H12618

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

DESCRIPTIVE REPORT

Type of Survey:	Navigable Area
Registry Number:	H12618

LOCALITY

State(s):	California
General Locality:	Long Beach, CA
Sub-locality:	Long Beach and Vicinity

2013

CHIEF OF PARTY
CDR David J. Zezula, NOAA

LIBRARY & ARCHIVES

Date:

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

REGISTRY NUMBER:

HYDROGRAPHIC TITLE SHEET

H12618

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):	**California**
General Locality:	**Long Beach, CA**
Sub-Locality:	**Long Beach and Vicinity**
Scale:	**6000**
Dates of Survey:	**09/26/2013 to 11/04/2013**
Instructions Dated:	**08/01/2013**
Project Number:	**OPR-L318-FA-13**
Field Unit:	**NOAA Ship *Fairweather***
Chief of Party:	**CDR David J. Zezula, NOAA**
Soundings by:	**Multibeam Echo Sounder**
Imagery by:	**Multibeam Echo Sounder Backscatter**
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. Notes in red were generated during office processing. The processing branch concurs with all information and recommendations in the DR unless otherwise noted. Page numbering may be interrupted or non-sequential. All pertinent records for this survey, including the Descriptive Report, are archived at the National Geophysical Data Center (NGDC) and can be retrieved via http://www.ngdc.noaa.gov/.

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Descriptive Report to Accompany Survey H12618

Project: OPR-L318-FA-13

Locality: Long Beach, CA

Sublocality: Long Beach and Vicinity

Scale: 1:6000

September 2013 - November 2013

NOAA Ship *Fairweather*

Chief of Party: CDR David J. Zezula, NOAA

A. Area Surveyed

The survey area is located in Long Beach, CA, within the sub-locality of Long beach and Vicinity.

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
33° 45' 45.01" N 118° 11' 58.04" W	33° 36' 54.08" N 118° 3' 42.46" W

Table 1: Survey Limits

Survey limits were acquired in accordance with the modified sheet limits approved on Nov. 5 2013.

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

A.2 Survey Purpose

The purpose of this project is to provide contemporary surveys to update National Ocean Service (NOS) nautical charting products. H12618 will address critical areas as identified in the 2012 NOAA Hydrographic Survey Priorities (NHSP).

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

Along the eastern shore of Alamito Bay, gaps exist in the CUBE surfaces. However, this coverage meets the 25 m line spacing requirement. See Figure 1 below.

This area was not surveyed to the 4m inshore limit of hydrography as required by the Project Instructions due to the risk of maneuvering the survey vessel on large swells. See figure 2.

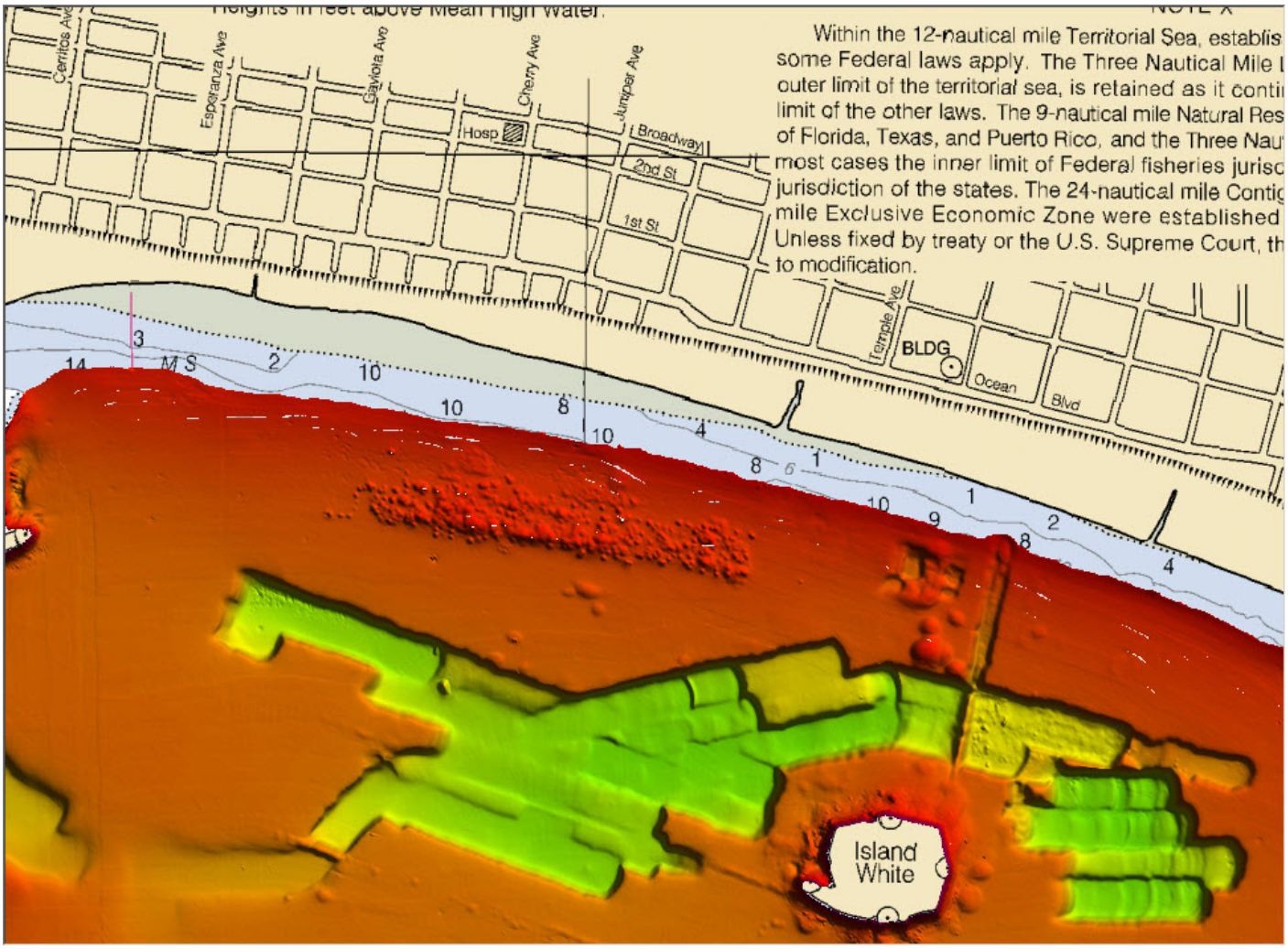


Figure 1: H12618 Survey Quality western shore of Alamito Bay.

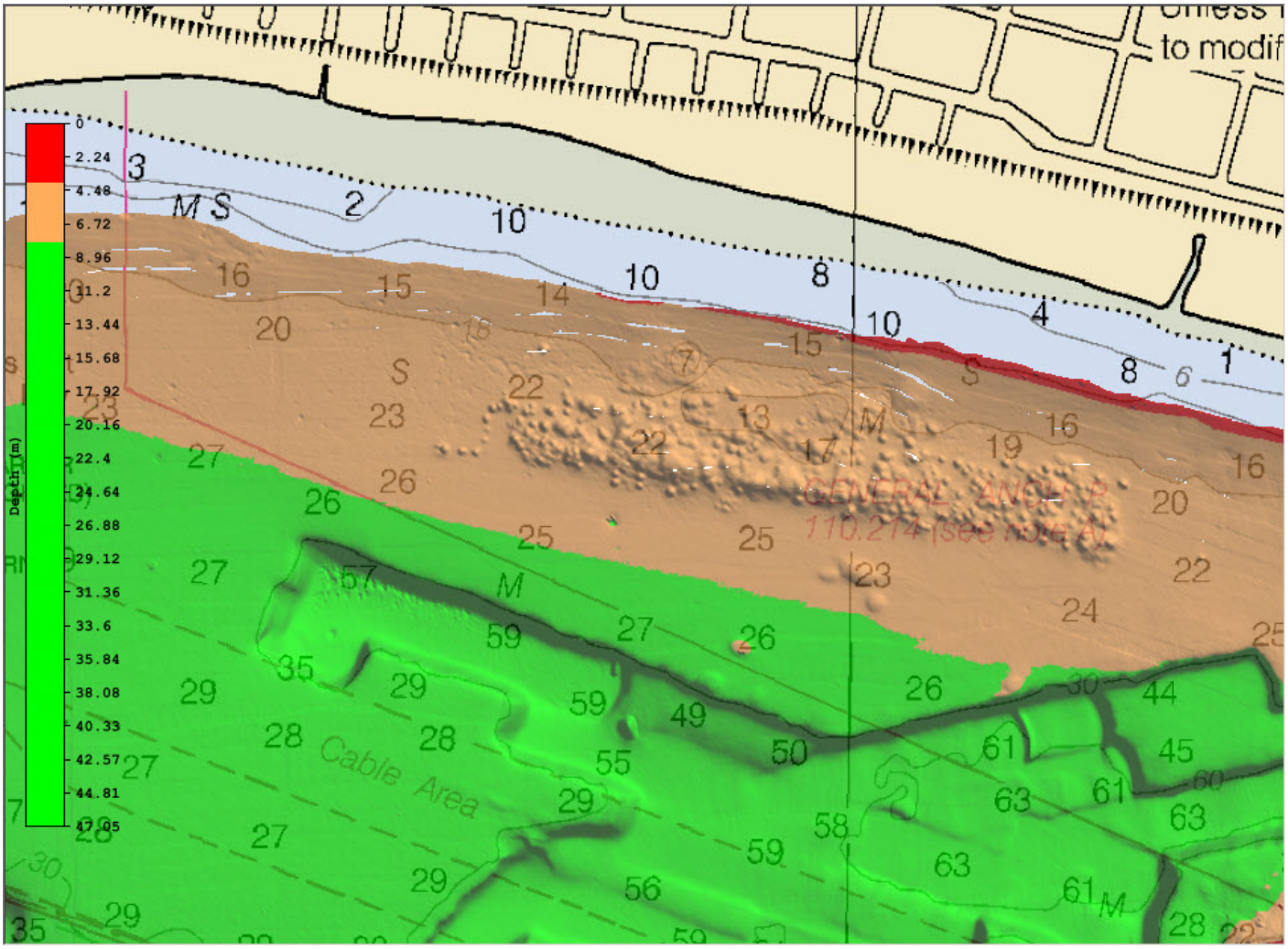


Figure 2: H12618 4m curve western shore of Alamito Bay.

A.4 Survey Coverage

Figure 3: H12618 Survey Outline.

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	*2801*	*2805*	*2806*	*2807*	*2808*	*Total*
LNM	SBES Mainscheme	0	0	0	0	0.00	0
	MBES Mainscheme	158.82	240.60	294.26	348.75	47.17	1089.6
	Lidar Mainscheme	0	0	0	0	0.00	0
	SSS Mainscheme	0	0	0	0	0.00	0
	SBES/SSS Mainscheme	0	0	0	0	0.00	0
	MBES/SSS Mainscheme	0	0	0	0	0.00	0
	SBES/MBES Crosslines	9.23	10.97	30.51	2.14	0.00	52.85
	Lidar Crosslines	0	0	0	0	0.00	0
Number of Bottom Samples							0
Number of AWOIS Items Investigated							9
Number Maritime Boundary Points Investigated							0
Number of DPs							0
Number of Items Investigated by Dive Ops							0
Total SNM							31.1

Table 2: Hydrographic Survey Statistics

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

Survey Dates	Day of the Year
09/26/2013	269
09/27/2013	270
09/28/2013	271
09/29/2013	272
09/30/2013	273
10/26/2013	299
10/27/2013	300
10/28/2013	301
10/29/2013	302
10/30/2013	303
10/31/2013	304
11/01/2013	305
11/04/2013	308

Table 3: Dates of Hydrography

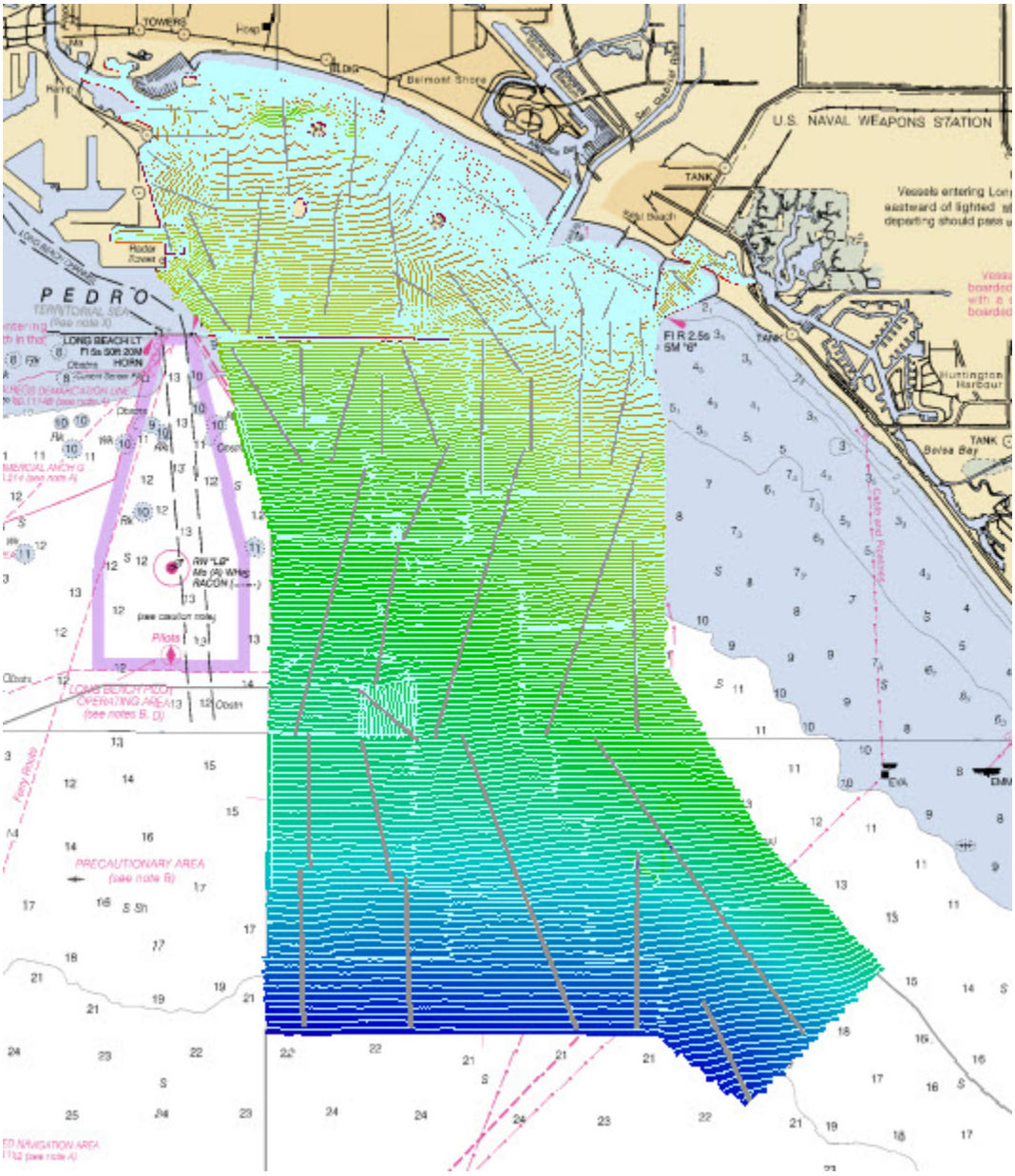


Figure 4: H12618 Mainscheme Crossline Overview.

Re: Table 2, DPs were taken in the field and are in the Final Feature File.

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	*2801*	*2805*	*2806*	*2807*	*2808*
LOA	8.64 meters	8.64 meters	8.64 meters	8.64 meters	8.64 meters
Draft	1.12 meters	1.12 meters	1.12 meters	1.12 meters	1.12 meters

Table 4: Vessels Used

B.1.2 Equipment

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

Manufacturer	Model	Type
RESON	7125	MBES
RESON	8125	MBES
RESON	SVP71	Sound Speed System
Applanix	POS/MV V4	Positioning and Attitude System
Sea-Bird	SBE 19plus	Conductivity, Temperature, and Depth Sensor
TELEDYNE ODOM HYDROGRAFIC	Digibar Pro	Sound Speed System

Table 5: Major Systems Used

B.2 Quality Control

B.2.1 Crosslines

Crosslines acquired for this survey totaled 5% of mainscheme acquisition.

Surface differencing in CARIS HIPS and SIPS was used to assess cross-line agreement with main scheme lines. Figure 5 depicts a difference surface between a 2-meter surface made with main scheme lines only and an 2-meter surface made with cross-lines only. This difference surface is submitted digitally in the Separates

II folder. The two surfaces agree within plus or minus 0.5 meters, therefore cross-lines agree with main scheme lines within the total allowable vertical and horizontal uncertainty in their common areas. See figure 6 for statistical information.

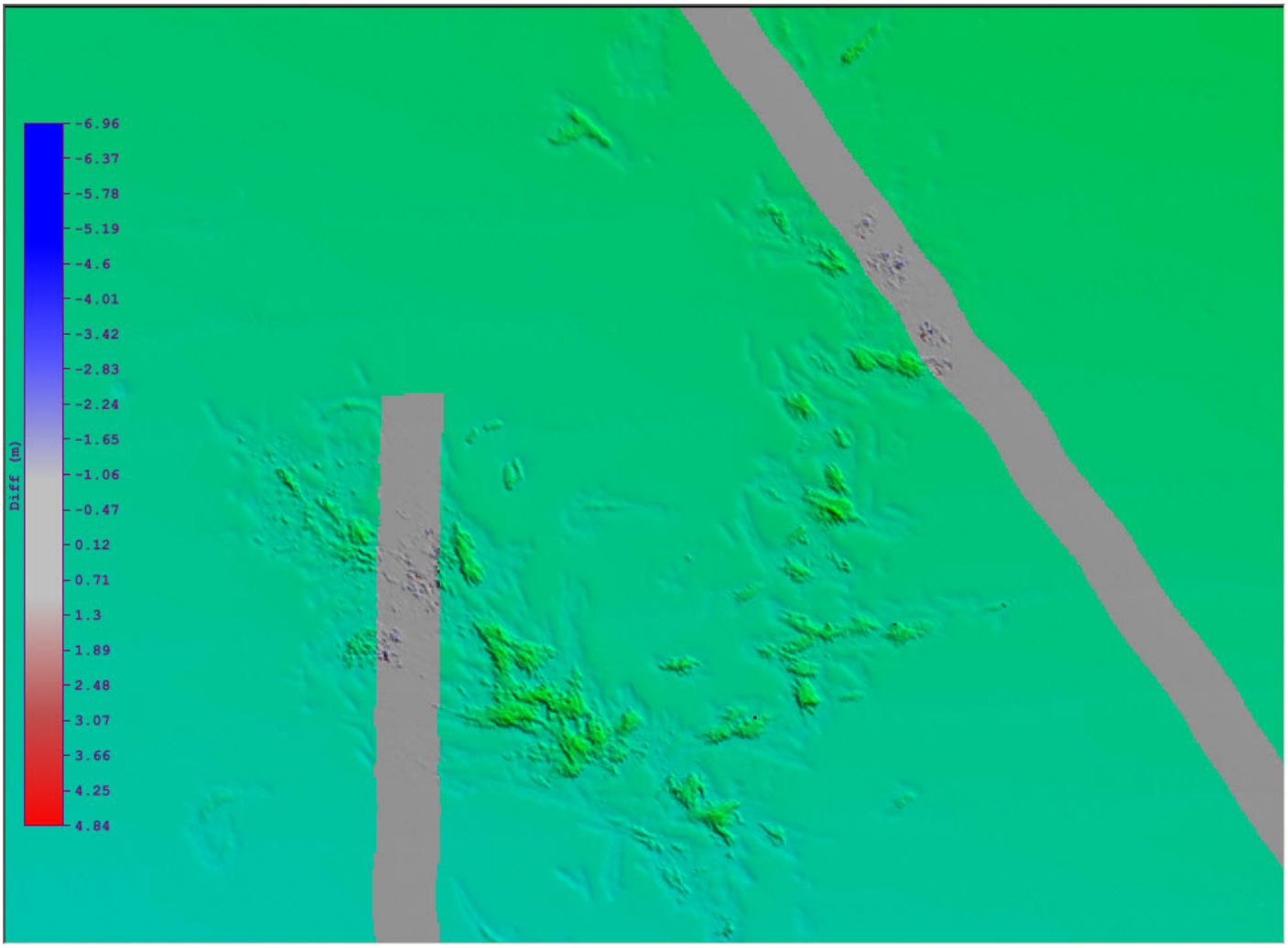
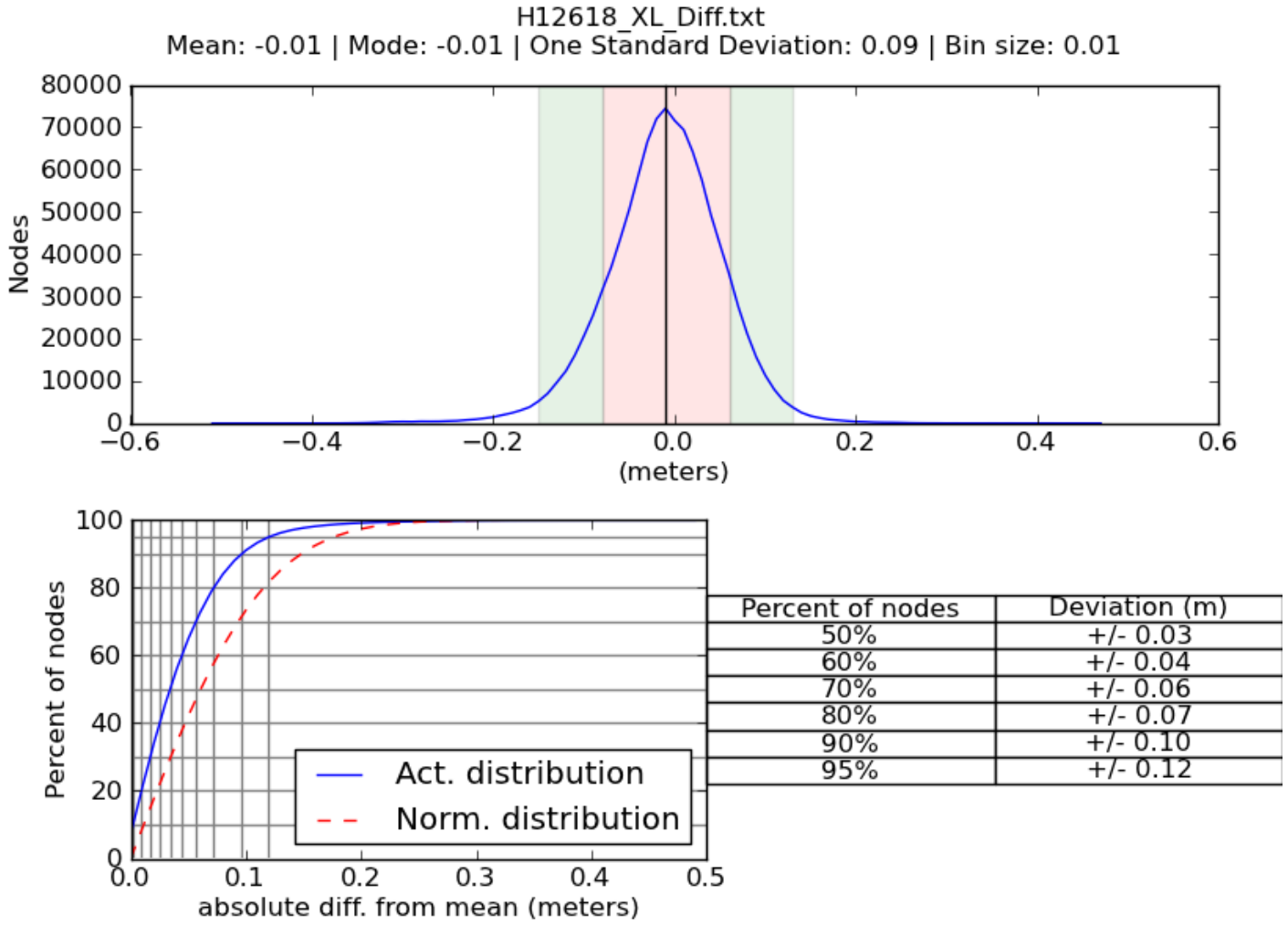


Figure 5: Graphical representation of differences between crossline and mainscheme surfaces.



Percent of nodes	Deviation (m)
50%	+/- 0.03
60%	+/- 0.04
70%	+/- 0.06
80%	+/- 0.07
90%	+/- 0.10
95%	+/- 0.12

Figure 6: Statistical information for differences between crossline to main scheme.

B.2.2 Uncertainty

The following survey specific parameters were used for this survey:

Measured	Zoning
0.01 meters	0.08 meters

Table 6: Survey Specific Tide TPU Values

Hull ID	Measured - CTD	Measured - MVP	Surface
2801	2 meters/second		0.5 meters/second
2805	2 meters/second		0.5 meters/second
2806	2 meters/second		0.5 meters/second
2807	2 meters/second		0.5 meters/second
2808	2 meters/second		0.5 meters/second

Table 7: Survey Specific Sound Speed TPU Values

B.2.3 Junctions

The areas of overlap between the sheets were reviewed in CARIS Subset Editor for sounding consistency and by surface differencing 2 meter combined surfaces to assess surface agreement. The junction agreement is generally within the total allowable vertical uncertainty in their common areas and depths for all surfaces. Data overlap between all surveys was achieved. See figure 7 for planned areas of overlap.

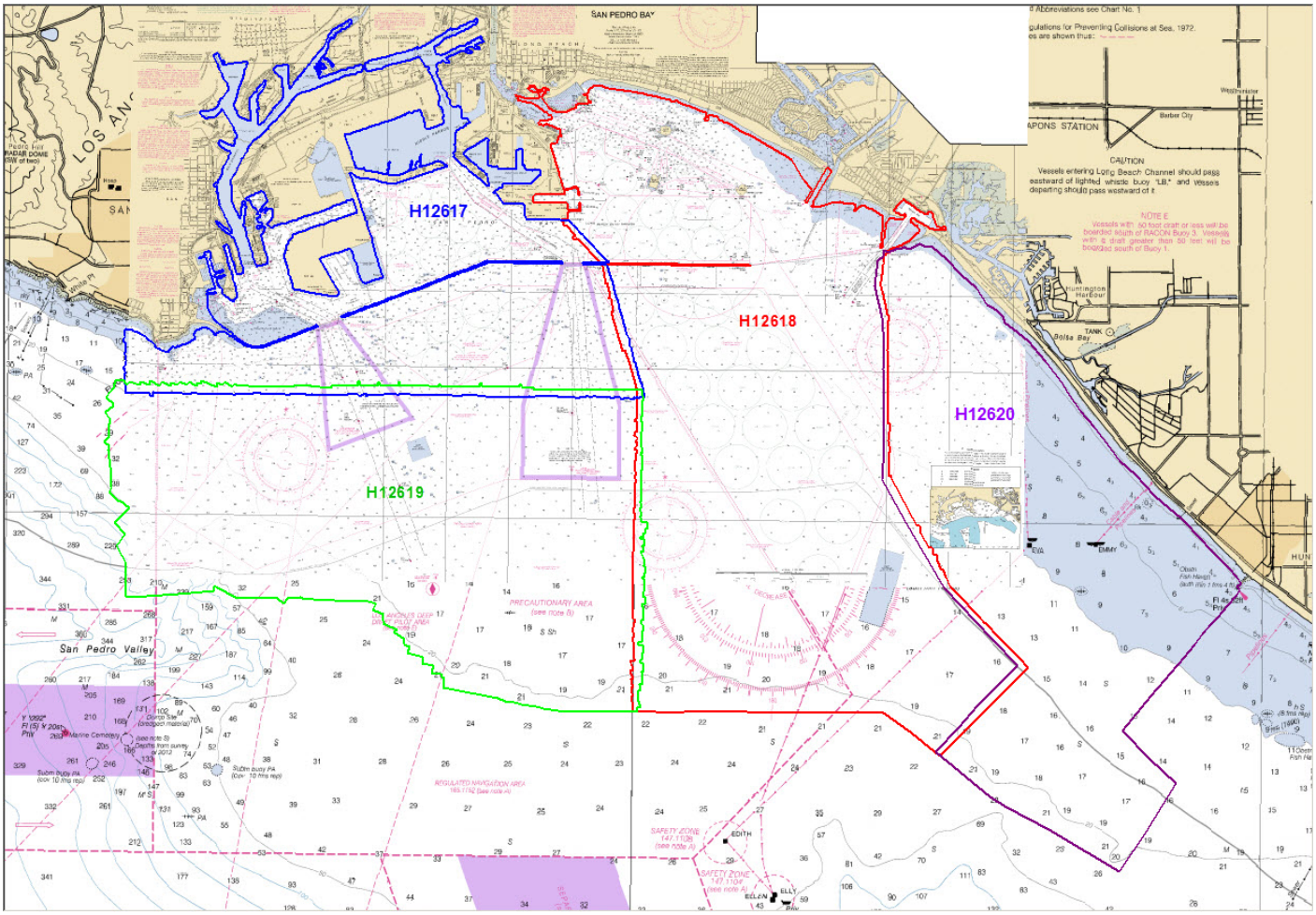


Figure 7: Junctions between H12617, H12618, H12619 and H12620

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12617	1:6000	2013	NOAA Ship FAIRWEATHER	W
H12619	1:10000	2013	NOAA Ship FAIRWEATHER	SW
H12620	1:10000	2013	NOAA Ship FAIRWEATHER	SE

Table 8: Junctioning Surveys

H12617

Surface differencing in CARIS HIPS and SIPS was used to assess junction agreement between H12618_MB_2m_MLLW_Combined surface and H12617_MB_2m_MLLW_Combined. The difference between surfaces were generally less than1 m and the few areas of larger differences are believed to be caused by rapid changes in slope. See figure 8 for a graphical representation and figure 9 for statistical information of the surface differencing.

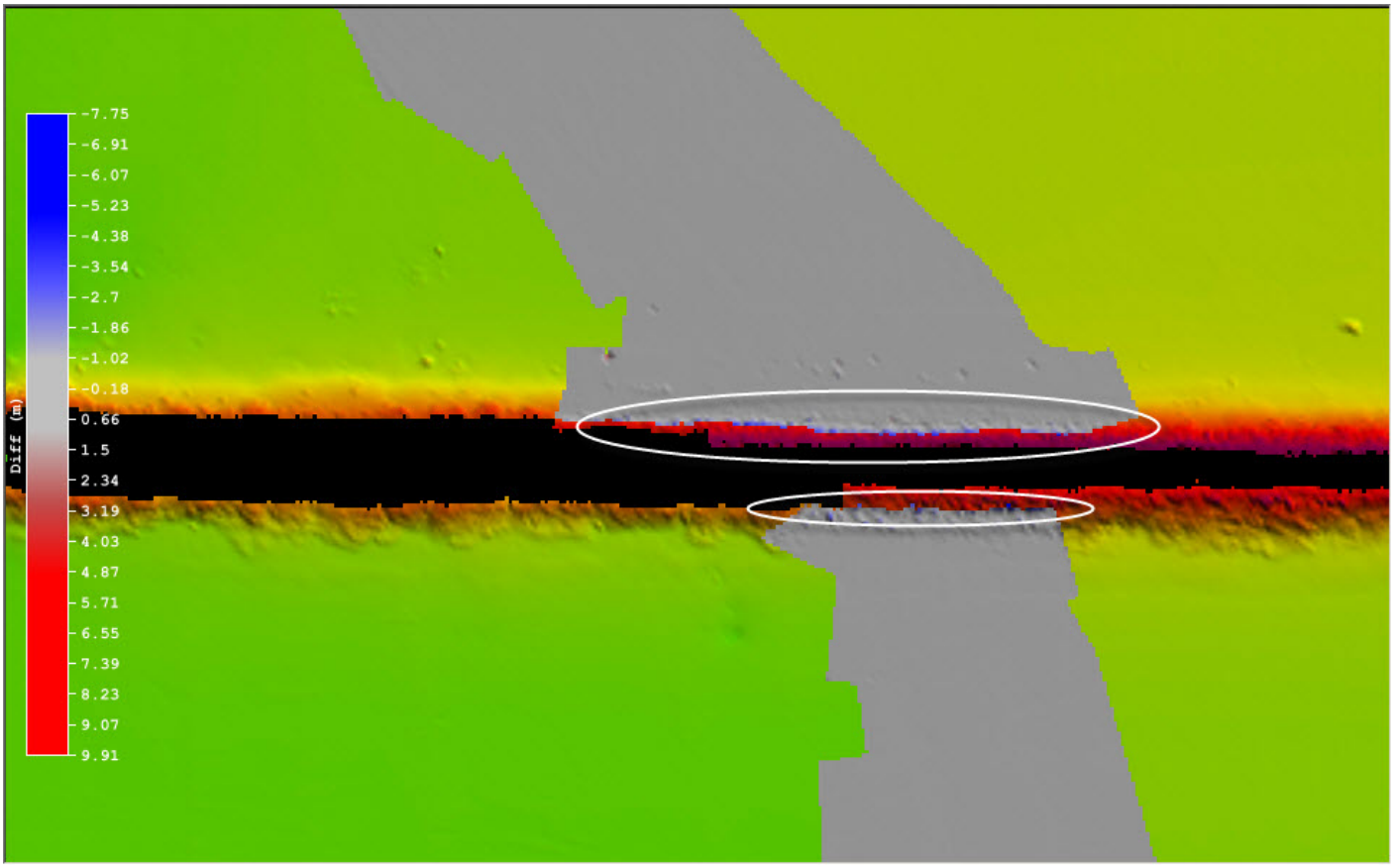
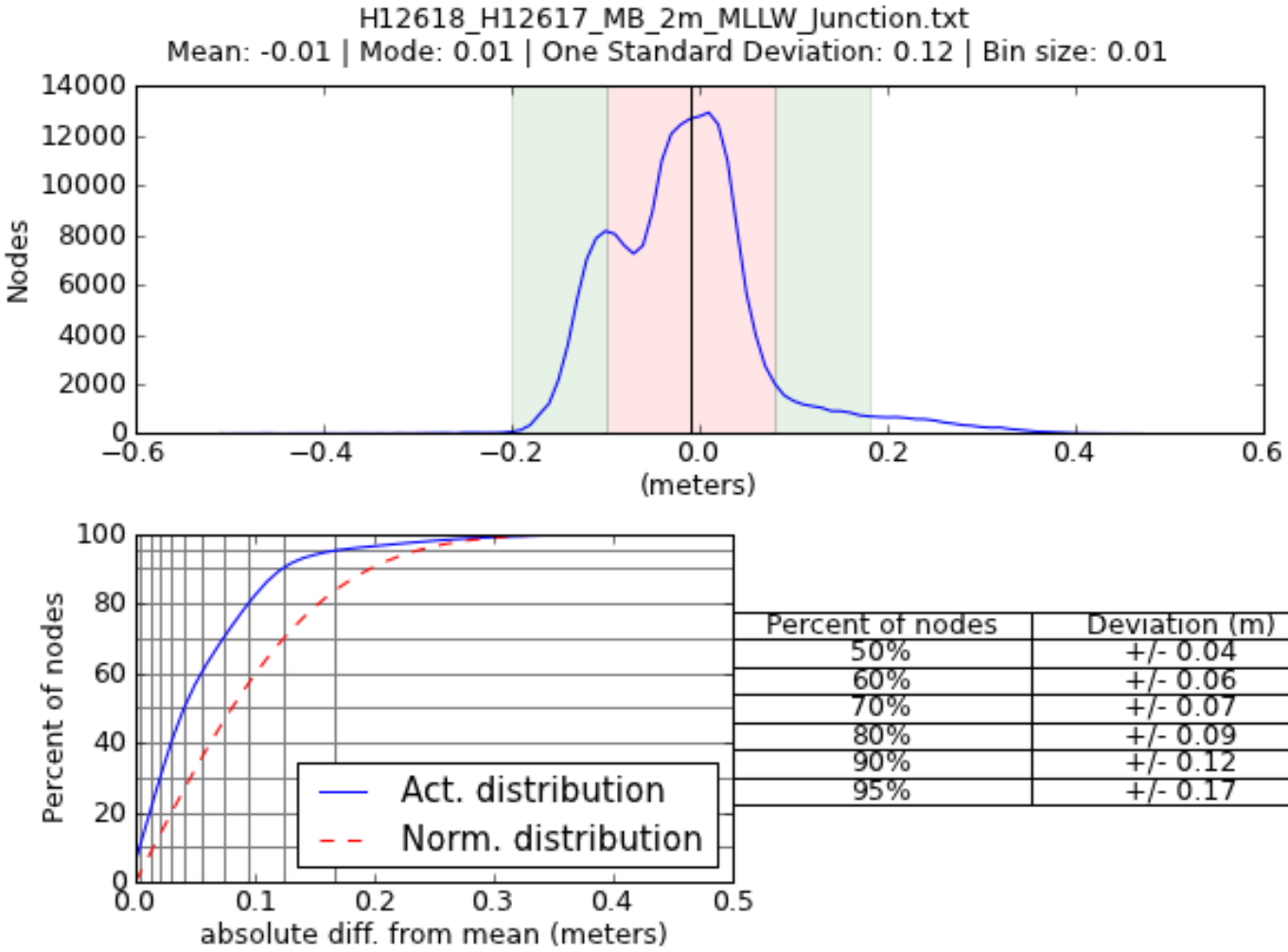


Figure 8: Graphical representation of differences between junction H12618 and H12617.



Percent of nodes	Deviation (m)
50%	+/- 0.04
60%	+/- 0.06
70%	+/- 0.07
80%	+/- 0.09
90%	+/- 0.12
95%	+/- 0.17

Figure 9: Statistical information for junction comparison between sheet H12618 and H12617.

H12619

Surface differencing in CARIS HIPS and SIPS was used to assess junction agreement between H12618_MB_2m_MLLW_Combined surface and H12619_MB_4m_MLLW_Combined. The difference between surfaces were generally less than 2 m and the few areas of larger differences are believed to be caused by rapid changes in slope. See figure 10 for a graphical representation and figure 11 for statistical information of the surface differencing.

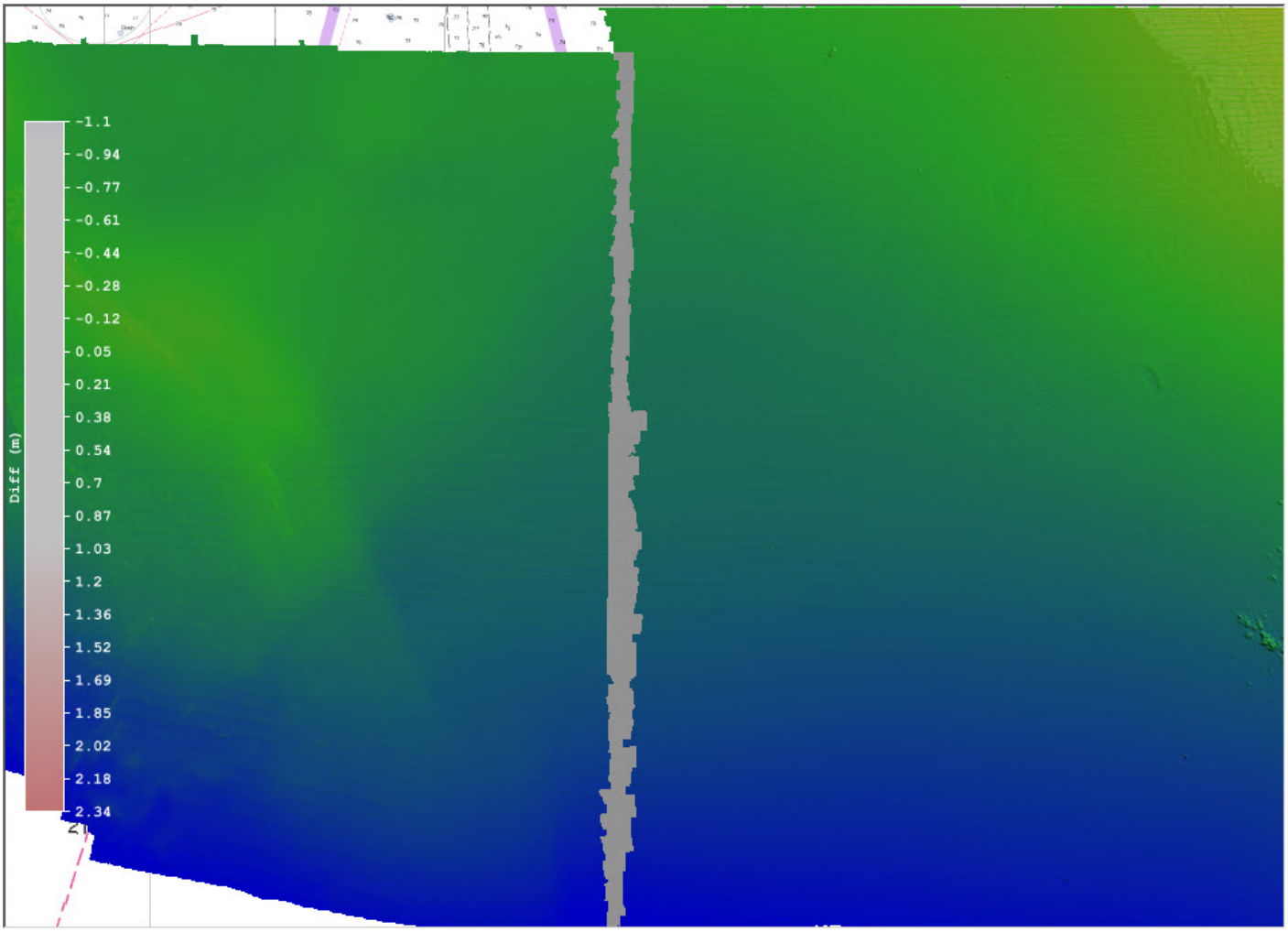
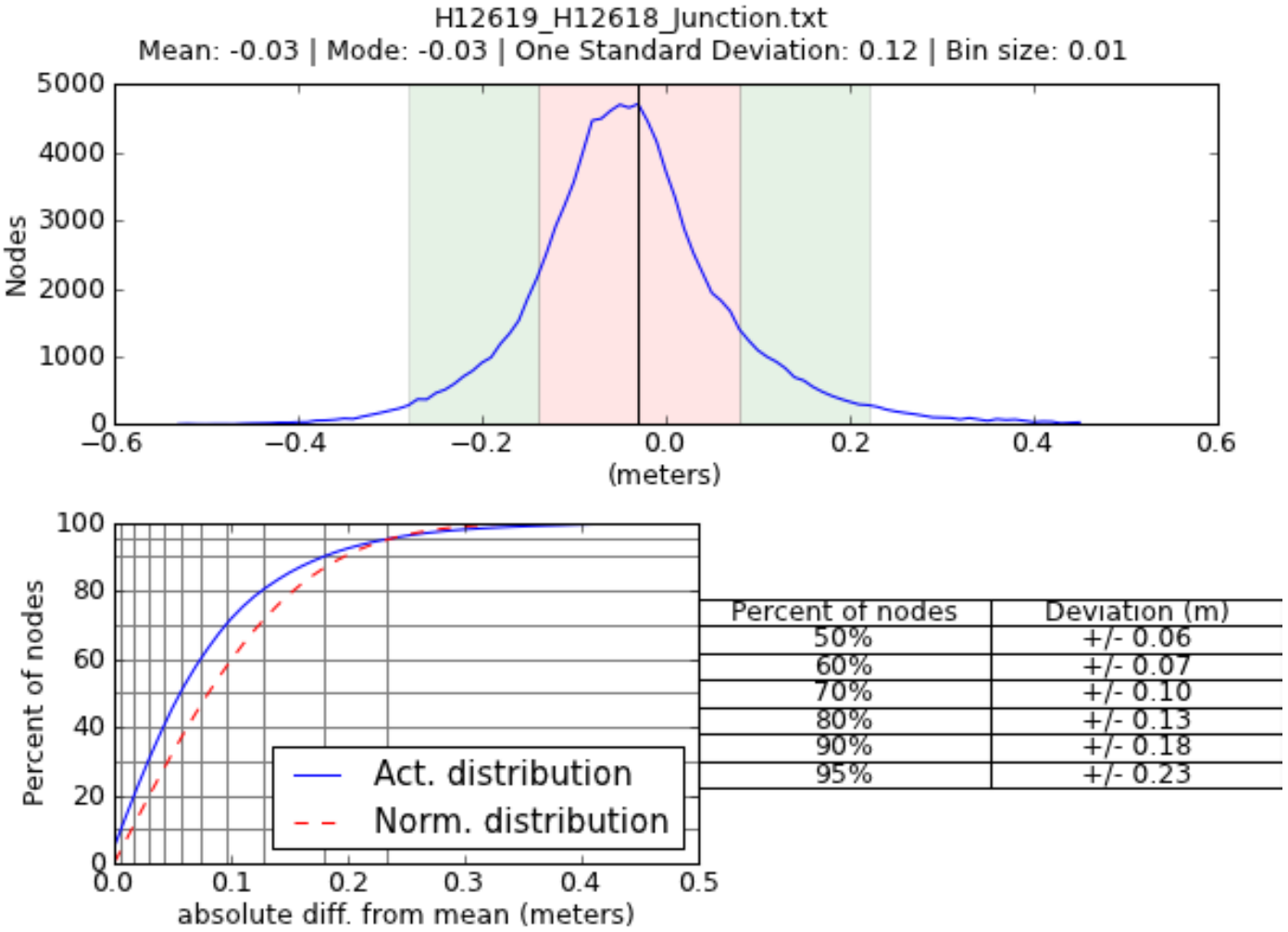


Figure 10: Graphical representation of differences between junction H12618 and H12619.



Percent of nodes	Deviation (m)
50%	+/- 0.06
60%	+/- 0.07
70%	+/- 0.10
80%	+/- 0.13
90%	+/- 0.18
95%	+/- 0.23

Figure 11: Statistical information for junction comparison between sheet H12618 and H12619.

H12620

Surface differencing in CARIS HIPS and SIPS was used to assess junction agreement between H12618_MB_2m_MLLW_Combined surface and H12620_MB_2m_MLLW_Combined. The difference between surfaces were generally less than 0.5m and the few areas of larger differences are believed to be caused by rapid changes in slope. See figure 12 for a graphical representation and figure 13 for statistical information of the surface differencing.

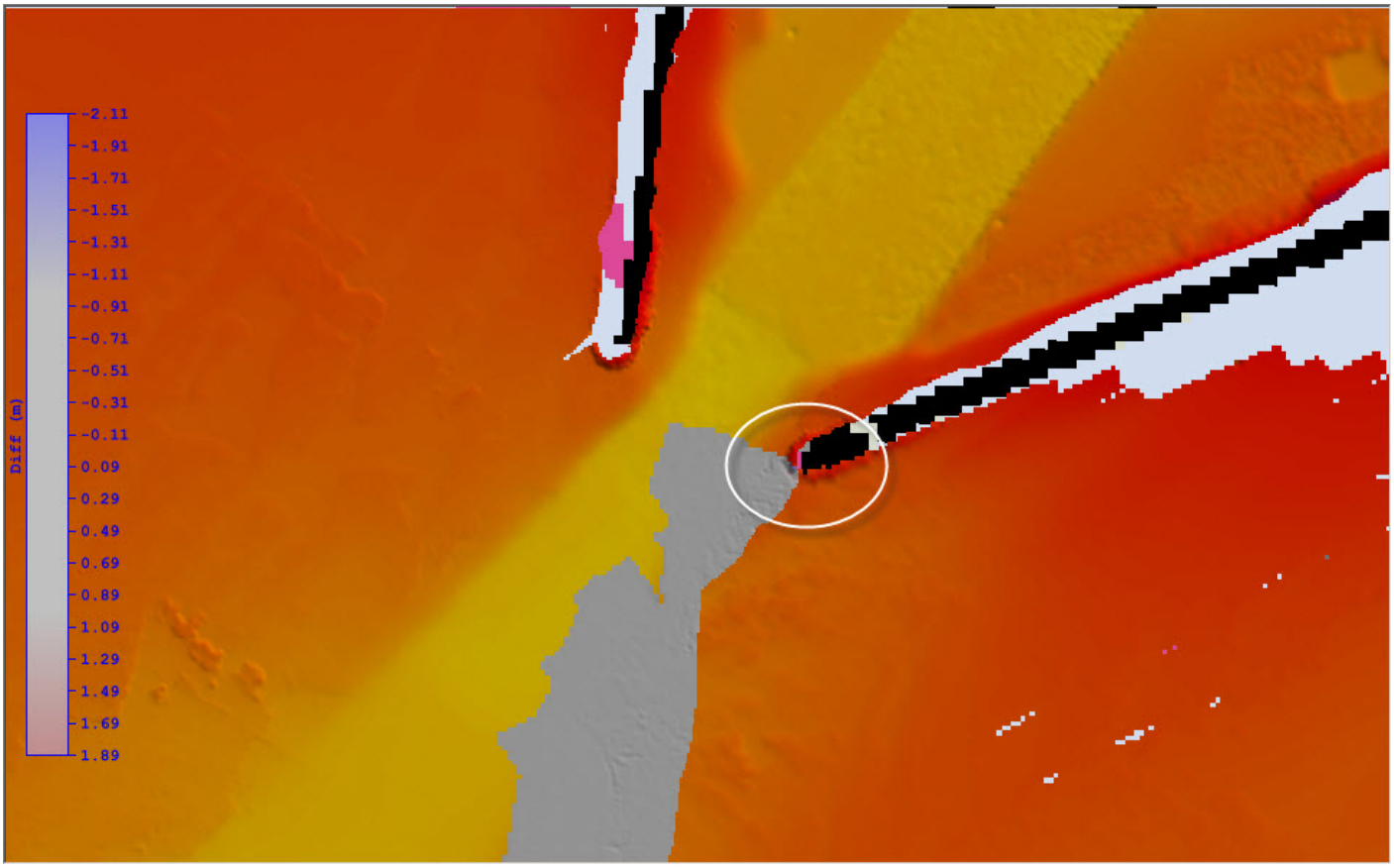
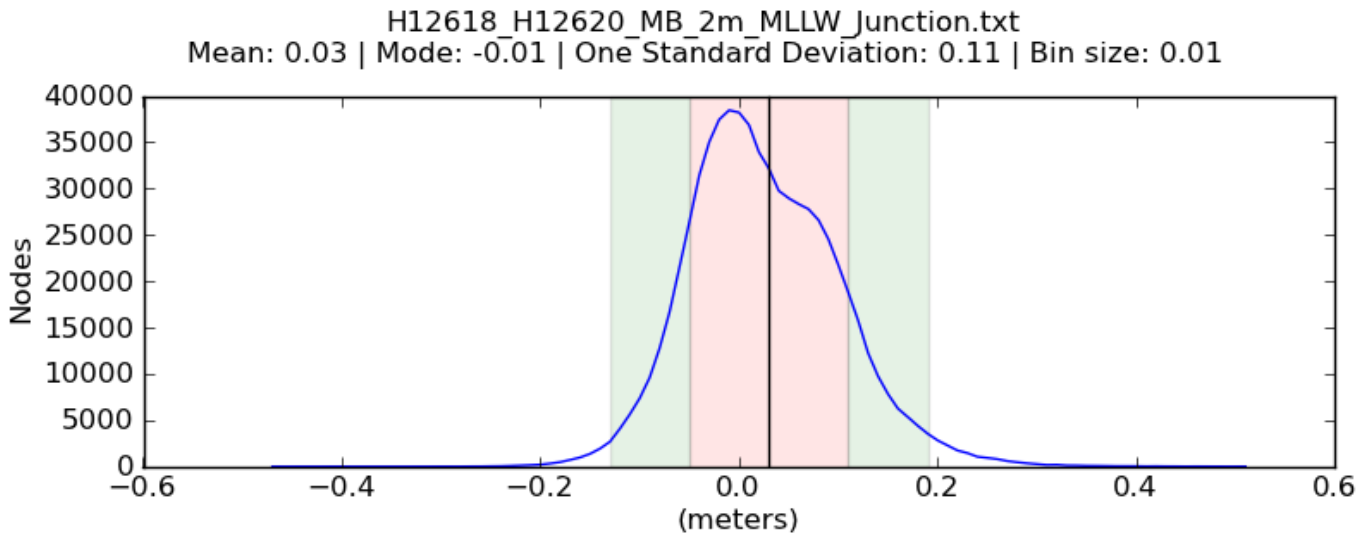
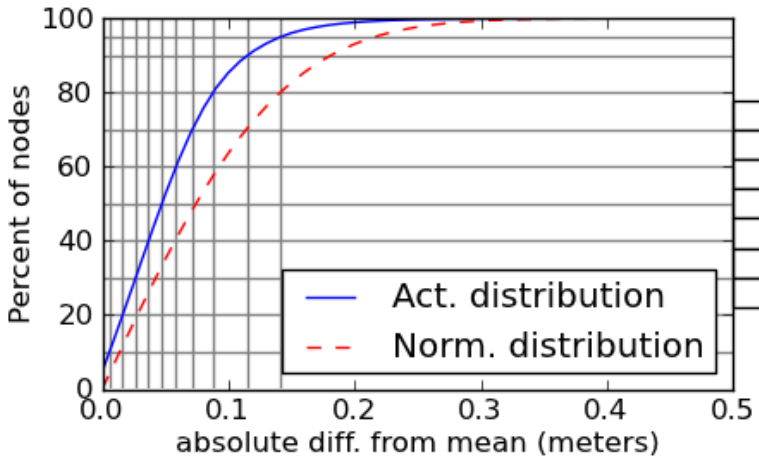


Figure 12: Graphical representation of differences between junction H12618 and H12620.





Percent of nodes	Deviation (m)
50%	+/- 0.05
60%	+/- 0.06
70%	+/- 0.07
80%	+/- 0.09
90%	+/- 0.12
95%	+/- 0.14

Figure 13: Statistical information for junction comparison between sheet H12618 and H12620.

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

8125 Tilted Head

Data acquired with the RESON 8125 tilted head contained artifacts consistent with sound velocity errors, due to the proximity to kelp in areas along the shoreline. These areas were avoided as much as possible, when visible at surface. As a consequence, brief periods of apparent profile bending, occurred in several areas of the survey. The spikes were removed and the gaps were interpolated across. An example of the

erroneous measurements and bent profiles can be found at the northern shore line of Island Freeman, 33-44-34.89N, 118-09-44.31W and can be seen in Figure 14.

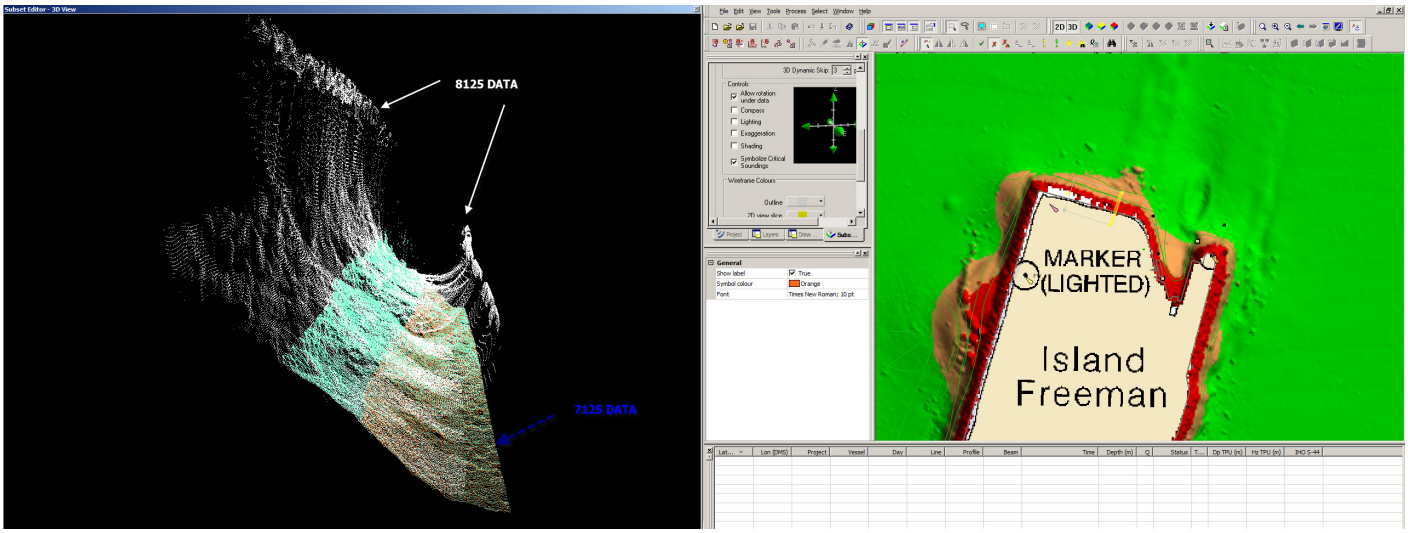


Figure 14: RESON 8125 Tilted Head Data.

The area in Figure 14 appears to have the errant data simply rejected in subset editor instead of having sound speed spikes removed. The sound speed spikes are evident in line 2013M_2691638 (shown in the graphic) and there was no interpolation. Also, the tilted head 8125 data displays a minor roll artifact but the data are within Specifications.

B.2.6 Factors Affecting Soundings

Sound Speed

A small area showing sound speed artifacts is in the south west corner of the east breakwater. The MBES data were reviewed in CARIS Subset Mode with appropriate reference surfaces. The reference surface accurately depicts the seafloor. Figure 15 shows an overview of the area and data shown in CARIS Subset Mode.

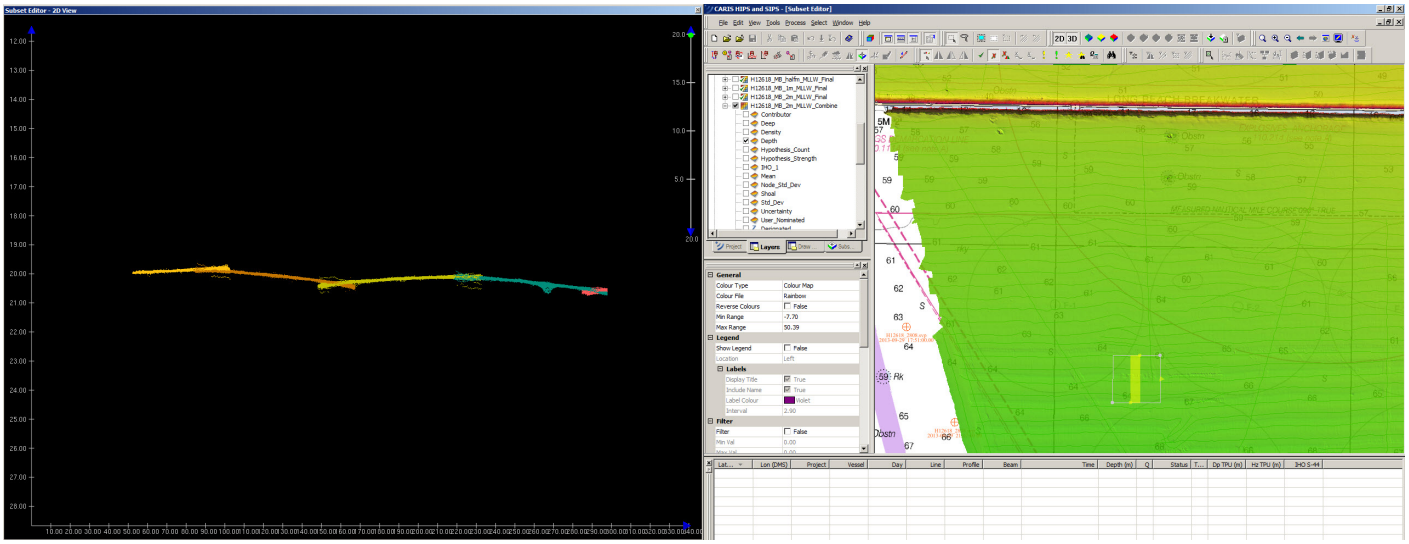


Figure 15: H12618 Sound Velocity Artifacts.

IMU Data Gap

An artifact due to a small period of IMU data gap was found at 33-42-13.83N, 118-07-53.73W, approximately 1 NM south-west of the oil platform "Esther" figure 16. The IMU data gap caused a rippling in survey line 28072013M_2722058. The MBES data was reviewed in CARIS Subset Mode with appropriate reference surfaces. The reference surface accurately depicts the seafloor.

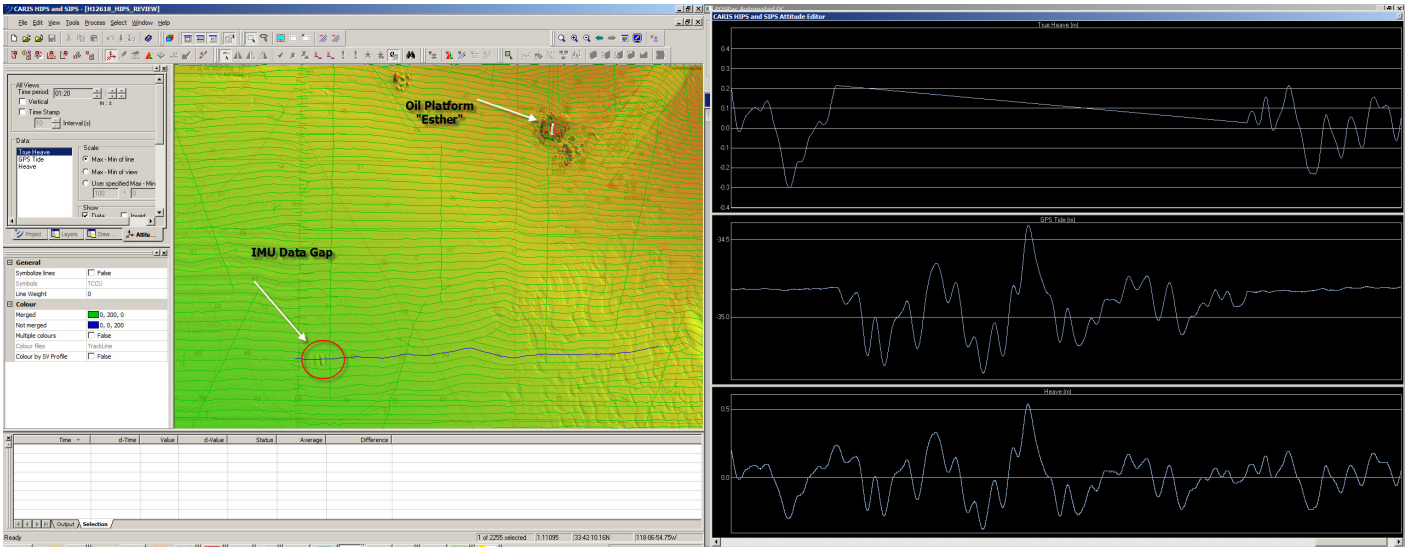


Figure 16: H12618 IMU Data Gap

The IMU data gap only affected TrueHeave data, all other IMU data was left intact. The gap, which is approximately 170 meters in length, is represented in the gridded data. A portion of this errant data does not meet HSSD Specification for heave error but does meet IHO standards.

Kelp

During the cleaning and review processes for sheet H12618, the areas outside and inside the LA/LB breakwater containing many rocks with vegetation. A foul area with kelp was added to the final feature file to depict the extension of this rock and vegetation. The MBES data was reviewed in CARIS Subset Mode with appropriate reference surfaces. The spikes were removed and the gaps were interpolated across. The reference surface accurately depicts the seafloor. See figure 17.

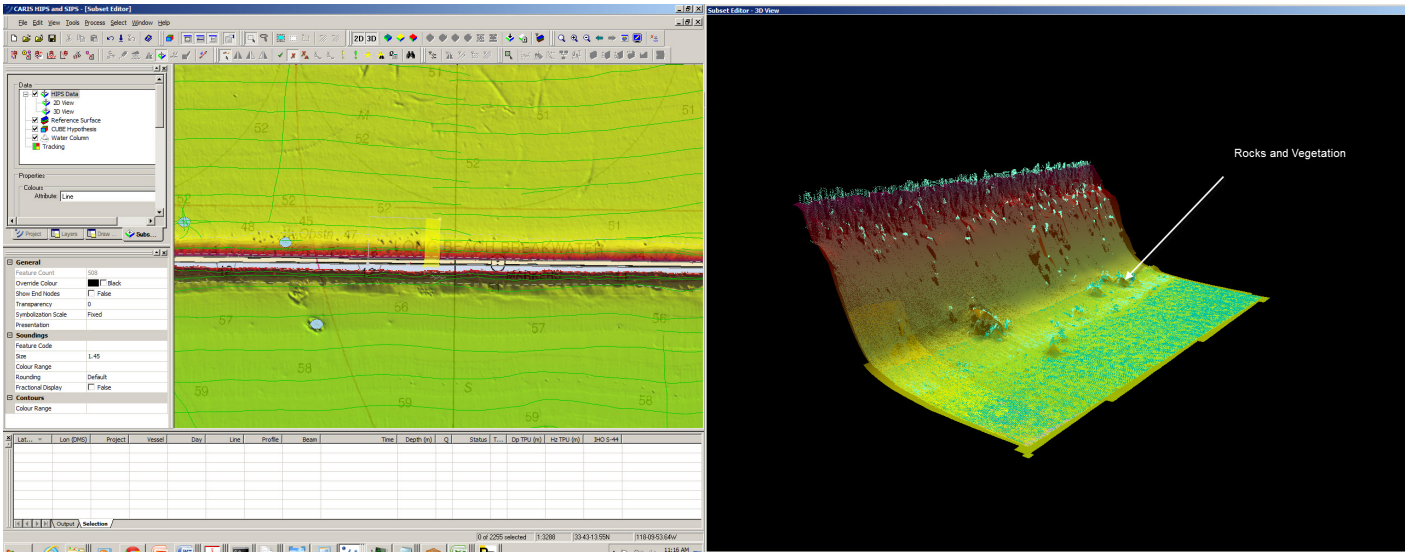


Figure 17: H12618 Breakwater rock and vegetation

During office processing a rocky seabed area was also added here, to complete the depiction of the area as foul with rocks and kelp.

B.2.7 Sound Speed Methods

Sound Speed Cast Frequency: Sound Speed Cast Frequency: Sound speed measurements were conducted as discussed in the Data Acquisition section of the DAPR.

B.2.8 Coverage Equipment and Methods

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

B.2.9 Holiday Assessment

Complete multibeam coverage was obtained within the limits of H12618. For holidays larger than three surface grid nodes, the corresponding multibeam side scan was examined and no navigationally significant items were found. The least depths of all navigationally significant features are represented by H12618.

The holiday located south east of Quensway Bay , 33° 45' 20.85"N, 118° 11' 21.23"W, the least depth is represented. The holiday is depicted below in Figure 18.

The holiday located North of Chaffee Island., 33° 44' 32.275" N, 118° 15.070 "W, the least depth is represented. The holiday is depicted below in Figure 19.

The holiday located east of the General Anchorage Q., 33° 43' 49.75" N, 118° 06' 51.61' 'W, the least depth is represented. The holiday is depicted below in Figure 20.

The holiday located south west corner of H12618, 33° 37' 37.62" N, least depth is represented. The holiday is depicted below in Figure 21.

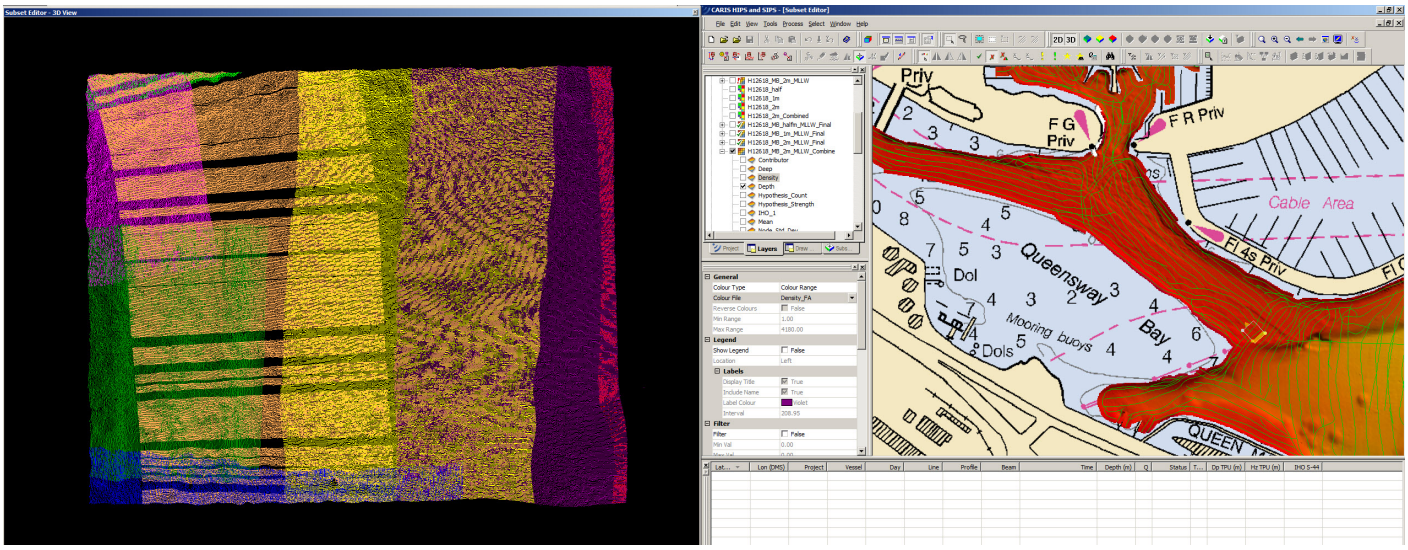


Figure 18: South East of Quensway Bay.

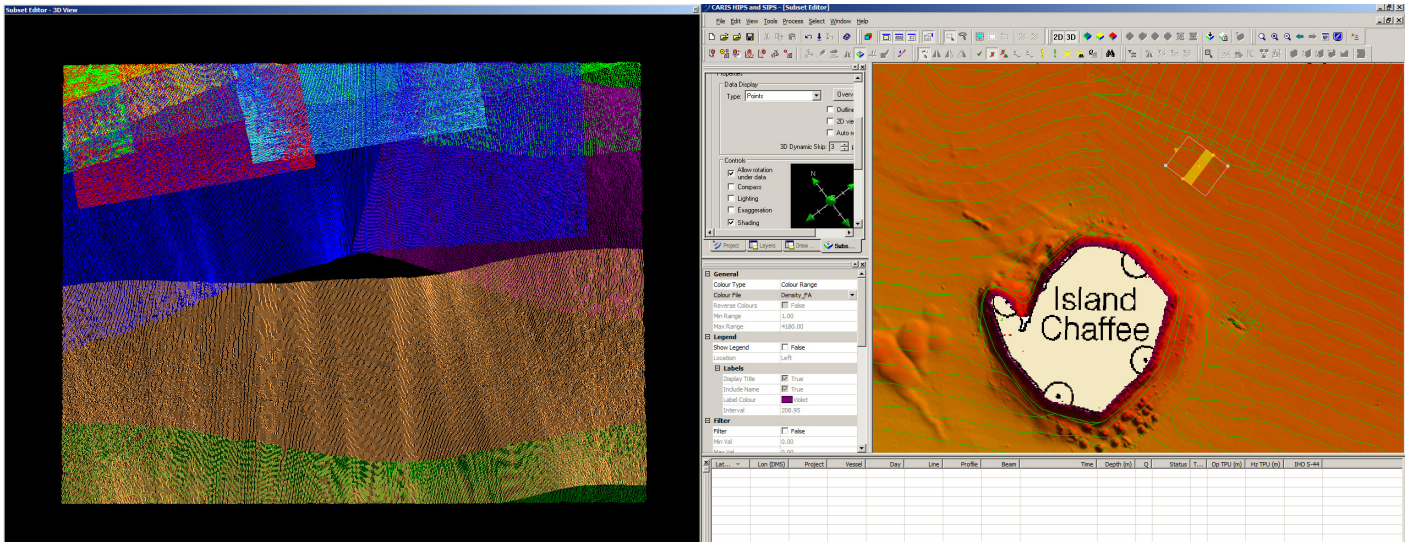


Figure 19: North of Chaffee Island.

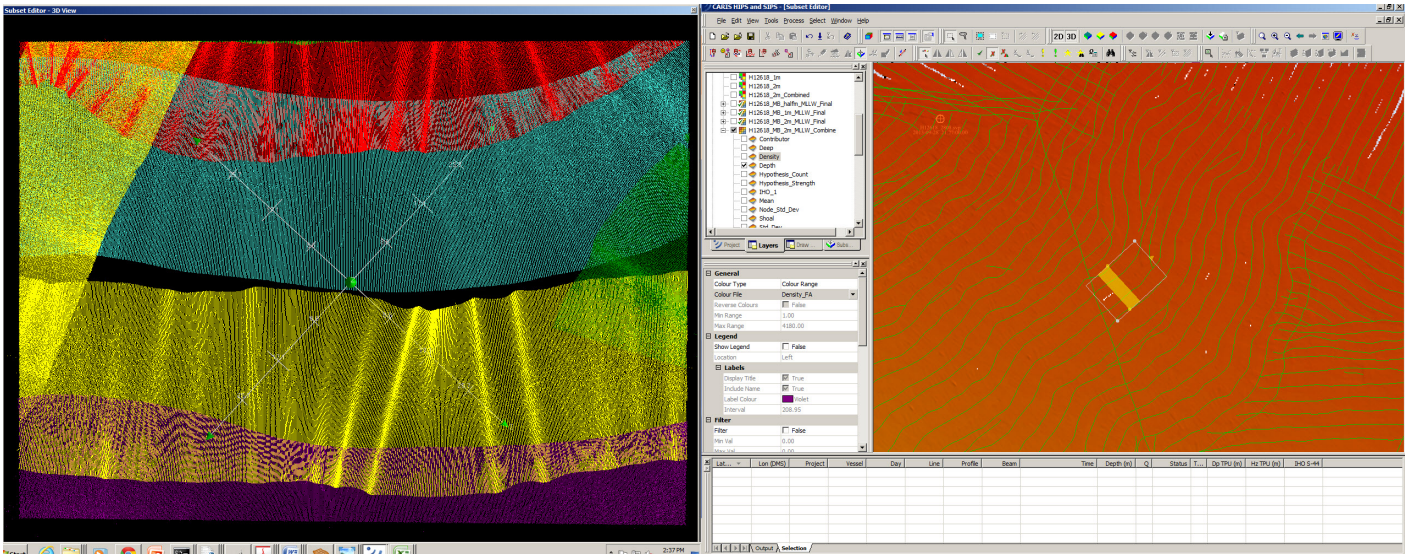


Figure 20: General Anchorage Q.

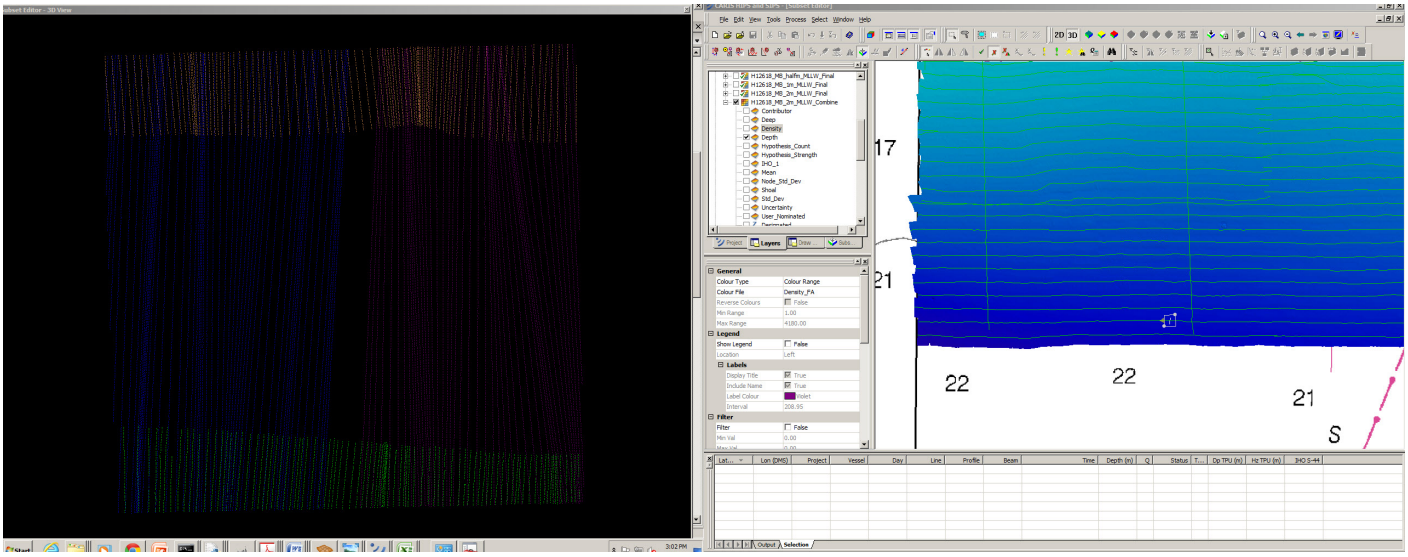


Figure 21: South West corner of H12618.

B.2.10 IHO Uncertainty

It was found that 100% of nodes in the combined 2-meter grid meet or exceed IHO Order 1 specifications for all depths of survey H2618, see Standards Compliance Review in Appendix V. To assess vertical accuracy standards, a child layer titled “IHO1” was created for each of the half-meter, 1-meter, and 2-meter finalized surfaces using the equation as stated in section C. 2.1 of the DAPR.

See figure 22 for graphical representation.

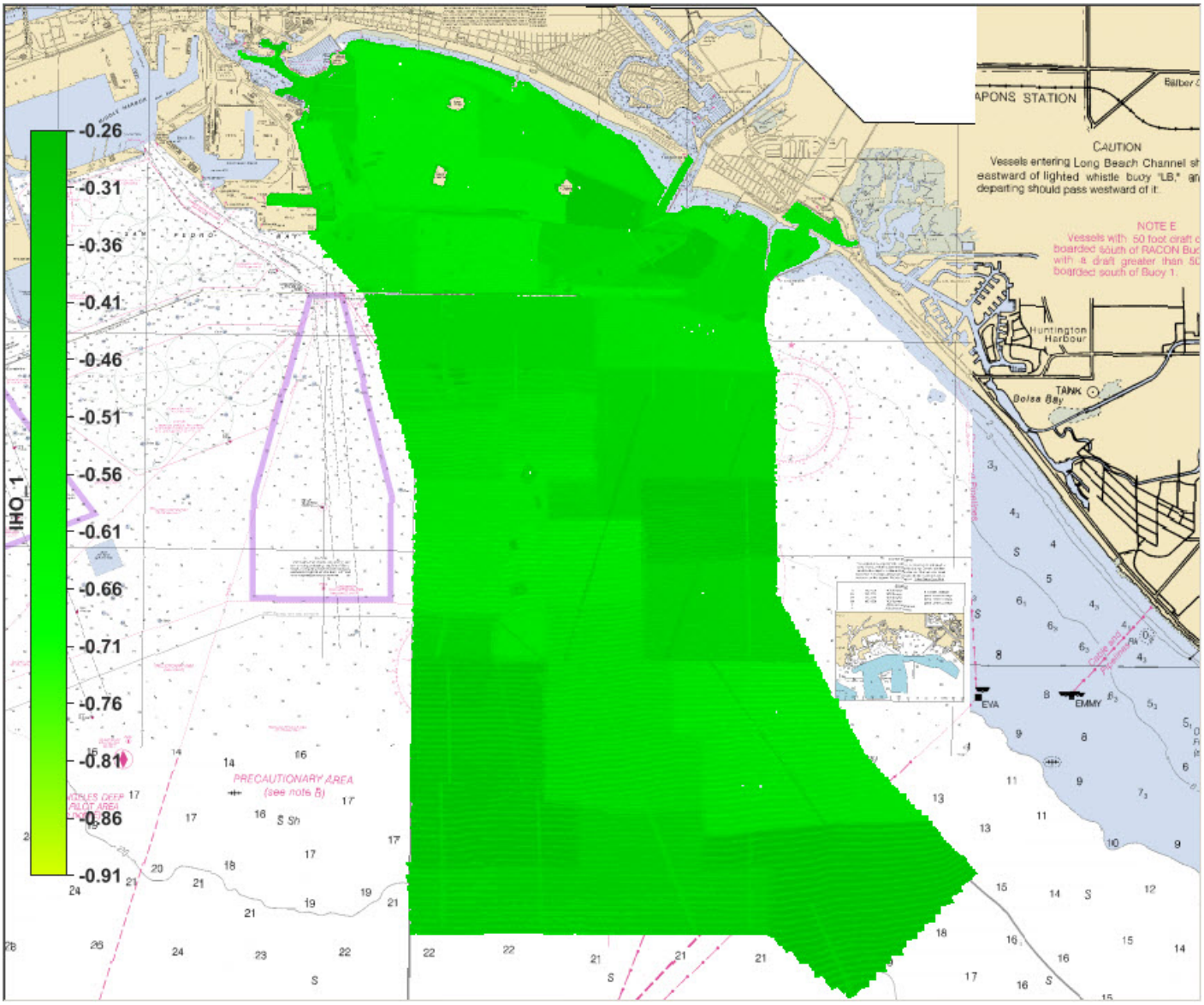


Figure 22: IHO Uncertainty Layer.

The Standards Compliance Review document is included in Appendix II, not Appendix V.

B.2.11 Density

Density requirements for H12618 were achieved with at least 99.82% of finalized surface nodes containing five or more soundings, see Standards Compliance Review in Appendix V.

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

All sounding systems were calibrated as detailed in the DAPR.

B.4 Backscatter

Raw Backscatter was logged as a 7k file and has been sent to the Processing Branch. Backscatter was not processed by the field unit.

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

The NOAA Extended Attribute File V_5_3 was used for feature management of H12618.

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
H1218_MB_halfm_MLLW	CUBE	0.5 meters	-	NOAA_0.5m	Complete MBES
H1218_MB_1m_MLLW	CUBE	1 meters	-	NOAA_1m	Complete MBES
H1218_MB_2m_MLLW	CUBE	2 meters	-	NOAA_2m	Complete MBES
H1218_MB_halfm_MLLW_Final	CUBE	0.5 meters	0 meters - 12 meters	NOAA_0.5m	Complete MBES

Surface Name	Surface Type	Resolution	Depth Range	Surface Parameter	Purpose
H1218_MB_1m_MLLW_Final	CUBE	1 meters	10 meters - 20 meters	NOAA_1m	Complete MBES
H1218_MB_2m_MLLW_Final	CUBE	2 meters	18 meters - 45 meters	NOAA_2m	Complete MBES
H1218_MB_2m_MLLW_Combine	CUBE	2 meters	0 meters - 45 meters	NOAA_2m	Complete MBES

Table 9: Submitted Surfaces

All field sheet extents were adjusted automatically using CARIS HIPS ensuring coincident nodes among all bathymetric surfaces regardless of the field sheet in which they are contained given the standard surface resolutions of half, one and two meters. The NOAA CUBE parameters mandated in HSSD were used for the creation of all CUBE BASE surfaces in Survey H12618.
The surfaces have been reviewed where noisy data, or 'fliers' are incorporated into the gridded solution causing the surface to be shoaler than the true seafloor. Where these spurious soundings cause the gridded surface to be shoaler than the reliably measured seabed by greater than the maximum allowable vertical uncertainty at that depth, the noisy data have been rejected and the surface recomputed.
A one half meter surface was created to reduce the number of designated soundings which would have been required for the one meter surface to honor the appropriate soundings. All correspondence with HSD Ops approving one half meter surface has been included in Appendix V.

There are several typos in Table 9. Each surface was named with "H1218" instead of "H12618." The submitted 0.5m surfaces were named "H12618_MB_05_MLLW" and "H12618_MB_05_MLLW_Final" instead of "H1218_MB_halfm_MLLW." The surface "H1218_MB_2m_MLLW_Combine" should read "H12618_MB_2m_MLLW_Combined" and have a depth range of 0-45m instead of 0-0m.
Also, all correspondence is located in Appendix II, not Appendix V.

B.5.3 Data Logs

Data acquisition and processing notes are included in the acquisition and processing logs, and additional processing such as final tide and sound velocity application is noted in the H12618 Data Log spreadsheet. All data logs are submitted digitally in the Separates I folder.

B.5.4 Critical Soundings

Designation of soundings followed the procedures as outlined in section 5.2.1.2 of the HSSD.

Survey H12618 requires 37 designated soundings and 0 outstanding soundings. All 37 of the designated soundings are required to accurately represent the seafloor. A one half meter resolution surface was created in lieu of excessive designated soundings.

There were 42 designated soundings submitted with the survey.

B.5.5 Ellipsoidally-Reference Surfaces

All finalized ellipsoidally-referenced surfaces are submitted with H12618 for experimental and evaluation purposes as part of the Office of Coast Survey's initiative to survey to the ellipsoid. The surface were created while the soundings were reduced to the ellipsoid after merging with "GPS Tides" applied in CARIS HIPS. After the ellipsoidal surface were created, the soundings were recomputed using the VDatum Separation Model (see Vertical Control section for more information). The ellipsoidal surfaces appear out of date because of the recomputing process.

No ellipsoidally referenced surfaces were submitted with the survey nor is there more information about the VDatum Separation Model in C.1. Vertical Control.

C. Vertical and Horizontal Control

No additional Horizontal or Vertical Control Report will be submitted with H12618.

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
Los Angeles, CA	9410660
Port San Luis, CA	9412110

Table 10: NWLON Tide Stations

File Name	Status
9410660.tid	Final Approved

Table 11: Water Level Files (.tid)

File Name	Status
L318FA2013CORP_Rev.zdf	Final

Table 12: Tide Correctors (.zdf or .tc)

A request for final approved tides was sent to N/OPS1 on 11/12/2013. The final tide note was received on 11/19/2013.

Preliminary zoning is accepted as the final zoning for project OPR-L318-FA-13.

Tide Note is appended to this report.

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 zone 11 North.

The following PPK methods were used for horizontal control:

Smart Base
Single Base

Vessel kinematic data were post-processed using Applanix POSPac processing software, Smart Base and Single Base methods described in the DAPR. Smooth Best Estimate of Trajectory (SBET) and associated error (RMS) data were applied to all MBES data in CARIS HIPS. With the exception of the following lines:
2805 – Dn273 2013X_2731539, 2013X_2731548, 2013X_2731528
2807 - Dn272 28072013M_2722111, Dn270 28072013M_2702348
For 2806 - Dn299 2013_299_2806; Single Base processing was chosen over smart base processing due to fatal errors "Data time window does not enclose the rover for one or more reference stations. This may lead to results of inferior quality". The result of this process produced no errors.
For further details regarding the processing and quality control checks performed see the H12618 POSPAC Processing Logs spreadsheet located in the SBET folder with the GNSS data. See also the OPR-L318-FA-13 Horizontal and Vertical Control report, submitted under separate cover.

The following CORS Stations were used for horizontal control:

HVCR Site ID	Base Station ID
BGIS	BELL GARDEN INTERMEDIATE SCHOOL.
BLSA	BOLSA CHICA CHANNEL.
CAT2	CAT2_SCGN_CS2000.
CAT3	CAT3_SCGN_CS2008.
CRHS	CRHS_SCGN_CS1999.
CSDH	CSU DOMINGUEZ.
HBCO	HARBOR COLLAGE.
LBC2	LONG BEACH CC 2.
PVE3	PALOS VERDES.
PVHS	PENINSULA HIGH SCHOOL.
SACY	SANTA ANA CORP. YARD.
SBCC	SBCC_SCGN_CS1999.
TORP	TORRANCE AIRPORT.
VTIS	MARINE EXCHANGE.
WHYT	WHITING REGIONAL WILDERNESS PARK.

Table 13: CORS Base Stations

Differential correctors from the U.S. Coast Guard beacon at Point Loma (302 kHz) was used during real-time acquisition when not otherwise noted in the acquisition logs.

The following DGPS Stations were used for horizontal control:

DGPS Stations
Point Loma, CA (302 KHZ, 100 BPS)

Table 14: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

A comparison was performed between survey H12618 and Charts 18746_1, 18749_1, 18749_2 and 18751 using CARIS sounding and contour layers derived from the 2-meter combined surface. The contours and soundings have been overlaid on the chart to asses differences. All data from H12618 should supersede charted data.

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
18751	1:12000	46	08/2009	11/14/2013	11/14/2013
18749	1:20000	43	04/2010	11/14/2013	11/14/2013
18749	1:15000	43	04/2010	09/13/2013	09/13/2013
18746	1:80000	39	06/2013	03/12/2013	03/12/2013

Table 15: Largest Scale Raster Charts

18751

Soundings from survey H12618 generally agreed within one to two feet with charted depths on chart 18751. Contours generated in CARIS HIPS closely approximated the charted 6, 12, 18, 30, and 60 feet contour. Notable exceptions to this general agreement are listed and shown in the figures below.

East of Grisson Island: A disagreement between surveyed depths and charted sounding. 22 feet chart sounding that was surveyed with MBES at 14 feet. See figure 23.

South of breakwater: The 60 feet contour was surveyed 100m North of the general charted location. See figure 24.

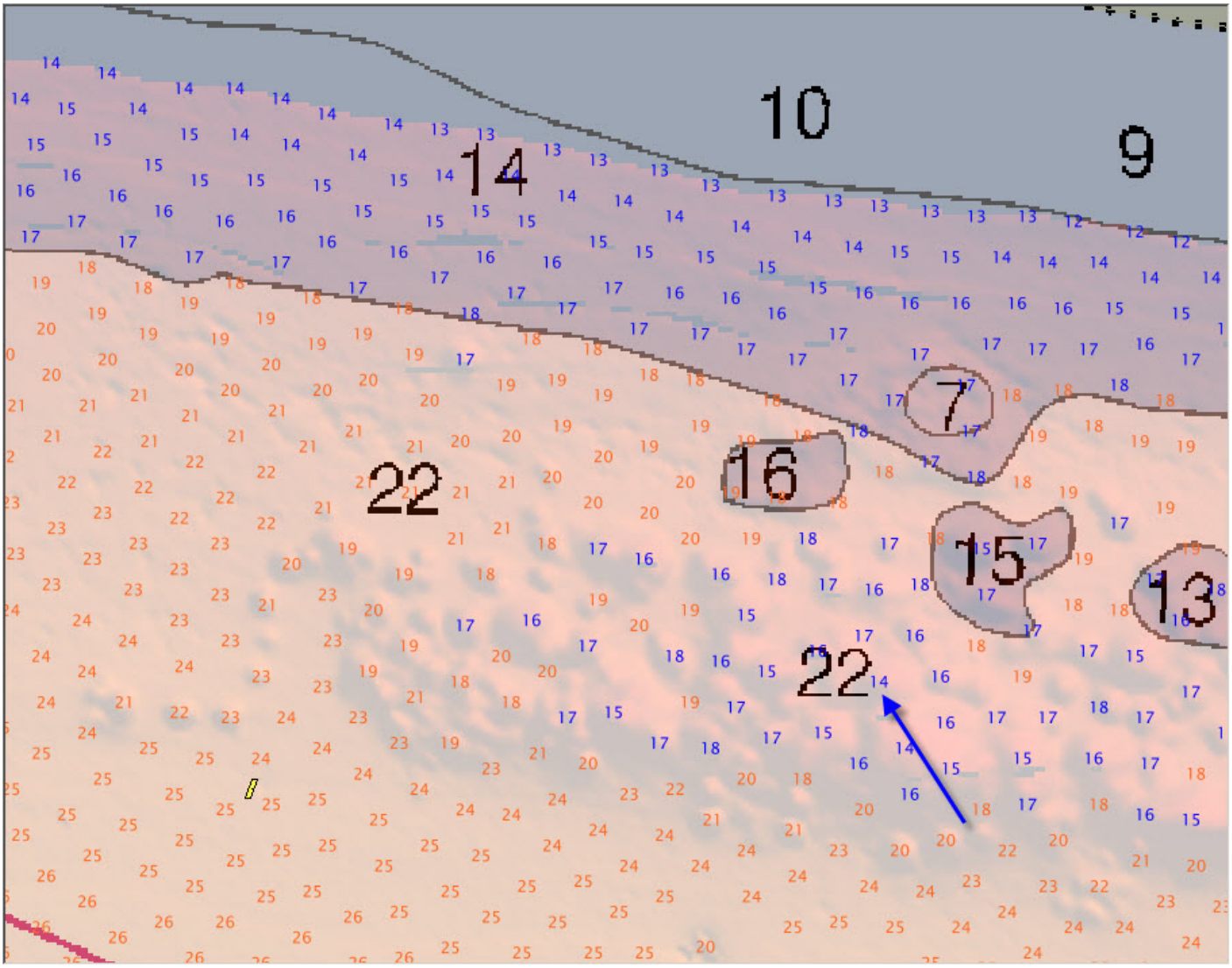


Figure 23: Disagreement between charted depths (18751) and survey sounding east of Grisson Island.

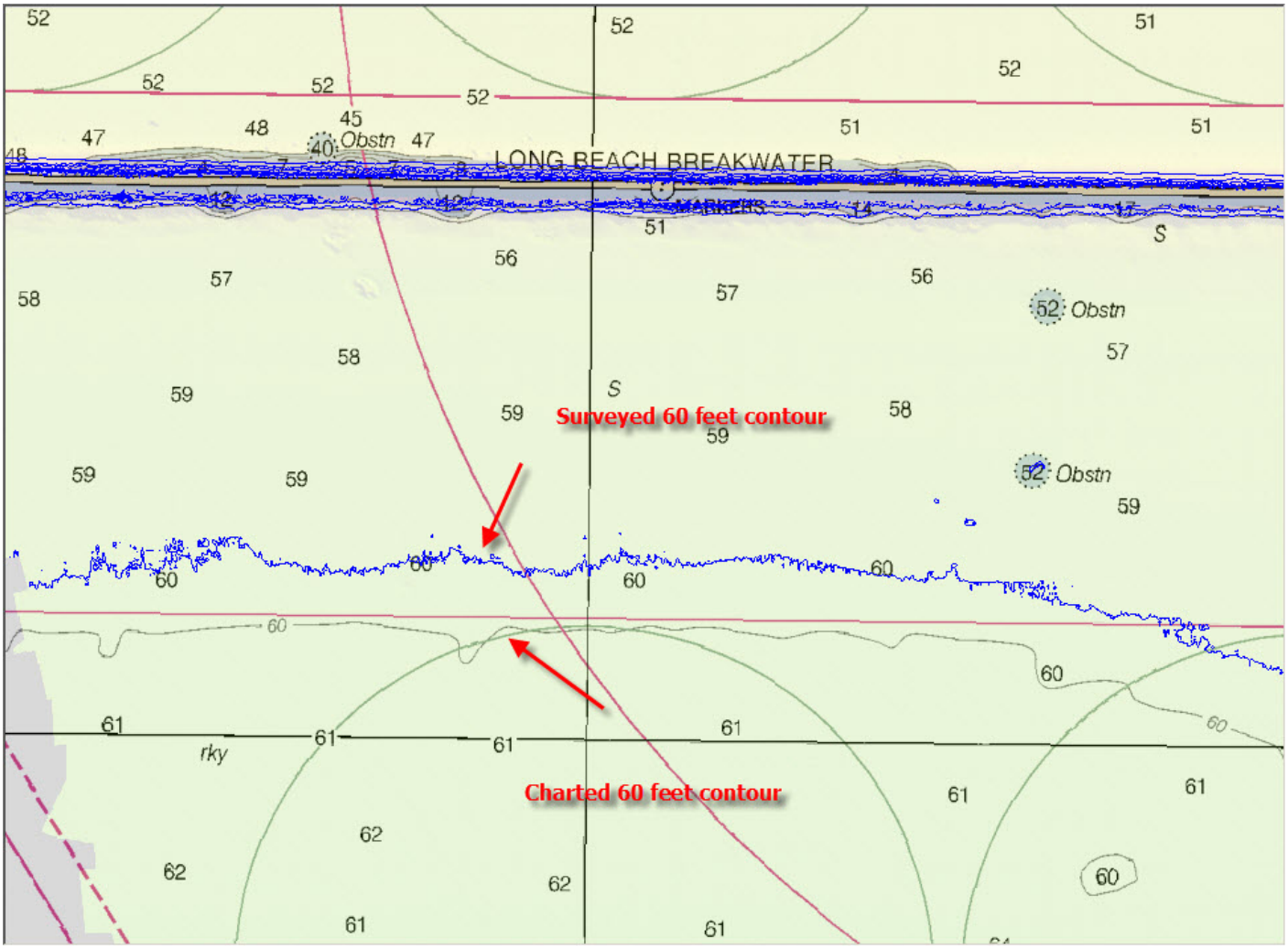


Figure 24: Disagreement between charted contour (18751) and surveyed contour south of Long Beach Breakwater.

18749

Soundings from survey H12618 generally agreed within one to two feet with charted depths on chart 18749_1. Contours generated in CARIS HIPS closely approximated the charted 6, 12, 18, 30, and 60 feet contours. Notable exceptions to this general agreement are listed and shown in the figures below:

South of Seal Beach: The 30 and 60 foot contours were surveyed approximately 80m North of the general charted location. See figure 25.

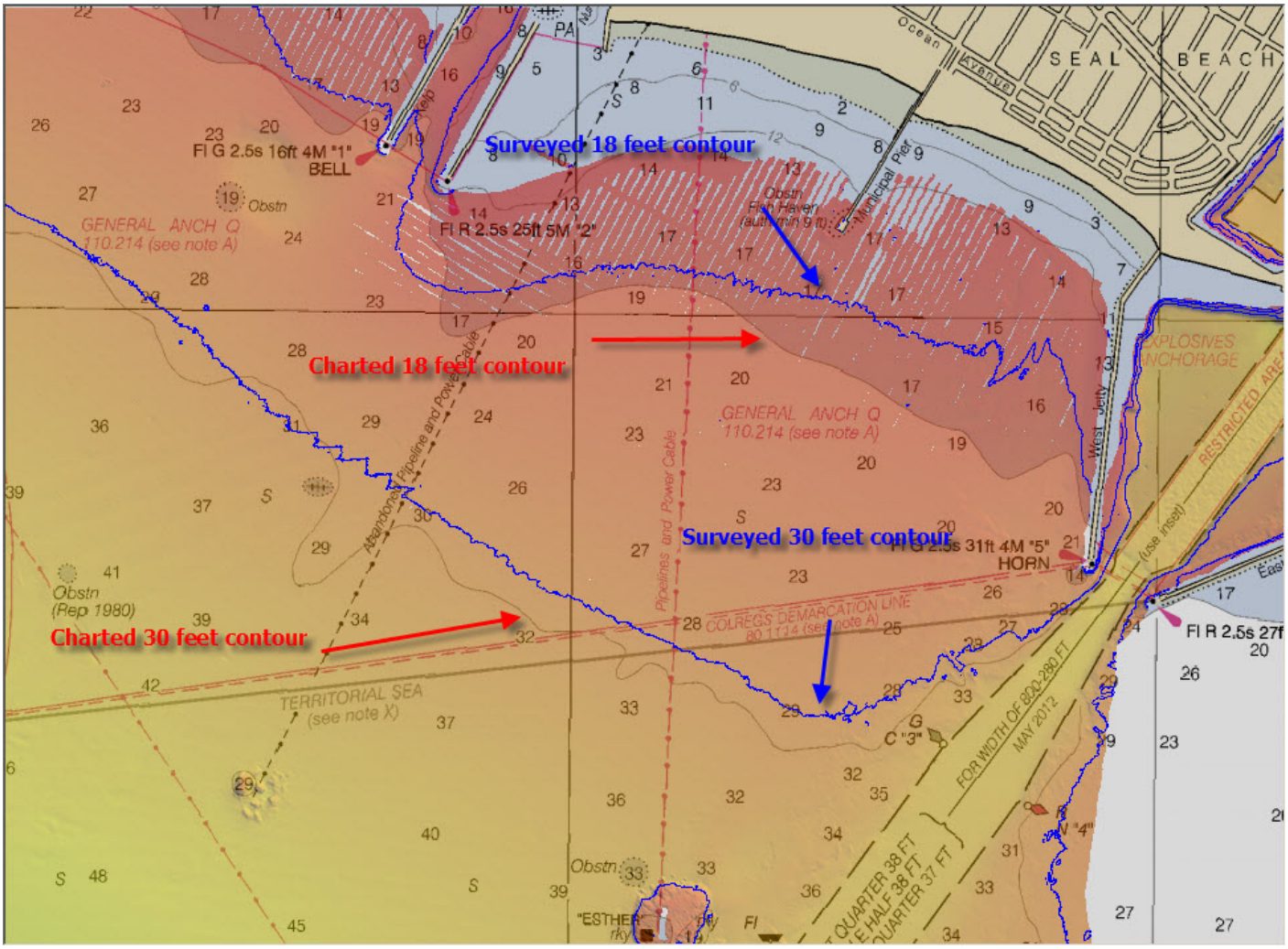


Figure 25: Disagreement between charted contours (18749) and surveyed contours South of Seal Beach.

18749

Soundings from survey H12618 generally agreed within one to two feet with charted depths on chart 18751. Contours generated in CARIS HIPS closely approximated the charted 6, 12, 18 and 30 feet contour. Notable exceptions to this general agreement are listed and shown in the figures below:

Anaheim Bay: The 18 and 30 foot contours were surveyed approximately 50m North of the general charted location. See figure 26.

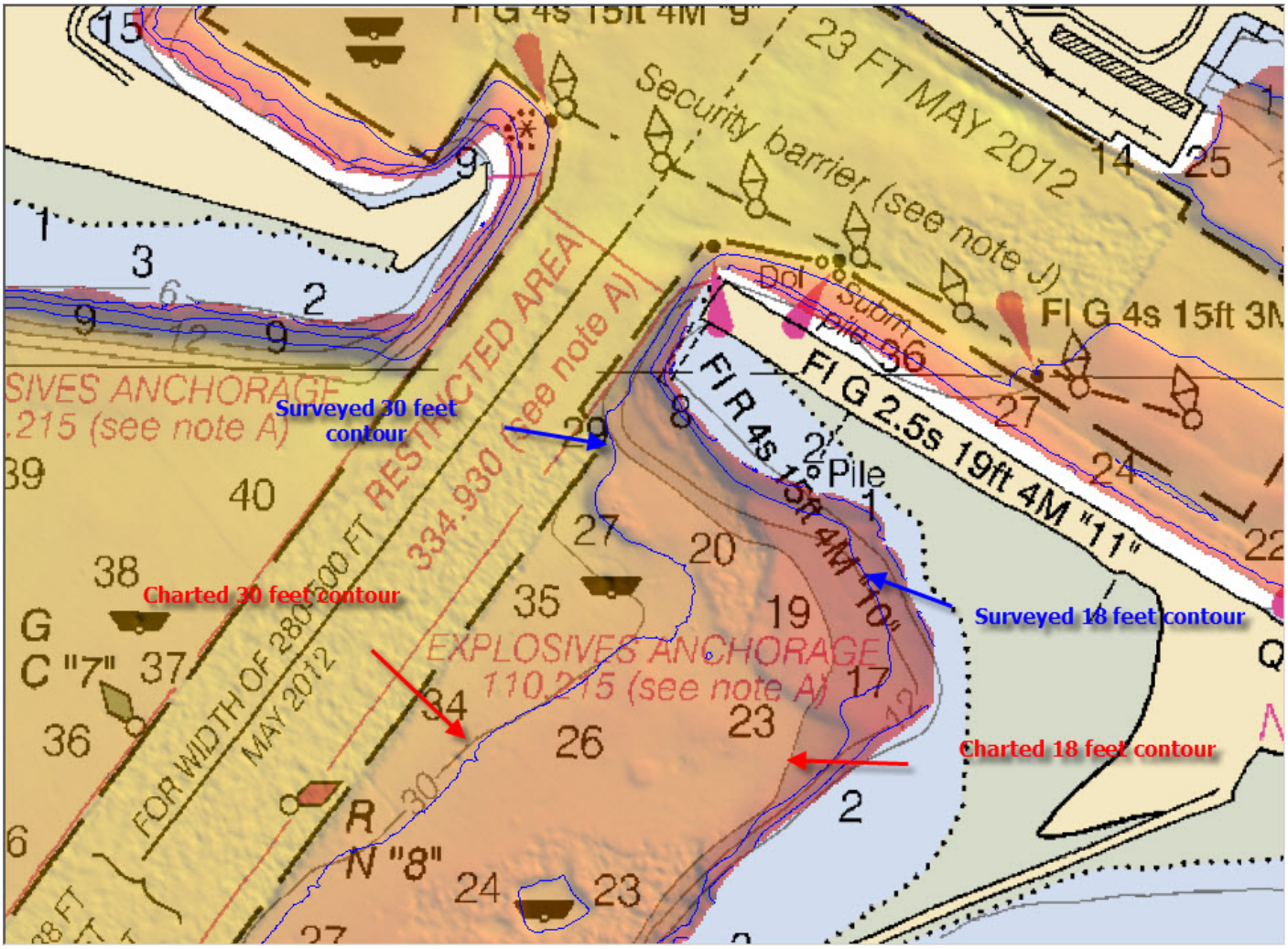


Figure 26: Disagreement between charted contours (18749) and surveyed contours Anaheim Bay.

18746

Soundings from survey H12618 generally agreed within zero to one fathom with charted depths on chart 18746. Contours generated in CARIS HIPS closely approximated the charted 20 fathom contour.

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?
US4CA60M	1:80000	6	11/21/2013	11/21/2013	NO
US5CA61M	1:15000	30	05/13/2011	09/16/2013	NO
US5CA62M	1:12000	38	08/09/2012	11/12/2013	NO

Table 16: Largest Scale ENCs

US4CA60M

Soundings from survey H12618 generally agreed within zero to one fathoms on chart US4CA60M. Contours in CARIS HIPS closely approximate the charted contours. See discussion from Raster chart 18746 for more details.

US5CA61M

Soundings from survey H12618 generally agreed within zero to one fathoms on chart US4CA61M. Contours in CARIS HIPS closely approximate the charted contours. See discussion from Raster charts 18746 and 18749 for more details.

US5CA62M

Soundings from survey H12618 generally agreed within zero to one fathoms on chart US4CA62M. Contours in CARIS HIPS closely approximate the charted contours. See discussion from Raster chart 18751 for more details.

D.1.3 AWOIS Items

There are 4 assigned AWOIS items with a search radius within the limits of H12618.

AWOIS# 52891- A submerged contact was observed with complete multibeam coverage within the search radius. The contact was assigned a least depth of 6.643 meters and added to the Final Feature File as an AWOIS feature.

AWOIS#50116- Radius searched with complete MBES. No contacts were detected. Sheet Manager recommends removing AWOIS 50116 from the registry.

AWOIS# 53257- A submerged contact was observed with complete multibeam coverage within the search radius. The contact was assigned a least depth of 11.928 meters and added to the Final Feature File as an AWOIS feature.

AWOIS# 50157 was not found within the 200 m radius provided in the Project Reference File (OPR-L318-FA-13_PRF). The textual description depicts a 1 NM accuracy. A wreck was found within 1 NM radius fitting the description of the AWOIS# 50157. This wreck was reported removed from an unknown authority. See figure 27.

All AWOIS items were addressed and are included in the H12618 Final Feature File.

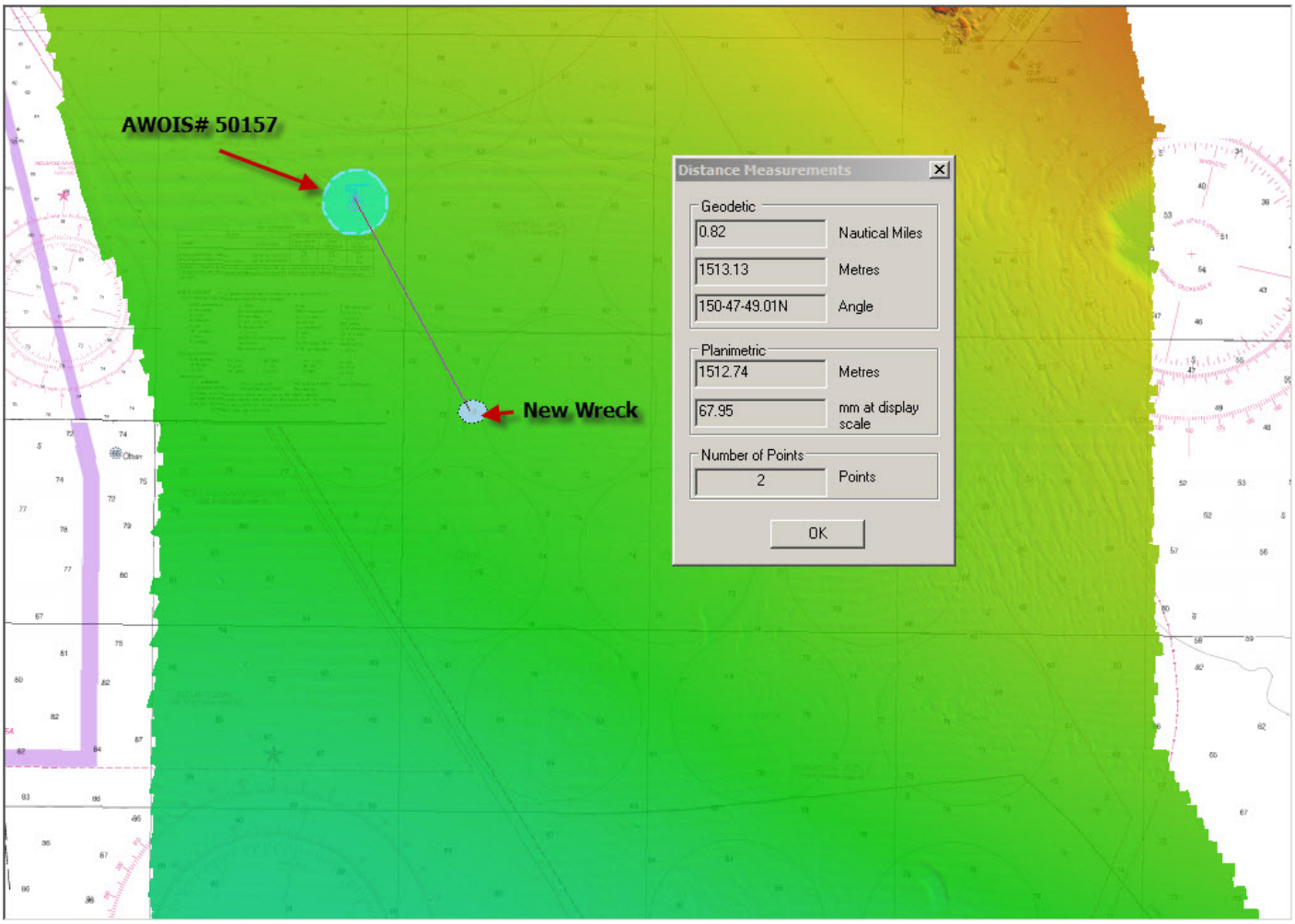


Figure 27: AWOIS# 50157 possible new location.

For clarification, 4 of the assigned 10 AWOIS items had search radii. The field included investigation comments for 9 AWOIS items in the final feature file. The 1 remaining AWOIS item that was not addressed by the field was addressed in the final feature file at the branch.

D.1.4 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.5 Charted Features

All assigned charted features were investigated and are included in the survey Final Feature File.

D.1.6 Uncharted Features

11 channel markers were located at Queensway Bay. See figure 28.

Five channel markers at the entrance of Alamitos Bay. See figure 29.

Three wrecks. wreck#1 located 1.61 miles South of the Breakwater, wreck#2 located 70 meters North of the Breakwater and wreck#3 located 113m East of Chafee Island. See figure 30.

All items were addressed and are included in the H12618 Final Feature File.

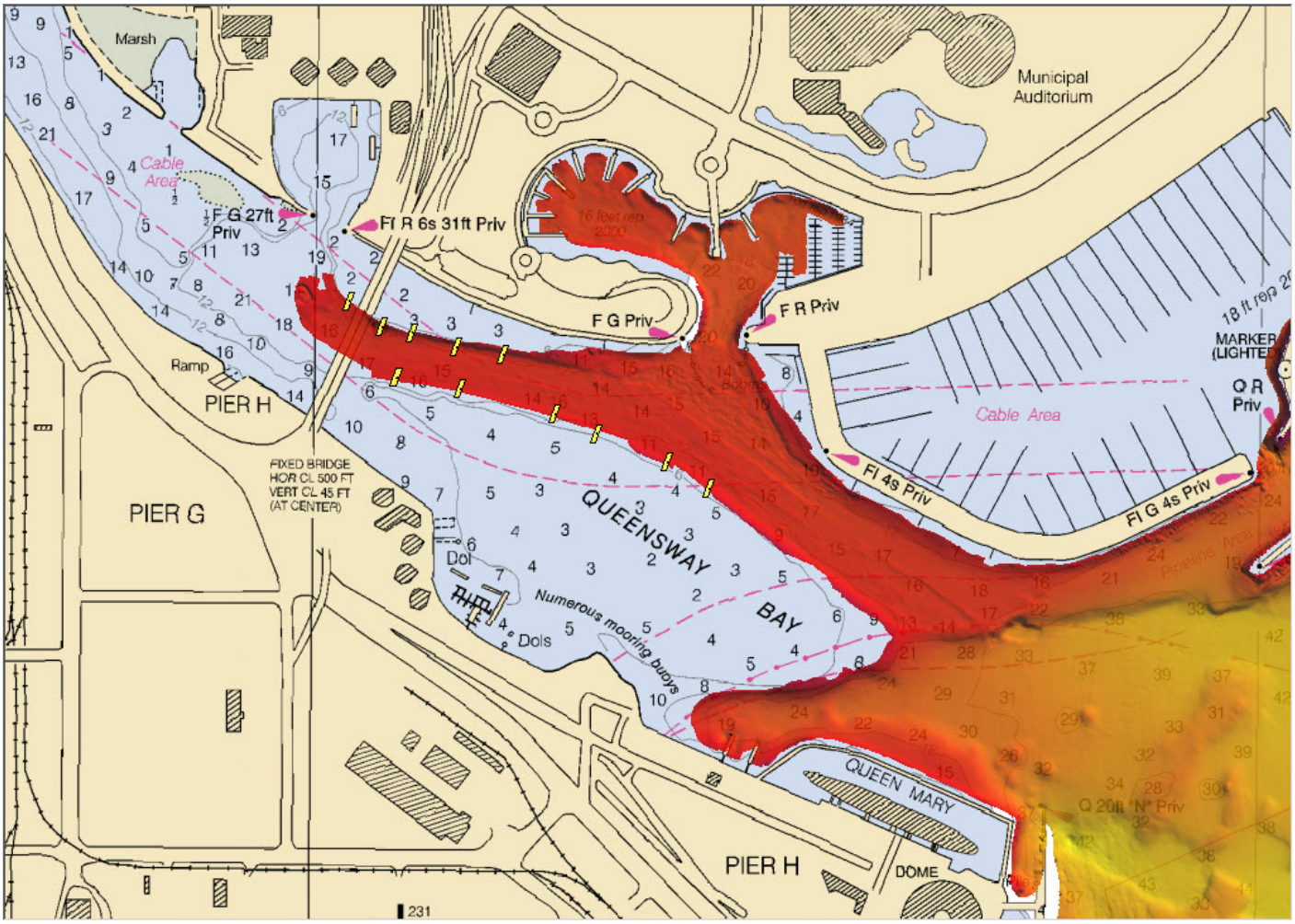


Figure 28: Channel Markers Queensway Bay.

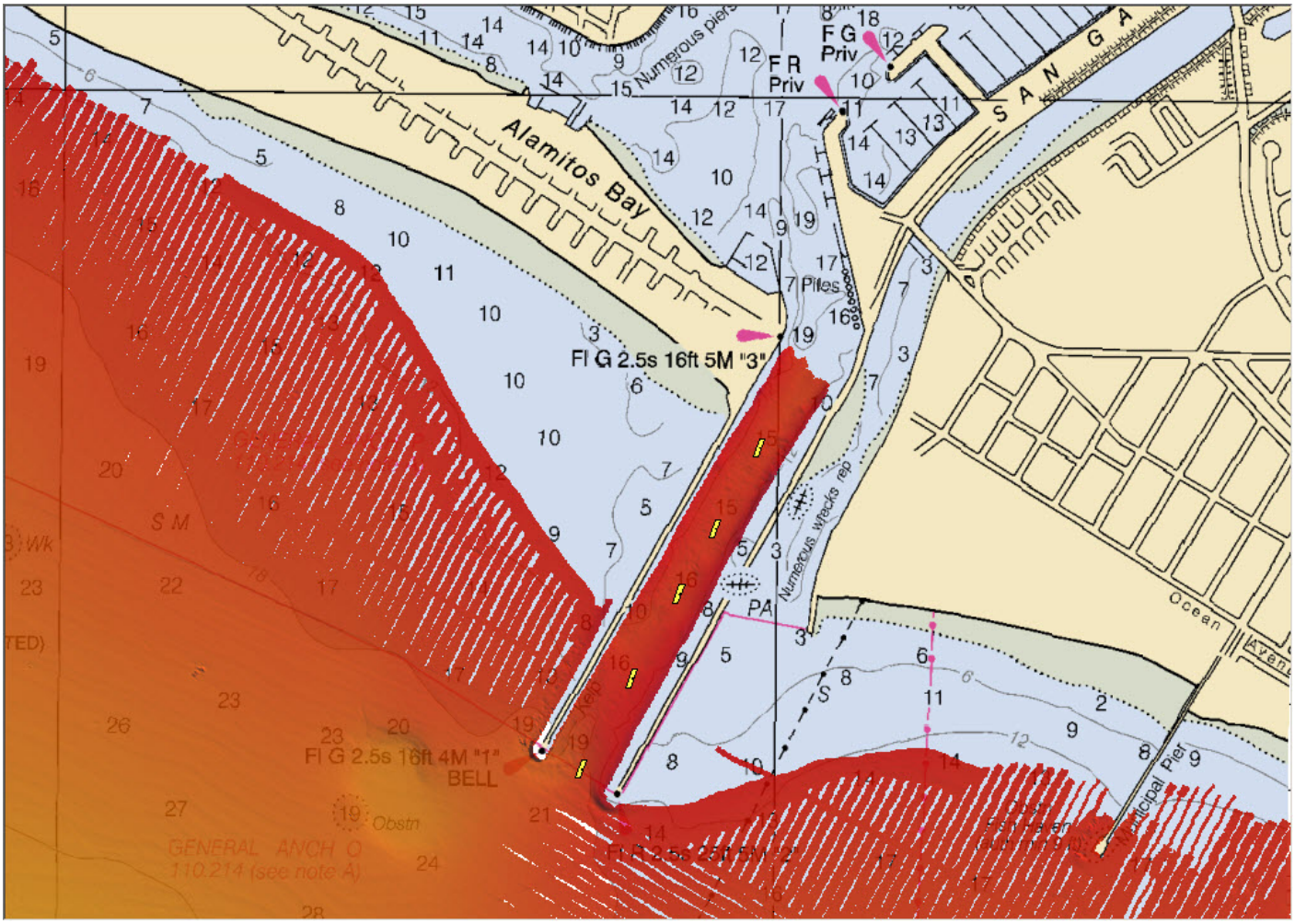


Figure 29: Channel Markers entrance of Alamitos Bay.

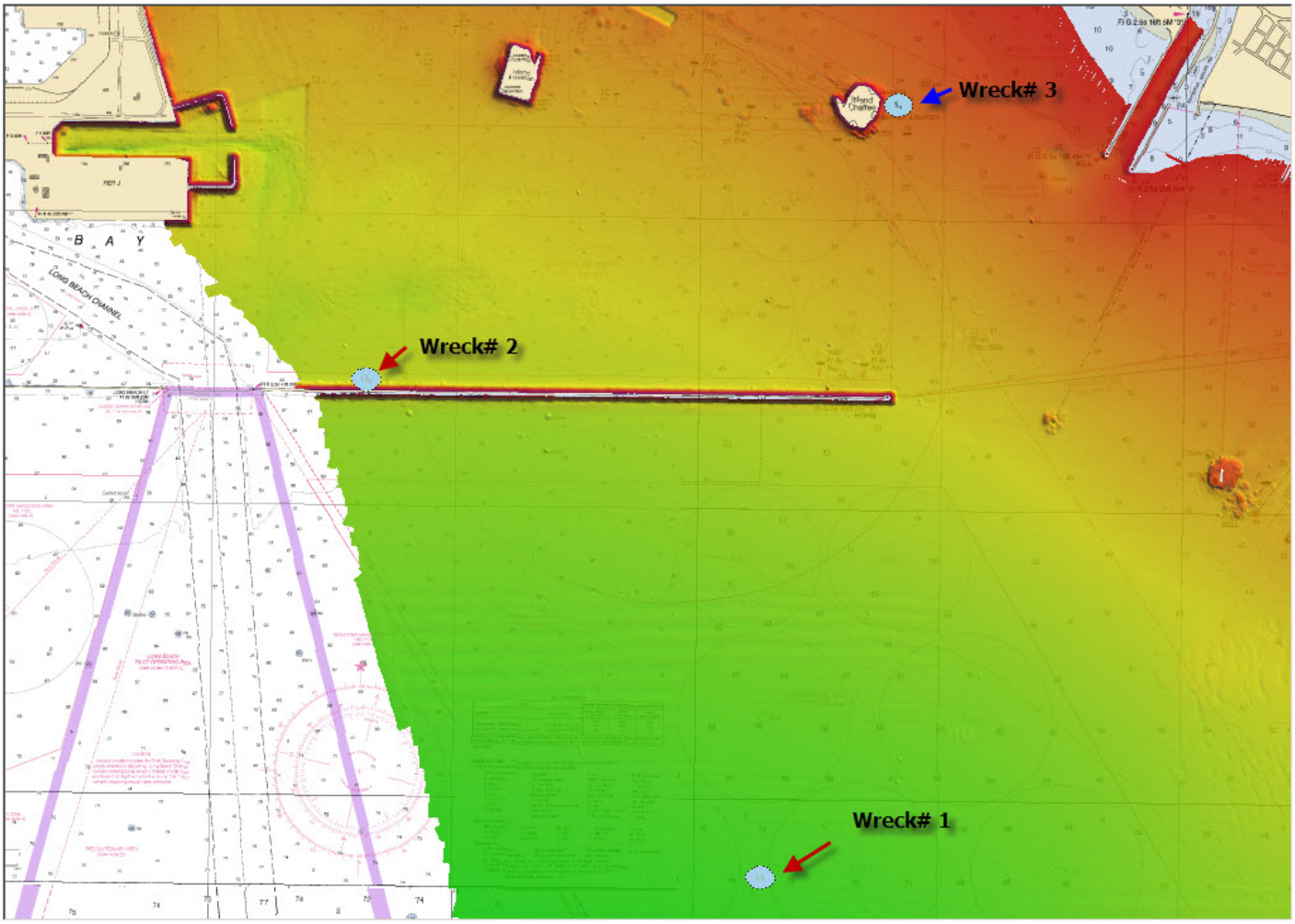


Figure 30: Uncharted Wrecks East San Pedro Bay.

D.1.7 Dangers to Navigation

The following DTON reports were submitted to the processing branch:

DTON Report Name	Date Submitted
H12618_DTONs.	2013-12-03

Table 17: DTON Reports

Danger to Navigation Report is included in Appendix II of this report.

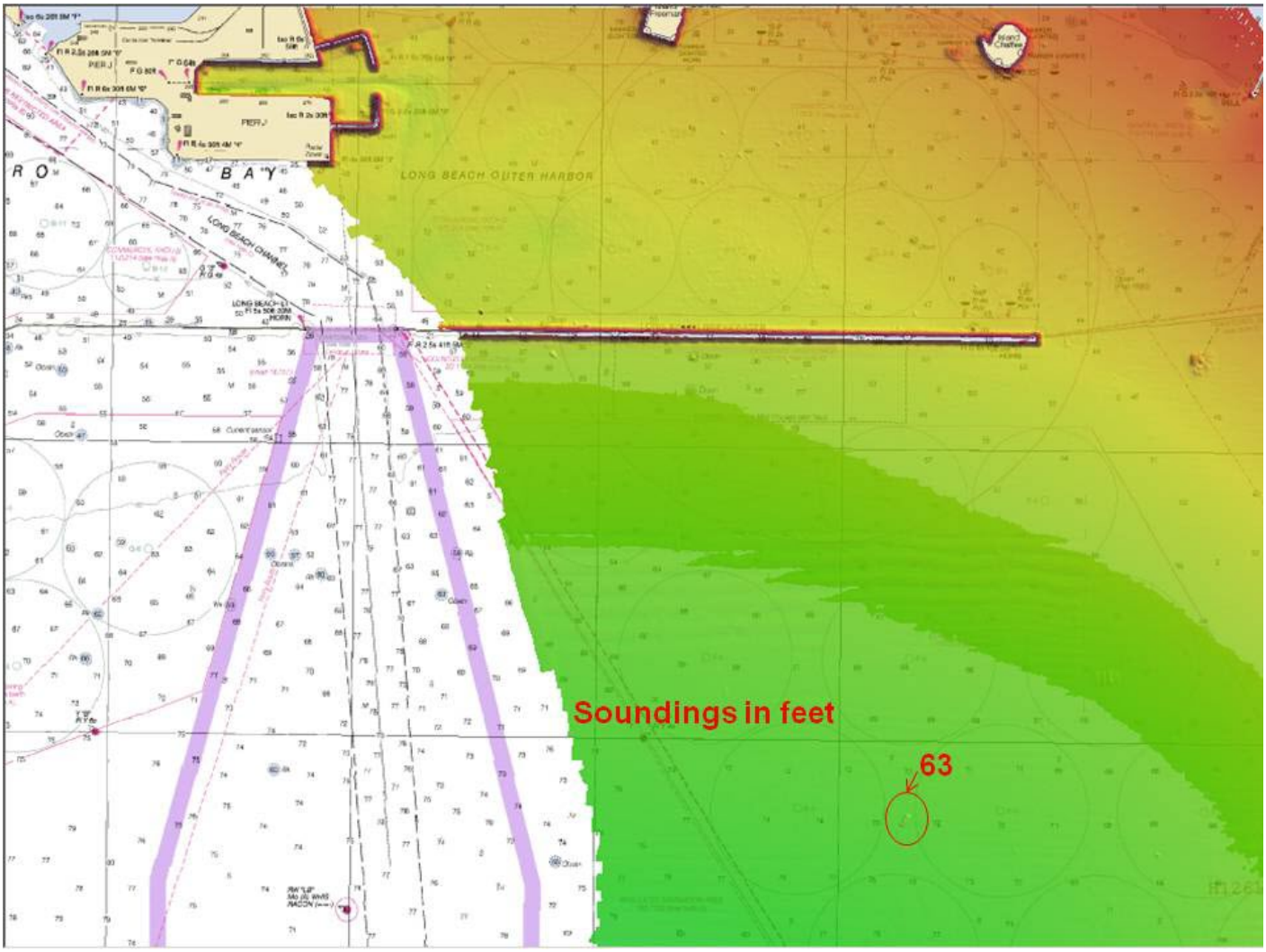


Figure 31: H12618 DTON 1, Overview.

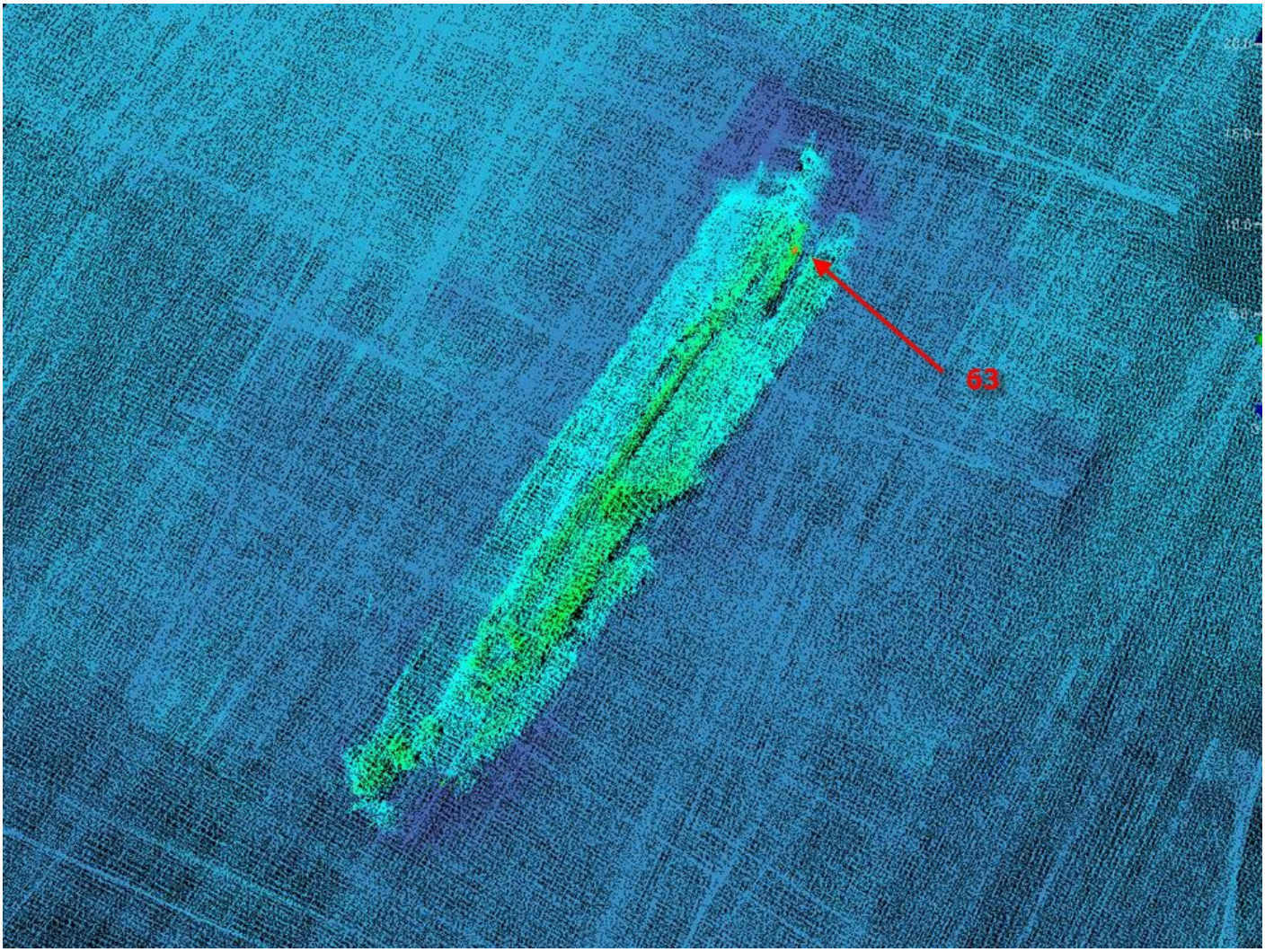


Figure 32: H12618 DTON 1, 3D view.

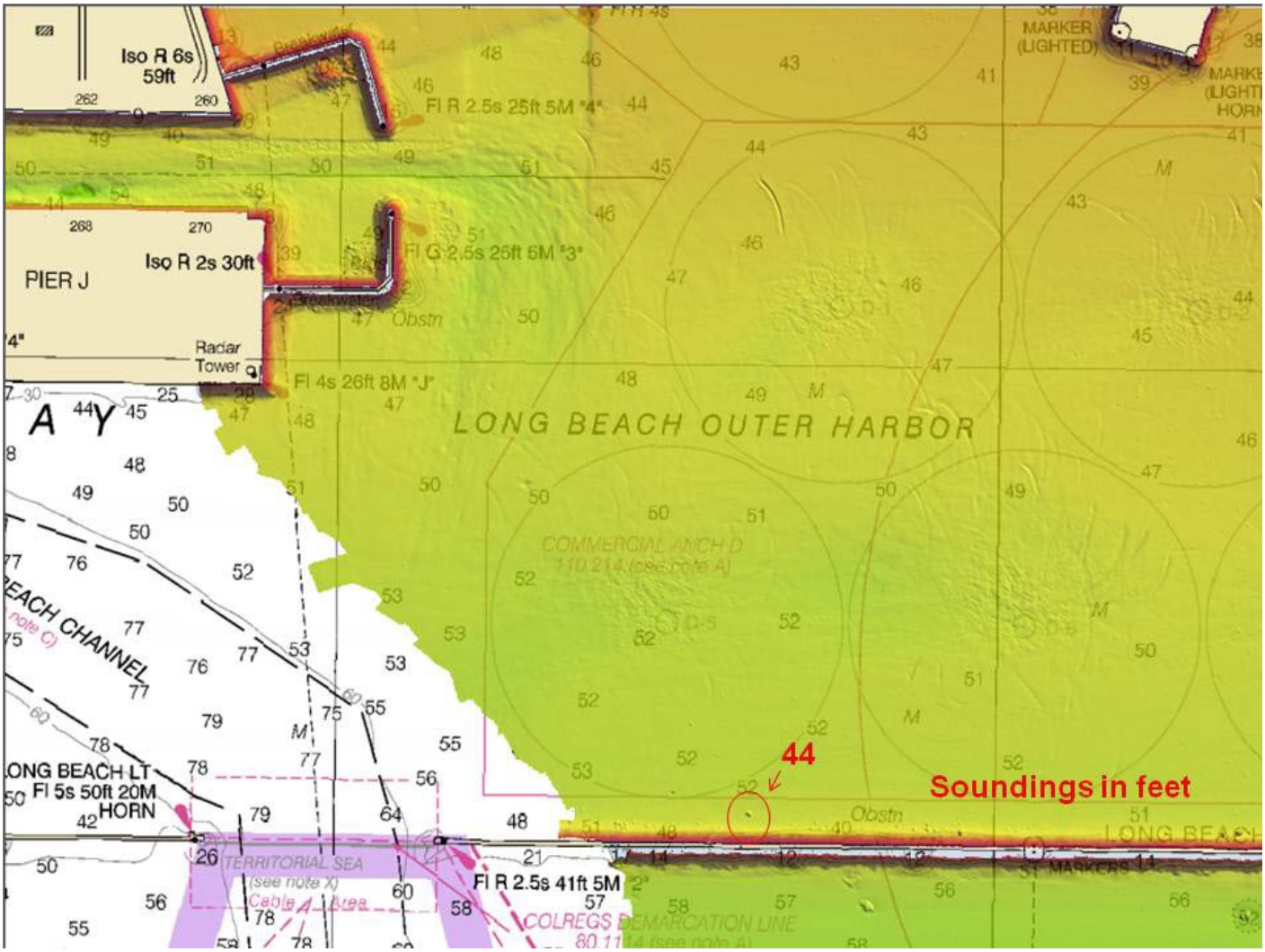


Figure 33: H12618 DTON 2, Overview.

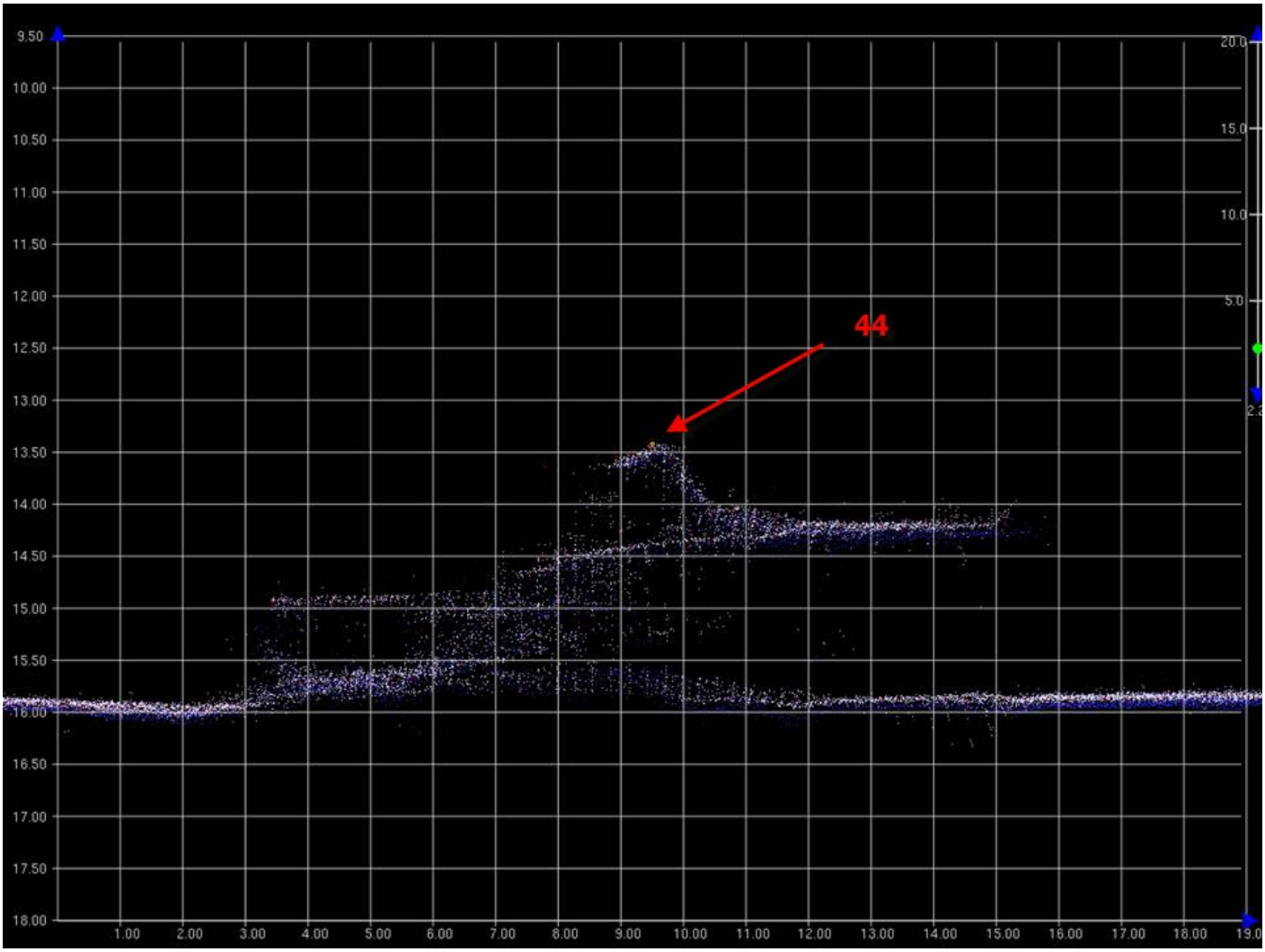


Figure 34: H12618 DTON 2, 2D view.

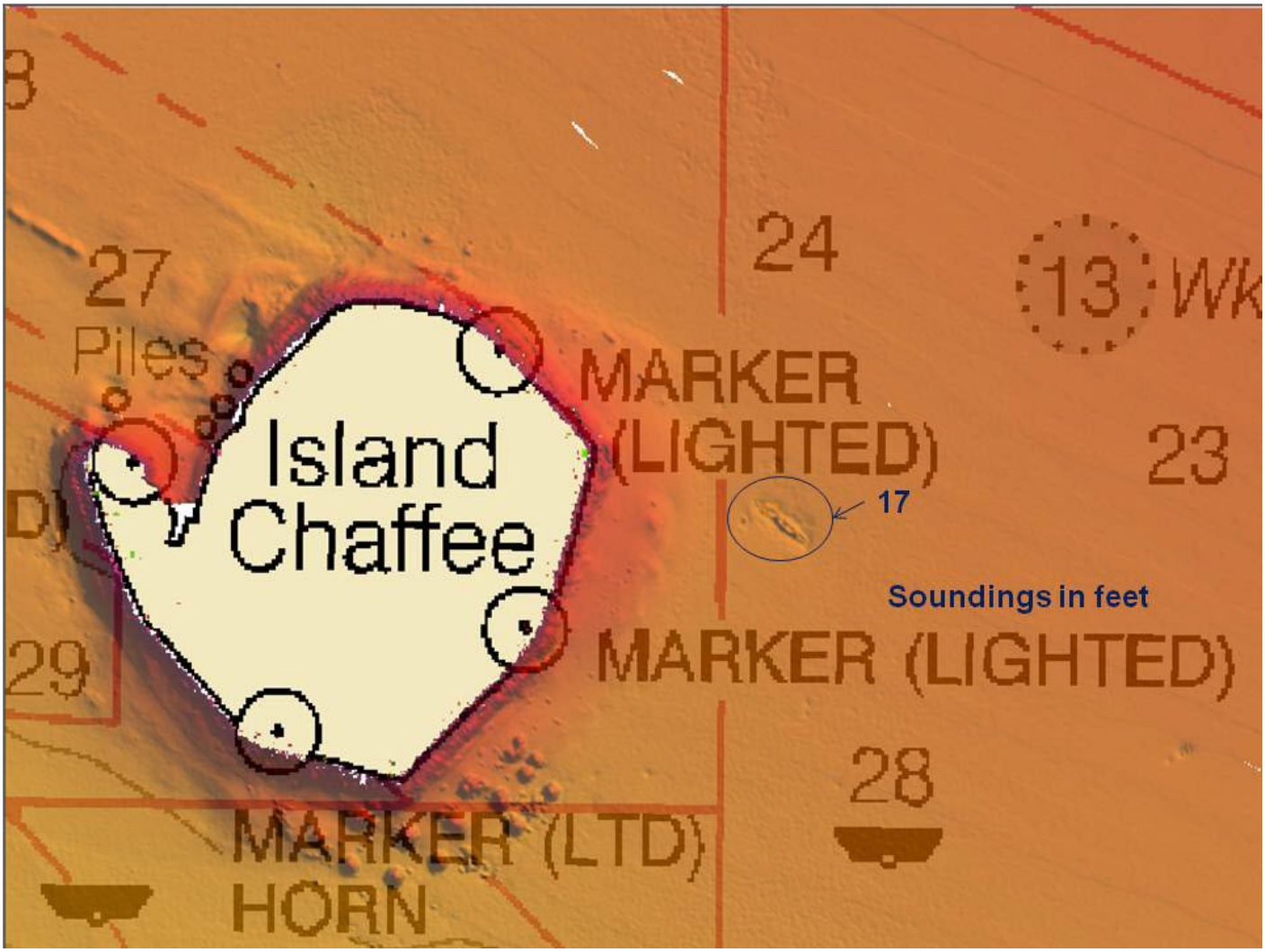


Figure 35: H12618 DTON 3 Overview.

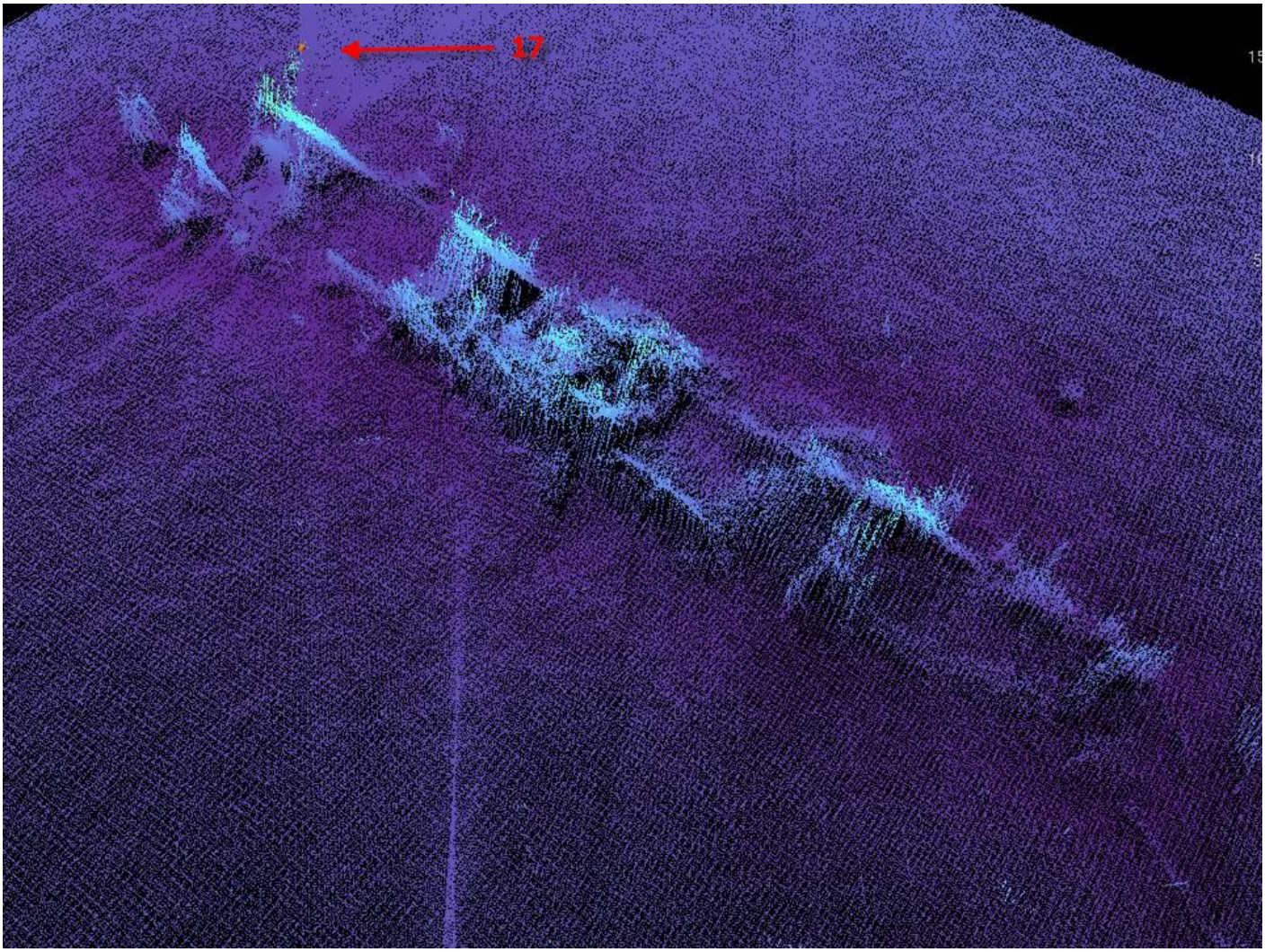


Figure 36: H12618 DTON 3 3D view.

Specific details of AWOIS items, wrecks and DTONs are documented in the attached feature reports.

D.1.8 Shoal and Hazardous Features

No shoals or potentially hazardous features exist for this survey.

D.1.9 Channels

Soundings from survey H12618 generally agreed within one to three feet with charted depths in all channels, designated anchorages, explosive anchorages, precautionary areas, safety fairways, traffic separation schemes , pilot boarding areas, and/or channel and range lines exist within the survey limits. See chart comparison results above for discrepancy to this rule.

D.1.10 Bottom Samples

No bottom samples were required for this survey.

D.2 Additional Results

D.2.1 Shoreline

Fairweather personnel conducted limited shoreline verification and reconnaissance near times of predicted low tides within the survey limits. Annotations, information, and diagrams collected on DP forms and boat sheets during field operations were scanned and are included in the digital Separates I folder. Shoreline verification procedures for survey H12618 conform to those detailed in the DAPR.
Features from the current editions of charts 18749 that were not depicted by the source shoreline data were digitized in CARIS Notebook with S-57 attribution into the H12618_Feature_File.hob file, to be displayed for field verification.
The Hydrographer recommends that the shoreline depicted in the CARIS Notebook files and final sounding files supersede and complement shoreline information compiled on the CSF and charts.

D.2.2 Prior Surveys

No prior survey comparisons exist for this survey.

D.2.3 Aids to Navigation

Island Freeman NE Marker (lighted) was repositioned. New position accuracy is approximately 5m. See figure 37.

This item was addressed and is included in the H12618 Final Feature File.

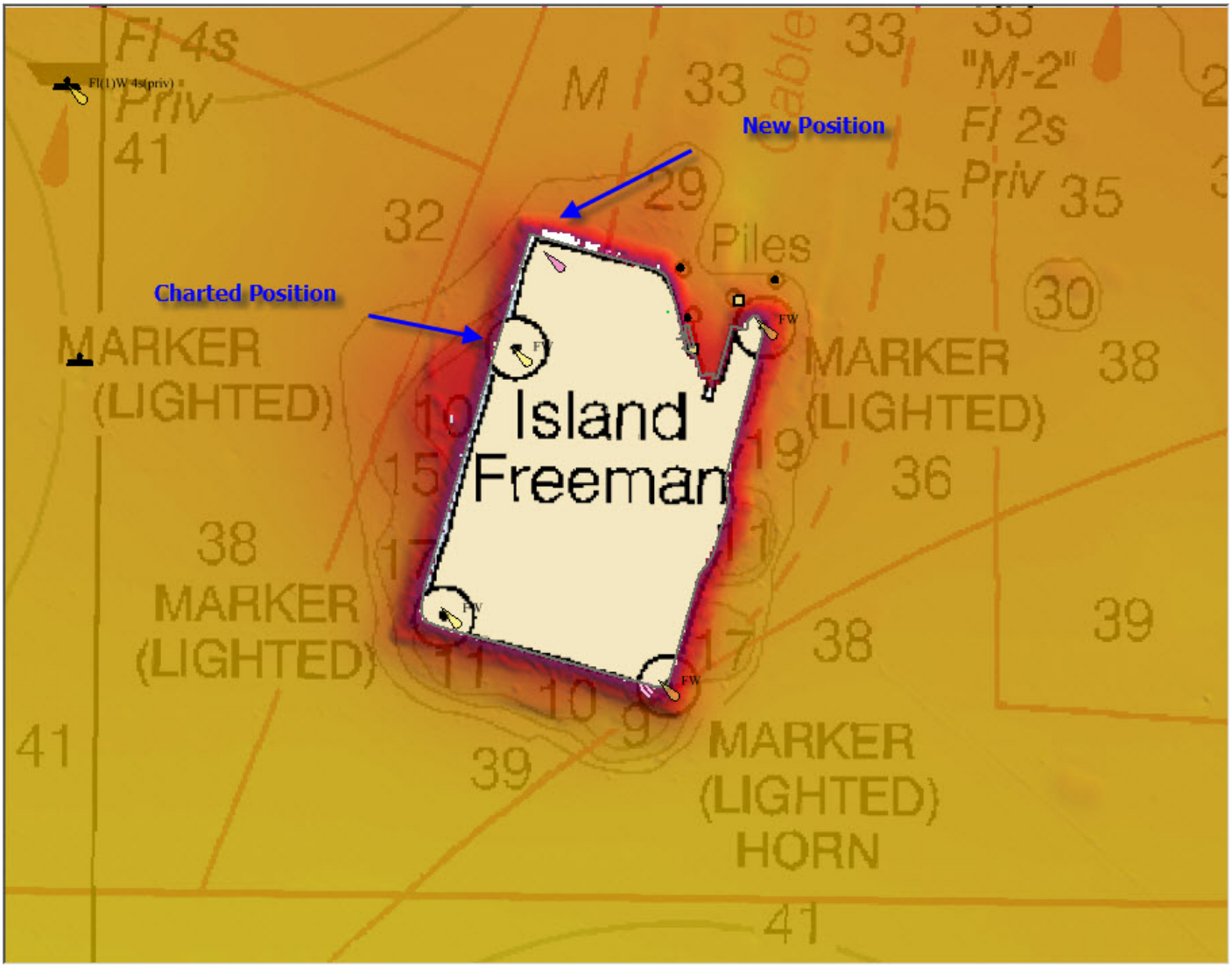


Figure 37: Freeman Island Marker (lighted).

D.2.4 Overhead Features

Overhead features exist for this survey, but were not investigated.

D.2.5 Submarine Features

Survey H12618 includes several charted cable areas and pipeline areas, as shown in Figure 38. Several trenches were located in the bathymetry extending from the Queensway Bay to Anaheim Bay at varying azimuths in the vicinity of the charted cable area and pipeline area. The Hydrographer recommends retaining the cable and pipeline areas as charted.

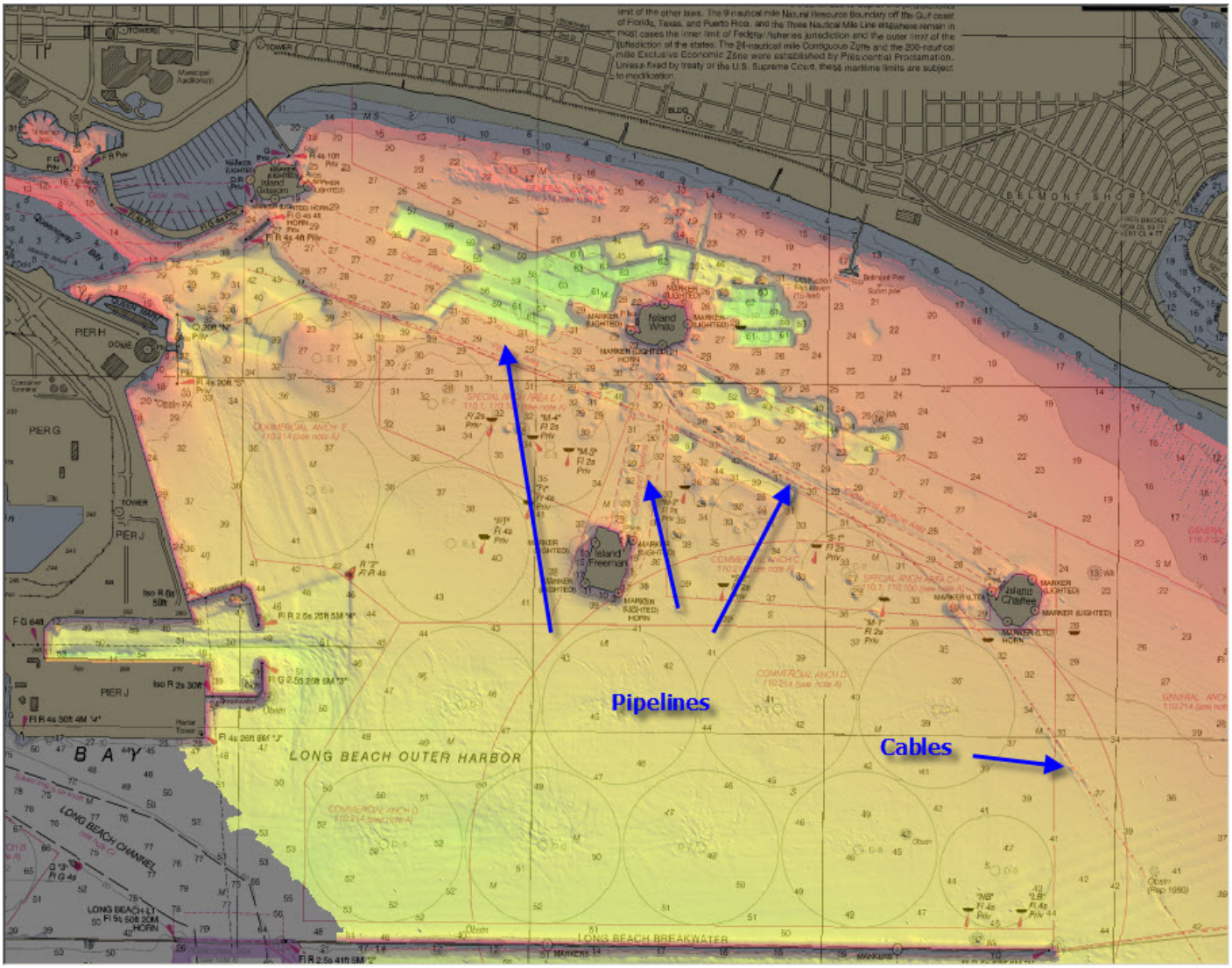


Figure 38: Pipeline and Cable Areas.

D.2.6 Ferry Routes and Terminals

Although not depicted on navigational charts of the area, different ferry routs pass through the boundaries of survey H12618. These ferry routes run from Queensway Bay to Catalina Island using the Long Beach Channel. See figure 39.

Figure 39: H12618 Ferry Routes.

D.2.7 Platforms

Platform "Esther" is located within H12618 survey. The bathymetry depicts the extent and location of the platform. Transportation of personnel is done daily from the platform to the Seal Beach Municipal Pier.

D.2.8 Significant Features

No significant features exist for this survey.

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.

Report Name	Report Date Sent
Data Acquisition and Processing Report	2014-05-21
Coast Pilot Report	2013-11-15

Approver Name	Approver Title	Approval Date	Signature
CDR David J. Zezula, NOAA	Chief of Party	05/21/2014	David Zezula 2014.05.23 11:55:09 -08'00'
LT Ryan A. Wartick, NOAA	Field Operations Officer	05/21/2014	Ryan Wartick 2014.05.23 10:09:23 -08'00'
HCST Tami M. Beduhn	Chief Survey Technician	05/21/2014	Tami Beduhn 2014.05.23 10:21:45 -08'00'
HSST Douglas A. Bravo	Sheet Manager	05/21/2014	Douglas Bravo 2014.05.23 11:15:08 -08'00'

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 : November 15, 2013

HYDROGRAPHIC BRANCH: Pacific
HYDROGRAPHIC PROJECT: OPR-L318-FA-2013
HYDROGRAPHIC SHEET: H12618

LOCALITY: Long Beach, CA
TIME PERIOD: September 26 - November 04, 2013

TIDE STATION USED: 9410660 Los Angeles, CA
Lat. 33° 43.2'N Long. 118° 16.3' W
PLANE OF REFERENCE (MEAN LOWER LOW WATER): 0.000 meters
HEIGHT OF HIGH WATER ABOVE PLANE OF REFERENCE: 1.448 meters

REMARKS: RECOMMENDED ZONING

Preliminary zoning is accepted as the final zoning for project OPR-L318-FA-2013, H12618, during the time period between September 26 - November 04, 2013.

Please use the zoning file L318FA2013CORP_Rev submitted with the project instructions for OPR-L318-FA-2013. Zones PAC9 and PAC9A are the applicable zones for H12618.

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: 2013.11.19 12:11:32 -05'00'

CHIEF, PRODUCTS AND SERVICES BRANCH


Preliminary as Final Tidal Zoning for
OPR-L318-FA-2013 (Revised), Registry No. H12618
Long Beach, CA
PAC9A
Time Corrector 0 mins
Range Corrector x 1.00
Reference 9410660
9410660 Los Angeles, CA
PAC9
Time Corrector 0 mins
Range Corrector x 0.97
Reference 9410660
0
25
nautical miles
Scale: 1:1,561,000
bing
Image courtesy of NASA State of Michigan

H12618 Feature Report

Registry Number: H12618
State: California
Locality: Long Beach, CA
Sub-locality: Long Beach and Vicinity
Project Number: OPR-L318-FA-13
Survey Dates: 09/26/2013 - 11/04/2013

Charts Affected

Number	Edition	Date	Scale (RNC)	RNC Correction(s)*
18751	46th	08/01/2009	1:12,000 (18751_1)	USCG LNM: 5/6/2014 (5/20/2014) NGA NTM: 6/22/1996 (5/31/2014)
18749	43rd	04/01/2010	1:20,000 (18749_1)	USCG LNM: 5/13/2014 (5/20/2014) NGA NTM: 6/22/1996 (5/31/2014)
18746	39th	06/01/2013	1:80,000 (18746_1)	USCG LNM: 11/19/2013 (5/20/2014) NGA NTM: 5/21/2005 (5/31/2014)
18740	42nd	03/01/2007	1:234,270 (18740_1)	[L]NTM: ?
18022	35th	08/01/2005	1:868,003 (18022_1)	[L]NTM: ?
18020	38th	10/01/2007	1:1,444,000 (18020_1)	[L]NTM: ?
501	12th	11/01/2002	1:3,500,000 (501_1)	[L]NTM: ?
530	32nd	06/01/2007	1:4,860,700 (530_1)	[L]NTM: ?
50	6th	06/01/2003	1:10,000,000 (50_1)	[L]NTM: ?

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

Features

	Feature Type	Survey Depth	Survey Latitude	Survey Longitude
1.1	Obstruction	[None]	33° 44' 56.0" N	118° 11' 18.0" W
1.2	Obstruction	[None]	33° 44' 04.4" N	118° 10' 55.8" W
1.3	Obstruction	[None]	33° 45' 17.1" N	118° 08' 49.5" W
1.4	Obstruction	12.54 m	33° 43' 43.1" N	118° 08' 43.0" W
1.5	Wreck	3.90 m	33° 44' 28.4" N	118° 08' 04.6" W
1.6	Obstruction	6.72 m	33° 44' 09.6" N	118° 07' 35.4" W

1.7	Wreck	[None]	33° 43' 44.9" N	118° 07' 26.2" W
2.1	Wreck	4.79 m	33° 44' 57.3" N	118° 11' 23.0" W
2.2	Wreck	6.96 m	33° 44' 54.3" N	118° 11' 19.3" W
2.3	Wreck	8.68 m	33° 44' 47.6" N	118° 11' 17.6" W
2.4	Obstruction	6.64 m	33° 44' 56.0" N	118° 11' 17.1" W
2.5	Wreck	6.77 m	33° 45' 31.7" N	118° 10' 12.4" W
2.6	Wreck	7.63 m	33° 45' 24.6" N	118° 09' 34.7" W
2.7	Wreck	6.42 m	33° 45' 16.9" N	118° 08' 59.6" W
2.8	Wreck	6.11 m	33° 45' 21.4" N	118° 08' 57.6" W
2.9	Wreck	5.62 m	33° 44' 54.2" N	118° 08' 49.8" W
2.10	Wreck	13.67 m	33° 43' 28.2" N	118° 08' 42.3" W
2.11	Wreck	10.78 m	33° 43' 25.1" N	118° 08' 27.6" W
2.12	Wreck	21.31 m	33° 41' 09.3" N	118° 08' 12.3" W
2.13	Obstruction	11.87 m	33° 43' 37.1" N	118° 07' 52.4" W
3.1	Wreck	13.20 m	33° 43' 26.1" N	118° 10' 22.3" W
3.2	Wreck	19.41 m	33° 41' 44.7" N	118° 08' 42.7" W
3.3	Wreck	5.40 m	33° 44' 23.9" N	118° 08' 42.7" N

Features 1.1-1.7 are AWOIS Items. In addition to these listed AWOIS Items, four others were investigated during survey H12618, but not inlcuded in the Hydrographer's report:

- AWOIS #50016, Lat. 33° 43' 35.061"N, Long. 118° 08' 38.2236"W. Search radius used to investigate a sunken barge reported in 1953 and later reported to have been raised. The feature was disproved.

- AWOIS #53263, Lat. 33° 43’ 17.977" N, Long. 118° 09' 07.461" W. A new position and depth for a charted wreck. Corresponds to repositioned wreck #2.11.

- AWOIS #50157, Lat. 33° 41' 43.731" N, Long. 118° 08' 47.817" W. Search radius used to disprove a charted wreck.

- AWOIS #53257 equates to new wreck #2.9, Lat. 33° 44’ 54.201" N, Long. 118° 08' 49.760" W. Search radius used to investigate and determine a new position and depth for a charted wreck.

Items 2.1-2.13 are new wrecks and obstructions.

Items 3.1-3.2 are Dangers to Navigation

1 - Charted Features

1.1) US 0000059318 00001

Survey Summary

Survey Position:	33° 44' 56.0" N, 118° 11' 18.0" W
Least Depth:	[None]
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2002-116.00:00:00.000 (04/26/2002)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059318 00001(02260000E7B60001)
Charts Affected:	18751_1, 18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

OBSTRN/remrks: AWOIS#52891, charted Obstrn PA disproved.

Hydrographer Recommendations

Remove Obstrn PA.

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	SORDAT - 20020426
	SORIND - US,US,graph,FE-00484
	TECSOU - 3:found by multi-beam
	WATLEV - 3:always under water/submerged

Same as new OBSTRN #2.4. Chd submerged OBSTRN repositioned by full MBES. Feature found to be a rectangular container rather than a snag/stump.

1.2) US 0000059331 00001

Survey Summary

Survey Position:	33° 44' 04.4" N, 118° 10' 55.8" W
Least Depth:	[None]
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2007-092.00:00:00.000 (04/02/2007)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059331 00001(02260000E7C30001)
Charts Affected:	18751_1, 18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

OBSTRN/remrks: AWOIS#53251, chd obstruction disproved by full coverage MBES.

Hydrographer Recommendations

Remove obstruction, chart surveyed soundings.

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	SORDAT - 20070402
	SORIND - US,US,graph,Chart 18751
	TECSOU - 3:found by multi-beam
	WATLEV - 3:always under water/submerged

Conncur

1.3) US 0000059327 00001

Survey Summary

Survey Position:	33° 45' 17.1" N, 118° 08' 49.5" W
Least Depth:	[None]
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2006-264.00:00:00.000 (09/21/2006)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059327 00001(02260000E7BF0001)
Charts Affected:	18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

OBSTRN/remrks: AWOIS#53256, chd submerged pile disproved by full coverage MBES.

Hydrographer Recommendations

Remove submerged pile, chart surveyed soundings.

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	CATOBS - 1:snag / stump
	SORDAT - 20060921
	SORIND - US,US,graph,DD-11500,FE-00507
	TECSOU - 3:found by multi-beam
	WATLEV - 3:always under water/submerged

Conncur

1.4) US 0000059339 00001

Survey Summary

Survey Position:	33° 43' 43.1" N, 118° 08' 43.0" W
Least Depth:	12.54 m (= 41.16 ft = 6.860 fm = 6 fm 5.16 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059339 00001(02260000E7CB0001)
Charts Affected:	18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

OBSTRN/remrks: AWOIS#53264, chd (18749) obstruction verified by full coverage MBES. New value of sounding.

Hydrographer Recommendations

Chart surveyed soundings.

Cartographically-Rounded Depth (Affected Charts):

41ft (18749_1)

6 ¾fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

12.5m (501_1, 50_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	INFORM - Object is a 5'x5'x5' steel box in a major state of decay.
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 12.545 m
	WATLEV - 3:always under water/submerged

Concur

1.5) US 0000059334 00001

Survey Summary

Survey Position:	33° 44' 28.4" N, 118° 08' 04.6" W
Least Depth:	3.90 m (= 12.80 ft = 2.133 fm = 2 fm 0.80 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2001-335.00:00:00.000 (12/01/2001)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059334 00001(02260000E7C60001)
Charts Affected:	18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

WRECKS/remrks: chd wreck disproved by full coverage MBES.

Hydrographer Recommendations

Remove wreck, chart surveyed soundings.

Cartographically-Rounded Depth (Affected Charts):

13ft (18749_1)

2fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

3.9m (501_1, 50_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	QUASOU - 6:least depth known
	SORDAT - 20011201
	SORIND - US,US,graph,Chart 18749
	VALSOU - 3.900 m
	WATLEV - 3:always under water/submerged

Concur. AWOIS #53265.

1.6) US 0000059330 00001

Survey Summary

Survey Position:	33° 44' 09.6" N, 118° 07' 35.4" W
Least Depth:	6.72 m (= 22.05 ft = 3.675 fm = 3 fm 4.05 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059330 00001(02260000E7C20001)
Charts Affected:	18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

OBSTRN/remrks: AWOIS#53259, chd (18749) obstruction verified by full coverage MBES. New value of sounding.

Hydrographer Recommendations

Chart surveyed soundings.

Cartographically-Rounded Depth (Affected Charts):

22ft (18749_1)

3 ½fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

6.7m (501_1, 50_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	EXPSOU - 2:shoaler than range of depth of the surrounding depth area
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 6.721 m
	WATLEV - 3:always under water/submerged

Concur

1.7) US 0000059329 00001

Survey Summary

Survey Position:	33° 43' 44.9" N, 118° 07' 26.2" W
Least Depth:	[None]
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2001-335.00:00:00.000 (12/01/2001)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059329 00001(02260000E7C10001)
Charts Affected:	18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

WRECKS/remrks: AWOIS#53259, chd wreck disproved by full coverage MBES.

AWOIS #53259 is incorrect. (#53259 corresponds to #1.6) Should be AWOIS #53258.

Hydrographer Recommendations

Remove wreck, chart surveyed soundings.

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	QUASOU - 2:depth unknown
	SORDAT - 20011201
	SORIND - US,US,graph,Chart 18749
	TECSOU - 3:found by multi-beam
	WATLEV - 3:always under water/submerged

Concur with disproval.

2 - New Features

2.1) US 0000059326 00001

Survey Summary

Survey Position:	33° 44' 57.3" N, 118° 11' 23.0" W
Least Depth:	4.79 m (= 15.72 ft = 2.619 fm = 2 fm 3.72 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059326 00001(02260000E7BE0001)
Charts Affected:	18751_1, 18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

New wreck.

Hydrographer Recommendations

Chart new wreck at surveyed position.

Cartographically-Rounded Depth (Affected Charts):

15ft (18751_1, 18749_1)

2 ½fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

4.8m (501_1, 50_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	NINFOM - Chart wreck
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 4.790 m
	WATLEV - 3:always under water/submerged

Feature Images

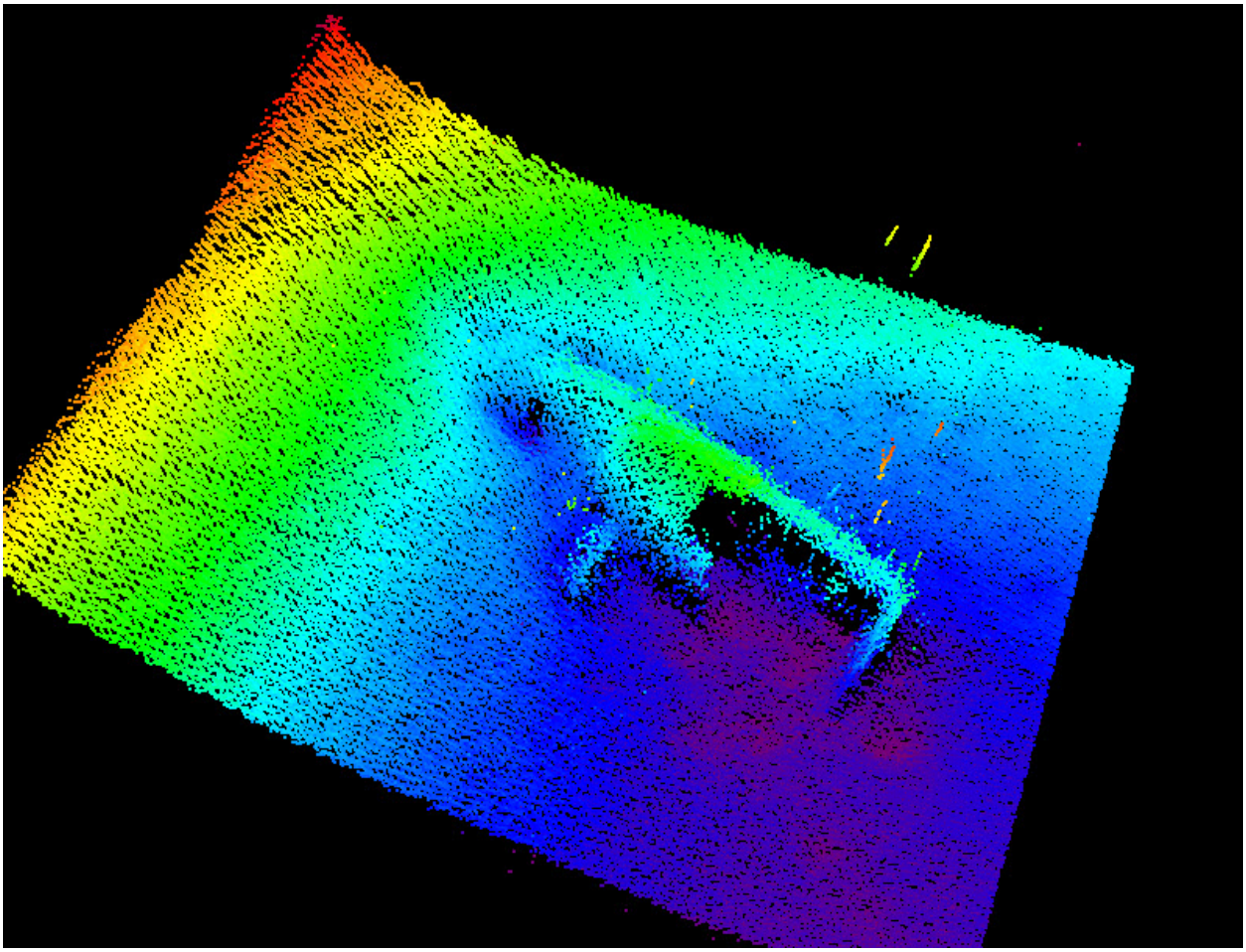


Figure 2.1.1

2.2) US 0000059320 00001

Survey Summary

Survey Position:	33° 44' 54.3" N, 118° 11' 19.3" W
Least Depth:	6.96 m (= 22.83 ft = 3.806 fm = 3 fm 4.83 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059320 00001(02260000E7B80001)
Charts Affected:	18751_1, 18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

Remains of a wreck.

Hydrographer Recommendations

Chart new wreck at surveyed position.

Cartographically-Rounded Depth (Affected Charts):

23ft (18751_1, 18749_1)

3 ¾fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

6.9m (501_1, 50_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	NINFOM - Chart wreck
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 6.960 m
	WATLEV - 3:always under water/submerged

Feature Images

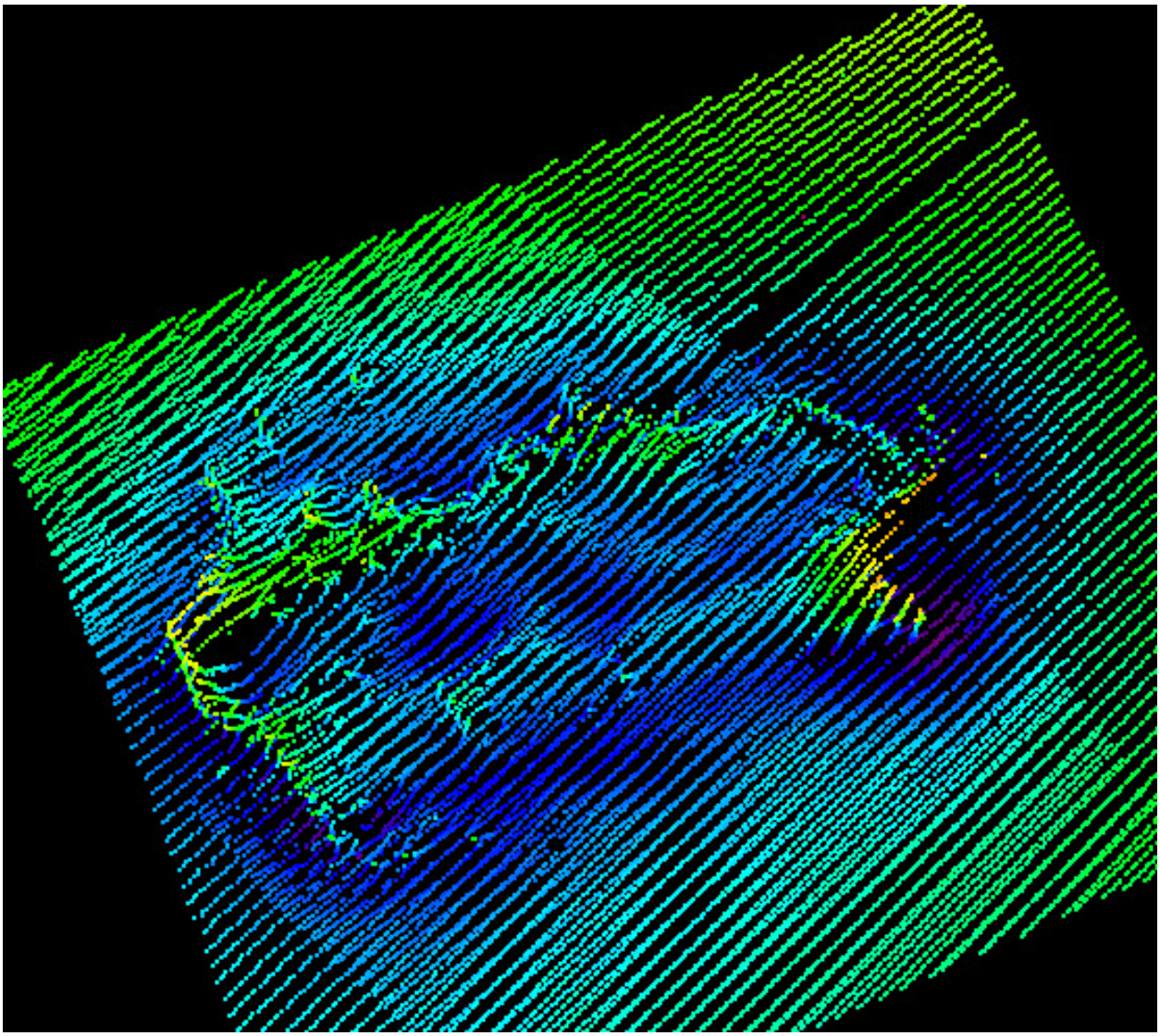


Figure 2.2.1

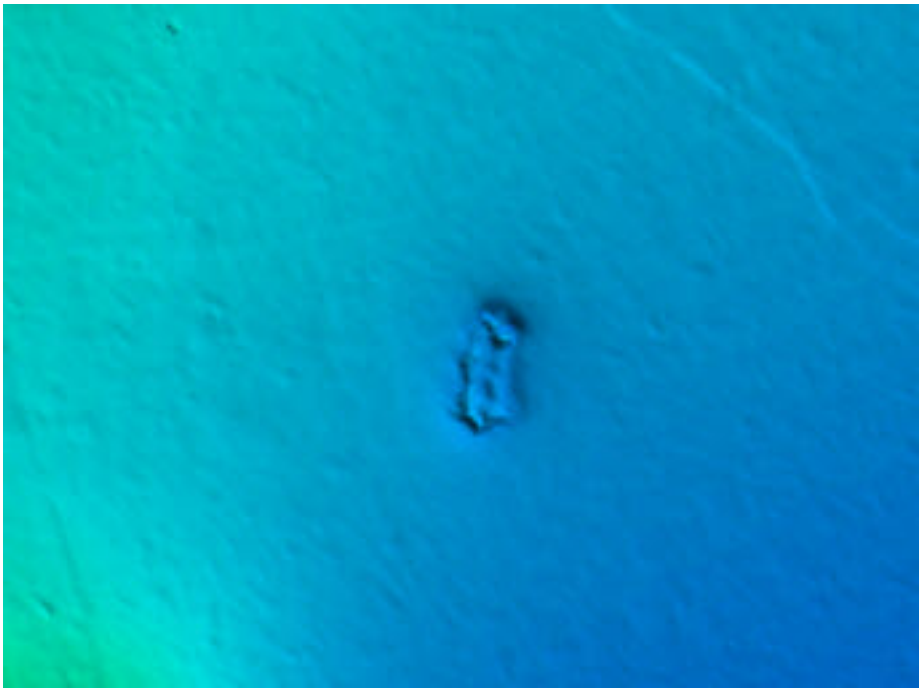


Figure 2.2.2

2.3) US 0000059336 00001

Survey Summary

Survey Position:	33° 44' 47.6" N, 118° 11' 17.6" W
Least Depth:	8.68 m (= 28.48 ft = 4.746 fm = 4 fm 4.48 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059336 00001(02260000E7C80001)
Charts Affected:	18751_1, 18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

New wreck

Hydrographer Recommendations

Chart new wreck at surveyed position.

Cartographically-Rounded Depth (Affected Charts):

28ft (18751_1, 18749_1)

4 ¾fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

8.7m (501_1, 50_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	NINFOM - Chart wreck
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 8.680 m
	WATLEV - 3:always under water/submerged

Feature Images

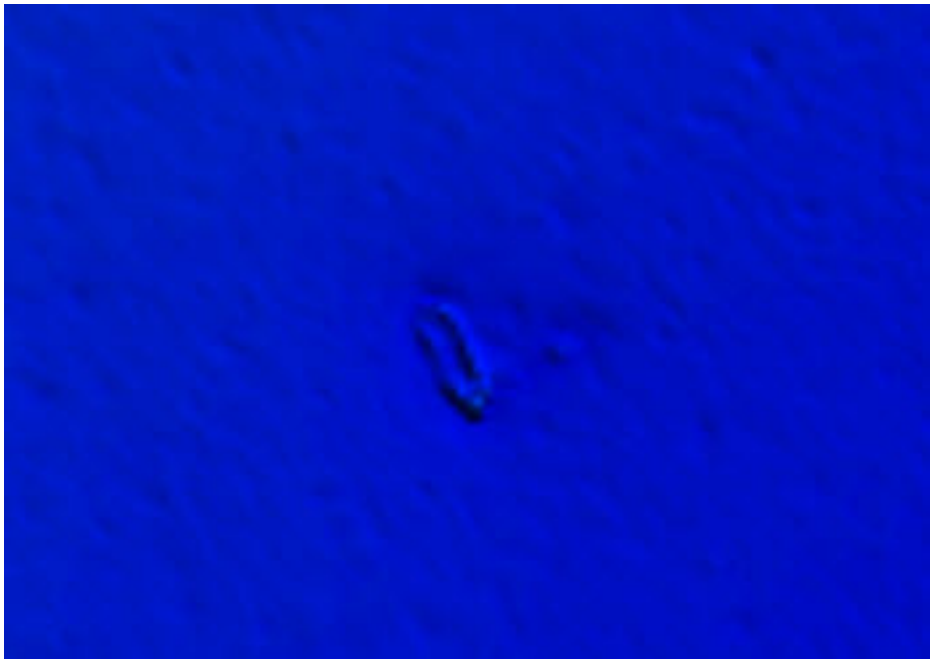


Figure 2.3.1

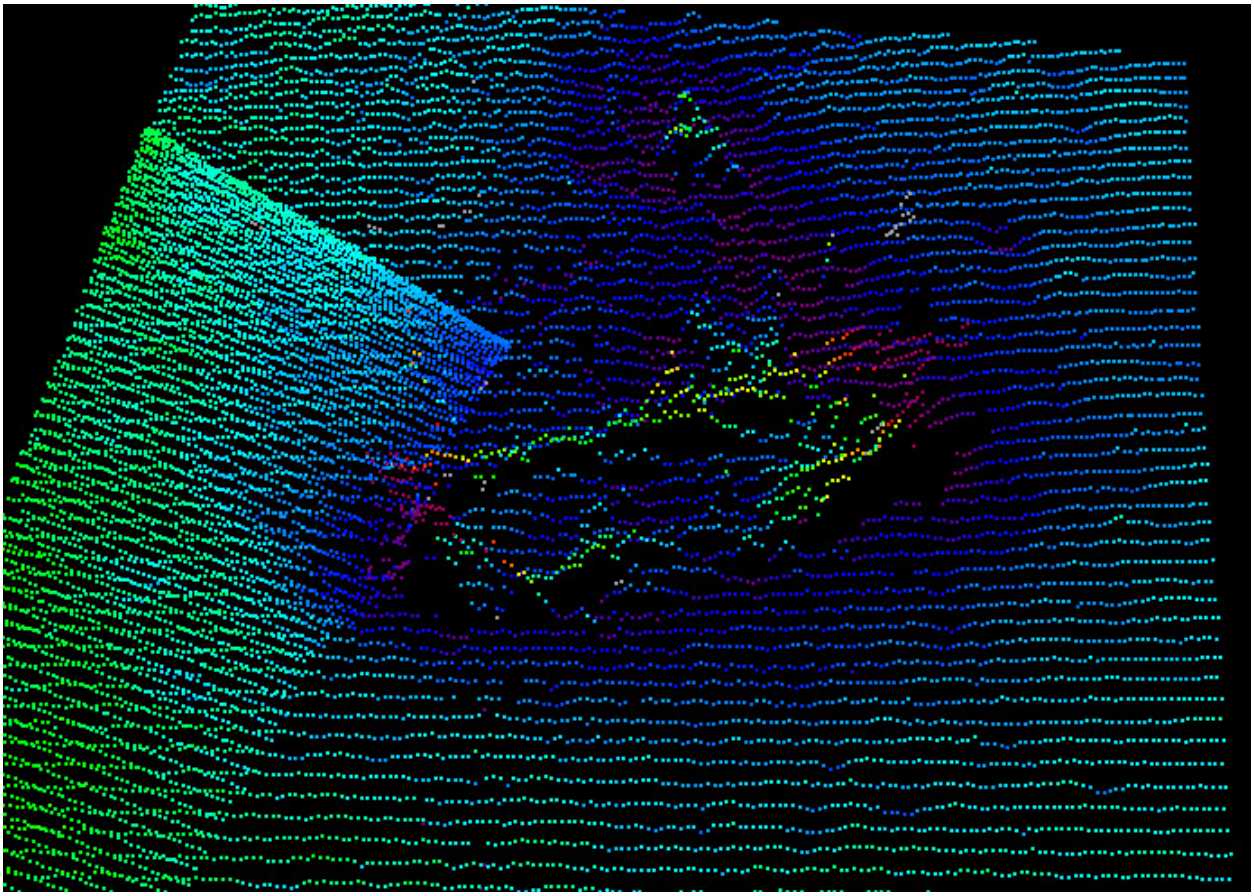


Figure 2.3.2

2.4) US 0000059343 00001

Survey Summary

Survey Position:	33° 44' 56.0" N, 118° 11' 17.1" W
Least Depth:	6.64 m (= 21.79 ft = 3.632 fm = 3 fm 3.79 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059343 00001(02260000E7CF0001)
Charts Affected:	18751_1, 18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

OBSTRN/remrks: AWOIS#52891, new position chd (18749) obstruction.

Hydrographer Recommendations

Chart obstruction at surveyed position.

Cartographically-Rounded Depth (Affected Charts):

22ft (18751_1, 18749_1)

3 ½fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

6.6m (501_1, 50_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 6.643 m
	WATLEV - 3:always under water/submerged

Same as new AWOIS #1.1. Chd submerged OBSTRN repositioned by full MBES. Feature found to be a rectangular container rather than a snag/stump.

2.5) US 0000059340 00001

Survey Summary

Survey Position:	33° 45' 31.7" N, 118° 10' 12.4" W
Least Depth:	6.77 m (= 22.21 ft = 3.702 fm = 3 fm 4.21 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059340 00001(02260000E7CC0001)
Charts Affected:	18751_1, 18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

Wrecks and debris

Hydrographer Recommendations

Chart new wrecks at surveyed position.

Cartographically-Rounded Depth (Affected Charts):

22ft (18751_1, 18749_1)

3 ¾fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

6.7m (501_1, 50_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	NINFOM - Chart wrecks
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 6.770 m
	WATLEV - 3:always under water/submerged

Two wrecks or one wreck and one obstruction.

Feature Images

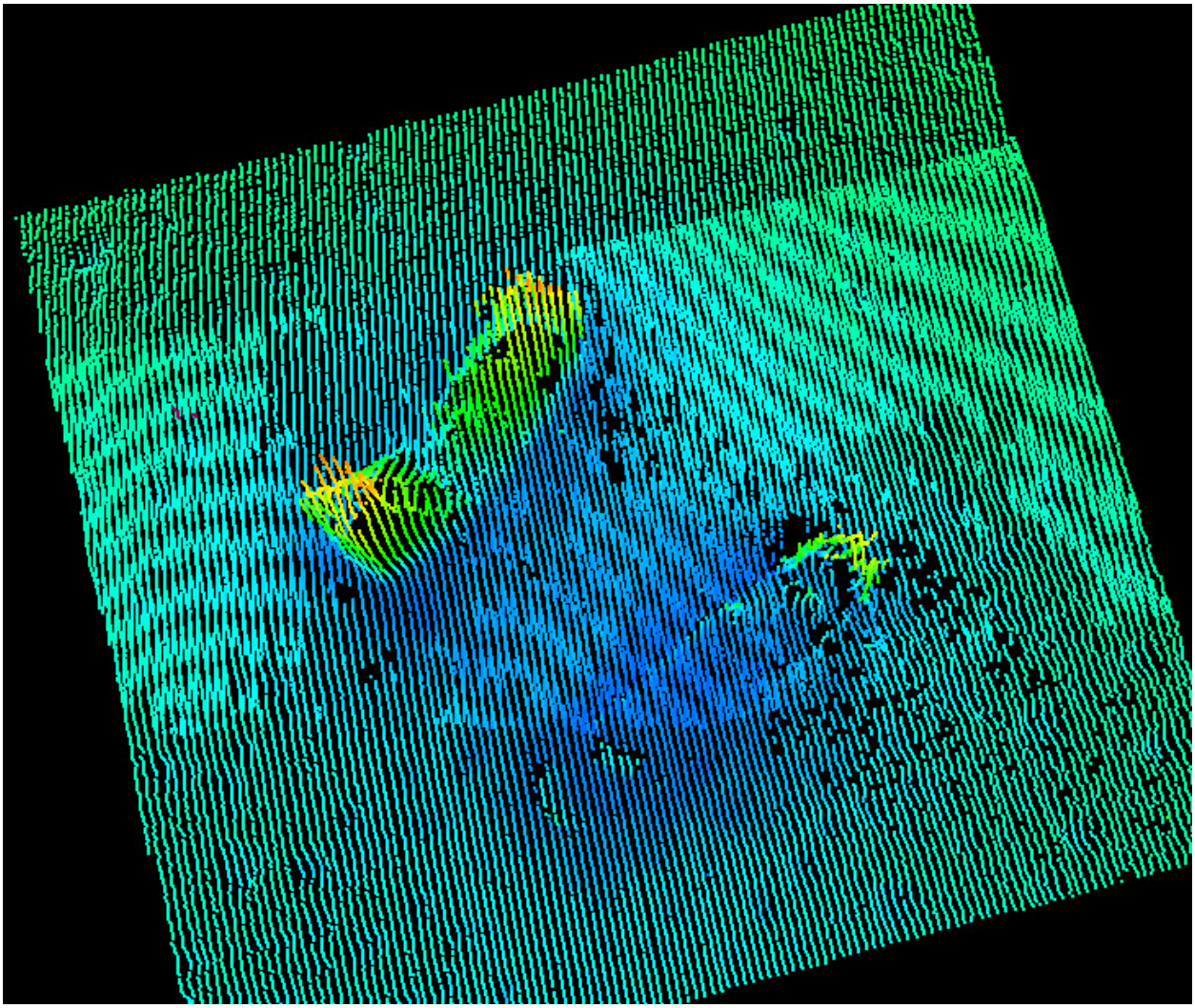


Figure 2.5.1

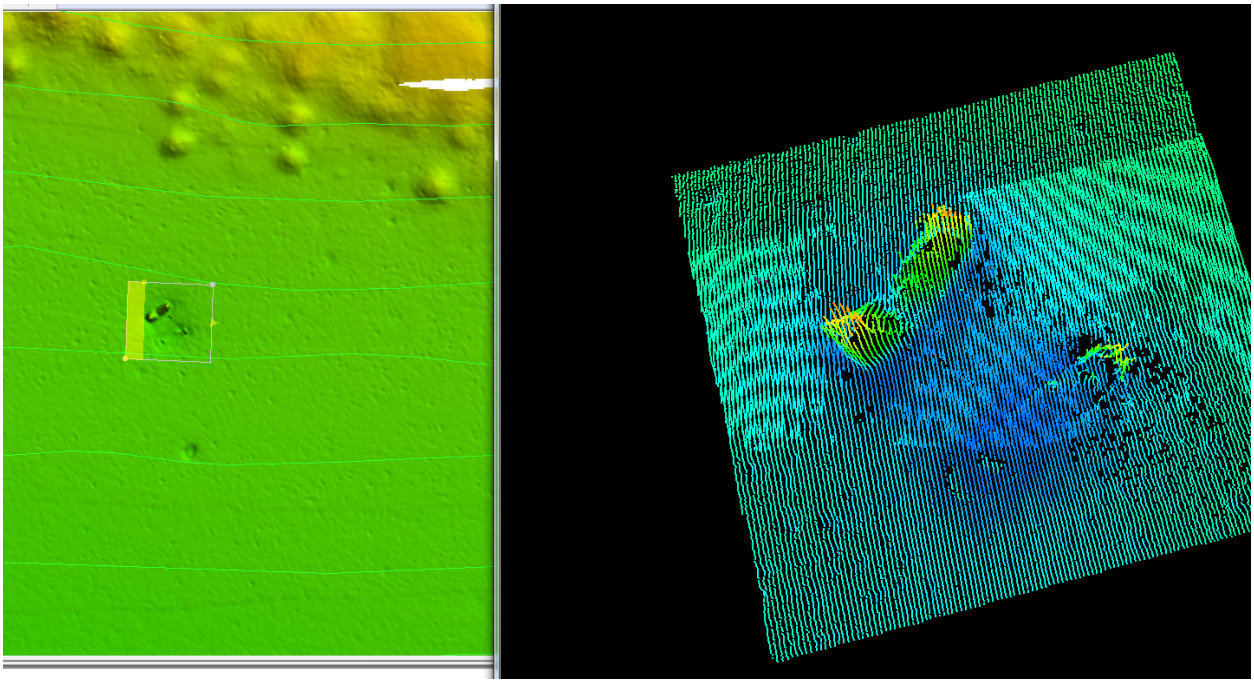


Figure 2.5.2

2.6) US 0000059328 00001

Survey Summary

Survey Position:	33° 45' 24.6" N, 118° 09' 34.7" W
Least Depth:	7.63 m (= 25.03 ft = 4.172 fm = 4 fm 1.03 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059328 00001(02260000E7C00001)
Charts Affected:	18751_1, 18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

New wreck.

Hydrographer Recommendations

Chart new wreck at surveyed position.

Cartographically-Rounded Depth (Affected Charts):

25ft (18751_1, 18749_1)

4fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

7.6m (501_1, 50_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	NINFOM - Chart wreck
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 7.630 m
	WATLEV - 3:always under water/submerged

Feature Images

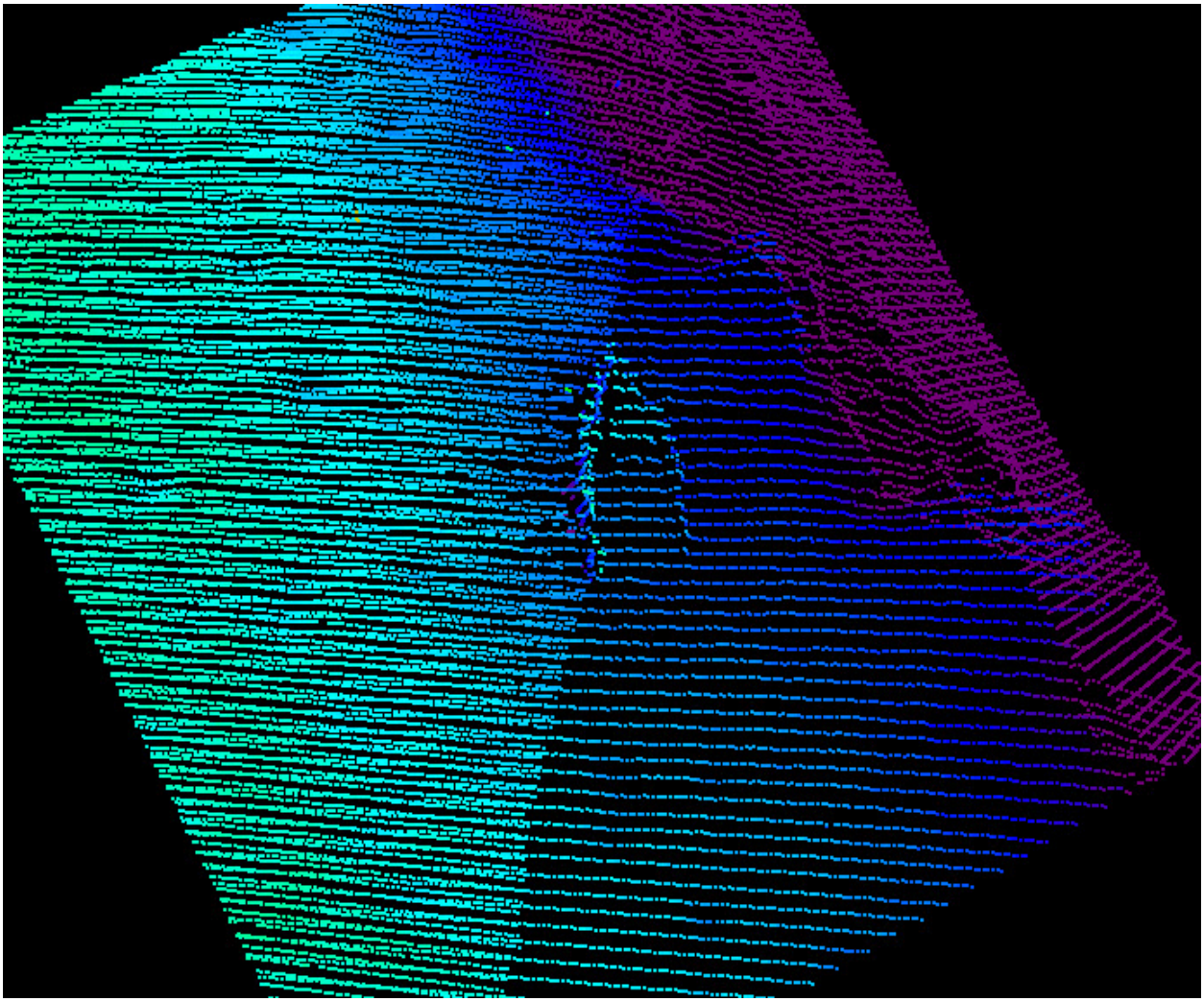


Figure 2.6.1

2.7) US 0000059332 00001

Survey Summary

Survey Position:	33° 45' 16.9" N, 118° 08' 59.6" W
Least Depth:	6.42 m (= 21.06 ft = 3.510 fm = 3 fm 3.06 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059332 00001(02260000E7C40001)
Charts Affected:	18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

New wreck.

Hydrographer Recommendations

Chart new wreck at surveyed position. New value of sounding.

Cartographically-Rounded Depth (Affected Charts):

21ft (18749_1)

3 ½fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

6.4m (501_1, 50_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 1:non-dangerous wreck
	NINFOM - Chart wreck
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 6.420 m
	WATLEV - 3:always under water/submerged

Feature Images

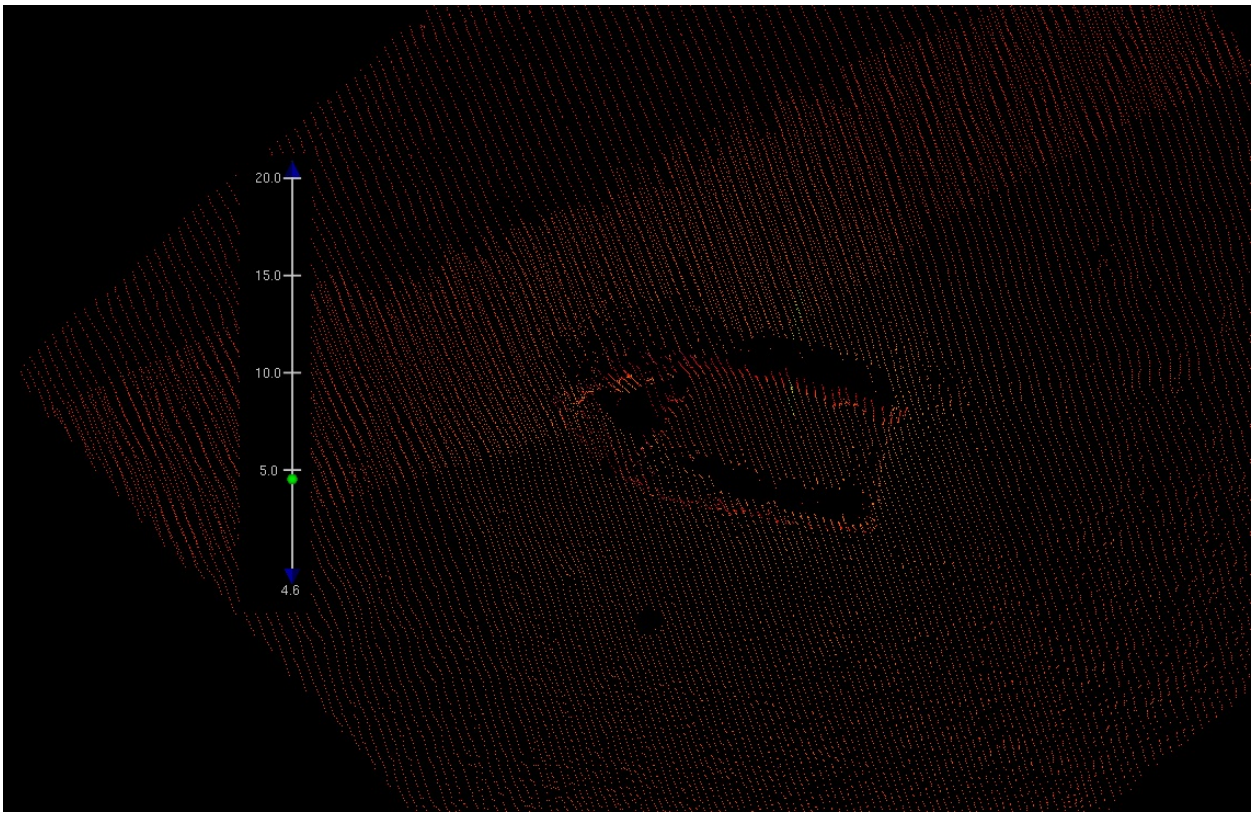


Figure 2.7.1

2.8) US 0000059321 00001

Survey Summary

Survey Position:	33° 45' 21.4" N, 118° 08' 57.6" W
Least Depth:	6.11 m (= 20.05 ft = 3.341 fm = 3 fm 2.05 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059321 00001(02260000E7B90001)
Charts Affected:	18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

WRECKS/remrks: New wreck

Hydrographer Recommendations

Chart wreck at surveyed position.

Cartographically-Rounded Depth (Affected Charts):

20ft (18749_1)

3 ¼fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

6.1m (501_1, 50_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 1:non-dangerous wreck
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 6.110 m
	WATLEV - 3:always under water/submerged

Feature Images

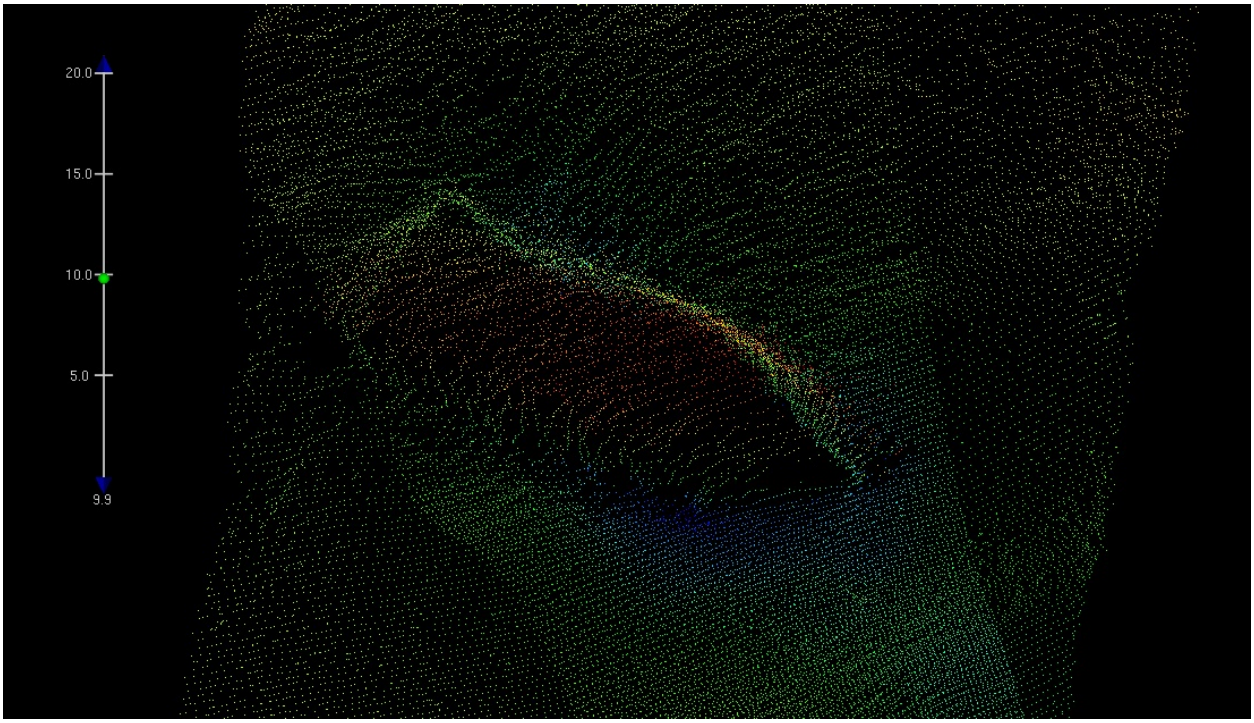


Figure 2.8.1

2.9) US 0000059341 00001

Survey Summary

Survey Position:	33° 44' 54.2" N, 118° 08' 49.8" W
Least Depth:	5.62 m (= 18.44 ft = 3.073 fm = 3 fm 0.44 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059341 00001(02260000E7CD0001)
Charts Affected:	18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

WRECKS/remrks: AWOIS#52896, chd (18749) obstruction verified by full coverage MBES. New value of sounding and position.

This features does not correspond to AWOIS #52896. It corresponds to #53257.

Hydrographer Recommendations

Chart surveyed soundings.

Cartographically-Rounded Depth (Affected Charts):

18ft (18749_1)

3fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

5.6m (501_1, 50_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	NINFOM - Chart wreck
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 5.620 m
	WATLEV - 3:always under water/submerged

New wreck #2.9 equates to AWOIS #53257 (See additional AWOIS Items under table of Features at beginning of report.). Lat. 33° 44’ 54.201" N, Long. 118° 08' 49.760" W. Search radius used to investigate and determine a new position and depth for a charted wreck.

2.10) US 0000059333 00001

Survey Summary

Survey Position:	33° 43' 28.2" N, 118° 08' 42.3" W
Least Depth:	13.67 m (= 44.85 ft = 7.475 fm = 7 fm 2.85 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059333 00001(02260000E7C50001)
Charts Affected:	18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

New wreck.

Hydrographer Recommendations

Chart new wreck at surveyed position.

Cartographically-Rounded Depth (Affected Charts):

45ft (18749_1)

7 ½fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

13.6m (501_1, 50_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	NINFOM - Chart wreck
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 13.670 m
	WATLEV - 3:always under water/submerged

Feature Images

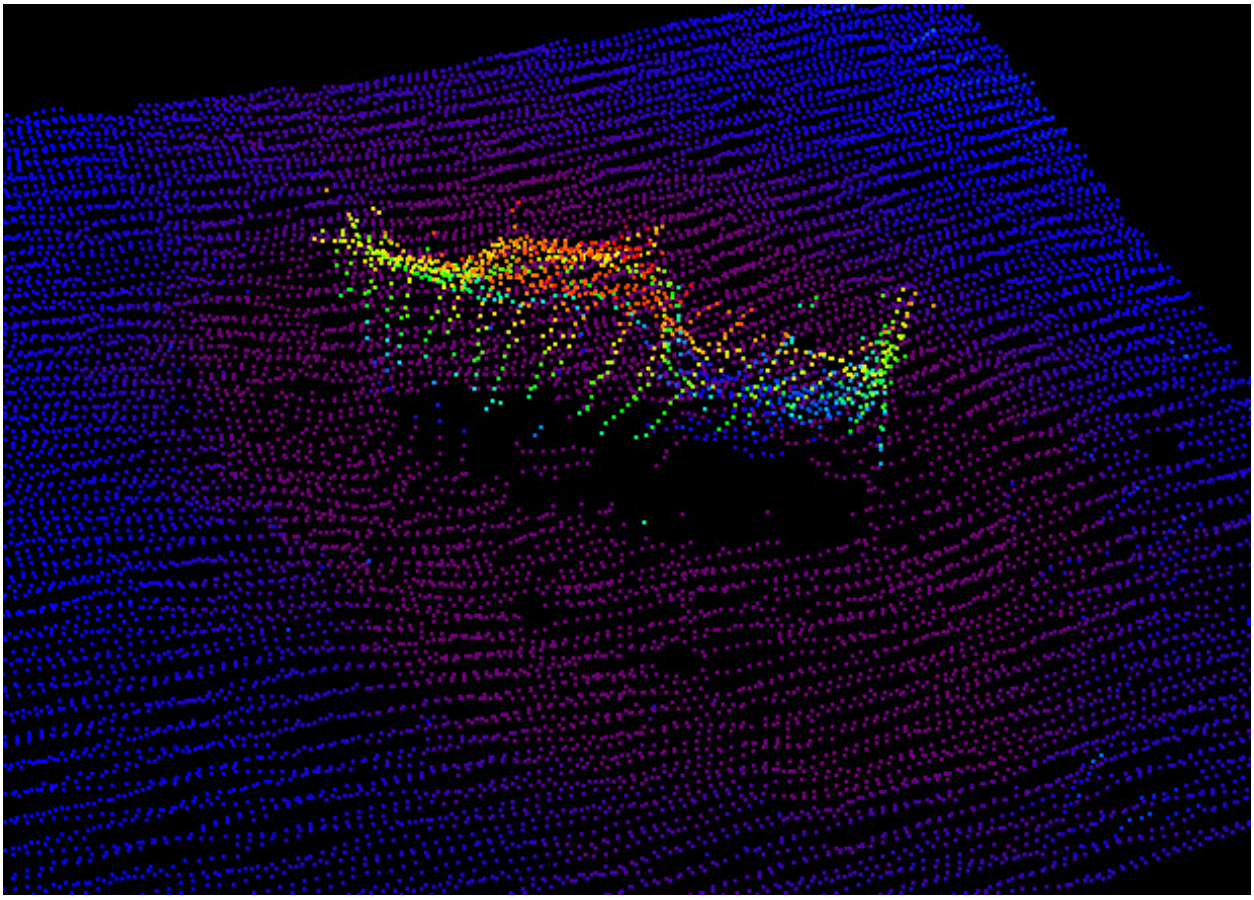


Figure 2.10.1

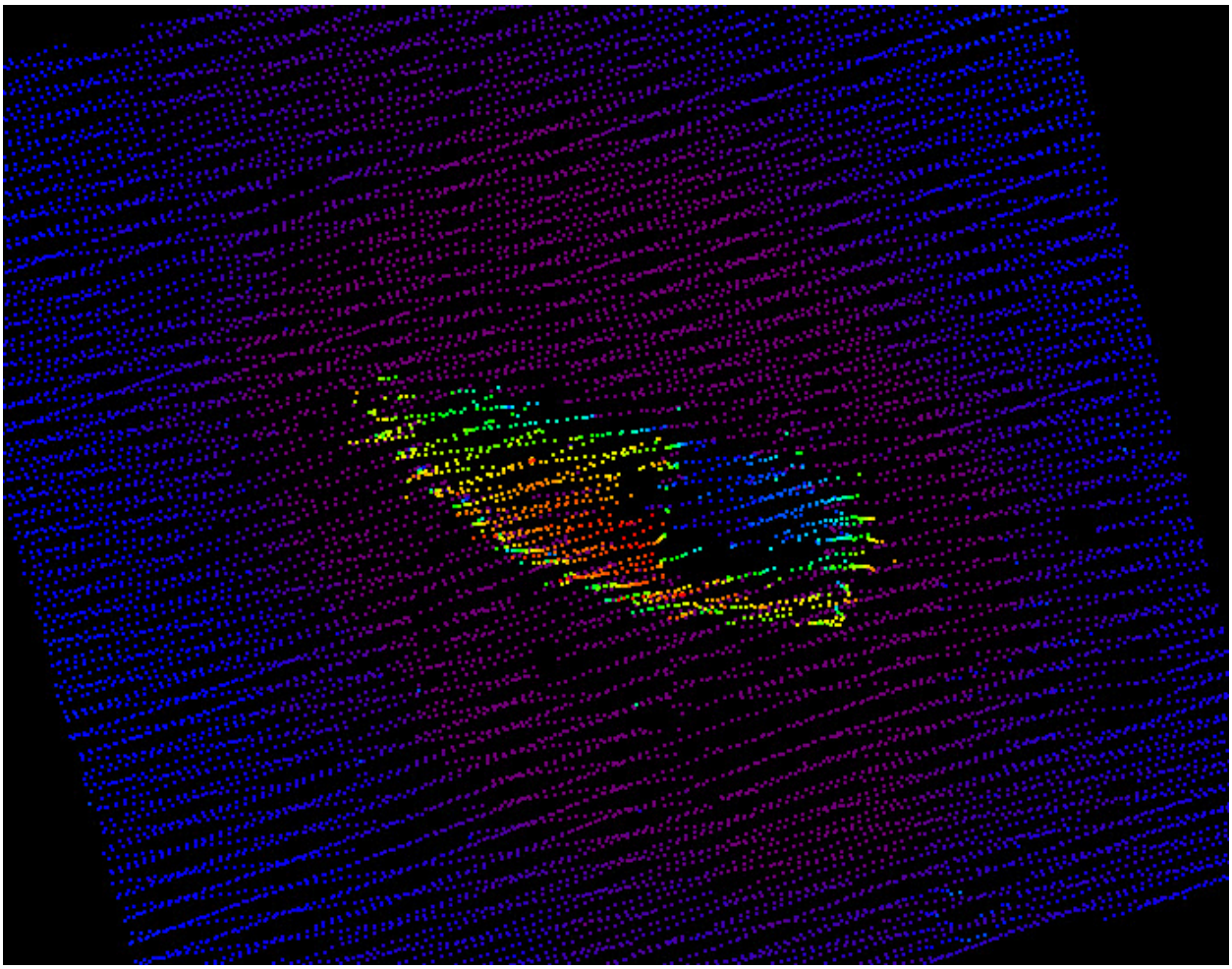


Figure 2.10.2

2.11) US 0000059323 00001

Survey Summary

Survey Position:	33° 43' 25.1" N, 118° 08' 27.6" W
Least Depth:	10.78 m (= 35.36 ft = 5.894 fm = 5 fm 5.36 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059323 00001(02260000E7BB0001)
Charts Affected:	18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

WRECKS/remrks: chd (18749) wreck verified, new value of sounding and position.

Hydrographer Recommendations

Chart surveyed soundings.

Cartographically-Rounded Depth (Affected Charts):

35ft (18749_1)

5 ¾fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

10.8m (501_1, 50_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	NINFOM - Chart wreck
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 10.779 m
	WATLEV - 3:always under water/submerged

Corresponds to AWOIS 53263. New position and least depth of charted wreck, Lat. 33° 43’ 17.977" N, Long. 118° 09' 07.461" W.

2.12) US 0000059319 00001

Survey Summary

Survey Position:	33° 41' 09.3" N, 118° 08' 12.3" W
Least Depth:	21.31 m (= 69.91 ft = 11.652 fm = 11 fm 3.91 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059319 00001(02260000E7B70001)
Charts Affected:	18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

New wreck.

Hydrographer Recommendations

Chart new wreck at surveyed position.

Cartographically-Rounded Depth (Affected Charts):

70ft (18749_1)

11ft (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

21m (501_1, 50_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 1:non-dangerous wreck
	NINFOM - Chart wreck
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 21.310 m
	WATLEV - 3:always under water/submerged

Feature Images

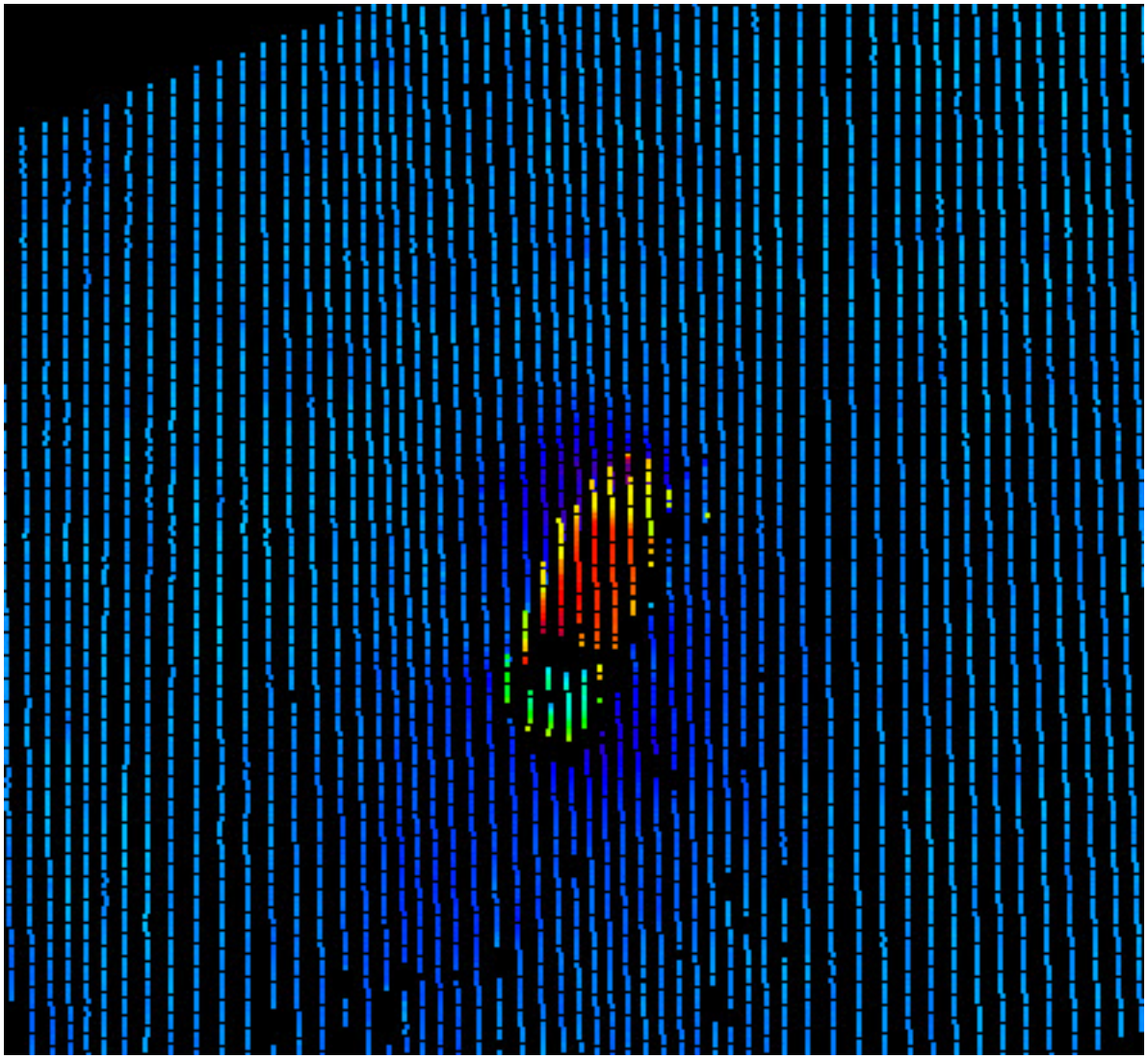


Figure 2.12.1

2.13) US 0000059345 00001

Survey Summary

Survey Position:	33° 43' 37.1" N, 118° 07' 52.4" W
Least Depth:	11.87 m (= 38.94 ft = 6.491 fm = 6 fm 2.94 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059345 00001(02260000E7D10001)
Charts Affected:	18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

OBSTRN/remrks: AWOIS#53257, chd (18749) obstruction verified by full coverage MBES. New value of sounding.

Does not correspond to AWOIS #53257, or any AWOIS Item.

Hydrographer Recommendations

Chart surveyed soundings.

Cartographically-Rounded Depth (Affected Charts):

39ft (18749_1)

6 ½fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

11.8m (501_1, 50_1)

S-57 Data

Geo object 1:	Obstruction (OBSTRN)
Attributes:	NINFOM - Chart obstruction
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 11.870 m
	WATLEV - 3:always under water/submerged

3 - Dangers To Navigation

3.1) US 0000059325 00001

DANGER TO NAVIGATION

Survey Summary

Survey Position:	33° 43' 26.1" N, 118° 10' 22.3" W
Least Depth:	13.20 m (= 43.31 ft = 7.218 fm = 7 fm 1.31 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059325 00001(02260000E7BD0001)
Charts Affected:	18751_1, 18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

WRECKS/remrks: New wreck.

Hydrographer Recommendations

Chart wreck at surveyed position. New value of sounding.

Cartographically-Rounded Depth (Affected Charts):

43ft (18751_1, 18749_1)

7 ¼fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

13.2m (501_1, 50_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 5:wreck showing any portion of hull or superstructure
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 13.200 m
	WATLEV - 3:always under water/submerged

CATWRK should be 2 (dangerous wreck)

Feature Images

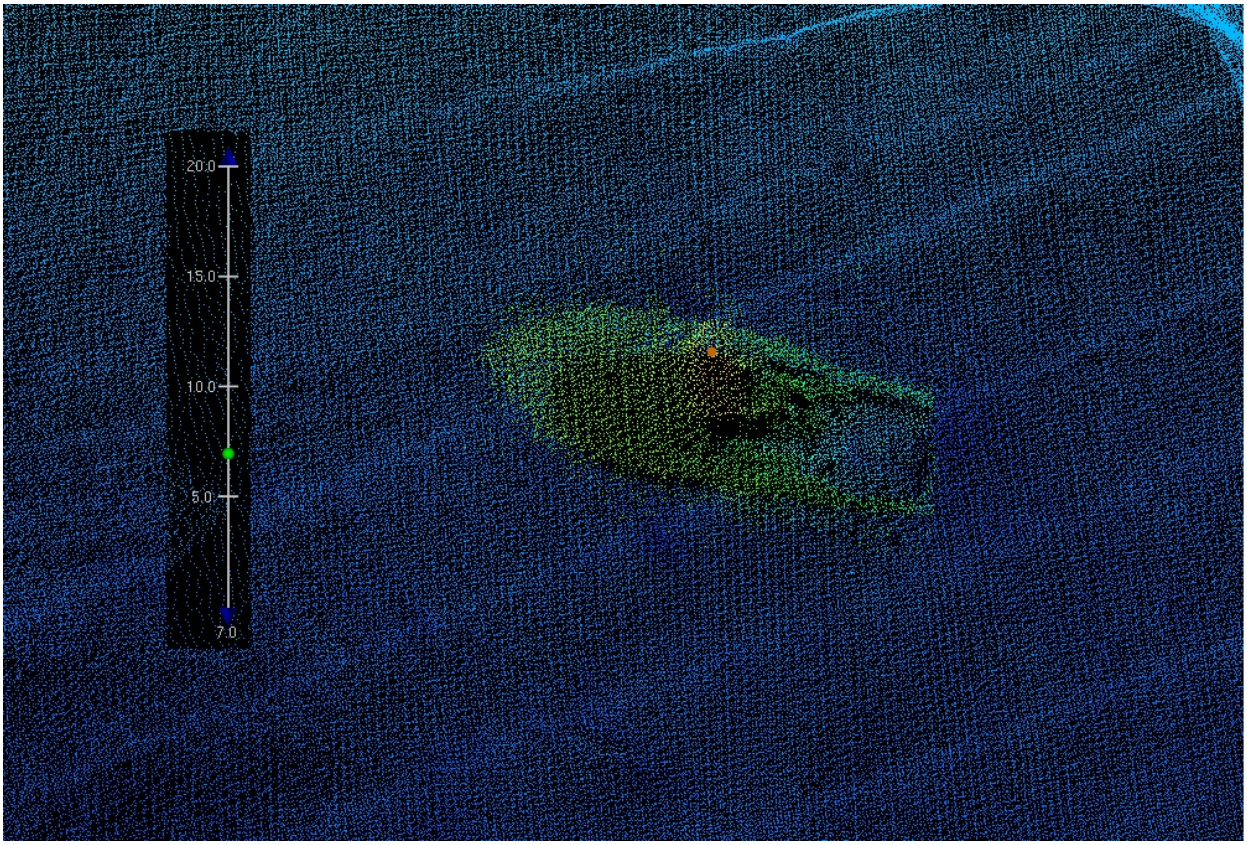


Figure 3.1.1

3.2) US 0000059337 00001

DANGER TO NAVIGATION

Survey Summary

Survey Position:	33° 41' 44.7" N, 118° 08' 42.7" W
Least Depth:	19.41 m (= 63.68 ft = 10.614 fm = 10 fm 3.68 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059337 00001(02260000E7C90001)
Charts Affected:	18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

WRECKS/remrks: New position reported AWOIS#50157.

Hydrographer Recommendations

Chart wreck at surveyed position. New Value of sounding.

Cartographically-Rounded Depth (Affected Charts):

63ft (18749_1)

10 ½fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

19.4m (501_1, 50_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 4:wreck showing mast/masts
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 19.411 m
	WATLEV - 3:always under water/submerged

CATWRK should be 2 (dangerous wreck). Corresponds to AWOIS 50157. New position and least depth of charted wreck, Lat. 33° 41’ 43.731" N, Long. 118° 08' 47.817" W.

Feature Images

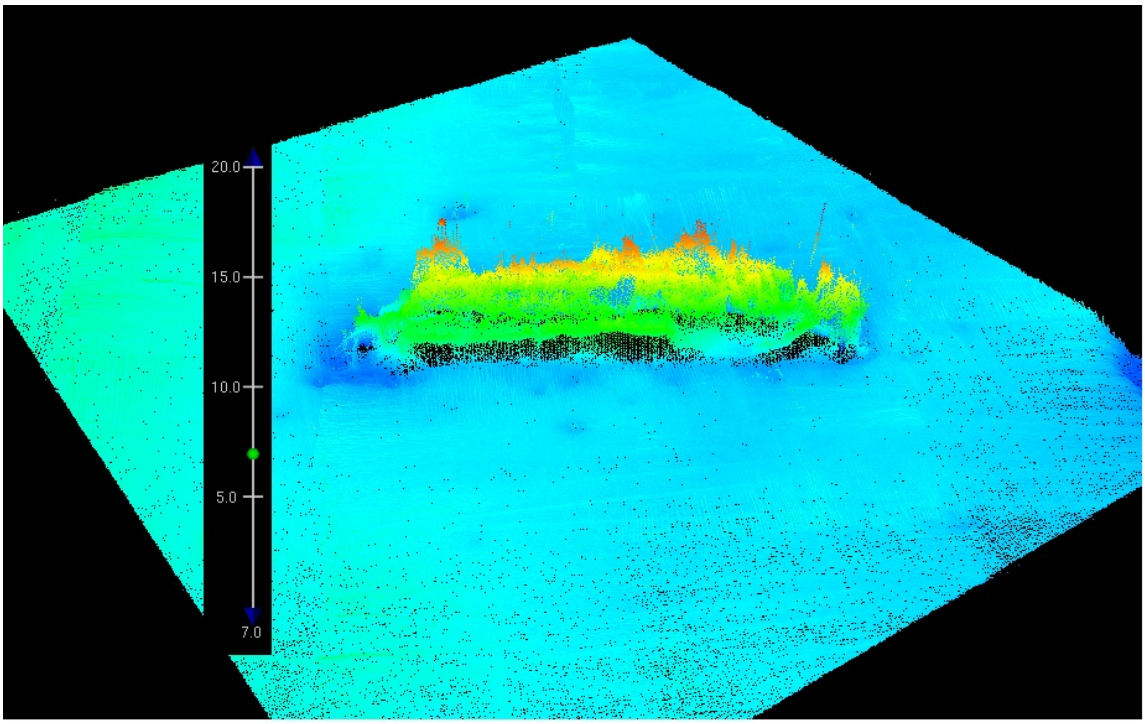


Figure 3.2.1

3.3) US 0000059335 00001

DANGER TO NAVIGATION

Survey Summary

Survey Position:	33° 44' 23.9" N, 118° 08' 11.3" W
Least Depth:	5.40 m (= 17.72 ft = 2.953 fm = 2 fm 5.72 ft)
TPU (±1.96σ):	**THU (TPEh)** [None] ; **TVU (TPEv)** [None]
Timestamp:	2013-308.00:00:00.000 (11/04/2013)
Dataset:	H12618_for_FeatFile.000
FOID:	US 0000059335 00001(02260000E7C70001)
Charts Affected:	18749_1, 18746_1, 18740_1, 18022_1, 18020_1, 501_1, 530_1, 50_1

Remarks:

WRECKS/remrks: New wreck.

Hydrographer Recommendations

Chart wreck at surveyed position. New value of sounding.

Cartographically-Rounded Depth (Affected Charts):

17ft (18749_1)

3fm (18746_1, 18740_1, 18022_1, 18020_1, 530_1)

5.4m (501_1, 50_1)

S-57 Data

Geo object 1:	Wreck (WRECKS)
Attributes:	CATWRK - 2:dangerous wreck
	QUASOU - 6:least depth known
	SORDAT - 20131104
	SORIND - US,US,graph,H12618
	TECSOU - 3:found by multi-beam
	VALSOU - 5.400 m
	WATLEV - 3:always under water/submerged

Least depth of new wreck is located at 33° 44' 23.571" N, 118° 08' 11.000" W

Feature Images

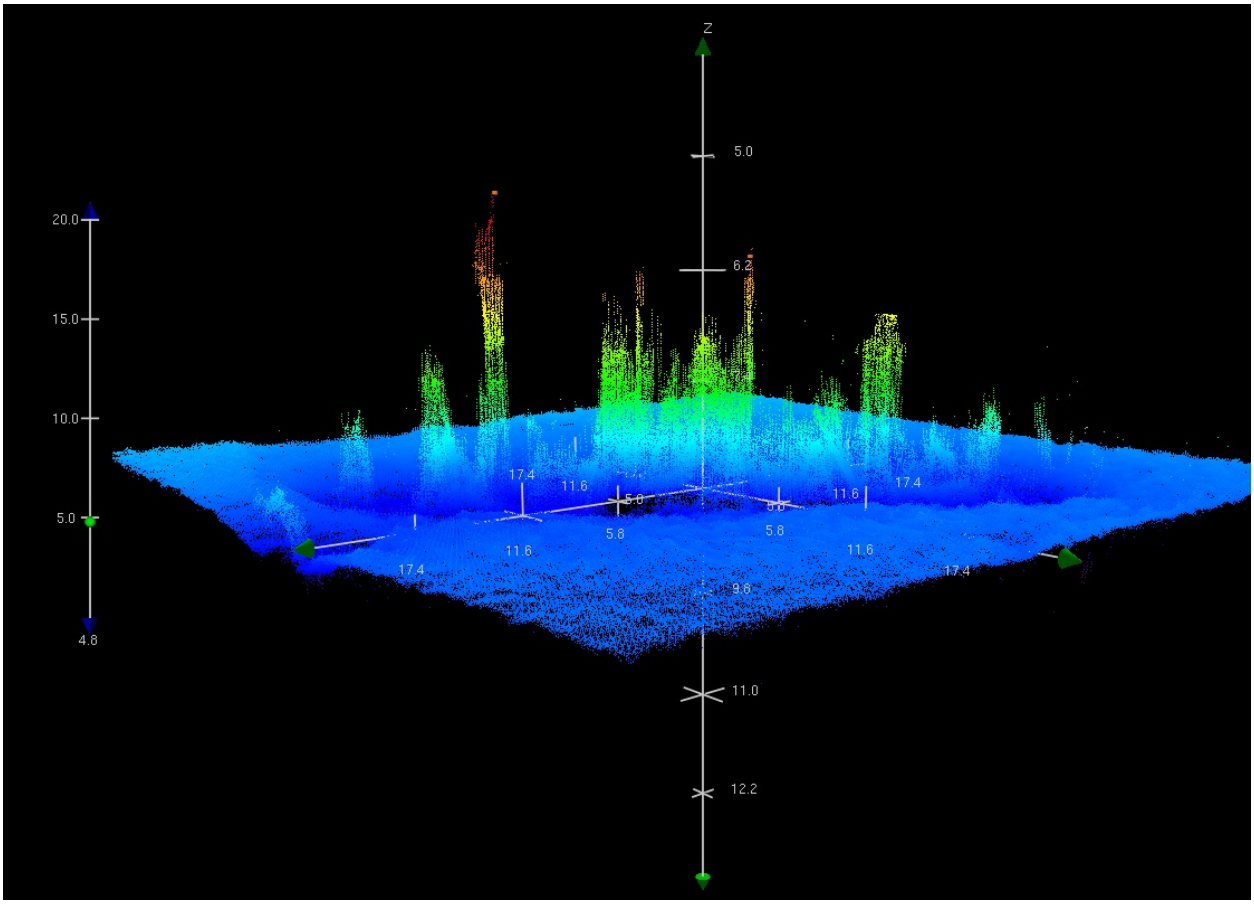


Figure 3.3.1

APPROVAL PAGE

H12618

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

- H12618_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12618_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: 2014.12.18 10:25:15 -08'00'

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: 2014.12.18 10:15:39 -08'00'

Approved:_____

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