

H12942

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

DESCRIPTIVE REPORT

Type of Survey: Basic Hydrographic Survey

Registry Number: H12942

LOCALITY

State(s): Louisiana

General Locality: Gulf of Mexico

Sub-locality: 19 NM West of SW Pass

2016

CHIEF OF PARTY
David Neff, ACSM C.H.

LIBRARY & ARCHIVES

Date:

HYDROGRAPHIC TITLE SHEET

H12942

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): **Louisiana**

General Locality: **Gulf of Mexico**

Sub-Locality: **19 NM West of SW Pass**

Scale: **40000**

Dates of Survey: **08/04/2016 to 09/08/2016**

Instructions Dated: **06/29/2016**

Project Number: **OPR-K339-KR-16**

Field Unit: **eTrac Inc.**

Chief of Party: **David Neff, ACSM C.H.**

Soundings by: **Multibeam Echo Sounder**

Imagery by: **Multibeam Echo Sounder Backscatter**

Verification by: **Atlantic Hydrographic Branch**

Soundings Acquired in: **meters at Mean Lower Low Water**

Remarks:

All times are UTC. The purpose of this survey is to update existing NOS nautical charts. H12942 will cover approximately 49 square nautical miles of survey area 19 NM West of SW Pass as designated in NOAA Hydrographic Survey Priorities, 2012 edition. SUBCONSULTANT: Geodynamics LLC, 310A Greenfield Dr., Newport, NC 98570 SUBCONSULTANT: Theory Marine, 777 Viewcrest DR., Ventura, CA 93003 Projections: UTM 16N, WGS 84.

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 Centers for Environmental Information (NCEI) and can be retrieved via <https://www.ncei.noaa.gov/>.

Table of Contents

A. Area Surveyed.....	1
A.1 Survey Limits.....	1
A.2 Survey Purpose.....	2
A.3 Survey Quality.....	3
A.4 Survey Coverage.....	4
A.5 Survey Statistics.....	5
B. Data Acquisition and Processing.....	6
B.1 Equipment and Vessels.....	6
B.1.1 Vessels.....	7
B.1.2 Equipment.....	7
B.2 Quality Control.....	8
B.2.1 Crosslines.....	8
B.2.2 Uncertainty.....	9
B.2.3 Junctions.....	10
B.2.4 Sonar QC Checks.....	14
B.2.5 Equipment Effectiveness.....	14
B.2.6 Factors Affecting Soundings.....	16
B.2.7 Sound Speed Methods.....	16
B.2.8 Coverage Equipment and Methods.....	18
B.2.9 Data Density Evaluation.....	18
B.3 Echo Sounding Corrections.....	18
B.3.1 Corrections to Echo Soundings.....	18
B.3.2 Calibrations.....	19
B.4 Backscatter.....	19
B.5 Data Processing.....	19
B.5.1 Software Updates.....	19
B.5.2 Surfaces.....	20
B.5.3 Water Column Data.....	21
C. Vertical and Horizontal Control.....	22
C.1 Vertical Control.....	22
C.2 Horizontal Control.....	23
D. Results and Recommendations.....	24
D.1 Chart Comparison.....	24
D.1.1 Raster Charts.....	24
D.1.2 Electronic Navigational Charts.....	29
D.1.3 AWOIS Items.....	29
D.1.4 Maritime Boundary Points.....	29
D.1.5 Charted Features.....	29
D.1.6 Uncharted Features.....	29
D.1.7 Dangers to Navigation.....	31
D.1.8 Shoal and Hazardous Features.....	31
D.1.9 Channels.....	32
D.1.10 Bottom Samples.....	32

D.2 Additional Results.....	32
D.2.1 Shoreline.....	32
D.2.2 Prior Surveys.....	32
D.2.3 Aids to Navigation.....	32
D.2.4 Overhead Features.....	32
D.2.5 Submarine Features.....	33
D.2.6 Ferry Routes and Terminals.....	33
D.2.7 Platforms.....	33
D.2.8 Significant Features.....	33
D.2.9 Construction and Dredging.....	33
D.2.10 New Survey Recommendation.....	33
D.2.11 Inset Recommendation.....	33
E. Approval Sheet.....	34

List of Tables

Table 1: Survey Limits.....	1
Table 2: Hydrographic Survey Statistics.....	6
Table 3: Dates of Hydrography.....	6
Table 4: Vessels Used.....	7
Table 5: Major Systems Used.....	7
Table 6: Survey Specific Sound Speed TPU Values.....	9
Table 7: Junctioning Surveys.....	11
Table 8: Submitted Surfaces.....	20
Table 9: Water Level Files (.tid).....	22
Table 10: Tide Correctors (.zdf or .tc).....	23
Table 11: USCG DGPS Stations.....	23
Table 12: Largest Scale Raster Charts.....	24
Table 13: Largest Scale ENCs.....	29
Table 14: DTON Reports.....	31

List of Figures

Figure 1: Survey Limits (black line).....	2
Figure 2: Survey Coverage.....	4
Figure 3: H12762 Crossline Comparison (4m).....	8
Figure 4: H12942 Finalized 4m Complete Coverage MBES TPU Statistics.....	10
Figure 5: H12941 - H12942 Junction Comparison.....	11
Figure 6: H12942 - H12944 Junction Comparison.....	12
Figure 7: H12942 - H12945 Junction Comparison.....	13
Figure 8: H12942 - H12553 Junction Comparison.....	14
Figure 9: Example of R2Sonic 2026 with measurement of vertical error to CUBE surface.....	15
Figure 10: Example of R2Sonic 2026 MBES data with feature detected.....	16
Figure 11: Example of Daily SVP Data Plot (DN230).....	17

<u>Figure 12: Example of Day to Day SVP Comparison (DN230 and DN231)</u>	<u>17</u>
<u>Figure 13: H12942 4m Finalized 4m Complete Coverage MBES Density Distribution Statistics</u>	<u>18</u>
<u>Figure 14: Raw Backscatter From M/V Theory (DN235)</u>	<u>19</u>
<u>Figure 15: H12942_Delivered BASE Surface Coverage Graphic</u>	<u>21</u>
<u>Figure 16: H12944_223 Water Column Data</u>	<u>22</u>
<u>Figure 17: H12942 Contour Comparison (Overview)</u>	<u>25</u>
<u>Figure 18: H12942 Contour Comparison (180ft Contour)</u>	<u>26</u>
<u>Figure 19: H12942 Contour Comparison (240ft Contour)</u>	<u>27</u>
<u>Figure 20: Sounding Comparison (RNC 11358)</u>	<u>28</u>
<u>Figure 21: BSEE Wellhead Example (represented in the surface)</u>	<u>30</u>
<u>Figure 22: BSEE Wellhead Example (location of unassigned charted platform)</u>	<u>31</u>

Descriptive Report to Accompany Survey H12942

Project: OPR-K339-KR-16

Locality: Gulf of Mexico

Sublocality: 19 NM West of SW Pass

Scale: 1:40000

August 2016 - September 2016

eTrac Inc.

Chief of Party: David Neff, ACSM C.H.

A. Area Surveyed

eTrac Inc. conducted hydrographic survey operations in the vicinity of SW Pass, LA. H12942 covers approximately 49 square nautical miles of survey area. 714 linear nautical miles were acquired during the survey. H12942 is generally rectangular in geometry, and is approximately 7 nautical miles wide (E-W) by 8 nautical miles long (N-S).

Survey was conducted within these limits between August 4, 2016 (DN217) and September 8, 2016 (DN252).

A.1 Survey Limits

Data were acquired within the following survey limits:

Northwest Limit	Southeast Limit
28° 56' 6.53" N 98° 49' 32.15" W	28° 47' 43.66" N 89° 42' 1.67" W

Table 1: Survey Limits

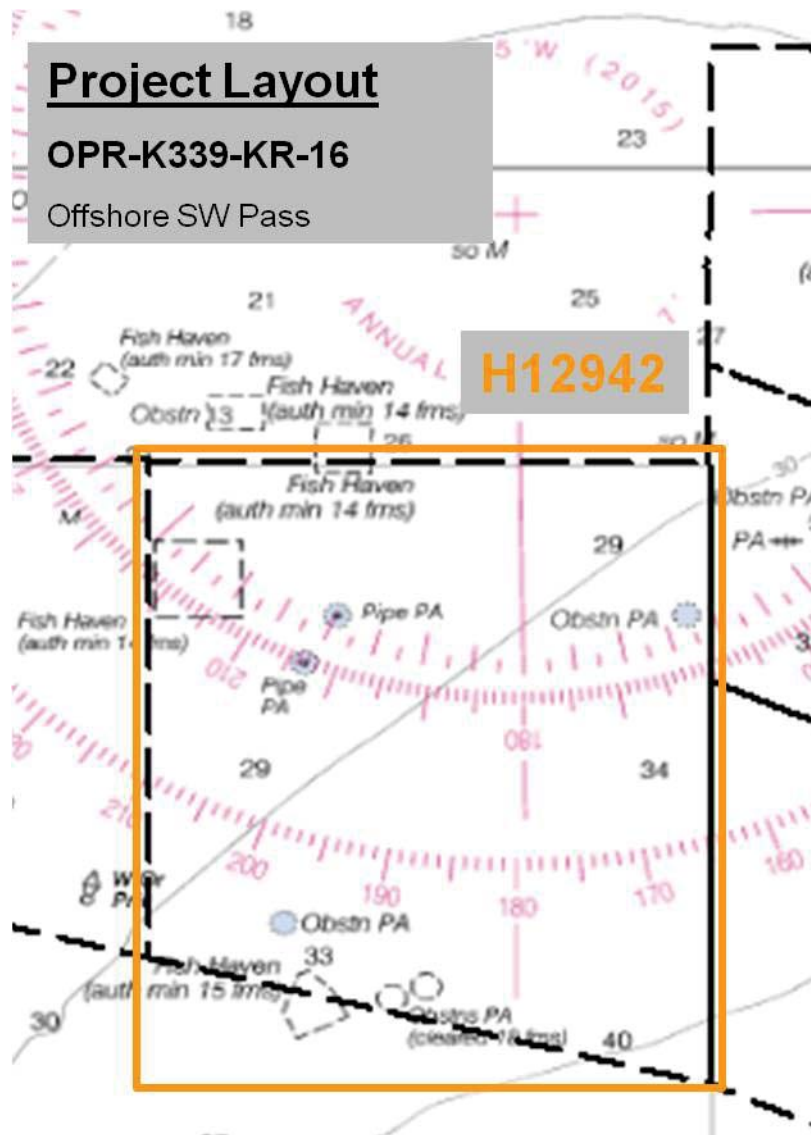


Figure 1: Survey Limits (black line)

All data were acquired in accordance with the requirements in the Project Instructions and specifications set forth in the Hydrographic Survey Specifications and Deliverables 2016 Edition (HSSD 2016).

A.2 Survey Purpose

The purpose of this survey is to update existing NOS nautical charts. H12942 covers approximately 49 square nautical miles of survey area 19 NM West of SW Pass as designated in NOAA Hydrographic Survey Priorities, 2012 edition.

A.3 Survey Quality

The entire survey is adequate to supersede previous data.

Survey H12942 is accurate to IHO Order 1a as required per the HSSD 2016.

A.4 Survey Coverage

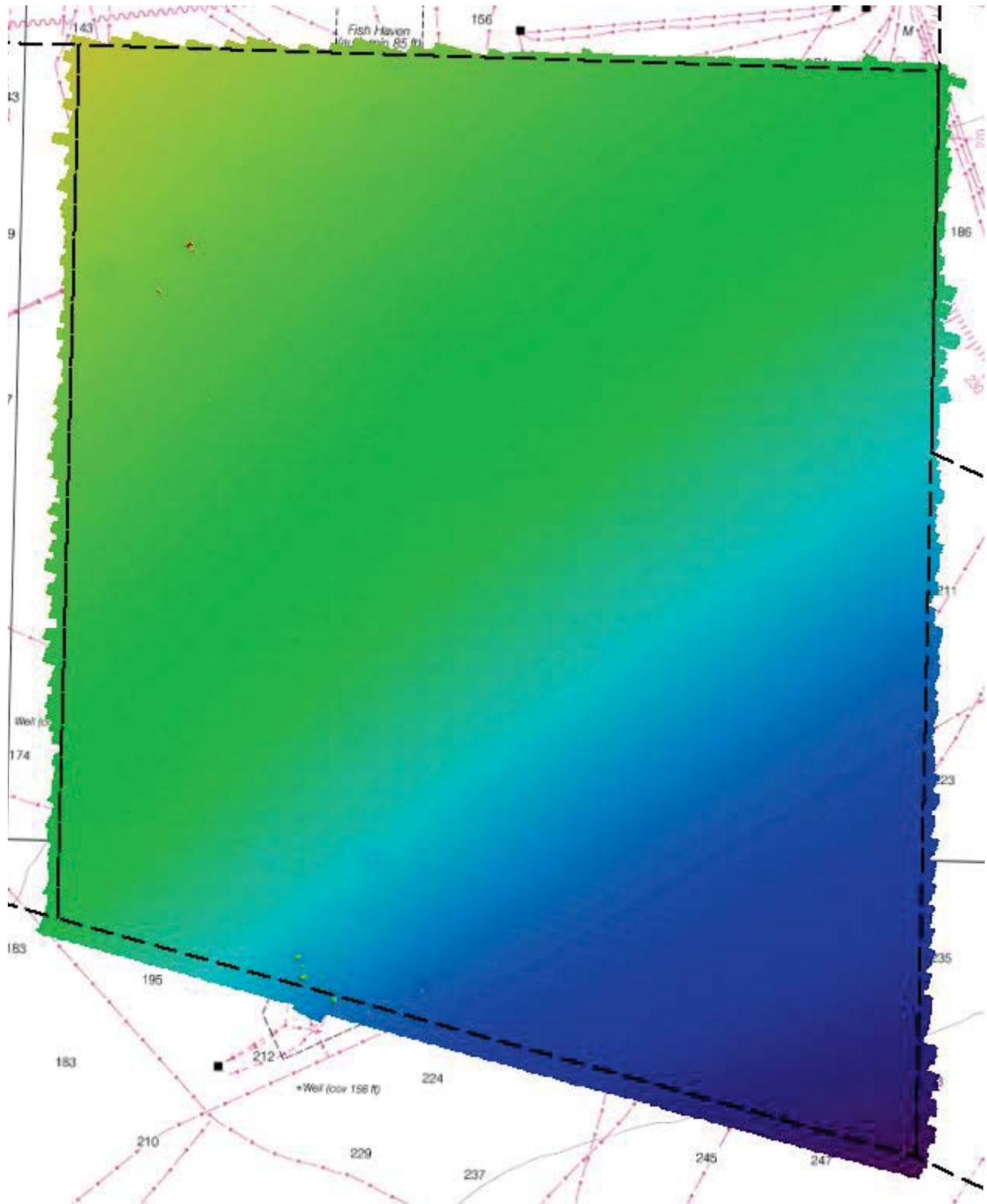


Figure 2: Survey Coverage

Survey Coverage was in accordance with the requirements in the Project Instructions and HSSD 2016. Depths in H12942 range from 26 to 77 meters. H12942 was surveyed to Complete Coverage MBES with backscatter standards set forth in the HSSD 2016.

A.5 Survey Statistics

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

	HULL ID	<i>Theory</i>	<i>Benthos</i>	<i>Taku</i>	<i>Total</i>
LNM	SBES Mainscheme	0	0	0	0
	MBES Mainscheme	312	377	30	719
	Lidar Mainscheme	0	0	0	0
	SSS Mainscheme	0	0	0	0
	SBES/SSS Mainscheme	0	0	0	0
	MBES/SSS Mainscheme	0	0	0	0
	SBES/MBES Crosslines	0	32	0	32
	Lidar Crosslines	0	0	0	0
Number of Bottom Samples					5
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					49

Table 2: Hydrographic Survey Statistics

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

Survey Dates	Day of the Year
08/04/2016	217
08/05/2016	218
08/06/2016	219
08/07/2016	220
08/09/2016	222
08/17/2016	230
08/18/2016	231
08/19/2016	232
08/20/2016	233
08/21/2016	234
08/22/2016	235
08/23/2016	236
08/24/2016	237
08/25/2016	238
08/26/2016	239
09/03/2016	247
09/07/2016	251
09/08/2016	252

Table 3: Dates of Hydrography

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 are discussed in the following sections.

B.1.1 Vessels

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

Hull ID	<i>M/V Theory</i>	<i>R/V Benthos</i>	<i>R/V Taku</i>
LOA	11 meters	10 meters	10 meters
Draft	0.75 meters	0.6 meters	0.6 meters

Table 4: Vessels Used

The R/V Benthos is a 10 meter aluminum catamaran equipped with a custom over-the-side (port) multibeam hydraulic pole mount, as well as a downrigger for SVP deployment.

The R/V Taku is a 10 meter aluminum catamaran equipped with two Universal Sonar Mount (USM) over-the-side (port or port and starboard) multibeam mount(s), as well as an electric pot puller for SVP deployment.

The M/V Theory is a 11 meter aluminum catamaran equipped with an Universal Sonar Mount (USM) over-the-stern multibeam mount, as well as an A-frame for SVP deployment.

B.1.2 Equipment

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

Manufacturer	Model	Type
R2Sonic	2024	MBES
R2Sonic	2026	MBES
Applanix	POSMV 320 V5	Positioning and Attitude System
AML	Base.X	Sound Speed System
AML	Base.X2	Sound Speed System
Trimble	SPS461	Positioning System
Trimble	DSM232	Positioning System

Table 5: Major Systems Used

Note: The major systems listed above were used on each vessel. M/V Theory utilized an AML Base.X2 for the sound speed system, a R2Sonic 2024 for MBES, and a POSMV 320 V5 and Trimble DSM232 for the positioning system. R/V Benthos utilized an AML Base.X for the sound speed system, a R2Sonic 2024 for

MBES, and a POSMV 320 V5 and Trimble SPS461 for the positioning system. From DN234 until DN236, R/V Benthos utilized a R2Sonic 2026 for MBES. R/V Taku utilized an AML Base.X2 for the sound speed system, a R2Sonic 2024 for MBES, and a POSMV 320 V5 and Trimble DSM232 for the positioning system. From DN213 until DN236, R/V Taku utilized a dual head system with two R2Sonic 2024s.

B.2 Quality Control

B.2.1 Crosslines

Crosslines acquired for this survey totaled 4% of mainscheme acquisition.

A comparison of crossline mileage to mainscheme mileage yields a crossline percentage of 4.39%, and is noted to be above the required 4%.

A beam-by-beam statistical analysis was performed using the Line QC reporting tool in Caris HIPS and SIPS 9.1. A 4 meter CUBE weighted BASE surface was created incorporating only the mainscheme lines and excluded crosslines. The Line QC reporting tool was used to perform the beam-by-beam comparison of the crossline data to the mainscheme surface. Comparisons showed excellent agreement, well above 95% of the allowable TVU.

Note: This surface was created for QC only and is not submitted as a surface deliverable.

The beam-to-beam crossline comparison report generated through the Caris QC Reporting tool is included in Separate II.

Below is a graph of crossline comparison statistics showing IHO Order 1a compliance per beam.

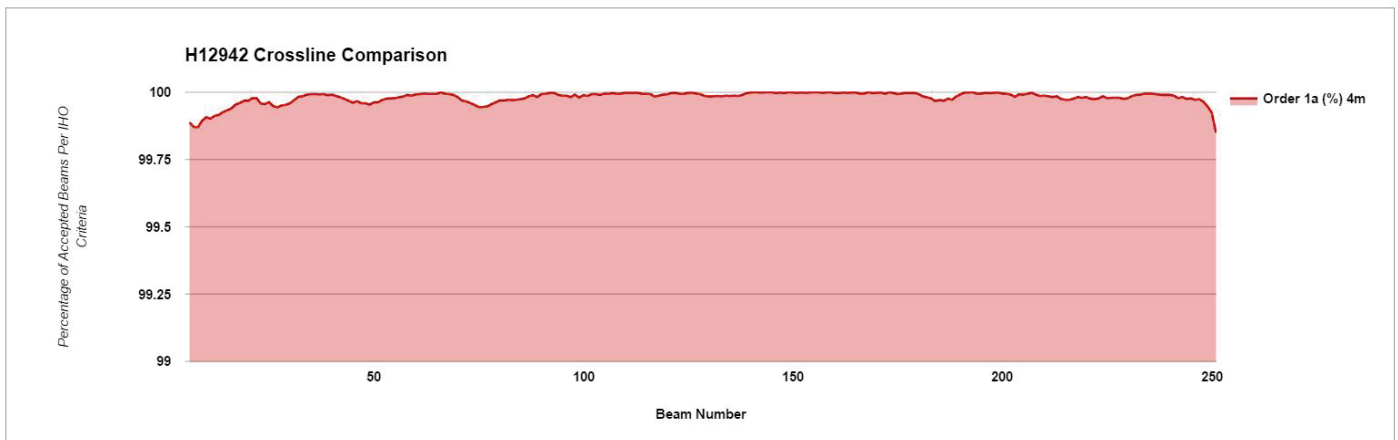


Figure 3: H12762 Crossline Comparison (4m)

B.2.2 Uncertainty

Hull ID	Measured - CTD	Measured - MVP	Surface
M/V Theory	4 meters/second	0 meters/second	2 meters/second
R/V Benthos	4 meters/second	0 meters/second	2 meters/second
R/V Taku	4 meters/second	0 meters/second	2 meters/second

Table 6: Survey Specific Sound Speed TPU Values

Note: The survey specific tide TPU values for measured and zoning tides are computed internally within TCARI.

Standard deviation and uncertainty child layers of BASE surfaces were utilized during data processing to search for features, water column noise, and systematic errors.

A custom child layer was created within the BASE surface utilizing the Deep and Shoal layers in the following configuration:

$$\text{Custom Layer} = (\text{Deep} - \text{Shoal})^2$$

By viewing this custom layer, seafloor features, water column noise, and systematic errors are graphically exaggerated and can easily be identified for further examination.

A TVU QC layer was created within the BASE surface utilizing the Uncertainty and Depth child layers in the following configuration:

$$-\text{Uncertainty}/((0.5^2 + ((\text{Depth} * 0.013)^2))^0.5)$$

By viewing the TVU QC layer, nodes that exceed the IHO Order 1a uncertainty standards can be identified and further analyzed.

Standard deviation and uncertainty were quantified using the QC Reporting tool within Caris HIPS and SIPS 9.1. The option "Greater of the two" was selected in the reporting tool in order to generate statistics quantifying the maximum error occurring within the data. IHO Order 1a uncertainty specification was met by 100% of the nodes. Each BASE surface's uncertainty QC report generated through the Caris QC Reporting tool is included in Separate II.

The Total Propagated Uncertainty (TPU) was evaluated using the TPUTrac program in the AmiTrac program, developed in-house by eTrac Inc. Each finalized BASE surface's nodes were exported to an ASCII CSV file where the fields were (Easting, Northing, Depth, Uncertainty, Density) for each node. The CSV file was then loaded into the TPUTrac program and the TPU statistics were computed. A file was also created

in this process to locate any points that exceed the allowable TPU, which was imported into Caris HIPS and SIPS 9.1 and any identified points from TPUTrac were analyzed and evaluated.

For H12942 the following percentages represent the results of the TPU testing:

Complete Coverage MBES (Finalized 4m CUBE weighted BASE Surface) = 99.9998% of nodes are within allowable TPU.

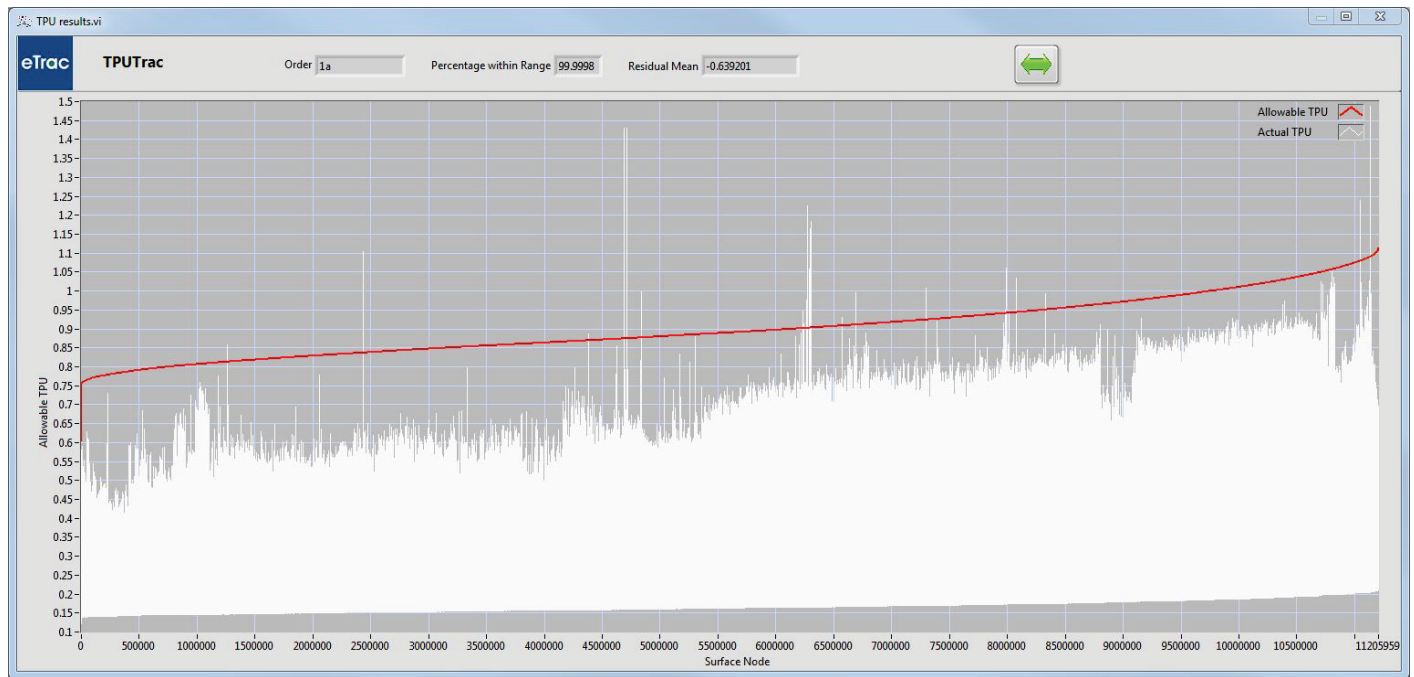


Figure 4: H12942 Finalized 4m Complete Coverage MBES TPU Statistics

B.2.3 Junctions

Depth differences between junctioning surveys were evaluated using the JunctionTrac program, developed in-house by eTrac Inc. For each junction, each BASE surface's nodes were exported to an ASCII CSV file where the fields were (Easting, Northing, Depth) for each node. A 4m difference surface between the junctioning datasets was also created and exported to an ASCII CSV file where the fields were (Easting, Northing, Diff) for each node. The three ASCII CSV files were then loaded into the JunctionTrac program and junction statistics were computed. A file was also created in this process to locate any nodes from the difference surface that exceed the allowable TVU, which was imported into Caris HIPS and SIPS 9.1 and any identified points from JunctionTrac were analyzed. Note: the difference surfaces were created for comparison efforts only and are not submitted as surface deliverables.

The following junctions were made with this survey:

Registry Number	Scale	Year	Field Unit	Relative Location
H12941	1:20000	2016	eTrac Inc.	W
H12944	1:40000	2016	eTrac Inc.	NE
H12945	1:40000	2016	eTrac Inc.	SE
H12553	1:40000	2013	Oceans Surveys, Inc.	N

Table 7: Junctioning Surveys

H12941

H12942 junctions with H12941 to the west. The junction comparison was performed using approximately 260m of overlapping data between H12941 and H12942. Depth differences were evaluated using the JunctionTrac program, developed in-house by eTrac Inc.

Below is a histogram of junction comparison statistics showing the difference between the junctioning surfaces and allowable TVU. 99.9613% of nodes were within allowable TVU. Junction comparison statistics are also included in Separate II.

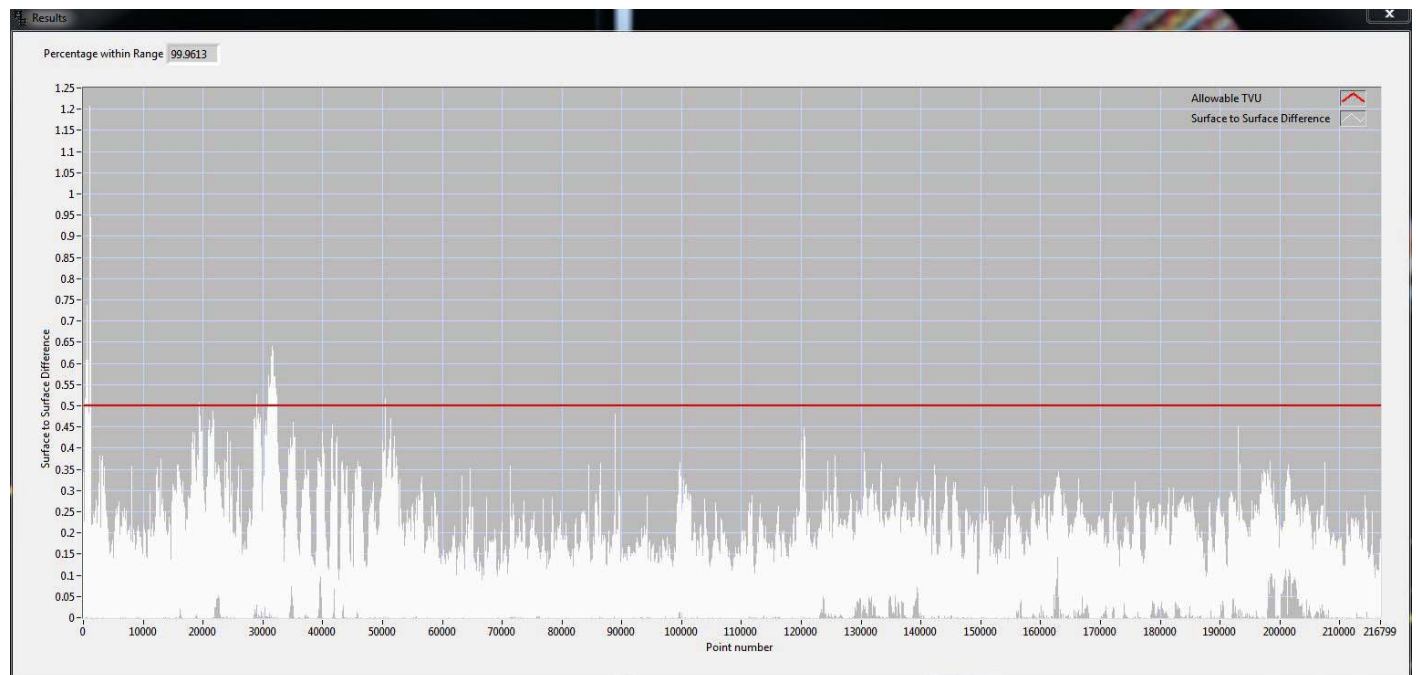


Figure 5: H12941 - H12942 Junction Comparison

H12944

H12942 junctions with H12944 to the northeast. The junction comparison was performed using approximately 310m of overlapping data between H12942 and H12944. Depth differences were evaluated using the JunctionTrac program, developed in-house by eTrac Inc.

Below is a histogram of junction comparison statistics showing the difference between the junctioning surfaces and allowable TVU. 100% of nodes were within allowable TVU. Junction comparison statistics are also included in Separate II.

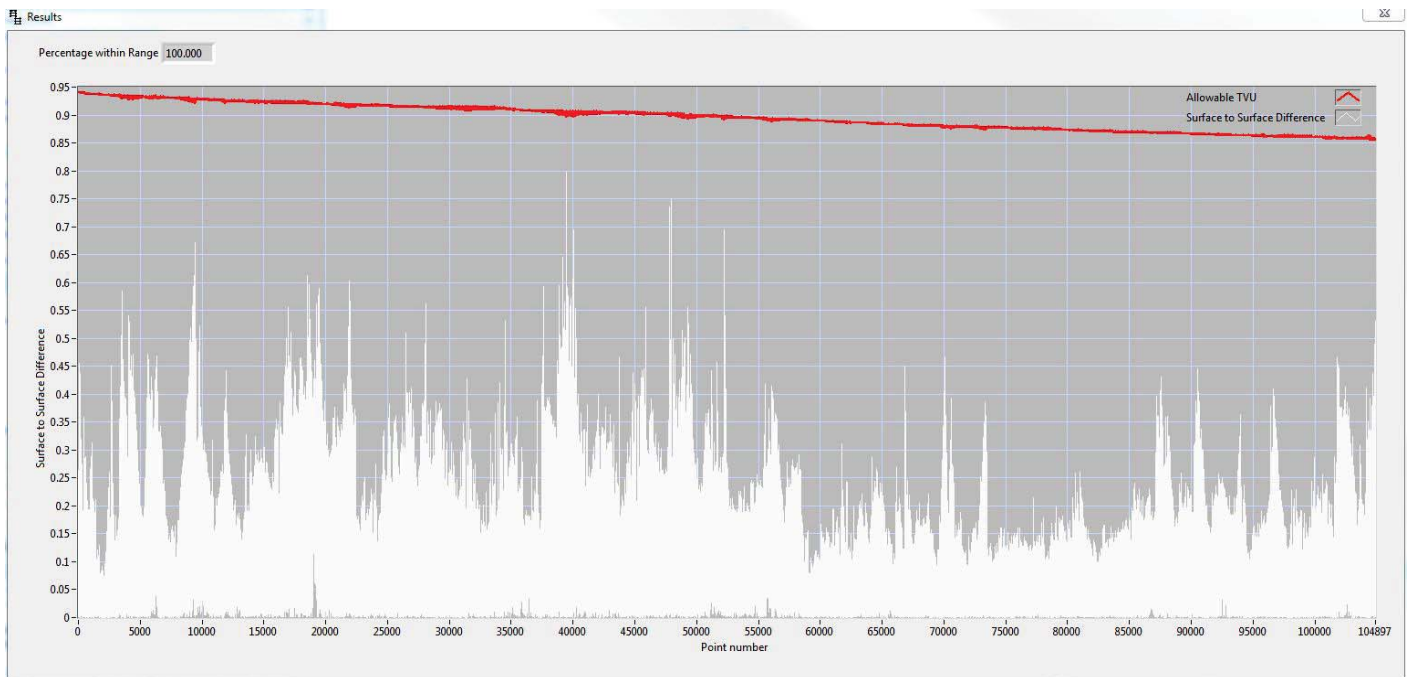


Figure 6: H12942 - H12944 Junction Comparison

H12945

H12942 junctions with H12945 to the southeast. The junction comparison was performed using approximately 320m of overlapping data between H12942 and H12945. Depth differences were evaluated using the JunctionTrac program, developed in-house by eTrac Inc.

Below is a histogram of junction comparison statistics showing the difference between the junctioning surfaces and allowable TVU. 100% of nodes were within allowable TVU. Junction comparison statistics are also included in Separate II.

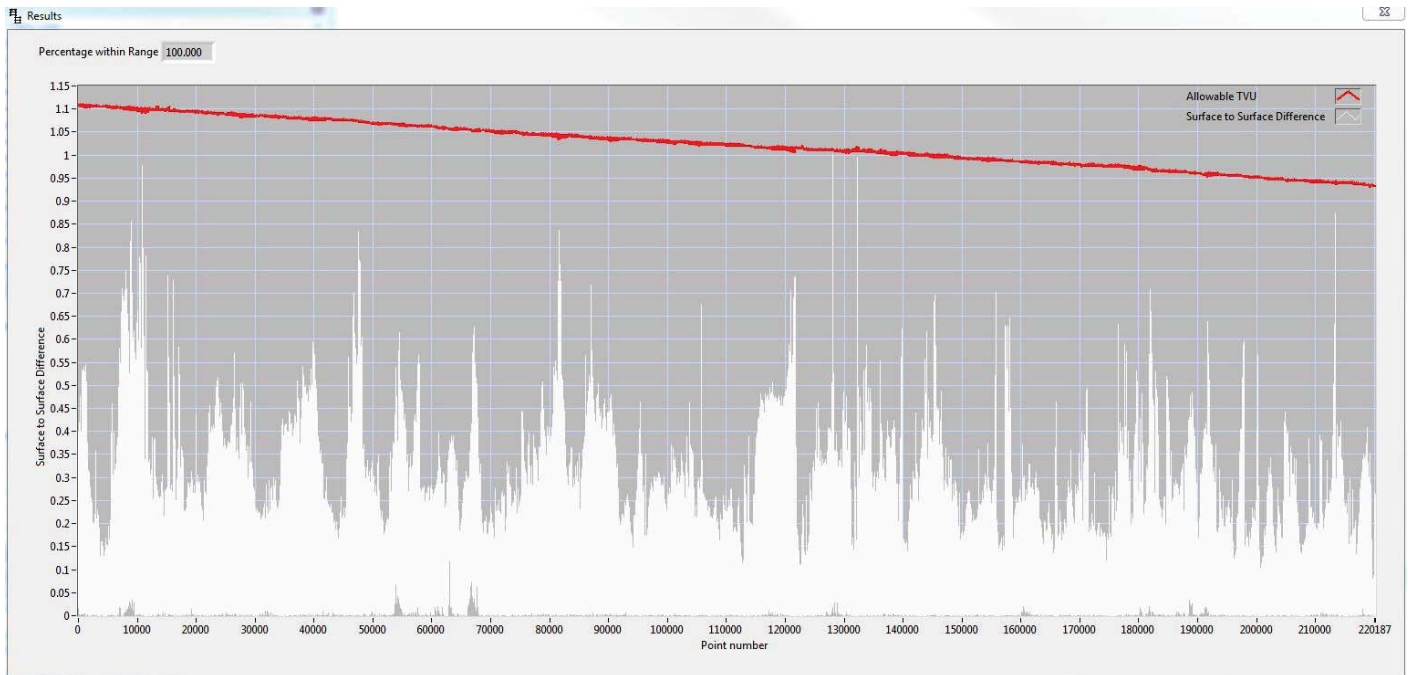


Figure 7: H12942 - H12945 Junction Comparison

H12553

H12942 junctions with H12553 to the north. The junction comparison was performed using approximately 250m of overlapping data between H12942 and H12533. Depth differences were evaluated using the JunctionTrac program, developed in-house by eTrac Inc.

Below is a histogram of junction comparison statistics showing the difference between the junctioning surfaces and allowable TVU. 99.9642% of nodes were within allowable TVU. Survey H12942 and Survey H12553 overlap a fish haven where a feature is located. The extreme outliers in the below graph are noted to be caused by this feature being represented slightly differently in the respective surfaces. Junction comparison statistics are also included in Separate II.

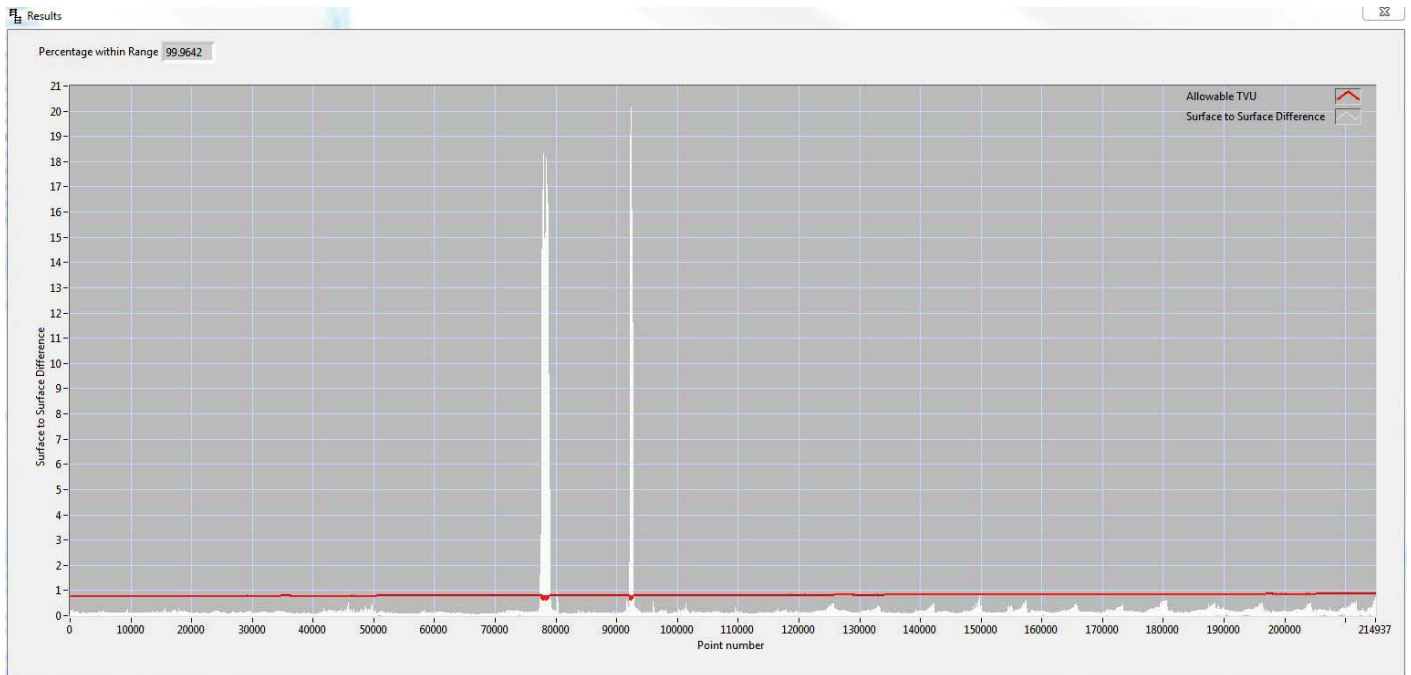


Figure 8: H12942 - H12553 Junction Comparison

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

R2Sonic 2026

R/V Benthos utilized an R2Sonic 2026 for MBES on DN234, DN235, and DN236. Upon data processing efforts, it was discovered that the R2Sonic 2026 was operating improperly. The faulty element caused issues in beam formation, creating a vertical offset between the outer and nadir beams of parallel lines. All data collected with the R2Sonic 2026 fell within TVU specifications as well as IHO Order 1a compliance specifications set forth in the HSSD 2016. The artifact with the R2Sonic 2026 did not affect the detection of any features within the data. Any features within the R2Sonic 2026 data were further investigated to ensure data quality. The R2Sonic 2026 was immediately replaced in the evening of DN236, isolating the issue to DN234, DN235, and DN236.

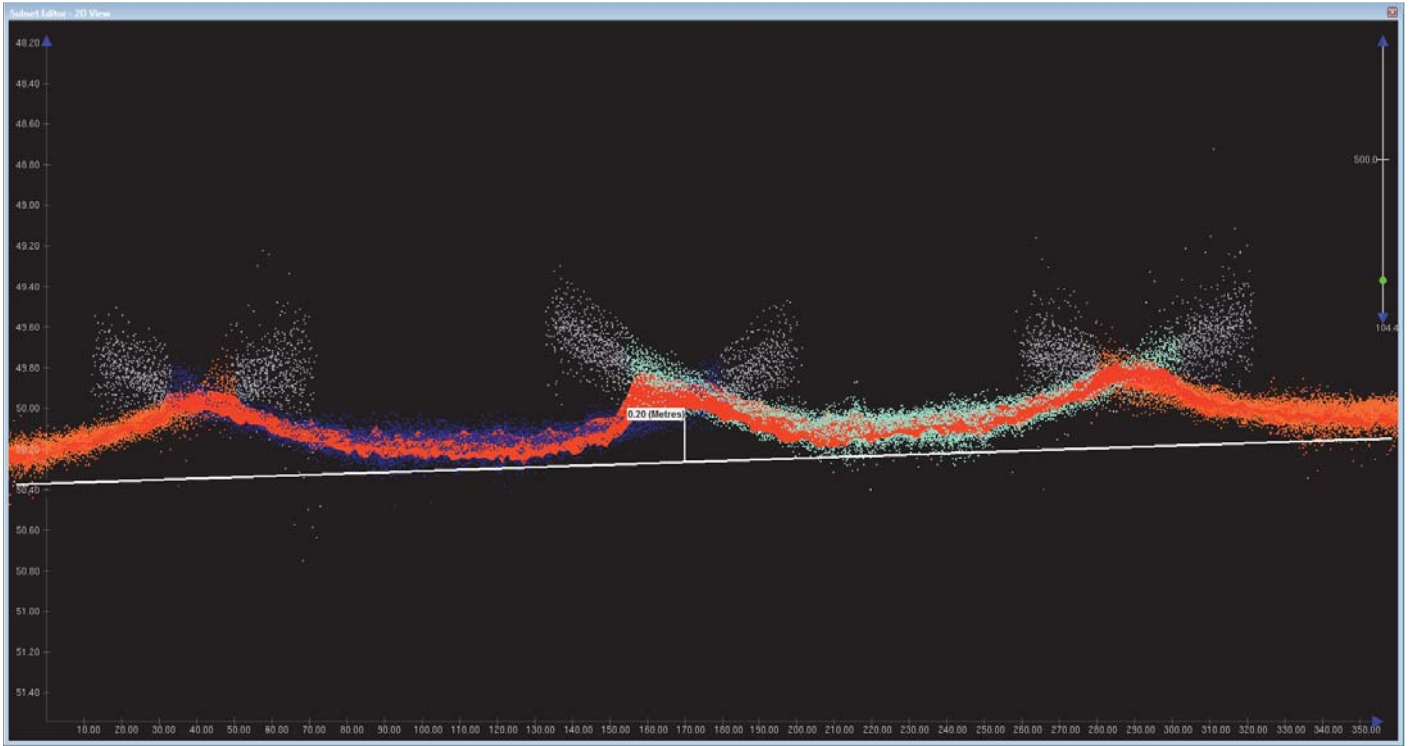


Figure 9: Example of R2Sonic 2026 with measurement of vertical error to CUBE surface

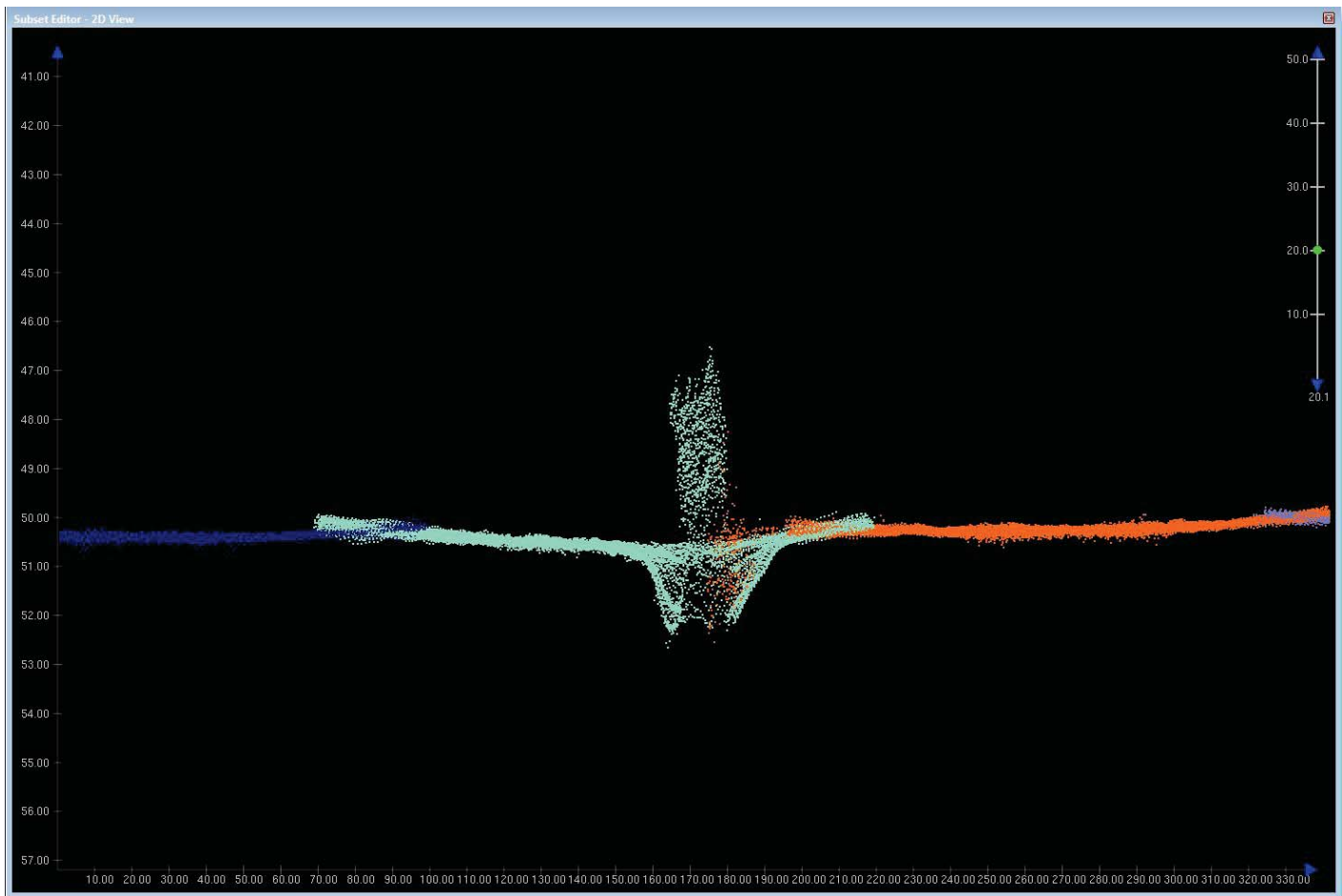


Figure 10: Example of R2Sonic 2026 MBES data with feature detected

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: SVP casts were generally taken every 2 hours. Occasionally casts would exceed a 2 hour frequency, however would never exceed a 4 hour frequency. Casts were applied in QPS QINSy acquisition software at the time of the cast. Surface SVP measured at 1Hz was compared to surface speed from the current profile in realtime. If the surface velocity comparison was in excess of 2m/s at any time during survey operations, a new cast was taken.

SVP surface velocities were compared in realtime and profile to profile for each cast on the vessel. Additionally, profiles were compared day-to-day in the field office using the SVPTrac program, developed in-house by eTrac Inc., to better understand trends for efficient acquisition planning.

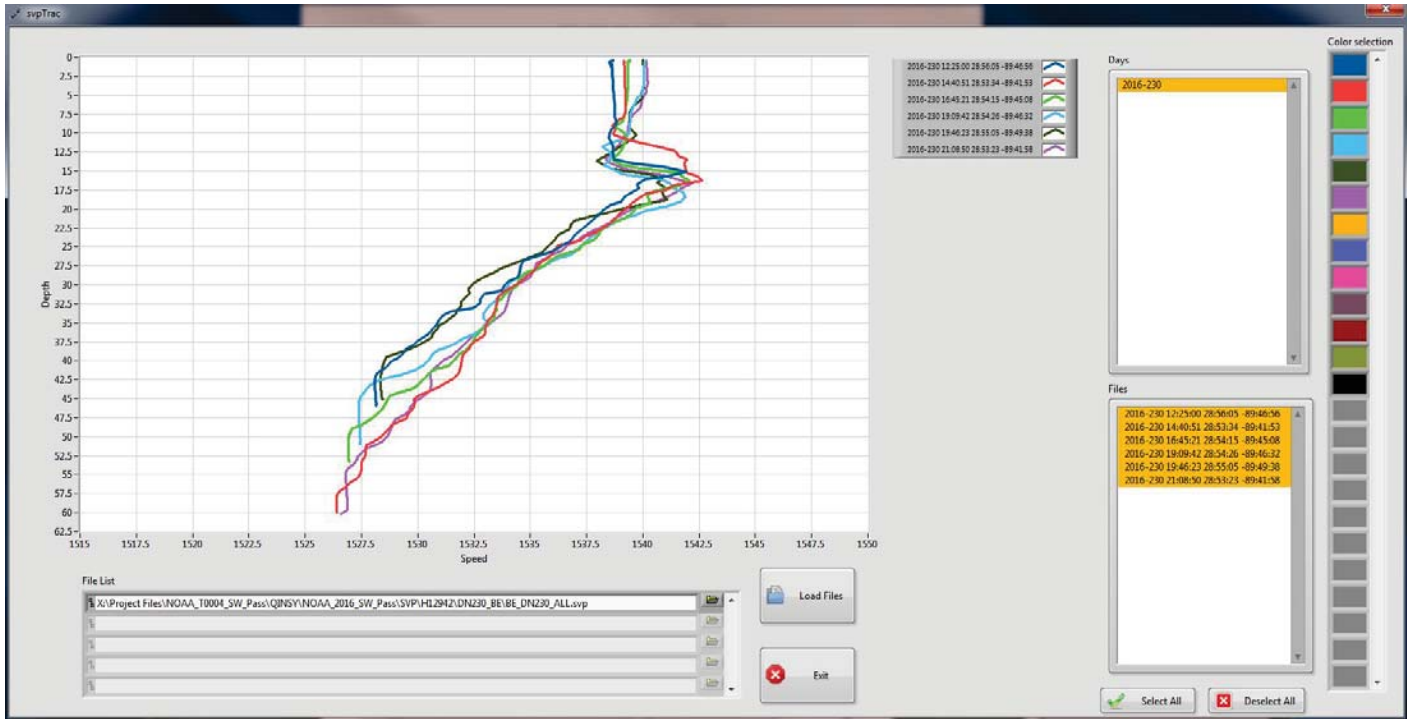


Figure 11: Example of Daily SVP Data Plot (DN230)

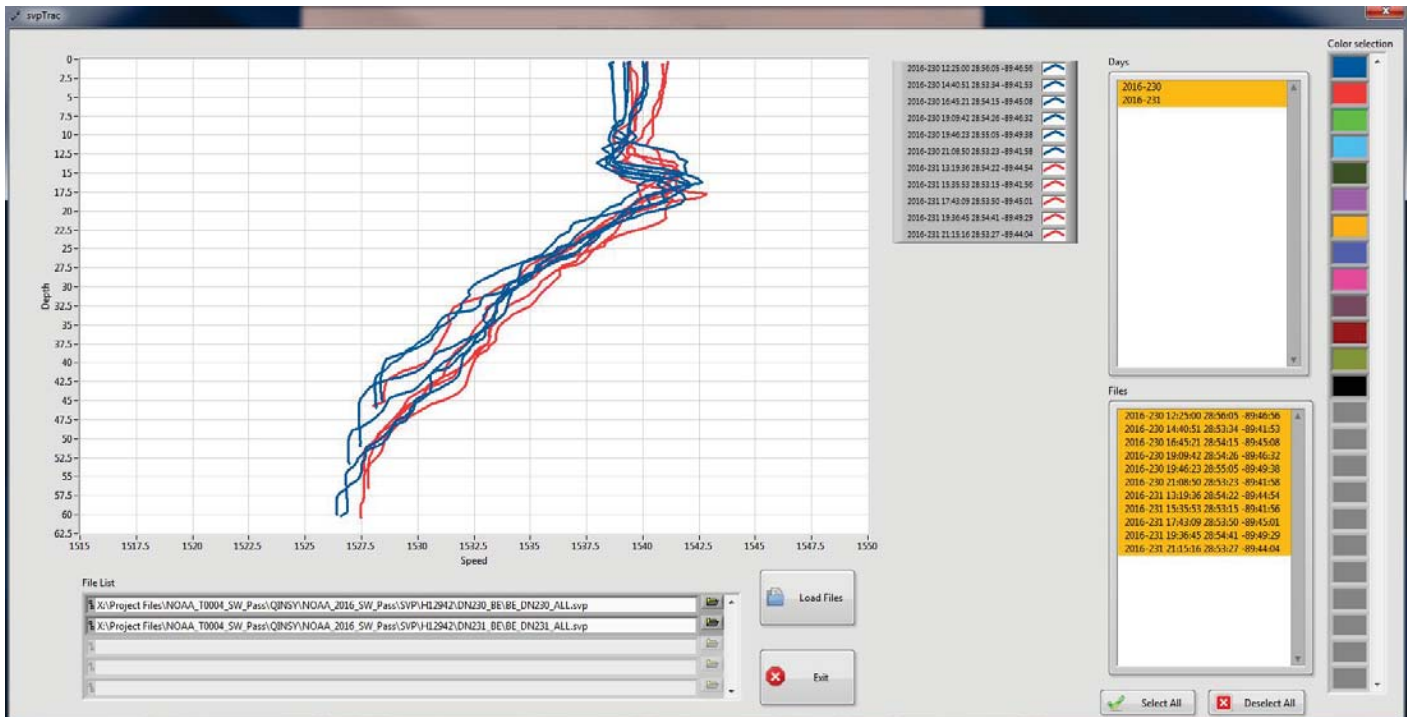


Figure 12: Example of Day to Day SVP Comparison (DN230 and DN231)

B.2.8 Coverage Equipment and Methods

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

B.2.9 Data Density Evaluation

In order to determine if the density of the data met the specified 5 soundings per node, data density was evaluated using the DensityTrac program in the AmiTrac program, developed in-house by eTrac Inc. Each finalized BASE surface's nodes were exported to an ASCII CSV file where the fields were (Easting, Northing, Depth, Uncertainty, Density) for each node. The CSV file was then loaded into the DensityTrac program and density statistics were computed.

For H12942 the following percentages represent the results of the density testing:

Complete Coverage MBES (Finalized 4m CUBE weighted BASE Surface) = 99.8894% of nodes are composed from at least 5 soundings.

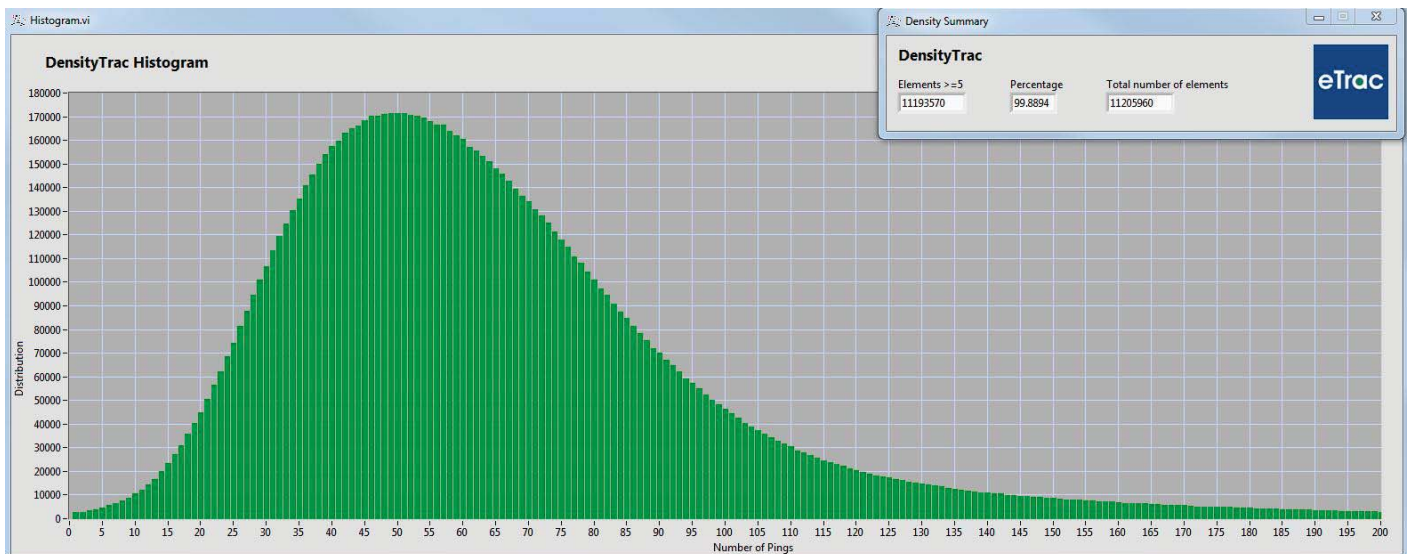


Figure 13: H12942 4m Finalized 4m Complete Coverage MBES Density Distribution Statistics

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

Backscatter data were collected throughout the survey and are retained in the raw XTF files. Every effort was made in the field to collect quality backscatter data while maintaining the primary mandate of high quality bathymetric data. While no processing or analysis of backscatter was required, eTrac Inc. engaged in a minimal effort to verify coverage and general quality of the backscatter data collected. Raw backscatter data were viewed in Caris HIPS and SIPS 9.1 to ensure collection criteria had been met. Shown below is an example of the unprocessed backscatter mosaic from H12942 DN235.

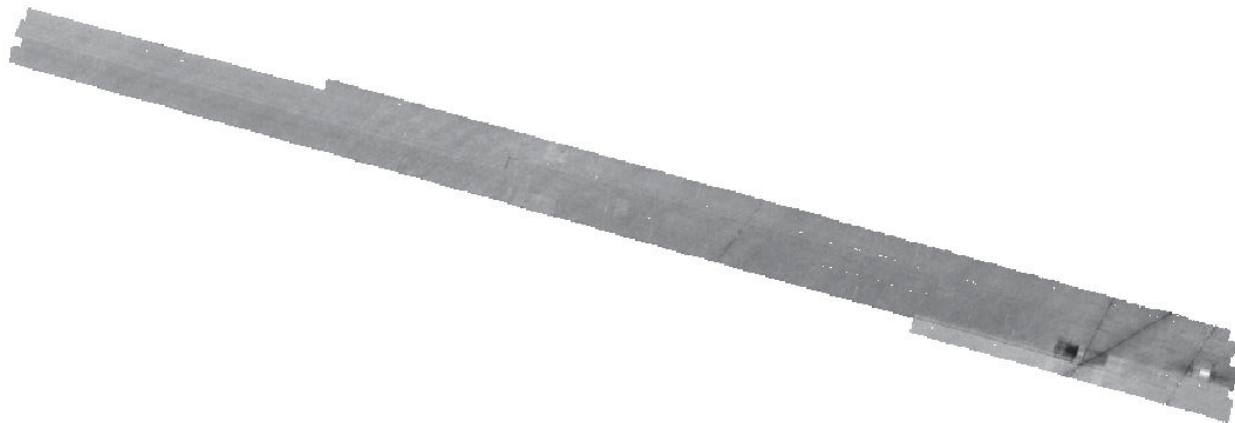


Figure 14: Raw Backscatter From M/V Theory (DN235)

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
H12942_MB_4m_MLLW_Final	CUBE	4 meters	26 meters - 76.56 meters	NOAA_4m	Complete MBES
H12942_MB_4m_MLLW	CUBE	4 meters	27.63 meters - 76.56 meters	NOAA_4m	Complete MBES

Table 8: Submitted Surfaces

H12942 is entirely within the threshold limits of a 4m grid resolution (36 - 80 meters) with the exception of the shoalest portions of the features in the 3 fish havens in H12942 which have minimum depths shoaler than 36 meters. In order to represent the least depth of these features in the submitted surface the minimum depth threshold of the finalized 4m surface was extended from 36 meters to 26 meters. The resulting finalized 4m surface has 35 nodes that are shoaler than 36 meters.

Reference Email Correspondence in Appendix II of this report.

In areas shoaler than 80 meters, a 4m surface provided meeting complete coverage MBES with backscatter specifications. The 4m surface covers the entire survey area of H12942 as all soundings with the survey limits are shoaler than 80 meters.

A parent surface of the 4m surface is provided covering the entire survey area of H12942.

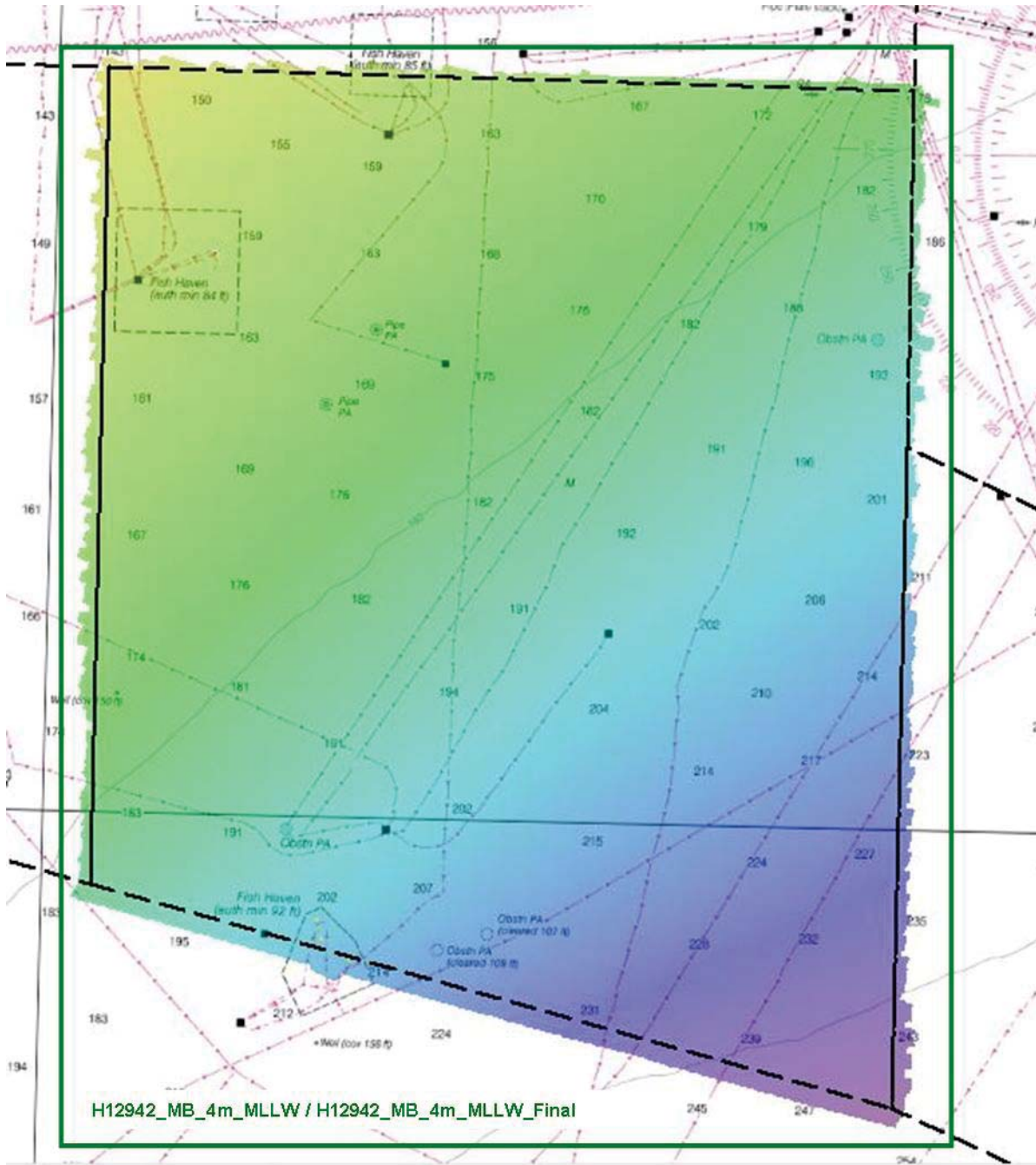


Figure 15: H12942_Delivered BASE Surface Coverage Graphic

B.5.3 Water Column Data

Water column data was collected during investigations and on features in H12944. Water column data was used during the analysis of feature H12942_223. This feature is detailed in Section D.1.5, as well as in the Final Feature File (FFF).

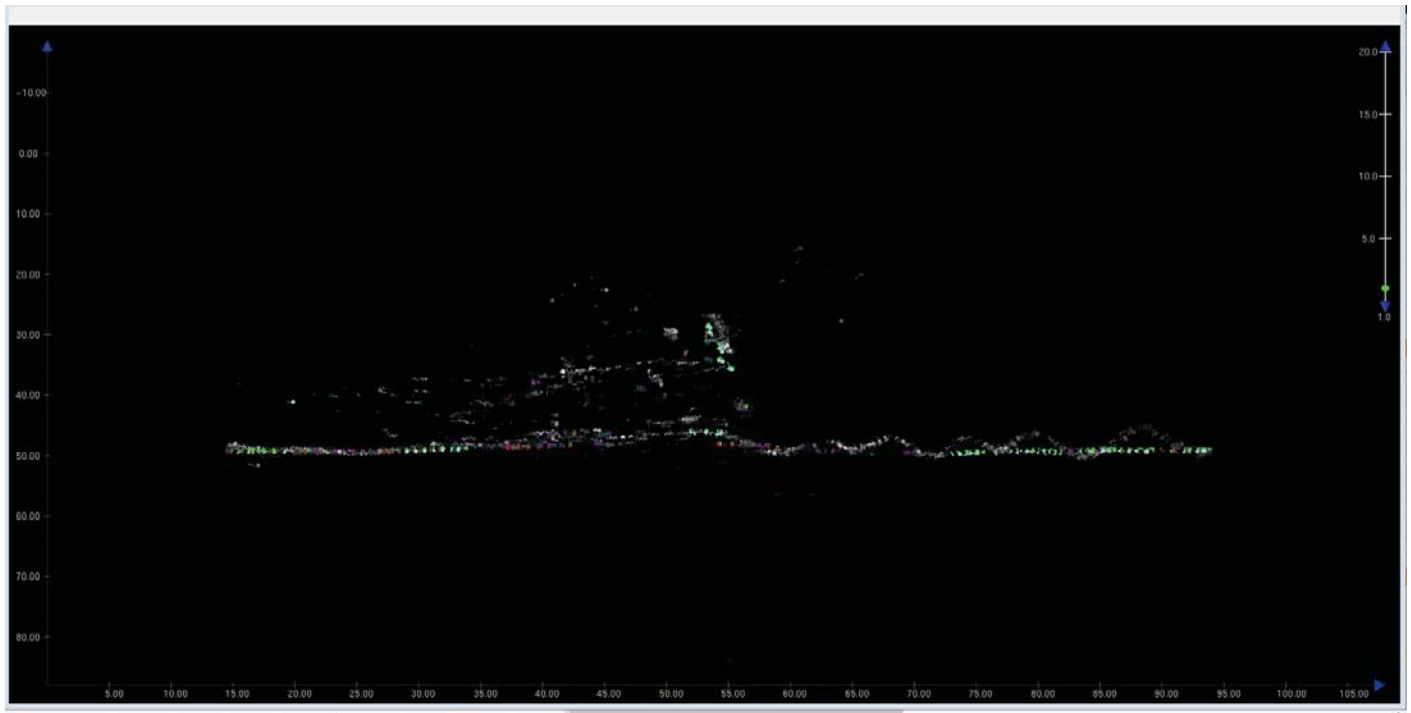


Figure 16: H12944_223 Water Column Data

C. Vertical and Horizontal Control

C.1 Vertical Control

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

Standard Vertical Control Methods Used:

TCARI

File Name	Status
8760922.tid	Final Approved
8761724.tid	Final Approved
8762075.tid	Final Approved

Table 9: Water Level Files (.tid)

File Name	Status
K339KR2016Final.tc	Final

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

In order to reference soundings to MLLW, the Tidal Constituent And Residual Interpolator (TCARI) method was applied to the HDCS data via the TCARI program. TCARI compiled information from SW Pass, LA (8760922), Grand Isle, LA (8761724), and Port Fourchon, LA (8762075).

Note: Any vertical control method deviations from the Project Instructions are addressed in the DAPR.

C.2 Horizontal Control

The horizontal datum for this project is World Geodetic System of 1984 (WGS84).

The projection used for this project is UTM Zone 16N.

During main acquisition R/V Benthos, R/V Taku, and M/V Theory received GNSS satellite corrections over the POS MV G2 carrier signal from the Marinestar Global Correction System maintained by Fugro. The Marinestar system is a global realtime GNSS broadcast system that delivers corrections from an array of base stations around the world via geo-stationary satellites. Corrections were monitored realtime during data acquisition to ensure no dropouts occurred and the POSMV maintained differential accuracies throughout the survey. No dropouts were witnessed during data collection. Position data were analyzed in the office during post-processing. The attitude editor within Caris HIPS and SIPS 9.1 was utilized to identify any position data that may be insufficient for final delivery.

DGPS stations were only to be used as a backup horizontal correction source. G2 Marinestar correctors were used as the primary correction source. DGPS was never utilized, as G2 corrections were available throughout all survey operations.

The following DGPS Stations were used for horizontal control:

DGPS Stations
English Turn, 293kHz, ID: 814

Table 11: USCG DGPS Stations

D. Results and Recommendations

D.1 Chart Comparison

A chart comparison was conducted for H12942 using Caris HIPS and SIPS 9.1. Contours, as well as soundings, were compared against the largest scale RNC 11358 and ENC US4LA32M to accomplish the chart comparison. The methods and results of the comparison are detailed below.

Contour Comparison Method:

Using the 4 meter CUBE weighted BASE surface, the 180 foot and 240 foot contours were generated and displayed against the charted contour. Additionally, the 4 meter CUBE weighted BASE surface was viewed by a custom color band range based on the contour intervals (60ft, 120ft, 180ft, 240ft, 300ft, 400ft). The results of the comparison are described below.

Sounding Comparison Method:

Using the same 4 meter CUBE weighted BASE surface used for the contour comparison, spot soundings were generated in Caris HIPS and SIPS 9.1 for H12942. Soundings were displayed against the charted soundings and a visual comparison was made. The results are described below.

D.1.1 Raster Charts

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

Chart	Scale	Edition	Edition Date	LNМ Date	NM Date
11358	1:80000	58	06/2014	05/18/2016	05/22/2016

Table 12: Largest Scale Raster Charts

11358

Contour Comparison Results:

The 180 foot contour has progressed seaward, approximately 180 feet from the charted contour in the southwest and northeast regions of H12942.

The 180 foot contour has receded shoreward, approximately 155 feet from the charted contour in the central region of H12942.

The 240 foot contour had progressed seaward, on average, approximately 125 feet from the charted contour.

Sounding Comparison Results:

With the exception to the differences identified through the contour comparison, in general, the soundings are in excellent agreement, with no major discrepancies. Soundings are generally within 1 foot of each other. Occasionally soundings differ by 2 to 3 feet, however depth differences generally appear to be minimal. Depth differences are not biased in any particular direction to support a systematic error.

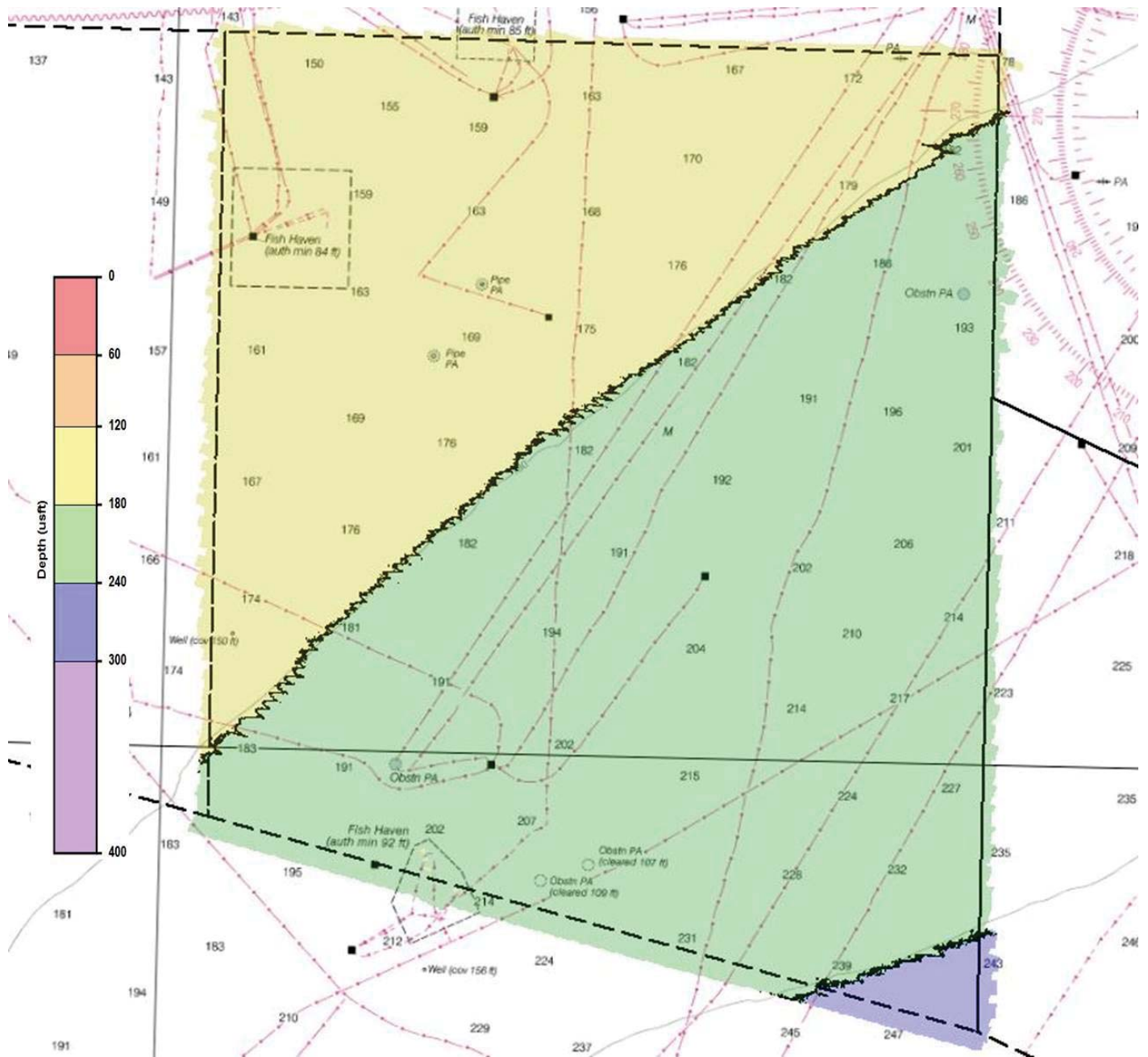


Figure 17: H12942 Contour Comparison (Overview)

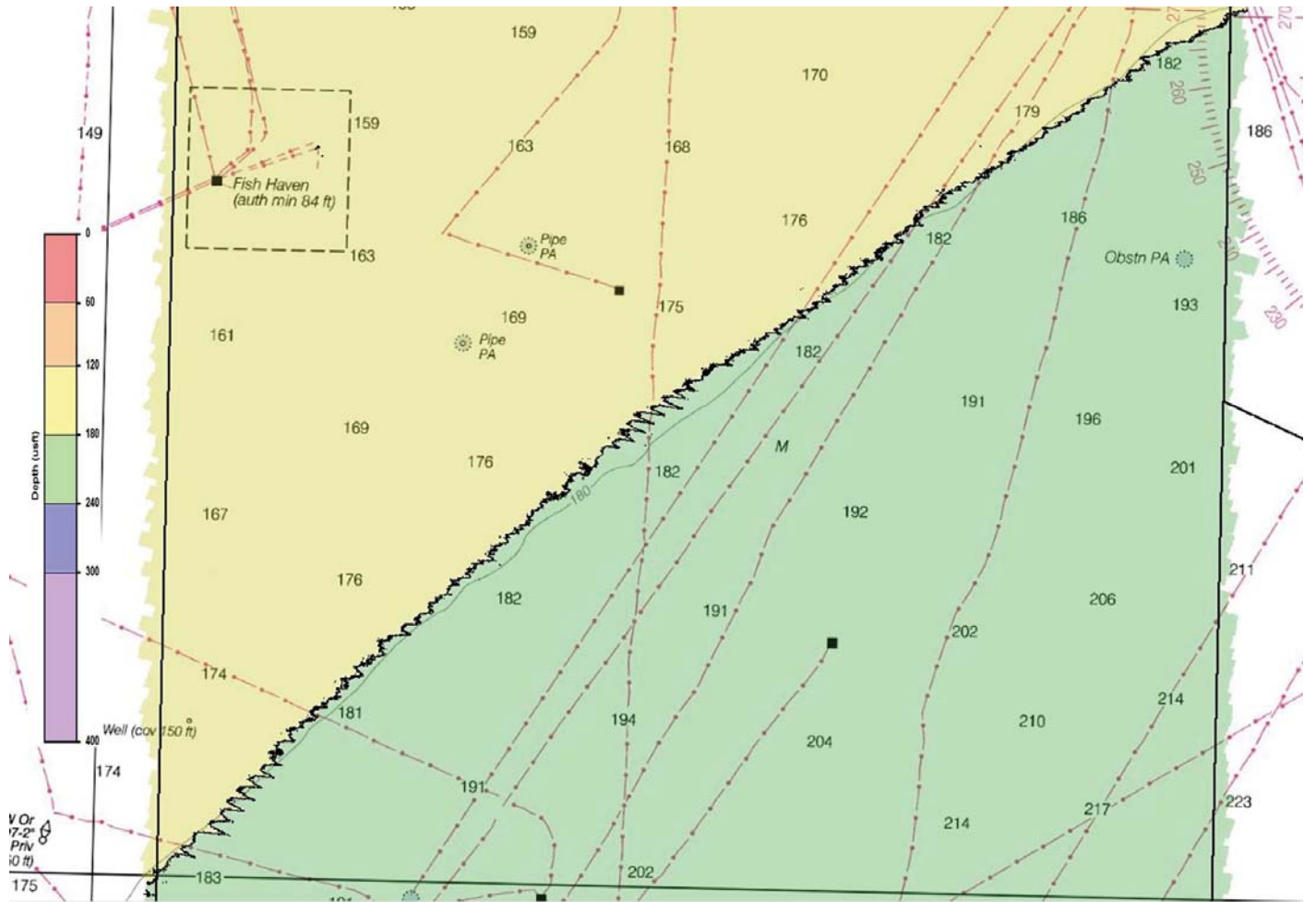


Figure 18: H12942 Contour Comparison (180ft Contour)

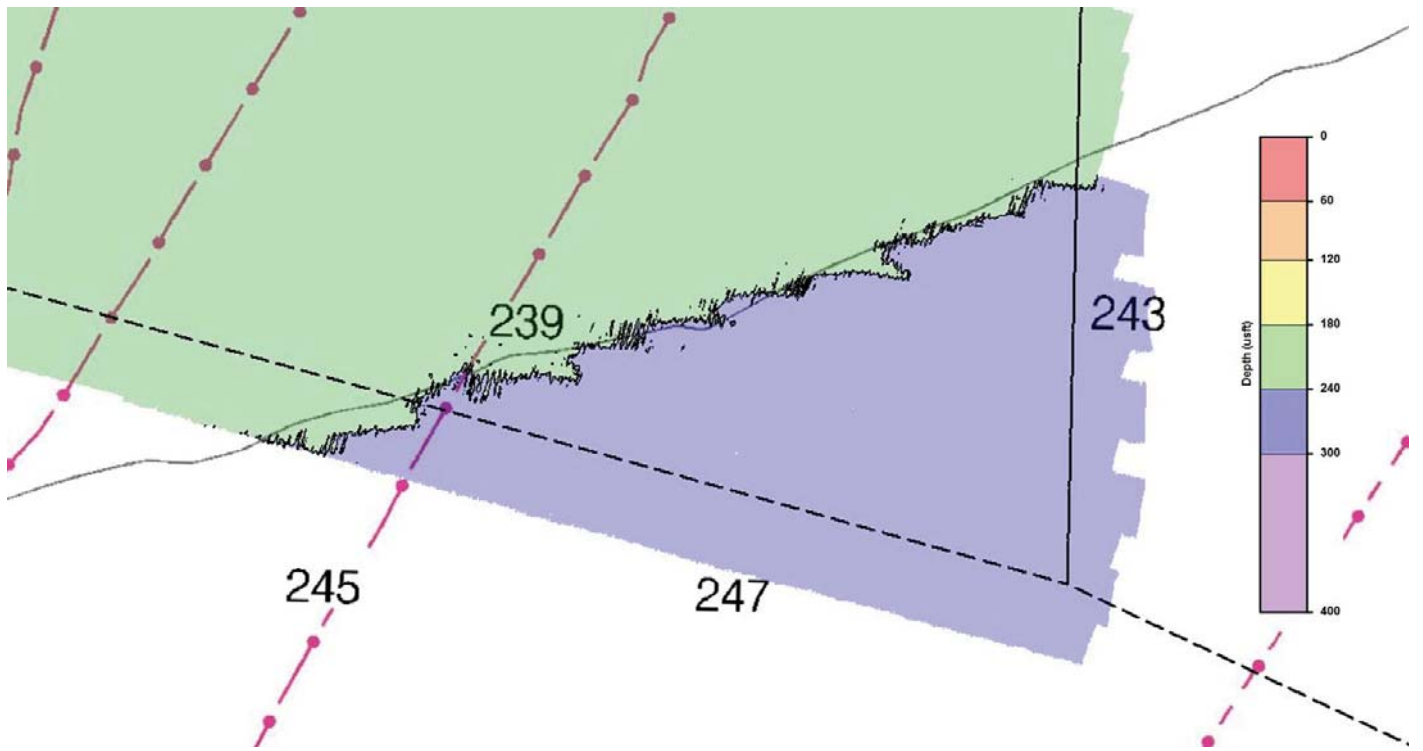


Figure 19: H12942 Contour Comparison (240ft Contour)

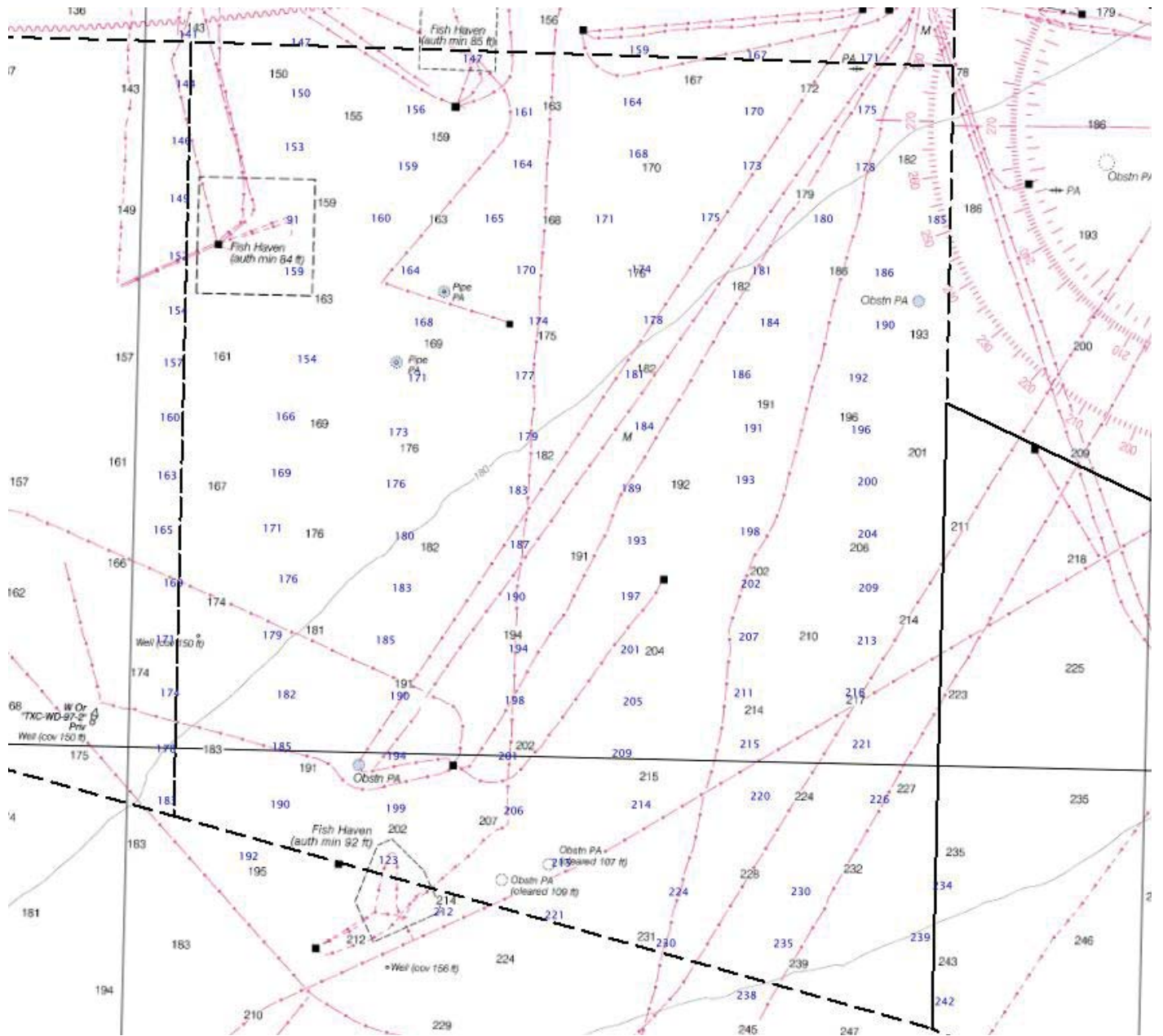


Figure 20: Sounding Comparison (RNC 11358)

D.1.2 Electronic Navigational Charts

The following are the largest scale ENC's, which cover the survey area:

ENC	Scale	Edition	Update Application Date	Issue Date	Preliminary?
US4LA32M	1:80000	32	10/01/2014	04/26/2016	NO

Table 13: Largest Scale ENC's

US4LA32M

The results of the chart comparison with ENC US4LA32M match those of the chart comparison with RNC 11358.

D.1.3 AWOIS Items

No AWOIS Items were assigned for this survey.

D.1.4 Maritime Boundary Points

No Maritime Boundary Points were assigned for this survey.

D.1.5 Charted Features

There were 12 charted features assigned to H12942. Each assigned feature is retained in the Final Feature File (FFF). Each feature in the FFF has been given a unique identifier in the "userid" field of the .000 S-57 file (format H12942_XXX). Refer to the FFF for determinations and recommendations of each feature.

There were 2 charted, unassigned features in H12942 that were added to the FFF. Each feature in the FFF has been given a unique identifier in the "userid" field of the .000 S-57 file (format H12942_XXX). Refer to the FFF for determinations and recommendations of each feature.

D.1.6 Uncharted Features

8 new features were found in H12942 and were added to the Final Feature File (FFF). Each feature in the FFF has been given a unique identifier in the "userid" field of the .000 S-57 file (format H12942_XXX). Refer to the FFF for determinations and recommendations of each feature.

There were 22 uncharted features assigned to H12942. Each assigned feature is retained in the FFF. Each feature in the FFF has been given a unique identifier in the "userid" field of the .000 S-57 file (format H12942_XXX). Refer to the FFF for determinations and recommendations of each feature.

Note: All 22 assigned, uncharted features are listed as BSEE Wellheads.

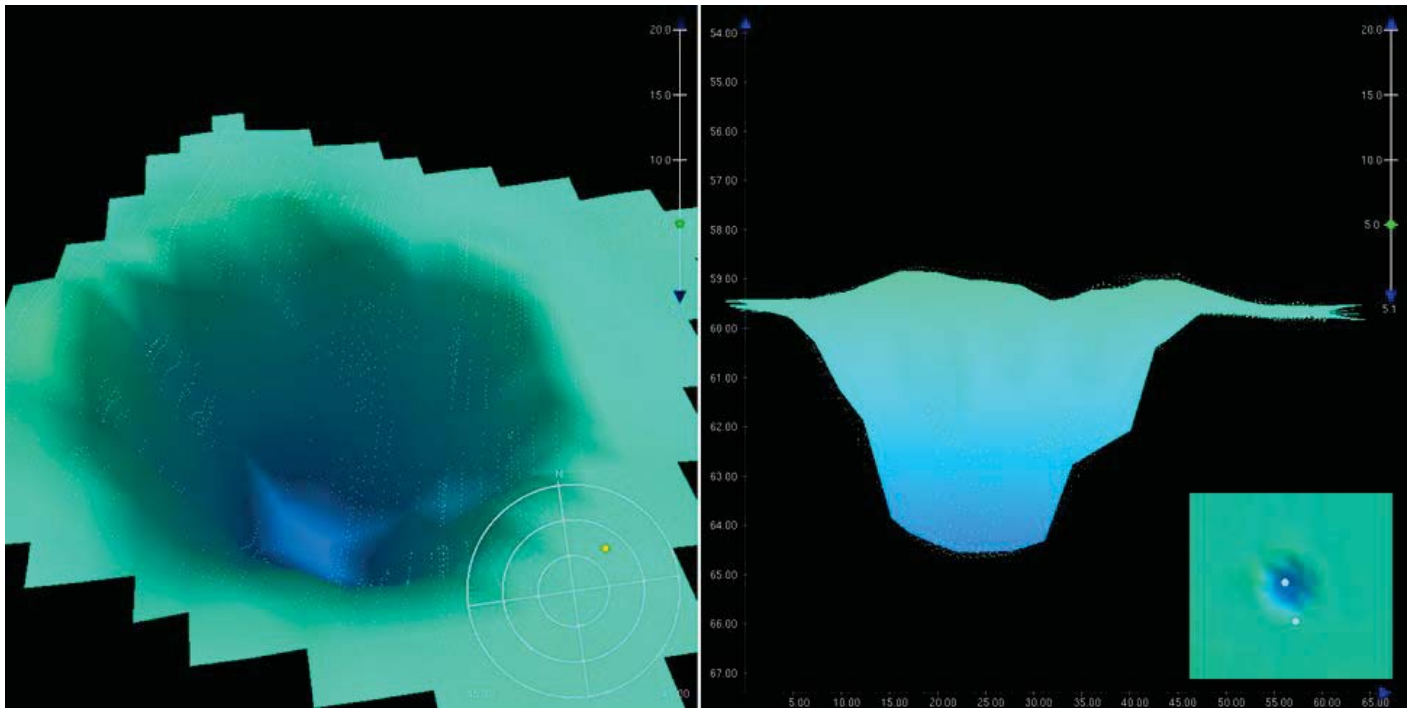


Figure 21: BSEE Wellhead Example (represented in the surface)

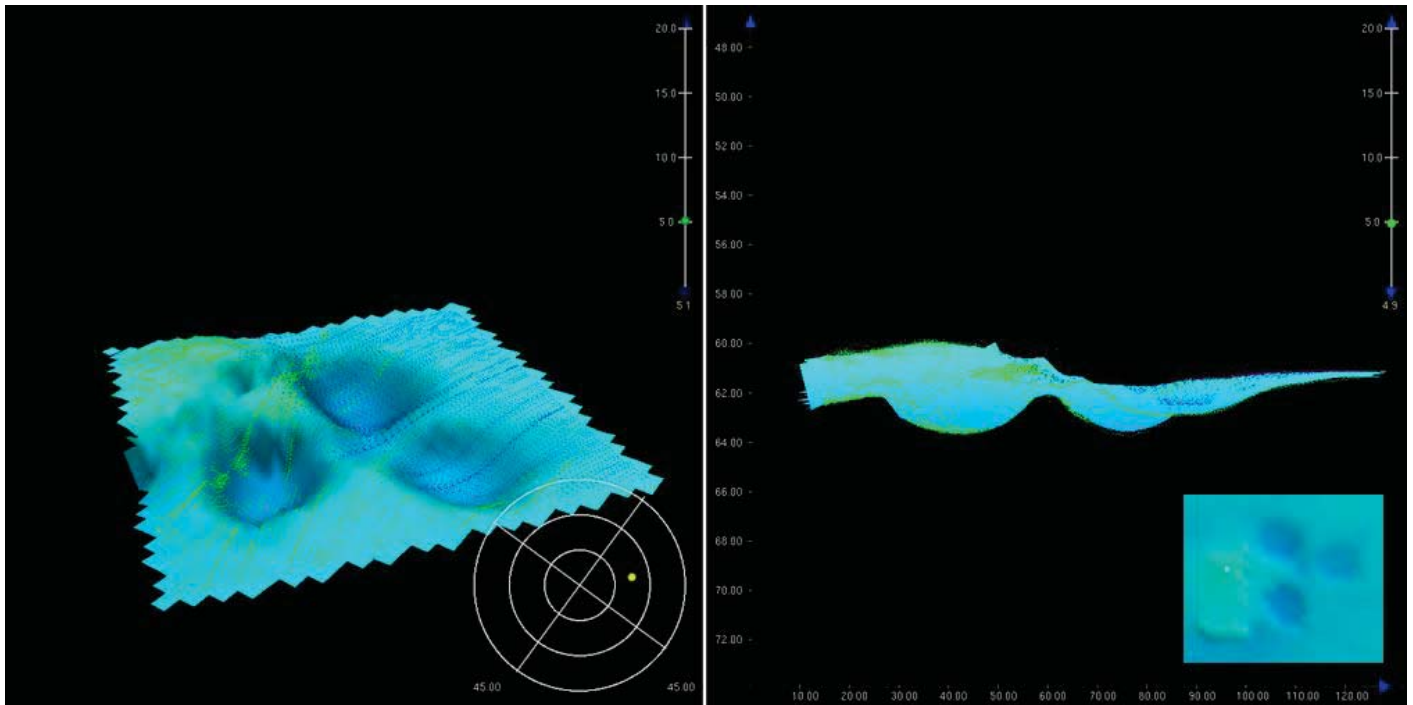


Figure 22: BSEE Wellhead Example (location of unassigned charted platform)

D.1.7 Dangers to Navigation

The following DTON reports were submitted to the processing branch:

DTON Report Name	Date Submitted
H12942_DtoN_01	2016-10-03
H12942_DtoN_02	2016-10-03

Table 14: DTON Reports

2 DTONs were found in this survey, and were added to the Final Feature File (FFF). Each feature in the FFF has been given a unique identifier in the "userid" field of the .000 S-57 file (format H12942_XXX). Refer to the FFF for determinations and recommendations of each feature. Note: These DTONs were included in the number of new, uncharted features within section D.1.6.

D.1.8 Shoal and Hazardous Features

No shoals or potentially hazardous features exist for this survey.

D.1.9 Channels

No channels exist for this survey. There are no designated anchorages, precautionary areas, safety fairways, traffic separation schemes, pilot boarding areas, or channels and range lines within the survey limits.

D.1.10 Bottom Samples

5 bottom samples were obtained in accordance with sections 7.2 and 7.2.2 of the HSSD 2016 in areas designated by the feature object class springs (SPRING) in the Project Reference File (PRF).

A brief description of the results is listed below.

H12942_B001: soft, brown, mud

H12942_B002: soft, brown, mud

H12942_B003: soft, brown, mud

H12942_B004: soft, brown, mud

H12942_B005: soft, brown, mud

Detailed information and images of the bottom samples listed above are located in the Final Feature File (FFF). Each bottom sample has been given a unique identifier in the "userid" field of the .000 S-57 file (format H12942_BXXX).

D.2 Additional Results

D.2.1 Shoreline

No shoreline exists for this survey.

D.2.2 Prior Surveys

No prior survey comparisons exist for this survey.

D.2.3 Aids to Navigation

No charted Aids to Navigation exist for this survey.

D.2.4 Overhead Features

No overhead features exist for this survey.

D.2.5 Submarine Features

No submarine features were specifically assigned for this survey.

Portions of charted pipelines were found to be uncovered. Correspondence was opened to notify concerned branches.

Reference Email Correspondence in Appendix II of this report.

D.2.6 Ferry Routes and Terminals

No ferry routes or terminals exist for this survey.

D.2.7 Platforms

2 charted, unassigned platforms were not observed, and were added to the Final Feature File (FFF). Each feature in the FFF has been given a unique identifier in the "userid" field of the .000 S-57 file (format H12942_XXX). Refer to the FFF for determinations and recommendations of each feature.

Note: These features were included in the number of charted, unassigned features within Section D.1.5.

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 BASE surfaces, 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.

Approver Name	Approver Title	Approval Date	Signature
David R. Neff, C.H.	VP of Survey, eTrac Inc.	12/05/2016	 <div data-bbox="1247 909 1422 957" style="font-size: small;"> Digitally signed by David R. Neff DN: cn=David R. Neff, o=eTrac Inc., email=David.R.Neff@etracinc.com, c=US Reason: I attest to the accuracy and integrity of this document. Date: 2016.12.05.14:18:51-0800 </div>

APPENDIX I
TIDES AND WATER LEVELS

637 Lindaro St #100
San Rafael, CA 94901

September 14, 2016

MEMORANDUM FOR: Gerald Hovis, Chief, Products and Services Branch, N/OPS3

FROM: David Neff, eTrac Inc.

SUBJECT: Request for Approved Tides/Water Levels

Please provide the following data:

1. Tide Note
2. Final TCARI grid
3. Six Minute Water Level data (Co-ops web site)

Transmit data to the following:

637 Lindaro St #100
San Rafael, CA 94901

These data are required for the processing of the following hydrographic survey:

Project No.: OPR-K339-KR-16
Registry No.: H12942
State: LA
Locality: Gulf of Mexico
Sublocality: 19 NM West of SW Pass

Attachments containing:

- 1) an Abstract of Times of Hydrography,
- 2) digital MID & MIF files of the track lines from Pydro

cc: izzy@etracinc.com

Year_DOY	Min Time	Max Time
2016_217	15:25:45	21:50:04
2016_218	13:06:22	14:40:22
2016_219	13:39:31	21:44:12
2016_220	13:29:13	20:30:30
2016_222	14:13:46	20:27:26
2016_230	12:32:30	21:03:04
2016_231	12:31:39	21:09:36
2016_232	12:24:26	21:17:26
2016_233	12:58:41	20:33:50
2016_234	12:56:54	20:42:03
2016_235	12:39:49	20:11:43
2016_236	12:48:42	20:43:13
2016_237	12:27:43	20:59:28
2016_238	12:53:35	16:18:45
2016_239	12:50:03	13:53:52
2016_247	12:55:48	17:37:41



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



**Final TCARI Grid for OPR-K339-KR-2016, H12942
19 NM West of SW Pass, Gulf of Mexico**

8762075 PORT FOURCHON

8761724 GRAND ISLE

8760922 PILOTS STATION EAST



OPR-K339-KR-16 Offshore SW Pass

Abstract: Times of Hydrography
H12942

eTrac Inc.
637 Lindero St., Suite 100
San Rafael, CA 94901
888-410-3890

Survey Date	Day of Year	Start Time	End Time
8/4/2016	217	15:25	21:51
8/5/2016	218	13:06	14:41
8/6/2016	219	13:37	21:45
8/7/2016	220	13:29	20:30
8/9/2016	222	14:14	20:27
8/17/2016	230	12:32	21:04
8/18/2016	231	12:31	21:10
8/19/2016	232	12:24	21:18
8/20/2016	233	12:58	20:34
8/21/2016	234	12:56	22:05
8/22/2016	235	12:40	20:12
8/23/2016	236	12:48	21:04
8/24/2016	237	12:28	21:00
8/25/2016	238	12:53	16:19
8/26/2016	239	12:50	13:54
9/3/2016	247	12:55	17:38
9/7/2016	251	12:44	13:32
9/8/2016	252	12:58	15:22

APPENDIX II

SUPPLEMENTAL SURVEY RECORDS AND CORRESPONDENCE

Fwd: Marinestar Correction Service Issues

1 message

David Neff <david@etracinc.com>
To: Isadora Kratchman <izzy@etracinc.com>

Wed, Nov 23, 2016 at 12:40 AM

----- Forwarded message -----

From: **David Neff** <david@etracinc.com>

Date: Fri, Aug 26, 2016 at 2:00 PM

Subject: Re: Marinestar Correction Service Issues

To: Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>

Cc: Jacklyn James - NOAA Federal <jacklyn.c.james@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov>, Emily Clark - NOAA Federal <emily.clark@noaa.gov>, Tiffany Squyres - NOAA Federal <tiffany.squyres@noaa.gov>

Katrina,

The plan is agreeable and we maintain our recommendation to deliver data vertically referenced to MLLW via TCARI, however let me make sure we are clear on the following item before we shake on it:

With the quality of the deliverable in mind, we will still be using Marinestar for horizontal positioning. We have paid for the service upfront for the project (our decision) so we would like to take advantage of its increased horizontal accuracy compared to USCG DGPS.

With that understood, the Project Instructions can be revised in the task order documentation.

Will you be assigning the exact additional lines as you have with the other lines in Port Fourchon (H12946), or we should we define the splits ourselves? Just let me know

Dave

On Fri, Aug 26, 2016 at 12:07 PM, Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov> wrote:

Dave,

Thank you for the detailed report on the issues you are encountering with vertical control. From what I understand, you would prefer to submit the data referenced to chart datum via TCARI water levels.

The cost of the ERS section of this project was estimated to be \$16,875 with the goal of submitting data vertically and horizontally referenced to the ellipse. Because of the errors you are encountering and your recommendation to not submit data via the ellipse, we have the following proposal for you to consider. If this plan is acceptable, we can update the Project Instructions so the change is finalized in the task order documentation.

The proposed plan:

Stop all efforts towards solving the Marinestar issues and submit data vertically referenced via TCARI water levels. Instead of asking for an estimated cost rebate for not submitting data vertically referenced via the ellipse, we propose some of the funding from that effort be instead used for additional LNM in the survey area. Based on the project's cost per linear mile, we estimate this to be approximately 20 LNM. We propose those linears be acquired in the Port Fourchon sheet (H12947), essentially running splits between the planned lines.

What do you think? Is this plan agreeable? Or have there been updates to your recommendation of ERS vs TCARI?

Thank you,
Katrina

On Thu, Aug 18, 2016 at 8:32 PM, David Neff <david@etracinc.com> wrote:

Hi Katrina,

I hope your sail is going well. I have copied Corey and Jacklyn on here as well for input.

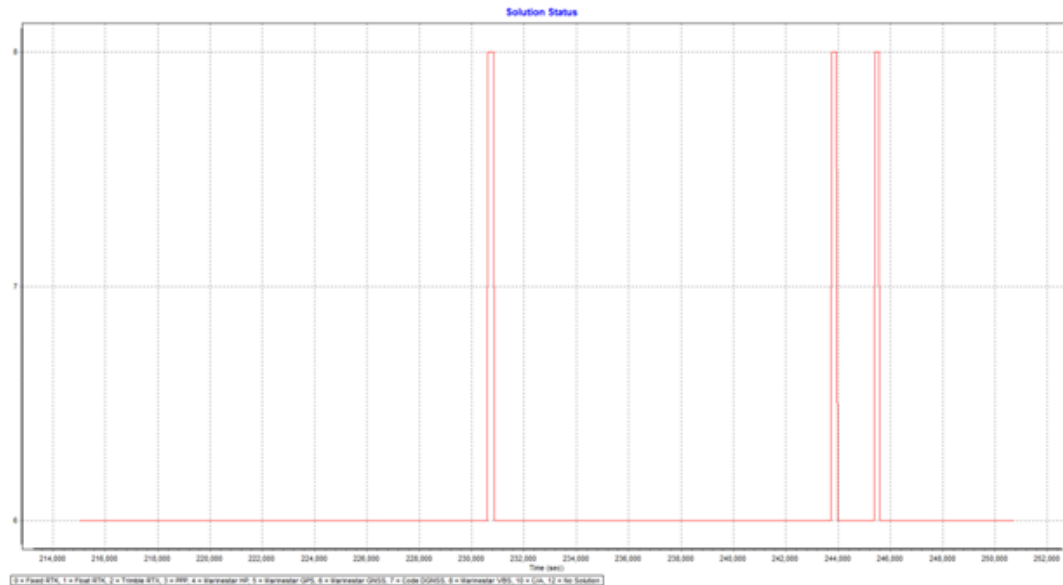
We were held up by the tropical storm coming through the area, which I am sure you heard about. We have had about 5 straight days of data collection since the storm and the completed project mileage as of today sits at about %22. This has given us the amount of data we need to start to make some decisions about our data pipeline moving forward, specifically the ERS solution model we originally proposed.

We have experienced a variety of Marinestar issues which I will describe below. The first 2 of these issues have occurred on all 3 vessels, so hardware malfunction seems unlikely. Issue 3 is isolate to 1 boat and 1 instance at this point. It is also unlikely that these issues are something that are new to you (NOAA/OCS). I don't believe they are particularly unique, especially the first. I also want to be clear that I am not asking for direction or advice on these specific items. These are meant to be examples to detail the variety of issues we are seeing through use of the Marinestar corrections system. I apologize in advance if this is overkill or long winded, but I want to be thorough in my description of our issues.

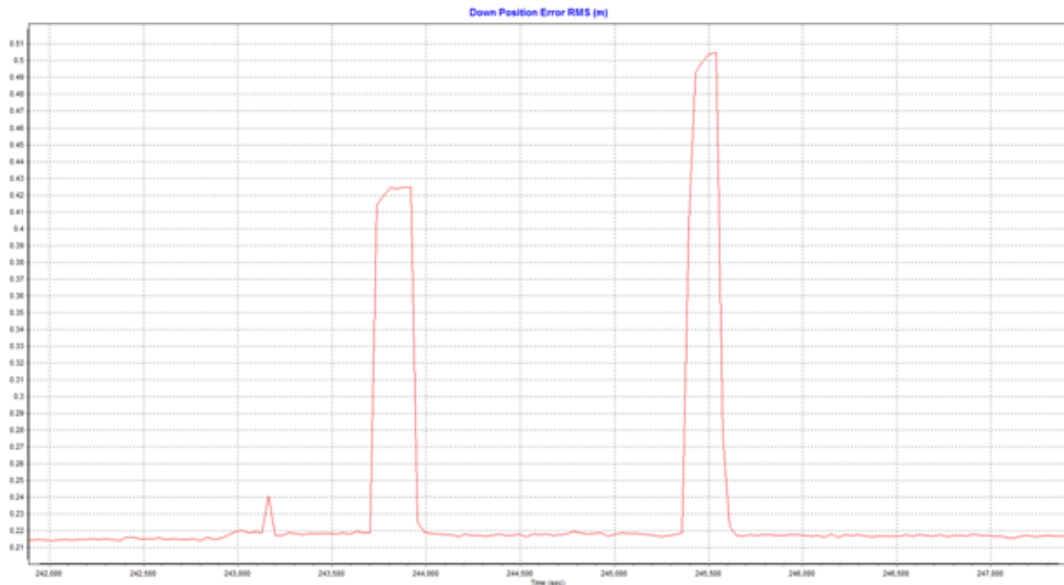
Issue 1: Temporary Loss of G2 Solution Status

This issue occurs when the MarineStar corrections drop out of G2 mode into VBS mode. Typically, this is not associated with jumps in DOP, losses of SV's, or cycle slips. The likely cause is loss of the correction signal reception due to local interference (atmospheric or otherwise).

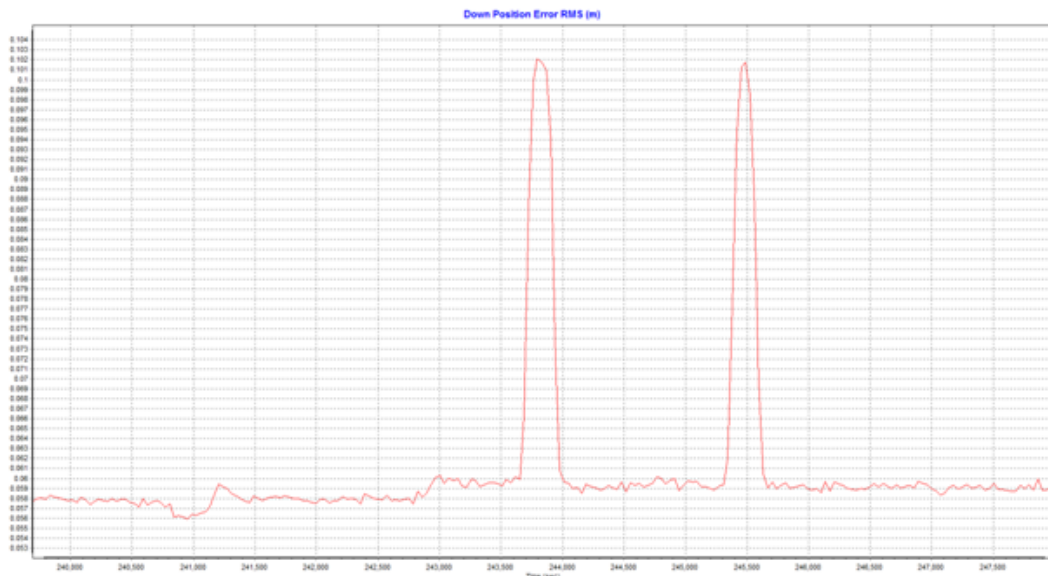
This manifests in the recorded Solution Status viewed in pospac as the solution status changes from 6 to 8:



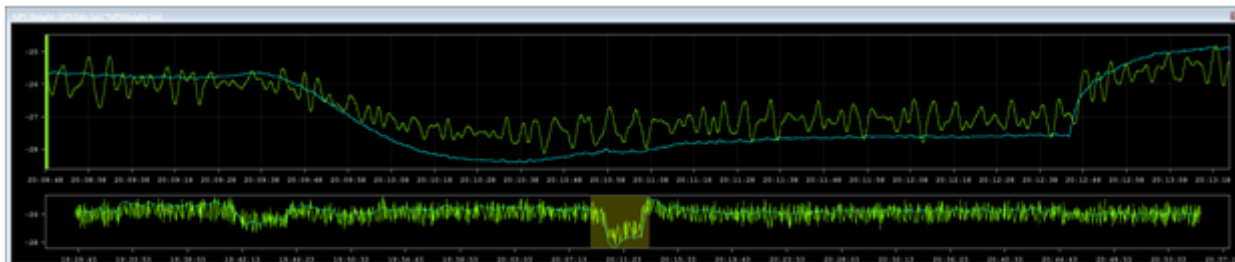
There is an associated spike in uncertainty:



Note that above is the real-time uncertainty which is known to be incorrectly reported high by Applanix (0.5m in this case). The post processed uncertainty is 0.1m for the same spike:



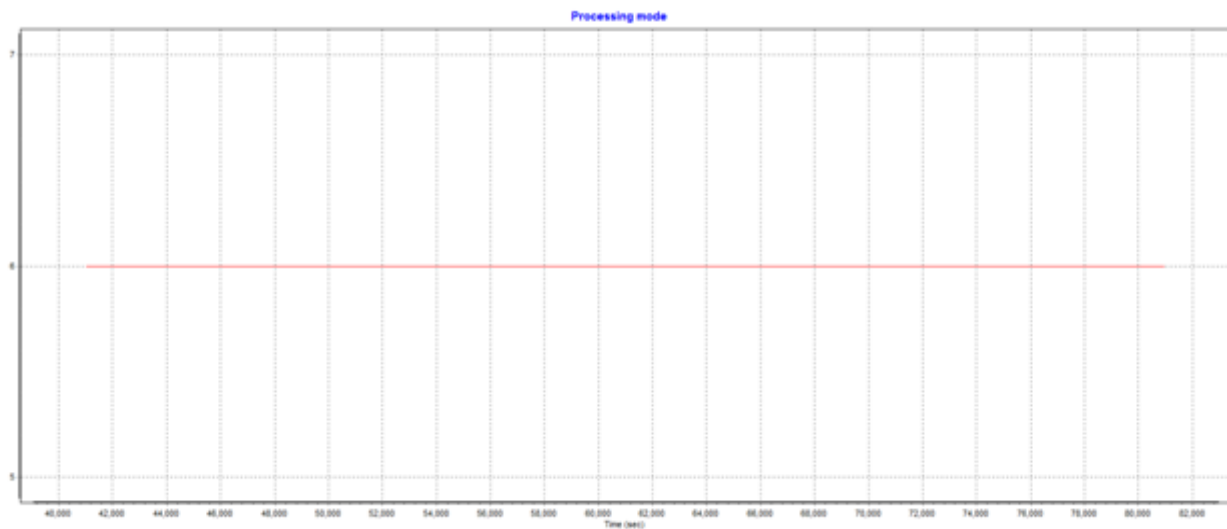
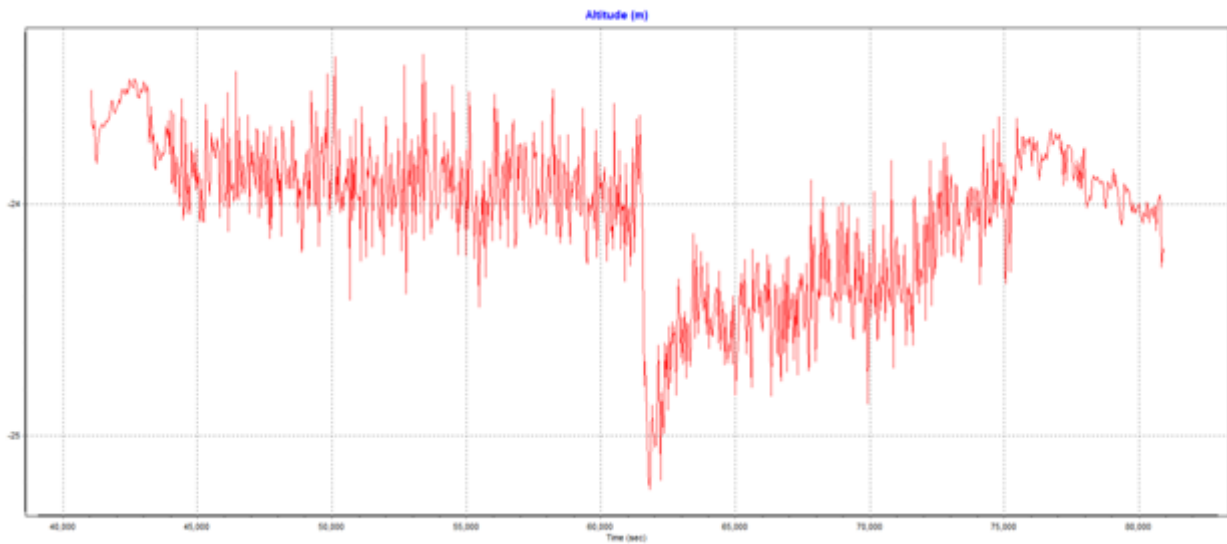
Getting to the HIPS data, both realtime and post processed uncertainty values seem optimistic given the following graph of GPS Height computed in Caris:



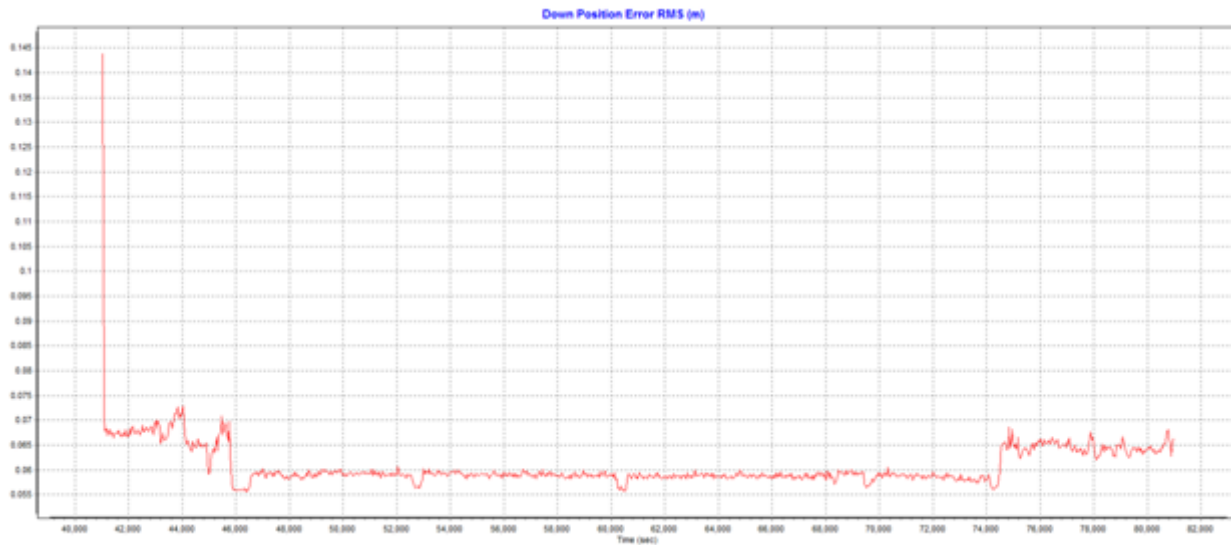
The GPS Height spikes over 1 meter when computed using an ERS solution claiming 0.5m uncertainty at most for the same spike. This, of course translates to a GPS water level issue and manifests in the HIPS depth surface. Depending on when this happens, interpolation may be possible. If it happens through the start/end of a line there is no way to interpolate in HIPS. An alternate solution would be necessary, most likely add to the fill plan and recover.

Issue 2: Altitude Spike with no Change in Solution Status

This one has both Applanix and Marinestar (Fugro) fairly stumped. We are seeing cases where the altitude significantly jumps, but no corresponding change in solution status or increase in RMS was reported. Additionally, there are no indications of degradation in the constellation (DOP, #SVs, cycle slips, etc.). It manifests as you would expect a regular corrections drop with a sudden change and a slow return back to normal, however the corrections are locked throughout.



1 = Fixed RTK, 2 = Float RTK, 3 = Trimble RTK, 4 = PPP, 5 = Marinestar vP, 6 = Marinestar GPS, 7 = Code GNSS, 8 = Marinestar vBS, 9 = GN, 10 = GN

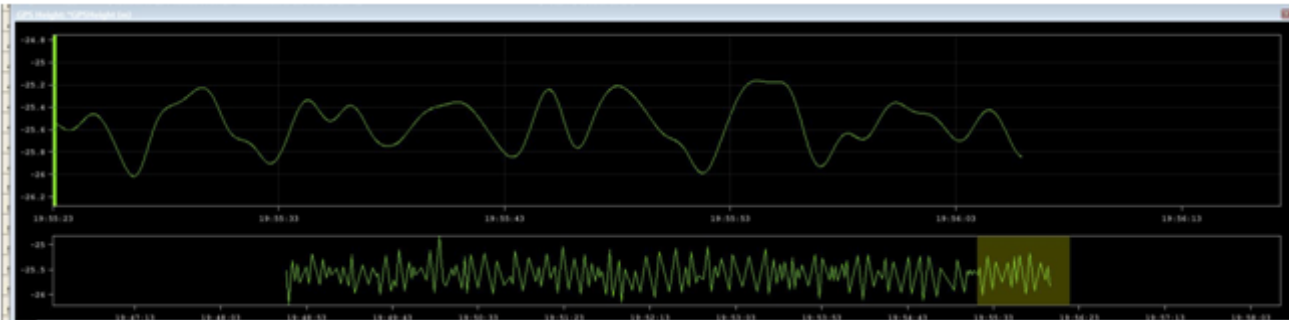


Since this takes such a long time to recover, interpolation is likely not an option. Again a recover is our most likely avenue.

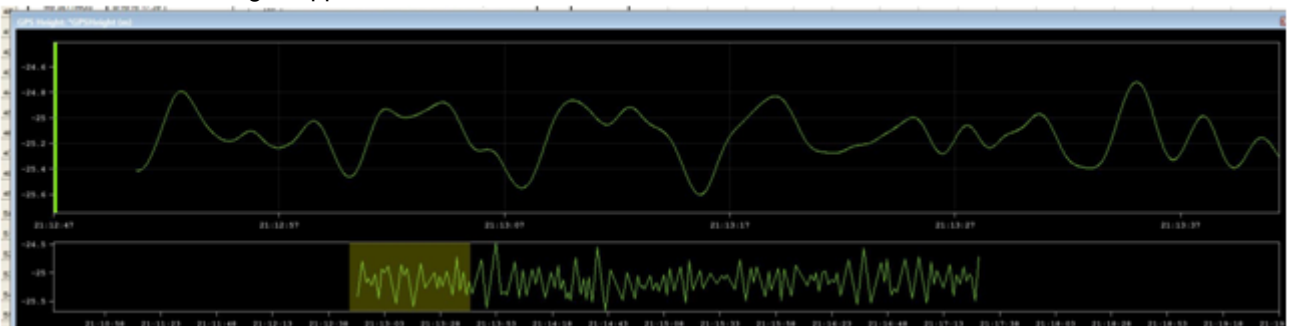
Issue 3: Shift in GPS height tied to Initialization

Again, this has only happened once, but it happened, so I want to detail it. On DN228 on one of the vessels, there was a computer crash and all systems were rebooted. The G2 waterlevel in the line after the restart was offset from the G2 waterlevel before the restart by approximately 40cm. There was no indication of performance degradation in the RMS or solution status, etc. It appears to be a bad initialization. The corresponding tidal change between the crash and restart according to the surrounding gauges is approximately 2cm.

Before Crash: GPS Height Approx -25.6



After Crash: GPS Height Approx -25.2



Marinestar to ERS/Vdatum Comparison

Above I have detailed some "operational" inconsistencies with the system. We have also done a number of comparisons of GPS Tide vs. TCARI processed data and are consistently finding that GPS tides produces a deeper surface by approximately 40cm. Notably one of the areas we have performed this examination on is our performance test location. Each vessel ran the same set of crosshatched lines over a fish haven (a bunch of retired oil rigs scattered on the seafloor, pretty cool looking). Using TCARI each the 3 independent surfaces from each vessel have excellent agreement. Using GPS tides the 3 independent surfaces show agreement within 20cm as

expected with the Marinestar accuracy. However, as stated before the set of surfaces produced using GPS tides is statically deeper than the set of surfaces produced using TCARI by approximately 40cm.

Moving Forward

Our understanding is that the OCS would prefer that our team move forward in a manner that will produce the most accurate and chart worthy data as possible with the technology we have proposed to use on the project. We believe that moving forward, our best option for vertically controlling these data is to adopt the TCARI method project wide. Below are a few reasons we believe this to be the best route forward at this point.

1. Startup has well passed and we are getting into the real "guts" of our project for a lack of better words. With these Marinestar operational details looming over our data our focus is distracted towards correcting and solving them, focus that could be directed towards other things (quality of MBES data, features, water-column feature development, etc.)
2. From the data that we have thus far, TCARI is proving to create a much smoother surface to work with. This makes MBES processing and feature detection easier for obvious reasons.
3. TCARI is producing an overall shoaler solution which is more attractive from a navigational liability standpoint. Note: We have arrived at this surface difference empirically, we would like to perform a couple hour float test next to the Pilot Station East gauge to confirm our findings of the 40cm separation between TCARI and ERS/V-Datum.
4. Marinestar would still bring value to the project by increasing horizontal accuracy. I also want to be clear that we are not "giving up" on Marinestar, we still very much want to understand the advantages and limitations. We will continue to use the Marinestar corrections throughout the project, check the altitude data in Pospac, and maintain a log of outages and issues. The information gained from collecting Marinestar data throughout the project will be beneficial in understanding the systems capabilities for future charting work.

That's all I have for now, I just wanted to let you know our intentions and be transparent about the issues that are unfolding onsite.

Have a nice weekend and happy sailing.

Dave

--

David Neff, C.H.
Mobile: (415)-517-0020
www.etracinc.com

--

David Neff, C.H.
Mobile: (415)-517-0020
www.etracinc.com

--

Dave Neff, C.H.
Mobile: (415)-517-0020
www.etracinc.com



Isadora Kratchman <izzy@etracinc.com>

Fwd: Grand Isle Gauge 8761724

David Neff <david@etracinc.com>

Fri, Aug 26, 2016 at 7:41 PM

To: Verena Kellner <verena@etracinc.com>, Isadora Kratchman <izzy@etracinc.com>, Dave Bernstein <dave@geodynamicsgroup.com>

Just got this

----- Forwarded message -----

From: **Katrina Wyllie - NOAA Federal** <katrina.wyllie@noaa.gov>

Date: Friday, August 26, 2016

Subject: Grand Isle Gauge 8761724

To: David Neff <david@etracinc.com>

FYI

----- Forwarded message -----

From: **Louis Licate - NOAA Federal** <louis.licate@noaa.gov>

Date: Fri, Aug 26, 2016 at 11:36 AM

Subject: Re: Grand Isle Gauge 8761724

To: Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>

Cc: "_NOS.CO-OPS.HPT" <nos.coops.hpt@noaa.gov>, Michael Gonsalves - NOAA Federal <michael.gonsalves@noaa.gov>, Patrick Keown - NOAA Federal <patrick.keown@noaa.gov>, Jacklyn James - NOAA Federal <jacklyn.c.james@noaa.gov>

Hi Katrina-

This event was recorded by both the primary (acoustic) and backup (pressure) sensors at Grand Isle. So for now it appears to be a real event.

Other gauges in the area also show drops in water level at the same time, though not nearly as dramatic.

We will continue to investigate and let you know what we find.

Thanks!

-Lou

|

--

Louis Licate

Oceanographic Division
Center for Operational Oceanographic Products and Services
National Ocean Service
National Oceanic and Atmospheric Administration1305 East-West Highway, 7144
Silver Spring, MD 20910
Office: [240-533-0616](tel:240-533-0616)

--

David Neff, C.H.

Mobile: [\(415\)-517-0020](tel:415-517-0020)www.etracinc.com



GrandIsle.JPG
54K



Fwd: TCARI Uncertainty Values

2 messages

David Neff <david@etracinc.com>
To: NOAA <noaa@etracinc.com>

Mon, Aug 29, 2016 at 7:49 PM

The response from NOAA regarding our TCARI uncertainty issues.

----- Forwarded message -----

From: **Corey Allen - NOAA Federal** <corey.allen@noaa.gov>
Date: Mon, Aug 29, 2016 at 12:35 PM
Subject: Re: TCARI Uncertainty Values
To: David Neff <david@etracinc.com>
Cc: Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>, Jacklyn James - NOAA Federal <jacklyn.c.james@noaa.gov>

Neff,

Fugro brought this to our attention just this morning.....We are working on a fix but don't yet have an estimate on completion (either it will be easy and done tomorrow or it'll take longer at which point I'll fire off a more formal email). Thanks for the heads up, and sorry for the issues you are seeing.

Stay tuned,
Corey

On Mon, Aug 29, 2016 at 3:28 PM, David Neff <david@etracinc.com> wrote:

Hi Katrina,

We are having some trouble incorporating tidal uncertainty through TCARI and are looking for some guidance.

Description of issue

TCARI does not seem to be writing the required tide uncertainty files to the HDCS line directories. The tide value is being written correctly, however the HIPS required uncertainty files (TideError and TideErrorTmIdx) are not being created. TCARI is creating a TideErrorFile.txt but that is not a format that the current version of HIPS (9.1.6) uses. As a result, when computing TPU, HIPS gives the warning that static values are being used as opposed to realtime as requested. We have reviewed the documentation included with the TCARI as well as the documentation found at <http://trac.pydro.noaa.gov/wiki/TCARIFieldApp> but have not found any detailed description of how it should be working, only that TCARI will apply the tidal uncertainty automatically.

The documentation online states:

TCARI will create new "Tide", "TideError", "TideErrorTmIdx", "TideLineSegments", and "TideTmIDX" files for each line of bathymetry.

However, when we run the program TCARI is only creating the following highlighted files:

ew folder

Name	Date modified	Type
TPelineSegments	8/18/2016 20:15 PM	File
TPE	8/18/2016 20:15 PM	File
TideTmIdx	8/16/2016 14:45 PM	File
TideLineSegments	8/16/2016 14:45 PM	File
TideErrorFile.txt	8/16/2016 14:46 PM	TXT File
Tide	8/16/2016 14:45 PM	File
svpVesselSettings	8/25/2016 17:37 PM	File
Svp	8/25/2016 17:37 PM	File

I have included the TideErrorFile.txt as an attachment to this email. Judging by its name, I would expect this to include the tidal uncertainty value. If that is correct it is producing uncertainty values in the 0.01 to 0.02 meter range, which seem much too low to be offshore uncertainty values.

Questions

1. Is there more documentation on TCARI operation (specifically how it handles uncertainty) that we can be directed towards?
2. Is there a TCARI Guru, for a lack of better words, at OCS, CO-OPS, Caris, etc. that you could point us towards?

Thanks!
Dave

--
David Neff, C.H.
Mobile: [\(415\)-517-0020](tel:415-517-0020)
www.etracinc.com

--
J. Corey Allen
Team Lead, Operations Branch
Hydrographic Surveys Division
Office of Coast Survey, NOAA
Corey.Allen@noaa.gov
301.713.2777 x119 (Office)
301.717.7271 (Cell)

--
David Neff, C.H.
Mobile: [\(415\)-517-0020](tel:415-517-0020)
www.etracinc.com

----- Forwarded message -----

From: **Katrina Wyllie - NOAA Federal** <katrina.wyllie@noaa.gov>

Date: Wednesday, August 31, 2016

Subject: TCARI Uncertainty Values

To: David Neff <david@etracinc.com>

Cc: Jacklyn James - NOAA Federal <jacklyn.c.james@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>

Dave,

The fix for this TCARI tide uncertainty issue was sent out via auto-update today. Please let us know if you're still having problems applying tidal uncertainty through TCARI.

Katrina

[Quoted text hidden]



Fwd: TCARI vs. ERS Tide Solution

1 message

David Neff <david@etracinc.com>
To: Isadora Kratchman <izzy@etracinc.com>

Tue, Sep 6, 2016 at 8:12 PM

----- Forwarded message -----

From: **David Neff** <david@etracinc.com>
Date: Tuesday, August 30, 2016
Subject: TCARI vs. ERS Tide Solution
To: Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>, Jacklyn James - NOAA Federal <jacklyn.c.james@noaa.gov>, Corey Allen - NOAA Federal <corey.allen@noaa.gov>

Hi Katrina,

Over the past few weeks we have been gathering information on a shift we are seeing between TCARI derived waterlevels and ERS derived water levels. With the analysis we have done it is seemingly pointing to an issue with the Pilot Station East Gauge. I will provide the information we have and you can forward as you see necessary to appropriate parties.

I have attached the following to this email:

1. PDF document detailing the issue
2. The separation model we are using that we have created on our own using the current version of V-Datum.

We are asking for guidance on how to move forward. i.e. whether to submit data referenced to TCARI as is or to hold off until there is resolution to this. We are nearing the completion of processing and reporting on Sheet 2 and would like to take advantage of the RSA feedback vehicle while still the field, if possible.

Dave


--

David Neff, C.H.
Mobile: (415)-517-0020
www.etracinc.com

--

David Neff, C.H.
Mobile: (415)-517-0020
www.etracinc.com

2 attachments

 **VDATUM_xyWGS84-MLLW_geoid12a.zip**
2638K

 **TCARI_vs._ERS-V-Datum.pdf**
2098K



Fwd: TCARI

1 message

David Neff <david@etracinc.com>
To: Isadora Kratchman <izzy@etracinc.com>

Wed, Nov 23, 2016 at 12:25 AM

----- Forwarded message -----

From: **Katrina Wyllie - NOAA Federal** <katrina.wyllie@noaa.gov>
Date: Thu, Sep 8, 2016 at 11:35 AM
Subject: Re: TCARI
To: David Neff <david@etracinc.com>

So this is what COOPS will be adding to the new SOW they're working on:

Upon completion of project, submit a Pydro generated request for smooth tides, with times of hydrography abstract and mid/mif tracklines attached. Forward this request to final.tides@noaa.gov. Provide the project number, as well as sheet number, in the subject line of the email.

CO-OPS will review the times of hydrography, final tracklines, and six-minute water level data from all applicable water level gauges. If there are any discrepancies, CO-OPS will make the appropriate adjustments and forward a revised TCARI grid and solutions to the field group and processing branch for final processing.

On Thu, Sep 8, 2016 at 2:34 PM, David Neff <david@etracinc.com> wrote:

Ok, I've generated the request files for Sheet 2 and attached it here. Who specifically shall I send this to at CO-OPS for the official request?

I know I'm not supposed to just send it to you.

Dave

On Thu, Sep 8, 2016 at 1:09 PM, Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov> wrote:

Great!

On Thu, Sep 8, 2016 at 2:09 PM, David Neff <david@etracinc.com> wrote:

Autoupdates were turned on, yes.

Deleted entire TCARI folder.

Downloaded and installed new version 16.8.

I now have the TideRequest application.

Thanks!

On Thu, Sep 8, 2016 at 12:34 PM, Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov> wrote:

Dave,

Corey asked if you have auto updates turned on? (start--> toggleautoupdates)

If not, he suggested trying uninstall/reinstall <http://svn.pydro.noaa.gov/>

If it still doesn't work, let me know!

Katrina

--
David Neff, C.H.
Mobile: (415)-517-0020
www.etracinc.com

--
David Neff, C.H.
Mobile: (415)-517-0020
www.etracinc.com

--
Dave Neff, C.H.
Mobile: (415)-517-0020
www.etracinc.com



Isadora Kratchman <izzy@etracinc.com>

OPR-K339-KR-16 - H12942 - eTrac Inc. - Final Tides Request

7 messages

David Neff <david@etracinc.com>

Thu, Sep 8, 2016 at 6:56 PM

To: final.tides@noaa.gov

Cc: Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>, Jacklyn James - NOAA Federal <jacklyn.c.james@noaa.gov>, Isadora Kratchman <izzy@etracinc.com>

Please find attached the Final Tides Request for OPR-K339-KR-16 / H12942.

Please do not hesitate to contact me with questions.

--

David Neff, C.H.

Mobile: (415)-517-0020

www.etracinc.com



H12942_Final_Tide_Request.zip

228K

Final Tides - NOAA Service Account <final.tides@noaa.gov>

Wed, Sep 14, 2016 at 1:58 PM

To: David Neff <david@etracinc.com>

Cc: Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>, Jacklyn James - NOAA Federal <jacklyn.c.james@noaa.gov>, Isadora Kratchman <izzy@etracinc.com>, Colleen Fanelli - NOAA Federal <colleen.fanelli@noaa.gov>, David Wolcott - NOAA Federal <david.wolcott@noaa.gov>

Hello David,

May you double check the MapInfo file H12942_Final_Tide_Request.TAB, which is supposed to show the survey tracklines? It seems to be empty.

BTW, is the survey completed? If so, we may proceed to delete the three stations used by the project from the [Hydro Hot List](#).

Thanks,

Hua Yang

Hydrographic Planning Team

NOAA/National Ocean Service

Center for Operational Oceanographic Products and Services

Station 7128

1305 East West Highway, SSMC4

Silver Spring, MD 20910

Office: 240-533-0612

Email: Hua.Yang@noaa.gov

Web: <http://tidesandcurrents.noaa.gov/>

Hydro Hot List: <http://tidesandcurrents.noaa.gov/hydro.shtml>

[Quoted text hidden]

Final Tides - NOAA Service Account <final.tides@noaa.gov>

Wed, Sep 14, 2016 at 2:19 PM

To: David Neff <david@etracinc.com>

Cc: Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>, Jacklyn James - NOAA Federal <jacklyn.c.james@noaa.gov>, Isadora Kratchman <izzy@etracinc.com>, Colleen Fanelli - NOAA Federal

<colleen.fanelli@noaa.gov>, David Wolcott - NOAA Federal <david.wolcott@noaa.gov>

Hi David,

After a closer look, it is recognized that the MapInfo file is not empty, but the latitudes and longitudes of the tracklines seem to be at the opposite positioned, so the ship tracklines are shown in southern hemisphere in the map. May you please switch the position of them?

Thanks,

-Hua

[Quoted text hidden]

David Neff <david@etracinc.com>

Wed, Sep 14, 2016 at 2:35 PM

To: Final Tides - NOAA Service Account <final.tides@noaa.gov>

Cc: Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>, Jacklyn James - NOAA Federal <jacklyn.c.james@noaa.gov>, Isadora Kratchman <izzy@etracinc.com>, Colleen Fanelli - NOAA Federal <colleen.fanelli@noaa.gov>, David Wolcott - NOAA Federal <david.wolcott@noaa.gov>

Hua,

I've repeated and reattached the Tide Request process through the KR TCARI software with the same results. I don't have any control over how TCARI creates its MIF and MID files. Would this be something on the TCARI end. I believe we are the first contractor to request tides through the KR version of TCARI.

Dave

[Quoted text hidden]

3 attachments

 **H12942_Final_Tide_Request.mid**
572K

 **H12942_Final_Tide_Request.mif**
659K

 **H12942_Final_Tide_Request.pdf**
5K

Final Tides - NOAA Service Account <final.tides@noaa.gov>

Wed, Sep 14, 2016 at 2:40 PM

To: David Neff <david@etracinc.com>

Cc: Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>, Jacklyn James - NOAA Federal <jacklyn.c.james@noaa.gov>, Isadora Kratchman <izzy@etracinc.com>, Colleen Fanelli - NOAA Federal <colleen.fanelli@noaa.gov>, David Wolcott - NOAA Federal <david.wolcott@noaa.gov>

Hi David,

Thank you for your quick reply. We will discuss the issue here and our team lead Colleen Fanelli will contact you for further communication.

Thanks,

-Hua

[Quoted text hidden]

Colleen Fanelli - NOAA Federal <colleen.fanelli@noaa.gov>

Wed, Sep 14, 2016 at 5:49 PM

To: Final Tides - NOAA Service Account <final.tides@noaa.gov>

Cc: David Neff <david@etracinc.com>, Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>, Jacklyn James - NOAA Federal <jacklyn.c.james@noaa.gov>, Isadora Kratchman <izzy@etracinc.com>, David Wolcott - NOAA Federal <david.wolcott@noaa.gov>

David,

We have resolved the issue. Thank you for resending the files.

~Colleen

--

Colleen Fanelli
Oceanographer, Hydrographic Planning Team Lead
NOAA/National Ocean Service
Center for Operational Oceanographic Products and Services
Station 7127
1305 East-West Highway N/OPS3
Silver Spring, MD 20910
Colleen.Fanelli@noaa.gov
Phone (NEW): (240) 533 - 0615

Compare the meteorologist with his or her oceanographer colleague: the oceanographer may spend many years planning a campaign of observations of currents, temperature and salinity in a tiny area of the ocean, many weeks of discomfort on a ship taking the observations and several years analysing them back at the laboratory. All of this work is done for the research meteorologist, several times a day on a global basis, who merely has to read the numbers from an archive and construct whatever diagnostic quantity is required.

—Ian N. James, Introduction to Circulating Atmospheres

[Quoted text hidden]

David Neff <david@etracinc.com>

Wed, Sep 14, 2016 at 5:58 PM

To: Colleen Fanelli - NOAA Federal <colleen.fanelli@noaa.gov>

Cc: Final Tides - NOAA Service Account <final.tides@noaa.gov>, Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>, Jacklyn James - NOAA Federal <jacklyn.c.james@noaa.gov>, Isadora Kratchman <izzy@etracinc.com>, David Wolcott - NOAA Federal <david.wolcott@noaa.gov>

Thanks Colleen, good to hear.

Dave

[Quoted text hidden]

[Quoted text hidden]



OPR-K339-KR-16 - H12941 - eTrac Inc. - Final Tides Request

1 message

David Neff <david@etracinc.com>

Mon, Oct 3, 2016 at 6:55 PM

To: Final Tides - NOAA Service Account <final.tides@noaa.gov>, Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>, Jacklyn James - NOAA Federal <jacklyn.c.james@noaa.gov>, charting@etracinc.com, Corey Allen - NOAA Federal <corey.allen@noaa.gov>

Please find attached the Final Tides Request for:

OPR-K339-KR-16 / H12941

OPR-K339-KR-16 / H12943

OPR-K339-KR-16 / H12944

OPR-K339-KR-16 / H12945

OPR-K339-KR-16 / H12947

I have also, for convenience re-attached the Final Tides Requests for the following surveys so they are all in one thread:

OPR-K339-KR-16 / H12942

OPR-K339-KR-16 / H12946

This completes the final tides requests for OPR-K339-KR-16.

--

Dave Neff, C.H.

Mobile: (415)-517-0020

www.etracinc.com

7 attachments

 **H12941_Final_Tide_Request.zip**
273K

 **H12942_Final_Tide_Request.zip**
228K

 **H12943_Final_Tide_Request.zip**
321K

 **H12944_Final_Tide_Request.zip**
300K

 **H12945_Final_Tide_Request.zip**
220K

 **H12946_Final_Tide_Request.zip**
21K

 **H12947_Final_Tide_Request.zip**
131K

Fwd: Final Tide Notes for K339-KR-2016 (H12941, H12942, H12943, H12944, H12945, H12946, & H12947)

2 messages

Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>

Tue, Oct 25, 2016 at 7:48 PM

To: David Neff <david@etracinc.com>, Isadora Kratchman <izzy@etracinc.com>

Cc: Russell Quintero - NOAA Federal <russell.quintero@noaa.gov>, Corey Allen <corey.allen@noaa.gov>

Dave,

Final tides are now available for OPR-K339-KR-16. The files and new TCARI model are attached to this email.

Katrina

----- Forwarded message -----

From: **Colleen Fanelli - NOAA Federal** <colleen.fanelli@noaa.gov>

Date: Tue, Oct 25, 2016 at 3:21 PM

Subject: Final Tide Notes for K339-KR-2016 (H12941, H12942, H12943, H12944, H12945, H12946, & H12947)

To: Katrina Wyllie - NOAA Federal <Katrina.Wyllie@noaa.gov>

Cc: Russell Quintero - NOAA Federal <russell.quintero@noaa.gov>, Corey Allen <corey.allen@noaa.gov>, Richard Brennan - NOAA Federal <richard.t.brennan@noaa.gov>, AHB Chief - NOAA Service Account <ahb.chief@noaa.gov>, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>, Patrick Burke <pat.burke@noaa.gov>, Jerry Hovis <gerald.hovis@noaa.gov>, "_NOS.CO-OPS.HPT" <nos.coops.hpt@noaa.gov>, Laura Rear McLaughlin - NOAA Federal <laura.rear.mclaughlin@noaa.gov>, Lorraine Robidoux - NOAA Federal <lorraine.robidoux@noaa.gov>

Dear Katrina Wyllie,

A zipped file, named K339KR2016_FinalTides, containing the final tide notes for OPR-K339-KR-2016, Registry Nos. H12941, H12942, H12943, H12944, H12945, H12946, and H12947 is being provided at ftp://tidepool.nos.noaa.gov/pub/outgoing/HPT/Smooth_Tides_TCARI/K339KR2016/. The following files are included in the zipped file:

H12941.pdf
H12942.pdf
H12943.pdf
H12944.pdf
H12945.pdf
H12946.pdf
H12947.pdf

Tide station data for Pilots Station East, SW Pass, LA (8760922), Grand Isle, LA (8761724), and Port Fourchon, Belle Pass, LA (8762075) are provided within the final TCARI grid. Water level data should not be downloaded for project OPR-K339-KR-2016. The *.pdf files are the tide notes in Adobe Acrobat format.

The following is the final TCARI file:

K339KR2016Final.tc

Please use the TCARI grid file "K339KR2016Final.tc" as the final grid for project OPR-K339-KR-2016, Registry Nos. H12941, H12942, H12943, H12944, H12945, H12946, and H12947 during the time period between August 3rd and October 2nd, 2016.

Please let me know when you have captured all files successfully. Feel free to give me a call at (240)533-0615 if there are any problems.

~Colleen

--
Colleen Fanelli
Oceanographer, Hydrographic Planning Team Lead
NOAA/National Ocean Service
Center for Operational Oceanographic Products and Services
Station 7127
1305 East-West Highway N/OPS3
Silver Spring, MD 20910
Colleen.Fanelli@noaa.gov
Phone (NEW): (240) 533 - 0615

Compare the meteorologist with his or her oceanographer colleague: the oceanographer may spend many years planning a campaign of observations of currents, temperature and salinity in a tiny area of the ocean, many weeks of discomfort on a ship taking the observations and several years analysing them back at the laboratory. All of this work is done for the research meteorologist, several times a day on a global basis, who merely has to read the numbers from an archive and construct whatever diagnostic quantity is required.

--Ian N. James, Introduction to Circulating Atmospheres


8 attachments


 **H12942.pdf**
301K

 **H12943.pdf**
301K


 **H12944.pdf**
301K

 **H12945.pdf**
302K

 **H12946.pdf**
299K

 **H12947.pdf**
302K

 **K339KR2016Final.tc**
17060K

 **H12941.pdf**
300K

David Neff <david@etracinc.com>

Tue, Oct 25, 2016 at 7:50 PM

To: Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>

Cc: Isadora Kratchman <izzy@etracinc.com>, Russell Quintero - NOAA Federal <russell.quintero@noaa.gov>, Corey Allen <corey.allen@noaa.gov>

Great, thanks Katrina!

[Quoted text hidden]

--
Dave Neff, C.H.
Mobile: (415)-517-0020
www.etracinc.com



final.tc file question

5 messages

Isadora Kratchman <izzy@etracinc.com>

Thu, Oct 27, 2016 at 4:23 PM

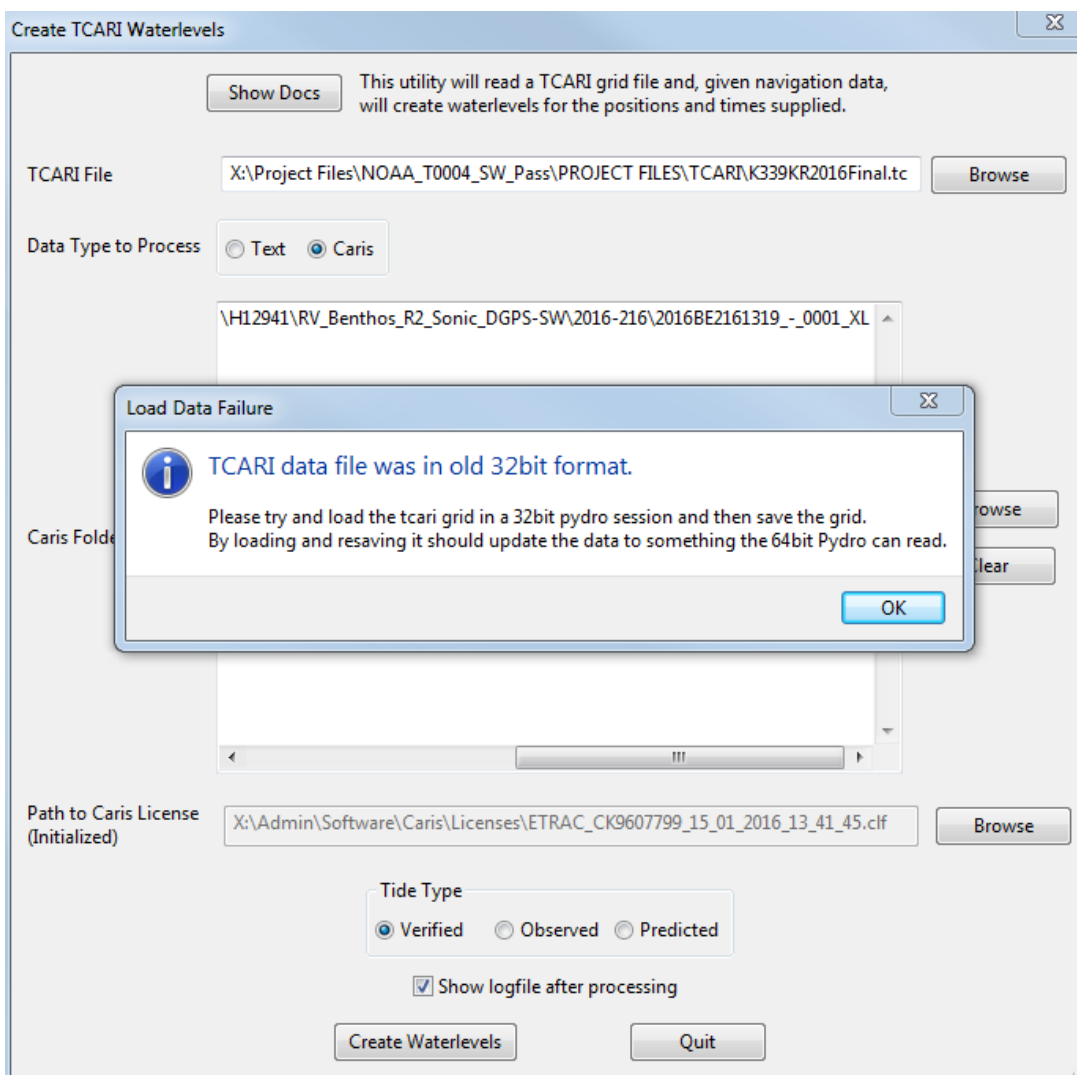
To: katrina.wyllie@noaa.gov

Cc: David Neff <david@etracinc.com>, Charting <charting@etracinc.com>

Katrina,

We are unable to use the **final.tc** file in the TCARI program. A "Load Data Failure" error comes up when the "create waterlevels" button is pressed. Looks like it is a 32bit vs 64bit issue. We have the toggle check for updates on so when the TCARI program is launched it goes through its updates. The TCARI program version we have is 16.8.

Below is a screen capture of the error.



Best,
Izzy

--
Isadora Kratchman
eTrac Inc.
izzy@etracinc.com

Mobile: (301)-706-9246
www.etracinc.com

Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>
To: Isadora Kratchman <izzy@etracinc.com>
Cc: David Neff <david@etracinc.com>, Charting <charting@etracinc.com>

Thu, Oct 27, 2016 at 4:50 PM

Hi Izzy,

Barry and Corey are looking into this right now. I should have something back to you very soon.

Katrina
[Quoted text hidden]

Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>
To: Isadora Kratchman <izzy@etracinc.com>
Cc: David Neff <david@etracinc.com>, Charting <charting@etracinc.com>

Thu, Oct 27, 2016 at 4:57 PM

Izzy,

Barry wasn't expecting a 32 bit format from COOPS. He is updating the Pydro module today and will have the auto-update out tomorrow. I'll let you know as soon as I hear from him that it's been pushed out.

I apologize for the inconvenience.

Katrina
[Quoted text hidden]

Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>
To: Isadora Kratchman <izzy@etracinc.com>
Cc: David Neff <david@etracinc.com>, Charting <charting@etracinc.com>

Thu, Oct 27, 2016 at 7:00 PM

Izzy,

Can you shut down TCARI, relaunch and try again?
Should be working now.

Katrina
[Quoted text hidden]

Isadora Kratchman <izzy@etracinc.com>
To: Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>
Cc: David Neff <david@etracinc.com>, Charting <charting@etracinc.com>

Thu, Oct 27, 2016 at 7:22 PM

Katrina,

It is running now. Thanks!

Best,
Izzy
[Quoted text hidden]

Fwd: Survey outlines

David Neff <david@etracinc.com>
To: Isadora Kratchman <izzy@etracinc.com>

Fri, Oct 28, 2016 at 4:06 PM

----- Forwarded message -----

From: **Katrina Wyllie - NOAA Federal** <katrina.wyllie@noaa.gov>
Date: Fri, Oct 28, 2016 at 8:20 AM
Subject: Re: Survey outlines
To: David Neff <david@etracinc.com>

Dave,

There was no problem with the tide gauge data; the fix was with the datum calculation. I asked COOPS about what they did exactly and got this:

We treated Pilots Station as a 3-month Hydro Installation and computed a 3-month preliminary datum from data collected between July and September, 2016. This shorter datum is more accurate or closer to the actual sea level state in the vicinity of Pilots Station. As this datum is preliminary, it cannot be retrieved through Opendap or other web services, thus any data that would be downloaded from within PydroGIS (TCARI) would be on the currently accepted (and outdated) datum. We loaded the data referenced to the preliminary datum into the TCARI Grid due to this (as well as the data from Grand Isle and Port Fourchon). For reference and future knowledge, Pilots Station will be switching to an accelerated datum update schedule. The datum will be updated on an annual basis, instead of on a 5-year cycle to account for the known subsidence of the Bird Foot region.

Does this help?

Katrina

On Thu, Oct 27, 2016 at 5:02 PM, David Neff <david@etracinc.com> wrote:

Yeah no worries, we can talk tomorrow.

Based on our meeting with CO-OPS we were expecting some adjustments to be made to the Pilot Station East gauge as CO-OPS informed us there were issues with the gauge data. If we're reading the tide notes correctly, they are saying the gauge data is operating within the tolerances, so we're more just curious what, if anything, was done. Maybe we are misunderstanding the tide note. Or maybe there is not a need to adjust the gauge data any longer?

Dave

On Thu, Oct 27, 2016 at 1:56 PM, Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov> wrote:

No worries, thanks for submitting. I'm out of the office, okay if we talk tide logs tomorrow?
I have a season debrief basically all day but would be available on the phone at 1730 EST. If it's easier to email, I can probably answer while I'm in the debrief.

Katrina

On Thu, Oct 27, 2016 at 3:54 PM, David Neff <david@etracinc.com> wrote:

Just sent them, sorry about that. We are checking off the remaining additional deliverables marine mammal logs, etc.

Also, we had some questions about the tide logs we received. It might be good to have a quick phone conversation or if you're on G-chat to decide if you want to loop in CO-OPS off the bat. Are you around today?

Dave

On Thu, Oct 27, 2016 at 5:52 AM, Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov> wrote:
Morning Dave,

Just checking, have you had a chance to submit survey outlines?

Thank you,
Katrina

--

Dave Neff, C.H.
Mobile: [\(415\)-517-0020](tel:(415)517-0020)
www.etracinc.com

--

Dave Neff, C.H.
Mobile: [\(415\)-517-0020](tel:(415)517-0020)
www.etracinc.com

--

Dave Neff, C.H.
Mobile: [\(415\)-517-0020](tel:(415)517-0020)
www.etracinc.com



eTrac Backscatter Issues for H12942, Vessel Taku

Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov>

Wed, Apr 19, 2017 at 12:30 PM

To: "James J. Miller" <james.j.miller@noaa.gov>

Cc: Corey Allen - NOAA Federal <corey.allen@noaa.gov>, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov>, Briana Welton - NOAA Federal <briana.welton@noaa.gov>, Russell Quintero - NOAA Federal <russell.quintero@noaa.gov>, Glen Rice - NOAA Federal <glen.rice@noaa.gov>, Clinton Marcus - NOAA Federal <clinton.r.marcus@noaa.gov>

Hi James,

I promise I understand your concerns and it was discussed at length yesterday before responding to Gene's email. I agree the HSSD for backscatter is wanting but until the HSSD changes in 2018, the recommendation on this topic is still to make a note in the eTrac SAR with no additional ask of the KR.

Backscatter is not a primary deliverable like grids or FFF.000 files in 2016 HSSD. Rick made it clear that the HSSD will change in 2018 to require processed backscatter. Until this changes with 2018 HSSD, we cannot hold NOAA or KR responsible for something that is a requirement with lacking specifications (actual formats with what should be included in that format, mosaics, etc). The 2018 HSSD should say what specific file format is acceptable, what the deliverable is, and possibly language that is similar to the bathymetry requirements you stated in 8.3.2 that say the data should be able to be opened and acted upon in whatever software package (if it is determined to even be necessary to review raw backscatter data). And of course the KR's will make sure they charge us the appropriate consideration.

Ops does not apply the same reasoning that you stated to multibeam bathymetry at this time. The KR is in compliance with HSSD and no additional work or deliverable will be requested for backscatter. Corey, if you would like me to confirm this officially with the Contracting Officer, please let me know. I am in COR 3 training this week but will be checking email.

Thank you,
Katrina

On Wed, Apr 19, 2017 at 10:27 AM, James J. Miller <james.j.miller@noaa.gov> wrote:

All,

I respectfully request that OPS reconsider its reasoning on this matter. In my opinion, there is a difference between data in a format that is 'supported' by a program and data that is actually 'readable' in the program. For instance, the .ALL, .XTF, and .GSF file formats are theoretically compatible with FMGT, but only if they contain properly formatted bathy and backscatter information. What good is data that has the correct file extension but cannot be opened in our software? The wording of 2017 HSSD Section 8.3.4 (backscatter) is similar to 2017 HSSD Section 8.3.2 (bathy):

8.3.2 Bathymetric Data

The hydrographer's bathymetric data format shall provide complete traceability for all positions, soundings, and correctors including sensor offsets, biases, dynamic attitude, sound speed, position, sensor position, date and time, vertical datum reducers, and sounding data from acquisition through postprocessing. Data quality and edit flags must be traceable.

"Full resolution" data are defined as all data acquired and logged during normal survey operations. Information and specifications on CARIS HIPS and SIPS and data formats may be obtained from CARIS at 506-458-8533.

Full Resolution Echosounding Data

The hydrographer shall submit full resolution echosounding data in a format readable by CARIS HIPS and SIPS version 9 or above. Full resolution echosounding data shall be delivered fully corrected for tides, sound speed, vessel offsets, draft and dynamic draft. These corrections may be made within CARIS, with data submitted as a complete CARIS project (including HDCS files, sound speed files, Vessel Configuration, CARIS tide files, etc.). CARIS HIPS and SIPS users shall not utilize the "Carry over raw data files" to the HDCS project structure during

If OPS were to apply the same reasoning to the bathymetric data, then misformatted or corrupted bathy files that cannot be opened or converted in HIPS would be acceptable as long as they are in a file format that is ordinarily compatible in Caris. I would argue this is not the intent of the phrase "in a format readable by..."

Respectfully,
James

James J. Miller
Physical Scientist
NOAA Office of Coast Survey
Atlantic Hydrographic Branch
439 W York St | Norfolk, VA | 23510
[757-441-6746](tel:757-441-6746) x 111

On Tue, Apr 18, 2017 at 4:22 PM, Katrina Wyllie - NOAA Federal <katrina.wyllie@noaa.gov> wrote:

Hi Gene,

Thank you for bringing this to my attention. The 2016 HSSD does state: The hydrographer shall submit raw backscatter data in a format readable by IVS Fledermaus Geocoder Toolbox.

Technically eTrac provided XTF data which is a readable format. The 2016 HSSD does not state that the XTF files must be successfully used to create a backscatter mosaic by AHB. After conferring with Corey, acting Chief of Ops, we find eTrac in compliance of the HSSD and will not request additional work from this contractor. A note in the SAR is appropriate in this situation. This is the same situation we find ourselves in with FUGRO who also uses a dual head and will not have PHB backscatter mosaics created for their geoPDFs. This is not a failure of the KRs.

The goal is to have the 2018 HSSD specify the (generic? software-agnostic?) format for processed backscatter as well as if there is an additional deliverable (i.e. mosaic) and what the specs of that deliverable should be (e.g. resolution, color, projection, etc.). I don't believe I have seen a proposal for the 2018 HSSD on the desired specs/deliverables for processed backscatter but I would have to check the results of the backscatter breakout group from FPW. Given your expertise, we welcome your input on the 2018 HSSD!

Thank you,
Katrina

On Tue, Apr 18, 2017 at 2:34 PM, Castle Parker - NOAA Federal <castle.e.parker@noaa.gov> wrote:

Hello Katrina,

AHB has issues with the backscatter data for eTrac survey H12942 (OPR-K339) and the vessel Taku. The two other survey vessels processed the backscatter data appropriately, but not the Taku. The Taku is a dual head R2Sonic transducer, data acquired with Qinsy and exported to XTF format. I have attached a PDF print out of the QPS Jira service note. It is listed at SFM-2628 of which you can find in QPS's Jira system.

At this point, the result is related to the XTF and of which FMGT cannot handle dual head data, therefore AHB is unable to generate a backscatter mosaic. This means that the data provided is not readable to FMGT and is non-compliant of HSSD. The XTF submitted for Taku can be viewed in the following AHB network path:

T:\Surveys\Surveys\H12942_K339_eTrac_16\OPR-K339-KR-16_Offshore_SW_Pass\Data\Preprocess\Bathymetry\MBES\DN217_TA\

T drive absolute path is \\ocs-s-ahb-netap\Bravo\$\

Separate XTF per head is located:

T:\Surveys\Surveys\H12942_K339_eTrac_16\OPR-K339-KR-16_Offshore_SW_Pass\Data\Preprocess\Bathymetry\MBES\DN217_TA\Separate XTF per head\

The Taku coverage is in the Northeast corner of the survey and one line on the South side. Reference image below.

The XTF format is not the normal XTF data file that FMGT can read. The XTF files submitted per head does not contain backscatter intensity information and only contains navigation and attitude packets. QPS discusses a work around, but from what we could tell would require Qinsy to process. Additional information should follow the last AHB entry to the service note.

At this point I don't know a solution or can offer suggestions, other than requesting from eTrac to include the bathy and intensity data as separated as port and starboard transducers. Maybe the separated XTF files were improperly exported.? It seems that although the transducers are separate, it was recorded as being combined as one XTF file with combined dual head data. DAPR is attached as well for vessel details.

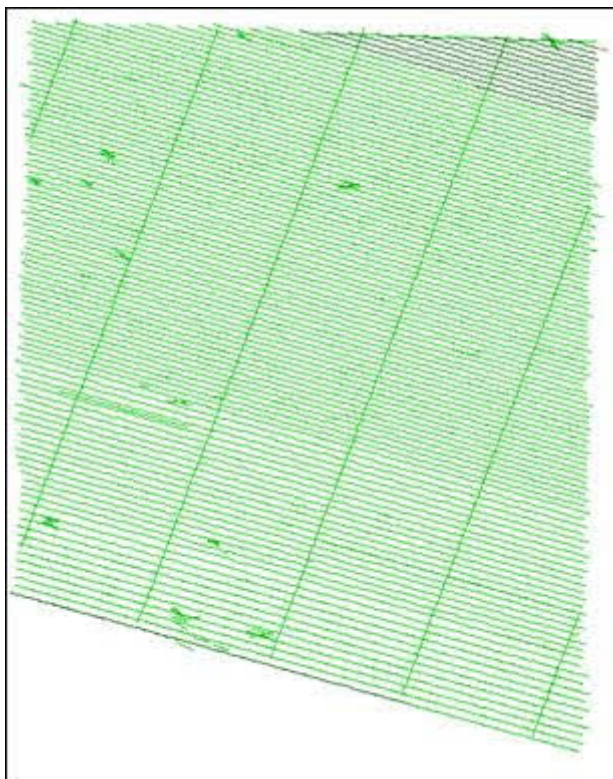
H12942 backscatter issue is related to the Taku's dual head, which is in essence two separate heads one port and one starboard. The other two vessels are single head. It is our request that you consider the options we should take. Options could/would include eTrac re-exporting the separated head data that includes more than attitude packets, or we document the field unit as being non-compliant for the Taku.

H12942 SAR is in the SAR Review queue and will be at a stopping point till we receive guidance and direction.

We defer you as Project Manager and request your input.

Regards,

Gene



Castle Eugene Parker

NOAA Office of Coast Survey

Atlantic Hydrographic Branch

Hydrographic Team Lead / Physical Scientist

castle.e.parker@noaa.gov

office (757) 441-6746 x115

Status:	Waiting for customer
Project:	Fledermaus Support
Component/s:	FMGT
Affects Version/s:	7.7.4
Fix Version/s:	None
Security Level:	NOAA - C0606

Type:	Bug	Priority:	Blocker
Reporter:	Clint Marcus [NOAA]	Assignee:	Deborah Febres Urdaneta [QPS]
Resolution:	Unresolved	Votes:	0
Labels:	None		
Remaining Estimate:	Not Specified		
Time Spent:	Not Specified		
Original Estimate:	Not Specified		

Attachments:	2016TA2171530_-_0001.zip DFUe.PNG DFUe2.PNG DFUe4.PNG DFUe5.PNG FMGT Error.zip FMGeocoder Toolbox-version7.7.4-64-bit-build499-f3d0d644-3583-4734-bab4-451f11ba995d.dmp
Issue Links:	Support Link
FM Apps:	FMGT (Geocoder Toolbox)
Platform:	Windows
Operating System:	Windows 10
Architecture:	64 bit
Participants:	Clint Marcus [NOAA], Deborah Febres Urd... , Ron Dekker [QPS]
Customer / Region:	NOAA - C0606 - North America

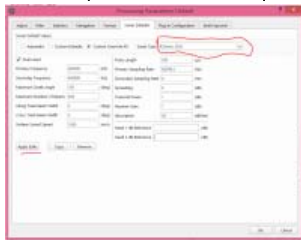
Description

QPS Notes

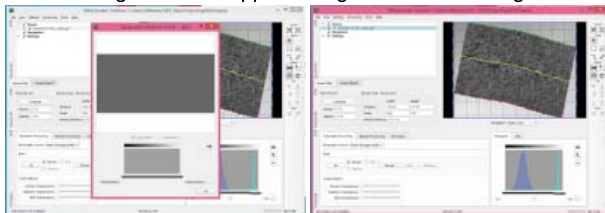
Reproducible crash FMGeocoder Toolbox-version7.7.4-64-bit-build499-f3d0d644-3583-4734-bab4-451f11ba995d.dmp with .XTF/.HDCS pairing and .XTF/GSF pairing. Application should not crash.

DATA in case and \\fs\Shared\Data\SUPPORT_ACTIVE\2017\Fledermaus\SFM-2628

Also, request to take a deeper look as the data. Able to create BA by custom override with R2 Sonar defaults (2024)



But doubting values as application gives an out of range result too. Is this data actually there?



I'm currently trying to process a BS mosaic for an eTrac survey that has a dual head sonar. There are two sonars in the same file. I've tried doing the match paired with the .xtf and HDCS and also with the gsf and FMGT doesn't like either option. The error I get when trying to process with the gsf is : Failed to estimate range resolution and Proper coverage was not extracted.

Comments

Comment by Ron Dekker [QPS] [16/Mar/17]

Hello Clint,

I reproduced the problem you were having and I was wondering how the .xtf and .qsf are created. Are you able to produce a different paired file such as a db/.qpd or a .qsf directly from Qimera?

Kind regards,
Ron

Comment by Clint Marcus [NOAA] [16/Mar/17]

Hi Ron,
The .xtf are created in the field and the .qsf were created in the office by exporting CARIS HDCS data directly to gsf. We do not have Qimera here in the office. Thanks for the help.

Cheers,
Clint

Comment by Deborah Febres Urdaneta [QPS] [16/Mar/17]

Good Day Clint,

Could please let us know which R2 specifically? That will help.

Thanks,
Deborah

Comment by Clint Marcus [NOAA] [16/Mar/17]

Hi Deborah,
The vessel in question utilized 2 R2Sonic 2024 MBES.

Thanks,
Clint

Comment by Deborah Febres Urdaneta [QPS] [16/Mar/17]

Good Day Clint,

I was able to make a mosaic with only the .gsf as it contains the BA.
I am able to replicate the crash with the pairing of the XTF and the .HDCS (on the back of that crash I am going to send this over to our development team).

There might be some issues with your data. The way I was able to produce something was changing the sonar defaults: Settings > Processing Parameters. You get to the sonar defaults tab; and you will have to choose custom override all, and choose the exact sensor you are working on. This might still get you an out of range result (uncalibrated), and started adjusting the head bias until I was able to get something. But before going down that path, I want our Developers to take a deeper look at your data, as this is not part of your normal workflow, rather forcing the application to work with your data.

When is the estimated deadline that you have for this delivery?

Regards,
Deborah

Comment by Clint Marcus [NOAA] [16/Mar/17]

Hi Deborah,
The backscatter mosaic will not hold up submission of the survey, it will just get noted as being in the stages of troubleshooting. That being said, sooner is always better. Thank you so much for all the help in figuring this out. We will wait on processing the lines with the workarounds that you used until further guidance can be obtained. Thanks again.

Cheers,
Clint

Comment by Deborah Febres Urdaneta [QPS] [12/Apr/17]

Good Day Client,

We heard back from our Developers and there seems to be a problem with the XTF files that you were given. The XTF for FMGT to be able to work with them, need to have the Raw Bathy records stored. This XTF do not.

Could eTrack re-export the XTF from QINSy with these raw records?
You can have them reference: <https://confluence.qps.nl/display/KBE/Storage+-+XTF>

As, from the exporter, you can choose what it can get to them.

You could alternatively ask them to give you the db/qpd's also; and you can work from there.

Let me know if you need additional information to convey to eTrac; please let me know that if they need to reach out they can!

Regards,
Deborah

Comment by Deborah Febres Urdaneta [QPS] [12/Apr/17]

Clint,

Apologies, I just missed extra information from Development, it is even more complex.

The XTF with the full raw data will likely not work either because it is dual head, and it seems that FMGT does not support that properly at the moment (for the data's configuration, not overall thought). Hence, your best workaround solution is to request the DB/QPD.

We are doing further investigations about this. As more information is available, we will let you know.

Regards,

Deborah

Generated at Tue Apr 18 19:20:35 CEST 2017 by Gene [NOAA] using JIRA 7.1.6#71010-sha1:428b2b30f0d03f9b8f93ae6d2da3161a73521453.

APPROVAL PAGE

H12942

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 NCEI for archive

- H12942_DR.pdf
- Collection of depth varied resolution BAGS
- Processed survey data and records
- H12942_GeoImage.pdf

The survey evaluation and verification has been conducted according current OCS Specifications, and the survey has been approved for dissemination and usage of updating NOAA's suite of nautical charts.

Approved: _____

Commander Briana Welton Hillstrom, NOAA
Chief, Atlantic Hydrographic Branch