0
	SSS Mainscheme	0	0
	SBES/SSS Mainscheme	97.26	97.26
	MBES/SSS Mainscheme	0	0
	SBES/MBES Crosslines	5.72	5.72
	Lidar Crosslines	0	0
Number of Bottom Samples			15
Number of AWOIS Items Investigated			0
Number Maritime Boundary Points Investigated			0
Number of DPs			0
Number of Items Investigated by Dive Ops			0
Total SNM			3

Table 2: Hydrographic Survey Statistics

The following table lists the specific dates of data acquisition for this survey:

Survey Dates	Day of the Year
09/10/2013	253
05/28/2014	148
06/03/2014	154
06/04/2014	155
06/05/2014	156
06/16/2014	167
06/17/2014	168
06/18/2014	169

Table 3: Dates of Hydrography

Percent of XL equals 11.76% of 1/2 of total 200% MS mileage

Crossline mileage is 5.88% of the total main scheme mileage.
The final date of survey was 07/13/2014.

B. Data Acquisition and Processing

B.1 Equipment and Vessels

Refer to the Data Acquisition and Processing Report (DAPR) for a complete description of data acquisition and processing systems, survey vessels, quality control procedures and data processing methods. Additional information to supplement sounding and survey data, and any deviations from the DAPR are discussed in the following sections.

B.1.1 Vessels

The following vessels were used for data acquisition during this survey:

Hull ID	*S3004*	*S3001*
LOA	9.15 meters	9.15 meters
Draft	0.5 meters	0.5 meters

Table 4: Vessels Used

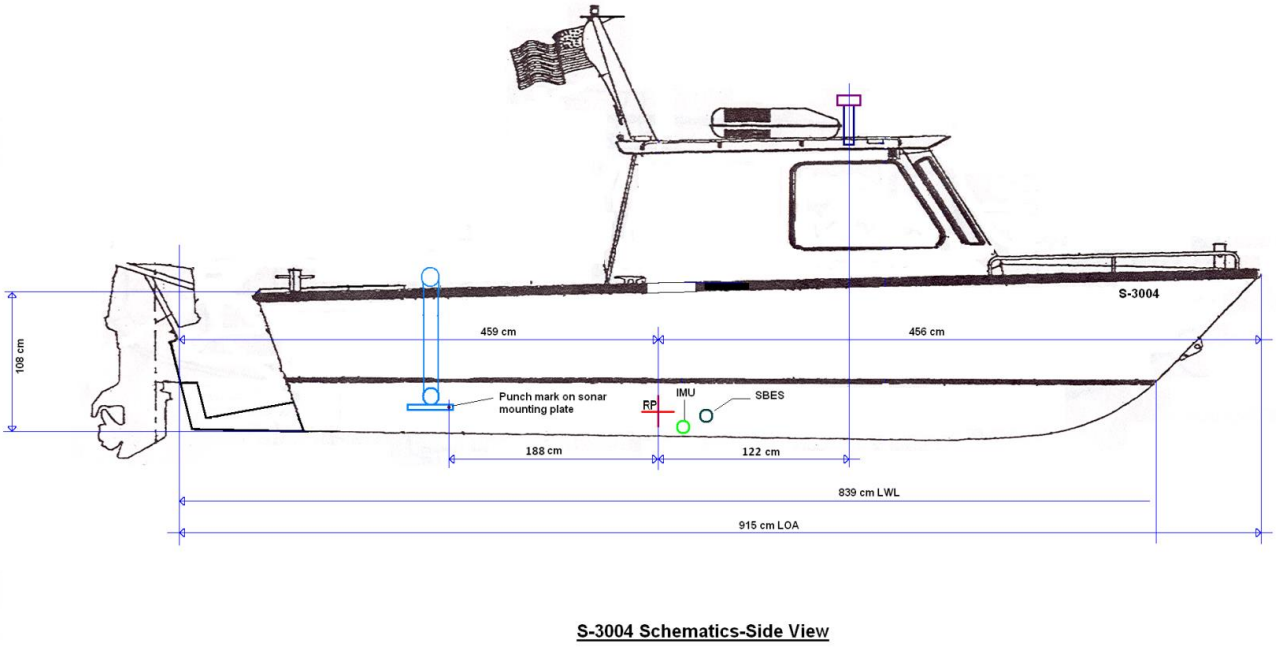


Figure 3: Survey Vessel S3004 Schematics

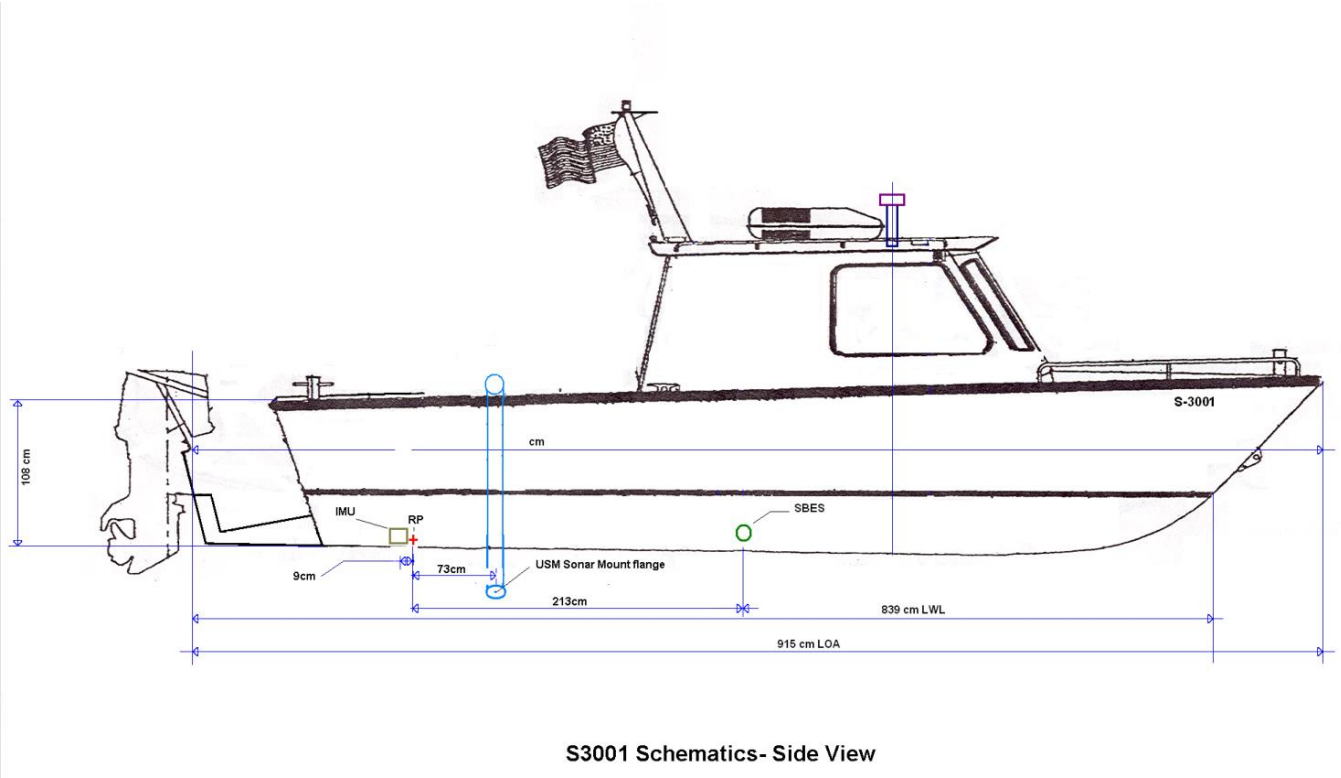


Figure 4: Survey Vessel S3001 Schematics

B.1.2 Equipment

The following major systems were used for data acquisition during this survey:

Manufacturer	Model	Type
Odom	CV200	SBES
Reson	8125	MBES
Klein	5000	SSS
Edgetech	4125	SSS
Trimble Applanix	POS MV 4	Positioning and Attitude System
Trimble Applanix	POS MV 5	Positioning and Attitude System
SBE	SB19	Conductivity, Temperature, and Depth Sensor
Odom	Digibar	Sound Speed System

Table 5: Major Systems Used

Klein 5000 side scan sonar was not used for data acquisition during this survey.

B.2 Quality Control

B.2.1 Crosslines

Crosslines acquired for this survey totaled 6% of mainscheme acquisition.

X-lines equal 11.76% of 1/2 mainscheme mileage.The Crossline comparison shows excellent agreement with the Mainscheme dataset.

Additional Quality Control surface comparisons were done:

Caris Base 'Compute Statistics' comparison between the following surfaces were done:
- SBES MS and Xline SBES surfaces difference (Std Dev=0.114m)
- SBES MS and MBES surfaces difference (Std Dev=0.369m). Points with the highest Standard Deviation were found around the ruined bridge pillars and were not found an hindrance to general survey quality (see graphic illustration).
- Xline SBES and MBES surfaces difference (Std Dev=0.439m). Points with the highest Standard Deviation were found on an abrupt slope near a 8 ft shoal located at 30d 10.95N and 85d 44.03W and were not found an hindrance to general survey quality (see graphic illustration).

The crossline quality control is conclusive for sheet H12376.

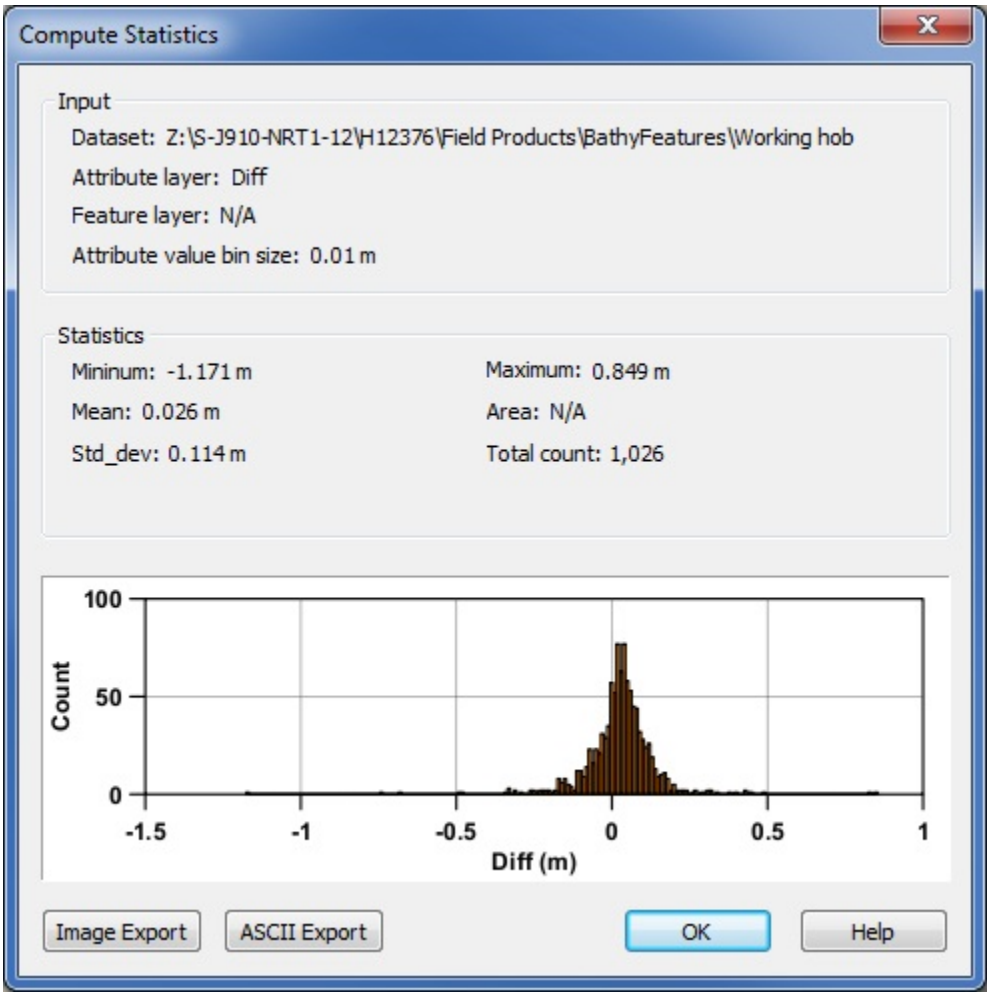


Figure 5: Caris Base surface difference: M/S vs. XL statistics

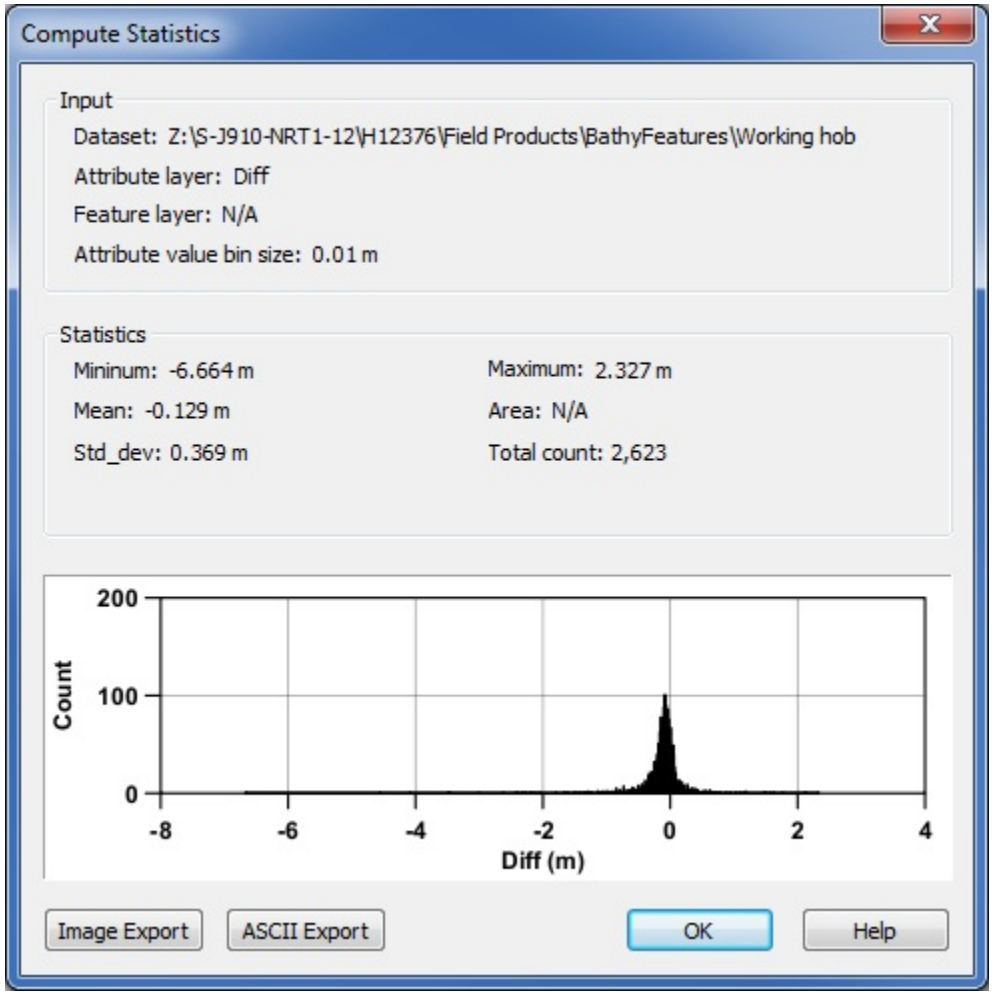


Figure 6: Caris Base surface difference: SB M/S vs. MBES statistics

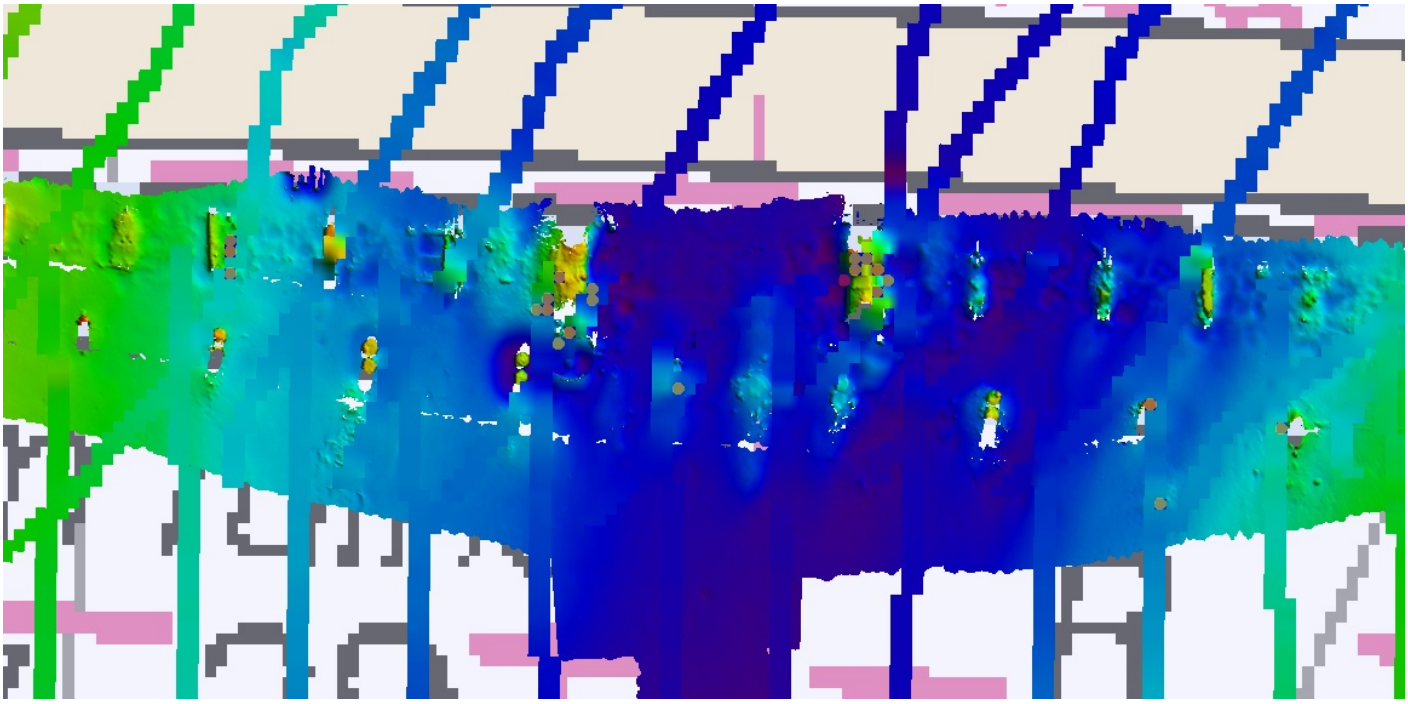


Figure 7: Caris Base surface difference: SB M/S vs. MBES graphic illustration of high Std Dev points

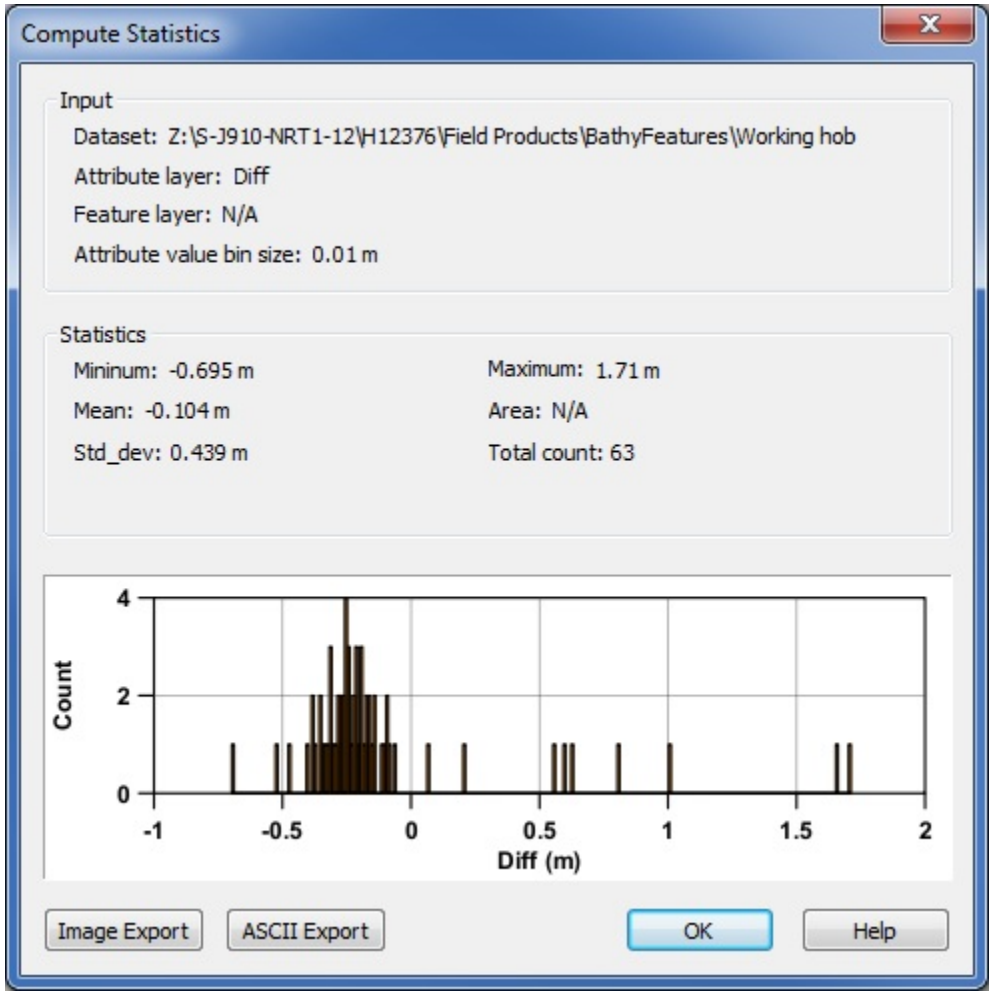


Figure 8: Caris Base surface difference: SB Xlines vs. MBES statistics

Figure 9: Caris Base surface difference: SB Xlines vs. MBES graphic illustration of high Std Dev points

Crossline mileage is 5.88% of the total main scheme mileage.

B.2.2 Uncertainty

Uncertainty values returned from MBES surface were excellent. 10798 points out of 737929 total points are above 50cm of uncertainty (1.46%).

IHOness	outside of IHO parameter	Total surface count	screengrab taken	outside IHO parameter count	screengrab taken	% of points outside IHO
Sheet: H12376						
MBES Cube surface 50cm	Density less than 5	737929	y	52583	y	7.125753291
	Std Dev above 50cm	737929	y	2226	y	0.301655037
	Uncertainty above 50cm	737929	y	10798	y	1.463284408
	Hypothesis count >2	737914	y	1518	y	0.205715029
	Hypothesis strength >0.01	737914	y	911	y	0.123456121
SBES Base surface 4m	Density less than 5	90079	y	710		0.788197027
	Std Dev above 50cm	90079	y	149		0.165410362
	Uncertainty above 50cm	90079	y	561		0.622786665

Figure 10: IHOness for H12376

Analysis during office review showed that 99.21% of the nodes from the multibeam surface were within the NOS standards for Total Vertical Uncertainty.

B.2.3 Junctions

No contemporary junction surveys available.

There are no contemporary surveys that junction with this survey.

Survey H12376 junctions with survey H12358 (S-J910-NRT1-12) to the north of the survey limit and H12357 (S-J910-NRT1-12) to the south of the survey limit. A depth comparison between H12358 and H12376 during office review showed good agreement between the two surveys with an average depth difference of -0.14 m (SD: 0.08). Data from H12357 was not available for comparison at the time of office review.

B.2.4 Sonar QC Checks

Sonar system quality control checks were conducted as detailed in the quality control section of the DAPR.

B.2.5 Equipment Effectiveness

There were no conditions or deficiencies that affected equipment operational effectiveness.

B.2.6 Factors Affecting Soundings

There were no other factors that affected corrections to soundings.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Daily CTD casts for mainscheme survey, every 4 hours maximum during MBES investigations

B.2.8 Coverage Equipment and Methods

All equipment and survey methods were used as detailed in the DAPR.

B.2.9 MBES surface Density

MBES surface Density was controlled during data processing. The great majority of nodes showed a density of 5 or above. 52583 points out of 737929 total points showed a density under 5 (7.12%). These points were analyzed and found to be concentrated in the debris covered area south of the Hathaway bridge and the MBES outer beams. This was not characterized as an hindrance to overall survey data quality.

IHOness	outside of IHO parameter	Total surface count	screengrab taken	outside IHO parameter count	screengrab taken	% of points outside IHO
Sheet: H12376						
MBES Cube surface 50cm	Density less than 5	737929	y	52583	y	7.125753291
	Std Dev above 50cm	737929	y	2226	y	0.301655037
	Uncertainty above 50cm	737929	y	10798	y	1.463284408
	Hypothesis count >2	737914	y	1518	y	0.205715029
	Hypothesis strength >0.01	737914	y	911	y	0.123456121
SBES Base surface 4m	Density less than 5	90079	y	710		0.788197027
	Std Dev above 50cm	90079	y	149		0.165410362
	Uncertainty above 50cm	90079	y	561		0.622786665

Figure 11: IHOness table, H12376

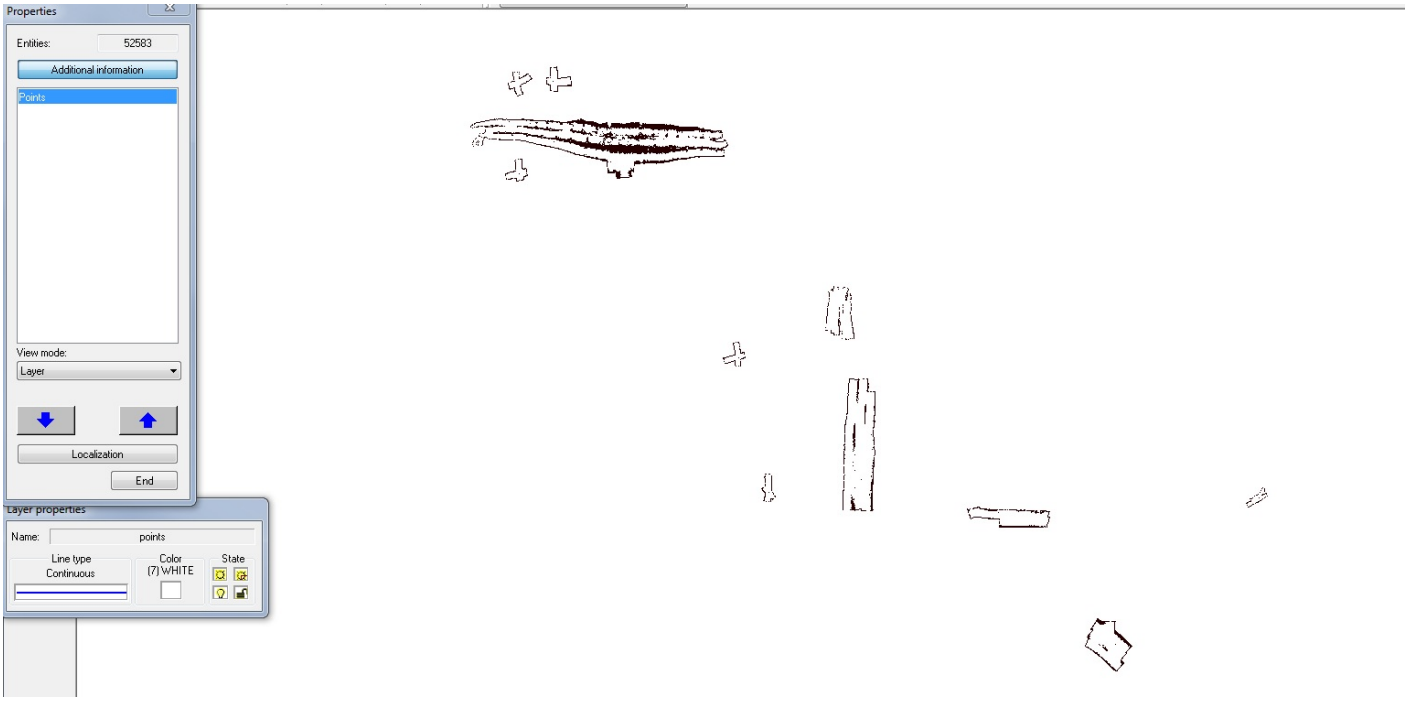


Figure 12: MBES Density under 5.

Analysis during office review showed that 95.3% of nodes meet sounding density requirement.

B.2.10 SBES surface Density

SBES surface Density was controlled during data processing. The great majority of nodes showed a node density of 5 or above. 710 points out of 90079 total points showed a density under 5 (0.78%). These points were analyzed and not characterized as an hindrance to overall survey data quality.

IHOness	outside of IHO parameter	Total surface count	screengrab taken	outside IHO parameter count	screengrab taken	% of points outside IHO
Sheet: H12376						
MBES Cube surface 50cm	Density less than 5	737929	y	52583	y	7.125753291
	Std Dev above 50cm	737929	y	2226	y	0.301655037
	Uncertainty above 50cm	737929	y	10798	y	1.463284408
	Hypothesis count >2	737914	y	1518	y	0.205715029
	Hypothesis strength >0.01	737914	y	911	y	0.123456121
SBES Base surface 4m	Density less than 5	90079	y	710		0.788197027
	Std Dev above 50cm	90079	y	149		0.165410362
	Uncertainty above 50cm	90079	y	561		0.622786665

Figure 13: IHOness table, H12376

The surface density requirement for SBES with 200% side scan sonar coverage is 3 soundings per node (for at least 95% of all nodes).

B.2.11 MBES surface Node Hypothesis Count

MBES surface Node Hypothesis Count was controlled during data processing. The great majority of nodes showed an Hypothesis Count of 2 or below. 1518 point out of 737914 total points showed an Hypothesis count above 2 (0.20%). These points were analyzed and not characterized as an hindrance to overall survey data quality.

IHOness	outside of IHO parameter	Total surface count	screengrab taken	outside IHO parameter count	screengrab taken	% of points outside IHO
Sheet: H12376						
MBES Cube surface 50cm	Density less than 5	737929	y	52583	y	7.125753291
	Std Dev above 50cm	737929	y	2226	y	0.301655037
	Uncertainty above 50cm	737929	y	10798	y	1.463284408
	Hypothesis count >2	737914	y	1518	y	0.205715029
	Hypothesis strength >0.01	737914	y	911	y	0.123456121
SBES Base surface 4m	Density less than 5	90079	y	710		0.788197027
	Std Dev above 50cm	90079	y	149		0.165410362
	Uncertainty above 50cm	90079	y	561		0.622786665

Figure 14: IHOness table, H12376

B.2.12 MBES surface Node Hypothesis Strength

MBES surface Node Hypothesis Strength was controlled during data processing. The great majority of nodes showed an Hypothesis Strength under 0.01. 911 point out of 737914 total points showed an Hypothesis

Strength under 0.01 (0.12%). These points were analyzed and not characterized as an hindrance to overall survey data quality.

IHOness	outside of IHO parameter	Total surface count	screengrab taken	outside IHO parameter count	screengrab taken	% of points outside IHO
Sheet: H12376						
MBES Cube surface 50cm	Density less than 5	737929	y	52583	y	7.125753291
	Std Dev above 50cm	737929	y	2226	y	0.301655037
	Uncertainty above 50cm	737929	y	10798	y	1.463284408
	Hypothesis count >2	737914	y	1518	y	0.205715029
	Hypothesis strength >0.01	737914	y	911	y	0.123456121
SBES Base surface 4m	Density less than 5	90079	y	710		0.788197027
	Std Dev above 50cm	90079	y	149		0.165410362
	Uncertainty above 50cm	90079	y	561		0.622786665

Figure 15: IHOness table, H12376

B.2.13 SBES surface Standard Deviation

SBES surface Standard Deviation was controlled during data processing. The great majority of nodes showed a Standard Deviation under 50cm. 149 points out of 90079 total points showed a Standard Deviation under 50 cm (0.16%). These points were analyzed and not characterized as an hindrance to overall survey data quality.

IHOness	outside of IHO parameter	Total surface count	screengrab taken	outside IHO parameter count	screengrab taken	% of points outside IHO
Sheet: H12376						
MBES Cube surface 50cm	Density less than 5	737929	y	52583	y	7.125753291
	Std Dev above 50cm	737929	y	2226	y	0.301655037
	Uncertainty above 50cm	737929	y	10798	y	1.463284408
	Hypothesis count >2	737914	y	1518	y	0.205715029
	Hypothesis strength >0.01	737914	y	911	y	0.123456121
SBES Base surface 4m	Density less than 5	90079	y	710		0.788197027
	Std Dev above 50cm	90079	y	149		0.165410362
	Uncertainty above 50cm	90079	y	561		0.622786665

Figure 16: IHOness table, H12376

B.2.14 SBES surface Uncertainty

SBES surface Uncertainty was controlled during data processing. The great majority of nodes showed an Uncertainty under 50cm. 561 points out of 90079 total points showed an Uncertainty above 50 cm (0.62%). These points were analyzed and not characterized as an hindrance to overall survey data quality.

IHOness		outside of IHO parameter	Total surface count	screengrab taken	outside IHO parameter count	screengrab taken	% of points outside IHO
Sheet:	H12376						
MBES Cube surface 50cm		Density less than 5	737929	y	52583	y	7.125753291
		Std Dev above 50cm	737929	y	2226	y	0.301655037
		Uncertainty above 50cm	737929	y	10798	y	1.463284408
		Hypothesis count >2	737914	y	1518	y	0.205715029
		Hypothesis strength >0.01	737914	y	911	y	0.123456121
SBES Base surface 4m		Density less than 5	90079	y	710		0.788197027
		Std Dev above 50cm	90079	y	149		0.165410362
		Uncertainty above 50cm	90079	y	561		0.622786665

Figure 17: IHOness table, H12376

B.2.15 Side Scan Sonar holidays

Two small holidays were found in the SSS 100% coverage.

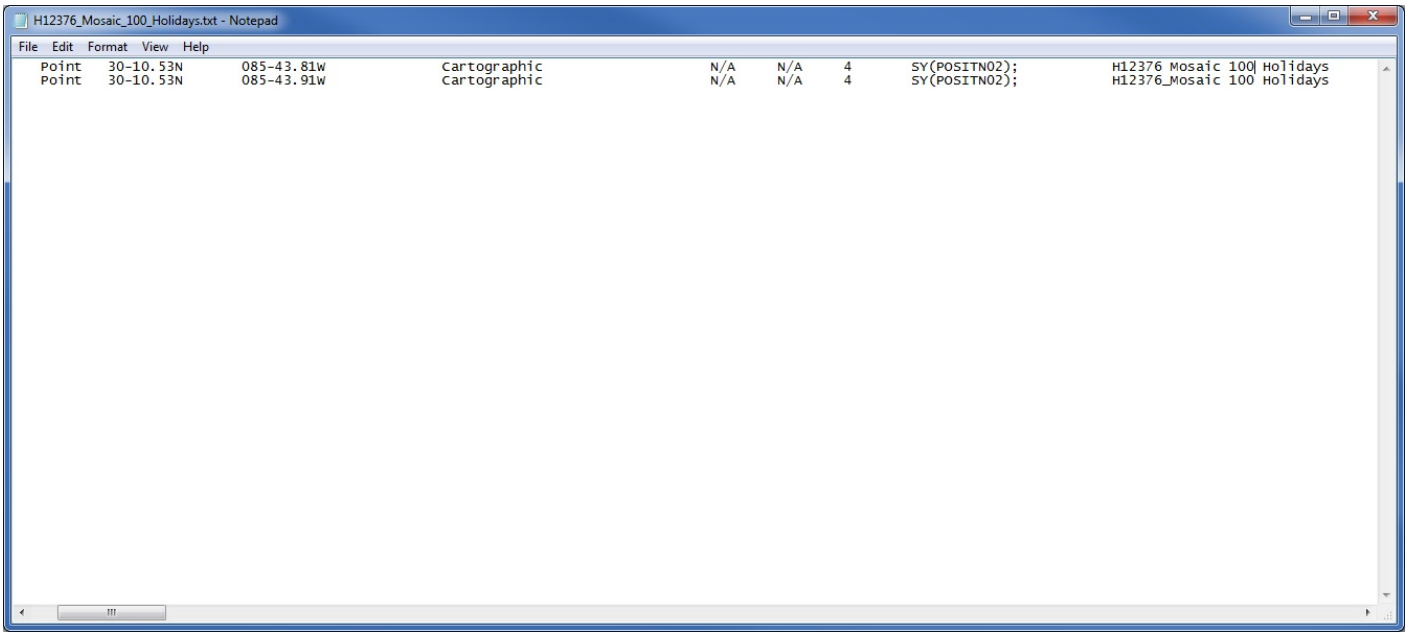


Figure 18: Two holidays in SSS 100% coverage

The size of the holidays are insignificant (4x6 m) and are also filled in by 200% side scan sonar coverage.

B.3 Echo Sounding Corrections

B.3.1 Corrections to Echo Soundings

All data reduction procedures conform to those detailed in the DAPR.

B.3.2 Calibrations

The following calibrations were conducted after the initial system calibration discussed in the DAPR:

Calibration Type	Date	Reason
MBES patch test, S3001	2013-03-19	MB installed (for MB multi surface Settlement and Squat measurement purpose)
MBES patch test, S3001	2013-08-21	MB installed (for MB multi surface Settlement and Squat measurement purpose)
MBES patch test, S3001	2014-04-10	MB installed for contacts investigations and MB multi surface Settlement and Squat measurement purpose.
MBES patch test, S3001	2014-06-17	MB installed for contacts investigations.

Table 6: Calibrations not discussed in the DAPR.

A new patch test is conducted every time the MBES is installed on the side arm.

B.4 Backscatter

Backscatter was not collected for this survey.

B.5 Data Processing

B.5.1 Software Updates

There were no software configuration changes after the DAPR was submitted.

The following Feature Object Catalog was used: NOAA Profile V_5_3

B.5.2 Surfaces

The following surfaces and/or BAGs were submitted to the Processing Branch:

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H12376_MBES_50cm	CUBE	0.5 meters	2.62 meters - 15.02 meters	NOAA_0.5m	Complete MBES
H12376_SBES_Base_4m	BASE Uncertainty	4 meters	1.02 meters - 15.33 meters	NOAA_4m	SBES Set Line Spacing
H12376_100_1m	SSS Mosaic	1 meters	0 meters - 0 meters	NOAA_1m	100% SSS
H12376_200_1m	SSS Mosaic	1 meters	0 meters - 0 meters	NOAA_1m	200% SSS
H12376_Xline_Base_4m	BASE Uncertainty	4 meters	1.65 meters - 14.91 meters	NOAA_4m	100% SSS

Table 7: Submitted Surfaces

Caris surfaces were generated following the Field Procedure Manual and the Specifications and Deliverables guidance. One MB Cube surface was generated at a 50cm resolution, One SB Base surface was generated at a 4m resolution, One SB-Crossline Base surface was generated at a 4m resolution, and a 1m resolution Mosaic was created for each 100% and 200% coverage for the Side Scan Sonar data. On the 100% SSS Mosaic, 2 small holidays were found. No Holidays were found in the 200% SSS mosaic.
NOTE: There was a CARIS issue with creating mosaics from Edgetech SSS sonar data. The mosaics were created, but there was a gain issue in the rendering of the mosaics (see Caris ticket #01401406). Reviewer can manually change gain or change color scheme in properties layer. Issue has been elevated to Caris development team and will be addressed.

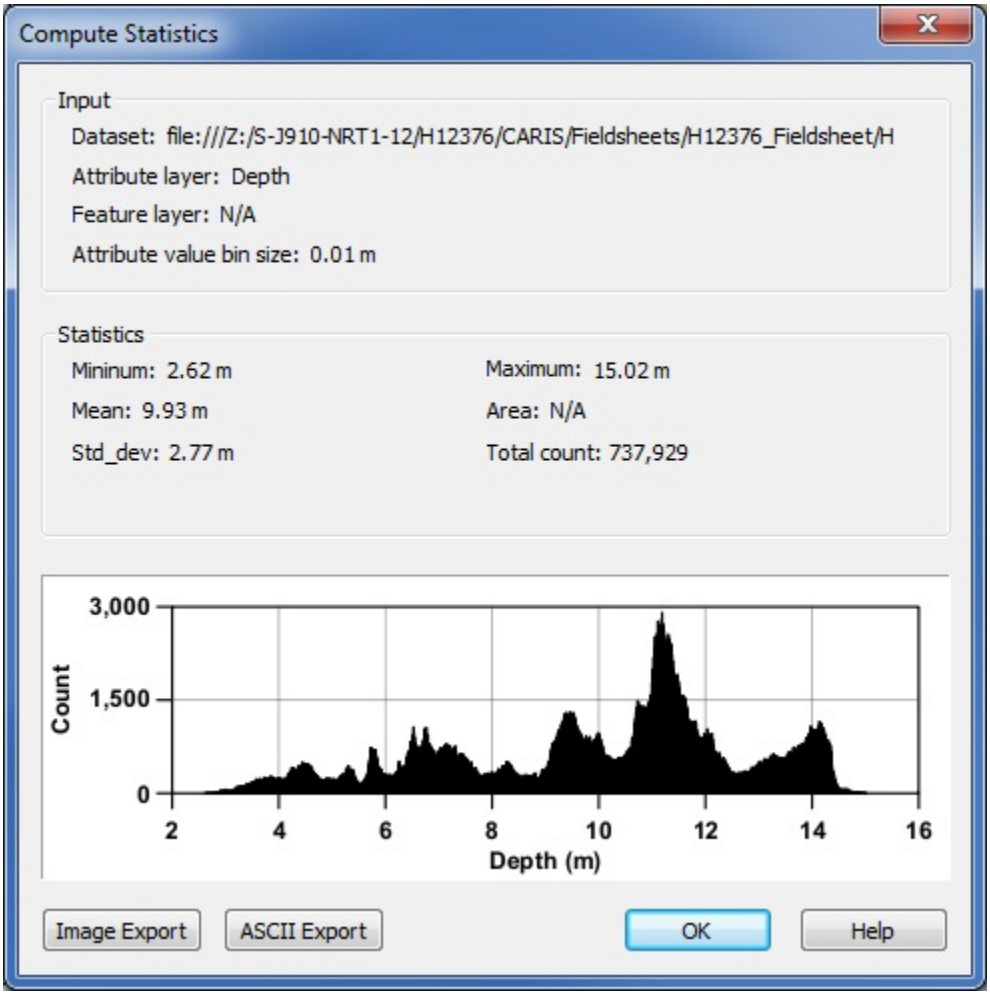


Figure 19: H12376_MBES_50cm Depth Statistics

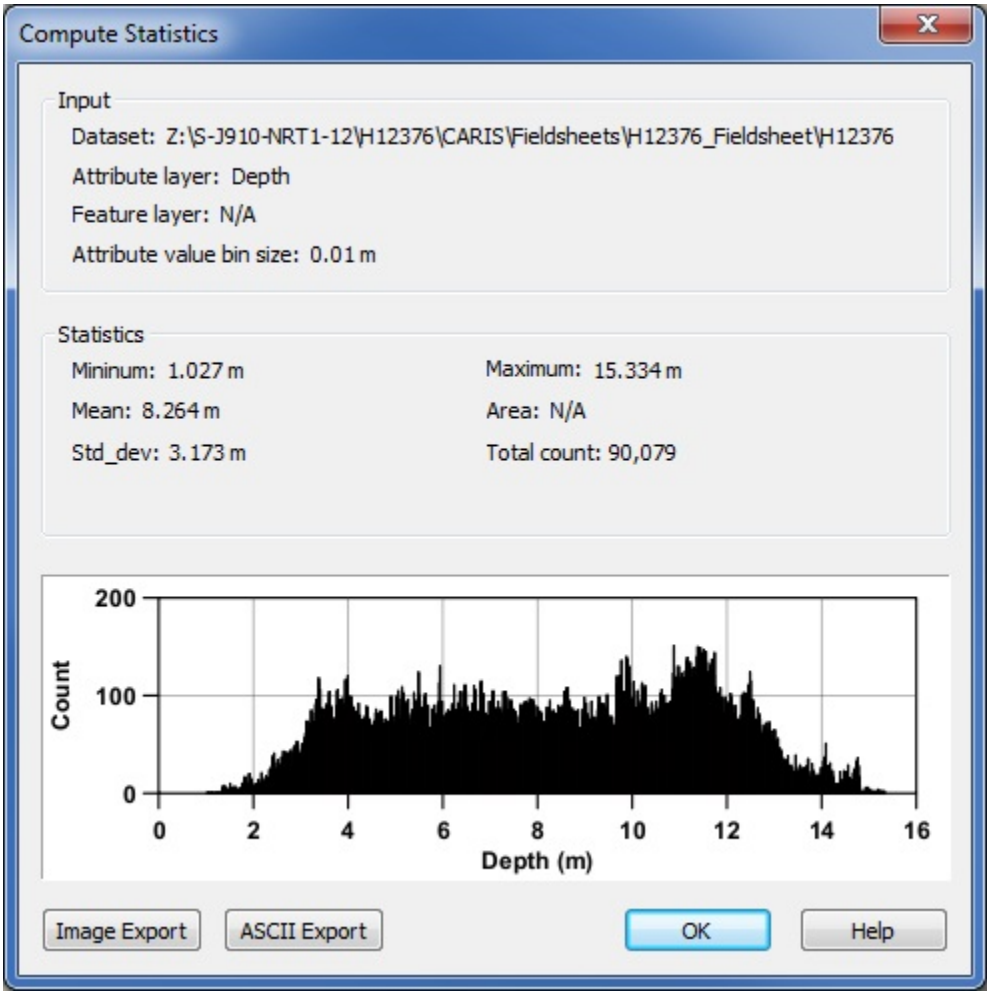


Figure 20: H12376_SBES_Base_4m Depth Statistics

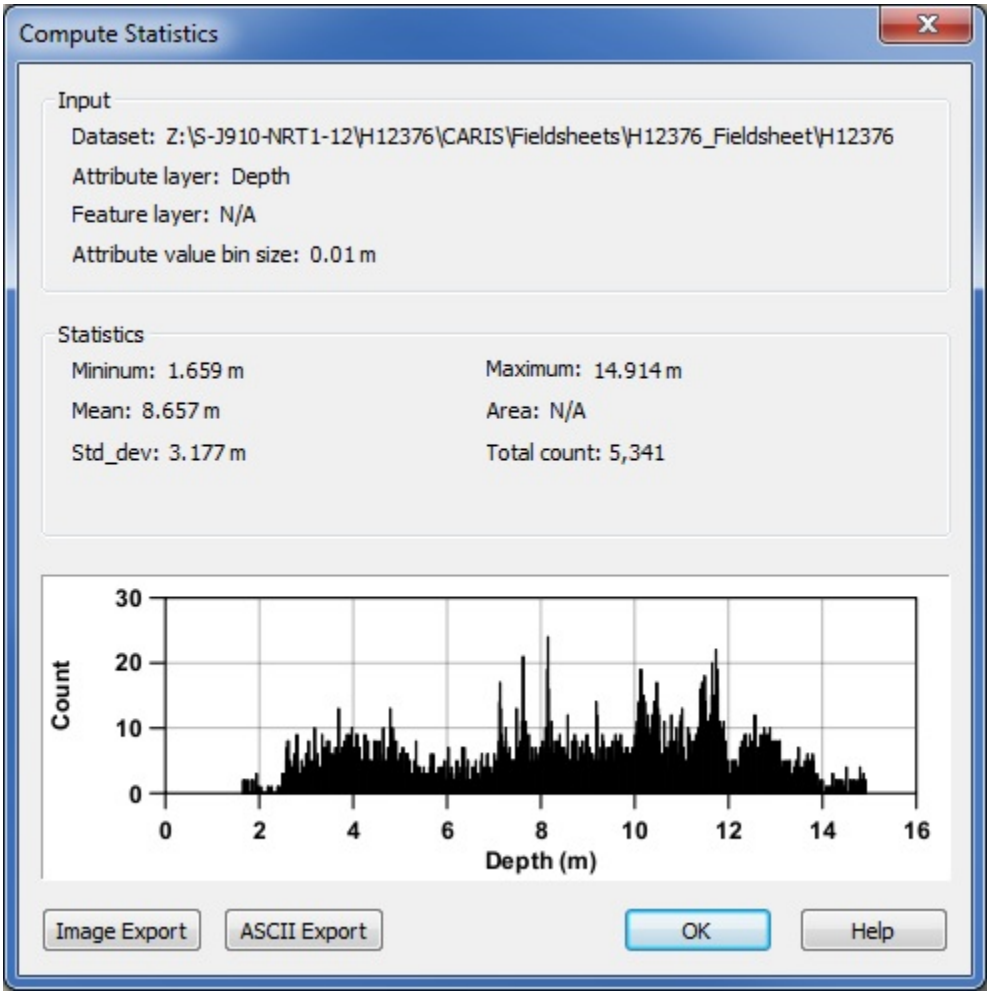


Figure 21: H12376_SBES_Xline_Base_4m Depth Statistics

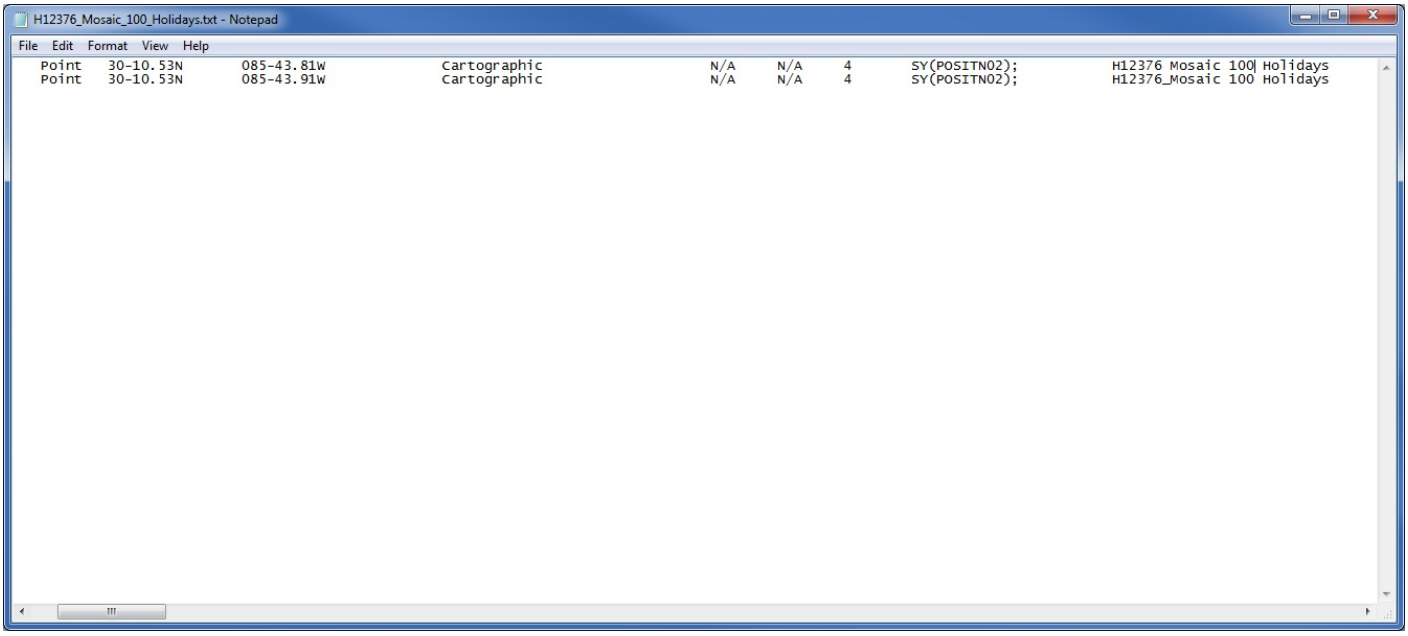


Figure 22: H12376 100% SSS Mosaic Holidays

C. Vertical and Horizontal Control

Additional information discussing the vertical or horizontal control for this survey can be found in the accompanying HVCR.

C.1 Vertical Control

The vertical datum for this project is Mean Lower Low Water.

Standard Vertical Control Methods Used:

Discrete Zoning

The following National Water Level Observation Network (NWLON) stations served as datum control for this survey:

Station Name	Station ID
Panama City, FL	8729108

Table 8: NWLON Tide Stations

File Name	Status
8729108.tid	Final Approved

Table 9: Water Level Files (.tid)

File Name	Status
J910NRT12014CORP.zdf	Final
J910NRT12013CORP.zdf	Preliminary

Table 10: Tide Correctors (.zdf or .tc)

A request for final approved tides was sent to N/OPS1 on 07/14/2014. The final tide note was received on 08/01/2014.

No changes made in Final Tides. J910NRT12014CORP.zdf file was approved by COOPS as Final and applied to dataset.

See attached Tide Note dated July 21, 2014

C.2 Horizontal Control

The horizontal datum for this project is North American Datum of 1983 (NAD83).

The projection used for this project is UTM 16N.

The following DGPS Stations were used for horizontal control:

DGPS Stations
Site ID 812

Table 11: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

Chart comparison for soundings was accomplished by examining discrepancies between the largest scale chart and the bathymetric table created with current survey data. Sounding agreement was good and generally within one to three feet.

D.1.1 Raster Charts

The following are the largest scale raster charts, which cover the survey area:

Chart	Scale	Edition	Edition Date	LNM Date	NM Date
11390	1:40000	25	10/2012	11/02/2013	11/02/2013
11391	1:25000	25	01/2013	11/02/2013	11/02/2013
11392	1:5000	7	11/2005	10/26/2013	10/26/2013

Table 12: Largest Scale Raster Charts

11390

Sounding agreement was good and generally within one to three feet.

Sounding comparison with chart 11390 is not relevant since only a very small portion of the survey overlaps an area of the chart that is not already covered by larger scale raster charts 11391 and 11392.

11391

Sounding agreement was good and generally within one to three feet.

11392

Sounding agreement was good and generally within one to three feet.

D.1.2 Electronic Navigational Charts

The following are the largest scale ENCs, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US5FL67M	1:5000	10	09/15/2011	09/15/2011	NO

Table 13: Largest Scale ENCs

US5FL67M

Sounding agreement was good and generally within one to three feet.

ENC US5FL67M only covers the southern section of the survey area. ENC US5FL66M (1:25,000) covers the northern section of the survey area. The soundings between US5FL66M and H12376 are in good agreement.

D.1.3 AWOIS Items

Awois numbers 4672, 3165 and 3164 are common with sheet registry H12357 and were addressed in sheet H12357. No other AWOIS items were assigned for this survey sheet.

D.1.4 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.5 Charted Features

Charted features within survey sheet were covered by 200% SSS. Significant items found in SSS record were investigated with a MBES when possible and safe.
-1 Charted feature "PA", located next to Buoy G "13" was investigated. No wreck was detected during the investigation.
-1 Charted feature "PA", located at 30d 11.0N and 85d 44.0W is now under a marina dock and could not be investigated.
-1 FT 1984 located at 30d09.84N and 85d44.14W could not be safely investigated.

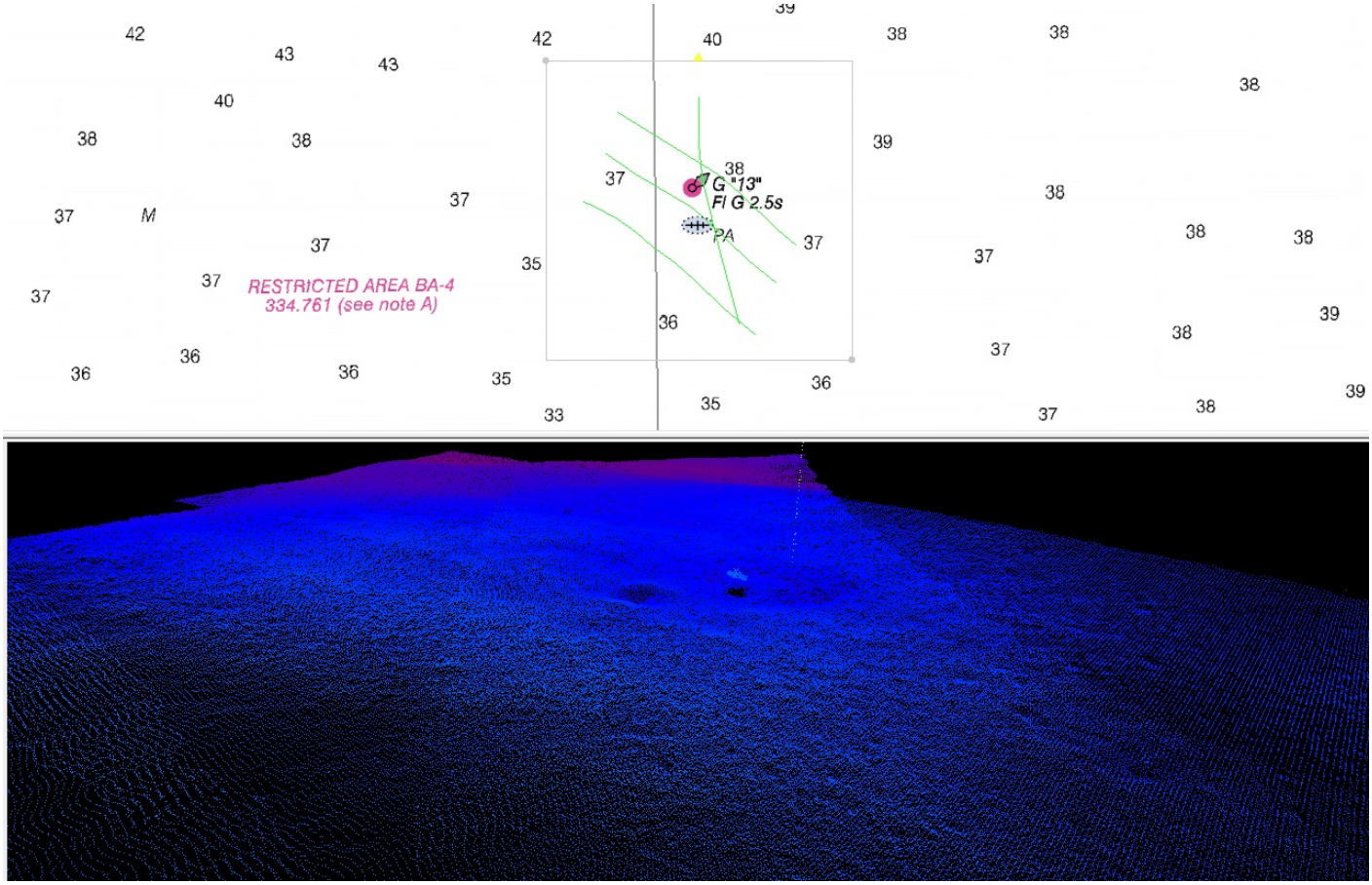


Figure 23: Wreck PA near Buoy G "13" Fl G 2.5s

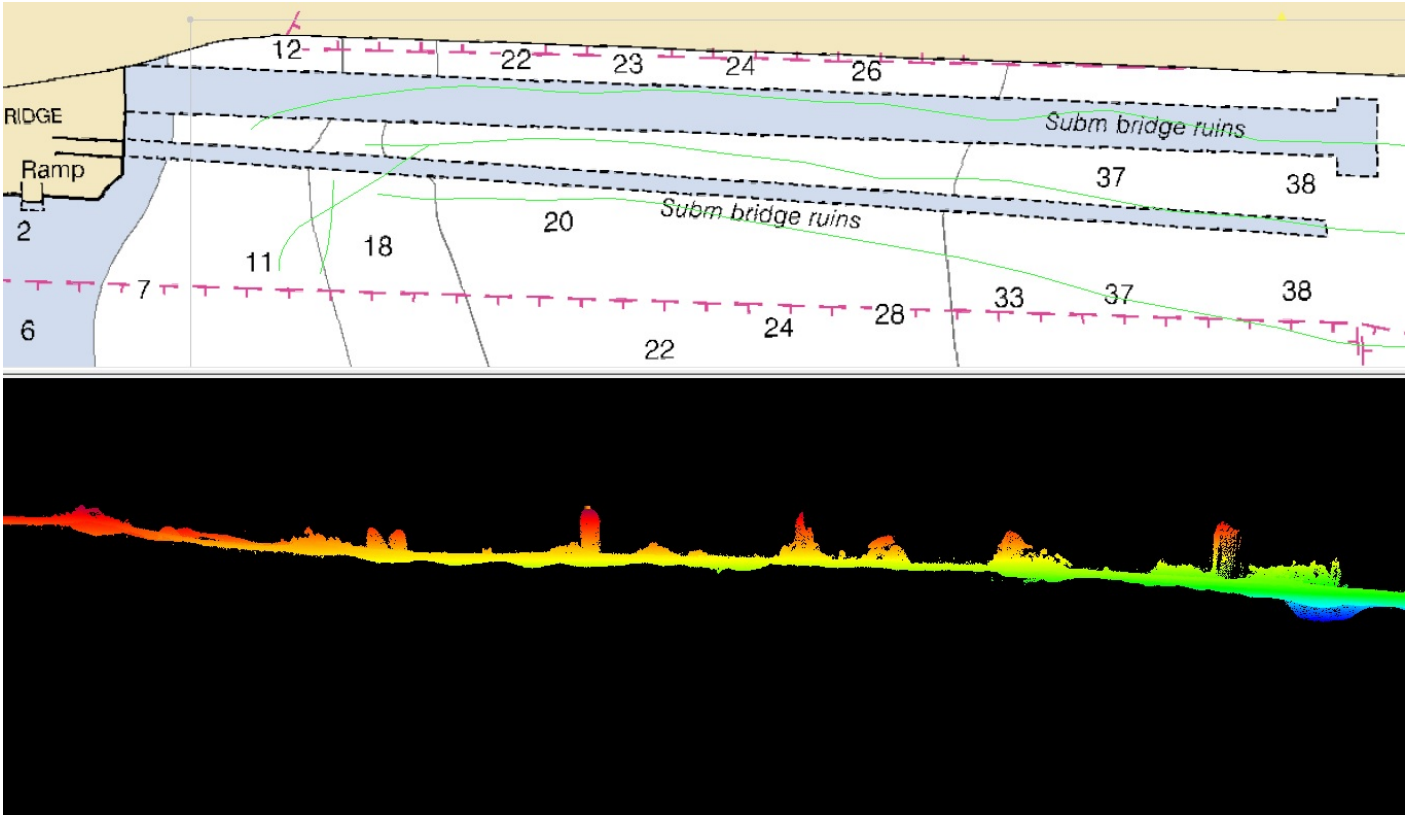


Figure 24: 0_1529A Subm bridge ruins MBES investigation

D.1.6 Uncharted Features

Significant contacts seen in 200% SSS record were investigated with a MBES when possible and safe. 7 uncharted features were investigated. Please see details in Final Features File.

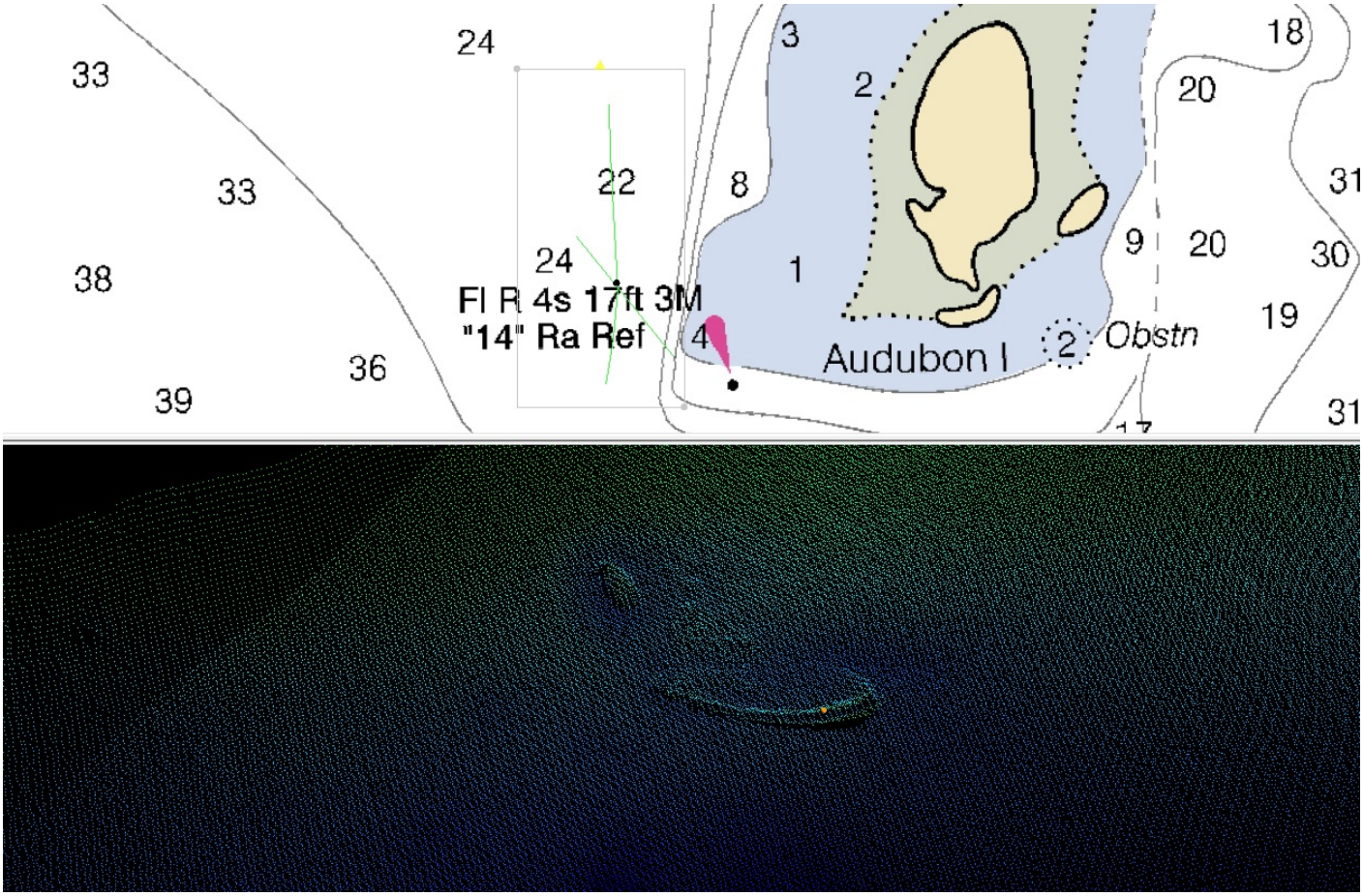


Figure 25: 0_1423_Wreck_Uncharted

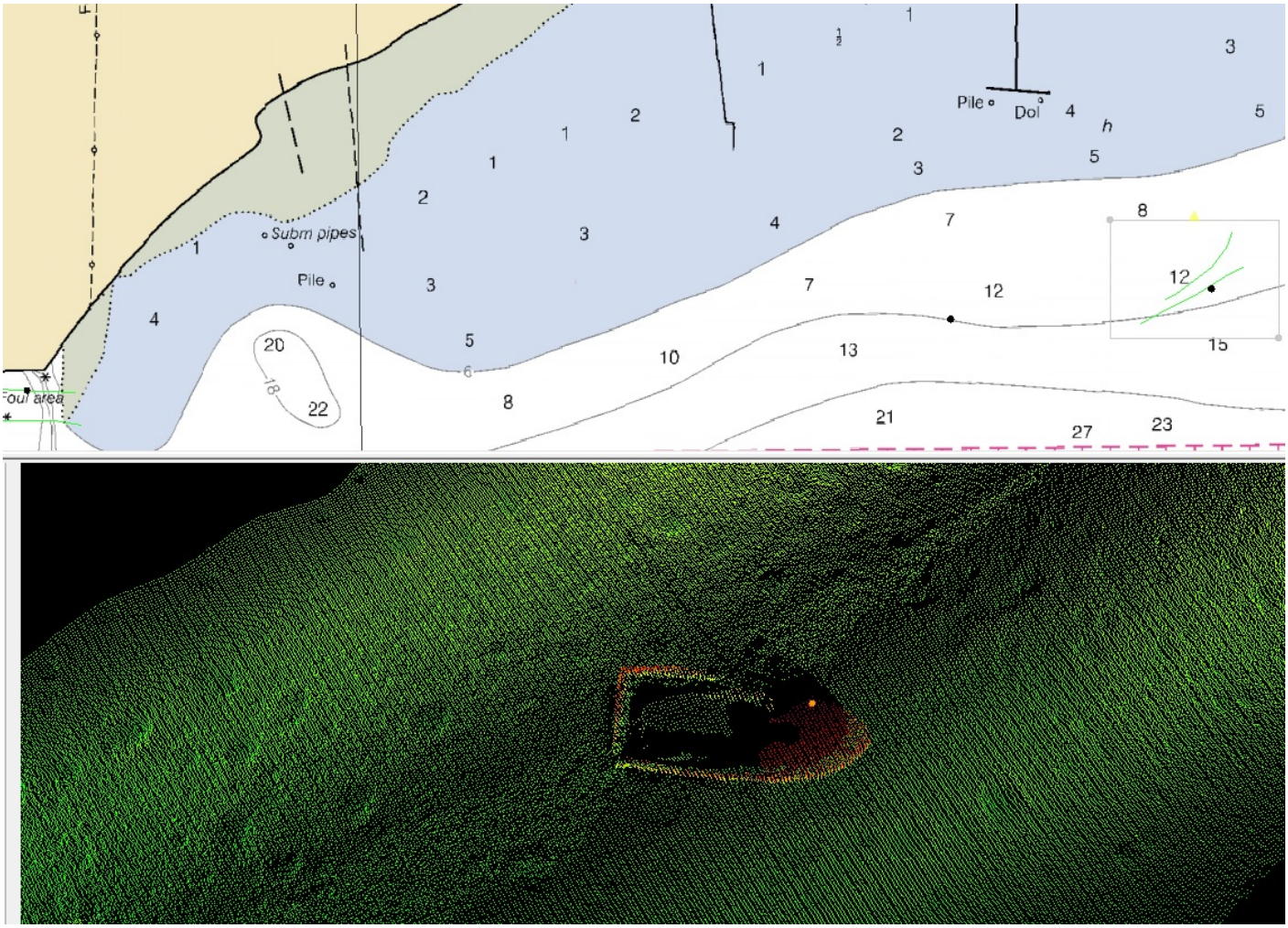


Figure 26: 0_1436_Wreck_Uncharted

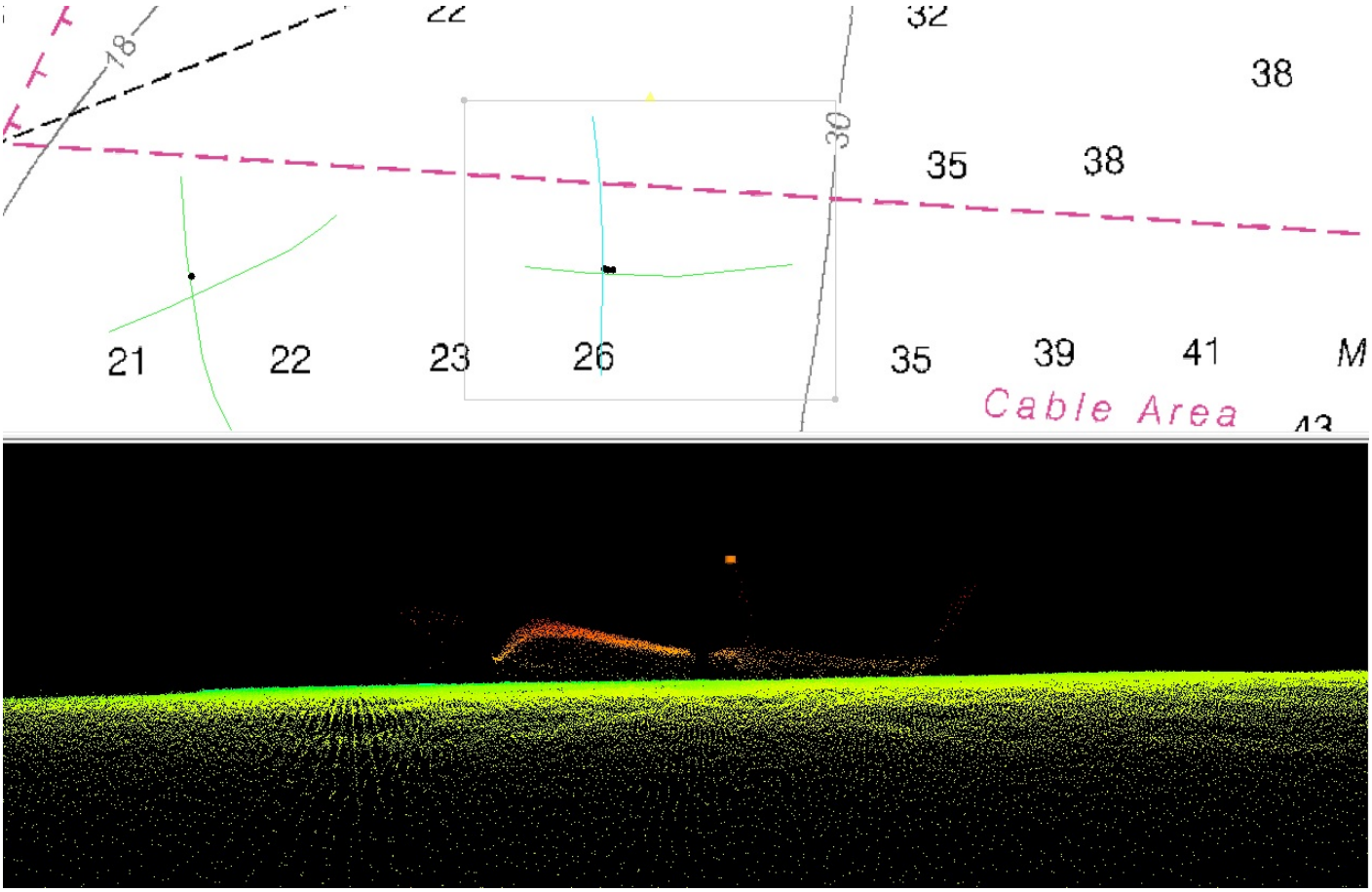


Figure 27: 0_1356_Wreck_Uncharted

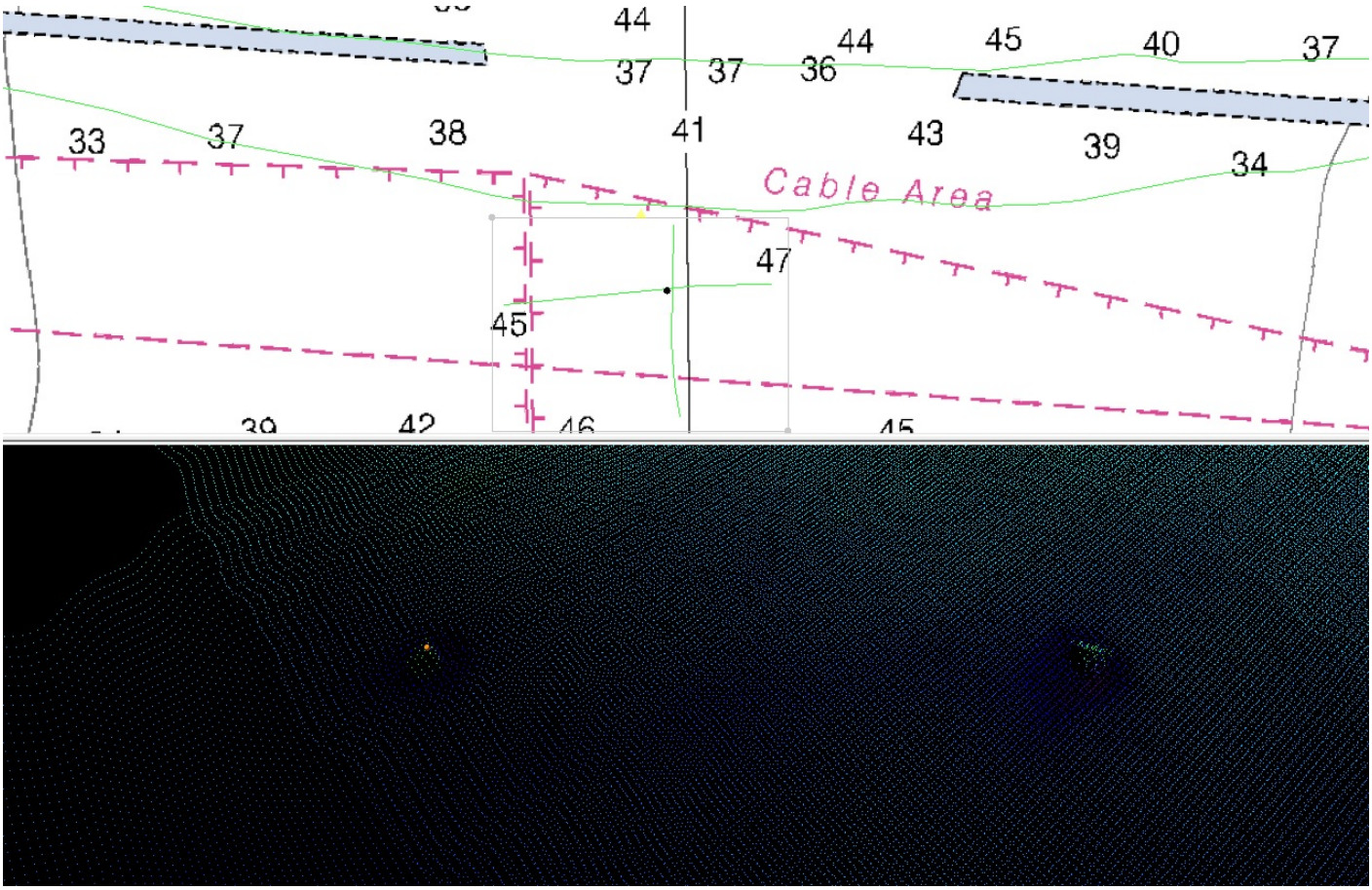


Figure 28: 0_1411_Obstruction_Uncharted

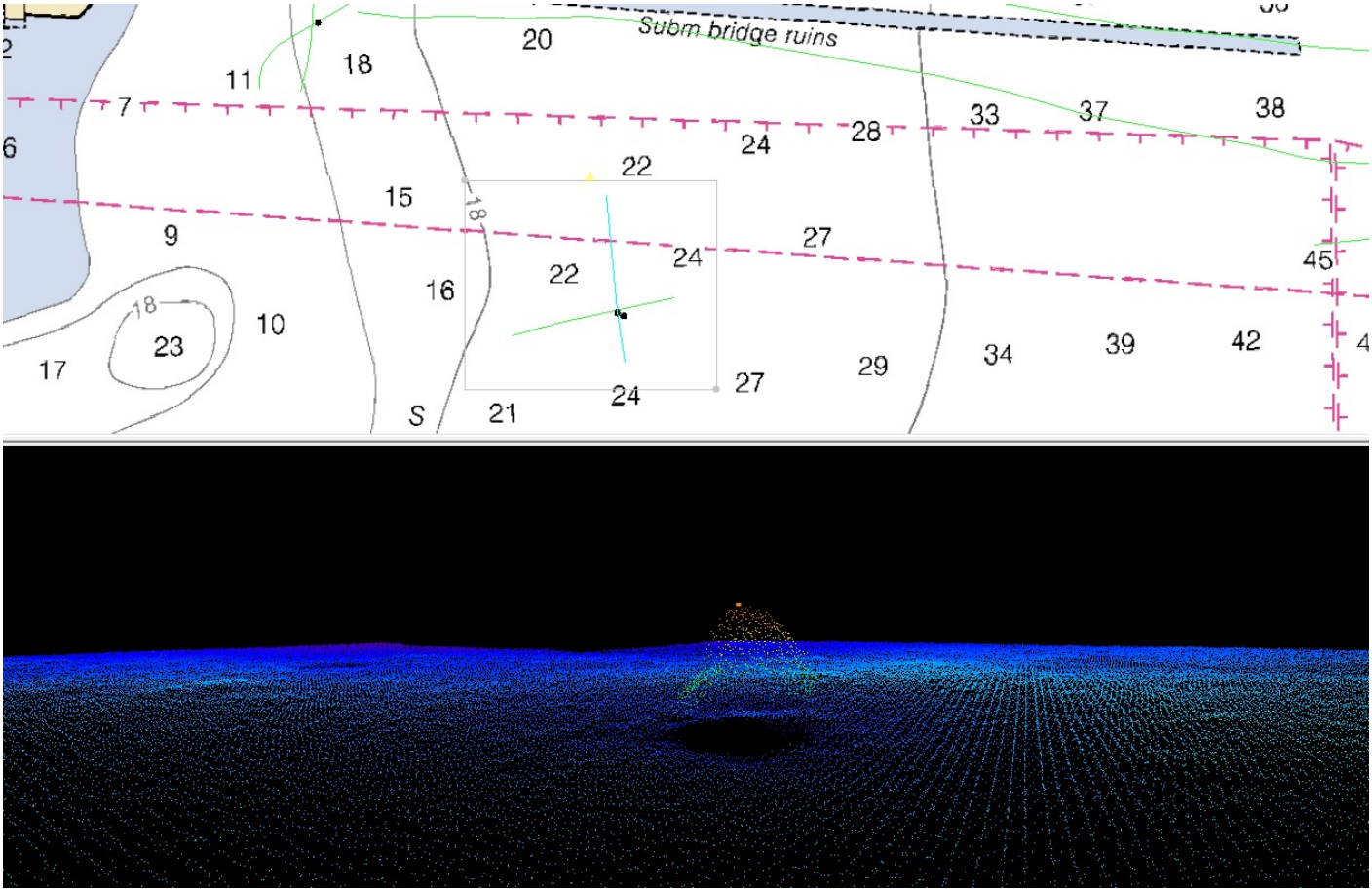


Figure 29: 0_1407_Obstruction_Uncharted

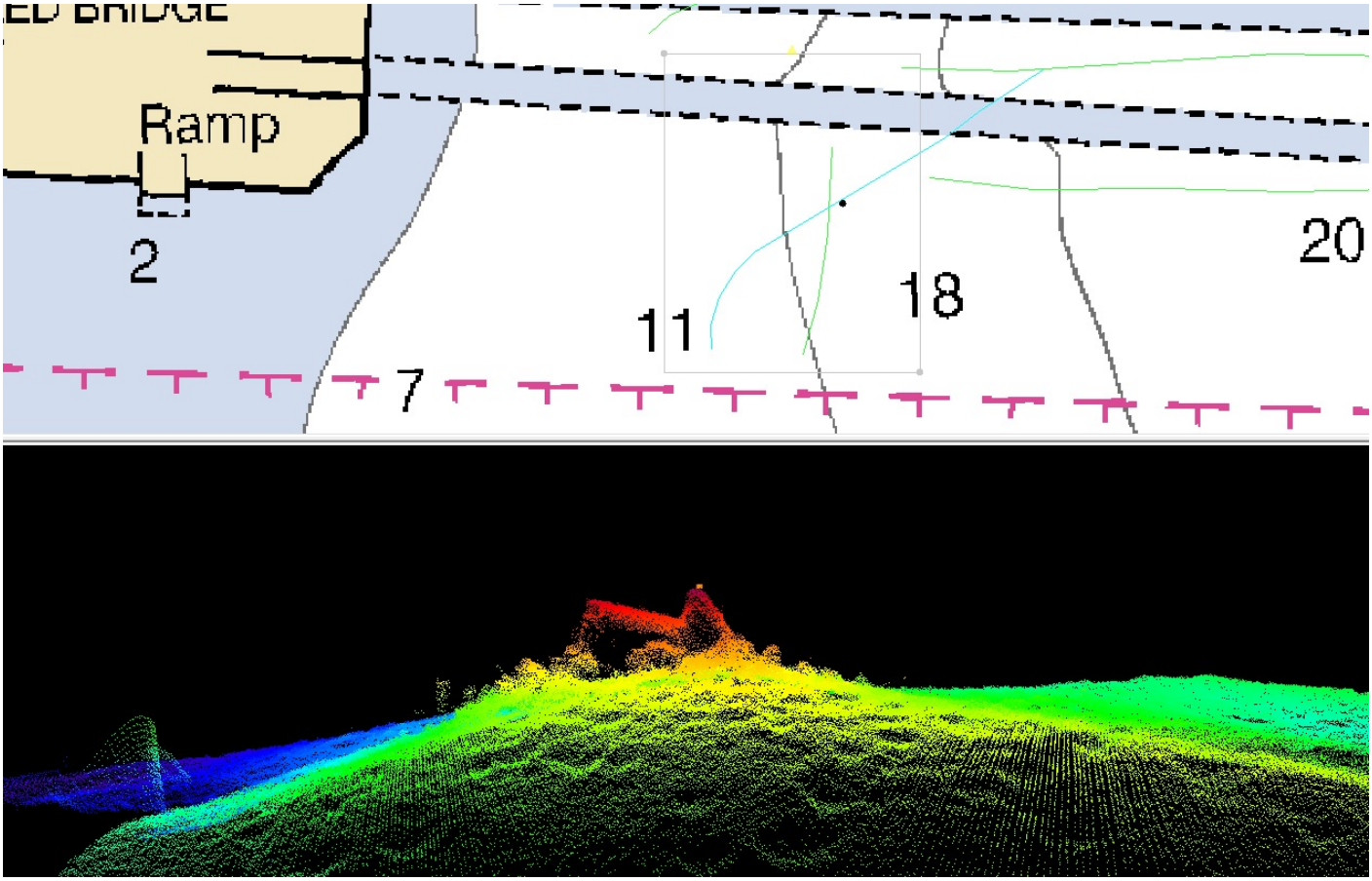


Figure 30: 0_1403_Obstruction_Uncharted

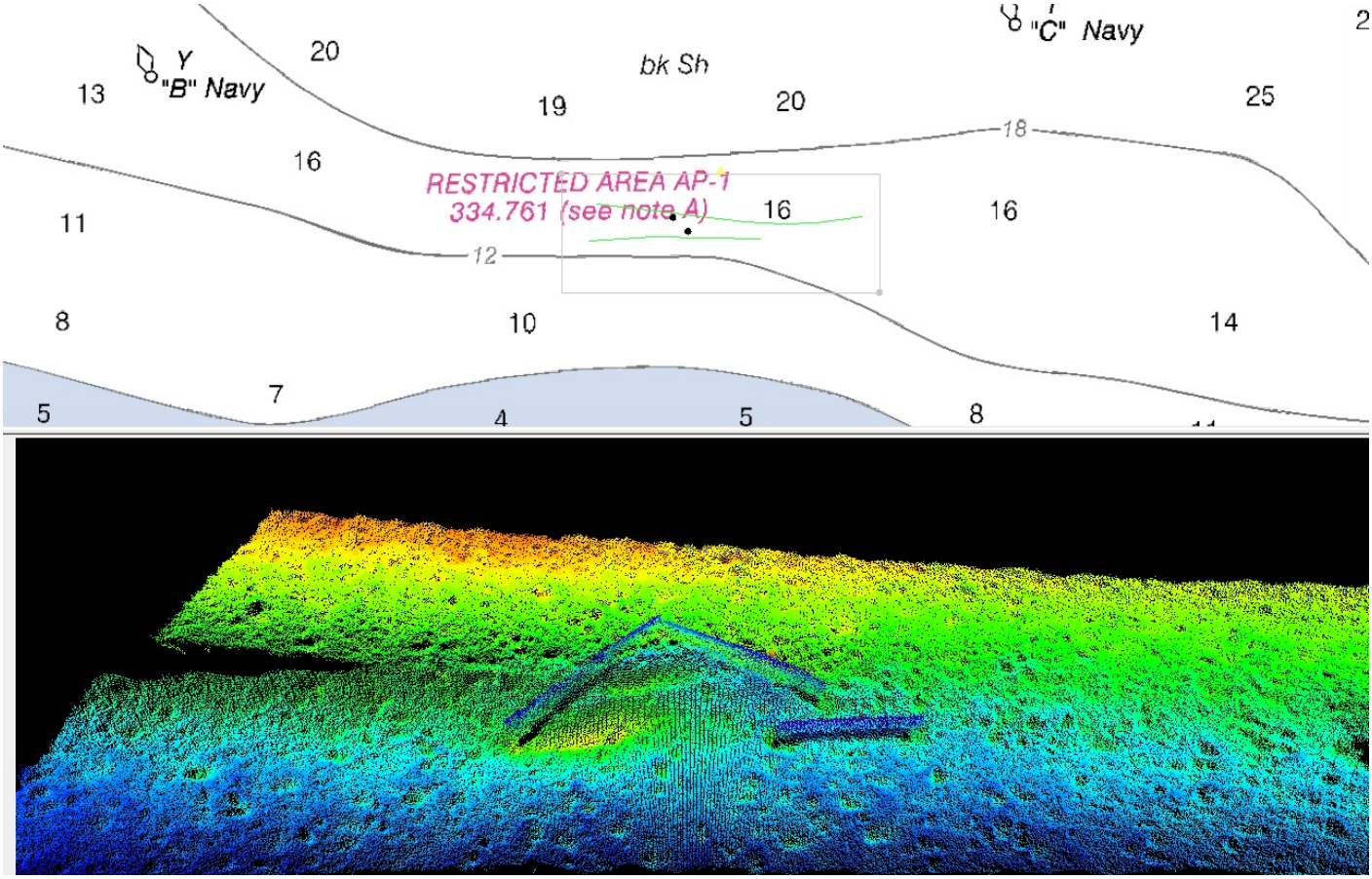


Figure 31: 0_1646_Obstruction_Uncharted

D.1.7 Dangers to Navigation

No Danger to Navigation Reports were submitted for this survey.

D.1.8 Shoal and Hazardous Features

1 shoal area was investigated at reduced line spacing with a MBES within the survey sheet:
An 8 foot shoal south of Sulphur Pt. generally located at 30d10.94N and 85d44.05W was investigated with a Multi Beam Sonar. Results of the investigation showed that the shoal moved slightly to the East, and a least depth was recorded on the shoal. Update shoal with current depths and location.

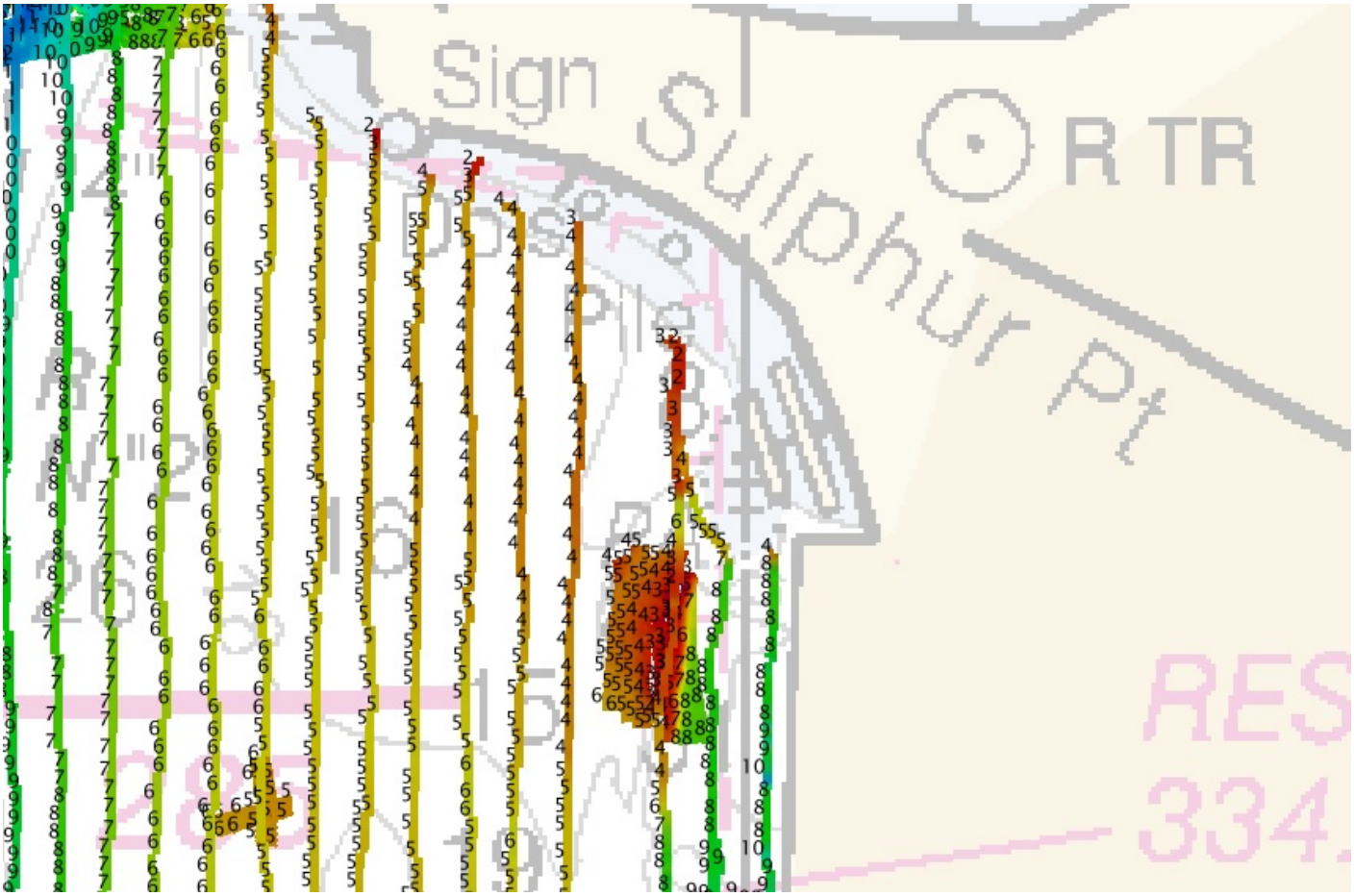


Figure 32: Investigated 8 foot shoal

The shallowest depth (8.596 ft) on the shoal is located 50 m NE of the charted 8 ft sounding.

D.1.9 Channels

The ICWW channel was found to be in general agreement or deeper than the USACE tabulated depths.

D.1.10 Bottom Samples

15 Bottom samples were acquired on this sheet. A majority of samples taken did not agree with the charted bottom characteristics and need to be updated. Please see S-57 attribution in Caris Base for details.

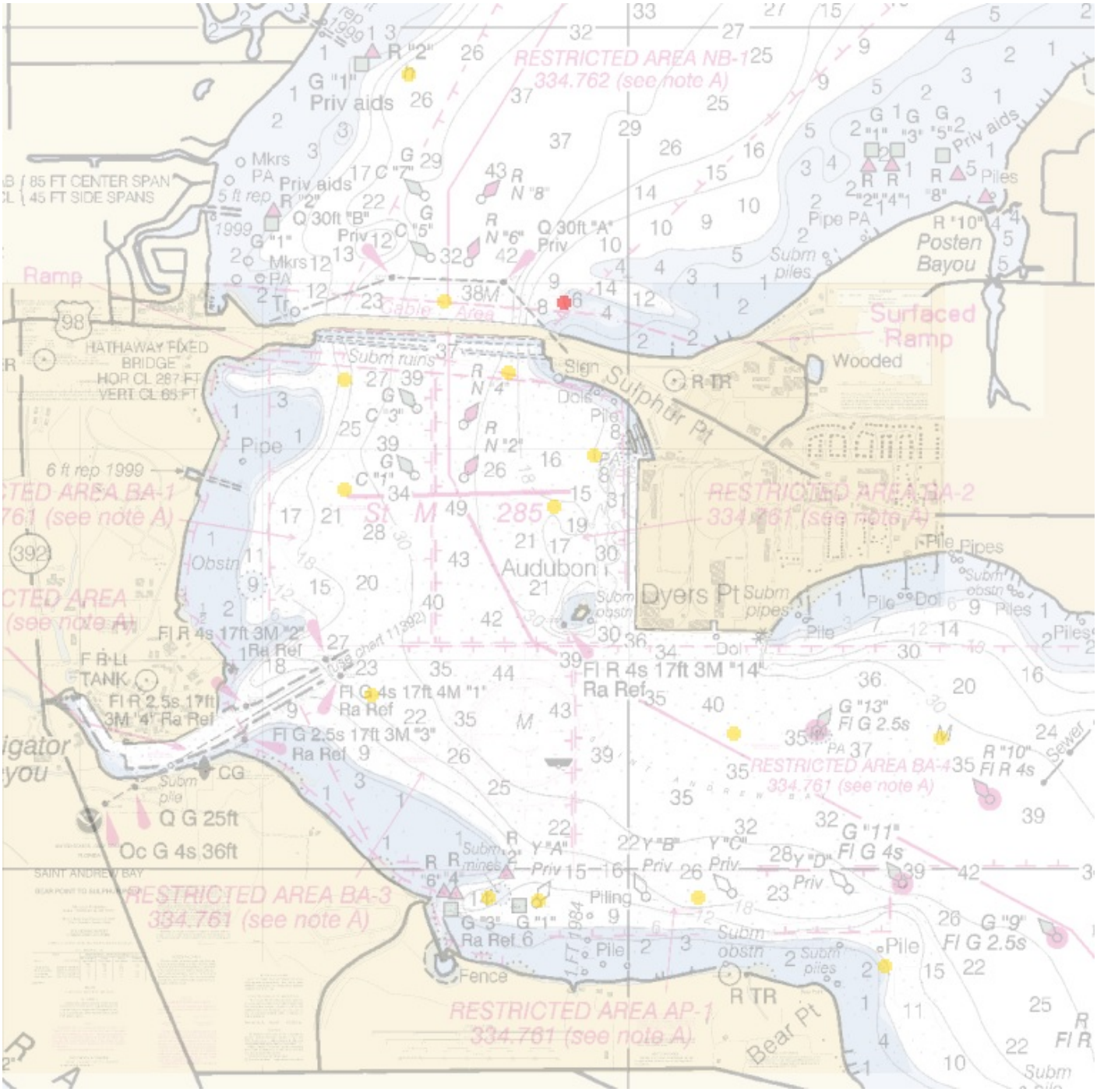


Figure 33: H12376 Bottom Samples locations

Surveyed bottom characteristics will supersede charted bottom characteristics.

D.2 Additional Results

D.2.1 Shoreline

Shoreline was not assigned in the Hydrographic Survey Project Instructions or Statement of Work.

Limited shoreline verification was required by the Project Instructions and 30 features were specifically assigned to be addressed by the hydrographer. The results of the investigations are included in the Final Feature File that is filed with hydrographic records.

D.2.2 Prior Surveys

No prior survey comparisons exist for this survey.

D.2.3 Aids to Navigation

Aids to navigation (ATONs) exist for this survey, but were not investigated.

D.2.4 Overhead Features

HATHAWAY FIXED BRIDGE HOR CL 287 FT VERT CL 65 FT was visually inspected and exists at location.

D.2.5 Submarine Features

No submarine features exist for this survey.

A submerged cable area is located in the vicinity of the Hathaway Fixed Bridge, however no cables were observed. It is possible they are buried in the sediment.

D.2.6 Ferry Routes and Terminals

No ferry routes or terminals exist for this survey.

D.2.7 Platforms

No platforms exist for this survey.

-A Mooring Buoy located at 30d 10.25N and 85d 44.19W was found to be on location.

D.2.9 Construction and Dredging

No present or planned construction or dredging exist within the survey limits.

D.2.10 New Survey Recommendation

No new surveys or further investigations are recommended for this area.

D.2.11 Inset Recommendation

No new insets are recommended for this area.

E. Approval Sheet

As Chief of Party, Field operations for this hydrographic survey were conducted under my direct supervision, with frequent personal checks of progress and adequacy. I have reviewed the attached survey data and reports.

All field sheets, this Descriptive Report, and all accompanying records and data are approved. All records are forwarded for final review and processing to the Processing Branch.

The survey data meets or exceeds requirements as set forth in the NOS Hydrographic Surveys and Specifications Deliverables Manual, Field Procedures Manual, Letter Instructions, and all HSD Technical Directives. These data are adequate to supersede charted data in their common areas. This survey is complete and no additional work is required with the exception of deficiencies noted in the Descriptive Report.

Reviewers of sheet H12376 will find deliverables in Caris Base format and the Final Feature File is a .000 file.

Approver Name	Approver Title	Approval Date	Signature
Mark J. McMann	Team Lead NRT-1	08/05/2014	 Digitally signed by Mark J McMann DN: cn=Mark J McMann, o=NOAA, ou=NRT-1, email=mark.mcmann@noaa.gov, c=US Date: 2014.08.07 09:21:09 -05'00'

F. Table of Acronyms

Acronym	Definition
AHB	Atlantic Hydrographic Branch
AST	Assistant Survey Technician
ATON	Aid to Navigation
AWOIS	Automated Wreck and Obstruction Information System
BAG	Bathymetric Attributed Grid
BASE	Bathymetry Associated with Statistical Error
CO	Commanding Officer
CO-OPS	Center for Operational Products and Services
CORS	Continually Operating Reference Staiton
CTD	Conductivity Temperature Depth
CEF	Chart Evaluation File
CSF	Composite Source File
CST	Chief Survey Technician
CUBE	Combined Uncertainty and Bathymetry Estimator
DAPR	Data Acquisition and Processing Report
DGPS	Differential Global Positioning System
DP	Detached Position
DR	Descriptive Report
DTON	Danger to Navigation
ENC	Electronic Navigational Chart
ERS	Ellipsoidal Referenced Survey
ERZT	Ellipsoidally Referenced Zoned Tides
FFF	Final Feature File
FOO	Field Operations Officer
FPM	Field Procedures Manual
GAMS	GPS Azimuth Measurement Subsystem
GC	Geographic Cell
GPS	Global Positioning System
HIPS	Hydrographic Information Processing System
HSD	Hydrographic Surveys Division
HSSD	Hydrographic Survey Specifications and Deliverables

Acronym	Definition
HSTP	Hydrographic Systems Technology Programs
HSX	Hypack Hysweep File Format
HTD	Hydrographic Surveys Technical Directive
HVCR	Horizontal and Vertical Control Report
HVF	HIPS Vessel File
IHO	International Hydrographic Organization
IMU	Inertial Motion Unit
ITRF	International Terrestrial Reference Frame
LNM	Local Notice to Mariners
LNM	Linear Nautical Miles
MCD	Marine Chart Division
MHW	Mean High Water
MLLW	Mean Lower Low Water
NAD 83	North American Datum of 1983
NAIP	National Agriculture and Imagery Program
NALL	Navigable Area Limit Line
NM	Notice to Mariners
NMEA	National Marine Electronics Association
NOAA	National Oceanic and Atmospheric Administration
NOS	National Ocean Service
NRT	Navigation Response Team
NSD	Navigation Services Division
OCS	Office of Coast Survey
OMAO	Office of Marine and Aviation Operations (NOAA)
OPS	Operations Branch
MBES	Multibeam Echosounder
NWLON	National Water Level Observation Network
PDBS	Phase Differencing Bathymetric Sonar
PHB	Pacific Hydrographic Branch
POS/MV	Position and Orientation System for Marine Vessels
PPK	Post Processed Kinematic
PPP	Precise Point Positioning
PPS	Pulse per second

Acronym	Definition
PRF	Project Reference File
PS	Physical Scientist
PST	Physical Science Technician
RNC	Raster Navigational Chart
RTK	Real Time Kinematic
SBES	Singlebeam Echosounder
SBET	Smooth Best Estimate and Trajectory
SNM	Square Nautical Miles
SSS	Side Scan Sonar
ST	Survey Technician
SVP	Sound Velocity Profiler
TCARI	Tidal Constituent And Residual Interpolation
TPE	Total Porpagated Error
TPU	Topside Processing Unit
USACE	United States Army Corps of Engineers
USCG	United Stated Coast Guard
UTM	Universal Transverse Mercator
XO	Executive Officer
ZDA	Global Positiong System timing message
ZDF	Zone Definition File

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

TIDE NOTE FOR HYDROGRAPHIC SURVEY

DATE : July 21st, 2014

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: S-J910-NRT1-2014
HYDROGRAPHIC SHEET: H12376

LOCALITY: Bear Point to Hathaway Bridge, Panama City, FL
TIME PERIOD: September 10th, 2013 - July 14th, 2014

TIDE STATION USED: 872-9108, Panama City, FL
Lat. 30° 9.1'N Long. 85° 40.0' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 0.395 meters

REMARKS: RECOMMENDED ZONING

Preliminary zoning is accepted as the final zoning for project S-J910-NRT1-2014, H12376, during the time period between September 10th, 2013 - July 14th, 2014.

Please use the zoning file J910NRT12014CORP submitted with the project instructions for S-J910-NRT1-2014. Zones PC25, PC37, PC38, and PC39 are the applicable zones for H12376.

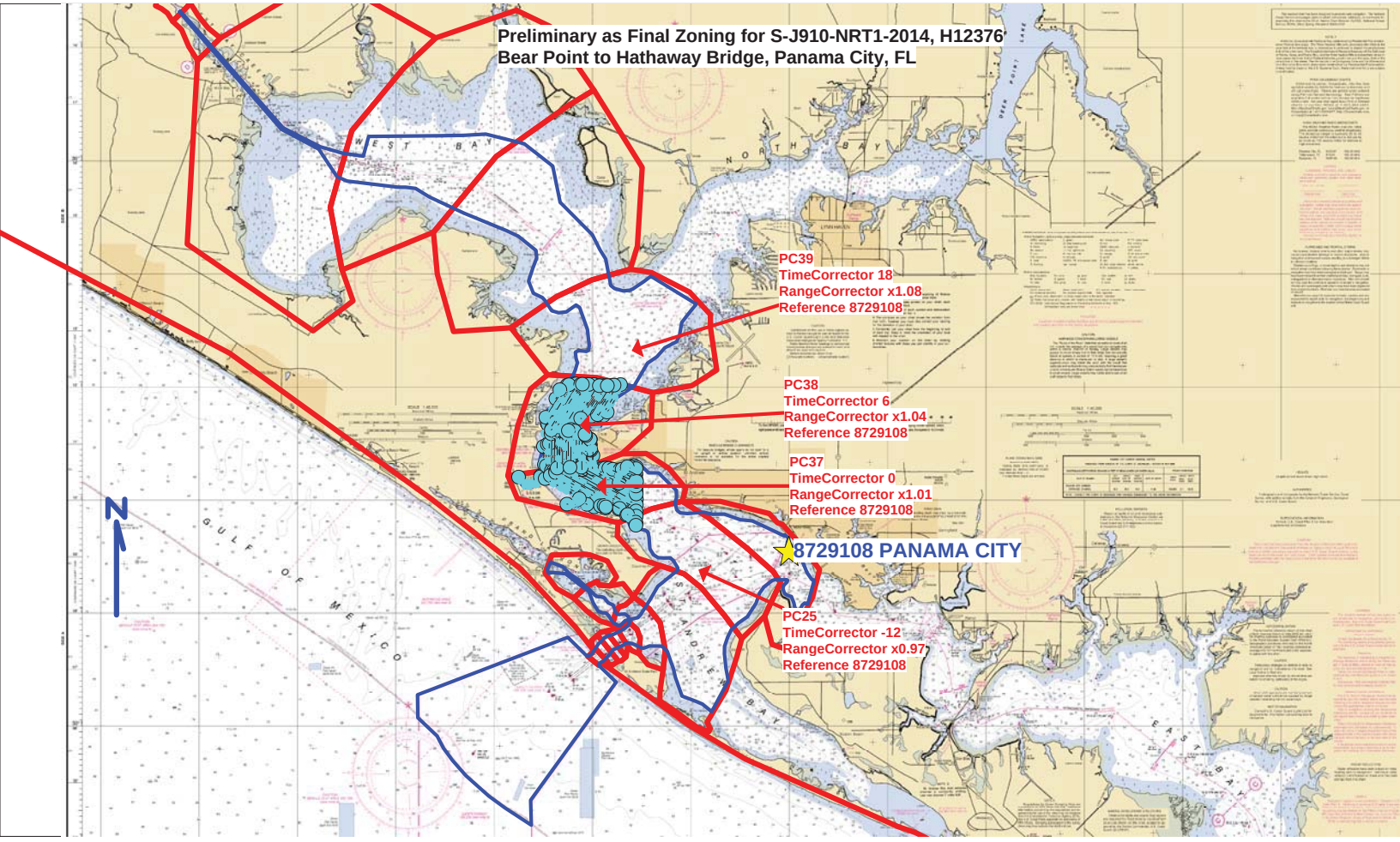
Refer to attachments for zoning information.

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).

HOVIS.GERALD.THOMAS.1365860250

Digitally signed by HOVIS.GERALD.THOMAS.1365860250
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=HOVIS.GERALD.THOMAS.1365860250
Date: 2014.07.28 13:20:56 -04'00'

CHIEF, PRODUCTS AND SERVICES BRANCH


Preliminary as Final Zoning for S-J910-NRT1-2014, H12376
Bear Point to Hathaway Bridge, Panama City, FL
PC39
TimeCorrector 18
RangeCorrector x1.08
Reference 8729108
PC38
TimeCorrector 6
RangeCorrector x1.04
Reference 8729108
PC37
TimeCorrector 0
RangeCorrector x1.01
Reference 8729108
8729108 PANAMA CITY
PC25
TimeCorrector -12
RangeCorrector x0.97
Reference 8729108
WEST BAY
NORTH BAY
GULF OF MEXICO
EAST BAY
N

H12376 Feature Report

Registry Number: H12376
State: Florida
Locality: Panama City
Sub-locality: Bear Point to Hathaway bridge
Project Number: S-J910-NRT1-14
Survey Dates: 09/10/2013 - 07/13/2014

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
11392	8th	09/01/2014	1:5,000 (11392_1)	USCG LNM: 9/2/2014 (9/9/2014) NGA NTM: 12/12/2009 (9/20/2014)
11391	25th	01/01/2013	1:25,000 (11391_1)	USCG LNM: 9/2/2014 (9/9/2014) NGA NTM: 12/12/2009 (9/20/2014)
11390	24th	08/01/2007	1:40,000 (11390_1)	[L]NTM: ?
11389	33rd	07/01/2005	1:80,000 (11389_1)	[L]NTM: ?
11360	43rd	11/01/2008	1:456,394 (11360_1)	[L]NTM: ?
1115A	43rd	11/01/2008	1:456,394 (1115A_1)	[L]NTM: ?
11006	32nd	08/01/2005	1:875,000 (11006_1)	[L]NTM: ?
411	52nd	09/01/2007	1:2,160,000 (411_1)	[L]NTM: ?

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

Features

Feature Type	Survey Depth	Survey Latitude	Survey Longitude
Wreck	6.18 m	30° 11' 20.9" N	085° 44' 39.2" W
Wreck	6.20 m	30° 10' 35.9" N	085° 44' 11.9" W
Wreck	2.70 m	30° 10' 35.3" N	085° 43' 10.0" W

1 - New Features

1.1) 20 ft (6.18 m) Wreck

Survey Summary

Survey Position:	30° 11' 20.9" N, 085° 44' 39.2" W
Least Depth:	6.18 m (= 20.28 ft = 3.379 fm = 3 fm 2.28 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2014-189.00:00:00.000 (07/08/2014)
Dataset:	H12376_FeatureReport.000
FOID:	US 0000021706 00001(0226000054CA0001)
Charts Affected:	11392_1, 11391_1, 11390_1, 11389_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

WRECKS/remrks: The feature was located with side scan sonar and developed using a multibeam echosounder. According to the data, the feature is a wreck 4.8 m long and 1.7 m wide.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12376_FeatureReport.000	US 0000021706 00001	0.00	000.0	Primary

Hydrographer Recommendations

Recommend charting a sounding on a wreck at the position with current survey depths.

Cartographically-Rounded Depth (Affected Charts):

20ft (11392_1, 11391_1, 11390_1, 11389_1)

3 ¼fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	INFORM - H12376_Uncharted_Wrecks
	QUASOU - 6:least depth known
	SORDAT - 20140713
	SORIND - US,US,graph,H12376
	TECSOU - 3:found by multi-beam
	VALSOU - 6.180 m

WATLEV - 3:always under water/submerged

Office Notes

Concur

Feature Images

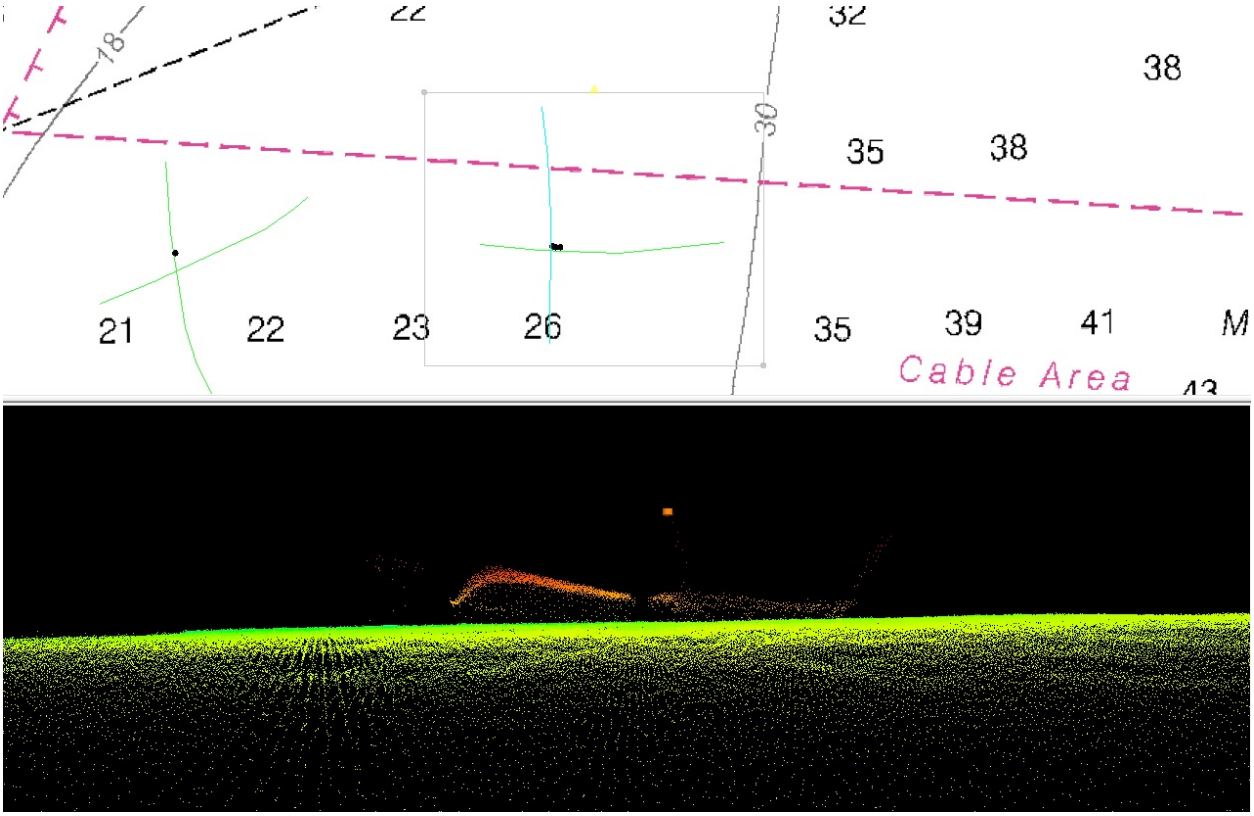


Figure 1.1.1

1.2) 20 ft (6.20 m) Wreck

Survey Summary

Survey Position:	30° 10' 35.9" N, 085° 44' 11.9" W
Least Depth:	6.20 m (= 20.34 ft = 3.390 fm = 3 fm 2.34 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2014-189.00:00:00.000 (07/08/2014)
Dataset:	H12376_FeatureReport.000
FOID:	US 0000021704 00001(0226000054C80001)
Charts Affected:	11392_1, 11391_1, 11390_1, 11389_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

WRECKS/remrks: The feature was located with side scan sonar and developed using a multibeam echosounder. According to the data, the feature is a wreck 5 m long and 4 m wide.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12376_FeatureReport.000	US 0000021704 00001	0.00	000.0	Primary

Hydrographer Recommendations

Recommend charting a sounding on a wreck at the position with current survey depths.

Cartographically-Rounded Depth (Affected Charts):

20ft (11392_1, 11391_1, 11390_1, 11389_1)

3 ¼fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	INFORM - H12376_Uncharted_Wrecks
	QUASOU - 6:least depth known
	SORDAT - 20140713
	SORIND - US,US,graph,H12376
	TECSOU - 3:found by multi-beam
	VALSOU - 6.200 m

WATLEV - 3:always under water/submerged

Office Notes

Concur

Feature Images

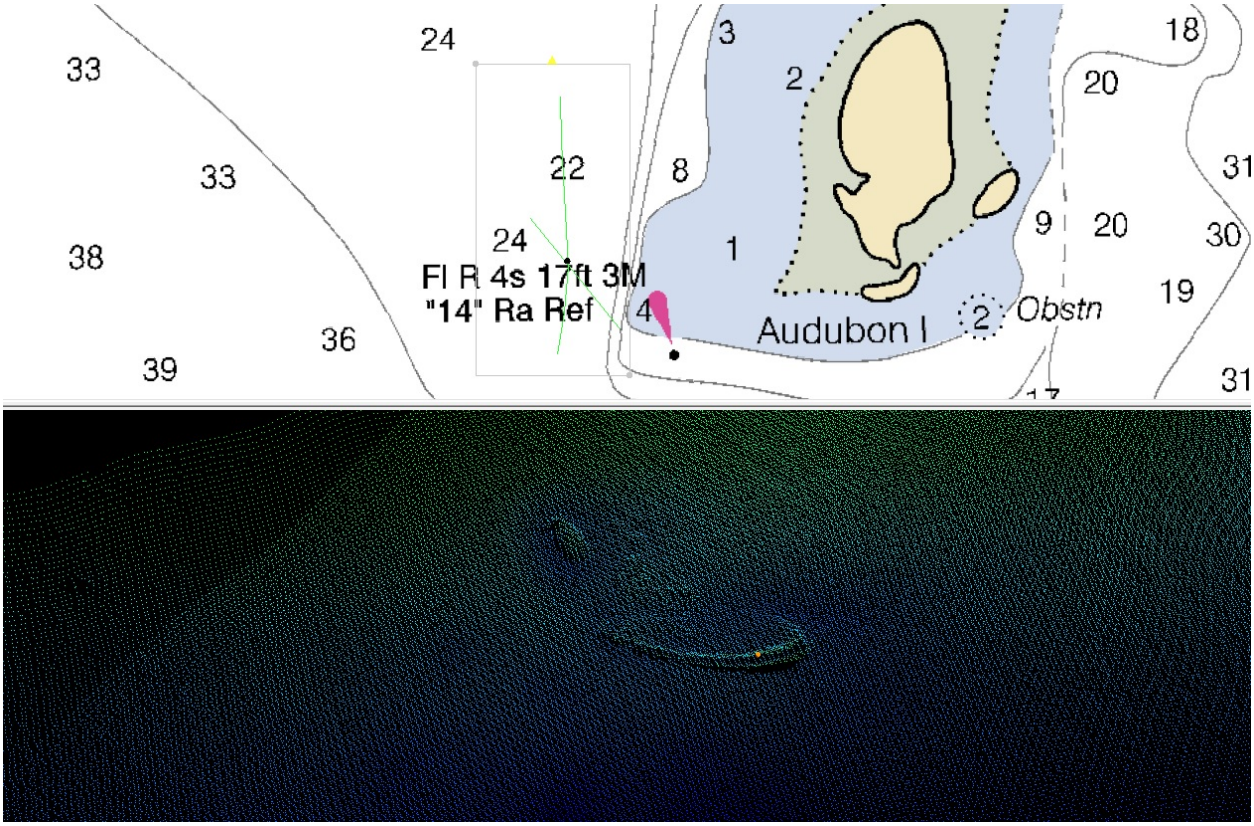


Figure 1.2.1

1.3) 9 ft (2.70 m) Wreck

Survey Summary

Survey Position:	30° 10' 35.3" N, 085° 43' 10.0" W
Least Depth:	2.70 m (= 8.86 ft = 1.476 fm = 1 fm 2.86 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2014-189.00:00:00.000 (07/08/2014)
Dataset:	H12376_FeatureReport.000
FOID:	US 0000021705 00001(0226000054C90001)
Charts Affected:	11392_1, 11391_1, 11390_1, 11389_1, 1115A_1, 11360_1, 11006_1, 411_1

Remarks:

WRECKS/remrks: The feature was located with side scan sonar and developed using a multibeam echosounder. According to the data, the feature is a wreck 6.3 m long and 1.7 m wide.

Feature Correlation

Source	Feature	Range	Azimuth	Status
H12376_FeatureReport.000	US 0000021705 00001	0.00	000.0	Primary

Hydrographer Recommendations

Recommend charting a sounding on a wreck at the position with current survey depths.

Cartographically-Rounded Depth (Affected Charts):

9ft (11392_1, 11391_1, 11390_1, 11389_1)

1 ½fm (1115A_1, 11360_1, 11006_1, 411_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	INFORM - H12376_Uncharted_Wrecks
	QUASOU - 6:least depth known
	SORDAT - 20140713
	SORIND - US,US,graph,H12376
	TECSOU - 3:found by multi-beam
	VALSOU - 2.700 m

WATLEV - 3:always under water/submerged

Office Notes

Concur

Feature Images

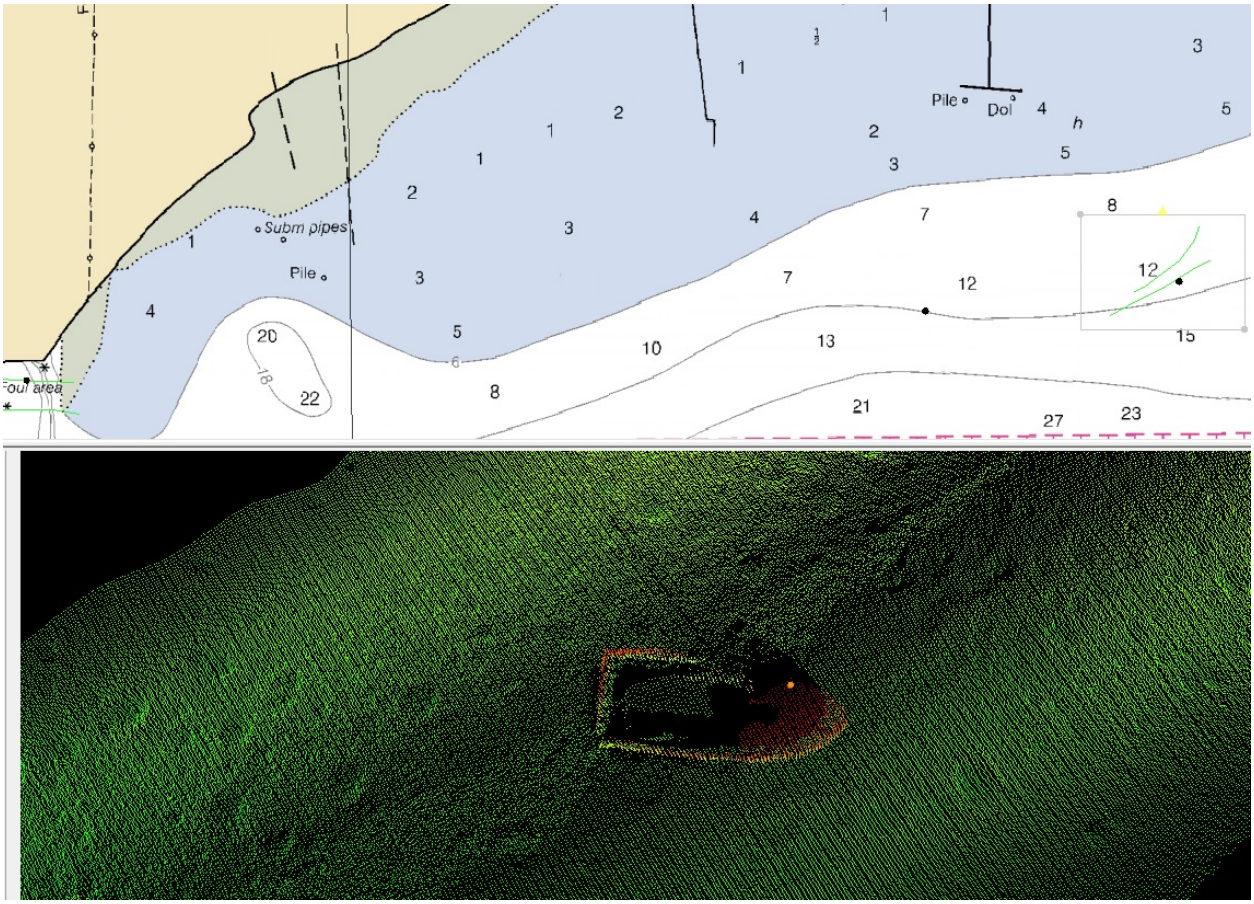


Figure 1.3.1

APPROVAL PAGE

H12376

Data meet or exceed current specifications as certified by the OCS survey acceptance review process. Descriptive Report and survey data except where noted are adequate to supersede prior surveys and nautical charts in the common area.

The following products will be sent to NGDC for archive

- H12376_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12376_GeoImage.pdf

The survey evaluation and verification has been conducted according current OCS Specifications.

Digitally signed by HOLMBERG.PETER.SCOTT.1365886101
DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=OTHER, cn=HOLMBERG.PETER.SCOTT.1365886101
Date: 2015.06.29 12:23:18 -07'00'

Approved:_____

Peter Holmberg
Cartographic Team Lead, Pacific Hydrographic Branch

The survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

Digitally signed by EVANS.BENJAMIN.K.1237217094
Reason: I am approving this document
Date: 2015.06.29 13:39:24 -07'00'

Approved:_____

CDR Benjamin K. Evans, NOAA
Chief, Pacific Hydrographic Branch